
Final Program

The International Neuropsychological Society, Sociedad de Neuropsicología de Argentina, Joint Mid-Year Meeting

July 2-5, 2008

Buenos Aires, Argentina

WEDNESDAY, JULY 2, 2008

- 9:00 AM–12:00 PM** **Continuing Education Workshop 1: Evidence Based Strategies For Cognitive Remediation With Children**
Presenter: K. Kerns, Presenter: C. Mateer, Presenter: R. Vernescu
Room A
- 9:00 AM–12:00 PM** **Continuing Education Workshop 2: The Neuroscience Of Addiction: A Neuropsychological Approach To Understanding Decision-Making And Impulse Control And The Inability To Resist Drugs**
Presenter: A. Bechara
Room B
- 1:00–4:00 PM** **Continuing Education Workshop 3: Prefrontal Cortex Dysfunction In Developmental Neuropsychological Disorders: Relevance Of What We Know To What Can Be Done To Help The Children**
Presenter: A Diamond
Room A
- 1:00–4:00 PM** **Continuing Education Workshop 4: Evolving Concepts Of Cognitive Aging And Alzheimer's Disease**
Presenter: M. Albert
Room B
- 4:30–6:00 PM** **Symposium 1: Frontal Lobes: Emotion and Emotional Disorders. Diagnosis and Rehabilitation.**
Chair: Feggy Ostrosky-Solis
Room A
1. OSTROSKY-SOLIS, F Frontal Lobes: Emotion and Emotional Disorders. Diagnosis and Rehabilitation.
 2. CLARE, L Does executive function relate to emotional response and well-being in early-stage Alzheimer's disease?
 3. WILSON, B Compensatory strategies for cognitive, emotional and social problems following bilateral frontal lobe damage: a single case study.
 4. OSTROSKY-SOLÍS, F New perspectives on moral emotions: Electrophysiological and neuropsychological data in normals and criminal offenders.
 5. MATEER, C Strategies for integrating cognitive and emotional interventions.
 6. JUDD, T Emotional Rehabilitation in the Client's Social Context.
- 4:30–6:00 PM** **Paper Session 1: Psychopathology**
Room B
1. IBANEZ, A A new ERP endophenotype candidate: N400 deficits from semantic matching of pictures in probands and first degrees relatives from multiplex schizophrenia families.
 2. BERLIN, HA Neurocognition and Temperament in Borderline and Schizotypal Personality Disorder.
 3. ROGERS, K Cingulate Gyrus MRI volume in Borderline and Schizotypal Personality Disorder.
 4. MARTIN, M Neuropsychological Outcomes in Resistant Obsessive-Compulsive Disorder (OCD) Patients Treated with Psychosurgery.
 5. MCKAY, R Psychological Factors in Retrograde Amnesia: Self-deception and a Broken Heart.
 6. BUTTERS, MA Patterns Of Mild Cognitive Impairment Following Successful Treatment of Late-Life Depression.

4:30–6:00 PM**Symposium 2: Cognitive Disorders in Vascular's Patient. A multidisciplinary Approach****Chair: Augusto Vicario****Room C**

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| 1. VICARIO, A | “Cognitive Disorders in Vascular's Patient. A multidisciplinary Approach”. |
| 2. VICARIO, A | Hypertension, Memory and Frontal Lobe Vulnerability. |
| 3. SARASOLA, D | Vascular Depression. |
| 4. TARAGANO, F | Cognitive Decline and Vascular Dementia. |
| 5. CEREZO, C | Utility of the “Minimum Cognitive Examination” (MCE) at the Clinical-Cardiology Practice-Office. |

4:30–6:00 PM**Symposium 3: Alexia in Spanish-Speaking Readers: Cognitive Models and New Empirical Findings****Chair: Aldo Ferreres****Room D**

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| 1. FERRERES, AR | ALEXIA IN SPANISH-SPEAKING READERS: COGNITIVE MODELS AND NEW EMPIRICAL FINDINGS. |
| 2. RUIZ, A | DEEP DISLEXIA IN SPANISH SPEAKERS. |
| 3. DANSILIO, S | PERIPHERAL PROCESSING OF LETTERS AND GRAPHEMES IN SPANISH SPEAKING PEOPLE. |
| 4. FERRERES, AR | SURFACE ALEXIA IN SPANISH SPEAKERS. |
| 5. LÓPEZ, C | PHONOLOGICAL ALEXIA IN SPANISH SPEAKERS: A GENERAL PHONOLOGICAL DEFICIT? |

6:00–7:00 PM**Poster Session 1: Assessment, Psychometrics, Cognitive Neuroscience, Neuropsychological Education****Room E****Aging**

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| 1. HUA, M | The Relation of Theory of Mind to Executive and Social Intelligence in Normal Aging. |
| 2. O'CONNOR, DA | Automatic vs. strategic semantic processing in younger and older adults: an fMRI study. |
| 3. PERKINS, H | Mental Health Service for a Multicultural English-speaking Retirement Home in Argentina. |
| 4. SANDOVAL-OCAMPO, S | Executive Function in Normal Aging: A Neuropsychological Study. |

Animal Models

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| 5. ELGIER, AM | Interspecific Communication: the Object Choice Task as a Model for the Study of Cognitive Flexibility in Domestic Dogs. |
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Assessment/Psychometrics

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| 6. AGUILAR MEJÍA, OM | Comparative Study of Performance in the Mini Mental State Examination (MMSE) Among Institutionalized Elderly in Geriatric Homes in Bogota City and Elderly Colombians Who Are Not in Any Institution. |
| 7. BAUSELA, E | Neuropsychological Pattern of Patients with Acquired Brain Damage Using the Luria-DNA Battery. |
| 8. CAPOVILLA, AG | Validity of Neuropsychological Instruments for Attention Assessment in Brazilian Children. |
| 9. CAPOVILLA, AG | Neuropsychological Assessment of Oral Language in Brazilian Preschool Children. |
| 10. DONINGER, NA | Demographic and Neuropsychological Correlates of the Brixton Spatial Anticipation Test. |
| 11. HATTA, T | Validity examination of neuropsychological tests with NIRS (Near-Infrared Spectroscopy). |
| 12. IVERSON, GL | New Psychometric Criteria for DSM-IV Cognitive Disorder NOS. |
| 13. LACERDA, SS | Development of the Brazilian Version of Rey Auditory And Verbal Learning Test (RAVLT-BR). |
| 14. LACERDA, SS | Reliability of the Brazilian Version of Rey Auditory And Verbal Learning Test (RAVLT-BR). |
| 15. MARGULIS, LE | Test of Evocation and Recognition of Concrete and Abstract Nouns: Normative Study. |
| 16. MARTÍNEZ-CUITIÑO, MM | Pyramids and Palm Trees or Pyramids and Pharaohs? RTs Differences in a Spanish Semantic Battery. |
| 17. PETRAUSKAS, V | Item Level Analysis of WMS-III Digit Span Scores in a Heterogeneous Neuroscience Sample with Cross Validation in a Seizure Disorders Sample. |
| 18. SCHMIDT, VI | Psychometry Contribution for the Assessment of Impulsivity. Presentation of the Sensation Seeking Scale (SSS-V) Argentina Version. |
| 19. SIERRA, N | Addenbrooke's Cognitive Examination: a useful brief screening test for Mild Cognitive Impairment. |
| 20. TORRALVA, T | Spanish Validation of the Revised Addenbrooke's Cognitive Examination (ACE-R). |
| 21. VALLEJO, FA | The Effect of Neuropsychological Impairment on the Recount of Autobiographical Episodes in Older People. |

Child - Assessment

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| 22. GONSALEZ, SM | Tower of Hanoi - A Contribution for Normalization of the Task in Children from 9 to 13 years old. |
| 23. ISON, MS | Assessment of Attentional Efficiency: Preliminary Normative Study Carried out with Students in Mendoza. |
| 24. KIBRIK, L | Assessing Production And Comprehension Abilities In Children Narratives. |
| 25. NOGUEIRA, GJ | Clock Drawing Test in Children. Developmental evaluation. |
| 26. URZÚA, A | Madurez Neuropsicológica en preescolares: propiedades psicométricas del test CUMANIN. |

Child - Developmental Disorders

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| 27. LACEY, P | BRIEF PROTOCOL TO EVALUATE DIFFICULTIES IN THE DEVELOPMENT OF READING SKILLS. |
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Cognitive Neuroscience

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| 28. CUEVAS, M | Relation between mental processing and learning disorder in school aged children at high biological risk. |
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29. DOÑA, RD
Sexuality, Emotions, Coping Abilities, and Drug Abuse in Female Students.
30. GÓMEZ JARABO, G
DIFFERENTIAL PATTERN OF MEMORY DEFICITS IN HEALTHY AGING.
31. IBANEZ, A
N170 & LPP DISCRIMINATION OF FACIAL STIMULI AND VALENCE OF WORDS IN INDIGENOUS AND NON-INDIGENOUS PARTICIPANTS.
32. ITURRY, ML
Executive- Verbal Dissociation in Mild Cognitive Impairment.
33. MARTÍNEZ, J
Non-symbolic Arithmetic in Adults when Counting Strategies are Interfered.
34. MORALES, PB
Subjective Perception of Emotion, Coping Abilities, and Emotional Concern Facing Criticism in a Female Sample.
35. PASCUAL, MM
Differents Learnings Strategies in University Students.
36. ROLDAN GERSCHCOVICH, E
Decision-making and cognitive features of Parkinson's disease patients.
37. TÉLLEZ ALANÍS, B
Impulsivity and Decision Making in Healthy Adults.
38. VELAZQUEZ-MARTINEZ, DN
Mecanismos Conductuales de la percepción temporal en niños.
39. ZARABOZO, D
Abstract and Concrete Words During a Semantic Decision Task.
- Cross-Cultural Test Development**
40. MARQUEZ DE LA PLATA, CD
Clinical Utility of the Texas Naming Test in a Latin American Population.
41. OCAMPO, N
Differential Memory Evaluation in Bolivia: Acopio.
42. ZAPATA, M
Neuropsychological tests for the Colombian people.
- Electrophysiology/EEG/ERP**
43. APPENDINO, CA
DETECTION OF THE CHANGES CAUSED BY DIFFERENTS MUSICAL STIMULI IN A DIGITAL QUANTIFIED ELECTROENCEPHALOGRAM.
44. BRITO-NAVARRETE, D
ELECTROPHYSIOLOGY OF ART: AN EXPLORATORY STUDY WITH EVENT RELATED POTENTIALS.
45. PELLICER, O
Modification of the visual evoked response by geometric images in response to cold pressor test.
- Epidemiology**
46. ATALAIA-SILVA, KC
The Clock Test of Tuokko in Brazil: population norms and validation.
- Executive Abilities/Frontal System**
47. TORRALVA, T
INECO Frontal Screening: a brief tool to assess executive functions.
- Forensic Neuropsychology**
48. ARIAS, NA
Neuropsychology of violence and its classifications.
49. HERKOV, MJ
The Impact of Video Camera Observer Effects on Neuropsychological Test Performance.
50. LANGLEBEN, DD
The cognitive components of the fMRI pattern of deception.
51. MERCURIO, E
Neuroscience and law: a case of antisocial behaviour with frontal atrophy.
52. VILAR-LOPEZ, R
Is the Stroop Test Sensitive to Malingering?
- Imaging: Functional**
53. GRABOWSKA, AM
The effect of handedness on brain organization of motor control: an fMRI study.
54. JODZIO, K
Cerebral blood flow velocity changes during performance of prosody tasks: a functional Transcranial Doppler study.
55. SWEET, L
Effects of Nicotine on Working Memory and Associated Brain Activity.
- Learning Disabilities/ADHD**
56. CAPELATTO, IV
ASSESSMENT OF MEMORY AND ATTENTION OF CHILDREN WITH LEARNING DIFFICULTIES COMPLAINS.
57. FONSECA, LE
LEE Test de Lectura y Escritura en Español Su Capacidad Discriminante entre Lectores Medios y Malos Lectores Reading and writing processes assessment battery in Spanish. Discrimination between good and poor readers.
58. RUSSO, MM
Slower Performance of some Executive Tests in Adults with Attention-Deficit Hyperactivity Disorder (ADHD).
- Other**
59. CASTAÑO, J
The Training of Neuropsychologists.
60. CASTAÑO, J
A Model of Master in Neuropsychology.
61. ISAIA, M
Control of the Psychometric Properties of the Cognitive Evaluation Scale (CAS), in Samples in the City of Rio IV.
62. JAHANSHAHI, M
Motivation and Movement: The Effect of Monetary Incentive on Reaction Times UCL Institute of Neurology, Queen Square, London, UK.
63. MALBRÁN, MD
Therapeutic Patient Education.
- Sex Differences/Sex Hormones**
64. GOLLO, N
Gender Differences in Motor Imagery Using a Hand Laterality Judgement Test.

7:15–8:30 PM

Welcome Reception
Room AB

THURSDAY, JULY 3, 2008**8:30–10:00 AM****Symposium 4: MCI: The Memory Profile and a Sensitive Brief Screening****Chair: Natalia Sierra****Room A**

1. SIERRA, N
2. SIERRA, N
3. MATA LLANA, D
4. REYES, P
5. MONTAÑES, P

MCI: The Memory Profile and a Sensitive Brief Screening.
 Addenbrooke's Cognitive Examination: a Useful Brief Screening Test for Mild Cognitive Impairment.
 Memory Profile: Normal Aging and MCI.
 Memory Profile: MCI and Dementia of Alzheimer Type.
 Attentional deficit profiles through a memory task in a Colombian Memory Clinic.

8:30–10:00 AM**Symposium 5: Neuropsychology of Consciousness: The Case of Anosognosia****Chair: Juan Gómez****Room B**

1. GÓMEZ, JD
2. REYES, P
3. LEÓN, D
4. CASTRO, J

Neuropsychology of Consciousness: The Case of Anosognosia.
 Anosognosia, Dementia and Other Conscience Disturbances: Beyond Awareness.
 Affective Neuroscience: A Route for Understanding Consciousness.
 Neurodynamics of Consciousness: New Models and Application.

8:30–10:00 AM**Symposium 6: Recent Findings in Reading Acquisition in a Transparent Orthography****Chair: Ariel Cuadro****Room C**

1. CUADRO, A
2. TRIAS, D
3. MARIN, J
4. CUADRO, A

Recent Findings in Reading Acquisition in a Transparent Orthography.
 Training in Phonemic Awareness: a Longitudinal Study.
 ERP Correlates of Phonological Ambiguity in Spanish Orthography.
 Reading Disability Subtypes and Reading Experience.

8:30–10:00 AM**Symposium 7: Information Processing in Patients with Neurological Disease****Chair: Fernando Cáceres****Room D**

1. CÁCERES, FJ
2. KAMIENKOWSKI, J
3. VANOTTI, SI
4. YORIO, A

Information processing in patients with neurological disease.
 Different stages of information processing.
 Information processing and working memory deficits in patients with Multiple Sclerosis.
 Categorization in neurological patients.

10:30 AM–12:00 PM**Symposium 8: Frontal Lobe Function and Dysfunction****Chair: Facundo Manes****Room A**

1. MANES, F
2. KERTESZ, A
3. BECHARA, A
4. ROCA, M

Frontal Lobe Function and Dysfunction.
 The Frontal Behavioral Inventory.
 Emotion and the Frontal Lobes: The neuroscience of decision-making and implications for understanding the neural basis of willpower.
 An "Ecological" Battery to Detect Specific Executive Deficits in Patients with Early Behavioral Variant of Frontotemporal Dementia.

10:30 AM–12:00 PM**Symposium 9: Identity Loss and Change in the Face of Cognitive Impairment: A Social Identity Approach.****Chair: Catherine Haslam****Room B**

1. HASLAM, SA
2. WILLIAMS, WH
3. JETTEN, J
4. HASLAM, C
5. HASLAM, C

The Role of Social Identities in Determining Neuropsychological Outcomes and Adjustment.
 The Aftermath of Traumatic Brain Injury: The Impact of Identity Change on Well-being.
 Impairment of Autobiographical Memory and Identity Loss: Effects on Well-being.
 Personal Facts or Knowledge of Events: What Aspects of Autobiographical Memory Support the Self?
 Identity Loss and Change in the Face of Cognitive Impairment: A Social Identity Approach.

10:30 AM–12:00 PM

Symposium 10: Cognitive Disorders in Infantile Epilepsy

Chair: Nora Grañana

Room C

1. GRAÑANA, N
2. LASSONDE, M
3. SOPRANO, AM
4. LEVAV, M
5. FEJERMAN, N

Cognitive disorders in infantile epilepsy.
 Combined Near-Infrared Spectroscopy (NIRS) and Electrophysiology (EEG) in the Study of Language Lateralization and Epileptogenic Zone Localization in Epileptic Children.
 Relationship between IQ and Quality of Life in Children with Refractory Epilepsy.
 A Battery for Screening Children Affected with Epilepsy in Clinical Practice.
 Cognitive Impairment in Epileptic Encephalopathies.

10:30 AM–12:00 PM

Symposium 11: Executive Functions: Clinical and Normative Studies

Chair: Irani Argimon

Room D

1. ARGIMON, II
2. KRISTENSEN, CH
3. ARGIMON, IL
4. FONSECA, RP
5. DANIELA, SG

Executive Functions: Clinical and Normative Studies.
 Cognitive Functions and Posttraumatic Stress Symptoms in a Sample of College Students.
 Wisconsin Card Sorting Test in the Elderly.
 Neupsilin and executive functions tests: development and adaptation with healthy and clinical samples.
 Young and older adults' performance on the Iowa Gambling Task: preliminary normative data for a Southern Brazilian population.

12:00–1:30 PM

Poster Session 2: Child Neuropsychology, Developmental Disorders, Learning Disabilities, ADHD

Room E

Assessment/Psychometrics

1. ENUMO, SF
2. VIEIRA, RT

Linguistics and Cognitive Performance of Low Birth Weight Premature Brazilian Children at the Preschool Age.
 NEUROPSYCHOLOGICAL CONTRIBUTION TO ASPERGER DIAGNOSIS: A CASE REPORT.

Attention

3. CIASCA, SM
4. CIASCA, SM
5. CIASCA, SM
6. CIASCA, SM
7. MARQUES ABRAMIDES, DV
8. MORAES, C
9. RICHAUDEAU, A

Pharmacologic Treatment Algorithm of Attention Deficit/Hyperactivity Disorder.
 Cortical functions in Children with TDA/H: Language.
 Neuropsychological Findings in Attention Deficit Hyperactivity Disorder Subtypes.
 DYSLLEXIA AND ATTENTION/HYPERACTIVITY DEFICIT DISORDER.
 Visual and Auditory Attention in Children With Learning Disabilities.
 Symptoms of Attention Deficit Hyperactivity Disorder in patients in conflict with the law: parents' report.
 Neuropsychological profile in children with attentional disorders.

Child - Acquired Disorder: other

10. HAZIN, IA
11. LEVAV, M

Impact of radiotherapy treatment on intellectual level of children presenting acute lymphoblast leukemia diagnosis.
 It's Time to Review the Paradigm: Neuropsychological and Behavioral Profile of Children Affected with Cerebral Palsy.

12. SAMANO, LG
13. TAPIA YEO, ME

Neuropsychological Test of a child with a Craniopharyngioma.
 Neuropsychological assessment of a child with hydrocephalus ex vacuo of 14 years of evolution aftermath of congenital toxoplasmosis.

Child - Assessment

14. ABRAHAM, M
15. ARRUTI, SP
16. CAMARCO, AA
17. DE BORTOLI, MA
18. DE BORTOLI, MA
19. DIAS, TL
20. DOMENICONI, MC
21. GROSSI, MC
22. INJOQUE-RICLE, I
23. MADDIO, SL

An analysis of narrative skills in pre-school children: preliminary study.
 LEXICAL CATEGORIZATION ACQUISITION IN LANGUAGE DEVELOPMENT.
 MANDIBLE-TÊMPORO DYSFUNCTION: NEUROPSYCHOLOGICAL EVALUATION AND INTERVENTION FOR PATIENT PAIN CRÔNIC.

24. RIECHI, TI
25. RODRÍGUEZ, O
26. RODRIGUES, CL
27. SÁNCHEZ, FJ
28. SCANDAR, MG
29. VARGENS, F

Effect of a Psychoeducational Nutritional Intervention on mental processing in Children.
 Cognitive Evoked Potentials after a Psychoeducational Nutritional Intervention in Children.
 COGNITIVE ASSESSMENT TESTS ATTENDED IN BRAZILIAN CHILDREN WITH LEARNING DIFFICULTIES AND VISUAL DISABILITY.
 Conceptual Designation through Semantic Categories.
 Me, you, him: pronouns in the reference of the first person in children.
 Visuo-Spatial Working Memory Assessment in 6- and 8-Years Old Children.
 Solution Expectations and Behavior Planning at Interpersonal Problem Situations in Students with Attentional Dysfunction in Gran Mendoza - Argentina.
 Impact of Preterm Birth on the Neuropsychological Functions.
 Development of a Test for to Detect Dyslexia and other Reading Difficulties in Children from 6 to 10 Years.
 Cognitive profile of children with anxiety disorder treated with fluoxetine: a study of two cases.
 WORKING MEMORY AND CATEGORY LEARNING IN CHILDREN: EFFECTS OF DEVELOPMENT.
 Impact of Preschool Children's ADHD on Argentinean Family Life.
 An Exploratory Study about the Interrelationships between Language and Symbolization.

- Child - Developmental Disorders**
30. ALVAREZ, MC Integración de un Niño con Trastorno del Desarrollo no Específico en Escuela Común.
31. ARREBILLAGA, M EVOLUTIONARY UPHEAVAL OF LOBULO FRONTAL (TELF).
32. ARREBILLAGA, ME ELEMENTS FOR THE CLINICAL DIAGNOSTIC BETWEEN AUTISM AND MRELD.
33. BALBI, A Two clinical cases of children with arithmetic learning disability.
34. DIUK, B The Development of Reading Difficulties in Young Children from Different Socioeconomic Backgrounds.
35. GRANANA, N DAP test in autism spectrum disorders.
36. LAMÓNICA, DA DANDY-WALKER MALFORMATION IMPLICATIONS IN THE COMMUNICATIVE PERFORMANCE: A CASE REPORT.
37. LAMÓNICA, DA COMMUNICATIVE ABILITIES IN CHILDREN WITH CONGENITAL HYPOTHYROIDISM.
38. MATUTE, E The effect of chronic iron deficiency on neuropsychological measures in toddlers.
39. NAVEIRA, LM Language production in children. Appliances to neuropsychological difficulties.
40. ORTIZ LUNA, J TEST NEUROPSYCHOLOGICAL: IDENTIFICATION OF ADHD IN CHILDREN SCHOOL.
41. RIECHI, TI Impact of Preterm Birth and Low Birth Weight on the Neuropsychological Functions of Brazilian School-Age Children.
42. RODRIGUEZ, AM MUSICOTERAPIA Y NEUROHABILITACIÓN DE UN BEBE CON DAÑO CEREBRAL EN SUS PRIMEROS SEIS MESES DE VIDA.
43. SALGADO, CA Neuropsychological and Phonoaudiological Findings in Developmental Dyslexic Children's at the Hospital of Clinics – UNICAMP/Brazil.
44. SALGADO, CA The Relationship between rapid automatized naming Test and Stroop in Children with Dyslexic of Development.
45. SALGADO, CA Survey of depressive and manning symptoms in children with developmental dyslexia.
46. TABAQUIM, MM EFFECTS OF A PROGRAMME OF REMEDIATION NEUROPSYCHOLOGICAL A CHILD WITH DOWN SYNDROME.
47. TABAQUIM, MM CORNELIA DE LANGE SYNDROME: EVALUATION NEUROPSYCHOLOGICAL.
48. VERNESCU, RM Amblyopia-Like Visual Pathology in Children with Fetal Alcohol Spectrum Disorders.
- Cognitive Neuroscience**
49. CIASCA, SM SIMÃO ANP, CIASCA SM. Comparing the neuropsychological performance after a intervention procedure on children with ADHD.
50. DERUELLE, C HUMAN FACES DO HAVE SOMETHING SPECIAL: EVIDENCE FROM FACIAL EMOTION PROCESSING IN WILLIAMS SYNDROME.
51. TORRALVA, T A Holistic Comparison of Neuropsychological Functioning in Patients with ADHD and Bipolar Disorder.
- Electrophysiology/EEG/ERP**
52. ZARABOZO HURTADO, D Auditory Processing in Reading Disabled Children.
- Language: Aphasia**
53. REINOSO, MI "SOME PECULIARITIES OF APHASIC DISORDERS IN CHILDREN" (6 TO 12 YEARS OLD).
- Learning Disabilities/ADHD**
54. BRUNNEKREEF, A Is it the Inattention, Hyperactivity/Impulsivity or Combination of these Symptom Clusters that is associated with Cognitive Deficits in ADHD? The TRAILS Study.
55. CIASCA, SM THE NEUROPSYCHOLOGICAL AND NEUROIMAGING EVALUATIONS IN CHILDREN WITH DYSLEXIA.
56. CIASCA, SM Praxias and Gnosias.
57. CIASCA, SM THE BRAIN AND THE MATHEMATICS.
58. CRENITTE, PA DIFFERENTIAL DIAGNOSIS IN THE LEARNING DISORDERS: AN EVALUATION PROPOSAL.
59. FERREIRA, TD Comparisons and Evaluation of Memory Working Components for Visual and Verbal Material in Children with Attention Deficit and Hyperactive Disorder and With Learning Disability.
60. GERMANO, GD Effectness of a Remediation Programme Computerize in Students with Developmental Dyslexia.
61. GERMANO, GD Study of Auditory Skills and Neuroimaging in Students with Developmental Dyslexia.
62. LISCHINSKY, A Axis I Psychiatric Comorbidity in Adult Attention Deficit Hyperactivity Disorder (ADHD).
63. NICO, A Clinical Multidisciplinary Evaluation of patients examined in Brazilian Dyslexia Association - ABD-(Sao Paulo- Brazil-2007).
64. OLIVEIRA, MC Neurological Evaluation in Children with Attention Deficit Hyperactivity Disorder.
65. PINHEIRO, FH Assessment of Sequencial Auditive Memory and Neuroimaging Study in Students with Developmental Dyslexia.
66. PINHEIRO, FH Assessment of Students with Developmental Dyslexia in Phonemic and Syllabic Tasks.
67. SALGADO, C The neuropsychologia of the visual attention in children with developmental dyslexia.
68. SANTOS, G The Use of Artificial Neuronal Network in Diagnostic of ADHD Disorder and its Subtypes in Childern.
69. SILVA, C Cognitive-Linguistic Performance of First to Fourth Graders in Municipal Public Schools.
70. TABAQUIM, MM COGNITIVE-LINGUISTIC ABILITIES IN CHINDREN OF THE FUNDAMENTAL TEACHING: A NEUROPSYCHOLOGICAL STUDY.
71. URIBE, LH Social Competence in ADHD Children. Views from the Theory of Mind and Executive Functioning.
72. VICARI, S Visual, Spatial, Verbal Short and Long Term Memory Impairments in Developmental Dyslexia.
- Other**
73. FUMAGALLI, J The Role of Phonological Units during Reading Development.
74. SHANY UR, T Developmental Progression of Affective versus Cognitive Theory of Mind among Typically Developing Children.

2:00–3:30 PM**Symposium 12: Rehabilitation of Executive Functions****Chair: Teresa Torralva****Room A**

1. TORRALVA, T
2. MATEER, C
3. TORRALVA, T
4. WILSON, B

Rehabilitation of Executive Functions.
 Rehabilitation of Executive Functions.
 The Rehabilitation of Executive functions post Traumatic Brain Injury.
 Electronic Devices for Helping People with Executive Deficits.

2:00–3:30 PM**Symposium 13: The Boundary between Neuropsychology and Psychiatry****Chair: Carlos Mangone****Room B**

1. MANGONE, CA
2. MANGONE, CA
3. CETKOVICH, M
4. LISCHINSKY, A
5. TORRENTE, F

The Boundary between Neuropsychology and Psychiatry.
 Neuropsychological Manifestations in Vascular Cognitive Impairment.
 Cognitive Dysfunction in Schizophrenia.
 Neuropsychiatric and Neuropsychological manifestations of ADHD.
 Apathy in Psychiatric problems.

2:00–3:30 PM**Invited Symposium 1: Learning and Developmental Disabilities in Latin America: A Three Hand Approach****Chair: Jorge Eslava****Room C**

1. ESLAVA, J
2. ESLAVA, J
3. REIGOSA, V
4. BONILLA, M

Learning and Developmental Disabilities in Latin America: A Three Hand Approach.
 Epileptic Encephalopathy: Much more than Aphasia and Epilepsy.
 Developmental Dyscalculia: Prevalence, Cognitive Phenotype and Neural Bases.
 Neuropsychological Intervention in ADHD.

2:00–3:30 PM**Symposium 14: Neuropsychology of Memory. Theoretical-Clinical Perspectives****Chair: Edith Labos****Room D**

1. LABOS, E
2. MATA LLANA, D
3. DANSILIO, S
4. CARAMELLI, P
5. LABOS, E

Neuropsychology of Memory. Theoretical-Clinical Perspectives.
 Clusters of Memory profile as well as cognitive in patients with Frontal dementia and other variants involving frontal lobe degeneration : Primary progressive aphasia (PPA), and semantic dementia (SD) compared with Alzheimer's disease patients.
 DELAYED CONFABULATION IN A YOUNG AMNESIC PATIENT.
 A brief cognitive screening battery for the diagnosis of dementia in elderly with heterogeneous education.
 VERBAL EPISODIC MEMORY. Clinical predictor of Alzheimer's Disease.

3:45–5:00 PM**Symposium 15: Towards a Psychological and Neuropsychological Assessment Integration****Chair: Vanina Schmidt****Room A**

1. SCHMIDT, V
2. INJOQUE-RIGLE, I
3. WILSON, M
4. SCHMIDT, VI

Psychological Assessment Contribution to Neuropsychological Assessment. Still Something to Say.
 Psychological Assessment Contribution to the Validation of Verbal Working Memory Tests.
 Psychometric Properties of a Language Assessment Instrument in Spanish: the BEA Battery.
 Towards a Psychological and Neuropsychological Assessment Integration.

3:45–5:00 PM**Symposium 16: Role of Neuropsychologist in Neurosurgery: Surgery for Epilepsy, Surgery in Parkinson Disease and Surgery in Chronic Pain****Chair: Maria Cristina Pinto Dussan****Room B**

1. PINTO DUSSAN, M
2. OSCAR, A
3. RODRIGO, R
4. JUAN DANIEL, G

Role of neuropsychologist in Neurosurgery: surgery for epilepsy, surgery in Parkinson Disease and surgery in chronic pain.
 Role of the neuropsychologist in epilepsy surgery.
 Role of Neuropsychologist in Parkinson Surgery.
 Role of Neuropsychologist in chronic pain surgery.

3:45–5:00 PM**Poster Session 3: Language, Cognition, Perception
Room E**

- Attention**
1. FERNÁNDEZ GUINEA, S Information recuperation strategies in mild Alzheimer's disease: evidence from a random number generation task.
 2. KOUSHIOU, MI Object And Gist Perception in a Dual Task Paradigm: Is Attention Important?
 3. MIMURA, M Detecting Risk of Drivers with Brain Damage Using a Functional Visual Field Device.
 4. MOES, E Relationship between Mindfulness and Resistance to Distraction on Simon tasks.
 5. URQUILJO, S ATTENTION AND READING ACQUISITION. VARIATIONS ACCORDING TO THE AGE AND SOCIOECONOMIC LEVEL.
- Epilepsy**
6. SOLIS, P "Naming Task in temporal lobe epilepsy patients. Modularity and Plasticity".
- Executive Abilities/Frontal System**
7. FROUFE, M EXECUTIVE (dys)FUNCTION AND AGE: STRATEGIC PERFORMANCE BASED ON EXPECTATIONS.
 8. MARTINEZ, V Wisconsin Card Sorting Test: Performance of Adolescents with Different Patterns of Alcohol Consumption.
 9. MCCONNELL, E Understanding Executive Functioning in Female Adolescents Using the BRIEF.
 10. MCCONNELL, E How do Students who Demonstrate Emotional Disabilities Compare to Children who are Normal on the NEPSY: A Developmental Neuropsychological Assessment.
 11. MCCONNELL, E Evaluating the Executive Functions of Children who have Experienced a Trauma using Selected Subtests from the Delis Kaplan Executive Function System.
 12. MOREIRA, CF Controlled study about Decision-making between children with bipolar disorder (BD) and Attention Deficit Hyperactivity Disorder (ADHD).
 13. PLUCK, G Apathy and Executive, but Not Disinhibition Behavioral Traits are Raised in Polysubstance Abusers.
 14. PUERTA, IC FACTOR STRUCTURE OF THE EXECUTIVE BEHAVIOR.
 15. RAMÍREZ, M Long term cognitive sequelae in traumatic brain injury: A study on Executive Functions.
 16. RAMOS CUEVAS, R Exploring the Interrelation of Executive Functions during Child Development.
 17. ROCCA, C Verbal fluency dysfunction in euthymic bipolar patients: A controlled study.
 18. ROJAS, S The Neuropsychological Assessment of a Child with Prefrontal Lobes Agenesis.
 19. SALGADO, CA Executive Functions in students with developmental dyslexia.
 20. SLACHEVSKY CHONCHOL, A Ecological Evaluation of Planning: Development of a Virtual Version of the Multiple Errands Test: Preliminary results.
 21. ZAPATA, ME Executive function and executive behavior in offender conduct disorder adolescents.
- Language: Aphasia**
22. BARTOLONI, LC Rapidly Progressive Aphasia: A Clinical, Radiological, and Pathological Study.
 23. EZEIZABARRENA, M Phonological Paraphasias of a Bilingual.
 24. JACUBOVICH, S COGNITIVE NEUROPSYCHOLOGY AND REHABILITATION: A CASE OF ANOMIA.
 25. MARCOTTE, K Neural Correlates of Semantic Feature Analysis in an Hispanic Broca's Aphasia Patient.
 26. MARCOTTE, K Brain plasticity in a Primary Progressive Aphasia patient: Neural Correlates Associated with Improved Naming Abilities.
 27. ORTUÑO, BG Activities for language rehabilitation.
 28. PÁEZ, JP Aphasias in Spanish Speakers.
 29. SASSON, YD Dissociation Between Direct Cortical Stimulation and Postsurgical Language Deficit in a Patient with a Left Premotor-Prefrontal Tumor.
 30. SERRANO, CM A clinical scale for the staging of Primary progressive aphasia (PPA).
 31. SERRANO, CM Neuropsychiatric Symptoms in Primary Progressive Aphasia.
 32. SERRANO, CM Depression in Primary Progressive Aphasia.
 33. SEVILLA, Y Sentence Repetition Therapy. A Case Exploring the Relationship between Working Memory and Sentence Comprehension.
- Language: Other (e.g., Naming, Fluency, Reading)**
34. CUNHA, VO Performance of Students from 1st to 4th Grades of the Elementary Level in Metalinguistic and Reading Skills.
 35. CUNHA, VO Analysis of the Mistake in the Proof of Scholars' Reading from 1st to 4th Grades of Public Teaching.
 36. DÍAZ, MI Interdisciplinary Treatment of Stuttering.
 37. GÓMEZ VELÁZQUEZ, FR Working Memory, Phonological Awareness and Naming Speed in Children with Mathematics and Reading Disabilities.
 38. GONZÁLEZ GARRIDO, AA Naming Speed & Attention Tasks.
 39. LACERDA, MC COMPARATIVE PROFILE OF LANGUAGE DISORDERS BETWEEN SUBCORTICAL DEMENTIA OF GRAY AND WHITE MATTER.
 40. MANOILOFF, LM Norms Psycholinguistic for a Set of 400 Experimental Pictures for Spanish-Speaking Local Population.
 41. MARTÍNEZ-CUITIÑO, MM Cumulative Semantic Inhibition in Picture Naming: Experimental Data in Spanish.
 42. OLMEDO, A Spanish word spelling to dictation and its irregularities: More than one task to evidence Surface Acquired Dysgraphia.
 43. PÁEZ, JP Neurocognitive Factors Presents in the Learning of the Reading in Spanish Language.
 44. SANGUINETTI, A Remediation' stages in dyslexia: a neuropsychological model.
 45. VILLAR, AC Agrammatism and functions words: cohesion and coherence.

46. WASSERMAN, T The Effects of Simultaneous Bilingual Language Development on Verbal Cognition and Academic Skill Development.
47. ZANÍN, LA Verbal Test and Academic Performance in Argentine Students.
48. ZILLOTTO, AM PRECISE TOOLS IN THE DIAGNOSIS AND MEASUREMENT OF THE LEVEL OF DYSGRAPHIA.
- Memory**
49. ABREU, N ADHD Subtypes Impairs Long Term Memory.
50. ANDELMAN, F RAVLT as an Instrument in Differential Diagnosis of MCI.
51. BENASSI-WERKE, ME Working Memory for Tones, Words and Pseudowords in Amateurs and Professional Singers and Absolute Pitch Musicians.
52. FROW, EC The Emotional Content of Autobiographical Memories in Patients with Frontal Lobe Lesions.
53. GRASSI-OLIVEIRA, R Decreased False Recognition Due to Gist Memory Impairment in Depressed Women with Childhood Emotional Neglect.
54. GRECO, C Contents of Memories in the Interpersonal Problem-Solving Process in Argentinean Students.
55. LABOS, E Text Recall Test. Spanish language version and normative data.
56. LABOS, E Software for Evaluation of Episodic Memory.
57. NASSIF, SL Verbal memory in chronic cocaine users.
58. PAIS, J Memory Functioning in Old Adults with Depressive Symptoms: the Value of the Position Test.
59. SASSON, YD Verbal Memory Profile in Patients With Mild Cognitive Impairment, Alzheimer's Disease And Normal Aging.
- Visuospatial Abilities**
60. KAPLOUN, KA Handedness and Mental Rotation.

5:15–6:15 PM

Invited Plenary: Risk, Resilience and Functional Adaptation in Bipolar Disorder
Speaker: Sophia Frangou
Room CD

6:15–7:15 PM

Presidential Address: Dyslexia: Intervention Response and the Brain
INS President: Jack Fletcher
Room CD

7:15–8:00 PM

INS Business Meeting
Room CD

FRIDAY, JULY 4, 2008

8:30–10:00 AM

Symposium 17: Cognitive Impairment and Functional Outcome in Bipolar Disorders: The Challenge of Heterogeneity
Chair: Sergio Strejilevich
Room A

1. STREJILEVICH, S Cognitive impairment and functional outcome in bipolar disorders: the challenge of heterogeneity.
2. LOPEZ JARAMILLO, C Influence of Recurrency in Cognitive Performance in Patients with Bipolar I Disorder.
3. MARTINO, D Cognitive Heterogeneity and Functional Outcome in Bipolar Disorder.
4. FRANGOU, S The Maudsley Bipolar Disorder Project: Executive Dysfunction in Bipolar Disorder I and its Clinical Correlates.

8:30–10:00 AM

Paper Session 2: Research and Treatment of Executive Functions
Room B

1. TÉLLEZ ALANÍS, B Interrelations of the Executive Functions: Differences between Young and Elderly Adults.
2. TURNER, M Confabulation, Reality Monitoring and the Inferior Medial PFC: Converging Evidence from Lesion and Functional Imaging Studies.
3. VERDEJO-GARCÍA, AJ Executive functions in youths with obesity.
4. DOUGLAS, J Social Communication following Severe Traumatic Brain Injury: The Role of Executive Function.
5. MIOTTO, EC Neuropsychological Rehabilitation and Longer Term Follow Up in Patients with Executive Dysfunction.
6. CUOMO, ML Ecological Program for Rehabilitation of Executive Functions.

8:30–10:00 AM

Symposium 18: Difficulties in the Access to the Linguistic Processor System among Different Children Populations.
Chair: Héctor Waisburg
Room C

1. WAISBURG, HA DIFFICULTIES IN THE ACCESS TO THE LINGUISTIC PROCESSOR SYSTEM AMONG DIFFERENT CHILDREN POPULATIONS.

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| 2. | BOULLON, M | Difficulties in the Access to the Linguistic Processor System among Different Children Populations-Neurofibromatosis. |
| 3. | PICCINI, V | Difficulties in the Access to the Linguistic Processor System among Different Children Populations.PWS. |
| 4. | MAIOCCHI, A | Difficulties in the Access to the Linguistic Processor System among Different Children Populations.PDD. |
| 5. | MAGGIO, MV | Difficulties in the Access to the Linguistic Processor System among Different Children Populations.SLI. |

8:30–10:00 AM**Paper Session 3: Adults: Cognitive Disturbances in TBI, Epilepsy, ADHD & Chronic Pain****Room D**

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| 1. | PEREIRA, AA | Prospective Memory after Traumatic Brain Injury: Error Type and Its Implications for Rehabilitation. |
| 2. | RAMÍREZ, M | NEUROPSYCHOLOGICAL FUNCTIONING AFTER 36 MONTHS FOLLOWING TRAUMATIC BRAIN INJURY. |
| 3. | MCGIBBON, TI | Say it Again? The Importance of Repeated Recall for Ensuring Consolidation in ‘Long-term Amnesia’ (LTA). |
| 4. | HIRVIKOSKI, T | Deficient Cardiovascular Stress Reactivity Is Associated with Poorer Cognitive Performance in Adults With ADHD. |
| 5. | MONTROYA, P | Chronic pain impairs decision-making on the Iowa Gambling Task. |
| 6. | HALL, KE | Using Illness Representations to Understand the Nature of Memory Complaints in Epilepsy. |

10:30 AM–12:00 PM**Symposium 19: For Better or Worse: Memory Changes Across the Lifespan****Chair: Barbara Wilson****Room A**

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| 1. | WILSON, BA | For Better or Worse: Memory Changes Across the Lifespan. |
| 2. | WILSON, BA | Recovery of Memory Functioning. |
| 3. | VARGHA-KHADEM, F | Onset of Developmental Amnesia at Age 12 Following Acute Hypoxia/Ischaemia and Status Epilepticus. |
| 4. | KOPELMAN, M | Long-term outcome in herpes encephalitis amnesia. |
| 5. | CLARE, L | Differences in Brain Activation During Associative Learning in People with Alzheimer’s Disease and Older Controls. |
| 6. | GLISKY, EL | Longitudinal Changes in Memory and Executive Function in Normal Aging. |

10:30 AM–12:00 PM**Paper Session 4: Assessment****Room B**

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| 1. | AMBRON, E | Exploring an Attraction Account of Closing-in Behaviour. |
| 2. | SOO, C | Reliability and validity of the Care and Needs Scale (CANS) for assessing support needs following traumatic brain injury. |
| 3. | LABOS, E | ASSESSMENT PROTOCOL OF HUMOR COMPETENCE. |
| 4. | ARANGO-LASPRILLA, J | Utility of the Texas Naming Test to Discriminate Demented and Nondemented Spanish-speakers. |
| 5. | ARMENGOL, C | Spanish Adaptation of the D-KEFS Card Sorting Test – Mexican Norms. |
| 6. | JUDD, T | Beyond Bilingual Aphasia: Adaptive Behavior in Bilingual Assessment. |

10:30 AM–12:00 PM**Symposium 20: Reading Development and Reading Disabilities: Neuropsychological Processes and Intervention Studies****Chair: Virginia Jaichenco****Room C**

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| 1. | JAICHENCO, V | Reading Development and Reading Disabilities: Neuropsychological Processes and Intervention Studies. |
| 2. | BURANI, C | Morpho-lexical reading in dyslexic and skilled readers of a transparent orthography (Italian). |
| 3. | MORRIS, RD | Outcome Studies for Multi-component Reading Interventions for Dyslexia. |
| 4. | FLETCHER, J | Multi-Tiered Reading Intervention: Preventing Reading Disabilities. |
| 5. | FRANCIS, DJ | The Development of Language and Literacy in Spanish-speaking Children. |

10:30 AM–12:00 PM**Symposium 21: Neuroscience of Impulsivity: Neuropsychological, Personality, Neuroimaging and Molecular Approaches of Impulsive Behavior****Chair: Daniel Fuentes****Room D**

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| 1. | FUENTES, D | Neuroscience of Impulsivity: neuropsychological, personality, neuroimaging and molecular approaches of impulsive behavior. |
| 2. | FUENTES, D | Mapping brain structure and personality traits in pathological gamblers. |
| 3. | MALLOY-DINIZ, L | Impulsivity in adults with attention deficit/hyperactivity disorder. |
| 4. | CORREA, H | Suicide and Impulsivity. |
| 5. | ROCCA, C | Neuropsychological impairments in children with Attention Deficit Hyperactivity Disorder (ADHD) and Bipolar Disorder. |
| 6. | FUENTES, D | Mapping brain structure and personality traits in pathological gamblers. |

12:00–1:30 PM**Poster Session 4: Aging, Dementia, Psychopathology, Emotions
Room E**

- Aging**
Cognition as part of the psychological health in assessing the quality of life in a sample of retirees and pensioners of the UADY and ISSSTEY.
1. ESTRELLA, DF
 2. FELDBERG, C
 3. VILLAVICENCIO, A
- Assessment/Psychometrics**
INTEGRAL NEUROPSYCHOLOGIC BATTERY FOR THE DETECTION OF THE EARLY ALZHEIMER DISEASE (BINAM - EAP).
- Behavioral Neurology**
Relationships Between Asymmetry Of Motor Symptoms And Cognitive Performance in Parkinson's disease. Retrospective Study Of 27 Patients.
Executive Dysfunction in Subtypes of Geriatric Depression (Major depression, Dysthymia, Mood Disorder Unspecified).
Geriatric Depression in a Memory Laboratory Unit.
Alterations of impulse control in patients receiving antiparkinsonian agents.
- Cognitive Neuroscience**
Evaluation of executive functions in women with borderline personality disorder (BPD).
Gesture Integration and Meaning Construction During Natural Speech in Mild Cognitive Impairment and Alzheimer Patients: an ERP study.
Information Processing in Multiple Sclerosis Patients.
Cognitive Profile of Bipolar Patients Treated with Memantine: a Description of Three Cases.
Role of executive attention and strategic self-regulation in first episode of schizophrenia.
- Dementia Alzheimer's Disease**
The Role of Surface Information and Colour on Picture Naming in Alzheimer's Disease.
Functional disability in Alzheimer's disease : a validation study of the Brazilian version of the Disability Assessment for Dementia (DAD).
Neuropsychology of the Self: Insight Deficits (Anosognosia) in Frontotemporal Dementia and Alzheimer's Disease.
Long-term Cognitive Treatment of Alzheimer's Disease: A Single Case Study.
VERBAL WORKING MEMORY MEASURES AND SENTENCE COMPREHENSION IN ELDERLY PEOPLE AND ALZHEIMER'S DISEASE PATIENTS.
ERPs and MRI study in early stage of Alzheimer's Disease.
SPECIFIC VISUAL DEFICITS IN MILD COGNITIVE IMPAIRMENT AND ALZHEIMER'S DISEASE.
Differential Diagnosis Between Depression and Very Mild Cognitive Impairment.Effortful vs Automatic Memory Process.
Minimizing misdiagnosis: Evaluating new psychometric criteria for memory impairment using the WMS-III with patients with known dementia.
Provoked Confabulations in Mild Alzheimer's Dementia.
Self- and Other-Person Knowledge in Alzheimer's Disease and Mild Cognitive Impairment.
Symptoms behaviour early in Alzheimer dementia.
TEXTUAL READING COMPREHENSION AND LEXICAL PRODUCTION IN ALZHEIMER DISEASE PATIENTS.
Cross-cultural effects on action naming in French and Brazilian Portuguese native speakers Alzheimer's disease patients.
HETEROGENETY CLINIC OF DEMENCIA AND APRAXIA SEVERETY IN ALZHEIMER DISEASE PATIENTS.
Association between Memantine and Galantamine as a treatment of addition for Alzheimer's disease.
- Dementia Subcortical (e.g., Huntington's, Parkinson's, PSP)**
Working Memory and subjective memory complaints in a sample of individuals with PD and their caregivers.
Screening of Cognitive Skills in Young People With Parkinsonism.
Vision and gait: Self-report versus performance in Parkinson's disease.
LANGUAGE ABNORMALITIES IN HUNTINGTON'S DISEASE.
Prospective Memory in Parkinson's Disease: An Evaluation with the Memory for Intentions Screening Test (MIST).
- Dementia: other (e.g., Semantic Dementia, FTD, VaD)**
Neuropsychological and Behavioral Aspects of White Matter Dementia.
Analysis of Oral and Written Discourse in Patients with Frontotemporal Lobar Degeneration.
"I (don't) now how you feel": Empathy in Frontotemporal Dementia and Alzheimer's Disease.
Emergence of geometrical ability in a case of frontotemporal lobar degeneration (FTLD).
Mirror neurons systems in frontotmporal dementia.
4. SCHWARTZ BARUJ, CV
 5. ABEL, CG
 6. DILLON, C
 7. DILLON, C
 8. KOSMA, K
 9. CERVANTES, JJ
 10. IBANEZ, A
 11. KAMIENKOWSKI, J
 12. OKAJIMA, S
 13. SLACHEVSKY, A
 14. ADLINGTON, RL
 15. BAHIA, VS
 16. CAIXETA, M
 17. FERNÁNDEZ, AL
 18. FERNÁNDEZ GUINEA, S
 19. FERNÁNDEZ-GARCÍA, Y
 20. FIGUEIREDO, P
 21. GRILLO, RL
 22. IVERSON, GL
 23. LLORENTE, A
 24. MARQUINE, MJ
 25. PUERTA, IC
 26. RINALDI, J
 27. RODRIGUES, JC
 28. RUBINSTEIN, WY
 29. ZARRA, JC
 30. ALLEN, JB
 31. CASAS, LM
 32. MOES, E
 33. SOARES, C
 34. TROSTER, AI
 35. CAIXETA, L
 36. CARVALHO, IA
 37. FERNANDEZ-DUQUE, D
 38. MIDORIKAWA, A
 39. POLITIS, D

40. VIGLIECCA, NS PATIENTS WITH OR WITHOUT BRAIN ISCHEMIC LESIONS: A MULTIVARIATE AND MULTIFACTOR DEMENTIA APPROACH.
41. HERRERO, D
42. INTROZZI, I
43. KURLAT, V
44. ROJAS, G
45. CLARK, U
46. EDGINTON, T
47. JUSTO, MG
48. MARTINS, A
49. RAMPONI, C
50. ROCA, M
51. BALDIVIA, B
52. CHIU, C
53. SÁNCHEZ, FJ
54. FARIÁS SARQUÍS, Y
55. ROCA, M
56. ROJAS, G
57. TOWGOOD, K
58. GLEICHGERRCHT, E
59. GLEICHGERRCHT, E
60. LUQUE, M
61. MARTINO, DJ
62. MARTINO, DJ
63. PERRY, W
64. ROSSINI, D
65. ROSSINI, D
66. SOARES, VD
67. YATES, D
68. D'ALCANTE, CC
69. D'ALCANTE, CC
70. FERNÁNDEZ GUINEA, S
71. ISAAC, C
72. MALTA, SM
73. TAUB, A
74. BUTTERS, MA
75. KOSMA, K
76. LEE, J
77. MORAES, C
78. RUIZ-RIZZO, AL
79. CAPOVILLA, AG
80. DE ACHÁVAL, D
- PATIENTS WITH OR WITHOUT BRAIN ISCHEMIC LESIONS: A MULTIVARIATE AND MULTIFACTOR DEMENTIA APPROACH.
- Demyelinating Disease/ Multiple Sclerosis/ALS**
Information Processing in Multiple Sclerosis (MS): Comparison of Latency of Response with Healthy People.
Analysis of the use of internal organization strategies in patients with multiple sclerosis.
Effects of Clatiramer Acetate Therapy on Attention and Memory in Relapsing Remitting Multiple Sclerosis Patients.
Attention Deficits in Relapsing Remitting Multiple Sclerosis.
- Emotion**
Impairments in Facial Emotion Recognition are Associated with Increased Interpersonal Problems in Parkinson's Disease.
The Functional Dissociations Between Immediate and Delayed Emotional Memory Processing Following Right Temporal Lobe Damage.
Age Differences in Social Emotions Recognition.
Gender Effect in Basic and Social Emotion Recognition.
An Investigation of Mood Effects and Valence Effects on Conceptual Implicit Memory.
Emotion Recognition in Early Parkinson Disease.
- Normal Aging**
The Contribution of Complexity of Work on Cognitive Functioning of Healthy Elderly and the Relationship with Cognitive Reserve Concept.
Episodic Memory Feeling-of-Knowing in Normal Elderly Individuals.
NORMAL AGING EFFECTS ON CATEGORY LEARNING.
- Other**
Prevalence of Subtypes of Mild Cognitive Impairment.
Pathological Gambling During Manic Episodes in Bipolar Disorder.
SUBGROUPS OF PATIENTS WITH LOGICAL MEMORY DEFICIT IN PATIENTS WITH MILD COGNITIVE IMPAIRMENT.
Single Case Series Study of Neuropsychological Function in Adults with Autism Spectrum Disorder.
- Psychopathology/Neuropsychiatry/Other**
Decision-making in Bipolar Disorder and Schizophrenia: a Comparative Approach.
A Life with ADHD: Neuropsychological Profile of Elderly Patients with Attention Deficit Hyperactivity Disorder.
Decision-making functioning and personality in eating disorder patients.
Neurocognitive and Clinical Predictors of Long-Term Outcome in Bipolar Disorder.
Social Cognition and Decision Making in Euthymic Bipolar I and II Disorders.
Inhibitory Deficits, Executive Dysfunction and COMT in Patients with Bipolar Mania.
A comparison of process related to attentional and executive functions in pathological gamblers before and after therapeutic intervention.
Pilot study about decision-making assessment between patients with bipolar disorders and pathological gambling.
HERPATIC ENCEPHALITIS: COGNITIVE, BEHAVIORAL and NEUROIMAGING CHARACTERIZATION.
Cognitive Abilities and Clinical Variables in Bipolar I Patients and Healthy Controls.
- Psychopathology: Anxiety/Stress**
Neuropsychological performance of treatment naïve OCD patients.
Does the Verbal IQ good matching criteria for OCD? : Neuropsychological findings on treatment naïve patients.
ATTENTION AND WORKING MEMORY ALTERATIONS IN ANXIETY DISORDERS: POSTTRAUMATIC STRESS AND PANIC DISORDERS.
Forgetting of Emotional and Non-Emotional Words in Posttraumatic Stress Disorder (PTSD).
Learning and executive functions associated with reduced hippocampal volume in PTSD.
Impact of Ventral Capsular - Ventral Striatal Gamma Capsulotomy on Cognitive Functions of Patients with Refractory OCD One Year After the Procedure.
- Psychopathology: Depression**
The Association Between Middle Cingulate Gyrus Volume And Cognitive Function In Late-Life Depression.
Depression presenting with memory complaints in the elderly and its diagnostic approach in Primary Care Settings.
An Investigation of Age Differences on Neuropsychological Performance in Individuals with Bipolar Disorder.
Emotional symptoms in patients in conflict with the law.
Attention and Executive Function in subjects with Major Depression.
- Psychopathology: Schizophrenia**
Working Memory Assessment in Schizophrenic Patients and Their First-Degree Relatives.
Performance in Tests of Facial Emotion Recognition and Theory of Mind in Proband with Schizophrenia and their Unaffected First-Degree Relatives.

81. GALAVERNA, FS Organization of the semantic memory in schizophrenic patients to compare it with a group of normal subjects using verbal and category fluency tests.
82. MALTA, SM Executive functioning in first and multiple episode schizophrenia patients: associations with clinical variables.
83. PEÑA, J The moderating role of Cognition in Chronic Patients with Schizophrenia.
- Psychopharmacology**
84. CREAN, RD Gabapentin Effects on Executive Functions in Treatment Seeking Cannabis Dependent Subjects.
85. ZANINOTTO, A Nootropic Effects of Acute Oral Donepezil in Healthy Volunteers.

2:00–3:30 PM**Invited Symposium 2: Are We Actually Close to an Accurate Detection of a Pre-Dementia Stage?****Chair: Mariel Pellegrini****Room A**

1. PELLEGRINI, M Are We Actually Close to an Accurate Detection of a Pre-Dementia Stage?
2. ALLEGRI, R Mild Cognitive Impairment: Believe It or not?
3. PELLEGRINI, M Early Detection of Dementia. From Neuropsychological Research to Clinical Practice.
4. MANES, F Accelerated Forgetting in Subjects with Memory Complaints: A New Form of Mild Cognitive Impairment?

2:00–3:30 PM**Paper Session 5: Language, Aphasia, Reading Disorders****Room B**

1. COLOMBO, L Phonological and Working Memory Effects on Written Spelling of Italian Adults with Developmental Reading Deficits.
2. MARTÍNEZ-CUITIÑO, MM Lexical Reading without Semantics: Central Surface Alexia in Spanish.
3. WOOD, RM Explicit Processing of Nonwords in Two Patients with Deep Dyslexia.
4. SERRANO, F Word spelling in Spanish dyslexia: The effect of the type of item.
5. CARLOMAGNO, S Evaluating Aphasic Discourse by Referential Communication Task.
6. JACUBOVICH, S ACALCULIA: ZERO IN TRANSCODIFICATION TASKS.

2:00–3:30 PM**Symposium 22: Behavioral Intervention in Children with Autism Spectrum Disorders****Chair: Nora Grañana****Room C**

1. GRAÑANA, N Behavioral Intervention in Children with Autism Spectrum Disorders.
2. VERNESCU, R Program Development for Children with Autism and Related Disorders.
3. GARCIA COTO, MA Role of Neuropsychological Assessment in the Design of an Intervention Program for Autism Spectrum Disorders.
4. AGOST CARREÑO, M Educational and Therapeutic Program for Children with Autism Spectrum Disorders.

2:00–3:30 PM**Symposium 23: Neuropsychological Aspects of Multiple Sclerosis in Children and Adults****Chair: Marina Drake****Room D**

1. DRAKE, M Neuropsychological Aspects of Multiple Sclerosis in Children and Adults.
2. VANOTTI, S Cognitive Impairment in the Early Phase of Multiple Sclerosis.
3. RAO, S Neuroimaging and Cognition in Multiple Sclerosis.
4. DRAKE, M Treatment with Disease Modifying Agents. Its Effects on Cognition.
5. TENENBAUM, S Neuropsychological Impact of Multiple Sclerosis in Pediatric Patients.

3:45–5:00 PM**Symposium 24: Neuropsychological Assessment: an Ecological View of Classic Tests****Chair: Silvia Figiacone****Room A**

1. FIGIACONE, SR Neuropsychological Assessment: an Ecological View of Classic Tests.
2. GUNTIN, C An Ecological Look on the Wisconsin Card Sorting Test.
3. ALTAMIRANO, MP Wechsler Intelligence Tests: an Ecological Interpretation.
4. FIGIACONE, SR Ecological Scopes of Rey Osterrieth Complex Figure.

3:45–5:00 PM

Symposium 25: Neuropsychological Assessment Contribution to Decision Making in Epilepsy Surgery
Chair: Patricia Solis
Room B

1. SOLIS, P NEUROPSYCHOLOGICAL ASSESSMENT CONTRIBUTION TO DECISION MAKING IN EPILEPSY SURGERY.
2. LOMLODJIAN, C Neuropsychological Evaluation Protocol in Epileptic Patients Candidates to Surgery.
3. SOLIS, P Functional Magnetic Resonance Image and Wada Test. Paradigms of Evaluation in Language and Memory.
4. ODDO, S Clinical Applications and Case Presentations.

3:45–5:00 PM

Poster Session 5: Rehabilitation, Medical Disorders, TBI, Stroke
Room E

Aneurysms

1. ANDREOTTI, DV Cognitive deficits after ruptured Anterior Communicating Artery Aneurysms. D. Andreotti, H. Fontana, C. Múnera, H. Belziti. Hospital Central de San Isidro. Servicio de Neurocirugía Provincia de Buenos Aires, Argentina.

Autoimmune Disorders (e.g., CFS, Lupus, fibromyalgia)

2. CERVERA SILVA, H DETECTION OF NEUROPSYCHIATRIC AND COGNITIVE DISORDERS IN SYSTEMIC LUPUS ERYTHEMATOSUS PATIENTS AT A MEXICAN HOSPITAL.
3. LOPEZ, SS Neuropsychiatry in Systemic Lupus Erythematosus (SLE). Preliminary Report.

Behavioral Neurology

4. ABEL, CG Cognitive Disturbance In Amyotrophic Lateral Sclerosis: Retrospective Study Of 51 Patients.
5. ABEL, CG Decision Making Ability and Social Cognition: A role of the Cerebellum? An Assessment of Patients with Basal Ganglia and Cerebellar Subcortical Degenerative Diseases.

Child - Acquired Disorder: TBI

6. ABEL, CG Dissociation Between Executive Function And Social Cognition In Patients With Early Parkinson's Disease.

Cognitive Intervention/Rehabilitation

7. DORREGO, MF Evidence that Song Facilitates Memory in an Amnesic Patient.
8. ESCALANTE, NV Multi - Stimulation Cognitive Program.
9. LACERDA, SS Neuropsychological Rehabilitation after Severe TBI from Acute to Chronic Stages: Case Report.
10. LEVÍN, M Paper: Offer of Intervention in children with cognitive deficient functions from the model of Mediated Learning Experience (MLE).
11. MOOS, S Results of a Cognitive Stimulation Program in Healthy Adults.
12. PÖSSEL, L The Psychological Effects of a Computerized Cognitive Rehabilitation Program on Patients With Neurocognitive Disorders.
13. PEÑA, G Intensive cognitive neurorehabilitation program improved the functional outcome of patient with ischemic and hemorrhagic cerebral vascular accident (CVA).
14. PORTA, ME The Effects of a Phonological Awareness Training Program on Attention Efficiency in Children Growing Up in At-Risk Conditions of Social Vulnerability.
15. SANTOS, TB Neuropsychological Rehabilitation Pos Status Epilepticus: a Case Report.
16. TOLEDO, A Assesment of the efficacy of a Cognitive Stimulation Treatment in Children with ADHD between 9 and 14 years old.
17. VALADEZ SIERRA, M JUVEPICE program as a tool for psychoeducational intervention in children with ADHD.
18. VANOTTI, S Battery for the evaluation of neurological patients and their caregivers in cognitive stimulation/rehabilitation therapy.
19. WAISBURG, H Interdisciplinary diagnosis and treatment of children. Cognition, behaviour and emotion.
20. ZARRA, JC MILD COGNITIVE DISORDER AND DEPRESSION : TREATMENT WITH ASSOCIATION BETWEEN GALANTAMINE AND ESCITALOPRAM.
21. ZARRA, JC LONG-TERM EFFICACY AND SAFETY OF GALANTAMINE IN OUTPATIENTS WITH MILD COGNITIVE DISORDER.

Cognitive Neuroscience

22. ALVAREZ BRAVO, I Tampering with Cognoscitivas Functions Caused by the treatment of Acute Lymphoblastic Leukemia In children and adolescents.
23. CASTAÑEDA, EA Characterisation Cognitive of Patients With Autosomal Dominant Spinocerebellar Ataxia Type 10.
24. FAVALE, A Neurocognitive profile in Myelomeningocele patients.
25. PANCHAL, J Panchal, J. & Vesey, P. (2007). Neuropsychological Follow up Over a Three Year Period in a Case of Neuro-Metabolic Disease (Wilson's Disease).

Drug/Toxin Exposure (incl. alcoholism)

26. ALMEIDA, SM THE IMPACT OF THE ADVERTISING IN THE YOUNG ADULTS FOR THE SELF-MEDICATION AND THE USE OF THE PSICOTROPICS.
27. BIELIAUSKAS, LA Administration of Drugs with Anticholinergic Properties are Not Associated with Cognitive Decrements in an Elderly VA Inpatient Sample.

28. DALEN, K
29. EVRARD, SC
30. MARTOS MULA, AJ
31. MARTOS MULA, AJ
32. PEDRÓN, VT
33. VÉLEZ-GARCÍA, AE
34. MARTINS, AT
35. HAZIN, IA
36. JAVURKOVA, A
37. KLAAS, PA
38. LAZARY, E
39. PALMA, A
40. RUSSO, MM
41. URE, JA
42. VAN ITERSON, L
43. CASAS, LM
44. MENGHINI, D
45. SÁNCHEZ MARTÍNEZ, GL
46. PEREIRA, AA
47. SOARES, VD
48. FERNÁNDEZ GUINEA, S
49. KASHANIAN, M
50. LÓPEZ PAZ, J
51. LÓPEZ PAZ, J
52. TENORIO, M
53. LIEDTKE, FV
54. JANSARI, A
55. SALVADOR, J
56. SEGALAS, C
57. ANDREWES, DG
58. JÓDAR, M
59. RODRIGUES, SD
60. RODRIGUES, SD
61. URZÚA, A
62. VIVAS, LY
63. BAKHTIARY, M
64. BLOOMFIELD, I
65. DIKMEN, S
- Cognitive Functioning in Children Prenatally Exposed to Alcohol and Psychotropic Drugs.
LONG-LASTING BEHAVIORAL CONSEQUENCES AFTER PRENATAL ETHANOL EXPOSURE. CONTRIBUTING ROLE OF SEROTONIN AND ASTROCYTES AND THE REVERSAL ACTION OF BUSPIRONE.
Control OF Concurrent Variables in the Desings for the Analysis of the Toxic Substances' Effects on the Cognitive Processes.
The Use of Psychometric Tests in the Detection of Toxic Substances' Harmful Effects on the Nervous System.
Early onset of alcohol drinking and the development of alcohol related problems: A review of etiological hypothesis.
Is Decision-Making Affected in Marijuana Users?
- Emotion**
Decision Making In Moral Dilemmas Followed Traumatic Brain Injury.
- Epilepsy**
Neuropsychological approach of mathematical activity among epileptic children: relevance of visuo-spatial abilities.
Neuropsychology Assessment in Temporal Lobe Epilepsy Patients after Epilepsy Surgery.
Memory Change Following Temporal Lobectomy in Children.
Hypercinetic Disorder and Epilepsy or Probable Landau-Kleffner Syndrome? Neuropsychological Assessment for an Early Intervention (Case Report).
Intellectual Functioning Levels In 160 Children With Refractory Epilepsy.
Asperger Syndrome (AS) and Epilepsy: Report of Two Cases.
Cognitive Impairment Linked to the Age of Seizure Onset but not to the Frequency of Epileptic Attacks.
Learning and forgetting of AVLIT word lists in children with focal epilepsy.
- Executive Abilities/Frontal System**
Left-handed Girl With a Right Frontal Lobe ArterioVenous Malformation.
- Genetic disorders**
Brain and Cognitive Abnormalities in Patients with Down Syndrome.
Neuropsychological Findings in Turner's Syndrome. One Case Analysis.
- Infectious disease: HIV/AIDS**
Exploratory Study on Executive Function of HIV Infected Brazilian Children.
- Infectious disease: Other (e.g., hepatitis C, West Nile virus)**
DEMENTIA and NEUROCYSTICERCOSIS.
- Medical Disorders**
STUDY OF VERBAL MEMORY IN PATIENS WITH ALCOHOLIC AND NON ALCOHOLIC LIVER DISEASES ON THE WAITING LIST FOR LIVER TRANSPLANT.
THE EVALUATION OF THE EFFECTIVENESS OF PYRIDOXINE(VITAMIN B6)FOR THE TREATMENT OF PREMENSTRUAL SYNDROME:A DOUBLE BLIND RANDOMIZED CLINICAL TRIAL.
Evaluation of the effectiveness of a Psychoeducational On - Line Program directed to Children and Teenagers with Neuromuscular Disease.
Factors Associated with Older People Coping with Fibromyalgia Syndrome.
Anxiety and Neuropsychology in Patients with Peritoneal Dialysis: a Cognitive Approach.
- Neglect**
NEUROPSYCHOLOGICAL PROFILE OF RIGHT-BRAIN-DAMAGED PATIENTS WITH AND WITHOUT NEGLECT: ARE THERE DIFFERENCES?
- Other**
The Man Who Mistook His Neuropsychologist For a Popstar: When Configural Processing Fails in Selective Prosopagnosia.
Neuropsychological deficits in young Mexican women at risk for developing eating disorders.
- Sex Differences/Sex Hormones**
Gender Differences in Memory Processing in Obsessive Compulsive Disorder.
- Stroke**
Adherence to Medication and Rehabilitation in Stroke and Amputees Living in the Community.
NEUROPSYCHOLOGICAL DEFICIT IN PATIENTS WITH INTERNAL CAROTID ATHEROSCLEROTIC STENOSIS AND ENDOVASCULAR TREATMENT.
Effect of lesion on learning and academic skill in childhood stroke.
Working memory in children with brain damage.
DETERIORO NEUROPSICOLOGICO EN PACIENTES CON ACCIDENTE CEREBRO VASCULAR.
Semantic Distance Judgement in Stroke Patients.
- Traumatic Brain Injury**
Effect of intravenous transplantation of Human umbilical cord matrix stem Cell(Wharton jelly stem cell) on functional recovery After Traumatic Brain Injury In Rats.
The Prevalence of Insomnia Following Traumatic Brain Injury: A Systematic Review of the Literature.
The Effect of Telephone Counseling on Reducing Post-traumatic Symptoms after Mild Traumatic Brain Injury: A Randomized Trial.

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| 66. DIKMEN, S | Traumatic Brain Injury in Latin America. |
| 67. MARTINS, AT | Social and Basic Emotion Recognition Following Traumatic Brain Injury. |
| 68. MCCONNELL, E | What clinical Neuropsychologists Need to Know about TBI and School Law to be Successful. |
| 69. PÉREZ MOJICA, D | Neuropsychological Profile of Puerto Rican War Veterans with Blast-Induced Traumatic Brain Injury. |
| 70. SOO, CA | Early prognostic factors for return to work after traumatic brain injury: A systematic review. |
| 71. TAY, SY | Understanding the Underlying Cognitive Mechanisms of Prospective Memory in Traumatic Head Injury. |
| 72. TORRES, I | Executive functions in adults with severe traumatic brain injury from de National Institute of Neurology and Neurosurgery. |

5:15–6:15 PM

Birch Lecture: Cognitive Control in Young Children: Ways to Measure it and to Improve it
Speaker: Adele Diamond
Room CD

6:15–7:15 PM

Invited Plenary: Frontotemporal Dementia/Pick complex: One Disease or Many?
Speaker: Andrew Kertesz
Room CD

SATURDAY, JULY 5, 2008

8:30–10:00 AM

Symposium 26: Addiction, Dual Diagnosis and Neuropsychological Skills
Chair: Jose Martinez-Raga
Room A

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| 1. MARTINEZ-RAGA, J | Addictions, Dual Disorders and Neuropsychological skills. |
| 2. JOSE, M | Medications to enhance cognitive resources to avoid relapse. |
| 3. DIDIA-ATTAS, J | Craving and cognitive deficit in decision making. |
| 4. SZERMAN, N | Dual Pathology in Schizophrenia and cognitive disorders. |
| 5. HARO, G | Brief Psychotherapy within Dual Disorders. |

8:30–10:00 AM

Symposium 27: Social Behaviour and Social Cognition Deficits in Schizophrenia and Traumatic Brain Injury.
Chair: Maarten Milders
Room B

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|----------------|--|
| 1. MCDONALD, S | Is Implicit Social Knowledge Impaired in Adults with Severe Traumatic Brain Injury? |
| 2. COHEN, AS | Social Cognitive Biases Across the Schizophrenia Spectrum: Believing is Seeing. |
| 3. MILDERS, M | Social behaviour and social cognition deficits in schizophrenia and traumatic brain injury. |
| 4. SPIKMAN, JM | Impaired Social Cognition in TBI Patients and its Relation to Executive Dysfunction, Injury Severity and Frontal Abnormalities on Imaging. |
| 5. MILDERS, M | An Association Between Impaired Emotion Recognition and Behaviour Following Traumatic Brain Injury. |

8:30–10:00 AM

Paper Session 6: Children: Developmental and Acquired Disorders (ADHD, TBI, HIV, Agenesis of Corpus Callosum)
Room C

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|-------------------|--|
| 1. DORREGO, MF | Early intensive rehabilitation improves IQ in children with severe TBI. |
| 2. ZAMBARBIERI, A | Differential analysis of linguistic and mnemonic functions in children with Attention Deficit Hyperactivity Disorder (ADHD), with and without psychiatric comorbidity. |
| 3. ABREU, N | ADHD Impairs Social Abilities in Teenagers: Results from a Preliminary Study in a Brazilian Sample. |
| 4. ABREU, N | ADHD Impairs Verbal Fluency: Results from a ADHD Teenagers Sample. |
| 5. FIFER, R | Auditory Profiles and Neurocognitive Function in HIV Children. |
| 6. HANNAY, HJ | Partial Agenesis of the Corpus Callosum in Spina Bifida Meningomyelocele and Potential Compensatory Mechanisms. |

8:30–10:00 AM

Symposium 28: Implicit Learning From an Evolutionary Perspective: Cognitive and Electrophysiological Evidence
Chair: Ricardo Rosas
Room D

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| 1. MOURGUES, C | The Implicit Learning Universe: Discussion of Theoretical and Methodological Background. |
| 2. CERIC, F | How Does Implicit Learning Age? Evidence in Children, Young People and Elderly People. |
| 3. TENORIO, M | From Laboratory to Practical Setting: Implications for Neuropsychology. |
| 4. ROSAS, R | Implicit Learning From an Evolutionary Perspective: Cognitive and Electrophysiological Evidence. |

10:15–11:45 AM

Symposium 29: Neuropsychological Predictors and Cognitive Reserve in Alzheimer's Disease**Chair: Ricardo Allegri****Room A**

1. ALLEGRI, R
2. ALLEGRI, R
3. MANLY, J
4. HERRERA, J

Neuropsychological Predictors and Cognitive Reserve in Alzheimer's Disease.
 Cognitive Reserve and Rate of Conversion in Degenerative Dementia.
 What Is Cognitive Reserve? Cultural and Educational Determinants of Cognitive Decline and Alzheimer's Disease Among Spanish-Speaking Immigrants In New York City.
 The Mini Mental State Examination and the Detection of Mild Cognitive Impairment or Early Dementia.

10:15–11:45 AM

Symposium 30: The Unresolved Problem about Functional and Neurocognitive Differences between Schizophrenias and Bipolar Disorders: Methodological Problems or Inadequate Questions?**Chair: Sergio Strejilevich****Room B**

1. FRANGO, S
2. STREJILEVICH, S
3. STREJILEVICH, S
4. LOPEZ JARAMILLO, C

Fronto-temporal Function May Distinguish Bipolar Disorder from schizophrenia.
 The Unresolved Problem about Functional and Neurocognitive Differences between Schizophrenias and Bipolar Disorders: Methodological Problems or Inadequate Questions?
 Cognitive Function in Schizophrenia and Bipolar Disorders: an Elusive Frontier.
 Genetics and Cognitive overlaps in Schizophrenia and Bipolar Disorder.

10:15–11:45 AM

Symposium 31: Fetal Alcohol Spectrum Disorders: Current Perspectives on Prevalence, Diagnosis, Neuropsychological Outcomes and Interventions**Chair: Nora Grañana****Room C**

1. GRAÑANA, N
2. VERNESCU, R
3. KERNS, K
4. VERNESCU, R

Fetal Alcohol Spectrum Disorders: Current Perspectives on Prevalence, Diagnosis, Neuropsychological Outcomes and Interventions.
 Fetal Alcohol Spectrum Disorders - A Public Health Perspective.
 FASD: Searching for a Neuropsychological Profile.
 Interventions for Children with FASD.

10:15–11:45 AM

Paper Session 7: Adults: Cognitive Disturbances in Medical Disorders and Drug Exposure**Room D**

1. TSAO, JW
2. SÁNCHEZ, S
3. SANTOS, A
4. TOWGOOD, K
5. JIA, S
6. CHERNER, M

Attention Bias Following Unilateral Upper, but Not Lower, Limb Amputation.
 Cognitive Effects of Kidney Transplantation.
 Verbal peaks and visual valleys in theory of mind ability in Williams syndrome.
 Cognitive Function in HIV-1 Positive Gay Men in the Post-HAART (Highly Active Antiretroviral Therapy) Era – Preliminary Results.
 The ERP Study of the Long-term Sustained Release Naltrexone Treatment for Opioid Dependences on Their Semantic Recognition.
 Cytochrome P450 2D6 Phenotype and Methamphetamine-associated Cognitive Impairment.

12:15–1:15 PM

Invited Plenary: Integrating Cognitive and Emotional Interventions: Changing Skills, Attitudes and Beliefs**Speaker: Catherine Mateer****Room CD**

1:15–1:30 PM

Closing Ceremony**Room CD**

Abstracts Presented at The International Neuropsychological Society, Sociedad de Neuropsicología de Argentina, Joint Mid-Year Meeting July 2-5, 2008 Buenos Aires, Argentina

WEDNESDAY AFTERNOON, JULY 2, 2008

**Symposium 1:
Frontal Lobes: Emotion and Emotional Disorders.
Diagnosis and Rehabilitation.**

Chair: Feggy Ostrosky-Solis

4:30–6:00 p.m.

F. OSTROSKY-SOLIS & R. MORRIS. Frontal Lobes: Emotion and Emotional Disorders. Diagnosis and Rehabilitation.

Symposium Description: Research on the neuropsychology of emotion and the neural mechanisms underlying emotional processing have received considerable attention in the last decade. Much relevant work has come from recent studies applying concepts and methods of cognitive neuroscience and neuroimaging techniques to the study of normal subjects and patients with neurological damage. This symposium aims to present an overview of our current knowledge of behavioral and psychophysiological studies on frontal lobes and emotion in normal and brain damage subjects. The papers included will address key factors related to these issues. Feggy Ostrosky and Nalley Arias will present new approaches to assess the measurement of distinct emotion components with neuroimaging and psychophysiological techniques related to the processing of moral emotions in normal subjects and criminal offenders. Barbara Wilson et al, will present data regarding the basis of impaired social adaptability in a subject with brain damage and frontal systems disruption. Linda Clare et al, will present data regarding the relationship between the extents of impairment in executive function and self-reports of depression, anxiety, self-concept and quality of life in early Alzheimer disease, with a focus on Rehabilitation. Catherine Mauter, will describe research findings on the critical interplay of cognition, emotion, and metacognitive beliefs. Finally Ted Judd will emphasize the importance of considering emotional Rehabilitation in the Client's Social Context. In all the papers, suggestions for further research will be presented.

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L. CLARE, S.M. NELIS, A. MARTYR, I.S. MARKOVA, R. MORRIS, I. ROTH & R.T. WOODS. Does executive function relate to emotional response and well-being in early-stage Alzheimer's disease?

Objective: While changes in memory are paradigmatic in the early stages of Alzheimer's disease (AD), the relevance of accompanying changes in executive function may sometimes be overlooked. Yet it could be hy-

pothesized that these changes in executive function might have an impact on emotional response and perceived well-being. The present study aimed to explore the relationship between the extent of impairment in executive function and self-reports of depression, anxiety, self-concept and quality of life.

Participants and Methods: Participants were 50 individuals with a diagnosis of Alzheimer's, vascular or mixed dementia, and in the early stages as indicated by a Mini-Mental State Examination (MMSE; 32) score of 18 and above and/or Clinical Dementia Rating (CDR; 33) score of 0.5 or 1. Participants were recruited from local Memory Clinics. Participants were assessed on neuropsychological measures of executive function (DKEFS verbal fluency; Sustained Attention to Response Task), and on questionnaire measures of mood (Hospital Anxiety and Depression Scale), self-concept (Tennessee Self-Concept Scale), and quality of life (QoL-AD).

Results: Performance on executive function tasks correlated with self-reports of anxiety, but not with self-reports regarding levels of depression, self-concept or quality of life. Higher levels of depression were related to lower quality of life ratings.

Conclusions: There is no straightforward relationship between performance on executive function tasks, emotional response and well-being in early-stage AD.

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B. WILSON, J. FISH, T. MANLY, J. EVANS & H. EMSLIE. Compensatory strategies for cognitive, emotional and social problems following bilateral frontal lobe damage: a single case study.

Objective: We report on the case of RP, a woman who survived a subarachnoid haemorrhage (SAH) in 1988 at the age of 42 years. Investigations showed she had 3 aneurysms including one on the anterior communicating artery (ACoA). This had ruptured causing damage to the anterior and medial regions of the right frontal lobe, extending superiorly to the parasagittal area, with additional involvement of the left inferior medial frontal lobe. Eighteen hours post surgery, RP developed a severe ischaemic neurological deficit due to cerebral vasospasm. We saw RP seven years post insult for help with her difficulties in executive functioning. An ABAB design was used to evaluate this (Evans et al 1998). Her husband also reported how improvement in her everyday functioning led to reduced family stress. In 2005 RP was seen once more as problems had reappeared. In particular she took so long in the mornings to get ready for the day, and to get ready for bed in the evenings that the family's social life was disrupted. Reintroduction of a paging system following an ABABACAD design showed that RP was able to get ready for daily activities faster and that she and her husband were able to participate in social events (Fish et al in press). We discuss the importance of continuing rehabilitation.

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F. OSTROSKY-SOLÍS, N. ARIAS & A. VÉLEZ. New perspectives on moral emotions: Electrophysiological and neuropsychological data in normals and criminal offenders.

Objective: To study the neuropsychological profile and brain correlates of basic and moral emotions in a group of controls and of criminal offenders.

Participants and Methods: Event Related Potentials were recorded while viewing pictures of Emotionally charged scenes with and without moral content as well as Emotionally neutral pictures. Neuropsychological measures included a battery that assesses frontal lobe functions (BATTERY OF FRONTAL AND EXECUTIVE FUNCTIONS, Flores, Ostrosky & Lozano, 2008) and several measures of Attention and Memory (NEUROPSI ATTENTION AND MEMORY, Ostrosky et al. 2005, 2007).

Results: In normal subjects, unpleasant pictures with and without moral content prompt a marked negative slow wave, with higher amplitude at frontal, parietal and temporal sites of the left hemisphere. In the criminal offenders no significant differences between the stimuli were found. Criminal offenders show memory impairments (verbal and nonverbal) as well as several executive alterations.

Conclusions: In criminal offenders the emotional components of cognition are disturbed and poorly integrated. Neuropsychological data suggest alteration in the septal-hippocampal-frontal system.

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C. MATEER. Strategies for integrating cognitive and emotional interventions.

Objective: The combined impacts of traumatic brain injury on physical, cognitive, and emotional functioning are well known, but we are only beginning to recognize the degree to which these areas intersect with and impact each other. It is still common to conceptualize and develop rehabilitation strategies that address these domains separately with the result that important interactions can be missed. This paper will describe two research studies that investigated beliefs that individuals who have sustained a TBI hold about their cognitive functioning. Self-other ratings of ability in four domains (physical, emotional, psychosocial and cognitive) are compared in participants with mild, moderate and severe injuries. Beliefs about one's functioning were strongly related to mood, emotional adjustment, and engagement in rehabilitation. Treatment approaches for improving cognitive skills that also focus on reshaping these beliefs can be highly beneficial in an integrated and holistic approach to rehabilitation. This paper will also describe a multi-faceted approach to managing impairments in attention that includes both specific skills training and activities to increase self-efficacy and cognitive engagement.

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T. JUDD. Emotional Rehabilitation in the Client's Social Context.

Objective: Emotional changes and disorders resulting from brain disability typical affect not only the client, but also the client's family and often their entire social world. Important emotional changes include emotional disinhibition, abulia, lack of empathy, inaccurate empathy, failure to learn from mistakes, avoidance, gullibility, and paranoia. Damaged self-awareness and self-regulation often do not permit spontaneous recovery and may make psychopharmacology and individual psy-

chotherapy insufficient. An emotional rehabilitation approach involves selecting and training a team consisting of both the client and support people from their social context, typically one or more family members. The approach includes framing the problems and the strategies; putting external structures in place via the support people that allow the client to function; training the client in the need for the structures; training the client to seek, use, construct, and maintain structures; implementing and generalizing the training; and fading the external structures as possible. The client's cognitive limitations and, specifically, memory profile, need to be taken into account in planning training. The structures chosen need to be specific to the problems and resources at hand. Emotional rehabilitation, like cognitive rehabilitation, involves skill building and requires repetitive practice. Restorative and compensatory strategies can be applied.

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**Paper Session 1:
Psychopathology**

4:30–6:00 p.m.

A. IBANEZ & M.M. MARTIN. A new ERP endophenotype candidate: N400 deficits from semantic matching of pictures in probands and first degrees relatives from multiplex schizophrenia families.

Objective: One emerging strategy in schizophrenia research in order to identify the functional importance of genetically transmitted, brainbased deficits present in this disease is the use of endophenotypes. Currently, event-related potentials (ERPs) are timely used in this search. Several ERPs studies, including N400 had been reported abnormal in schizophrenia. In order to assess the genetic liability of N400 as a possible endophenotype, a picture semantic-matching task (congruent and incongruent pairs of pictures) was used.

Participants and Methods: We recorded ERPs from 21 first-degree relatives of patients with schizophrenia, 21 DSM-IV diagnosed schizophrenia probands, and 21 healthy age, gender and educational level matched control subjects. Probands and relatives were selected from Multiplex schizophrenia families.

Results: Significantly reduced N400 amplitude for congruent categories in N400 was found in probands and relatives respect to controls. The latency onset and the maximum peak latency of N400 was delayed in both, relatives and probands groups compared to control. The voltage maps of incongruous-minus-congruous difference indicate a more reduced right restricted negativity in probands and relatives, when compared to a wide extended bilateral negativity in controls. ERPs difference waveforms highlight the significant reduced negativity in probands and relatives. No general differences were found between patients and relatives.

Conclusions: These results demonstrate an electrophysiological deficit in semantic match processing in clinically unaffected first degree relatives of patients with schizophrenia, suggesting a possible use of this marker as endophenotype.

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H.A. BERLIN, H. HAMILTON, K. ROGERS, K.E. GOLDSTEIN, L.J. SIEVER, A.S. NEW & E.A. HAZLETT. Neurocognition and Temperament in Borderline and Schizotypal Personality Disorder.

Objective: Explore the neurocognitive and temperament profile of borderline personality disorder (BPD) and schizotypal personality disorder (SPD) to better understand their underlying neurobiology for effective treatment development.

Participants and Methods: 17 BPD, 16 SPD, and 15 matched healthy controls (HCs) (DSM-IV diagnosed) were given a comprehensive neuropsychological battery (CANTAB), the Iowa Gambling Task, a time perception task, and questionnaires of impulsivity, temperament, emotion, and frontal behavior (measures orbitofrontal cortex (OFC) dysfunction). **Results:** BPD and SPD patients performed significantly worse on the delayed match to sample (DMS) visual working memory task compared to HCs, but had preserved function on decision-making, planning, time perception and attention tasks. SPD patients performed significantly worse on spatial working memory (SWM) tasks, and had higher religious commitment scores than HC and BPD groups, which correlated with SWM deficits across subjects. BPD patients had significantly more frontal behaviors and emotions than HC and SPD groups. Frontal behaviors correlated with emotionality and impulsivity, core BPD symptoms, and their temperament traits (novelty-seeking, impulsiveness, self-transcendence, uncooperativeness, and low self-directness/responsibility). **Conclusions:** Both BPD and SPD groups had a deficit on the DMS task, sensitive to medial temporal lobe (MTL) dysfunction, but only SPD patients had SWM deficits, indicative of dorsolateral frontal cortex (DLFC) dysfunction, which correlated with their high religious commitment in line with their odd beliefs and magical thinking. Only BPD patients had frontal behavior deficits, related to OFC dysfunction, which positively correlated with their emotionality, impulsivity, and temperament traits. While both disorders may have a deficit in MTL function, DLFC dysfunction may contribute to SPD symptoms, and OFC dysfunction may contribute to BPD symptoms, suggesting treatment should target unique prefrontal cortex regions respectively.

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K. ROGERS, E.A. HAZLETT, K.E. GOLDSTEIN, Y. ZELMANOVA, A.S. NEW, H.A. BERLIN, H. HAMILTON, M. HAZNEDAR, L.J. SIEVER & M.S. BUCHSBAUM. Cingulate Gyrus MRI volume in Borderline and Schizotypal Personality Disorder.

Objective: Studies have reported abnormal function and size of the anterior cingulate (ACC) in borderline personality (BPD) and schizotypal personality disorder (SPD). Here we examined MRI volume of Brodmann areas (BAs) within the cingulate gyrus in age- and sex-matched groups of healthy controls (HCs), non-comorbid BPD, and SPD patients. **Participants and Methods:** BA volumes from MRI (3T, MP-RAGE) scans were examined in 16 SPD, 16 BPD, and 15 HCs. MRIs were segmented using FSL-FAST and the relative volume (absolute region-of-interest volume/total brain volume) of gray and white matter in anterior and posterior cingulate regions (BA25, 24, 31, 23, 29) of each hemisphere was examined with MANOVA. The relationship between ACC volume and a self-report measure of emotional lability (Affective Lability Scale) was also investigated.

Results: Total relative cingulate volume (i.e., collapsed across matter type and hemisphere) was larger-than-normal in BPD and smaller-than-normal in SPD (significant group main effect). This effect was most marked in the ACC (BA 25-24) and BA31 (significant Group x BA interaction). Larger volume in the ACC (BA25) was associated with greater affective lability among BPD and less affective lability among SPD patients. Among HCs, larger volume in the posterior cingulate (BA29) was associated with less lability.

Conclusions: Our findings suggest that abnormal ACC volume may underlie symptoms of heightened emotion in BPD and flattened affect in SPD. Correlations between MRI volume and performance on neurocognitive measures will also be presented.

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M. MARTIN. Neuropsychological Outcomes in Resistant Obsessive-Compulsive Disorder (OCD) Patients Treated with Psychosurgery.

Objective: Though the first-line treatment of Obsessive-compulsive disorder (OCD) is the combination of behavior therapy and pharmacolog-

ical treatment some patients keep showing severe symptoms and low quality of life. There is evidence that the prognosis of these treatment-resistant OCD patients can be improved with psychosurgery. We have measured the obsessive-compulsive features and the neuropsychological profile before and after psychosurgery.

Participants and Methods: The sample consisted of 43 OCD patients treated with psychosurgery at Hospital Mutua de Terrassa. Psychological and neuropsychological assessment was made with the Yale-Brown Obsessive Compulsive Scale (Y-BOCS) for OCD symptoms, and the Wechsler Memory Scale (WMS), the Rey Auditory-Verbal Learning Test (RAVLT), the Digits test, the Tapping test, the Controlled Oral Word and the Wisconsin Card Sorting Test (WCST). Patients were assessed at pretreatment, and at three months and at one year after psychosurgery.

Results: Results showed that psychosurgery is effective to decrease the Yale-Brown total score (a mean of 31,55 at pretreatment and 15,73 at 1-year follow-up). Regarding neuropsychological profile, results showed no difference between pre- and follow-up assessments.

Conclusions: The psychosurgery is effective in the Obsessive Compulsive symptoms without provoking neuropsychological deficits.

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R. MCKAY & A. BAIRD. Psychological Factors in Retrograde Amnesia: Self-deception and a Broken Heart.

Objective: Focal retrograde amnesia is an intriguing and controversial condition. Its aetiological factors are not well understood. We explored potential contributing psychological factors in a patient ("XF") with this condition, within the framework proposed by Kopelman (2000). In particular, we investigated the psychological trait of 'self-deception', which we operationalised as a tendency to self-enhance.

Participants and Methods: A self-report questionnaire measure of self-enhancement – specifically a measure of positive illusions – was constructed, and XF's score on this measure was compared with that of a sample of 61 control participants.

Results: XF was found to have a significantly greater level of self-enhancement than both the entire control group, and a smaller sample of age- and sex-matched controls. In addition, many facets of XF's psychosocial status were in keeping with Kopelman's (2000) model.

Conclusions: This is the first study to provide an experimental investigation of the psychological trait of self-enhancement in retrograde amnesia and to find significantly heightened levels of positively biased self-appraisals in this condition. We propose that this may reflect a pre-morbid tendency that may predispose individuals to develop retrograde amnesia.

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R.K. BHALLA, M.A. BUTTERS, J.T. BECKER, S.T. DEKOSKY & C.F. REYNOLDS. Patterns Of Mild Cognitive Impairment Following Successful Treatment of Late-Life Depression.

Objective: Late-life depression is associated with persistent cognitive impairment in a subset of individuals. The purpose of this study was to 1) examine whether older depressed individuals are at risk for formal cognitive disorder (mild cognitive impairment (MCI), dementia) following response to acute depression treatment and 2) characterize patterns of MCI subtypes among these individuals.

Participants and Methods: We examined cognitive diagnoses among 109 subjects age 65 and older, following depression treatment response and 65 never-depressed, age- and education-equated comparison subjects. Cognitive diagnoses were independently established by the University of Pittsburgh's Alzheimer's Disease Research Center.

Results: Relative to comparison subjects, nearly twice as many of the remitted depressed subjects received a diagnosis of cognitive disorder

(48% vs. 28%). Of the 109 formerly depressed subjects, 38% were diagnosed with MCI (63% amnesic, 37% non-amnesic). The majority of amnesic MCI subjects (85%) had the multiple domain subtype. Age, but not age of onset or lifetime depression duration, predicted cognitive diagnosis.

Conclusions: Despite adequate depression treatment response, 48% of remitted depressed subjects had a cognitive disorder. Of the 38% diagnosed with MCI, there was high representation among both the amnesic and the non-amnesic subtypes, suggesting heterogeneity in cognitive course and outcomes in late-life depression.

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Symposium 2: Cognitive Disorders in Vascular's Patient. A multidisciplinary Approach

Chair: Augusto Vicario

4:30–6:00 p.m.

A. VICARIO, F.E. TARAGANO, G.H. CEREZO & D. SARASOLA. "Cognitive Disorders in Vascular's Patient. A multidisciplinary Approach".

Symposium Description: 1. Hypertension. Memory and Frontal Lobe Vulnerability. (Augusto Vicario, MD, cardiology).

2. Cognitive Decline and Vascular Dementia. (Fernando E. Taragano, MD, PhD, Psychiatry).

3. Vascular Depression. (Diego Sarasola, MD, Neurology).

4. Utility of the "Minimum Cognitive Examination" (MCE) in clinical-cardiology practice-office. (Gustavo H Cerezo, MD, Cardiology).

Hypertension and others risk factors affects the arteries of the brain as heavily as it does coronary and peripheral arteries. Such vascular damage, which remains subclinical over extended periods of time, is a known cause of chronic encephalic ischemia, stroke, cognitive deterioration, dementia and depression. Hypertension is the most harmful cardiovascular risk factor mediating between vascular damage and neuron damage and is a "modifiable risk factor" for the cognitive impairment as much as for the vascular dementia. The hypertensive patients early on develop a dys-executive disorder even in the absence of dementia.

From a neuro-psychological point of view, the cognitive impairment is a heterogeneous syndrome that could imply many cognitive domains. The Minimum Cognitive Examination (MCE) is easy and fast test's group for the early identification of the cognitive impairment.

Vascular endothelial damage and the impairment of the synthesis and release of vasoactive substances such as nitric oxide, as well as oxidative stress and pathological changes in small arteries, are all producing subcortical or cortical-subcortical lesions.

It is not irrational to think that, in a near future, the focus of our attention could be centered in confirming the "vascular" hypothesis, so that we could unify our efforts to prevent and to treat cardio vascular complications so much as cognitive deficits, dementia or vascular depression.

Then preserving cognitive function into even the most advanced stages of life is both a medical and a social challenge.

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A. VICARIO. Hypertension, Memory and Frontal Lobe Vulnerability.

Objective: Hypertension and other risk factors affect the arteries of the brain as heavily as it does coronary and peripheral arteries. Such vas-

cular damage, which remains sub clinical over extended periods of time, is a known cause of chronic encephalic ischemia, stroke, cognitive deterioration, dementia and depression. Hypertension is the most harmful cardiovascular risk factor mediating between vascular damage and neuron damage and is a "modifiable risk factor" for the cognitive impairment as much as the vascular dementia. The hypertensive patients early on develop a dys-executive disorder even in the absence of dementia due to subcortical impairment and desafertization of pre-frontal circuit.

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D. SARASOLA. Vascular Depression.

Objective: Depression has particular characteristic in elderly people. The absence of especially criterion for the identification of this group results in sub-diagnosis. The somatic and/or neurovegetative symptoms and cognitive impairment are more frequent. The calcium plays an important role in the cerebral pathophysiology of the anomic disorders.

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F. TARAGANO. Cognitive Decline and Vascular Dementia.

Objective: There is a growth of the evidence of the relationship between vascular disorders and neuropsychiatric pathology. The patient with neuropsychiatric pathology consults at clinical practice-office more frequently than to the psychiatric practice-office. Vascular dementia represents 10% of the general population and is more prevalent in male, but 60% of all dementias has a vascular component. Then, it is necessary a multidisciplinary approach to this patient with neuropsychiatry symptoms and vascular's pathology, and vascular and psychiatric disorders must be approached as "continuum" of the disease "spectrum".

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G. CEREZO. Utility of the "Minimum Cognitive Examination" (MCE) at the Clinical-Cardiology Practice-Office.

Objective: From a neuro-psychological point of view, the cognitive impairment is a heterogeneous syndrome that could imply many cognitive domains. The Minimum Cognitive Examination (MCE), a document written for the task force (cardiologist, neurologist and psychiatry professional) of the Argentine Cardiology Federation, is easy and fast test' group for the early identification of the cognitive impairment in clinical-cardiology practice-office

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Symposium 3: Alexia in Spanish-Speaking Readers: Cognitive Models and New Empirical Findings

Chair: Aldo Ferreres

4:30–6:00 p.m.

A.R. FERRERES, C. LÓPEZ, A. RUIZ & S. DANSILIO. ALEXIA IN SPANISH-SPEAKING READERS: COGNITIVE MODELS AND NEW EMPIRICAL FINDINGS.

Symposium Description: In the 1980s, a discussion arose regarding the relevance of dual-route cognitive reading models for the study of alexic disorders in a transparent orthography such as Spanish.

Basing their ideas on the marked transparency of the Spanish writing system (nearly all words can be correctly read through grapheme-phoneme rules), some authors called into question the existence of a lexical reading route, and affirmed that reading and comprehension in Spanish were always phonologically mediated. As a consequence, brain damage should not cause Spanish speakers to display the typical errors (i.e. semantic paralexias, regularization errors) or alexic patterns (profound, phonological, and surface alexias) identified in opaque orthographies such as English and French. For other authors this transparency did not hinder the development of a lexical reading mechanism; and errors and corresponding alexic patterns could also be observed. Since then, a considerable, ever-increasing body of evidence has been gathered and case studies of deep, phonological, surface, and peripheral alexia have been published.

The aim of this symposium is to examine all the published case studies of alexia in Spanish speakers, and analyze them in the light of the latest models and theoretical proposals (Plaut & Patterson triangle model, Coltheart et. al DRC model, and Buchanan's proposals). Each of the papers presented at the symposium will focus on one type of alexia (surface, profound, phonological, or peripheral) and will discuss related theoretical issues (semantic errors, the interaction of reading mechanisms, underlying semantic and phonological deficits).

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A. RUIZ. DEEP DISLEXIA IN SPANISH SPEAKERS.

Objective: In this presentation, our deep dyslexic cases are revisited taking into account the models proposed by Coltheart and cols (2001) and Buchanan and cols (2003). A better interpretation can be proposed for the occurrence of mixed errors (e.g. semantic plus formal) and a better suggestion can be made about the interaction of reading processes in transparent languages.

Participants and Methods: In the 80s a discussion arose about the characteristics of reading disorders in transparent languages. Different researchers proposed either the supremacy of phonological processing in Spanish speaking readers (Ardila and cols., 1989) or the presence of a dual route processing, similar to the one proposed for English speakers (Ruiz, Ansaldo & Lecours, 1994; Ferreres & Miravalles, 1995). Within this framework deep dyslexia was described in Spanish speaking subjects. During the last decade, new models were proposed to explain different reading phenomena.

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S. DANSILIO. PERIPHERAL PROCESSING OF LETTERS AND GRAPHEMES IN SPANISH SPEAKING PEOPLE.

Objective: Objectives of this paper: to analyze all the cases of peripheral alexia in Spanish speaking patients.

Participants and Methods: Pure alexias, or alexias without agraphia, have been included in the category of peripheral alexias, once formal cognitive models of perception and reading are considered. An heterogeneous group has been identified. Spanish speaking published cases following this theoretical frame is scarce. Three typical cases are shown. AA, has a large infarct involving the left posterior cerebral artery, presents a severe impairment in accessing the grapheme representation from visually presented letters that precludes explicit access to reading, even in a letter-by-letter fashion. Spelling tasks are also well performed. RR, who suffered an intracranial bleeding in the left occipital lobe, presents a similar pattern of deficits. The processing of abstract grapheme representation from single letters is disturbed, so the deficit is specific to the reading code. Letter-by-letter reading, is a consequence of a functional lesion in the letter decoding level which is more peripheral and tied to other perceptively complex modalities or even general attentional resources. Finally a case of a Simultagnosic alexia, LG, is shown as an example of non-specific peripheral alexia, that could even account for some LBL readers.

Conclusions: The pattern of deficits is interpreted following theoretical models previously developed in cognitive neuropsychology.

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A.R. FERRERES. SURFACE ALEXIA IN SPANISH SPEAKERS.

Objective: This paper aims to examine all the cases of surface alexia (SA) in Spanish speakers in order to: 1) highlight error types and suggest the most suitable tests for diagnosing SA in Spanish-speaking patients; 2) analyze the main features of SA in Spanish speakers in connection with assumptions about the different reading models.

Participants and Methods: The main characteristic of surface alexia is regularization errors in the reading of irregular words. Dual-route reading models have interpreted SA as a lexical route disorder with a relative preservation of the phonological route (grapheme-phoneme conversion). This alexic pattern was difficult to identify in Spanish speakers, because there are hardly any irregular words in Spanish and almost all words can be correctly read aloud by applying grapheme-phoneme conversion rules. This difficulty in finding regularization errors in Spanish was overcome through a series of tests that allow lexical reading disorders to be observed even when phonological reading remains intact. Several papers have demonstrated that SA can also be found in Spanish-speaking patients.

The connectionist triangular model interprets SA as a semantic deficit, which has not proved to be the case in studies of some Spanish-speaking SA cases. On the other hand, the computational DRC model describes mechanisms of interaction between the two routes that account for some of the lexical effects found in patients with SA.

Conclusions: Evidence indicates that surface alexia in Spanish, can be diagnosed on the basis of: quantitative and qualitative pattern of word and non-word reading (identification and syllabic scending), false positive errors in lexical decision with pseudohomophones and homophones confusion. The particular characteristics found in Spanish alexic patients can be accounted under the assumption that the same functional architecture works with different codes and not compell to the postulation of a functional architecture with significant cross-linguistic differences.

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C. LÓPEZ. PHONOLOGICAL ALEXIA IN SPANISH SPEAKERS: A GENERAL PHONOLOGICAL DEFICIT?

Objective: Objectives of this paper: to analyze all the cases of phonological alexia (PA) in Spanish speakers; to demonstrate why they cannot be explained by the theory of obligatory phonological mediation; to analyze the presence and nature of phonological deficits; and to discuss this evidence in the light of the above-mentioned reading models.

Conclusions: In the framework of dual-route reading models, phonological alexia (PA) was interpreted as a disorder in the phonological route (in terms of one or more of its components: segmentation, conversion rules, blending) with a relative preservation of the lexical route. In this interpretation, the preservation of the lexical-semantic route explains the fact that words are read correctly but that non-words pose severe reading problems. Those in favor of obligatory phonological mediation assert that PA should not exist in Spanish speakers, despite the fact that several well-supported case studies have been published. The authors of the triangle model have interpreted PA as a consequence of a subtle phonological deficit which affects the reading of non-words, but not of words. The DRC model—which could be thought of as a computational implementation of the dual-route model—maintains the classic dual interpretation and questions the general phonological deficit hypothesis.

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**Poster Session 1:
Assessment, Psychometrics, Cognitive Neuroscience,
Neuropsychological Education**

6:00–7:00 p.m.

Aging

Z. YEH & M. HUA. The Relation of Theory of Mind to Executive and Social Intelligence in Normal Aging.

Objective: Theory of mind (ToM), the core concept of social cognitive function, is subserved by the ventromedial prefrontal cortex. However, the issue regarding whether theory of mind is associated with executive function remains controversial, especially in the elderly individuals. This study was thus to explore ToM and its relation to executive function in normal elderly people, and to examine the issue of the predictability of ToM and executive function to social intelligence.

Participants and Methods: Total 175 normal adult subjects were recruited, including 38 young group (mean age=22.77 years), 67 young-old group (mean age=51.21 years) and 70 old-old group (mean age=75.23 years). They all completed a battery of neuropsychological tests, including intellectual, memory, and executive functions, and the TAIDA ToM Test and social intelligence measures.

Results: The results revealed that normal old-old people's performance on the TAIDA ToM Test, irrespective of verbal or photo subtests, did not significantly differ from normal younger adults. SEM statistic analyses showed that the execution function did have a significant covariance value (.28) with the TAIDA ToM Test. However, for normal old-old individuals the impact value of ToM (.68) was significantly higher than that of the executive function (.17) for predicting their social intelligence.

Conclusions: Based on the present results, it appeared that there was no remarkable decline of ToM function in our normal aging. ToM rather than executive function might play an important role in social intelligence though both functions did correlate with each other.

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D.A. O'CONNOR & S.L. ROSSELL. Automatic vs. strategic semantic processing in younger and older adults: an fMRI study.

Objective: Ageing studies show robust declines in abilities such as processing speed and encoding new facts. By contrast, semantic knowledge remains stable until late in life. One possibility for this relative stability is that older adults use preserved knowledge and experience to form more efficient strategies when performing tasks where younger adults rely on processing ability. Such strategies might be adopted in response to a decline in neural efficiency.

Participants and Methods: In this experiment, during an fMRI scanning session, 18 older (60-85yrs) and 18 younger (18-30yrs) adults will perform two tasks designed to explore whether there is a difference between how younger and older adults process implicit and explicit semantic information.

Results: Using a semantic priming paradigm, we anticipate that the implicit nature of the task will lead to a weaker priming effect in older participants because strategic reasoning rather than pure semantic processing cannot be employed. This will be most apparent in prime-target pairs with short intervals where participants are unable to use controlled processing. Word association tasks are an explicit test of semantic memory: word pairs are presented and participants must decide if they are related. We hypothesize that older participants will employ more strategic processes, thus giving them comparable accuracy and RT performance to younger participants.

Conclusions: Contrasts in performance between age groups will be reflected by fMRI data which are expected to show compensatory increased activation during the explicit semantic word association task. During the implicit task it is anticipated that older participants will show decreased activation in the anterior cingulate.

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H. PERKINS & D. CARR-ROLLIT. Mental Health Service for a Multicultural English-speaking Retirement Home in Argentina.

Objective: The British and American Benevolent Society (BABS) was founded 120 years ago to aid the elderly and infirm expatriates in Argentina who were no longer able to support themselves. Today BABS cares for approximately 90 residents in the Villa Devoto home, in the Capital of Buenos Aires, Argentina. Meals, cleaning and laundry services are provided; 24 hour a day nursing, personal assistance and grooming are available if required.

English is the official language spoken in the institution, although some residents have other mother tongues (e.g. French, Dutch) and there are also some Argentine Spanish speakers. This proves to be a special challenge in meeting the needs of the residents. Most of them are Anglo Argentines, of English extraction but Argentine bred. The staff must be particularly sensitive to the multicultural nuances and learn to adapt to them individually and in group activities.

Participants and Methods: In 2006 a Psychologist and an Occupational Therapist were added to the BABS staff. An Arts and Crafts teacher was already in post. At present these three, together with the assistance of the Medical Doctor and the Matron, make up the Mental Health provision.

Within this field, the main focus is on adaptation and acculturation of new residents, socio-psychological assessment, cognitive rehabilitation, handicraft and boardgame workshops and group activities to prevent and deter senile dementia and to contribute to social wellbeing and mental health. The body of this work will be fully developed in the presentation.

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S. SANDOVAL-OCAMPO & F. OSTROSKY-SOLÍS. Executive Function in Normal Aging: A Neuropsychological Study.

Objective: The aging of the human being is a natural process with associated biological, psychological and social changes. The intellectual decrease associated to aging, includes the executive functions which are mainly supported by the prefrontal cortex. (Lezak, 1994). It has been postulated that deterioration of EF in later life (e.g., Gerstadt et al., 1994; Kramer et al., 1994) is associated with gradual demyelination of the frontal and prefrontal areas. The purpose of the present study was to study EF in a sample of 112 individuals from 20-79 years.

Participants and Methods: All the subjects were neurologically intact and present adequate functional abilities. Subjects were matched according to educational level. The Frontal lobe and Executive Functions Battery (Flores&Ostrosky, 2008) was applied. The battery comprises fifteen subtests that evaluate frontal and executive functions related to different frontal areas: orbitofrontal, medial frontal, dorsolateral prefrontal and anterior prefrontal areas.

Results: Multiple regression analyses revealed that age had significant effect on all the subtest of the battery. Neuropsychological data suggest that frontal lobes are one of the first areas of brain negatively affected by the aging process.

Conclusions: Implication for rehabilitation and understanding of normal and pathological aging are discussed.

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Animal Models

A.M. ELGIER, A. JAKOVCEVIC & M. BENTOSELA. Interspecific Communication: the Object Choice Task as a Model for the Study of Cognitive Flexibility in Domestic Dogs.

Objective: During domestication process, domestic dogs were submitted to social challenges related to the environment shared environment with human beings. Thereby, development of interspecific communicative abilities were developed. Dogs are capable of following human cues, like gazing or pointing, in order to solve problems. The aim of this work is to present an animal model for the study of cognitive flexibility in a reversal task with social cues, specifically, to evaluate the following of a human cue to find hidden food in an object choice task.

Participants and Methods: Subjects: 11 adult dogs of different sexes and ages. Procedure: an experimenter baited one of two bowls (outside of the dog's view) and gave the dog the pointing cue to find the hidden food. The dogs first learned to go to the pointed place and obtaining the food, and then they were trained in a reversal learning task, reverting the previously learned discrimination.

Results: Friedman's ANOVA was used to compare the number of necessary trials in both conditions to reach the learning criteria. The subjects were capable of learning both tasks, though the reversal learning needed further training trials.

Conclusions: Dogs went to the not pointed place to access the food, inhibiting the previous response. The behavioural adjustment due to environmental changes should accounts for the degree of cognitive flexibility involved in the use of human cues. The ecological validity of this model and possible applications for aging and alterations of the prefrontal cortex are reviewed.

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Assessment/Psychometrics

O.M. AGUILAR MEJÍA, F. LUENGAS & R. RIAÑO. Comparative Study of Performance in the Mini Mental State Examination (MMSE) Among Institutionalized Elderly in Geriatric Homes in Bogota City and Elderly Colombians Who Are Not in Any Institution.

Objective: The study manages a working hypothesis, according to which the institutionalized elderly with lower average scores show statistically significant differences in performance in the Mini Mental States Examination, when compared with non-institutionalized elderly.

Participants and Methods: The participants of this research are 300 older adults from 5 Geriatric Households of Bogotá whose ages range between 51 and 89 years.

For the study, a neuropsychological evaluation protocol was applied to all patients, which assessed all cognitive functions, and also based on the scales of Reisberg Global Deterioration Scale (GDS) and the Hughes' Clinical Dementia Rating (CDR), it was determined if the participants undergo a successful aging, if they are in a preclinical phase (Mild Cognitive Impairment) or whether they are developing a disease process (dementia, mild, moderate or severe). Based on this evidence, participants are placed in a stage and averages of their performances in the MMSE are drawn, which are compared to the scores of non-institutionalized persons and have a normal or pathological process. In addition, some of the additional variables that are taken into account are the differences in gender and years of schooling

Results: There are statistically significant differences in performance in this screening test, when compared elder adults with non-institutionalized elderly.

Conclusions: When applying screening test (MMSE) should be considered variables such as institutionalization or not patients, schooling and age to get more accurate conclusions about the level of functionality of the Elderly and define whether it is a successful aging, mild cognitive impairment or any level of dementia (usually Alzheimer Disease) Correspondence: *Oscar M. Aguilar Mejía, Master in Neuropsychology, Psychology, Pontificia Universidad Javeriana, Cr.5 #39 - 00 Edif. Manuel Briceño, Bogotá 0057, Colombia. E-mail: oaguilar@javeriana.edu.co*

E. BAUSELA. Neuropsychological Pattern of Patients with Acquired Brain Damage Using the Luria-DNA Battery.

Objective: Neuropsychological evaluation is not equally feasible in all types of cognitive impairments. Traditionally, cognitive assessment has shown its usefulness in patients with focal neurological lesions Objective: To determine the strengths and weaknesses that may contribute to delineate an individualized rehabilitation program

Participants and Methods: A non-experimental, ex-post facto, methodology was implemented. The sample consisted of patients who had suffered from stroke, brain tumor, or traumatic brain injury of different etiologies and localization. The Luria -DNA neuropsychological battery and the K-ABC test were used for the assessment of patients.

Results: When patients suffering from frontal damage were compared with non-frontal damaged subjects, significant differences were found regarding crystallized intelligence ($F=4.578$ y $p=0.034$) and general intellectual ability ($F=5.352$ y $p=0.022$). When comparison was made according to hemispheric localization, significant differences were found in Receptive Speech ($F=2.880$ y $p=0.58$). When type of damage was considered, crystallized intelligence showed significant differences ($F=2.591$, $p=$, 0,077)

Conclusions: Our results show that crystallized intelligence is more vulnerable than fluid intelligence to acquired brain damage. Crystallized abilities are usually considered less sensitive to the aging process and can be improved at any stage of life. Thus, neuropsychological rehabilitation can be directed to develop skills and abilities useful for reading comprehension and general verbal abilities

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A.G. CAPOVILLA, N.M. DIAS, B.T. TREVISAN, J.M. MONTIEL & A.M. ANDRADE. Validity of Neuropsychological Instruments for Attention Assessment in Brazilian Children.

Objective: The attention enables information filtration and selection, permitting the sensible and efficient use of the limited individual cognitive resources, and it is present in practically all actions and mental process. It can be classified in selective, divided, alternated and sustained attention. As attentional alterations can cause disorganization in routine activities, being also related to low academic performance, it is important to assess it, especially in children. This study aimed for validity evidences for two attention tests.

Participants and Methods: Participants were 407 students from 1st to 4th grade of an elementary public school of São Paulo state, Brazil, with ages between 6 and 15 years, of both genders. Such infants were evaluated by the Cancelling Attention Test (CAT) and Trial Making Test - Parts A and B (TMT).

Results: ANOVAs of the grade effect about the total score in CAT revealed increase of the scores in the successive grades, except of the 1st to the 2nd levels. The third part of the test was that better discriminated between the levels. For TMT, part A, the ANOVA showed increase in the scores of the 1st to the 3rd levels; regarding the part B, the test discriminated only between 4th level and the others one. Person correlations analyses were conducted between the tests and between these and the school grades. Diverse significant correlations were found.

Conclusions: In this way, this study supplied validity evidences of two neuropsychological tests for attention assessment, revealing effect of school level, correlations between both tests, and between the tests and the school grades.

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A.G. CAPOVILLA, B.T. TREVISAN, N.M. DIAS, A.A. BERBERIAN, G.T. SOUZA & F.C. CAPOVILLA. Neuropsychological Assessment of Oral Language in Brazilian Preschool Children.

Objective: For the full development of the oral language, it is necessary the joint development of diverse abilities, as phonology, morphology, syntax, semantic and pragmatic. Disturbances in the acquisition of oral language are related to more general developmental disturbances, as autism and Down Syndrome, and to specific disturbances, like dyslexia and childlike aphasia. Then, it is fundamental develop, validate and normalizing assessment instruments of oral language. To permit assessment of preschool children, this study aimed to investigate validity evidences of instruments of oral language assessment.

Participants and Methods: The participants were 345 Brazilian preschool children with ages between 3 and 6 years old, evaluated in Peabody Picture Vocabulary Test, Naming Test, Words and Nonwords Repetition Test, Phonological Discrimination Test, Expressive Vocabulary Assessment List (EVAL), Syntactic Awareness Test and Phonological Awareness Test.

Results: Analyses of Variance revealed increasing performance with age progression for total scores in Picture Vocabulary Test, Naming Test, Words and Nonwords Repetition Test, Phonological Discrimination Test, Syntactic Awareness Test, and Phonological Awareness Test. So, significant differences were found for all tests, except for EVAL, which was too easy for that sample, and for phonemic subtests of Phonological Awareness Test, which were too difficult.

Conclusions: This study supply validity evidences of instruments of oral language assessment for Brazilian preschool children. The early detection of those disturbances in the acquisition of the language enables the introduction of preventive procedures, decreasing the incidence or the severity of future problems.

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N.A. DONINGER, B.C. DENNIS, G.R. JEWELL & P.D. NEWMAN. Demographic and Neuropsychological Correlates of the Brixton Spatial Anticipation Test.

Objective: The Brixton Spatial Anticipation Test (BSAT) is an executive based measure of rule attainment and detection with demonstrated sensitivity to impairments in inductive reasoning and working memory associated with left lateral frontal lesions; however, the psychometrics of this instrument remain underdeveloped.

Participants and Methods: Demographic influences on BSAT performance were examined from a convenience sample of patients referred for neuropsychological evaluation. Construct validity was examined by comparing correlations with other executive measures relative to other cognitive tests.

Results: BSAT performance was significantly associated with age but unrelated to education and gender. Contrary to prior research, performance was unrelated to lesion laterality among inpatients (n=37) on a rehabilitation medicine unit who performed significantly below outpatients (n=73). BSAT performance generally correlated more strongly with executive measures than with most other neuropsychological tests, including language, visuospatial, and motor screening. Significant relationships between BSAT and indices of set-shifting, visual analytic reasoning, and initiation/perseveration remained after accounting for general ability. Principal components analysis with varimax rotation from executive tests yielded a three factor solution with the BSAT, WCST categories, Trail Making B, and Stroop interference loading highly on the first factor.

Conclusions: These results suggest the BSAT is sensitive to levels of cerebral injury (i.e., acute v subacute). Additionally, performance on the BSAT and more established executive measures relate to a shared underlying construct(s) independent from general ability. Brief administration time and modified use for nonverbal patients further support potential use of the BSAT with acutely hospitalized patients and those with physical limitations often seen in rehabilitation settings.

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T. HATTA, A. KANARI, M. MASE & H. KABASAWA. Validity examination of neuropsychological tests with NIRS (Near-Infrared Spectroscopy).

Objective: To examine the sensitivity of a new brain-imaging technique, NIRS (Near-Infrared Spectroscopy) in order to examine the validity of neuropsychological tests, especially in developing new tests.

Participants and Methods: Twenty-three Japanese people with no sign of neurological/psychological problems participated in this study. Their ages ranged from 19 to 33 years with a mean of 24.3 years.

We used a 52-channel spectrometer (Hitachi ETG-4000). Thirty-three pairs of optodes were attached to the scalp based on the rubber-cap system. Changes in OxyHb and DeoxyHb and TotalHb were measured using two different wavelengths of near-infrared light. This NIRS measurements were conducted during the actual performance of the verbal fluency test, memory test and D-CAT.

Results: The NIRS data confirmed different cerebral activation between semantic and letter fluency tasks, between memory test and attention test, between attention test and verbal fluency test. These were coincident with the findings by previous fMRI studies.

Conclusions: Based upon these findings, it is clear that the NIRS is useful and enough sensitive new brain imaging techniques that is useful to examine the validity of neuropsychological tests.

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G.L. IVERSON & B.L. BROOKS. New Psychometric Criteria for DSM-IV Cognitive Disorder NOS.

Objective: Cognitive disorder NOS (CD-NOS) is an Axis I DSM-IV diagnosis for people who have acquired cognitive impairments. CD-NOS (i.e., "mild neurocognitive disorder") is diagnosed if there is "impairment" in two or more cognitive domains, but the level of impairment is not sufficient to meet criteria for dementia. The purpose of this study is to introduce new psychometric criteria for identifying possible or probable cognitive impairment in two or more domains.

Participants and Methods: Participants were 1,261 healthy community dwelling adults between the ages of 18 and 79 from the Neuropsychological Assessment Battery (NAB) standardization sample. An abbreviated version of the NAB, administered in approximately two hours, was derived by selecting 15 of the 24 NAB tests. These included five tests measuring attention and speed, two measuring language, three measuring learning and memory, two measuring spatial abilities, and three measuring executive functioning.

Results: Criteria for possible and probable CD-NOS were derived by calculating the base rates of low scores in each domain, using <25th percentile, <1SD, and <10th percentile as the cutoffs and stratifying by intellectual abilities (measured by the Reynolds Intellectual Screening Test, RIST). Sample criteria for possible impairment across cognitive domains in those with average RIST scores are as follows: (a) Attention, 3 of 10 scores <1SD; (b) Language, 1 of 2 scores <10th percentile; (c) Memory, 2 of 6 scores <1SD; Spatial, 1 of 2 scores <10th percentile; and Executive Functions, 1 of 3 scores <10th percentile.

Conclusions: Case studies illustrating the new criteria will be presented.

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S.S. LACERDA, P.B. ANDREOLI & S.B. ANDREOLI. Development of the Brazilian Version of Rey Auditory And Verbal Learning Test (RAVLT-BR).

Objective: To translate and adaptation and verify the applicability of the Brazilian version of Rey Auditory and Verbal Learning Test (RAVLT-BR).

Participants and Methods: The original instructions of the RAVLT and its stimulus were translated using a back translation method and the adaptation was realized. After stimulus translation, those which filled all the conditions (frequency of 50 per million and monosyllabic or disyllabic words and concrete nouns) were maintained and the others were selected from a count of frequency of words occurrence in texts written in Portuguese.

Results: In the verbal stimulus selection, from 255.000 words present in the Brazilian corpora, only 397 words filled all the conditions. The words selected to compose the Brazilian version of RAVLT were: List A - carro, quadro, bola, café, meia, pai, sol, jardim, chapéu, banda, boca, loja, cor, casa e rio; List B - mesa, filme, livro, mundo, pé, lixo, parque, água, bar, chefe, luz, arma, jornal, festa e papel. In a pilot study we didn't find any problem in the comprehension of the new instructions.

Conclusions: The use of neuropsychological assessment batteries in Brazil has been grown in the last decade. However, many of them don't receive adequacy translation and adaptation. The occurrence of any significant problem during the application of RAVLT-BR suggests that as the translation as the stimulus selection was made of an adequacy form. The present study shows the applicability of the Brazilian version of RAVLT and contributes to increase the validation and reliability of the neuropsychological assessment of memory.

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S.S. LACERDA, P.B. ANDREOLI & S.B. ANDREOLI. Reliability of the Brazilian Version of Rey Auditory And Verbal Learning Test (RAVLT-BR).

Objective: To evaluate the reliability of the Brazilian version of Rey Auditory and Verbal Learning Test (RAVLT-BR).

Participants and Methods: Two pairs of evaluators were trained to use the RAVLT-BR collecting the data independently. Twenty two subjects with ages between 10 and 79 years participated of this study. Each pair of evaluators assessed one subject per time and collect independent data for each variable of RAVLT-BR. The data collected were compared using the Intraclass Correlation (ICC) coefficient.

Results: The participants mean age was 36.68 years (sd=20.36) and the mean of formal schooling was 8.91 (sd=4.39). The ICC coefficients for the list A learning were A1 = 0,995 (score min-max=3-12 / $\sigma^2=4.957$), A2= 0,971 (score min-max=6-13 / $\sigma^2=4.929$); A3= 1,000 (score min-max=6-15 / $\sigma^2=6.790$); A4=0,976 (score min-max=7-15 / $\sigma^2=6.390$); A5=1,000 (score min-max=7-15 / $\sigma^2=6.362$); Total=0,997 (score min-max=38-68 / $\sigma^2=121.290$) and for immediate and delay recall were, respectively A6=0,994 (score min-max=4-15 / $\sigma^2=7.700$) and A7= 0,988 (score min-max=5-15 / $\sigma^2=8.033$). For list B recall the ICC coefficient was 0,989 (score min-max=2-10 / $\sigma^2=4.262$).

Conclusions: The ICC coefficient is a measure of consistency or agreement of a data collection. The high value of ICC coefficient shows a high agreement between each pair of evaluators. The variability of each variable score guarantees the reliability of those high ICC coefficients. This way, we conclude that the Brazilian version of RAVLT can be used to assessment the Brazilian population due to its high reliability score.

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L.E. MARGULIS, V.I. JAICHENCO, V.A. MARÍN, V. CANSECO, L. BENITO & A.R. FERRERES. Test of Evocation and Recognition of Concrete and Abstract Nouns: Normative Study.

Objective: Difficulty in evoking words is a common complaint in patients consulting about a suspected cognitive decline. Classically, the capacity for word retrieving is evaluated by means of tests of visual confrontation naming. However, in incipient processes, and most specially in highly educated patients, picture naming (concrete nouns) not always evidences the difficulty reported by the patients.

Objectives: 1) To develop a test of evocation more sensitive than picture naming, and that enables discrimination between retrieving of concrete and abstract nouns. 2) To carry out a normative study in Spanish-speaking population.

Participants and Methods: Instrument: A test with two components was designed: 1) naming after a definition given both orally and in writing, and 2) matching of the definition with the correct word, picked out from 4 possible choices.

Stimuli corpus: 32 definitions of nouns, 16 concrete y 16 abstract, distributed in two frequency ranges for each group. The same 32 stimuli are used in both parts of the test, so that not only the capacity of evocation after the definition is evaluated, but the comprehension of definitions and words as well.

Sample: 270 healthy subjects, distributed in three ranges of age and three ranges of educational level, half of them women and half men.

Results: Results show:

- Significant effect of educational level.
- Significant effect of age in the abstract nouns group, of low frequency.
- No differences related to gender.

Conclusions: Even though further study is needed, the results suggest that the trial can be helpful for diagnose evocation deficits in highly educated subjects.

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M.M. MARTÍNEZ-CUITIÑO & J.P. BARREYRO. Pyramids and Palm Trees or Pyramids and Pharaohs? RTs Differences in a Spanish Semantic Battery.

Objective: Semantic memory stores objects, words, and general world knowledge's meanings (Patterson & Hodges, 1995). Pyramids and Palm Trees is the most used test to assess this type of memory (Howard & Patterson, 1992). Our Spanish adaptation has been named "Pyramids and Pharaohs" because it does not include the pyramids and pharaohs trial, due to its low specificity and sensibility in our local population. The aim of this project is to present an amplification of the Pyramids and Pharaohs validation considering RTs differences between controls and patients (Martínez-Cuitiño & Barreyro, 2007).

Participants and Methods: Ten semantic dementia patients and 40 normal controls participated in this study. Both modalities of the Pyramids and Pharaohs Test were administered on a computer screen: verbal and pictorial.

Results: Significant differences were found on RTs between controls and patients in both modalities: verbal ($F(1.48)=167.50, p<.01$) and pictorial ($F(1.48)=145.525, p<.01$). Moreover, controls showed significant differences between animate and inanimate trials in verbal ($F(1.39)=7.176, p<.05$) and pictorial ($F(1.39)=4.344, p<.05$) modalities. These differences were not found in patients.

Conclusions: Differences in RTs in the Pyramids and Pharaohs Test found between normal controls and semantic dementia patients point to an acceptable convergent validity. The test shows high sensitivity and specificity to detect semantic acquired disorders in Spanish.

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V. PETRAUSKAS & S. BOWDEN. Item Level Analysis of WMS-III Digit Span Scores in a Heterogeneous Neuroscience Sample with Cross Validation in a Seizure Disorders Sample.

Objective: For clinical interpretation, test scores are often summed. These summed items are referred to as item parcels. For example, the score on the Digit Span subtest from the WMS-III comprises a parcel of 16 forward and 16 backward items. The use of parcels is controversial because the process of parcelling may involve untested assumptions regarding the trait composition of the items. Conscious of the arbitrary nature of many parcels, clinicians often adopt alternative interpretive strategies. For this reason forward digit span is sometimes interpreted separately from backward digit span. At a practical level, unpacking parcels and modelling item level data allows testing of clinical hypotheses such as the commonly inferred “dissociation” between forward and backward digit span.

Participants and Methods: The present study explored the dimensionality of the WMS-III Digit Span items in a sample of heterogeneous neurosciences patients ($n=267$) using confirmatory factor analysis (CFA). The model for Digit Span was then cross validated in a seizure disorders sample ($n=233$).

Results: Results suggested that four correlated factors underlie the Digit Span subtest of the WMS-III. The factors reflected presentation order and item difficulty. A simple dissociation between forward and backward digit span was not observed.

Conclusions: Item level modelling facilitates clarification of subtest trait composition, including the nature of clinical dissociations, and facilitates rational test scoring.

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V.I. SCHMIDT, N. MESSOULAM & F. MOLINA. Psychometry Contribution for the Assessment of Impulsivity. Presentation of the Sensation Seeking Scale (SSS-V) Argentina Version.

Objective: Sensation Seeking, a construct closely related to impulsivity, is a trait defined by the seeking of varied, novel, complex, and intense situations and experiences, and the willingness to take physical, social, and financial risks for the sake of such experience (Zuckerman, 1994). The Sensation Seeking Scale (SSS-V; Zuckerman, Eysenck y Eysenck, 1978; revised by Zuckerman, 1994) is the most widely used measure to assess this construct. It allows the assessment of impulsive and non-impulsive sensation seeking. In previous studies (Schmidt, Molina, Messoulam, y Abal, 2004; Messoulam, Abal, y Molina, 2005) we showed a variety of psychometric problems when using the SSS-V with Argentine samples. The purpose of the present study was to improve SSS-V metric properties and made it culturally more appropriate.

Participants and Methods: The Sensation Seeking Scale (SSS-V; Zuckerman, Eysenck y Eysenck, 1978; revised by Zuckerman, 1994) was applied to a 247 adolescent sample (from 12 to 19 years) from Argentina. Scale quality was established by assessing content adequacy, construct validity, reliability, and discriminant capacity.

Results: The result is a scale of 24 items that cover four factors. The SSS-V Argentina adaptation shows excellent metric properties.

Conclusions: The steps followed for the adaptation of this instrument shows how Psychometry can contribute to the assessment of Impulsivity.

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N. SIERRA, T. TORRALVA, M. ROCA, A. BONIFACIO, E. GLEICHGERRCHT & F. MANES. Addenbrooke's Cognitive Examination: a useful brief screening test for Mild Cognitive Impairment.

Objective: The detection of MCI cases depends on the sensitivity of memory tests within the standard neuropsychological assessment bat-

tery. Current research in the field highlights the need for identification of MCI at bedside as neuropsychological departments are not often available for every clinician. Previous studies have shown that the Mini-Mental State Examination has low sensitivity for cases of MCI, revealing the need for a brief yet reliable instrument to detect possible MCI patients. This study sought to determine the Addenbrooke's Cognitive Examination's (ACE) utility as a screening test to discriminate between normal aging and Mild Cognitive Impairment (MCI). With this objective in mind we analyzed which ACE items were useful for that purpose and its correlation with an extensive neuropsychological assessment.

Participants and Methods: Patients with MCI diagnosis ($n = 21$) and paired controls ($n = 19$) were assessed with the ACE and an extensive neuropsychological assessment. Correlations between ACE scores and neuropsychological variables were conducted.

Results: The ACE total score differed significantly between normal controls and MCI ($p < .001$). Specific particular items of the ACE also differed between the groups, including the three words recall task ($p < .01$), the number of intrusion in the episodic memory task ($p < .05$), and semantic verbal fluency ($p < .05$). These ACE subtest scores significantly correlated with specialized tests of the neuropsychological assessment.

Conclusions: The ACE is a sensitive brief screening test for cases of MCI, and some of its subtests reliably reflect performance on tests of an extensive neuropsychological assessment.

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T. TORRALVA, M. ROCA, C. RAIMONDI, A. BONIFACIO, E. GLEICHGERRCHT & F. MANES. Spanish Validation of the Revised Addenbrooke's Cognitive Examination (ACE-R).

Objective: The Addenbrooke's Cognitive Examination Revised (ACE-R) is an improved version of the earlier brief screening test which has been validated in English with high sensitivity and specificity to detect early cognitive dysfunction. The aim of this study was to validate the Spanish version of the ACE-R.

Participants and Methods: A group of 26 patients with Alzheimer Disease (AD; NINCS-ADRDA criteria) paired by age, sex, and years of education with 28 healthy controls were assessed using the ACE-R. Their cognitive functioning was measured with the Clinical Dementia Rating (CDR) Scale. Clinical and neuropsychological data were evaluated for each patient, as needed for differential diagnosis.

Results: Internal reliability was very good (alpha coefficient = 0.85). Concurrent validity, calculated by correlating ACE-R total score with CDR, was significant ($r = -.914$, $p < .001$). AD and controls differed significantly on every subtotal score, as well as on the ACE-R total score. With an 88-point cut-off score, sensitivity was 98.2% and specificity was 99.4%, while an 82-point cut-off score showed 100% sensitivity with 88.5% specificity. Both cut-off scores had higher sensitivity than the MMSE for the detection of dementia.

Conclusions: The Spanish version of the ACE-R is a brief yet reliable screening tool for the detection of early cognitive impairment.

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F.A. VALLEJO. The Effect of Neuropsychological Impairment on the Recount of Autobiographical Episodes in Older People.

Objective: Based on the findings about the deterioration of the memory systems (episodic and working) manifested in neurodegenerative illness and about the dependence of the oral production of narratives on these systems we hypothesized the existence of a close association between the degree of deterioration and the preservation of the narrative discourse competence

Participants and Methods: A set of neuropsychological tests was applied to a universe of 201 subjects living in a nursing home. We discarded those physically, psychologically or neurologically severely impaired. A number of 18 narratives of six older people with different degrees of cognitive deterioration were investigated.

These narratives were obtained during interviews in which the subjects were asked for three anecdotes corresponding to three periods of their lives: infancy, youth and recent time.

To analyze these stories we used the concept of metafunctions of the Systemic Functional Grammar (SFG) and some generative and cognitive categories on narrative productions. The units of analysis were the following: a) clause rank: background information, occurrence (eventive/stative), evaluations and interpersonal.

b) above the clause rank: coherence (frame/cohesion, causal/evaluation, endings and epilogue); juncture, episodic (dialogue or mimesis) and apex.

Results: The statistical analysis was the frequency of these units according to the degree of impairment in the mode of lineal regression. The results showed a selective and significant effect on the occurrences units in narratives and on the episodic memory in the mild impaired subjects and a serious discourse incapacity to recount episodes, in the moderate impaired subjects.

Conclusions: The results showed that the analysis of narratives is a reliable and simple tool to measure the degree of cognitive impairment, because it matches with the neuropsychological assessment.

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Child - Assessment

S.M. GONSALEZ. Tower of Hanoi - A Contribution for Normalization of the Task in Children from 9 to 13 years old.

Objective: The aim of this study was to investigate the performance of normal children from 9 to 13 years old in the Tower of Hanoi Task, which evaluates executive function, in order to contribute to its normalization for the Brazilian population.

Participants and Methods: Seventy children from 9 to 13 years old, of a private school in São Paulo were evaluated using Tower of Hanoi. This task has two difficulty levels (three and four pieces), with five attempts in each level.

Results: The results are presented in accordance with the mean, median and standard deviation obtained by the groups and the varying time, movement, attempt, gender and age.

It can be noted that the younger children had more number of movements and time in comparison with older children. There no observed differences for boys and girls.

With 4 pieces, the number of movements remained high in all age groups. In total for 4 pieces, the boys showed better performance than females. The average time of application for 3 and 4 pieces was similar in boys and girls.

Conclusions: In this study we observed that boys and girls had similar performance in Tower of Hanoi, and older kids presented better results, which could be related to training academic learning.

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M.S. ISON & M.A. CARRADA. Assessment of Attentional Efficiency: Preliminary Normative Study Carried out with Students in Mendoza.

Objective: It is the purpose of this work to present the norms of Magallanes Scale for Visual Attention (EMAV, García Pérez and Magaz Lago, 2000)

Participants and Methods: Sampled through 534 students in Mendoza (266 girls and 268 boys) aged between 6 and 13. These children attended urban elementary schools in Gran Mendoza, first through sixth grade in Basic General Learning (E.G.B).

Results: This instrument is of great interest for a neuropsychological assessment of attentional functions, by measuring capacity and attentional efficiency in children and adults searching for similar figures

framed into a suggested model. Its advantage lies in the fact that it is a free version with a linguistic and cultural influence. Aimed at this work, this instrument was used to evaluate attentional efficiency. Direct marks were obtained [correct answers – (incorrect answers + omissions)] for each age and gender. Thus, accumulative frequencies were determined and later transformed into percentile ranges.

Conclusions: The assessment of attentional skills in children - measured with valid, trustworthy instruments adapted to our school population – becomes relevant when giving and enriching the psychodiagnosis in school orientation tasks, as well as in the adaptation of psychoeducational intervention programs to increase the academic and social performance of the child.

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L. KIBRIK, V. JAICHENCO, C. MEDINA, Y. SEVILLA & V. SLUPSKI. Assessing Production And Comprehension Abilities In Children Narratives.

Objective: The narrative is a complex skill that requires the integration of linguistic, cognitive, social and pragmatic abilities. For that reason, it has a high potential as a clinical assessment tool and it is more sensitive than the standard methods for some specific linguistic areas (Norbury y Bishop, 2003).

This study aims at presenting local norms of lexical and morphosyntactic development and narratives abilities as well and comparing normative data to a group of children with SLI

Participants and Methods: We designed an instrument aiming at assessing linguistic abilities in preschoolers. Based on visual stimulus, it elicits a sample of discourse, which allows to collect information about children's lexical, morpho-syntactic, and semantic abilities, in narrative production and comprehension.

We assessed 100 children from 4, 5 and 6 years old and 8 with SLI matched with controls. They were evaluated with PLS 4 and Expressive One Word to obtain language age and with this narrative test. Quantitative and qualitative analysis were obtained.

Results: The analysis allowed obtaining local and updated norms to evaluate linguistic abilities in normal development. Significant differences were found in the narratives related to children's ages in the amount of ideas, the narrative units produced and comprehension values. Furthermore, significant differences were found in lexical and morphosyntactic parameters as in narrative and comprehension abilities in SLI children related to norms.

Conclusions: The instrument is sensitive in children with SLI and it is extremely useful in order to detect children with language and communications disorders in a more dynamic and ecologic way.

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G.J. NOGUEIRA, F. NOGUEIRA, A. NATINZON, J. VILLALOBOS, V. MONACO & M. FRUGONE. Clock Drawing Test in Children. Developmental evaluation.

Objective: Study the development of a complex task as drawing a clock face in normal children of school age (6-13).

Compare and evaluate different administration and assessment methods. Investigate the relationship of the test and different cognitive processes.

Participants and Methods: 214 normal children of both sexes from 1st to 7th grade, were individually evaluated during school hours and during the same school term.

They were requested to "draw a clock" both in a blank page and in a printed circle 5 cm in diameter separately. Then they had to set the time at two different hours (10 past 10 and 3.30). Questions regarding having/wearing a clock/watch and their knowledge about the hours were formulated. Three additional questions explored language development.

Drawings were evaluated in a scale according to standard criteria for adults plus new criteria developed by the author to consider strategies. Omissions were considered separately.

Spontaneous error detection or correction was registered.

All drawings were evaluated independently by two investigators.

Results: Results were processed with an SPSS 10 program and expressed as ANOVA, Correlations or Chi sq as suitable.

No differences were observed regarding sex or laterality

No differences were observed between both drawings

Interobserver reliability was .87

All variables showed a curve strongly related to age with a turning point at 8-9 years. There was a strong relationship among age, standard evaluation, strategy evaluation, language level and time setting knowledge.

Conclusions: Clock drawing follows a progression curve with a turning point about 9 years and gradual stabilization afterwards.

We considered this to represent a transition from gnosis-praxic abilities to executive functions plus development of the time concept.

A canonic pattern is gradually developed and kept subjacent as well as the gnosis-praxic functions

Strategy evaluation is a useful tool particularly after 9 years when executive functions dominate the production.

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A. URZÚA, M. RAMOS, A. ALQUINTA & C. ALDAY. **Madurez Neuropsicológica en preescolares: propiedades psicométricas del test CUMANIN.**

Objective: Evaluar las propiedades psicométricas post adaptación y normalización de la Batería de Madurez Neuropsicológica CUMANIN

Participants and Methods: 243 infantes (119 niños y 124 niñas), de edades comprendidas entre 36 y 72 meses, pertenecientes a instituciones públicas y privadas.

Results: el instrumento posee una buena consistencia interna y es capaz de discriminar entre rangos de edad, obteniéndose rendimientos más altos a medida que la edad avanza. No se encontraron diferencias en puntajes por sexo. Factores tales como nivel socioeconómico y tipo de institución educacional a la que asiste el p^ávulo determinaron diferencias en los resultados obtenidos.

Conclusions: Se concluye que el Cuestionario de Madurez Neuropsicológica Infantil CUMANIN es un instrumento v^álido y confiable para la evaluación del constructo madurez neuropsicológica en población preescolar.

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Child - Developmental Disorders

P. LACEY & A.R. FERRERES. **BRIEF PROTOCOL TO EVALUATE DIFFICULTIES IN THE DEVELOPMENT OF READING SKILLS.**

Objective: The aims of this project were: (1) to design a brief battery to evaluate reading decodification processes and cognitive skills related to reading decodification in primary school children (second- and third-graders); (2) to carry out a pilot study to verify the appropriateness of the stimuli and the influence of socio-demographic variables.

Participants and Methods: We designed a battery that included nine tasks: three that could be carried out collectively, and six individually. The tasks evaluate: word and non-word reading, visual orthographic knowledge (alograph recognition, lexical decisions with pseudohomophones, homophone comprehension), phonological skills (non-word repetition, syllabic and phonemic segmentation) and lexical-phonological skills (rapid naming). Some 152 second- and third-graders participated in the pilot study. It comprised the battery we had designed and a reading performance task (TECLE). We have got descriptive statistics and we studied the effect of socio-demographic variables.

Results: There was no difficulty in carrying out any of the tasks. The whole protocol takes approximately five minutes per child. The variables that influenced the results were: age/grade and socioeconomic status. Regarding the tasks, the most difficult ones were those of phonemic segmentation and those which evaluate lexical-orthographic knowledge (lexical decision and homophone comprehension). The relevancy of the test to evaluate reading development is discussed, taking into account the results of the pilot study.

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Cognitive Neuroscience

M. CUEVAS & H. WAISBURG. **Relation between mental processing and learning disorder in school aged children at high biological risk.**

Objective: To describe mental processing within the modular paradigm of the executive functions (E.F.) (Alexander and Stuss, 2002, Zelazo and col. 2003) and its relation with learning disorders in children at high biological risk

Participants and Methods: Sample: Cross-sectional sequential sample of children seen in the unit of psychopedagogy within the follow-up program of newborns at high biological risk (premature with extremely low birth weight).

Assessment battery: Stanford-Binet Intelligence Scale: Fourth Ed. Kaufman Assessment battery for children. Nepsy battery. Scholl bulletin and Teacher report

Design: Descriptive, cross-sectional, correlational study. Statistical analysis SPSS 13.0

Results: N: 40 children age: X/: 8 years, 7 months. Learning problems: Without problems: 20%. School bulletin: Failed grade: 46% Teacher report: outside school support.: 34%. Stanford - Binet Intelligence Scale: Score (PE) Verbal reasoning: X/: 88 PE abstract/visual reasoning: X/: 87 PE quantitative Reasoning: X/: 89. PE short-term memory: X/: 81. Correlation (c) p: 0.001

Kaufman battery. (X/10, d/s: 3) Information processing : sequential: X/: 9 Simultaneous : X/: 6. (c) p: 0.2 .Nepsy: (X/: 10 d/s 3) visual Attention: X/: 8 Cognitive flexibility: X/: 6.

Conclusions: 80% of the evaluated sample presents school failure. The evaluation of E.F. shows dysfunction in simultaneous processing (parieto-occipital areas) with loss of sensory memory causing significant reduction of immediate memory. Sequential processing (temporal-frontal areas) and attention span (prefrontal areas) are at normal levels. Task solving of greater cognitive complexity (cognitive flexibility, planning) shows dysfunction correlated significantly with simultaneous processing. This study confirms the predictive value of the evaluation model for the detection of risk of school failure because of learning disorders

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R.D. DOÑA, P.B. MORALES & F.O. PENNA. **Sexuality, Emotions, Coping Abilities, and Drug Abuse in Female Students.**

Objective: This work's aim is to know the relationship among age, emotion, and coping abilities with drugs and alcohol abuse during sex, according to the Supra-Paradigmatic Integrative Model

Participants and Methods: The 136 female sample, aged 18 to 39 (media±sd: 23.4±4.07), took the Clinic Evaluation Record

Results: Results are: 11.76% drink alcohol and 3.68% do drugs during sex. In the Affection System (AS) 41.04% are very emotional, 33.58% are relatively emotional, 5.22% are low emotional, and 2.24% are no emotional at all. At Behavioural System (BS), 13.43% are very confrontational, 55.97% are confrontational, 27.61% low confrontational, and 2.99% are a little avoidant and/or avoidant. In order to analyze the association among variables the Spearman Correlation Coefficient

(rs) was used. Positive, highly meaningful correlations between age and marijuana ($p=0.01$; $rs=0.23$) and cocaine intake ($p<0.01$; $rs=0.50$), as well as drug ($p<0.01$; $rs=0.44$) and alcohol abuse ($p<0.01$; $rs=0.36$) during sex: between BS, marijuana ($p<0.01$; $rs=0.33$) and cocaine intake ($p<0.01$; $rs=0.56$), and these substances ($p<0.01$; $rs=0.52$) and alcohol abuse ($p<0.01$; $rs=0.42$) with a sexual aim were obtained.

Conclusions: These results suggest that when older, women perceive themselves as more emotional and with more coping abilities, increasing marijuana and cocaine abuse. Besides, during sex these drugs plus alcohol are used. Supported by P.N°: 40105.

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M.A. ÁLVAREZ, G. GÓMEZ JARABO & L. QUEVEDO. DIFFERENTIAL PATTERN OF MEMORY DEFICITS IN HEALTHY AGING.

Objective: The massive research of cognitive disorders in older adults allows an early identification of those groups at higher risk for dementia. In order to perform this research, it is necessary to identify the pattern of change corresponding to memory deficit during normal aging. We present the preliminary results of a trans-cultural project aimed at the prevention of incapacity produced by cognitive deficits.

Participants and Methods: A group of 79 healthy volunteers (58-90 years old) were studied by means of a software (VINCI 1.0) designed to evaluate memory, attention and executive functions.

Results: Normal aging leads to a significative decrease in the amount of the remembered abstract figures, and an increase in the omitted, but identification errors are independent of age. In the verbal memory, the immediate memory decreases with age, and delayed memory is not associated with aging.

Conclusions: The neural basis of these results are discussed and analyzed, as well as the methodological and ethical issues related to early cognitive predictors of major disorders.

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A. IBANEZ, R. GONZALEZ, A. HAYE, E. HURTADO & V. LOPEZ. N170 & LPP DISCRIMINATION OF FACIAL STIMULI AND VALENCE OF WORDS IN INDIGENOUS AND NON-INDIGENOUS PARTICIPANTS.

Objective: In order to study the possible association between facial race processing and semantic valence, we record ERPs while indigenous and non-indigenous participants performed an implicit association task with face (indigenous and non-indigenous) and word (bad and good words) stimuli.

Participants and Methods: Participants: Eighteen indigenous Mapuches and 18 non-indigenous participants matched by age and gender. 40 faces (20 indigenous, 20 non-indigenous) standardized and validated previously were used. 140 words (75 positive, i.e., love; and 75 negative; i.e., war) were selected based on previous studies of close probability, content of word and neutral association to raze)

Participants performed an implicit association task on a computer. They had to categorize the race of faces and the content of words randomly presented. ERPs were recording using an Electrical geodesic G300 amplifier. Multiple repeated measures ANOVA, with Bonferroni correction were used.

Results: In agreement with previous reports, the N170/VPP component obtained with averaged groups was modulated by the structural features of stimuli (face and words). We find a significant modulation (higher amplitude) of N170 (but not in VPP) in response to facial out-group stimuli, especially in the positive in-group task. In the right occipital-temporal scalp we find a modulation based on positive words and in-group facial stimuli association in both groups. The LPP was lateralized (higher amplitude) on the frontal right scalp for bad words, and on the left for good words.

Conclusions: Our results support a N170 early modulation of other-race face classification, when semantic stimuli (positive words) are associated to in-group categorization (and negative words to out-group-categorization). Additionally, we find a late discrimination of the semantic content based on in-group positive and out-group negative association. Both results suggest an early and late face-word blending based on the processing of positive words and same race stimuli.

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M.L. ITURRY, M. MESA Y MORTEO, C. DILLON, V. VILLAR, L.E. RIQUELME, C. ZEGARRA, L. LOPEZ AMALFARA, C.G. RANALLI, C. SERRANO, F. TARAGANO & R.F. ALLEGRI. Executive-Verbal Dissociation in Mild Cognitive Impairment.

Objective: Fluid intelligence refers to abstract reasoning and problem solving abilities. It is considered a human higher cognitive factor central to general intelligence. When this reasoning is impaired normal subjects would fail in daily problem resolution.

Mild cognitive impairment (MCI) is the transitional state between the cognitive changes of normal aging and very early dementia.

Objective: To Evaluate neuropsychological differences in the Executive, verbal and global Intelligence Quotient (IQ) of patients with MCI and healthy comparison subjects.

Participants and Methods: 15 patients with diagnosis of MCI, according to Petersen criteria, and 15 normal subjects matched by age (70 +/-6) and educational level (11 +/- 4) were assessed with Wechsler Abbreviated Scale of Intelligence (WASI).

Results: Significant differences ($p<0.05$) were observed in executive IQ between MCI patients and healthy subjects. In addition, no significant differences were observed in verbal and global IQ.

Conclusions: MCI patients had worst performance than normal subjects in executive IQ subtest. This would demonstrate IQ executive impairment in this population at risk of dementia.

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J. MARTÍNEZ & P.F. ARGIBAY. Non-symbolic Arithmetic in Adults when Counting Strategies are Interfered.

Objective: Introduction: Evidence indicates that non-symbolic number representations allow adults and infants to compare, add or subtract arrays of dots, provided that only approximate accuracy is required. Such "number sense" seems to be prior to the emergence of symbolic number representations. After mathematical training, adults from different educational background tend to use arithmetical strategies like counting. An effective method to avoid counting is to repeat the alphabet during the test (Beran et al., 2006).

Objective: to investigate whether adults from different levels of mathematical education can perform simple calculations on non-symbolic numerosities when counting strategies are disrupted.

Participants and Methods: Experiment 1. Visual Comparison. Adults ($n = 39$); mean age 42.87 ± 15.23) were asked to compare two arrays of dots and judged which array contained more elements.

Experiment 2. Visual Addition. Adults ($n = 38$); mean age 43.84 ± 19.00) were asked to add two arrays of dots and compare their sum with a third set.

Both experiments were performed with and without interference through the alphabet.

Results: In both experiments subjects performed reliably above chance ($p < 0.001$, "z" test)

In Experiment 1, interference did not affect the performance 83.82 ± 9 vs. 83.87 ± 10 ($p > 0.05$, ANOVA test, "t" test). However in Experiment 2, interference did affect the performance 87.72 ± 11 vs. 82.46 ± 10 ($p < 0.05$, ANOVA test, "t" test)

Conclusions: Our results provide evidence that adults can use non-symbolic numerosities for arithmetic processing. This primitive approximate number representation system persists despite formal arithmetic training.

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P.B. MORALES, R.D. DOÑA & F.O. PENNA. Subjective Perception of Emotion, Coping Abilities, and Emotional Concern Facing Criticism in a Female Sample.

Objective: This work's aim is to know the relationship among Affective, Cognition, and Behaviour System dimensions, according to the Supra-Paradigmatic Integrative Model.

Participants and Methods: The 136 female sample, aged 18 to 39 (media±sd: 23.4±4.07), took the Clinic Evaluation Record.

Results: Results show that in the Affective System (AS), 41.04% are very emotional, 33.58% are emotional, 17.91% are relatively emotional, 5.22% are low emotional, and 2.24% are no emotional at all; in the Behaviour System (BS) 13.43% are very confrontational, 55.97% are confrontational, 27.61% are low confrontational, and 2.99% range from avoidant to very low avoidant; in the Cognition System (CS) 50% are emotionally very affected by criticism, 36% are low affected, and 11.81% are no emotionally affected facing criticism. Among positive correlations: meaningful between age and emotion (AS) ($p=0.05$; $rs=0.15$); highly meaningful between emotion (AS) and coping abilities (BS) ($p<0.01$; $rs=0.29$), and highly meaningful between emotion (AS) and emotional affectation facing criticism (CS) ($p<0.01$; $rs=0.34$).

Conclusions: Data suggest that the older the sample's women, the more emotional and coping they feel, as well as the perception of higher emotional affectation is increased facing criticism. Supported by P.N°: 40105. Correspondence: *Roberto D. Doña, Prof., Psicología, Universidad Nacional de San Luis, Ejército de Los Andes 950, San Luis 5700, Argentina. E-mail: rdona@unsl.edu.ar*

A.A. GARCIA, M.M. PASCUAL, S. PEREZ & V. FASULO. Different Learnings Strategies in University Students.

Objective: coordinated mental operations, which can be indirectly observed by the behavior of the subject in solving problems or in a reasoning task. They can be understood as projected activities that can be reflected in four stages in processing information: Acquisition, codification, recuperation and enforcement (Del Buey F. y Camarero Suárez F, 2000). The objective of this study was to compare the learning strategies used between students of first and second year of the career of psychology from Facultad de Ciencias Humanas.

Participants and Methods: The ACRA, strategies of learning scale cuestionary in a manual basis (Román, J, Gallego S, 2001) was used, which contains 35 learning strategies, divided in the four stages. The cuestionary was administered to 72 students

Results: The results give that 75 % of first year students use recovery strategy and just a 25 % acquisition strategies. The 70% of the second year students use acquisition strategies and just a 30 % the recovery of the information strategy.

Conclusions: We conclude that there are significative differences between the strategies used between both groups of students. Moreover the second year students does not uses the wide amounts of strategies which would allow them get a learning process more significative

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E. ROLDAN GERSCHCOVICH, M. ROSSI, S. PEREZ LLORET, D. DE ACHAVAL, M. MERELLO & R. LEIGUARDA. Decision-making and cognitive features of Parkinson's disease patients.

Objective: Background: Although most cognitive manifestations in Parkinson's disease (PD) patients are well known, theory of mind (TOM) and decision making (DM) has not yet been exhaustive studied.

Objective: To characterize TOM and DM performance in a non-demented sample of PD patients.

Participants and Methods: Thirty-three PD patients and 37 age, gender-education matched healthy subjects participated in the study. Motor status and severity were evaluated in PD patients while "on" with the Unified Parkinson Disease Rating Scale (UPDRS) and with the Hoehn & Yahr scale. A comprehensive neuropsychological battery, including Reading the Mind Test (RMT), Iowa Gambling Task (IGT) and Game of Dice Task (GDT), was used. Categorical data were compared using chi-square, and continuous variables by Mann-Whitney U test. Spearman coefficient was employed to correlate PD severity with the results of cognitive test.

Results: Examination of theory of mind revealed that PD patients were impaired in both RMT, in faces (17.0±2.2 vs. 18.4±1.1, $p<0.006$) and eyes tasks (21.2±5.1 vs. 27.4±1.4, $p<0.001$) in comparison to the control group. In regards to decision-making, PD patients were found to have a worse performance in the IGT (-0.8±23.3 vs. 18.7±30.8, $p<0.022$) than the healthy subjects, but were not different from them in the GDT (5.6±9.7 vs. 7.7±8.6, $p<0.5$). PD patients obtained significantly lower scores in global cognitive tests, than healthy subjects. Finally, UPDRS motor and activities of daily living subscales failed to correlate with theory of mind and decision-making deficits.

Conclusions: Besides known deficits in frontal lobe related cognitive functions, PD showed impairments in mind-reading and decision-making abilities under ambiguity but not under risk conditions.

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B. TÉLLEZ ALANÍS, V.M. PATIÑO TORREALVA & G. DELAHANTY MATUK. Impulsivity and Decision Making in Healthy Adults.

Objective: Impulsivity is considered by Eysenck & Eysenck (1985) as a component of extraversion in their personality tridimensional model. Decision making requires recognition of the problematic situation, its possible solutions and future consequences of the decision made. The Iowa Gambling Task (IGT) has been used in the study of advantageous and disadvantageous decision making (Bechara et al., 1994). The objective of this study was to explore if there is a relation between impulsivity and decision making in healthy adults.

Participants and Methods: Sixty healthy subjects between ages 18 and 30 years (mean age 22 years ±2) participated in the study, with an equal number of men and women. The Eysenck Personality Inventory (Eysenck y Eysenck, 1994) was used to assess impulsivity whereas the IGT was used to explore decision making.

Results: In the analysis of the IGT, the choices for deck A and B are put together as advantageous and those of C and D are arranged as disadvantageous. Nevertheless, in this study the analysis was done with each of the decks separately because we consider that they are psychologically different. A positive correlation was found between impulsivity and the number of cards chosen in deck B and a negative correlation with deck C.

Conclusions: These results show that in healthy adults, impulsivity is related to disadvantageous decisions (B) that imply a natural risk in a gambling behavior, but it is not related to those disadvantageous decisions that are clearly perceived as that (A).

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D.N. VELAZQUEZ-MARTINEZ, A.M. BALBOA VERDUZCO & H. SÁNCHEZ-CASTILLO. Mecanismos Conductuales de la percepción temporal en niños.

Objective: Se ha descrito que la percepción temporal en el rango de segundos a minutos es un proceso que permite la adaptación a las regularidades del entorno y es resultado del desarrollo de las capacidades de

razonamiento lógico alrededor del tiempo. Desde esta perspectiva una gran cantidad de desordenes neuropsiquiátricos pueden traer consigo fallas en los mecanismos de percepción temporal. Dentro de estos trastornos destaca la impulsividad y déficit de atención con hiperactividad (TDAH). Sin embargo, los mecanismos que subyacen a estas deficiencias temporales aun no son claros. El objetivo de la presente fue determinar las características conductuales para la estimación de intervalos así como determinar la cantidad de sesiones necesarias para adquirir la diferenciación temporal.

Participants and Methods: Se compararon las capacidades de niños de distintos grupos etarios (6, 8 y 12 años de edad) para diferenciar dos estímulos de distintas duraciones, 2seg (corto) vs 8seg (largo) en una tarea de bisección temporal. Los resultados obtenidos mostraron que los niños de 6 años requieren una mayor cantidad de sesiones de entrenamiento en comparación con los niños de 8 y 12 años.

Results: Los niños de 6 y 8 muestran diferencias en las pendientes de las funciones psicométricas, (reflejado en la fracción de Weber) lo que altera la sensibilidad al paso del tiempo. Por otra parte las funciones psicométricas de los niños de 12 años de edad muestran una forma parecida a la de los adultos entrenados en esta misma tarea.

Conclusions: Estos cambios observados en la sensibilidad al paso del tiempo pueden ser atribuidos a la maduración de los sistemas encargados de procesar la estimación temporal en el rango de segundos a minutos, lo que podría explicar porque el TDAH desaparece al madurar el niño. Correspondence: *David N. Velazquez-Martinez, PhD, Psicofisiología, UNAM, Av Universidad 3004, Col Copilco Universidad, Mexico DF 04510, Mexico. E-mail: hugosancas@gmail.com*

D. ZARABOZO, M.A. CASTRO-SALAS, A.A. GONZÁLEZ-GARRIDO & H. MADERA-CARRILLO. Abstract and Concrete Words During a Semantic Decision Task.

Objective: A “concreteness effect” (shorter reaction times and less errors when words were concrete) has been reported during lexical decision tasks, where subjects have to recognize words (concrete or abstract) or non-words. On the other hand, it has been described an electric negative peak (N400) when the final word of a sentence is “incongruent” with the preceding words. The aim of present study was to compare reaction time (RT) and evoked related potentials (ERPs) during a semantic decision task involving abstract or concrete words corresponding or not to a previous definition.

Participants and Methods: Participants were eight right-handed, male, undergraduate students, aged 21 to 35 years. They read 104 common definitions (half of concrete and half of abstract words) and 1 s after they were asked if a word (nouns, not verb nor adjective) presented during 1 s corresponded or not to previous definition. Half of words (concrete or abstract) corresponded to definitions. EEG was recorded from 19 scalp locations (10-20 International System).

Results: Repeated Measures ANOVA (Concrete-Abstract X Correspondent-Not Correspondent) showed that RT was shorter for concrete ($p < 0.001$) and for corresponding ($p < 0.001$) words, and interaction between two factors was non significant. ERPs showed N400-like component over central and parietal areas. ERPs differences were greater at right hemisphere.

Conclusions: Results confirm distinct RTs between word types and N400-like wave following a semantic incongruence. It also shows interhemispheric ERP differences when such incongruence is related to concrete or to abstract terms.

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Cross-Cultural Test Development

C.D. MARQUEZ DE LA PLATA, A. MORENO, M. ALEGRET, J.C. ARANGO-LASPRILLA, L.S. HYNAN, M. MUMPHREY, R. DIAZ-ARRASTIA & C.M. CULLUM. Clinical Utility of the Texas Naming Test in a Latin American Population.

Objective: Assessment of naming abilities among Spanish-speakers has traditionally utilized translated versions of English-language tests; how-

ever, these translated naming tests can introduce linguistic bias and are less sensitive for detecting dementia among poorly educated Spanish-speakers in the United States when compared to tests developed in Spanish. The present study was designed to determine the internal consistency and clinical utility of a naming test developed for Spanish-speakers (the Texas Spanish Naming Test; TNT) in subjects from Latin America.

Participants and Methods: Fifty-seven participants (36 demented and 21 non-demented individuals) from the Central Police Hospital, Bogota, Colombia were administered the TNT. The sample as a whole ranged in age from 51 to 92 years (mean = 72 years) and had a mean of 6.7 years of education.

Results: Inter-item reliability for the TNT was high (Cronbach's alpha = 0.933) and similar to TNT results among Spanish-speakers in the United States. Independent sample t-tests demonstrated significant differences between diagnostic groups with regard to age and education. Analysis of covariance showed poorer TNT performance among demented patients while controlling for the effect of age and education. Logistic regressions determined diagnostic classification accuracy improved from 68% in a model without the TNT to 91% with the TNT.

Conclusions: The TNT showed excellent inter-item reliability, suggesting the test items remain internally consistent when used in a Latin American population. Additionally, the TNT demonstrated clinical utility, as it differentiated demented patients from non-demented individuals with a high degree of accuracy. These results suggest the TNT can be used reliably in diagnostic neuropsychological evaluations in Latin American populations.

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N. OCAMPO. Differential Memory Evaluation in Bolivia: Acopio.

Objective: The Neurology and Neurophysiology Unit of the Clinical Hospital of La Paz, Bolivia (principal medical center of the country) was in need of an instrument for differential diagnosis of memory changes to facilitate neurological treatment and neuropsychological interventions. We undertook to develop such an instrument by gathering existing Spanish-language tests and determining their usefulness for a Bolivian population.

Participants and Methods: Subjects were patients over 65, Spanish-speaking, urban, working class with primary and secondary education and low to middle incomes. 62 patients were evaluated over 9 months from the following groups, determined independently by a neurologist's diagnosis:

Group A (N=16) Known pathology of memory

Group B (N=27) Neurological problems not exclusive to memory difficulties

Group C (N=19) Memory difficulties related to age

Test items were selected from 18 standardized instruments including the NEUROPSI, BENI, TEST MINIMENTAL (Chile), ESCALA DE TRASTORNO DE LA MEMORIA, DÍGITOS, TEST CURVA DE MEMORIA and the PRUEBA DE MEMORIA VERBAL SECUENCIAL (among others) and standardized for this population. These 121 items were organized by the 28 sub-types of memory identified: 4 sensory, 13 short-term (including working memory and operating memory and divided into verbal, numerical, and motor), and 11 long-term (including procedural, declarative, and emotional). All of the selected items from each of the 18 standardized tests were then compiled into a notebook (“Acopio”) to facilitate selection and administration as well as rapid recognition of the original source.

Results: The test results discriminated among the clinically determined groups.

Conclusions: The Acopio is suitable to a Bolivian population.

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I.C. PUERTA, M. ZAPATA, M.G. ROMERO, E. BARCELO, J.A. HERRERA, A. RAMÍREZ, C. BELTRÁN & D. MONTOYA. **Neuropsychological tests for the Colombian people.**

Objective: To standardize a battery of neuropsychological tests for the Colombian people.

Participants and Methods: Were applied The following instruments Wisconsin Card Sorting Test, Color Form Test, Progressive Figures Test, Revised Token Test, Controlled Oral Word Association Test, Stroop Color and Word Test, Boston Naming Test, Rey Auditory Verbal Learning Test, Rey Rey Complex Figure, Paced Auditory Serial Addition Test, Symbol Digit Modalities Test, Trail Making Test, Revised Benton Visual Retention Test, Judgment of line orientation and Serial Digit Learning Test in 300 persons selecting to random between the 5 to 85 years old to different socio economic status and both sex, without story of school failure or neurologics or psychiatric diseases. Each participants or a legal representative provide informed consent for participation.

Results: Categorical variables were expressed as percentage; for continuous variables, mean and standar desviations were estimated. Univariate analyses were done with the chi-square test. Student t-test were used to compare the groups continuous variables. For all test were done internal consistency analyses by means of Cronbachs alpha.

Conclusions: The typification and standardization of neuropsychological test lending compare the results with clinical patients in the Colombian population.

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Electrophysiology/EEG/ERP

C.A. APPENDINO. **DETECTION OF THE CHANGES CAUSED BY DIFFERENTS MUSICAL STIMULI IN A DIGITAL QUANTIFIED ELECTROENCEPHALOGRAM.**

Objective: This work has evaluated through the Digital Quantified EEG the changes that can be reached in the electric activity of the brain facing it with two very different musical stimuli, being the Master of Puppets, by Metallica, and "A little night music", by Mozart.

Participants and Methods: It was evaluated on people of both sexes, over 15 years old. They were divided in two groups, one with 21 people and the other with 25, being the latter the only group with musical knowledge.

Results: In the respective EEGs, it was got the Fast Fourier transform on each one of the people that took part in the study, processing in the conventional way.

It was determined for every segment:

- Absolute Power on each band.
- Relative Power on each band.
- Indexes among Alfa and Theta frequencies, which are the most representative of the awake cerebral activity, as much in Absolute Power as in Relative Power.
- Coherence values point to point between different sites of the cerebral cortex.
- Regional intrahemispheric coherence values between a certain point in the cerebral cortex and its neighbours of the same hemisphere.

Conclusions: Statistically significant results were found in:

- The comparison between the activity of the left hemisphere and the right one,
- The comparison of the response of different regions of the brain between themselves.
- The response of the people that have knowledge about music and the people that have not.

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D. BRITO-NAVARRETE, F. OSTROSKY-SOLÍS, A. LOZANO, G. CASTILLO & M. PÉREZ. **ELECTROPHYSIOLOGY OF ART: AN EXPLORATORY STUDY WITH EVENT RELATED POTENTIALS.**

Objective: The study of Art has been mainly approached by philosophy and history so it has been considered as "the most delicate and human of the human manifestation" (Arnheim, 1938). However, it is necessary to understand how brain structures are involved in this process, as Zeki point out "art is a product of the brain directed to brain". Several researchers have demonstrated the relationship between art and brain (Kawabata & Zeki, 2004, Robert Solso et al. 2001, Camilo Cela, 2004). Some authors (Ramachandran & Hirstein, 1999) indicate that art images possess special features such symmetry, color, grouping, etc. that make art images unique. The purpose of the present study was to analyze if the brain process in different ways during the presentation of art and pleasant images.

Participants and Methods: Event Related Potential (ERP) were recorded in 10 normal objects, average age was 24.3 years and none of them had received professional training in the fine arts. The objective was to observe the immediate response of specific brain areas while the subjects were viewing images classified as neutral, pleasant, figurative art paintings and abstract art paintings and to know if this response is different in each condition through the features of the electrophysiology components.

Results: The results show that there are significant statistical differences between neutral and pleasant images in the temporal cortex and between pleasant and figurative art painting images in the frontal areas.

Conclusions: We concluded that brain can distinguish neutral, pleasant and art images and these differences are related with frontal and temporal activity.

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O. PELLICER, M. PÉREZ-ARROYO, A. SALVADOR, R. COSTA & M.A. SERRANO. **Modification of the visual evoked response by geometric images in response to cold pressor test.**

Objective: 1) Study the cortical response by visual evoked potential in a Cold Pressor Test.

2) Analyze the relationship between cortical response and the stress and pain perception.

3) Evaluate gender differences in the response psychophysiological.

Participants and Methods: 51 subjects, 23 men and 28 women of ages between the 18 and 39 years were studied with techniques of visual evoked potentials, produced with geometric images, being measured the variations of amplitude of the P100 wave, with respect to the basal records. The stress and pain appraisal was also measured by psychological questionnaires.

Results: In basal levels, the men showed a smaller amplitude of the P100 that the women, although proportionally did not show significant differences between gender in the changes between basal and task level. During the accomplishment of the cold pressor test, as much men as women presented a clear amplitude's diminution with respect to their basal registries. The attenuation in amplitude of the answers correlated with the subjective perception of stress and pain.

Conclusions: In conclusion, stress and pain could affect to the subject sensorial capacity and this could be due to a thalamic interruption of the sensorial afferences to the visual cortex or to a disfunction in the brainstem reticular system.

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Epidemiology

K.C. ATALAIÁ-SILVA, N.J. MYLONAS & R.A. LOURENÇO. **The Clock Test of Tuokko in Brazil: population norms and validation.**

Objective: Background: Few studies in Brazil had investigated the norms and validation of cognitive tests in aging population. No work

analyzed the psychometric properties of Clock Test of Tuokko (CTT) in Brazil yet. It has a quantitative and qualitative protocol of correction and it is formed by three tasks: setting, reading and drawing a clock. Objectives: To translate and to adapt the CTT to the Brazilian context, to establish the population norms and to evaluate its construct validation

Participants and Methods: Methods: This was a cross-sectional population-based study, involving 353 elderly of the Study of the Processes of Health Aging (PENSA). The cognitive instruments to evaluate the validities had been MMSE, Digits, Block Design and CES-D.

Results: Results: In this sample, 74.1% were female, with age varying between 63 and 107 years (73.8 + 8.5). The schooling average was 7.4 years (SD=4.7). About the performance on CTT, the median in Clock Setting was 11 (M=10,3+3,9), in the Clock Reading was 13 (M=12,5+3,4) and in the Clock Drawing -scoring errors- was 1 (M=4+5,7). In relation to the convergent validity, we observed significant correlations between all the subsets of the TCT with the MMSE, the Digits and the Block Design ($p < 0.01$). On the divergent validity, the only subset that had significant association with the CES-D was the Clock Setting ($p < 0.05$).

Conclusions: Conclusions: These results show that the CTT seems to be measuring the construct that it was created to. Future researches must investigate other psychometrics properties of CTT, as the content and criterion validities, establishing cut-off points.

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Executive Abilities/Frontal System

T. TORRALVA, M. ROCA, E. GLEICHGERRCHT, P. LÓPEZ & F. MANES. INECO Frontal Screening: a brief tool to assess executive functions.

Objective: Several brief yet highly sensitive screening tools are available to readily detect cognitive symptoms. However, few screening tools have been developed to quickly assess executive function per se. The goal of our study was to design and validate a new tool to briefly and efficiently evaluate executive functioning in several neurodegenerative pathologies.

Participants and Methods: Patients with established diagnosis of frontotemporal dementia (FTD; $n = 22$), mild Alzheimer Disease (AD; $n = 25$), and paired controls ($n = 26$) were assessed with a general cognitive screening test (ACE), our own frontal screen test (INECO Frontal Screening, IFS), and tests known to reflect executive functioning (Wisconsin Card Sorting Test - WCST; Phonological fluency - PF; Trail Making Test Part B - TMTb). They were also given the Beck Depression Inventory and the Clinical Dementia Rating Scale (CDR).

Results: Reliability of the IFS was very good ($\alpha = .75$). IFS mean (SD) was 15.6 (4.2) for FTD, 20.1 (4.7) for AD, and 27.5 (1.6) for controls. With a 25 point cut-off, sensitivity was 1.0, and specificity was 90.4%. IFS correlated significantly with the CDR ($r = -.73$, $p < .001$), with performance on the TMTb ($r = -.75$, $p < .001$) and with the number of categories achieved on the WCST ($r = .77$, $p < .001$) and its perseverations ($r = -.77$, $p < .001$).

Conclusions: IFS is a brief, sensitive, and specific tool for the detection of early executive dysfunction associated with several kinds of dementia. Correspondence: *Ezequiel Gleichgerrcht, Institute of Cognitive Neurology, Castex 3293, Buenos Aires 1425, Argentina. E-mail: bergier@gmail.com*

Forensic Neuropsychology

N.A. ARIAS & F. OSTROSKY-SOLÍS. Neuropsychology of violence and its classifications.

Objective: The phenomenon of violence has risen significantly in recent years as well as the number of research aimed at studying neurobiological bases. While some studies do not classify subjects vio-

lent others have proposed various classifications. The proper characterization of this population is necessary to understand the phenomenon of violence and to develop effective treatments. The objective of this investigation was to assess psychological and neuropsychological profiles of a group of violent internal a Federal Penitentiary and characterize according to two of the most often used characterizations: The classification of impulsivity and premeditation of Barratt y cols. (1997a, b) and the classification Hare (1991) of psychopaths and not psychopaths.

Participants and Methods: The sample was integrated with 75 participants, 50 inmates and 25 controls for the study 1 (impulsive vs. premeditated), and 54 subjects for the study 2 (non-psychopaths vs. psychopaths). The measures used were an Impulsivity Scale (Plutchik, 1989), the Hostility Inventory (Buss-Durkee, 1957), the neuropsychological battery NEUROPSI Attention and Memory (Ostrosky-Solis y cols., 2003) and a battery of Executive and Frontal Function (Flores Ostrosky, & Lozano, 2008).

Results: The results indicate that violent people regardless of their classification can be differentiated in the psychological and neuropsychological profiles of the non-violent population. However, there were no significant differences in neuropsychological evaluations between groups impulsive and premeditated, while classify them according to the criterion of psychopathy, significant differences were found in different cognitive domains.

Conclusions: The results are discussed in terms of the anatomical basis underlying these processes, and the need to develop treatment and / or intervention programs specific to each form of expression of violence. Correspondence: *Sofía Sánchez, INCMNSZ, UNAM, Vasco de Quiroga 15, Tlalpan, Mexico 14000, Mexico. E-mail: sofiasan@yahoo.com*

M.J. HERKOV, H. MORAIS, R. SLATER & A. SMITH. The Impact of Video Camera Observer Effects on Neuropsychological Test Performance.

Objective: Presence of third-party observers indicates decreased performance on complex tasks such as memory. However, use of between subjects designs and absence of the demand characteristics seen in forensic neuropsychological evaluations has limited external validity of findings. This research evaluated the effects of a video camera on test performance in a deception paradigm.

Participants and Methods: 30 college students participated in a sham learning study to determine eligibility to receive additional time on exams. At the first session, participants were administered the CVLT-II, Trail Making, WMS-III LM, Stroop, and WAIS-III BD. Participants then returned the next week and were informed that they had qualified for exam assistance, but that the accommodation committee needed verification/record of their test performance and therefore the follow-up testing would be videotaped and watched by an expert. Participants were then re-administered the above tests with an alternate form of the CVLT-II in a counterbalanced design.

Results: The video camera condition resulted in a significant decrease in virtually all CVLT-II scores including List A Trial 1, Total Score and Short and Long-Delay Recall, Cued and Free Recall, with p values ranging from .047 to $< .000$, and a 20% decrease on some measures. No decline was noted on other measures.

Conclusions: Results indicate that the presence of a video camera results in a decrease in memory and learning in a deception design where the participant's performance is linked to tangible reward (e.g., exam assistance), thus supporting the prohibition such procedures in forensic evaluation.

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J.G. HAKUN, C.M. SZOBOT & D.D. LANGLEBEN. The cognitive components of the fMRI pattern of deception.

Objective: Prior fMRI studies of deception found increased prefrontoparietal activity similar to response inhibition and prompting hypotheses of the "prepotency" of truth. This view has been challenged by reports suggesting the lack of specificity of the cingulate and parietal response to deception. Our goal was to dissociate the contributions of cognitive components of a common deception model to the average fMRI pattern attributed to deception.

Participants and Methods: A meta-analysis (N=40) of the three previously reported experiments employing two similar forced choice different forced choice deception models was performed to produce an average fMRI pattern of deception. Three subjects who instructed to conceal a task item prior to the imaging session, performed three consecutive forced choice tasks, the first of which was a standard forced choice model of deception (Guilty Knowledge or Concealed Information Test, CIT) that was followed by two modified versions of the CIT, that maintained the task structure but replaced the deceptive responses with passive viewing of task items or with irrelevant responding to task questions.

Results: When deceptive responding was replaced with passive viewing of the target items, the results were similar to the average lie pattern found in the meta-analysis. When lies were replaced with irrelevant responses, participants exhibited variable activation, with the exception of the left inferior frontal gyrus response that was common to all subjects.

Conclusions: The prefronto-parietal fMRI pattern may not be specific to deception. Rather, it may be the result of several basic cognitive functions including endogenous attention. Persistence of the left inferior frontal gyrus activation in the absence of deception suggests that behavioral set established by instructing subjects to lie prior to the imaging session contributes to the characteristic deceptive brain response.

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M.N. CASTEX, F. LOPEZ & E. MERCURIO. Neuroscience and law: a case of antisocial behaviour with frontal atrophy.

Objective: Frontal lobe damage has been associated with emotional and personality changes, aberrant behaviour, high levels of aggression, lack of empathy and impairments in decision making. In this study we report a patient (HEC, 35 years old), who presented serious disorders in social behaviour associated with frontal and temporal atrophy in the MRI.

Participants and Methods: Report the case of HEC, 35 years

Results: HEC presented serious disorders in social behaviour associated with frontal and temporal atrophy in the MRI. The behaviour of HEC is characterized by high levels of aggression, poor behavioral control, impulsivity, lack of remorse, cruelty and indifference of others. HEC had no history of head trauma, tumors or infections. In the context of the forensic examination the behaviour of HEC was classified as psychopathic disorder.

Conclusions: The authors propose that the findings in the MRI are a possible explanation of the serious behaviour of HEC, and this hypothesis is based on the function of the frontal lobe in the control of aggression. Moreover, the authors discuss the legal implications of these findings.

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R. VILAR-LOPEZ, A.E. PUENTE, M. GOMEZ-RIO, A. RODRIGUEZ-FERNANDEZ & M. PEREZ-GARCIA. Is the Stroop Test Sensitive to Malingering?

Objective: Different measures have been proposed to detect malingering, both specific indexes and measures derived from traditional neuropsychological tests. The present study uses a known groups design to assess the usefulness of the Stroop test for detection of malingering of cognitive deficit.

Participants and Methods: Four groups were studied:

- Thirty patients with mild traumatic brain injury (MTBI) not involved in litigation
- Fourteen patients with MTBI involved in litigation not suspected of malingering
- Ten individuals suspected of malingering based on scores indicative of poor effort on two or more malingering tests (VSVT, TOMM, the b test, Dot Counting Test and Rey 15-item test) that were involved in litigation
- Thirty analog students of Psychology

All the participants underwent an extensive neuropsychological assessment that also included the Stroop Test.

Results: The results showed statistical significant differences among the groups for the variables words [$\chi^2(2) = 17.74$; $p < 0.000$], colours [$\chi^2(2) = 9.16$; $p < 0.027$], and the colours denominated in the interference condition [$\chi^2(2) = 11.58$; $p < 0.009$], but not in the interference variable. Sensitivity and specificity results were only acceptable for the variable words (70% and 90%, respectively).

Conclusions: Opposed to other publications, our results indicate that the interference variable from the Stroop test has a limited utility for its use in malingering detection. Furthermore, the number of words read seems a good malingering index. Given our small sample size, further studies are necessary to confirm our results.

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Imaging: Functional

A.M. GRABOWSKA, M. GUT, A. URBANIK, L. FORSBERG, M. BINDER & K. RYMARCZYK. The effect of handedness on brain organization of motor control: an fMRI study.

Objective: To examine the neural correlates of hand preference (left- and right-handedness) by using functional magnetic resonance imaging (fMRI) of the brain during performance of simple and complex motor tasks.

Participants and Methods: Two groups of subjects - consistent right-handers (RH, 6 males and 6 females) and consistent left-handers (LH, 6 males and 11 females) aged 18-36 years, participated in the study. Functional MR images were acquired with an echo-planar sequence during simple (flexion/extension of the index finger) and complex (successive finger-thumb opposition) motor tasks performed with the dominant (preferred) and non-dominant (non-preferred) hand. Total volumes of activations in the hemispheres ipsilateral and contralateral to the moving hand were analyzed using multi-factorial analysis of variance.

Results: In both groups movements of the dominant hand (right in RH and left in LH) produced larger contralateral activations than movements of the non-dominant hand. Movements of the non-dominant hand led to greater ipsilateral activation. Consequently, in right-handers there was a general predominance of left-hemisphere activation, while in left-handers there was predominance of right-hemisphere activation, although in the latter case the asymmetry was smaller. These effects were seen mainly during complex tasks.

Conclusions: The finding in both RH and LH groups of greater contralateral activation for the dominant hand and greater ipsilateral activation for the non-dominant hand indicates that in the mechanism of motor control the dominant hemisphere exerts control over not only the contralateral (preferred) hand but also over the ipsilateral (non-preferred) hand.

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K. JODZIO, M. WTKOWSKA, G. KOZERA & D. GASECKI. Cerebral blood flow velocity changes during performance of prosody tasks: a functional Transcranial Doppler study.

Objective: Functional transcranial Doppler ultrasonography (fTCD) permits the assessment of cognitively induced cerebral blood flow velocity (BFV) changes.

Participants and Methods: TCD monitoring of BFV in the middle cerebral arteries (MCA) was performed in 14 normal right-handed young volunteers to investigate the effect of hemispheric specialization for paralinguistic functions, i.e. receptive prosody. Polish adaptation of the Prosody Tests (PT) derived from the Bryan's Right Hemisphere Language Battery were used in the study. After listening to several sentences on the headphones without stopping, the subject was asked to point to the word representing the emotional or linguistic tone of the sentence.

Results: The PTs induced a significant BFV increase in the both MCAs compared to BFV during the preceding rest periods. We found no significant lateralization of BFV change for any of the tasks. However, bilateral brain activation was greater during linguistic task performance than emotional task performance. Mean BFV in the MCAs were significantly higher in females than in men, during both rest and test phase.

Conclusions: These findings support the model attributing receptive prosody to both cerebral hemispheres.

fTCD seems to be a useful technique in assessment of auditorily induced cerebral blood flow velocity changes. However, some methodological factors might have had an impact on these results (e.g. effect of between-task habituation).

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L. SWEET, R. MULLIGAN, C. FINNERTY, B. JERSKEY, D. COTE, U. CLARK, S. DAVID, R. COHEN & R. NIAURA. Effects of Nicotine on Working Memory and Associated Brain Activity.

Objective: Understanding nicotine effects on brain function may help explain its addictive properties and cognitive effects. Research suggests that nicotine improves working memory (WM); however the mechanisms are not understood. To investigate these, we assessed nicotine effects on WM and associated brain activity.

Participants and Methods: Seven nonsmokers (ages 24-51) completed two 2-Back WM functional magnetic resonance imaging (fMRI) procedures after wearing a 3.5mg nicotine patch and after placebo. Task-elicited activity was contrasted across conditions in eight bilateral regions of interest (ROIs; middle frontal gyrus, inferior parietal lobule, superior frontal gyrus, anterior insula).

Results: Greater activity occurred in all ROIs following nicotine compared to placebo; however, this only reached significance in the left insula ($t=3.02$, $p=.023$). Performance did not differ between conditions (nicotine=88%, placebo=85%, $t=-1.11$, $p=.310$). Increases in activity were not related to performance, and even weakened the brain behavior correlation observed in the placebo condition. There was a significant positive correlation between performance and left insula activity after placebo ($r=.783$, $p=.037$). No relationship between performance and activity was significant during the nicotine condition.

Conclusions: Nicotine may activate brain regions without effective translation into performance enhancement. Given reported functions of the anterior insula (Bechara et al., 2007), these nicotine-elicited increases may be associated with interoceptive responses related to maintenance in smokers. Sample size may have limited our ability to detect effects on brain and behavior; however, the magnitude of the effect on the insula suggests that it may exhibit the greatest response to nicotine. Moreover, fMRI may detect these effects before changes are observable in behavior.

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Learning Disabilities/ADHD

I.V. CAPELATTO, P.M. GUIMARÃES & S.M. CIASCA. ASSESSMENT OF MEMORY AND ATTENTION OF CHILDREN WITH LEARNING DIFFICULTIES COMPLAINS.

Objective: To compare the results of attention skills and memory in a case-control type essay in children with learning difficulties and concentration (attention). Visual memory, verbal immediate hearing memory, work memory, semantics, verbal fluency, language expression and selective attention were reviewed maintained and alternated of patients led to Laboratory of Learning Disorder, FCM-UNICAMP.

Participants and Methods: 60 participants of both genders, on age average of 7 years, with control group of 30 children and 30 children in experimental group. Rey Auditory Verbal Learning Test, three

word/three shapes, FAS, Stroop Test, Trail Making Test and Cancel Test using paper and pencil were applied. The patients were submitted to neuropsychological assessment by DISAPRE multidisciplinary team which provided results to WISC-III, that were used to IQ evaluation and dig-its sub-test analysis.

Results: Approximately 65% of patients of experimental group which showed complaints of schooling difficulties had low scores in attention tests, visual and hearing memories for the age comparing to the control group. Children of the experimental group who had the ADHD diagnose demonstrated mayor difficulties in performance. Each result was statistically analyzed by SPSS 11.0 Statistics software.

Conclusions: There was a significant difference between the results of children in the experimental group compared to the children of control group thus demonstrating that the tests used aided in diagnostic differentiation of ADHD and schooling difficulties.

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L.E. FONSECA, B. GOTTHEIL, A. ALDREY, M. PUJALS, S. DEFIOR CITOLER, G. JIMÉNEZ FERNÁNDEZ & F. SERRANO CHICA. LEE Test de Lectura y Escritura en Español Su Capacidad Discriminante entre Lectores Medios y Malos Lectores Reading and writing processes assessment battery in Spanish. Discrimination between good and poor readers.

Objective: Reading is a complex skill which involves word recognition and reading comprehension. Both are necessary for the mastery of this skill. In this work we compare the results obtained for the general population and a group of children with reading and writing disabilities using the LEE test, an assessment standardized tool for children from 1 to 4 grades. The test evaluates the processes involved in word recognition, reading comprehension and spelling. It comprises the subtests of word and pseudoword reading (reading fluency), sentence comprehension, prosody, text comprehension and word and pseudoword spelling. It also includes two complementary sub-tests concerning letter identification and phonemic segmentation, to allow the psychologist to make a more accurate diagnosis of the learning disabled children regarding the Spanish written code acquisition. Accuracy and time standards are offered and also for fluent and non fluent reading.

Participants and Methods: 395 Argentinean children and 70 children with reading and writing disabilities from 1 to 4 Grade assessed with LEE.

The children reading was recorded and the results statistically compared.

Results: It is observed that the LEE is a test valid to compare the general competition in reading and writing being able to suitably detect the difficulties some children have.

Subtest 2. Word Reading, Subtest 3. Pseudowords Decoding, Subtest 5. Text Reading Comprehension, Subtest 6. Word Spelling and Subtest 7. Pseudowords Spelling present significant differences comparing the general population sample and the clinical sample.

Conclusions: Fluency and reading speed assessed by LEE, are indispensable information to consider when reading in Spanish is involved. It has been proved that this information discriminates properly between normal and poor readers.

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M.M. RUSSO, L. MONTEIRO, L. LUNARDI, V. SILVA, M. SILVA & M. LOUZÁ. Slower Performance of some Executive Tests in Adults with Attention-Deficit Hyperactivity Disorder (ADHD).

Objective: Adults with ADHD present important executive disfunctions which are essential for the organization and self-regulation of the behaviour. The executive disfunctions of the above population were investigated.

Participants and Methods: 63 outpatients (33 men and 30 women) between 18 and 50 years (mean = 33.1 ± 9.0 years) from the adult ADHD research group (PRODATH) of the Instituto de Psiquiatria do HCFMUSP, Sao Paulo, Brazil, diagnosed according to DSM-IV and assessed with ASRS – Version 1.1 were included. Executive functions were assessed with: WCST, Rey Complex Figure, Trail Making Test A and B, Stroop Color Test, Continuous Performance Test (CPT-II) and estimated IQ (Vocabulary and Block Design – WAIS-R). Statistical analysis (SPSS, version 14.0): results were compared with the normative data (one sample t-test).

Results: The sample presented IQ within the average when compared with the general population (Mean IQ = 96.1). There was no difference in the performance on the Rey Complex Figure, Trail Making Test part A, in the indexes of omission and commission of CPT-II and WCST items (errors, perseverative responses, failure to maintain set). However, they needed a longer time in the Stroop task ($p < 0.05$), the Trail Making part B ($p < 0.05$) and in the index Hit RT (reaction time) of the CPT-II ($p < 0.05$).

Conclusions: The slower performance in some of the executive tasks might indicate a compensatory strategy to deal with shared attention and the difficulty to inhibit control in order to minimize errors.

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Other

J. CASTAÑO, A. FERRERES, L. EDER, J. CASTAÑO & R. ROSLER. The Training of Neuropsychologists.

Symposium Description: Neuropsychology can be defined as a discipline that studies the relationship between brain and behaviour. To achieve this goal Neuropsychology has used the knowledge and data of both psychology and Neurosciences in an interactive fashion.

Neurosciences have grown a big deal in the last 15 years along with advances in technology that allow to analyze the structure and function of the brain in living human beings with non invasive methods. The significance of Genetics in the understanding of hereditary diseases of the nervous system and the fascinating possibilities of its growing new branch of “Behavioural phenotypes” is evident. Advances in the field of neurotransmission, receptors, diverse enzymes and modulators have improved the comprehension of the pathophysiology and thus the treatment of neuropsychiatric diseases.

Therefore we consider that these aspects of Neuroscience must be included in the training of neuropsychologists. The better understanding of the anatomic-physiological bases of behaviour and cognition will result in better equipped professionals for research and teaching.

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J. CASTAÑO, L. ELDER & R. ROSLER. A Model of Master in Neuropsychology.

Objective: Dr. Julio Castaño

Neuropsychology can be defined as a discipline that studies the relationship between brain and behaviour. To achieve this goal Neuropsychology has used the knowledge and data of both psychology and Neurosciences in an interactive fashion.

Neurosciences have grown a big deal in the last 15 years along with advances in technology that allow to analyze the structure and function of the brain in living human beings with non invasive methods. The significance of Genetics in the understanding of hereditary diseases of the nervous system and the fascinating possibilities of its growing new branch of “Behavioural phenotypes” is evident. Advances in the field of neurotransmission, receptors, diverse enzymes and modulators have improved the comprehension of the pathophysiology and thus the treatment of neuropsychiatric diseases.

Therefore we consider that these aspects of Neuroscience must be included in the training of neuropsychologists. The better understanding of the anatomic-physiological bases of behaviour and cognition will result in better equipped professionals for research and teaching.

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M. ISAIA, C.M. COLLINO, S. NICOLETTI & A. UVA. Control of the Psychometric Properties of the Cognitive Evaluation Scale (CAS), in Samples in the City of Rio IV.

Objective: 1- To analyze psychometric properties of Variables: Information and Orientation, Mental Skills, Fine Motor Execution and Viso-manual Coordination of Clifton’s CAS, in a random samples in the City of Rio IV.

2- To construct a reliable scale for differential diagnosis between the normal aging and cognitive deterioration.

Participants and Methods: Application of Clifton’s Cognitive Evaluation Scale, (Spanish). Samples of a 100 subjects 55-year-old or older without mental deterioration.

Sub-sample: Attendees to the Educational Program for Elder Adults, UNRC; and Patients of the New Hospital of Rio IV.

Information and Orientation-subtest: Orientation and evaluation of the subject.

Mental Skills-subtest: measures skills of counting, saying the alphabet, reading-writing.

Psychomotor-subtest: reports on fine motor skills and manual coordination.

Results: Pattie and Guilleard, established five levels of behavioral dependence related to the mental deterioration, from A: without deterioration, to E: serious damage. Scoring z of three variables, shows that 67 % of subjects over the average and 33 %, below.

Conclusions: Significant percentage of subjects obtained low punctuations in functional deterioration.

Will continued studying samples selected with Folstein’s MMSE to reject the incorporation of subjects with cognitive deterioration and to obtain CAS scale’s of normal populations

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M. JAHANSHAHI, P. MIR, I. TRENDER-GERHARD, M. EDWARDS, S. SCHNEIDER & K. BHATIA. Motivation and Movement: The Effect of Monetary Incentive on Reaction Times UCL Institute of Neurology, Queen Square, London, UK.

Objective: Speed of movement can be influenced by motivational factors: eg walking faster when in a hurry (sense of urgency) or writing faster during an exam (potential reward of good results). There is scant empirical investigation of motivational modulation of movement. Furthermore, it is not clear at which stage of motor performance: preparation, initiation, or execution, such motivational influences exert an effect. Our aim was to assess the effect of monetary incentive on reaction times (RTs) and movement times (MTs) in paradigms that did or did not allow advance preparation of the movement.

Participants and Methods: 16 healthy participants completed four paradigms: warned or unwarned simple RT (wSRT, uSRT) and uncued or precued choice RT (uCRT, pCRT) and blocks with or without monetary incentive. wSRT, uSRT and pCRT tasks allow advance preparation of the movement, whereas uCRT does not.

Results: Provision of monetary incentive produced a significant shortening of RTs in the wSRT, uSRT and pCRT ($p < 0.001$), but not the uCRT task. Monetary incentive had an effect on MT in only one task (wSRT, $p < 0.02$).

Conclusions: The results suggest that in these RT tasks, monetary incentive is having its effect by enhancing advance preparation of movement, but has little effect when movements cannot be specified in advance. This paradigm may prove useful for studying motivational modulation of movement speed in neurological and psychiatric disease.

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M.D. MALBRÁN. Therapeutic Patient Education.

Objective: Discussing the therapeutic patient education in the area of mental health.

Patient – centered education is directed to the psychological well – being and the improvement of the quality of life.

Development of positive attitudes from the therapist and the patient are in the core of the model.

Characteristics

Continuous process involving healthcare providers and patients;

Construction of healthy life styles acting the patients as “architects” of their own education;

Multiprofessional and interdisciplinary cooperation;

Uses of problem – solving and case analysis;

Active patient involvement in managing his/her long – term chronic condition;

Transcends the conventional health practices of most professional schools;

Theoretical and empirical supported;

Training the staff on planning, implementation, monitoring and evaluation according to local circumstances ;

Choice of strategies to institutional conditions that favour the pursued aims ;

Stimulation the productive patient’s efforts, giving assistance for daily management;

Reducing costs and preventing avoidable complications;

Complements medical and pharmacological therapies;

Compromises the social environment including families, close relatives, friends and community agents;

Objective, practice – based and team – action training;

Participants and Methods: The presentation will be illustrated with some examples coming from local experience in the field of attitudes development and change.

Results: Preliminary results

The model has been implemented in a Master program on Diabetes Education. Faculty of Medical Sciences. National University of La Plata.

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Sex Differences/Sex Hormones

N. GOLLO, D. CERQUETTI, A. AMENGUAL, E. ROLDAN, E. FRIDMAN & R. LEIGUARDA. Gender Differences in Motor Imagery Using a Hand Laterality Judgement Test.

Objective: Visual imagery tests traditionally show a male performance advantage, on the other hand, women outperform men on fine motor skills.

Since motor imagery share similar neural representations with actual motor performance and has proven dissociable of visual imagery, the aim of this study was to assess gender influences on a motor rotation test.

Participants and Methods: A hand laterality judgement test derived from Parson’s was carried out in 2 conditions: with hands extended over the thighs (Exp 1) or interlaced on lap (Exp 2). 48 pictures of a right hand and 48 of a left one were presented on a computer screen, with 4 different viewpoints (thumb/back/palm/pinkie). Subjects had to report verbally whether it was a right or left hand. Reaction time (RT) and verbal response were registered. 20 men and 20 women participated in experiment 1 and 13 men and 17 women in experiment 2. All were healthy right-handed volunteers.

Results: Experiment 1:

-There was a significant effect of gender on RT, with men responding faster.

-RT were shorter for men with the left hand for the palm, thumb and pink viewpoint and with the right hand for the thumb and pinkie’s viewpoints.

Experiment 2:

-RT was shorter for men than women on palm and back view with the left hand and palm view with the right hand.

Overall, we found no significant effect of actual posture of hands on RT, within each gender group.

Conclusions: Motor imagery showed gender differences irrespective of the actual hand posture during the test.

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THURSDAY MORNING, JULY 3, 2008

Symposium 4:

MCI: The Memory Profile and a Sensitive Brief Screening

Chair: **Natalia Sierra**

8:30–10:00 a.m.

N. SIERRA, D. MATA LLANA, P. MONTAÑÉS & P. REYES. MCI: The Memory Profile and a Sensitive Brief Screening.

Symposium Description: Mild Cognitive Impairment (MCI) can be an intermediate entity between normal and pathological aging. The amnesic MCI subtype may be a prodromal state of Alzheimer’s type dementia (AD). The proposed criteria of amnesic MCI, includes scores beneath -1.5 SD in episodic memory tasks, although it is not clear which of the processes are engaged in such memory failure (codification, storage and recovery). In this symposium would be exposed the results of distinct profiles of MCI episodic memory in different episodic memory tasks compared with normal controls and Dementia of Alzheimer Type (DTA) GDS 3 -4. The attentional profile in memory tests, a useful brief screening test for Mild Cognitive Impairment as well as its qualitative profile will be analyzed.

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N. SIERRA, T. TORRALVA, M. ROCA, E. GLEICHGERRICHT, A. BONIFACIO & F. MANES. Addenbrooke’s Cognitive Examination: a Useful Brief Screening Test for Mild Cognitive Impairment.

Objective: The detection of MCI cases depends on the sensitivity of memory tests within the standard neuropsychological assessment battery. Current research in the field highlights the need for identification of MCI at bedside as neuropsychological departments are not often available for every clinician. Previous studies have shown that the Mini-Mental State Examination has low sensitivity for cases of MCI, revealing the need for a brief yet reliable instrument to detect possible MCI patients. This study sought to determine the Addenbrooke’s Cognitive Examination’s (ACE) utility as a screening test to discriminate between normal aging and Mild Cognitive Impairment (MCI). With this objective in mind we analyzed which ACE items were useful for that purpose and its correlation with an extensive neuropsychological assessment.

Participants and Methods: Patients with MCI diagnosis (n = 21) and paired controls (n = 19) were assessed with the ACE and an extensive neuropsychological assessment. Correlations between ACE scores and neuropsychological variables were conducted.

Results: The ACE total score differed significantly between normal controls and MCI (p < .001). Specific particular items of the ACE also differed between the groups, including the three words recall task (p < .01), the number of intrusion in the episodic memory task (p < .05), and semantic verbal fluency (p < .05). These ACE subtest scores significantly correlated with specialized tests of the neuropsychological assessment.

Conclusions: The ACE is a sensitive brief screening test for cases of MCI, and some of its subtests reliably reflect performance on tests of an extensive neuropsychological assessment.

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D. MATALLANA, P. MONTAÑES, P. REYES & N. SIERRA. Memory Profile: Normal Aging and MCI.

Objective: Considering the existence of differences between memory profiles in normal MCI population, the objective of this study was to find specific differences in the processes of codification, storage and recovery of verbal information in a sample of patients with MCI compared with a control group.

Participants and Methods: 60 patients with amnesic MCI diagnosis and 118 normal control were assessed with the Grober and Buschke task. Indeed, 20 MCI patients and 20 paired controls were assessed with the Rey Auditorial Verbal Learning Test (RAVLT) and extensive neuropsychological battery was performed.

Results: Differences in short and long term recall, through the Grober & Buschke task, identify that the use of a semantic cue improves performance in MCI patients though not as much as it does in the normal group of subjects. Number of intrusions was significantly different between groups. In the RAVLT, MCI patients did not improve learning with in trials as it did in normal subjects.

Conclusions: these findings confirm that patients with MCI present an important deficit in memory, but clarifies that this deficit occurs in the processes of consolidation and recovery of verbal information. On the other hand is important to notice that the patients with MCI present an important number of intrusions that in literature have been related typically to the dementia Alzheimer type.

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P. REYES, D. MATALLANA & P. MONTAÑES. Memory Profile: MCI and Dementia of Alzheimer Type.

Objective: having in mind the significant differences in memory profiles between MCI patients and normal controls and considering the MCI as a prodrome of dementia of Alzheimer type, the objective of this study was to analyze differences in the memory profiles of MCI patients and dementia of Alzheimer type GDS 3-4.

Participants and Methods: Patients with MCI diagnosis (n = 17) and paired controls with dementia of Alzheimer type (n = 17) were assessed with the Grober and Buschke memory test plus an extensive neuropsychological battery.

Results: The ACE total score differed significantly between normal controls and MCI ($p < .001$). Specific particular items of the ACE also differed between the groups, including the three words recall task ($p < .01$), the number of intrusion in the episodic memory task ($p < .05$), and semantic verbal fluency ($p < .05$). These ACE subtest scores significantly correlated with specialized tests of the neuropsychological assessment.

Conclusions: This results suggest that the recovery process or the recovery strategies of novel information is the main neuropsychological difference in memory between MCI and DTA.

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P. REYES, P. MONTAÑES & D. MATALLANA. Attentional deficit profiles through a memory task in a Colombian Memory Clinic.

Objective: An exploratory study of the attentional deficit profiles through a memory task (Grober & Buschke free and cued recall) in patients attended in a Colombian Memory Clinic at the Javeriana University in Bogotá Colombia with different diagnosis.

Participants and Methods: compared average between recall during consolidation trials (1, 2, 3) - Grober and Buschke memory test- and long-term trial in 1839 subjects with different diagnosis.

Results: An attentional profile (AP) was defined when the difference between number of words recalled in long and short-term averages was superior to 1.3. In other words if a subject recalled more words (average 1.3) in the long-term trial, the reduce volume during learning is due to an attentional profile. Normal subjects had much frequency of (AP) (52 %) followed by DTA (18 %). Nonetheless, MCI and other pathologies showed disperse and confuse patterns of attentional profile. It seems that other group of patients, including MCI, had memory deficits different from the one defined as AP: organization of information as well as semantic facilitation can explain compromises at the consolidation phase. Combine subtypes could explain absence or profile of AP.

Conclusions: It is notable that, since at least 50 % of the normal population had better performance in long-term-memory recall, AP is better defined by the reduce volume of words recalled, during free short-term memory phase, than the number of words during the long term trial. Better performance with semantic facilitation in contrast with reduce number of words during consolidation define a typical AP in MCI. Correspondence: *Natalia Sierra, INECO-Favaloro, Mahatma Gandhi 414 6D, Buenos Aires 1414EEF, Argentina. E-mail: sierra.natalia@gmail.com*

**Symposium 5:
Neuropsychology of Consciousness: The Case of Anosognosia**

Chair: Juan Gómez

8:30–10:00 a.m.

J.D. GÓMEZ, J.A. CASTRO, D.A. LEÓN & P. REYES. Neuropsychology of Consciousness: The Case of Anosognosia.

Symposium Description: This symposium will present some new insights to the understanding of the consciousness dynamic; particularly for the study of anosognosia. Based on a research that included 500 Alzheimer disease patients, that used the Memory Complaint Scale (QSM), and the Yesavage Depression Scale, three hypothesis regarding illness awareness are formulated: 1. The existence of metacognitive function would be seriously impaired in the case of anosognosia and would allow the system to make judgments and evaluate performance. 2. In the point of view of the affective neuroscience, anosognosia could be considered as a disruption in the neurodynamics of the affective systems that directly influences the conscious experience and social functioning of the individual. 3. From the standpoint of systems neuroscience, anosognosia appear to be a cognitive state featured by low synchronic activity and functional architecture disorganization in non-specific brain areas. Correspondence: *Juan D. Gómez, Ph.D., Psychology, Pontificia Universidad Javeriana, Cra 5a 39-00 2 floor, Bogotá 00057, Colombia. E-mail: judago5@hotmail.com*

P. REYES. Anosognosia, Dementia and Other Conscience Disturbances: Beyond Awareness.

Objective: Anosognosia is one of the first signs that caregivers of Alzheimer Disease (AD) patients usually report. This symptom, which is related to disorder awareness, was initially considered as a defense mechanism of the cognitive system. However, it is currently considered as reflecting the peculiarity of the system to account for deterioration of function.

Participants and Methods: A presentation will be made of a study involving 500 AD patients, with GDS scores of 3, 4, 5 and 6, which attended the Memory Clinic at Pontificia Universidad Javeriana, Colombia. Each patient was assessed with a set of neuropsychological tests as well as psychiatric scales and neurological exams. Level of disease awareness was determined by a scale of Memory Complaints (QSM), which was given both to the patient and the caregiver.

Results: Comparison of scales completed by the patient and those completed by the caregiver showed significant differences even at the early stages of the disease. It could be determined that QSM (scored by the patient) is a better predictor than other self report scales, like the Yesavage Depression Scale. Cognitive complaints decrease, like deterioration increase, which correlates with a decrement in mood complaints.

Conclusions: The existence of a metacognitive function that would allow the system to make judgments and evaluate memory and mood performance is reported.

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D. LEÓN. Affective Neuroscience: A Route for Understanding Consciousness.

Objective: Affective Neuroscience will be presented as an framework of the conscious experience. We will focus on the role of neural circuits that are associated to the affective information processing, which are necessary for coordination among psychological, behavioral and physiological aspects of emotion. This coordination includes subjective experience in which the biological value of the relationship between the organism and the environment is represented.

Conclusions: From this perspective, affective processes are at the bases of the emergence, upholding and regulation of the conscious activity. Anosognosia provides an example in which a disruption of neurodynamics of these affective systems directly influences the conscious experience and social functioning of the individual.

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J. CASTRO. Neurodynamics of Consciousness: New Models and Application.

Objective: This presentation will focus on main models of systems neuroscience that explain the binding of conscious experience, among which we find the Walter Freeman's concept of order parameter, Francisco Varela's large-scale integration, J.A. Kelso's cortical coordination dynamics, and Edelman's dynamic core hypothesis. In light of these concepts, the integration of experience is seen as a phenomenon that depends on the synchronic activity of neural groups, which is highly dynamic and self-organized, mediated by a selective network of re-entry connections.

Conclusions: The matter of temporal and spatial dependence of this phenomenon is highlighted; particularly its dependence on synchrony and functional architecture for the binding response, in the so-called mental geometry theory. The possible application of this theory to the study of anosognosia is discussed.

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Symposium 6: Recent Findings in Reading Acquisition in a Transparent Orthography

Chair: Ariel Cuadro

8:30–10:00 a.m.

A. CUADRO, D. TRIAS, J. MARIN & A. CUADRO. Recent Findings in Reading Acquisition in a Transparent Orthography.

Symposium Description: The acquisition of a written language, from a cognitive viewpoint, is centered on the metaphonological abilities, over which sublexical and lexical processes, and grapheme -

phoneme knowledge, are built through learning. Intervention upon metalinguistic abilities should affect the skill then, but if the phonological deficit is central, a basic continuum on reading disorders should be found. Findings on a transparent writing system (Spanish) are presented.

A training program on phonemic awareness of five year old Spanish-speaking children (N = 51) shows major improvements in grapheme segmentation tasks. This provides empirical evidence for the bidirectional causal relationship between phonological awareness and reading skills, and also of the benefits of metaphonological training.

Using an ERP paradigm with phonological ambiguous graphemes, Marín finds a modulation of the P200 and N400 amplitude components depending on whether the grapheme is disambiguated or not by the word where it appears. A lexical decision task was used. Differences are interpreted as evidence of sublexical and lexical effects of phonological ambiguity. Theoretical implications of these findings for literacy acquisition are considered.

The third presentation focuses on the issue of the continuum in the dyslexia subtypes, and the relation to transparency and reading experience. In a regression analysis methodology, a group of 44 reading disabled children, 90 normal readers (same grade) and 78 normal readers (younger equivalent grade controls) are assessed. A variation of the subtype distribution is observed across age levels, in consonance with the continuum hypothesis but also with the written system and the consolidation of the skill.

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D. TRIAS. Training in Phonemic Awareness: a Longitudinal Study.

Objective: The aim of the study is to evaluate the long-term impact of a training program on phonemic awareness for five-year olds within a Spanish-speaking class context.

Participants and Methods: Fifty-one children on their last year of Initial Education (prior to entering Elementary education) participated in the study. Three randomly selected groups were formed and different interventions (phonemic awareness and graphemes, phonemic awareness without graphemes and a control group) were performed throughout the 8 week program. Phonemic awareness and letter recognition were evaluated prior to the interventions and again, at the end of the eight-week training program. Reading and writing acquisition skills were assessed in the first and third grades of Elementary school.

Results: Children exposed to the training program on phonemic awareness and graphemes presented a significantly higher level, especially in grapheme segmentation tasks.

Conclusions: Long term implications of the program are discussed and its possible consequences on both normal and atypical acquisition of reading and writing skills.

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J. MARIN, A. PAGÁN, A. CUADRO & R. GONZÁLEZ. ERP Correlates of Phonological Ambiguity in Spanish Orthography.

Objective: Evidence that storing of orthographic representations in the lexicon can be affected by phonological ambiguity of graphemes composing those representations.

Participants and Methods: The experiment presented words containing phonological ambiguous graphemes in a lexical decision task (LDT) while Event Related Potentials (ERPs) were recorded.

Results: The results show a modulation of the amplitude of the P200 and N400 component as a function of type of word (with phonological and orthographic ambiguous graphemes versus with only orthographic ambiguous grapheme).

Conclusions: We interpret these results as evidence of sublexical and lexical effects of phonological ambiguity of graphemes. Theoretical consequences are drawn about current models of literacy acquisition.

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A. CUADRO & J. MARIN. Reading Disability Subtypes and Reading Experience.

Objective: The aim of this research is to analyze phonological and superficial dyslexia subtypes.

Participants and Methods: Forty-two subjects with reading disabilities were assessed in the 4th, 5th, and 6th elementary grades. Ninety subjects with normal reading ability in the same grades and 78 subjects with normal reading ability in a lower elementary grade (but equivalent reading ability to those with reading disabilities) were taken as controls. Group performance was analyzed in tasks that involved phonological and orthographic processing.

Results: Using a regression analysis methodology we found variations in the distribution of reading disability subtypes across age levels.

Conclusions: These results confirm the idea of a continuum in the different reading disability subtypes as well as the idea that both a language transparency and reading experience favor the development of reading mechanism processes.

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Symposium 7: Information Processing in Patients with Neurological Disease

Chair: Fernando Cáceres

8:30–10:00 a.m.

F.J. CÁCERES, N.C. IRRAZABAL, J. KAMIENKOWSKI, S. VANOTTI & A. YORIO. Information processing in patients with neurological disease.

Symposium Description: Several approaches are used to explain human processing of information, namely: computerized, cognitive and psychological. The cognitive model developed by Lachman and Butterfield states that information processing refers to relatively basic symbolic operations, such as codification, comparison, localization, and storage. Such operations are an example of human intelligence and the ability to create new knowledge.

Such process includes a variety of abilities to incorporate and use the information. This is the case of the speed of information processing and the process of categorization for the incorporation of new information. The objective of this symposium is to present studies performed in the field of information processing in patients with neurological pathologies.

The first presentation, “Different stages of information processing” will explore information processing using dual tasks experiments. When two tasks are presented simultaneously or sequentially, a delay in the execution of the second task has been systematically observed. This interference effect is referred to as the psychological refractory period (PRP). This phenomenon will be shown both in healthy controls and in patients with Multiple Sclerosis (MS).

The second presentation, “Information processing and working memory deficits in patients with Multiple Sclerosis”, will show the relationship between processing speed and working memory in patients with MS, as well as those studies conducted with the Paced Auditory Serial Addition Test (PASAT) and other tests used in experimental studies, such as n-back task

The third presentation, “Categorization in neurological patients”, will show the studies performed in the analysis of Categorization in patients with MS and Parkinson disease. The term Categorization means the abstraction ability by means of which previously acquired information is used to classify new elements or events from the environment.

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J. KAMIENKOWSKI, M. WINOGRAD, S. VANOTTI, M. SALADINO, F. CÁCERES & M. SIGMAN. Different stages of information processing.

Objective: When two tasks are presented simultaneously or at a short stimulus onset asynchrony (SOA), a systematic delay in the execution of the second task is observed while response times (RT) to the first task are unaffected. This phenomenon, referred as Psychological Refractory Period (PRP), has been widely used in normal subjects to understand the temporal organization of different stages of information processing. Basically, it was shown that information processing consists in three principal stages. The first one is the perceptual phase, in which the sensory stimuli are decoded. This stage is processed in parallel (two different tasks can be processed simultaneously). The second phase is the central one, and it consist in the integration of the information and decision making. This phase has a serial nature (two different stimuli can not be processed simultaneously). The last stage in information processing is the motor phase and it can also occur in parallel as the perceptual one. Appart of these three main phases, information processing also involves active stages such as the “task setting” and “task disengaging”.

In this talk, we will explain all the experiments that give rise to these ideas and we will also speak about other paradigms to study information processing. Also, we will show some findings in neurological patients with disabilities in some stages of information processing.

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S.I. VANOTTI & F.J. CÁCERES. Information processing and working memory deficits in patients with Multiple Sclerosis.

Objective: The pattern of Cognitive Impairment in MS is heterogeneous, but recent memory, attention, and executive function are the most affected areas. However, speech is rarely affected.

The early detection of cognitive changes contributes to the recovery of cognitive domains, and it is essential for a patient’s psychosocial function

Two commonly impaired cognitive domains are working memory (WM) and information processing speed (PS) from the early stages of the disease and in all clinical MS forms.

Different studies discuss the relationship between WM and PS in terms of two models: a Relative Consequence Model and an Independent Consequence Models (Archival and Fisk, 2000; De Luca et al, 2004). Cognitive deficits may be explained using the two models.

In the clinical setting Paced Auditory Serial Addition Test (PASAT) is frequently used to asses WM in patients with MS (Rao et. al, 1991), but there are another tests used as a measure of WM in experimental studies, such us n-back task. The n-back task was designed to manipulate factors associated with WM such as load (Carter et al., 1993) and it thought to tap executive aspects of WM (Baddeley, 2003).

In this symposium we will compare the WM performance in patients with MS on both the PASAT and the n-back task and will describe studies reviewing PS and WM deficits in patients with MS and their relationship with other cognitive domains as well as with depression.

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A. YORIO. Categorization in neurological patients.

Objective: From a functional perspective a category is defined as a stimuli class causing the same behavior in a due context, and categorization as the ability by means of which subjects uses previously acquired information from the environment to classify new elements or events. The transfer of stimuli function is the basis of concept formation (Donahoe & Palmer 1994). Categorization has been made operational by means of the “equivalence relations” paradigm and has been generally studied through the “matching to sample” procedure. In this type of task subjects are trained on conditional discriminations after which they are assessed regarding the acquisition of derived relations: reflexivity, symmetry and transitivity (Sidman 1994).

There have been a few reported investigations using the equivalence relations paradigm involving neuropsychological populations. A sample of patients with Multiple Sclerosis with relapsing-remitting type showed defective performance in the tasks of conditional discrimination and in the tests of the equivalence relations. Reaction times were also slowed in Multiple Sclerosis patients and in Parkinson disease too, when compared with the normal subjects. This pattern of results correlate with deficits in the executive function and memory tests of the neuropsychological evaluation.

These psychological functions are discussed like emergent properties of the biobehavioral-environment interactions, in accordance with brain imaging studies using the equivalence relations methodology (Dickins et al. 2001; Schlund et al. 2007) and formal models of neuronal networks (Barnes & Hampson 1997, Lew 2007).

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Symposium 8: Frontal Lobe Function and Dysfunction

Chair: Facundo Manes

10:30 a.m.–12:00 p.m.

F. MANES, A. KERTESZ, A. BECHARA & M. ROCA. Frontal Lobe Function and Dysfunction.

Symposium Description: The prefrontal cortex (PFC) is the frontal region immediately anterior to the premotor and primary motor cortex, and is heterogenous both anatomically and functionally. Its several regions, including the dorsolateral, orbitofrontal, and medial areas, are connected with various subcortical structures, generating frontosubcortical circuits. The symptoms resulting from a frontal dysfunction can vary depending on the affected region or circuit. This symposium will discuss original data concerning the nature of cognitive and emotional deficits involving frontal circuits and how to detect these deficits. Antoine Bechara will discuss the somatic marker hypothesis that provides a systems-level neuroanatomical and cognitive framework for decision-making and how it is influenced by emotion. He will also highlight some applications of this framework to the studies of decision-making in clinical conditions such as addiction, and the implication for a neurobiology of free will. Andrew Kertesz will talk about the Frontal Behavioral Inventory (FBI) which was developed and standardized to differentiate the behavioral variety of Frontotemporal Dementia (bvFTD) from other dementias, and to quantify the severity of the behavior disorder of FTD. Maria Roca will present an original “ecological” battery to detect specific executive deficits in patients with mild frontal lobe dysfunction. She will show that traditional cognitive tests are not sensitive enough for early detection of the executive deficits in the behavioral variant of Frontotemporal Dementia, and will suggest that the ecological battery used on the INECO study may be much more sensitive for prefrontal impairment detection during early stages of the disease.

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A. KERTESZ. The Frontal Behavioral Inventory.

Objective: The Frontal Behavioral Inventory (FBI) was developed and standardized to differentiate the behavioral variety of Frontotemporal Dementia (bvFTD) from other dementias, such as Alzheimer’s Disease and Vascular Dementia, and to quantify the severity of the behavior disorder of FTD.

Participants and Methods: The 24 item scorable questionnaire has items incorporating the Lund/Manchester consensus in addition to the symptoms observed in our FTD clinic and in published observations on FTD. In this scale, 12 items assess deficit (negative) behaviors and 12 items assess disinhibition (positive) behaviors. Some of the items are aimed at language and motor behaviours. The inventory is caregiver based, intended for a face to face interview style administration, although we had satisfactory experience with nonstandard administrations on the telephone, or the caregiver filling out and scoring the inventory alone in the waiting room or at home to be mailed in. Administration is about 20-30 min, depending the extent and severity of symptoms. The questions are bidirectionally scripted, to avoid influencing the caregiver towards a yes or no answer.

Results: The inventory has high interrater reliability (Cohen’s kappa of .90) and high item consistency (Cronbach’s alpha of .89). The FBI has high face and content validity and the advantage of using this questionnaire is that it is brief, sensitive and specific, and able to discriminate FTD from other dementias when a score of 27 or higher is achieved and a score of 30 achieves more specificity excluding cases without FTD.

Conclusions: Our experience in various patient populations, the use as an outcome measure in therapeutic trials and in a longitudinal study will be presented.

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A. BECHARA. Emotion and the Frontal Lobes: The neuroscience of decision-making and implications for understanding the neural basis of willpower.

Objective: The somatic marker hypothesis provides a systems-level neuroanatomical and cognitive framework for decision-making and its influence by emotion. The key idea of this hypothesis is that decision-making is a process that is influenced by marker signals that arise in bioregulatory processes, including those that express themselves in emotions and feelings. This influence can occur at multiple levels of operation, some of which occur consciously, and some of which occur non-consciously. The frontal lobes are key elements of this neural circuitry and play a crucial role in decision-making. I will review studies that confirm various predictions from the hypothesis. I will also highlight some applications of this framework to the studies of decision-making in clinical conditions such as addiction, and the implication for a neurobiology of free will.

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T. TORRALVA, M. ROCA & F. MANES. An “Ecological” Battery to Detect Specific Executive Deficits in Patients with Early Behavioral Variant of Frontotemporal Dementia.

Objective: The aim of this study was to detect specific executive deficits in patients with early behavioral variant of Frontotemporal Dementia (bvFTD) by using an “ecological” battery consisting of tests shown to be sensitive for the detection of damage to the prefrontal cortex.

Participants and Methods: Study subjects included 12 early bvFTD patients, 9 frontal lesion (FL) patients and 10 normal controls. All subjects underwent a standard examination battery, including complete neurological and neuropsychological examination, as well as the “ecological” executive battery that included: Theory of Mind tasks, the Hotel Task, the Met-hv (adaptation) and the Iowa Gambling task (IGT).

Results: Significant differences were found between bvFTD and normal controls in the following tests: FAB ($P < .001$), “Theory of mind” ($p < .01$), Hotel Task ($p = .02$), Met-hv total error score ($p < .01$), and the IGT task ($p < .0001$). The same pattern was found between controls and the FL group. No significant differences were observed between bvFTD and FL patients, for any of the “ecological” battery tests studied.

Conclusions: This study supports previous reports showing that traditional cognitive tests are not sensitive enough for early detection of bvFTD, and suggests that the executive battery used in this study may be much more sensitive for prefrontal impairment detection during early stages of the disease.

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Symposium 9: Identity Loss and Change in the Face of Cognitive Impairment: A Social Identity Approach.

Chair: Catherine Haslam

10:30 a.m.–12:00 p.m.

S.A. HASLAM. The Role of Social Identities in Determining Neuropsychological Outcomes and Adjustment.

Objective: Traditional approaches to neuropsychology and neuropsychological rehabilitation have placed a heavy emphasis on issues of cognition, while considering social factors and processes to be of only secondary importance. This emphasis is understandable, but there are grounds for arguing that social psychological processes may be more central to neuropsychological functioning than is commonly supposed. In particular, this is because the general function of cognition is to support social activity, and hence the dynamics of social life necessarily inform and structure ‘basic’ cognitive activity. This paper elaborates upon the theoretical basis for this argument by drawing on the large body of research informed by social identity principles (Tajfel & Turner, 1979; Turner et al., 1994). In particular, this suggests (a) that people’s sense of self is routinely structured by social identities associated with their membership of social groups and (b) that the maintenance of promotion of social identities is vital both to cognitive and neuropsychological integrity and to general well-being (e.g., A. Haslam et al., in press a; C. Haslam et al., in press b). Empirical support for these arguments is derived from a number of studies which show (a) that social identity change and loss associated with brain injury have an impact upon neuropsychological functioning over-and-above cognitive insult alone, and (b) that social identity maintenance and continuity play a critical role in post-trauma adjustment and rehabilitation. At both theoretical and practical levels, these insights provide exciting prospects for the newly emerging field of social neuropsychology.

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W.H. WILLIAMS, J. JONES & R. MORRIS. The Aftermath of Traumatic Brain Injury: The Impact of Identity Change on Well-being.

Objective: Traumatic Brain Injury (TBI) is the single most disabling condition in working-age adults. Individuals typically suffer from a range of physical and psycho-social problems, leading to difficulties in maintaining social group memberships (e.g., work, friends, family). However, these group memberships are likely to play a critical role in the recovery process because (a) they provide individuals with a sense of social identity, (b) social identities are an important basis for self-continuity over time (pre- and post-injury), and (c) social identities are the basis for the receipt and efficacy of social support. Accordingly, maintained social

identities have been found to play a critical role in predicting adjustment to negative life change (Haslam et al., in press). Building on this work, this paper reports the results of a major study exploring the recovery process following such trauma. To examine the role that (a) social variables (e.g., maintained social identities, social support, and perceived stigma) and (b) clinical and neurological factors (e.g., the degree of injury, neuropsychological dysfunction) play in determining outcomes, we developed the Trauma Recovery and Experiences Assessment Tool (TREAT). This was administered by Headway UK in a national online and mailout survey to head-injured individuals. Results provide important insights into the role of identity-related factors in mediating between the experience of trauma and recovery from it. In particular, they demonstrate that social identities are a critical dimension of the trauma process, and that these need to be borne in mind in processes of assessment and rehabilitation.

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J. JETTEN, C. HASLAM, C. PUGLEISE & J. TONKS. Impairment of Autobiographical Memory and Identity Loss: Effects on Well-being.

Objective: We examined the relationship between autobiographical memory and well-being among elderly residents in standard and dementia care units. Building on previous research by Addis and Tippet (2004), we predicted that, in addition to memory and cognitive impairments among dementia patients that negatively affect well-being, dementia sufferers also experience a sense of identity loss that independently impacts negatively on well-being.

Participants and Methods: Participants were 15 residents of a standard care home with early onset dementia and 16 special care unit residents diagnosed with severe dementia. A control group consisted of a community sample of 17 age-matched participants.

Results: Results revealed that autobiographical memory and cognitive abilities linearly decreased from the community to early onset to severe dementia group. Care staff ratings corresponded well with these memory and cognitive ability measures. Interestingly, however, residents’ life satisfaction did not correspond with the memory impairment findings or carer ratings. Life satisfaction was lower for the early onset of dementia group than for the community sample, but there was a trend that life-satisfaction was higher for the severe dementia group than for those with early onset of dementia. A similar U-shaped pattern of results was found on a personal identity strength measure, and there was evidence that personal identity strength mediated life-satisfaction.

Conclusions: We conclude that it is the awareness of loss of identity and not necessarily the memory impairment itself that negatively affects well-being. The importance of having an understanding of past identity and how this informs present identity is discussed.

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C. HASLAM, J. JETTEN, C. PUGLEISE, S.A. HASLAM & J. TONKS. Personal Facts or Knowledge of Events: What Aspects of Autobiographical Memory Support the Self?

Objective: There is growing consensus among researchers about the important role that access to past memories plays in developing a coherent sense of self and identity. Loss of autobiographical memory in dementia sufferers, for example, is associated with a reduction in the integrity of self. But what aspects of autobiographical memory continuity are critical to this relationship? Klein (2001) suggests it is our memory for personal facts (i.e., semantic memory), and not of specific events (episodic memory) that is responsible for maintaining identity.

Participants and Methods: We investigated the hypothesis that personal semantic memories are more critical to identity maintenance in a group of older adults, who either (a) were healthy, (b) had early onset dementia, or (c) had advanced dementia. Participants were asked to

complete the Autobiographical Memory Interview and separate scores were generated for personal semantic memories and autobiographical incidents. They were also asked to complete the global sense of self-measure which is part of the Exeter Identity Transition Scales (EXITS; Haslam et al., in press).

Results: Results of correlation analysis revealed strong relationships between personal semantic memories, autobiographical incidents and global sense of self. Path analysis showed that episodic memory supports a sense of self because it provides the foundation from which semantic memory develops.

Conclusions: Consistent with Klein's hypothesis, we found that maintenance of personal semantic memories was critical to the integrity of identity. Our discussion focuses on the interdependence between self and memory and considers the implications of memory loss for identity and general well-being.

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C. HASLAM, C.A. MATEER, S.A. HASLAM, W.H. WILLIAMS, J. JETTEN & C. HASLAM. Identity Loss and Change in the Face of Cognitive Impairment: A Social Identity Approach.

Symposium Description: Social neuropsychology is an emerging area drawing on the theoretical foundations of neuro- and social-psychology to better understand factors that influence the long-term management of those who suffer neurological disease. The social identity approach in particular offers a novel theoretical perspective from which to consider the impact of cognitive impairment on adjustment and well-being. In this symposium, we adopt this approach to social neuropsychology and evaluate its contribution to our understanding and management of acquired and traumatic brain injury as well as dementia. An overview of Social Identity Theory is provided in the first presentation together with a framework for its application to understanding processes of identity change following trauma. The second paper considers the impact of identity change on adjustment and well-being following traumatic brain injury. The two final papers investigate the relationship between autobiographical memory and identity loss through study of these constructs in people suffering dementia. Jetten and colleagues raise the importance of the continuity between past and present memories in maintenance of well-being and Haslam et al. highlight the critical role that knowledge of personal facts play in maintaining one's identity. These findings are used to argue that awareness of both neuropsychological and social psychological factors is essential in helping people adjust to the consequences of neurological disease.

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**Symposium 10:
Cognitive Disorders in Infantile Epilepsy**

Chair: Nora Grañana

10:30 a.m.–12:00 p.m.

N. GRAÑANA, N. FEJERMAN, M. LEVAV, M. LASSONDE & A. SOPRANO. Cognitive disorders in infantile epilepsy.

Symposium Description: Symposium description : Based on etiology and syndrome diagnosis, is very important to determine in the course of epilepsy in children, how neuropsychological functions are developing, which type of function is at risk, and which are the best neuropsychological protocols to show the evolution of the syndrome in each patient. This symposium will discuss neurocognitive profiles and functioning in children with epilepsy. Miriam Levav will describe a battery for screening children affected with epilepsy in 118 patients. Na-

talio Fejerman will speak about refractory seizures. Marisse Lassonde will analyse the results of combined near-infrared spectroscopy (NIRS) and electrophysiology (EEG) in the study of language lateralization and epileptogenic zone localization in epileptic children; and Ana Soprano will describe the relationship between the intellectual quotient and the quality of life in children with refractory epilepsy

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M. LASSONDE. Combined Near-Infrared Spectroscopy (NIRS) and Electrophysiology (EEG) in the Study of Language Lateralization and Epileptogenic Zone Localization in Epileptic Children.

Objective: Near infrared spectroscopy (NIRS) is a novel imaging technique that may be of great value in the pre-surgical epilepsy investigation. We evaluated the potential of simultaneous NIRS-EEG to improve the localization of the epileptogenic zone and assess language lateralization in young epileptic children as part of their pre-surgical evaluation.

Participants and Methods: children underwent a prolonged NIRS-EEG recording while electroclinical and electrical seizures were recorded. Results were compared to those obtained with other pre-surgical techniques and showed a good concordance for the epileptic zone localization. Children also performed a language task during NIRS to investigate language lateralization

Results: We found a perfect concordance between the language localizations revealed by NIRS and fMRI or the Wada technique. Thus, NIRS-EEG has the potential to contribute favourably to pre-surgical investigation in young patients.

Conclusions: NIRS-EEG combined with classical and novel non-invasive techniques may reduce the need for invasive monitoring in non-lesional patients

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A.M. SOPRANO. Relationship between IQ and Quality of Life in Children with Refractory Epilepsy.

Objective: To study the relationship between intellectual quotient (IQ), and quality of life in a group of children with refractory epilepsy

Participants and Methods: One hundred and sixty patients (mean age: 10.7 years, SD 3.6) with refractory epilepsy were studied. IQ was assessed with tests of general intelligence (Stanford Binet, Wechsler). Children's quality of life was assessed using a questionnaire addressed to the parents

Results: IQ average was 63.3 with a wide range (6 -107). Children's quality of life were evaluated as bad or poor in 51% of the children.

There were no significant relationship between the results of the IQ and the children's quality of life.

Conclusions: Preliminary research indicates that children's quality of life, as assessed by their parents, is directly related with the control of the number and type of seizures.

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M. LEVAV. A Battery for Screening Children Affected with Epilepsy in Clinical Practice.

Objective: To develop a short and valid battery to assess the neurocognitive functions in the context of a routine in clinical practice with children affected with epilepsy.

To evaluate the added value of this procedure to the physician's decisions and management of the patients' compliance with therapy.

Participants and Methods: One hundred and eighteen children: 62 females, 56 males, with an age of onset of epilepsy (6.6 ± 3.4 years), age of testing (10.3 ± 3.3 years), 53 of those with generalized and 65 with partial epilepsy were recruited through the Comprehensive

Epilepsy Clinic. Eighty percent of the children attended regular schools and 20% received educational support within the school. Participants were assessed with a short neuropsychological battery which included: Attention [visual/verbal/visual search]; Memory [verbal]; Motor [visuomotor/fine motor coordination]; Verbal abilities [naming/verbal fluency]. Parents filled out the Child Behavior Checklist and Quality of Life questionnaires. Medical diagnoses were reviewed by the neurology staff. Participants were divided according to: epilepsy diagnosis, seizure type and number of AED's (Antiepileptic drugs) reported at time of testing.

Standard scores were transformed into Z's to allow for comparisons among the groups.

Results: Preliminary results indicated no differences among age of onset of epilepsy and age of testing between the different groups.

Cognitive impairments were observed in motor, attention and verbal abilities. Children affected with partial seizures of all types showed a marked deficit in verbal fluency tasks, whereas the affected with generalized seizures showed visual inattention deficits.

Conclusions: This screening battery enabled the clinic staff to obtain individual and group neurocognitive profiles of the children and guided subsequent interventions and educational recommendations

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N. FEJERMAN. Cognitive Impairment in Epileptic Encephalopathies.

Objective: Neurocognitive impairment is frequent in epileptic patients. Causes are multiple, and may be influenced by several factors including the epilepsy syndrome. Epileptic encephalopathies are conditions in which the abnormal electrical activity and seizures, per se, interfere with cognition, language or behavior.

We studied cognitive impairment in patients with infantile epileptic encephalopathies. Some of them remit with specific treatments but the majority will grow up with mental retardation and cognitive handicaps. Presence of cognitive impairment will depend on the etiology, on the epileptic syndrome and on the response to treatment

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Symposium 11:

Executive Functions: Clinical and Normative Studies

Chair: Irani Argimon

10:30 a.m.–12:00 p.m.

I.I. ARGIMON, R.P. FONSECA, D.G. SCHNEIDER & C.H. KRISTENSEN. Executive Functions: Clinical and Normative Studies.

Symposium Description: Executive functions (EF) refer to higher-level cognitive abilities that enable an individual to successfully engage in independent goal-directed behavior in complex environments. Deficits in EF (or in its subcomponents) are identifiable in many disorders, such as schizophrenia, ADHD, traumatic brain injury, and dementia, but also in normal aging. This symposium presents data from different lines of research on the neuropsychological assessment of EF, including (a) Brazilian norms to EF measures and (b) studies conducted with clinical population. Norms were obtained to some common measures of EF and its subcomponents, including Wisconsin Card Sorting Test, Iowa Gambling Task, Hayling Test, Trail Making Test, Verbal Digit Span, and to a newly developed neuropsychological battery named Neupsilin. Clinical studies employing these measures – as well as additional ones – were

conducted with neurological (e.g., right brain damage) and neuropsychiatric (e.g., depression, anxiety, and posttraumatic stress disorder) population. Taken together, these studies provide an overview of the advances on the neuropsychological assessment of EF that has been taking place in southern Brazil.

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C.H. KRISTENSEN, M.M. PARENTE & A.W. KASZNAK. Cognitive Functions and Posttraumatic Stress Symptoms in a Sample of College Students.

Objective: Posttraumatic Stress Disorder (PTSD) is a prevalent disorder associated with both neuroanatomical and neurophysiological impairments. There is a growing literature addressing the cognitive impairments related to PTSD, but most studies focus on combat-related PTSD. In order to suppress the lack of neuropsychological research on civilian-PTSD, cognitive performance regarding domains of attention, memory, executive functions, and emotional processing was examined in a sample of college students.

Participants and Methods: Participants were 72 undergraduate students attending to an introductory psychology course in a university in southern Arizona, USA. The participants ranged in age from 18 to 26 years ($M = 18.79$; $SD = 1.24$), were predominantly female (63.9%), and presented low ($n = 40$; PTSD-) and high ($n = 32$; PTSD+) levels of PTSD symptoms.

Results: Statistically significant differences were found regarding tasks of selective visual attention (Ruff 2 & 7 Selective Attention Test), executive functions (Trail Making Test-B), and general emotional processing (Stroop effect for emotional words – Modified Stroop Procedure). Significant differences were not found in tasks of sustained auditory attention and working memory (Paced Auditory Serial Attention Task – PASAT), visual attention and motor speed (Trail Making Test-A), and specific emotional processing (Modified Stroop Procedure, group by word interaction).

Conclusions: Taken together, the outcomes suggest the involvement of executive functions, selective attention, attentional processing to emotional stimuli, inhibitory control, and working memory impairment related to PTSD. Considering the differences observed between PTSD- and PTSD+ groups, is plausible to propose a functional impairment in frontal-subcortical brain circuits associated with PTSD symptoms.

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I.I. ARGIMON & V.O. THIERS. Wisconsin Card Sorting Test in the Elderly.

Objective: Age-related cognitive decline (ARCD) is a normal aspect of human development, although the nature of this change is not clear. The differential diagnosis between ARCD and dementia is a difficult task – but also a crucial one – since the detection of the early signs of dementia is fundamental in order to employ effective interventions. Within this context, the use of psychometric instruments may represent the most important contribution of psychologists to the assessment of dementia and ARCD. The assessment of the executive functions is part of a comprehensive evaluation of ARCD, and The Wisconsin Card Sorting Test (WCST) is widely used for this goal. This study aimed to develop norms of the WCST for the Brazilian population over 60 years, and to verify the impact of cognitive and emotional disorders on executive functioning.

Participants and Methods: Participants were 319 elderly living in the metropolitan area of Porto Alegre (RS – Brazil), aged between 60 to 88 years (mean 69.6 years, $SD = 6.3$). Participants were evaluated individually with the following measures: socio-demographic questionnaire; Beck Depression Inventory (BDI); Beck Anxiety Inventory (BAI); Geriatric Depression Scale (GDS); Mini-Mental State Examination (MMSE); WAIS-III subtests (Vocabulary, Digit Span, Block Design, and Digit Symbol-Coding); and WCST.

Results: Preliminary data identified 25 individuals (9.5%) with suspected ARCD, 7 (2.2%) with severe depression, and 10 (3.1%) with severe anxiety. Significant correlations ($p < 0.05$) were obtained for WCST Number of Categories Completed and Trials to Complete 1st Category ($r = .48$), MMSE ($r = .17$), BAI ($r = .12$), and BDI ($r = .18$).

Conclusions: WCST norms for normal aging and clinical groups in Brazil are suggested.

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R.P. FONSECA & M.P. PARENTE. Neupsilin and executive functions tests: development and adaptation with healthy and clinical samples.

Objective: In Brazil, there is an important need of neuropsychological assessment tests that take into account its population social, cultural and linguistic features. Towards enhancing the availability of the neuropsychological diagnosis tools, the Brief Neuropsychological Battery Neupsilin was developed, aiming to offer a profile of time and space orientation, attention, perception, memory, arithmetic, language, motor and executive functions. In addition, four foreign executive functions tests were adapted (Hayling Test, Wisconsin Card Sorting Test – 48 cards, Trail Making Test and Verbal digit span). This research was designed to present age and education normative data for these five tests, as well as age and education effects on the assessed neuropsychological processing, and the observed neuropsychological deficits frequency in right-brain-damaged people.

Participants and Methods: The Neupsilin's normalization sample was made up of 681 adults, divided into three education groups: low-education (from one to four years), middle-education (five to eight years), and high-education (nine years or more). They were also divided into four age groups: young (19–39 years old), middle-aged (40–59 years old), elderly (60–75 years old) and oldest elderly (76 – 90 years old). A clinical group of 29 right-brain-damaged participants had also participated. Regarding the four adapted executive functions tests, a sample formed by 144 adults (19–75 years old; two or more years of education) composed the normalization sample and 20 right-brain-damaged adults composed the clinical one.

Results: An education effect was observed on the Neupsilin's scores of all tasks ($p \leq 0.001$) and age was observed to affect performance on per-

ception, memory, language, problem solving and verbal fluency ($p \leq 0.05$). The clinical group presented time and space orientation, perception and problem solving, visual memory, arithmetic, motor functions, prospective, semantic and working memories and verbal fluency impairments. The education effect was more frequent than the age one on executive testes performance. Almost health of the clinical sample showed some executive impairment.

Conclusions: Education and age influenced on the neuropsychological performance. Right-brain-damaged patients were mainly characterized by orientation, perception, memory and executive dysfunctions.

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S.G. DANIELA, D. NATALIE & M.P. PARENTE. Young and older adults' performance on the Iowa Gambling Task: preliminary normative data for a Southern Brazilian population.

Objective: Culture effects on neuropsychological performance have been recently addressed by a growing number of publications. Despite the increasing collaboration between American and Brazilian in this field, since most of Brazilian tests are originally Americans, there are few studies providing normative data for the Brazilian population. Therefore, this study aimed to provide preliminary normative data for healthy younger and older adults' performance on the Iowa Gambling Task (IGT).

Participants and Methods: 36 young adults (age = 29.86, ± 4.63 ; education = 14.69, ± 2.81) and 36 older adults (age = 66.89, ± 5.19 ; education = 12.75, ± 3.39) took part of the study. Exclusion criteria involved non-corrected visual and/or hearing impairment, presence of psychiatric disorders and/or neurological disease.

Results: The total net score was 3.72 ($sd = 30.48$) for the young adults and 0.22 ($sd = 22.38$) for the older adults. Age-related differences in performance were not found, since both groups showed a preference for decks "C" and "D".

Conclusions: The results supported prior researches showing that age has no effect on the IGT scores. It is worth emphasizing that limitations must be taken into account, given some sample restriction such as its reduced size and lack of demographically distribution.

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THURSDAY AFTERNOON, JULY 3, 2008

Poster Session 2: Child Neuropsychology, Developmental Disorders, Learning Disabilities, ADHD

12:00–1:30 p.m.

Assessment/Psychometrics

C. OLIVEIRA, S.F. ENUMO, A. ROMILDO, F. TURINI, K. PAULA, A. ALVES, D. GARIOLI, G. FELIZARDO & R. BALBI. Linguistics and Cognitive Performance of Low Birth Weight Premature Brazilian Children at the Preschool Age.

Objective: Premature and low birth weight children may have difficulties during their development, in special in the cognitive, behavioral and linguistics areas, as these areas are the base of the academic learning processes. This study assessed the cognitive and linguistic performance (expressive vocabulary) of low birth weight premature children at the preschool age, and compared it to full-term children who were born in a southeast Brazilian public hospital.

Participants and Methods: Thirty four children with 5 years old were split into two groups: G1- 17 premature children (< 37 weeks of gestational age) and low birth weight ($< 2,500g$) and G2- 17 neonatally healthy full-term children ($> 2,500g$). Both groups answered the Columbia Mental Maturity Scale. Their mothers have answered the Language Development Survey (LDS) of Rescorla.

Results: The cognitive performance of the G1 (percentile = 50) was significant lower than the G2 (percentile = 66). G1 showed expressive vocabulary (average = 277) significantly lower than G2 (average = 296). Furthermore, low birth weight premature children have lower indexes of general reasoning and expressive spontaneous verbal repertory in comparison with full-term children.

Conclusions: These data establish the literature of the area that states the prematurity and low weight as risk factors of children development problems and shows how important it is the continuous monitoring of development of the risky populations in the sense of neutralizing as sooner as possible the adversities identified during the development before the child reaches the Elementary School.

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R.T. VIEIRA, M.T. VIEIRA & C.C. ROCCA. NEUROPSYCHOLOGICAL CONTRIBUTION TO ASPERGER DIAGNOSIS: A CASE REPORT.

Objective: Background: Many studies have criticized DSM-IV criteria for autism, particularly in High Function Autism and Asperger Syndrome. Better understanding of these conditions can be achieved by using clinical diagnosis and neuropsychological assessments. There are some controversies about the role of the verbal and performance IQ and visual spatial deficits in diagnosis helping in this condition. Objectives: The aim of this study was to evaluate impairment and preservation of neuropsychological functions in Asperger Syndrome.

Participants and Methods: We present a reported case of an Asperger Syndrome teenager evaluated at the Psychological Service of University of Medical School of São Paulo, Brazil. Methods: The instruments used in this study were clinical interviews, personality and neuropsychological tests.

Results: Results point out good IQ, "High Average", with some, but not significant, superior in the verbal skills if compared to his motor perception skills. The great anxiety and the use of esquivo defenses and depressive symptoms could be observed in personality assessment. He presented impairments in visual-spatial area.

Conclusions: The age when the symptoms appeared and the delay in the language development were not useful criteria for the diagnosis. The motivation for social interaction and good results in the majority of cognitive functions were outstanding. However, the visual-spatial perception deficit deserves special attention and suggests new studies which may help the understanding of these pathologies in the future.

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Attention

S.M. CIASCA & C. MORAES. Pharmacologic Treatment Algorithm of Attention Deficit/Hyperactivity Disorder.

Symposium Description: Pharmacologic Treatment Algorithm of Attention Deficit/Hyperactivity Disorder

César de Moraes

State University of Campinas

The use of medication has been the most researched and efficient means for the treatment of Attention Deficit/Hyperactivity Disorder. There is ample evidence of its safety. It must be preconized when the symptoms cause negative impact on the abilities of learning, interpersonal relationship and executive capacity of those affected by the disorder. A specialized diagnostic assessment, which takes into account the comorbidities and the seriousness of the symptoms, and a good therapeutic bond are essential factors for starting the treatment. The efficiency of the psycho stimulants has offered evidence in a great number of random-controlled studies which confirm its action in reducing the symptoms of attention deficit, hyperactivity and impulsiveness during its use. In addition to psycho stimulants, there is a series of other therapeutic proposals without the use of stimulants (e.g. atomoxetine, clonidine, bupropione, among others). A recent meta-analysis suggests that the stimulants function as pharmacologic methods more efficiently than those without the use of stimulants. There are few studies regarding the combination of medications for the treatment of ADHD. The choice of the medicament depends on the experience of each professional, the quantity and types of associated comorbidities and the profile of the clinical response and side effects. The following guidelines should be observed: maintain regular contact with the family and the other professionals for assessing the efficiency of the therapeutic process, reevaluate constantly the need for the use of the pharmacologic treatment and avoid the association of medicaments. The use of associated psychotherapy and psycho educational methods may help reduce the use of medication.

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S.M. CIASCA & P. CRENITTE. Cortical functions in Children with TDA/H: Language.

Symposium Description: Cortical functions in Children with TDA/H: Language

Crenitte, Patrícia Abreu Pinheiro.

Ciasca, Sylvia Maria

Departamento de Fonoaudiologia, Faculdade de Odontologia de Bauru, USP
Departamento de Neurologia, FCM/UNICAMP.

The language is a clearing example of brain superior function whose development is sustained, on one side, in an anatomofunctional structure genetically determined and, for other, in the verbal stimulus given by the environment (Rotta et al, 2004).

It is an innate function, that allows to the human being the thought symbolization and the decoding of the thought of the other (Chomsky, 1970).

Before beginning to speak, the child is enabled to use the glance, the facial expression and the gesture to communicate with the other ones. The child also has capacity to early discriminate the speech sounds. The linguistic code learning bases on the acquired knowledge in relation to objects, actions, places, properties, etc. It results of the complex interaction between the innate biological capacities and the environmental stimulation and it develops in agreement with the development neuropsychomotor progression.

In spite of not being completely explained the effectiveness degree with that the language is acquired, it is known that the children of different cultures seem to follow the same global course of language development. Still before being born, they begin the sounds learning of their native language and since the first months they distinguish it of foreign languages.

The language acquisition process involves the development of four interdependent systems: the pragmatic, that refers to the communicative language use in a social context; the phonological, that involves the perception and the production of sounds to form words; the semantic, that involves the words and their meaning; and the grammatical, that comprises the syntactic and morphologic rules to combine words in comprehensible sentences (Beffi et.al, 2007).

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S.M. CIASCA & M.M. TOLEDO. Neuropsychological Findings in Attention Deficit Hyperactivity Disorder Subtypes.

Symposium Description: Neuropsychological Findings in ADD/H Disorder Subtypes

Márcia Maria Toledo

The neuropsychological assessment is one of the most important tools inside the diagnoses process of Attention Deficit Hyperactivity Disorder (ADHD), and should have the purpose to differentiate the subtypes delineated by DSM-IV Predominant Inattentive, Combined and Predominant Hyperactivity-Impulsivity Subtypes. In the neuropsychological assessment, the professional can utilized different tests and procedure as behavior, cognitive, memory, perceptual, motor, attention, language, praxis, gnosis, intelligence, psychomotor development, processing velocity and emotional. This procedure can facilitated the comprehension and help in the strategies establishment at school, with parents and, as important as, with the own child. At Campinas Stadual University (UNICAMP/Brazil), the researchers found that ADHD-I presents more difficulties in processed information speed, both visuomotor and orientation agility, specific manual coordination and tactile ability. At the attentional training the ADHD-I showed more difficulties in both sustained auditive attention and selective visual attention tasks, and they used better the problem solving strategies, when they are compared to ADHD-C. These subjects showed more difficulties in perceptual organization, cognitive flexibility and planning, witch were related to executive functions. At the attentional training, ADHD-C showed difficulties in sustained visual and selective auditive attention and also alternated visual and audi-

tive attention tasks, evidencing more difficulties in both inhibitory response and selfcontrol. The study confirmed the importance of the attention training at the ADHD rehabilitation, with improvement at the attention capacity. Use of those many instruments is important, but the knowledge about how the brain works and its relation with environment factors, family relationship, opportunities and social condition is essential.

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S.M. CIASCA & S. CAPELLINI. DYSLEXIA AND ATTENTION/HYPERACTIVITY DEFICIT DISORDER.

Symposium Description: Simone Aparecida Capellini. Speech Therapist. PhD in Medical/Neurological Sciences – Medical Sciences Faculty – FCM/UNICAMP - Campinas. Professor of the Speech Pathology Department of the Faculty of Philosophy and Sciences – FFC/UNESP - Marília.

Attention/Hyperactivity Deficit Disorder (AHDD) is the most common neuropsychiatry childhood disorder and also one of the most common chronic diseases in school children. It represents one of the major causes by which people look for child and teenager's mental health ambulatory assistance. The professionals that assist children with this diagnostic are often confronted with language and learning deficit in various ways, its evolution and short and long term consequences. Such deficits are probably related to cognitive activities conducted by organized behaviors that include speech aspects. This cognitive activity is related to the establishment of goals, programming, starting, controlling, behavior inhibition, fluency, speed, temporal organization, sequentialization, comparing, classification, categorization, which we can denominate within executive functions and that are involved with cortical and subcortical systems of frontal lobes. The aim of this symposium is to discuss the neuropsycholinguistic investigation results of AHDD of school children aged 8 to 12 years old in the primary school. The results on cognitive-linguistic performance evaluation will be presented. The results showed significant statistical differences in the AHDD children, such as altered working memory, phonological processing and reading.

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G.C. DAVATZ, D.V. MARQUES ABRAMIDES, M.R. FENIMAN & P.P. ABREU CRENITTE. Visual and Auditory Attention in Children With Learning Disabilities.

Objective: This study had as objective, to evaluate the auditory and visual attention of children with age between 9 and 12 years with learning disabilities.

Participants and Methods: The evaluation of the auditory attention was measured with tests of auditory processing (Dichotic Non-Verbal (DNV) and Pediatric Speech Intelligibility (PSI)) and the Sustained Auditory Attention Ability Test (THAAS). The visual attention was measured with the Letter Cancellation Test, and the subtest Digit Symbol-Coding of the WISC-III scale and the ITPA Visual Closure Subtest.

Results: In our study we could verify that all the individuals evaluated had difficulties in some attention test; however, there wasn't relation between the auditory and visual attention results; because the individuals with disabilities in the auditory had not been the same ones with difficulties in the visual tests.

Conclusions: The results show that relation between learning and attention disabilities exists; and, that, as show currents studies about selective attention, phases of the auditory attention would occur in the auditory cortex and peripheral auditory ways and not in the same responsible areas for the visual attention, that involves the parietal and frontal cortex.

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C. MORAES, K.P. FEDICHINA, C. ABUJADI & S.M. CIASCA. Symptoms of Attention Deficit Hyperactivity Disorder in patients in conflict with the law: parents' report.

Objective: To verify the presence of symptoms of Attention Deficit Hyperactivity Disorder in adolescents in conflict with the law.

Participants and Methods: The Conners' Parent Rating Scale - Revised Long Version was applied for detection of Attention Deficit Hyperactivity Disorder in two groups: parents of 15 adolescents who were in conflict with the law and 17 adolescents who were not in conflict with the law. The groups of adolescents were paired according to age and socioeconomic level (Vineland-Doll Scale). The data of the subscales for cognitive/inattention, hyperactivity/impulsiveness symptoms and the ADHD Index were analyzed and possible correlations among the symptoms and intellectual level, income, sex and age of the adolescents were verified.

Results: Cognitive problems and inattention were observed in three of the adolescents (20%) of the study group, being two male and one female. In the control group, the symptom occurred in one female adolescent (5.88%). The hyperactivity symptoms were observed in nine adolescents (60%) of the study group and in eight adolescents (47.05%) of the study group. Regarding the results found in the ADHD Index, the rates are three times higher in the research group than in the control group (33% and 11%, respectively), reinforcing the greater presence of these symptoms and signs among the population of adolescents in conflict with the law.

Conclusions: The symptoms of inattention and signs of hyperactivity were more frequent in the adolescents in conflict with the law than in the normal control adolescents.

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A. RICHAUDEAU, N. GRAÑANA, D. FABERSTEIN, E. VELAZCO & S. TORRES. Neuropsychological profile in children with attentional disorders.

Objective: Neuropsychological evaluation in patients with attention disorders at school, with or without hyperactivity, is useful to value the affected and preserved attentional functions and to design programs for rehabilitation. The objective is to study the specific neuropsychological profiles according to the subtype of attentional deficit and its relative risk in children population.

Participants and Methods: we evaluated in a case-control study 30 children and adolescents who consulted by probable ADHD and the same number of controls, with a sex ratio of 5/1. We completed the screening with SNAP-IV scales and the following tests were administered: WISC-IV, to determine CI and to compare the yield between the working memory and speed processing indexes, some subtests of the battery of TEA-Ch for evaluation of attention processes: sustained, divided attention and attentional control. We considered 5 groups: attention deficit disorder with or without hyperactivity, and with or without learning disorder (ADD),(ADD/LD), (ADHD), (ADHD/LD).

Results: The best correlation was obtained in tests of screening and with auditory and visual sustained attention for the group (ADD and ADD/LD) and in attentional control for the groups with ADHD, ADHD/LD. The WM had significant correlation with the groups with LD.

Conclusions: it was possible to determine specific profiles and to determine the odds ratio to present an ADD/ADHD disorder. Patients with LD correlated significantly with impairment of WM. Although neuropsychological profile is not pathognomonic for the disorder, increases the relative risk clearly to display the syndrome.

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Child - Acquired Disorder: other

I.A. HAZIN, F. PEDROSA, A. PEDROSA, A. SAD, D. GARCIA, E. GOMES & M. BORGES. **Impact of radiotherapy treatment on intellectual level of children presenting acute lymphoblast leukemia diagnosis.**

Objective: This ongoing study aimed at investigating the impact of radiotherapy treatment used by pediatric oncology on intellectual development of children presenting Acute Lymphoblastic Leukemia (ALL).

Participants and Methods: Four samples representing four different previous conditions and constituted of ten 6 to 16 years-old Brazilian children were compared concerning the impact mentioned above. The first group was formed by children without neuropsychiatric or clinical diagnosis and non-submitted to radiotherapy; the second group was formed by children presenting ALL diagnosis at the beginning of treatment and not yet submitted to radiotherapy; the third group was equally formed by children presenting ALL diagnosis but at the end of treatment, then submitted to radiotherapy; the fourth group, finally, is similar to the third group, but having interrupted the radiotherapy treatment one year ago. Wechsler Intelligence Scale for Children (WISCIII), together with Color Raven's Progressive Matrices were used in order to evaluate intelligence of subjects.

Results: Data available at this stage of data analysis allow us to verify negative impact on children's intellectual capacities submitted to cranial radiotherapy treatment. These findings give support to previous researches where a yearly decrease of 2,5 points of intellectual capacity as measured by IQ was reported in ALL-diagnosed children submitted to cranial radiotherapy.

Conclusions: Results available at the present moment of data analysis are also relevant in order to better understand long-term effects of cancer treatments on children intellectual development, allowing the development of preventive procedures aiming to minimize such negative impacts of these treatments.

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M. LEVAV, N. LEVIN & J. AHONNISKA-ASSA. **It's Time to Review the Paradigm: Neuropsychological and Behavioral Profile of Children Affected with Cerebral Palsy.**

Objective: A complete diagnosis of the mental functions in children with cerebral palsy (CP) requires a more comprehensive assessment strategy than the one commonly applied. CP remains characterized by its motor signs, while the accompanying deficiencies, such as the level of neuropsychological and cognitive functioning, are not satisfactorily defined. The aim of this study is to describe the neuropsychological and emotional profile that characterizes children with spastic CP.

Participants and Methods: Twenty two children ages 5 – 13 diagnosed with different levels of spastic CP were tested with a comprehensive neuropsychological battery assessing language skills, executive functions, memory and attention. Parents of the participants completed the CBCL and the Pediatric Quality of Life questionnaires.

Results: Results showed low functioning in all domains compared to normal peers of the same ages. Cognitive flexibility was identified to be a strong area of functioning while visual attention was found to be weak. Deficits were also found in verbal functions and memory. No significant differences were found between the level of functioning of children affected with CP and a seizure disorder and those who were free of them. Also, no significant differences were elicited between children born prematurely to those born full-term. Quality of life, in the school context, was positively correlated with some memory skills. The children in this sample showed significant tendency for introversion and behavior problems related to anxiety.

Conclusions: Extensive research is still needed. Practitioners should attempt to define a more precise diagnostic picture of the patient's level of functioning given the heterogeneity of the disabilities.

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L.G. SAMANO & E. MAROSI HÖLCZBERGER. **Neuropsychological Test of a child with a Craniopharyngioma.**

Objective: Explore a general cognitive skills, especially the areas of learning and memory.

Participants and Methods: A twelve-year-old male patient who is studying the first year of highschool. When a computed tomography was made on him, he was diagnosed with a craniopharyngioma; for that reason on February 2006 was practiced a surgery on him to take 75% of the tumor off. Therefor he presented problems with his attention a retention of information during his classes.

For the evaluation it was used the Wechsler Intelligence Scale reviewed for the scholar level; the Copy and Reproduction Memory Test of Rey's complex figure, and the Child España Complutense Verbal Learning Test.

Results: In the Wechsler Intelligence Scale the patient obtained a 89 points global I.Q., an appropriate performance in focused an alternated attention, impressive and expressive language, perceptual and visuo-spatial integration, reasoning (concret, abstract, logic and assosiative, social), analysis, synthesis, arithmetic skills and executive functions (organizing, planning, verification and answer inhibition).

In addition he presented an important difficulty in visual, working, shot term and long term memory. And his learning skills are also in the lowest limit expected for his age.

Conclusions: This case was considered an example of the cognitive sequels in craniopharyngioma in children, as there can be observed similar characteristics as the ones mentioned by Mearing-Manrique (2003), who pointed out that in this cases the main alterations are manifested in the short term memory and maintenance of the information in the memory. An also in learning difficulties and secondary depression to organic damage.

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M.E. TAPIA YEO, G. YAÑEZ TELLEZ & J. DE LA CRUZ. **Neuropsychological assessment of a child with hydrocephalus ex vacuo of 14 years of evolution aftermath of congenital toxoplasmosis.**

Objective: The term hydrocephalus, refers to the expansion of the cerebral ventricles with increased of CSF.

The relationship between intellectual impairment and hydrocephalus, has been little studied, mainly because the obstructive hydrocephalus is usually treated surgically to correct the damage, while in exvacuo, usually show few alterations of health, causing little attention in clinic. Authorities have reported some patients with hydrocephalus with a low IQ. It was assessed a girl of 14 years of age who suffer from hydrocephalus exvacuo aftermath of congenital toxoplasmosis.

Participants and Methods: Mexican girl with 14 years old, with a history of congenital toxoplasmosis and hydrocephalus exvacuo, and generalized tonic clonic seizures, subsequent to toxoplasmosis.

We evaluated her IQ, as well as her neuropsychological processes as, attention, memory, language, and executive functions, reading and writing. We applied the scales of intelligence for the revised school level, WISC-R Spanish (Wechsler, 1981) and the Questionnaire Maturity Neuropsychological child CUMANIN (Portellano-Perez et al, 2002), to estimate the age of maturity of the neuropsychological functions.

Results: According to the WISC-R the girl has an IQ of 46, which ranks within the range of mentally deficient. The patient meets the diagnostic criteria of DSM-IV TR to moderate mental retardation and disruption of social skills / interpersonal skills, leisure, security and academic skills. Although this does not correspond to the level expected by their damage due to the development of hydrocephalus exvacuo.

Conclusions: Various studies have shown a positive correlation between the values of IQ scales and the measurement of cerebral gray matter.

In this case the density of her gray and white substance is very low, as well as the area it occupies within the skull, and it doesn't match with the abilities that the girls have reached along her lifetime.

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Child - Assessment

M. ABRAHAM & R. BRENCIA. An analysis of narrative skills in pre-school children: preliminary study.

Objective: Narrative skills in preschoolers may be good predictors of their linguistic and cognitive development (Davies, Shanks, Davies, 2002). Its understanding is of special interest in the field of language therapy. Our aim is

to analyze the profile of narrative skills in preschool children using a specially designed instrument.

Participants and Methods: Fifty children aged between 5,00 and 5,11 years, matched for socio-economic status were included. They had no communicative-linguistic or developmental impairments. All patients were tested with an instrument designed to evaluate not only skills related with canonic structure development but also those regarding content expression. Those characteristics are analyzed through a re-telling activity from an illustrated story.

Regarding the structure, it includes setting, episodes, sequence and closure. With respect to the content, the ways in which the child expresses cohesion and referentiality are analyzed. The information is registered in a custom designed form.

Results: Data obtained from qualitative analysis is presented.

Conclusions: After this preliminary study, we intend to analyze a bigger sample in order to obtain a representative profile of narrative competence in this population.

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S.P. ARRUTI, R.-, MORALEJO, L.N. RIVAROLA, M.C. DOMENICONI & M.E. FUNEZ. LEXICAL CATEGORIZATION ACQUISITION IN LANGUAGE DEVELOPMENT.

Objective: From Vigotsky's neurocognitive perspective, and within PROICO: Adquisición semántica en niños de 20- sección de Nivel Inicial de la ciudad de San Luis, the objective of this paper is to present preliminary data.

Participants and Methods: As an exploratory and descriptive research, this study consists in the evaluation of semantic categories for a population of 90 members of both sexes, which attend classes at the second section of Initial Level at Escuela Normal Juan Pascual Pringles dependent from the National University of San Luis. Firstly, the instrument was adapted, designed and applied to evaluate 11 (eleven) categories grouped in Natural, Artificial and Sociocultural Categories. Secondly, data obtained were processed, and from this analysis a profile related to lexical production was determined.

Results: Animals and Parts of the Body (Natural Categories) obtained a highest average; Jobs (Sociocultural Categories) and Furniture (Artificial Categories) the lowest. Apart from that, evidence could be found which testifies that in the process of conceptual acquisition, the different categories follow the same path, although not necessarily at the same time; however, in the observed subjects it is predominantly functional.

Conclusions: The results of this research confirm Vigotsky's tennets, and promote a more profound analysis of the findings underlying the research.

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M.M. TABAQUIM, A.A. CAMARGO, L. OLIVEIRA, T.R. NETTO, P.S. CALDERON & P.R. CONTI. MANDIBLE-TÊMPORO DYSFUNCTION: NEUROPSYCHOLOGICAL EVALUATION AND INTERVENTION FOR PATIENT PAIN CRÔNIC.

Objective: To assess effects of the intervention neuropsychological for control of chronic pain in subjects diagnosed with mandible-temporo dysfunction.

Participants and Methods: 25 women participated diagnosed with mandible-temporo dysfunction. Seven meetings were held an hour-long and applied (pre and post) the inventory of Beck for the identification of levels of depression. The program employed information resources pain and cognitive-behavioral techniques: neurofisiological, relaxation, massage, correction of posture / respiration and physical activity; affective, emotional, resilience, misuse of automatic thoughts, beliefs irrational, conduct passive-active, triggering of stress and focus on the problem.

Results: The results showed decrease in the intensity of pain episodes, 24% reported low intensity; average 4%, 32% and 4% strong very strong, and the improvement in depressive state. These data indicated decrease of great situations the trigger of pain in stressed conditions. The program enabled the recognition of neurofisiological and behavioral mechanisms, capable of changing the sensation of pain, thereby reducing the occurrence of episodes and changing the operation of chronicity.

Conclusions: The learning techniques of behavioral strategies to control d pain occurred with all participants, with reduction of the weekly frequency of pain in 94% of subjects. The study concluded that the programme of neuropsychological intervention was effective for the control of chronic pain in subjects with mandible-temporo dysfunction. Participants identified changes in the quality of life, resulting from learning techniques / behavioral strategies.

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M.J. JOFRE, M.C. ARENAS, C.R. AZPIROZ & M.A. DE BORTOLI. Effect of a Psychoeducational Nutritional Intervention on mental processing in Children.

Objective: The objective of this research was to investigate the effect of a Psychoeducational Nutritional Intervention (PNI) on mental processing in children with slight nutritional deficiency.

Participants and Methods: 38 children (20 males) of a marginal urban school, of 5.5 to 6 years old (Mean=5.36; SD=0.47) when evaluated before the intervention, and of 7.5 to 8 years old (Mean=7.31; SD=0.47) when evaluated post-intervention. The cases with clinical dysfunctions of any etiology were excluded.

Evaluation instruments: anthropometric measures and the K-ABC Kaufman Assessment Battery for Children.

Pre-intervention: The obtained anthropometric averages were inside normal ranges, but with slightly decreased values that denoted a slight nutritional deficiency. Also, that slight nutritional deficiency had affected the mental processing of information evaluated by the K-ABC Battery (Jofré et al. 2007).

The PNI programme was a series of 16 psychoeducational workshops with topics relative to effects of feeding on physical and mental development and illnesses prevention. Also, stimulating healthy behaviours related to feeding, outdoors exercise and care environment in connection with illnesses prevention.

Results: Twelve months after the PNI, an increase in z score of the height ($p=0.000$) and of the body weight (marginal, $p=0.077$) were observed. Also, improvements in z scores of the gestalt closure ($p=0.001$) and matrix analogy ($p=0.045$) subtests, in the simultaneous mental processing subscale ($p=0.006$) and in the total score of the mental processing scales ($p=0.000$) of the K-ABC Battery were obtained.

Conclusions: The results suggest that the applied PNI programme improve the mental processing of information in children, mainly the simultaneous one.

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M.J. JOFRE, M.C. ARENAS, C.R. AZPIROZ & M.A. DE BORTOLI. Cognitive Evoked Potentials after a Psychoeducational Nutritional Intervention in Children.

Objective: The objective of this research was to evaluate the effect of a Psychoeducational Nutritional Intervention (PNI) on Cognitive Evoked Potentials (CEP) in children with slight nutritional deficiency.

Participants and Methods: 38 children (20 males) of a marginal urban school, of 5.5 to 6 years old (Mean=5.36; SD=0.47) when evaluated before the intervention, and of 7.5 to 8 years old (Mean=7.31; SD=0.47) when evaluated post-intervention. The cases with clinical dysfunctions of any etiology were excluded.

Evaluation instruments: anthropometric measures and auditive CEP registered with an oddball paradigm, pre y post-intervention. The P1, P2, N2 and P3(00) waves were measured.

Pre-intervention: The obtained anthropometric averages were inside normal ranges, but with slightly decreased values that denoted a slight nutritional deficiency.

The PNI programme was a series of 16 psychoeducational workshops with topics relative to effects of feeding on physical and mental development and illnesses prevention. Also, stimulating healthy behaviours related to feeding, outdoors exercise and care environment in connection with illnesses prevention.

Results: Twelve months after the PNI, an increase in z score of the height ($p=0.000$) and of the body weight (marginal, $p=0.077$) were observed. Also, the peak latencies for P2 and N2 were lower ($p < 0.014$) and the amplitude of P1 ($p=0.003$) and P3 ($p=0.042$) were higher, compared with a control group paired in age and educational level but without any intervention.

Conclusions: The lower latencies and higher amplitudes of the CEP post-intervention suggest that the applied PNI improve the mental processing speed and the capacity of attention.

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T.L. DIAS, A.B. CUNHA & S.F. ENUMO. COGNITIVE ASSESSMENT TESTS ATTENDED IN BRAZILIAN CHILDREN WITH LEARNING DIFFICULTIES AND VISUAL DISABILITY.

Objective: A new approach based on the socio-interactionist approach, called assisted assessment or dynamic, brought advances to the cognitive evaluation area, providing indicators of the potential of learning. From this conception, this research found the adequacy of cognitive assisted evidence, which includes an intermediate stage of assistance, in children with difficulty in learning and visual disability, using the game of search questions with Different Personalities and the Game of Questions search with Geometric Pictures for Children with Visual Disabilities, respectively.

Participants and Methods: These games investigate the strategies used when drafting issues in search of information with alternative restriction, to a problem resolution. The performance ranks in the game on four profiles: high-scoring, winner-maintainer, winner-dependent-of-care and non-maintainer.

Results: Applied themselves the Game of Questions search with Geometric Pictures for Children with Learning Difficulties, individually, in 34 children (mean age: 9a4m) with IQ at 92 WISC, attending the 2nd and 3rd grades, before and after a creativity program performed with 17 students (G1). There was an increase of high-profile scoring in both groups, being higher in G1 (G1: 1 to 8; G2: 6 for 10). Applied is a Game of Questions search with Geometric Pictures for Children with Visual Disabilities in 6 children with low vision mild (average age: 8a10m), attending the 1st and 2nd series, lagging behind in relation to chronological age (3-56 months) in the range Maturity Intellectual Columbia; presented, but profile winner-maintainer (5) and high-scoring (1) with Game of Questions search with Geometric Pictures for Children with Visual Disabilities.

Conclusions: The evidence assisted were sensitive to identify the variation in performance of these children, showing it is appropriate for the evaluation of cognitive abilities of children with different special educational needs.

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M.C. DOMENICONI, M.E. FUNEZ, S.P. ARRUTI, R.-. MORALEJO & L.N. RIVAROLA. Conceptual Designation through Semantic Categories.

Objective: The objective of this work is communicate results referred to the conceptual appointment through semantic categories in children that converge to the second section of Initial Level of state schools of San Luis' city.

Participants and Methods: In this investigation sustained in Vigotsky and Luria's theory, was pondered the acquisition of the semantic aspect which the meaning of each word is a generalization subject to an evolutionary process. In this experience of the PROICO (Adquisición semántica en niños de 20 sección de Nivel Inicial de la ciudad de San Luis), was investigated the domain of the concepts in semantic categories through the definition of word and the answers were valued in: categorical, functional, perceptive and affective.

Results: The obtained results evidence likeness and differences in the population of evaluated schools, which induces us to deepen about possible variable interveners.

Conclusions: The importance of having indicative conceptualization of reference, allows us for one hand, to develop evaluation strategies, prevention and treatment in Fonoaudiología (Audiology and Speech Pathology), and the other hand, to promote future investigations inherent to this thematic.

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L.M. NAVEIRA & M.C. GROSSI. Me, you, him: pronouns in the reference of the first person in children.

Objective: The purpose of the present work is to approach a description of interactional formats that contribute to establish the reference of the first person in singular personal pronouns in children.

Participants and Methods: The data recollection has been performed in 25 children from 13 months to four years old, by participant observation, during their interactive conversations with other children and adults close to their context. The unit of analysis was the communicative situation, selected in order to develop the way in which the children produced a proper name or a personal pronoun related to the first person.

Results: The results showed that communicative situations that include a proper name can be classified into the labelling format described by Bruner (1979), but the communicative situations that include the studied pronouns can not.

Conclusions: Following the Bruner's fundamental hypothesis, and based on the Benveniste's conceptions (1966), we suggest that it is possible to develop a profundization about the way in which the personal pronouns and the "discourse about themselves" is acquired in children between one and four years old.

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I. INJOQUE-RICLE & D.I. BURIN. Visuo-Spatial Working Memory Assessment in 6- and 8-Years Old Children.

Objective: To assess convergent-discriminant validity of the Visuo-Spatial tests of the Automated Working Memory Assessment Battery (AWMA, Alloway, Gathercole & Pickering, 2004; Translation and adaptation: Injoque-Ricle & Burin, 2007). To explore age differences in performance on the AWMA subtests.

Participants and Methods: A sample of 68 6-, 8-, and 11-years old children participated in the study. Two age sub-samples (6- and 8-years old) met criteria to be compared. The six visuo-spatial subtests of the AWMA (Dot Matrix, Mr. X, Odd One Out, Block Recall, Mazes, and Spatial Span), and two WISC-III subtests (Block Design and Vocabulary) were administered.

Results: An exploratory factor analysis with varimax rotation was conducted on the AWMA subtests and estimated IQ. Two factors were found: one that includes the AWMA subtests and the other one the IQ measure. All visuo-spatial working memory subtests, except Mr. X and Spatial Span, showed significant age differences.

Conclusions: Results point to an acceptable convergent-discriminant validity of the AWMA subtests. Age differences further validate these subtests, showing visuo-spatial working memory development. Further age differences are expected with larger samples.

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S.L. MADDIO, M.S. ISON & M.C. DE LUCÍA. Solution Expectations and Behavior Planning at Interpersonal Problem Situations in Students with Attentional Dysfunction in Gran Mendoza - Argentina.

Objective: Two goals were set in the present work: a) to compare the types of solution expectations and behavior planning among students with attentional dysfunction (AD) and without AD at conflictive interpersonal situations and b) to compare accordance between the presented solution expectations and the behavior planning to solve interpersonal problems among children with and without AD.

Participants and Methods: The sample was composed of 80 students aged between 8 and 10 years old attending public and urban elementary schools in Mendoza, Argentina. The sample was divided into two subgroups, being $n = 40$ children with AD and $n = 40$ children without AD. It was an exploratory descriptive study.

Results: The results of the present study could identify cognitive skills that would need intervention in children with AD, and would contribute to design cognitive strategies for interpersonal skills' promotion in students.

Conclusions: The attentional mechanism is in charge of controlling cognition and behavior in children. The continuing difficulty to sustain attention is called attentional dysfunction (AD). It influences students' executive functioning, especially those cognitive skills involved in interpersonal problem solving, such as planning actions to ensure the achievement of goals (Ison and col. 2007). We can define solution expectations as the events the child expects will happen in order to solve the interpersonal conflict.

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T.I. RIECHI, M.L. MOURA-RIBEIRO, S.M. CIASCA, T.M. MARBA & M.M. CARVALHO. Impact of Preterm Birth on the Neuropsychological Functions.

Objective: The objective of this study was to evaluate the impact of preterm birth and low birth weight (PT-LBW) on neurodevelopment and, consequently, on the neuropsychological functions of Brazilian school-age children. The intensification of pre- and peri-natal cares and the technical-professional evolution of Newborn Intensive Care Units have improved the survival conditions of PT-LBW babies and new expectations regarding the resultant morbidities through childhood.

Participants and Methods: A cross-sectional case-control study was conducted on 120 school-age children born at the CAISM-FCM/UNI-

CAMP, with ages between 06 and 15 years-old. Among the research instruments used we find: WISC III, Bender Visual-Motor Gestalt Test, Trail Making, Rey Complex Figure, Luria Nebraska-C Neuropsychological Test, Rutter's Behavioral Scale A2, the Child Behavior Checklist (CBCL) and Test of School Performance.

Results: Statistically significant differences were found between PG and CG. PG having lower results that indicate impairments of: Visual-Motor Coordination (86,7%), General Psychomotor Development (75,0%), Visual-Constructive Skill (73,3%), Mathematical Thinking (66,1%), Tactile-Kinesthetic Skill (65,0%) and Visual Memory (60,0%) and Crossed Laterality (46,6%).

Conclusions: The Brazilian PT-LBW school-age subjects of this research displayed specific brain functional alterations: Visual and Psychomotor Development with Crossed Laterality, which are more outstanding than those of the CG subjects, and also than results described on international literature about the matter.

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O. RODRÍGUEZ, M. LARA DÍAZ & D. GÁLVEZ BOHÓRQUEZ. Development of a Test for to Detect Dyslexia and other Reading Difficulties in Children from 6 to 10 Years.

Objective: To evaluate reading difficulties to school children among 6-10 years, it's developed a sensitive test according to the sort of difficulty and the gravity of the same one.

The theoretic construct is supported by the theoretic which considers the reading difficulties as a problem based on language, it's taken up again the cognitive model making the difference between two principal components of the reading process: decodification (words acknowledgement) and reading comprehension.

Participants and Methods: The pilot test was made with 30 children from school and according to this it was made some modifications to increase the discrimination capacity and the instrument validity.

The instrument development comprehends five stages: The construct development, items creation, experts check, pilot study and standarization which have been checked the first four subjects.

Results: The first component, decodification includes four kinds of tasks: letters identification, phonetics consciousness, words reading and pseudo words reading. The second component (comprehension) includes: sentences reading, texts readings, reading fluency and listening comprehension.

Conclusions: The test offers a reading profile which specifies the problem kind that children are having when reading difficulties.

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C.L. RODRIGUES, C. COSTA, F. ASBAHR & C. ROCCA. Cognitive profile of children with anxiety disorder treated with fluoxetine: a study of two cases.

Objective: Objective: The aim of this study is to present cases of two children with anxiety disorders treated with fluoxetine in order to examine the possible beneficial effects of this medication in cognition.

Participants and Methods: Participants and methods: Both children (aged 9 and 15 years-old) met DSM-IV criteria for anxiety disorder. They were both evaluated before treatment with fluoxetine and after 4 months of its continuous use through the Multidimensional Anxiety Scale for Children (MASC) and clinical assessments. Neuropsychological tests were used for evaluation of intellectual level, attention, memory, speed of processing and executive functions. The same tests were used in the reassessment four months later and were presented in the same order.

Results: Results: Both patients showed improvement in anxiety symptoms (MASC scores) and in many cognitive functions as: speed of processing, attention (with diminishing mistakes) and audio-verbal learning processes when they were re-assessed after 4 months of treatment, the scores of executive functions tests were maintained in both evaluations.

Conclusions: Conclusion: Fluoxetine may have improved the cognitive performance of these patients. Randomized double-blind controlled studies are needed to test the findings of this cases report.

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F.J. SÁNCHEZ, C. MARRO, A. TABULLO, M.L. SÁNCHEZ, A. ORELLANO, A. YORIO & E. SEGURA. WORKING MEMORY AND CATEGORY LEARNING IN CHILDREN: EFFECTS OF DEVELOPMENT.

Objective: Age-related differences have been reported in the performance of several frontal lobe-dependent tasks, including working memory (Luciana and Nelson, 1998; Luna et al. 2001; Bunge et al., 2002). Effects of age and gender on working memory have been found in children (Vuontela et al. 2003). On the other hand, category learning has also been associated with frontal lobe activity (Dickins, 2000; Schlund 2007), and age-related differences have been observed (Wilson and Milan, 1995). The present study (still in progress) addressed the effects of age and gender on working memory and category learning, in 8-13 year old children.

Participants and Methods: Thirteen children (mean age 10.5 ± 1.6 years, 6 female, 7 male) participated in the study. Subject's working memory was assessed with the n-back task (Ravizza et al., 2004), and category learning was examined using a stimulus equivalence task (Sidman, 1982).

Results: Scores were higher for male subjects in the n-back task ($p = 0.002$), but no age differences were observed. In the stimulus equivalence task, an age × trial type interaction ($p = 0.037$), but no age or gender effects were observed. Younger subjects performance varied according to trial type. Although n-back task performance was not a predictor of stimulus equivalence outcome, subjects with higher n-back scores responded faster in category learning.

Conclusions: These preliminar results showed that category learning is likely to be more sensitive to age effects than working memory, in this age rank. This difference could be attributed to developmental differences. Additional data are required to address the link between them.

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L.O. SCANDAR & M.G. SCANDAR. Impact of Preschool Children's ADHD on Argentinean Family Life.

Objective: In this session we will describe the validation of the Family Experiences Inventory in a sample of preschool Argentinean children, we examine what aspects of family life are impacted by ADHD symptoms.

Participants and Methods: We examined (a) the factorial structure of the Family Experiences Inventory in a non-clinical sample of Argentinean families with children ages 4 to 6 years ($N = 430$) and (b) the perceived impact of children with high and low levels of inattention (I) and/or hyperactivity (H) symptoms on family experiences. Alpha factoring extraction with oblimin rotation yielded five factors that accounted for 32.32 % of the variance. Factor scales were constructed.

Results: Significant differences were found between children with high and low levels of ADHD symptoms for the Total FEI and for the financial burden, school relations, impact on social life, parent feelings, and couple relationship scales. We did not find any significant findings for the impact on siblings scale.

Conclusions: Our findings suggest that although I and H symptoms have a global impact on family life, these can affect some areas of family function but not others.

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F. VARGENS & A. GUEDES. An Exploratory Study about the Interrelationships between Language and Symbolization.

Objective: The aim of this study was to identify links between language and symbolization among three to seven-year-old children.

Participants and Methods: In order to evaluate the language aspects the seven NEPSY tests of this domain were utilized. The symbolization aspects were verified through filming structured playing sessions, using playful activities with play-doh contemplating symbolic representation proposed by the researchers. Twenty children attending two different public schools in Salvador, Bahia, Brazil were tested.

Results: Even though a proportional association between the language general score and the ability to symbolize could not be proven, the data analyzed through the SPSS revealed a direct correlation between the NEPSY Verbal Fluency subtest and the complexity of the articulation of the symbolic elements. The researchers also verified that the older the children were, the more complex the articulation of the symbolic elements. There wasn't an association with the number of elements produced with the play-doh and the children's ages.

Conclusions: For future surveys the authors suggest a specific investigation of which language aspects are more related to the symbolization capacity, in order to elaborate early childhood stimulation activities and programs.

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Child - Developmental Disorders

M.C. ALVAREZ & N.B. QUEVEDO. Integración de un Niño con Trastorno del Desarrollo no Específico en Escuela Común.

Objective: Fundamentación:

Los enfoques multimodales son beneficiosos para intervenir a niños con trastorno generalizado del desarrollo no específico y sus familias; la combinación de estrategias terapéuticas y centralizarse en ese sujeto único que debe constituirse como tal, pasando de un discurso tercerizado a uno en primera persona.

Este recorrido es una construcción permanente entre profesionales, padres, niño, escuela y sociedad.

La integración como aspecto de un paradigma de Diversidad e inclusión, está en la intervención multimodal, eficaz y enriquecida por los nuevos avances neuropsicológicos y psicodinámicos.

Objetivos:

Facilitar la construcción de la subjetividad.

Mejorar la expresión lingüística.

Orientar y acompañar a la familia y docentes.

Intervenir sobre los procesos de integración. escolar en todos los ámbitos: terapéutico, familiar, escolar, social.

Revisar en forma permanente las modalidades terapéuticas desde la formación continua y la interdisciplinariedad en todos los ámbitos intervinientes.

Participants and Methods: Lic Norma Quevedo, Psicopedagoga

Lic María Alvarez, Fonoaudióloga.

Metodologías:

Método DIR.

Metodologías Cognitivas.

Juego terapéutico.

Tecnologías Asistivas y Educativas.

Sistemas Alternativos de la Comunicación.

Juego lingüístico.

Estimulación de los procesos mentalistas y su expresión lingüística.

Entrenamiento de habilidades pragmáticas.

Results: Desde esta intervención, se logró la integración a escuela común. Logró pasar a 3° año de EPB (los tres años en escuela común pública, con proyecto de integración con escuela especial y equipo profesional privado).

Conclusions: Mediante este trabajo, concluimos que deben abordarse adecuadas metodologías y recursos para lograr el éxito y favorecer a las potencialidades individuales de estos niños.

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M. ARREBILLAGA, A. KESMAN & C. SCHWARTZ BARUJ. EVOLUTIONARY UPHEAVAL OF LOBULO FRONTAL (TELF).

Symposium Description: Recognize the existence of alterations in the language, the motor perceptive activity, the attention and the social conduct, as a result of a dysfunction of the Frontal Lobe of evolutionary type (TELF) and be able to differentiate them from the Autistic Syndrome, the DHDA, or the TMLRE contributes to Neuropsicológica science elements to make of I diagnose a valuable tool for the later therapeutic position. Sometimes the complementary studies (EEG and studies by structural images) usually are informed without alterations, nevertheless functional study SPECT usually demonstrate low perfusion in the frontal lobes.

At this moment it is possible to verify, that many of the clinical symptoms in the adult, like being, disorganization of the FAITH, difficulty of control of impulses, phobias, rituals, upheavals of conduct and social adaptation, among others, are consequence of such symptoms registered in the first childhood.

The objective of this new presentation, is to contribute to the clinic, the description of this new organization diagnoses and the importance of its early detection.

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M.E. ARREBILLAGA. ELEMENTS FOR THE CLINICAL DIAGNOSTIC BETWEEN AUTISM AND MRELD.

Objective: The alterations in the acquisition and development of the linguistic code, stereotypias, the conducts of isolation and the alterations in the relations you will tie, are characteristic determinants of the autism; or we can also find them in children with Mixed receptive-expressive language disorder - MRELD? With the objective to try to respond to this question, using scale CARS worked with a sample of 15 children with diagnosis of Autism.

Participants and Methods: After the application of the Therapeutic System during six months, the scale was applied again and it concluded that a group of children diminished the values happening to the category non autistic, persisting alterations in the language.

Results: A test of valuation of the language was applied, whose results allowed to locate to this group between the children with MRELD.

Conclusions: The diagnosis must be understood like an open and flexible process, being able to corroborate itself during the therapeutic process. The ZDP, used in the diagnosis-therapeutic process allows us, to arrive at the proposal of Therapeutic System, a customized way and in situation of context.

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A. BALBI. Two clinical cases of children with arithmetic learning disability.

Objective: There are numerous investigations that correlate the young Children's disabilities in learning arithmetics with spatial awareness, attentional and working memory disorders.

Our objective is to describe two clinical cases with probable dyscalculia.

Participants and Methods: In this paper two clinical cases, of 7 and 8 years old, are presented, which show, using standardized tests, numerical comprehension deficits, counting, number fact recall and disorders in the referred neuropsychological domains. Both cases present normal intelligence, adequate educational instruction, and do not have sensory deficits or severe emotional disorders

Conclusions: These cases tend to confirm the relationship described between children's disabilities in learning arithmetics, spatial awareness, working memory and attention, which should be considered at the time of performing a more rigorous "psicopedagogic" diagnosis.

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B. DIUK & A. BORZONE. The Development of Reading Difficulties in Young Children from Different Socioeconomic Backgrounds.

Objective: The aim of the study is to explore the development of reading difficulties in children from two different socio-economic backgrounds in Buenos Aires, Argentina.

Participants and Methods: 52 children from low-and middle-income families were evaluated in phonological processing tasks and reading and spelling abilities when they were 4, 5 and 6 years of age. In the present study, we retrospectively examined early difficulties of 6 children (4 from low-income and 2 from middle-income backgrounds) who, by the end of grade 1 performed at the bottom 10% of their classes in reading and spelling.

Results: Examination of the results in phonological awareness, RAN, pseudoword repetition, object naming and letter knowledge tasks at 4, 5 and 6 years of age showed that these children had performed below the 25th percentile for their group in at least 50% of the tasks. There was considerable variation as to the tasks at which each child exhibited low performance. However low-income children tended to perform below the 25th percentile on letter recognition at 4 and 5, at a naming task at 5 and at a segmentation task at 6. Middle-income children additionally exhibited low performance in two more basic processing tasks: pseudoword repetition at 5 and 6 and RAN at 6.

Conclusions: These results suggest that low-income children's difficulties might be due largely to experiential factors, while middle-income children's difficulties might reflect more basic problems. Some hypothesis are advanced concerning the interplay between experiential and constitutional factors in the development of reading difficulties in children growing in poverty.

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N. GRANANA, E. FERNANDEZ, M. GIMENEZ & R. ALLEGRI. DAP test in autism spectrum disorders.

Objective: Objective: to evaluate cognitive development is very difficult in patients with autistic spectrum disorders. Many patients, mainly at the beginning of the treatment, have few abilities to execute a test to measure the intelligence quotient (IQ). The objective was to determine the correlation between the intellectual quotient by formal scales with the quotient found by the draw-a -person test (DAP) as a screening of cognitive development and its correlation with the formal IQ

Participants and Methods: We evaluated in a prospective study 50 patients between 3.11 to 14 years with an average age of 8-year-old, determining the intellectual quotient by Wechsler scales (WPPSI III and WISC III) (Wechsler 2002, 1991) according to the local procedures (Caaysials 2002), and with the draw-a-person test of Goodenough with local baremos from Casullo et al.

Results: A significant correlation was found with $p < 0.001$ and interval of the 95% between Wechsler and DAP IQ. Most patients fell down within the same category of cognitive maturation or mental retardation handicap.

Conclusions: The drawing of human figure was usefull as a fast screening of intellectual abilities in patients with pervasive developmental disorders in the ranges between three to fourteen years of age.

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D.A. LAMÓNICA, M.G. GEJÃO & A.T. FERREIRA. DANDY-WALKER MALFORMATION IMPLICATIONS IN THE COMMUNICATIVE PERFORMANCE: A CASE REPORT.

Objective: This study has as objective shows the speech and hearing pathologist evaluation discoveries in a case that presents Dandy-Walker malformation with intratentorial cyst and vermish cerebular hypoplasia confirmed by magnetic resonance.

Participants and Methods: Participated in this study a boy with 3 year and 3 months of age, evaluated with: Communicative Behavior Observation; Early Language Milestone Scale; Behavior Developmental Scale of Gesell and Amatruda and Peabody Picture Vocabulary Test (PPVT).

Results: There were prematurity, squint, irritability and ataxia signs report. It was observed rare moments of communicative intention and vocalizations (no articulate); symbolic gestures absence; understanding of orders accompanied or not by gestures; imitation difficulty and objects exploration through few actions. The motor adaptative, delicate and rude and personal-social behaviors were shown committed for the chronological age; however, the language was the more committed ability. The alterations in the language receptive aspects were not so significant as in the expressive aspects. In PPVT the child didn't reach the test score base.

Conclusions: It was concluded that the child presents alterations in the communicative, motor, cognitive and socialization abilities characterizing Development Global Disturbance as part of the Dandy-Walker malformation with intratentorial cyst and vermis cerebellar hypoplasia, as described in the literature.

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D.A. LAMÔNICA & M.G. GEJÃO. COMMUNICATIVE ABILITIES IN CHILDREN WITH CONGENITAL HYPOTHYROIDISM.

Objective: To draw the profile of communicative abilities in children with congenital hypothyroidism treated early by a neonatal screening program.

Participants and Methods: It had assessed, through Early Language Milestone Scale, 35 children (23 of the feminine gender and 12 of the masculine) with congenital hypothyroidism detected by the neonatal screening. The children belonged to the age group from 2 to 36 months and accomplished treatment with hormonal replacement for at least one month.

Results: In assessment through Early Language Milestone Scale, 11 children presented altered performance in auditory expressive function, 2 in visual function and 1 in auditory receptive function.

Conclusions: Most of the assessed children in this study presented adequate performance for the evaluated abilities. For the children with altered performance, larger deficit was observed in expressive language area. In that way, children with congenital hypothyroidism are of risk to present alterations in the communicative development and must be accompanied by a speech and language pathologist.

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B. BELTRÁN, E. MATUTE, D. ZARABOZO & E. VÁZQUEZ CARIBAY. The effect of chronic iron deficiency on neuropsychological measures in toddlers.

Objective: To investigate the effect of iron deficiency (ID), with and without anemia, on neuropsychological characteristics in infants, and test whether or not chronic ID has a more severe effect than non-chronic ID in toddlers.

Participants and Methods: A blind, transversal, analytical design was used to determine the iron nutritional status (INS) and assess the neuropsychological characteristics of 59 14-to-18-month old Mexican infants from similar social and family backgrounds. The Bayley Scales of Infant Development, Preschool Language Scales and an Auditory Perception Test were used. Afterward, the scores obtained on each task were rearranged in five different neuropsychological domains: language, motor abilities, visual perception, auditory perception and executive function.

Results: A tendency towards lower scores was observed in the ID group (n=29) when contrasted with the normal iron nutritional status group (NINS) (n=30). Subsequently, the scores obtained in 25

infants that presented NINS (at 6 months and 14-18 months of age) were compared with those of six infants that presented some ID at both 6 and 14-18 months. Results show that the chronic ID group had significantly lower scores in language, auditory perception and motor measures.

Conclusions: The language, motor and auditory perception domains appeared to be more sensitive to the effect of iron deficiency in toddlers. Correspondence: *Esmeralda Matute, Instituto de Neurociencias, Universidad de Guadalajara, Francisco de Quevedo 180, Guadalajara 44130, Mexico. E-mail: ematute@cenicar.udg.mx*

L.M. NAVEIRA. Language production in children. Appliances to neuropsychological difficulties.

Objective: The aim of this work is to present the results of an investigation made in Mar del Plata National University (UNMDP), in Argentina, during 2006-2007.

Participants and Methods: In order to study the normal and pathological language production in children, the Group evaluated 198 kids from three to nine years old, creating a screening (Neuropsi-Kids-MDP 2007) designed to catalogue, evaluate and perform language production on parameters belonging to phonological, syntactic, semantic and pragmatical levels.

Results: The results can be described as follows:

At the phonological level, the most important difficulties appear between 3 and 5 years old, and they are omission, adding, substitution of phones and syllables;

In Syntaxes and Composition of words, there is problem in using plural forms, verbal sequences and identification of ambivalent words. Also, we detect problems in sequences with long phrases, number of qualities added to verbal and nominal phrases and complexity of propositions, resolved by the use of mixed operations;

In the Semantic level, it's important the categorization used in closed or distant words from children's context;

In Pragmatics, there are important the strategies to resolve symbolization, dialogical turns and, as in Semantics, adequation to family and social context.

Conclusions: Finally, we propose the application of the screening as an excellent tool to establish linguistic and cognitive abilities in children, detect early difficulties and apply the instrument in language problems due to neuropsychological aetiology.

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J. ORTIZ LUNA & G. ACLE TOMASINI. TEST NEUROPSYCHOLOGICAL: IDENTIFICATION OF ADHD IN CHILDREN SCHOOL.

Objective: The diagnosis of the children with the ADHD depends on a clinical evaluation, which includes behavioral scales and test neuropsychology, however, day with day the schools remit a bigger number of smaller with probable ADHD to the psychologist. What instruments can they be useful to identify symptoms of ADHD in the school? Objectives: 1) to identify what test neuropsychological predict the identification of symptoms and 2) to know the correlation grade between tests neuropsychological and behavioral scales.

Participants and Methods: Participants: 395 children (197 boys and 198 girls); 324 mothers and 14 teacher, the children belong of the first three grades of a primary public school. Instruments: Scale of self-identification of symptoms of ADHD for boy-girls (ESAN), Conner's Scales for parents, Conner's Scales for teachers; the d2 attention test, the Stroop test of colors and words, the London Tower test, the Wisconsin Card Sorting test, the Rey-Ostereith test, and the Verbal Fluency test.

Results: Results: It was found that 5.5% of the sample presents positive symptoms of TDAH of the Scales and of the tests neuropsicológicas, these they were identified by duet: Children-mother (n = 7); Children-Teacher (n = 9); Mother-Teacher (n = 2) and for: Children-Mother-Teacher (n = 4).

Conclusions: Correlate Test of attention d2 and the Tower of London with the behavioral scales, also, it was found that the test of Tower of London and the Test Stroop test of colors and words, they are those that better they predict the identification of symptoms of ADHD in children.

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T.I. RIECHI, M.L. MOURA-RIBEIRO, S.M. CIASCA & T.M. MARBA. Impact of Preterm Birth and Low Birth Weight on the Neuropsychological Functions of Brazilian School-Age Children.

Objective: The objective of this study was to evaluate the impact of preterm birth and low birth weight (PT-LBW) on neurodevelopment and, consequently, on the academic learning of school-age children. The intensification of pre- and peri-natal cares and the technical-professional evolution of Newborn Intensive Care Units have improved the survival conditions of PT-LBW babies and new expectations regarding the resultant morbidities through childhood.

Participants and Methods: A cross-sectional case-control study was conducted on 120 school-age children born at the CAISM-FCM/UNICAMP, with ages between 06 and 15 years-old. Among the research instruments used we find: WISC III, Bender Visual-Motor Gestalt Test, Trail Making, Rey Complex Figure, Luria Nebraska-C Neuropsychological Test, Rutter's Behavioral Scale A2, the Child Behavior Checklist (CBCL) and Test of School Performance.

Results: Statistically significant differences were found between PG and CG, PG having lower results that indicate impairments of: Visual-Motor Coordination (86,7%), General Psychomotor Development (75,0%), Visual-Constructive Skill (73,3%), Mathematical Thinking (66,1%), Tactile-Kinesthetic Skill (65,0%) and Visual Memory (60,0%). On the PG the prevalence of the following was observed: Learning Disorders (33,3%), School Learning Problem (35,0%), Crossed Laterality (46,6%) and Psychological and/or Psychiatric Problems (61,7%).

Conclusions: The Brazilian PT-LBW school-age subjects of this research displayed specific brain functional alterations, associated to cognitive-behavioral and learning disorders, which are more outstanding than those of the CG subjects, and also than results described on international literature about the matter.

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A.M. RODRIGUEZ. MUSICOTERAPIA Y NEUROHABILITACIÓN DE UN BEBE CON DAÑO CEREBRAL EN SUS PRIMEROS SEIS MESES DEVIDA.

Objective: El objetivo del presente trabajo es presentar el Programa de Musicoterapia que recibió un neonato con daño cerebral perinatal, a la par de su tratamiento de neurohabilitación temprana, durante sus primeros seis meses de vida.

Participants and Methods: El Programa de Musicoterapia se aplicó en la institución neuropediátrica, con música grabada y con instrumentos de percusión accesibles y manipulables por bebés, dirigido por la musicoterapeuta, asistida por la progenitora quien repetiría el procedimiento varias veces al día en casa. La música específicamente otorgada con esta finalidad estaba a libre demanda de la mamá teniendo que aplicar mínimamente las veces de sus ejercicios neurohabilitatorio que reforzaban la estimulación sensorio motora del bebé.

Results: En su primera resonancia magnética (3 de enero del 2006) se describió "un cuerpo calloso de .31 ml. con leucoencefalopatía difusa a predominio occipital y clara leucomalacia paraventricular". En la resonancia del 29 de mayo del mismo año se concluye que "el único dato anormal es aumento en los espacios subaracnoideos supratentoriales".

Conclusions: Al presentar el Programa de Musicoterapia que recibió un neonato con daño cerebral perinatal, a la par de su tratamiento de neurohabilitación temprana, durante sus primeros seis meses de vida se observaron cambios estructurales importantes ya mencionados así como el acercamiento del desarrollo normal de acuerdo a las conductas normales de su edad cronológica.

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C.A. SALGADO, R. LIMA & S. CIASCA. Neuropsychological and Phonoaudiological Findings in Developmental Dyslexic Children's at the Hospital of Clinics – UNICAMP/Brazil.

Objective: The objective of this study was to describe the findings of a battery of neuropsychological and phonoaudiological evaluation in dyslexia of development children's.

Participants and Methods: A group of 6 dyslexic development children (8 to 13 years old) was enrolled at this study and evaluated at the DISAPRE. It was used the sequent instruments: a) For the neuropsychological evaluation Scale of Wechsler Intelligence, Test Gestáltico Visomotor de Bender, Test Luria Nebraska, Tests of Cancellation, Trail Making Test, Stroop Color Word Test, Tower of London and Wisconsin Card Sorting Test;b) For the phonoaudiological evaluation: test of fast automatic nomination, test of phonological awareness, verbal reading and dictated writing under, level of reading and spontaneous writing.

Results: The results have demonstrated that dyslexic children showed alterations at the nominations time for the verbal material, difficulty at the phonemic and rhyme proves, lecture level less that waited for the scholar grade, writhing with phonologic and orthographic changes; intellectual level compatible with chronologic age and mostly damage at the activities involved to perceptual, memory, attentions and executives functions.

Conclusions: There is fundamental that children with scholar complaining surfers a multidisciplinary evaluation, because the findings helpings a precise diagnostic.

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C.A. SALGADO, R. LIMA & S. CIASCA. The Relationship between rapid automatized naming Test and Stroop in Children with Dyslexic of Development.

Objective: The objective of this study was to related children's performance to the dyslexia diagnostic of development at the Rapid Automatized Naming Test (RAN) and Stroop Color Word Test (SCWT).

Participants and Methods: A group of 6 dyslexic development children (8 to 13 years old) was enrolled at this study. It was realized this procedure: a) rapid automatized naming test, were the children give name to objects, colors, letters, numbers, mostly rapid as possible; b) SCWT that children must to selection between important stimulus and ignore not important stimulus.

Results: The results have demonstrated that dyslexic children shown an increases at the time of nomination of colors, objects, numbers and letters, and at the SCWT an increases at the sore of time interference an errors.

Conclusions: The findings confirm the literature, viewing alterations of the access to mental lexical, as the difficulty on the capacity to cognitive inhibition and visual selective attention. However, the study suggests that dyslexic children's have demonstrated alterations at the components of phonologic processes at the executive functions, and that the tests used can auxiliary the evaluation of the deficits extensions.

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C.A. SALGADO, R. LIMA, C. MORAES & S. CIASCA. Survey of depressive and mannered symptoms in children with developmental dyslexia.

Objective: The present study had as objective to evaluate the mannered presence of depressive symptoms and complaints in children with dyslexia.

Participants and Methods: Six students with diagnosis had been participant to interdisciplinary of dyslexia, both the sexes and average age of 10 years. The instruments had been used: with the parents - Child Behavior Checklist (CBCL - 4/18) to evaluate mannered and emotional characteristics; b) with the children - Children's Depression Inventory (CDI) to identify depressive symptoms by means of the auto story.

Results: The results had indicated greater frequency of complaints of internalizantes behaviors (mainly anxiety/depression) in relation to the externalizantes (mainly aggressiveness). With regard to other complaints, it had greater frequency of social problems and attention. The main identified depressive symptoms had been: pessimism in relation to the future, negative comparison with other children, concern, fatigue and opposing behavior.

Conclusions: Children with dyslexia can present depressive symptoms and familiar complaints of mannered alterations, suggesting that the picture of learning riot can be a factor of risk and vulnerability for the development of psychological upheavals.

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M.M. TABAQUIM & T.F. RAMOS. EFFECTS OF A PROGRAMME OF REMEDIATION NEUROPSYCHOLOGICAL A CHILD WITH DOWN SYNDROME.

Objective: This study aimed to verify the effects of a programme of remediation neuropsychological. How specific, reorganize functions neuropsychomotoras base, stimulate self-awareness and expand the interpersonal contact.

Participants and Methods: Participated a child diagnosed with Down's Syndrome, male, 11 years of age. Neuropsychological Remediation Program consisted of five modules inter-related, with tasks from rudimentary psychomotor skills to levels more complex, such as abstract reasoning and mental manipulation.

Results: Results showed the increase in cognitive performance in all areas stimulated such as motor, cognitive, language, social and self-care, as well as the generalization of the repertoire related to learning and psychosocial behavior. The study could identify that the development of internal resources of interest, curiosity and motivation, were fundamental to promote greater independence and self-esteem positive, allowing enhance the adjustment in contexts, academic and family. The possibility of a child with Down syndrome recognize their independence in activities of daily living, with less cost to deal with the limitations imposed by the syndrome, contributes in a satisfactory manner, when subjected to neuropsychological instructional programs.

Conclusions: The study concluded that the increase in cognitive abilities in the field was made possible by potentiation of phenomena plastics, resulting from interactions Synaptic optimized and the recovery of cortical functions, important to adapt the contexts of the subject, family and school.

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M.M. TABAQUIM, D.C. LAMÔNICA, A.P. PALEARI & M.G. MAYER. CORNELIA DE LANGE SYNDROME: EVALUATION NEUROPSYCHOLOGICAL.

Objective: This study had as objective the neuropsychological evaluation of individuals with Cornelia de Lange Syndrome.

Participants and Methods: Participants: three individuals with Cornelia de Lange Syndrome, being 2 male and 1 female, with age between

7 and 10 years. The used instruments were: Communicative behavior observation, Behavior Developmental Scale of Gesell and Amatruda (BDSCA), Peabody Picture Vocabulary Test (PPVT), Illinois Test of Psycholinguistic Abilities (ITPA), Wechsler Intelligence Scale for children, Trail Making Test, Dúss Fable, Colored Progressive Matrice of Raven.

Results: The results indicated cognitive and psycholinguistic significant alterations, in varied degrees of restricted communicative intention, receptive language less committed than the expressive, and alterations in the syntactic, semantics and pragmatic areas. Tasks involving the integration of the perceptive and constructive information was of high complexity for all the subjects.

Conclusions: The study concluded that cognitive areas as the perceptive-motor and language are prejudiced in subject with Cornelia de Lange Syndrome.

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R.M. VERNESCU, M.L. COURAGE & R.J. ADAMS. Amblyopia-Like Visual Pathology in Children with Fetal Alcohol Spectrum Disorders.

Objective: The negative effects of fetal alcohol spectrum disorders (FASD) on the human central nervous system are particularly well documented in regions such as the basal ganglia, hippocampus, corpus callosum and cerebellum, areas which control human attention, memory, motor functioning, coordination, and cognition. Surprisingly, very little attention has been paid to sensory systems which are fundamentally responsible for the more basic input of information into the CNS. Here we provide data on functional vision in children with FASD, with an emphasis on function that rely critically on the visual cortex.

Participants and Methods: 21 children (6 to 13 yr) with a diagnosis on the FASD spectrum were subjected to a comprehensive battery of tests designed to assess all major aspects of functional vision, namely spatial contrast sensitivity, visual acuity, stereoacuity, color vision, refractive error and ocular alignment/motility. Testing was conducted monocularly, and with optical correction if prescribed.

Results: Compared to normative data, children with FASD showed significant deficits on visual acuity ($M = 20/36$), stereoacuity ($M = 188$ arcsec), contrast sensitivity (especially high spatial frequencies), and on color vision. Interestingly, very few children had significant uncorrected refractive errors (i.e., poor focus) and only one child had ocular misalignment (strabismus).

Conclusions: Children with FASD show substantial vision deficits, especially in visual functions (stereoacuity, contrast sensitivity, visual acuity) that require proper and intricate development of the visual cortex. Although we cannot rule out a retinal origin, it appears that these amblyopia-like deficits do not have an optical or neuromuscular basis, the most common precursors for childhood amblyopes.

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Cognitive Neuroscience

A.N. SIMÃO & S.M. CIASCA. SIMÃO ANP, CIASCA SM. Comparing the neuropsychological performance after a intervention procedure on children with ADHD.

Objective: To compare the performance at the neuropsychological assessment pre and post neuropsychological intervention.

Participants and Methods: 12 children, with an average age of 9 years at first assessment, with diagnosis of ADHD, attending public schools in Campinas and region.

Wechsler Intelligence Scale for Children - WISC III, Luria-Nebraska for Children Test -TLN-C, Cancellation Test, Trail Making Test

Results: In cognitive assessment, the group presents total IQ within the average, with better performance at perceptual organization and lower performance in processing speed and resistance to distraction; at neuropsychological assessment they had lower performance on memory, tac-

tile ability, writing, reading and mathematical reasoning. Correlating a neuropsychological evaluation pre and post neuropsychological intervention, there is a performance improvement in cognitive assessment at verbal understanding, followed by speed processing and resistance to distraction and in neuropsychological assessment in memory, expressive speech, writing, reading and mathematical reasoning. In Cancellation Test, the group showed an improvement on completion of the activity in less time and with strategy, with a smaller numbers of errors.

Conclusions: In cognitive assessment, the group presents verbal, execution and total IQ within the average, with better performance at perceptual organization and lower performance in processing speed and resistance to distraction; at neuropsychological assessment they had lower performance on memory, tactile ability, writing, reading and mathematical reasoning. Correlating a neuropsychological evaluation pre and post neuropsychological intervention, there is a performance improvement in cognitive assessment at verbal understanding, followed by speed processing and resistance to distraction and in neuropsychological assessment in memory, expressive speech, writing, reading and mathematical reasoning.

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C. DERUELLE & A. SANTOS. HUMAN FACES DO HAVE SOMETHING SPECIAL: EVIDENCE FROM FACIAL EMOTION PROCESSING IN WILLIAMS SYNDROME.

Objective: After two decades of research, some striking features of Williams syndrome (WS) continue to puzzle the scientific community – these include increased social interest and face processing skills. Although a link between these two features has been suggested, the nature of such relationship remains unclear. This study aims at determining the impact of social relevance on face processing skills in WS.

Participants and Methods: Twenty individuals with WS were asked to categorize facial emotion expressions in real, human cartoon and non-human cartoon faces presented upright and inverted. Performance of WS children was compared to that of 20 typically developing children matched on mental age and to that of 20 controls matched on chronological age.

Results: Results revealed that when compared to both chronological and mental age-matched controls, participants with WS were able to decode emotions from human (whether cartoon or real), but not from non-human faces.

Conclusions: The use of different perceptual strategies to process human and non-human faces could not explain this dissociation. Rather, the findings suggest an increased sensitivity to social cues, such as human-related facial features, possibly related to the hallmark feature of WS – hypersociability.

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T. TORRALVA, S.A. STREJILEVICH, E. GLEICHGERRCHT, M. CETKOVICH-BAKMAS, A. LISCHINSKY & F. MANES. A Holistic Comparison of Neuropsychological Functioning in Patients with ADHD and Bipolar Disorder.

Objective: Bipolar disorder (BD) and attention deficit hyperactivity disorder (ADHD) usually manifest with shared clinical symptoms, proving quite challenging to thoroughly differentiate one from another. Previous studies have characterized these two disorders independently, but few authors have compared both neuropathologies from a comparative, holistic perspective.

Participants and Methods: The present study compared the performance of BD (n = 15), ADHD (n = 16) and healthy controls (n = 15) on a complete battery of neuropsychological tests assessing memory, attention, executive functions, visuomotor abilities, and language.

Results: All groups were successfully matched for age, sex, and years of education. Both ADHD and BD differed significantly from the con-

trol group on tests assessing memory and executive functions, while no significant differences were found between these two clinical groups. Noticeably, however, ADHD had significantly better performance than BD on the recognition phase of the Rey list memory task and the Rey figure.

Conclusions: Our results are supported by previous studies conducted on each group individually, supporting the shared deficits previously described between BD and ADHD on memory and executive function tasks. This study, however, reveals that the recall phase of memory processing may be distinguished on ADHD and BD through recognition tasks. The better performance of ADHD over BD reflects the crucial role of the executive component on their memory deficits. Results of this caliber stress the need for detailed examination of these areas as potentially useful assets in developing tools for differential diagnosis.

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Electrophysiology/EEG/ERP

D. ZARABOZO HURTADO, A.A. GONZÁLEZ GARRIDO & F. GÓMEZ VELÁZQUEZ. Auditory Processing in Reading Disabled Children.

Objective: It had been identify auditory processing disturbances in disabled readers particularly affecting fast temporal processing. In addition, they could also exhibit difficulties to detect frequency differences. The aim of the present study was to compare the performance of reading-disabled (RD) and control (CG) children while they had to differentiate the duration or frequency of single target tones.

Participants and Methods: Fourteen RD voluntary, male, right-handed eight-year-old children and fourteen matching control subjects participated in the experiment. Children were instructed to differentiate either duration (DUR) or frequency (FREQ) of odd single tones within a stream of auditory stimuli. DUR task consisted in 40 target tones lasting 400 ms and 60 non-target tones of 200 ms. FREQ condition consisted in 40 target tones of 700 Hz and 60 non-target tones of 600 Hz. EEG was simultaneously recorded from 19 scalp-locations (10-20 International System) to obtain the event-related brain potentials.

Results: Non-significant differences between the groups were obtained in reaction times. The RD group showed significantly slower higher amount of incorrect responses than CG when they performed DUR. Electrophysiological recordings showed a mid-parietal right-predominant P3-like component peaking at 550 ms that reached significantly higher voltage amplitude on RD children.

Conclusions: Behavioral and electrophysiological results seems to point out that, in spite of reading disabled children are capable to appropriately recognize auditory small tone frequency differences, they have difficulties to disentangle smooth changes in tonal duration. This could strengthen the hypothesis that phonological processing could be disturbed in this group.

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Language: Aphasia

M.I. REINOSO. "SOME PECULIARITIES OF APHASIC DISORDERS IN CHILDREN" (6 TO 12 YEARS OLD).

Objective: This paper reports the research work carried out within the Master Programme in Neuropsychology at the National University of Cordoba, motivated by the need to get further knowledge about aphasic disorders through the study of and interrelationship among different levels of analysis, contributing to the improvement of its therapy and helping to undo the trend of its development in early ages.

The study differs from previous works, traditionally carried out with adults and from purely linguistic perspectives, which do not solve the cognitive deficit -concomitant with and underlying language. The main purpose of the research work was to get further knowledge of aphasic discourse peculiarities; language pathology and language-thought relationship (linguistic analysis of the pathology, of thought and of language).

Participants and Methods: The methodology included two levels, a descriptive one in which prevailing and peculiar features were confirmed and an explicative-argumentative level from which the reasons for those features were given, going deeper into the explanation of cognitive and linguistic behaviour, and connecting the categories that were found out with the operations that might underlie those categories. Patients receiving treatment at a psycho-pedagogic clinic were involved.

Results: 160 answers were analysed from three viewpoints, totalling 480 analyses from 20 patients.

Conclusions: Finally, we aim at widening a hardly explored field, that in which children with aphasic deficit are treated, and at providing new categories for evaluation and treatment analysis, which, in turn, may become more specific tools for the betterment of patients.

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Learning Disabilities/ADHD

A. BRUNNEKREEF, H. ORMEL, M. ALTHAUS, L. DE SONNEVILLE, J. BUITELAAR, F. VERHULST & R. MINDERAA. **Is it the Inattention, Hyperactivity/Impulsivity or Combination of these Symptom Clusters that is associated with Cognitive Deficits in ADHD? The TRAILS Study.**

Objective: To examine the differential associations between the two ADHD subtype dimensions -Inattention and Hyperactivity/Impulsivity- and various aspects of cognitive processing in a large general population cohort as well as a high-risk cohort of 10- to 12-year-olds.

Participants and Methods: This poster presents an overview of two studies conducted within the Dutch TRacking Adolescents' Individual Lives Survey (TRAILS) project. In both a general population sample (TRAILS population cohort, N = 2230, 50.8% girls) and a high-risk sample (selection of the TRAILS-high risk cohort, N = 203, 35.0% girls) of preadolescents, the efficiency of several cognitive processes was evaluated by subtasks from the Amsterdam Neuropsychological Tasks program. Continuous ADHD problems were assessed by the Child Behavior Checklist and Teacher Report Short-Form (population cohort) and by the parent and teacher versions of the ADHD Rating Scale-IV (high-risk cohort).

Results: In the population sample, a slower baseline speed, greater response variability and a less efficient working memory were found to be independently related to the Inattentive symptom cluster, whereas no cognitive deficits (not even response inhibition deficits) were found to be associated with the Hyperactivity/Impulsivity symptoms. No significant interactions between the two symptom clusters were found. The co-occurrence of internalizing and externalizing problems were accounted for in the analyses. Identical though stronger associations were found in the high-risk cohort.

Conclusions: Results provide further support for a dimensional conceptualization of the two ADHD symptom clusters and suggest that the (co-)presence of inattention may have a different etiology than the presence of hyperactivity/impulsivity.

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S.M. CIASCA, S.M. CIASCA & S. CAPELLINI. **THE NEUROPSYCHOLOGICAL AND NEUROIMAGING EVALUATIONS IN CHILDREN WITH DYSLLEXIA.**

Symposium Description: We analyzed retrospectively the neuroimaging exams of children with a confirmed diagnosis of dyslexia

and correlated our findings with the evaluation of higher cortical functions. We studied 34 medical files of patients of the Ambulatory of Neuro-difficulties in Learning, FCM/UNICAMP, during the period of 1994 to 2002. All of them had been sent to the ambulatory with primary or secondary complaints of difficulties at school and were submitted to neuropsychological evaluation (Visual-Motor Gestalt Test, WISC, Luria-Nebraska Neuropsychological Battery) and imaging exam (SPECT). From the children evaluated, 24 were males (70.6%) and 10 were females (29.4%), with a total of 20 exams presenting dysfunction (58.8% of the total). Among the dysfunctions, 16 had hypoperfusion in the temporal lobe (5 on its mesial portion, left hemisphere). As for the higher cortical functions, the most affected abilities were reading, writing and memory. There was significance between the hypoperfused areas and the variables: schooling, reading, writing, memory and mathematic reasoning. The SPECTs showed hypoperfusion in areas involved in the reading and writing processes. Both are equivalent in terms of involved functional areas and are similar in children with or without specific dysfunctions in neuroimaging.

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S.M. CIASCA & M.M. TABAQUIM. **Praxias and Gnosias.**

Symposium Description: The praxias are acquired motor abilities. The evolution of praxias is linked directly to the corporal experience, that allows the child to take conscience of herself, to have unit feeling and feeling of belonging to that body. Only when it is truly integrated, acquires the possibility to dispose freely of it, recognizing, generalizing and transferring to external elements, marking an important stage in the process of neuropsychological maturation. Alterations in the acquired motor abilities, recognized as apraxias, constitute a neurological syndrome characterized by the loss of trained or intentional movements, that can't be attributed to weakness or to a loss of the muscles innervation. As well as the praxia is related to the movement competence and control, the gnosia refers to the competence of the sensorial informations recognition that take to the knowledge of the object or of the phenomenon. The disturbances of gnosias, denominated of agnosias, compose a neurological syndrome, in the which the perceptive recognition disturbances can't be attributed to difficulties in basic sensorial processes, even when the processes of color analysis, form and movement are intact. It can be restricted to a single modality, as vision or hearing, or to different forms as agnosias of perception, association and integration. Lesions in the temporary lobe disturb the ventral pathway, specialized in objects perception and recognition; lesions in the parietal lobe alter the operation of the dorsal pathway, specialized in the object space perception, position and location. So, sensorial-motors and praxical-gnosical mechanisms are fundamental in the cognitive and learning processes development.

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S.M. CIASCA & J. BASTOS. **THE BRAIN AND THE MATHEMATICS.**

Symposium Description: There are extensive reports in the literature on learning difficulties in reading and writing, that is, dyslexia. However, little has been written on the subject of dyscalculia, although many studies have shown that its incidence is similar to dyslexia.

Neuroscience is concerned with understanding how the brain is able to handle numbers. Two recent studies on the association between the brain and learning mathematics should be mentioned. The first by McCloskey and Basilli (1985) proposed a neuropsychological model to explain how the brain learns Mathematics, there are systems for the understanding and production of numbers, in verbal and Arabic forms, and calculation. The verbal system includes: 1) lexical processing; 2) syntactical pro-

cessing; 3) phonological processing; and 4) graphemic processing. The Arabic system comprises: 1) a mechanism of lexical processing and 2) system of syntactical processing. Finally the calculation system uses: 1) an operational mechanism symbol/word; 2) a calculation procedure; and 3) retrieval of basic arithmetic facts.

The second is the Dehaene and Cohen's triple code model which involves three systems: 1) one for analogical representation of magnitude; 2) a visual system of number in Arabic form; and 3) a verbal system for numbers in the written form. Several subsystems can be added to these: a) "subitizing"; b) estimation; c) comparison; d) approximate calculation; e) reading Arabic numbers; f) writing Arabic numbers; g) operations with multiple digits; h) parity; i) counting; j) addition and multiplication tables; k) writing input; l) writing output; and m) talking output. Several cerebral areas are involved in these systems and subsystems. The human brain has many areas that allow the acquisition of mathematics skills like the intraparietal regions. With this knowledge mathematics learning disorders (developmental dyscalculia) and the loss of mathematics skills (acalculia) can be detected.

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P.A. CRENITTE, S. CIASCA & K. ALVARENGA. DIFFERENTIAL DIAGNOSIS IN THE LEARNING DISORDERS: AN EVALUATION PROPOSAL.

Objective: Objective: To develop a Reference Test to identify alterations related to the neuropsychological functions involved in the reading and writing learning process, verifying its effectiveness in the differential diagnosis between Learning Disorders and Dyslexia through the correlations with the electrophysiological test P300

Participants and Methods: Method: Twenty school children participated in this study, being 10 diagnosed with dyslexia and 10 with learning disorders, of both sexes, in the age group of 8 years to 8 years and 11 months. Part of the Luria-Nebraska Neuropsychological Battery was used as instrument. This evaluation type allows a conceptual analyzes of the errors types that the child makes. The errors can be interpreted as inadequacies between the strategies and the demands of the task, being able to reflect the type of information processing that determined child uses, and consequently, what intervention type should be used.

Results: Results: The results evidenced statistically significant differences demonstrating that the children with Dyslexia presented work memory, phonological processing and reading alterations.

Conclusions: Conclusion: It was possible to establish the differential diagnosis through this evaluation, characterizing the manifestations of each pathology and thus establishing a more effective intervention.

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T.D. FERREIRA & S. CIASCA. Comparisons and Evaluation of Memory Working Components for Visual and Verbal Material in Children with Attention Deficit and Hyperactive Disorder and With Learning Disability.

Objective: The aim of the present work was to evaluate and compare the memory work for auditory and visual material in children diagnosed with Attention Deficit and Hyperactive Disorder (ADHD) and children with learning disability, with scholar age to evaluate the relationship and possible co morbidity between ADHD and learning disability children.

Participants and Methods: Ten children attended at the Hospital of Clinics of State University of Campinas, both generous, 7 to 10 years-old, frequenting the school, 10 with ADHD, 10 with learning disability and 10 normal healthy controls. The children were submitted to validated tools as: Test of Performance Scholar, Rapid Automatized Naming Test, Trail Making Test, WISC and the protocol of memory work evaluating was used

Results: We find statistical significant differences between the three groups evaluated for the auditory and visual material, and that the ADHD subjects performance were less than other groups.

Conclusions: There are differences performances in auditory components of working memory between the both groups

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G.D. GERMANO, C. SILVA, F.H. PINHEIRO, L.C. SANTOS, N.A. PADULA, V.L. ORLANDI & S.A. CAPELLINI. Effectiness of a Remediation Programme Computerize in Students with Developmental Dyslexia.

Objective: The objective was to verify the effectiveness of a auditory-visual program computerized in students with development dyslexia.

Participants and Methods: Twenty students participated in this study, from 2nd and 4th grades, divided into Group I (GI) subdivided into: GIe (5 students with development dyslexia submitted to the remediation program) and GIc (5 students with development dyslexia not submitted to the remediation program). Group II (GII) subdivided into: GIle (5 good readers students submitted to the remediation program) and GIlc (5 good readers students not submitted to the remediation program). The students were submitted to the application of a pre-test, a remediation program and a pos-test. It was used an assessment of auditory processing (Dichotic Disyllabic Alternate test - SSW), Phonological Awareness Test. Statistical analysis was used the Mann-Whitney test and Wilcoxon Test.

Results: The results indicated that GI presented inferior performance in relation to GII in phonological skills and GIe improved its performance in auditory skills and cognitive-linguistic skills after having been submitted to the remediation program, when compared in the pre and pos-test.

Conclusions: This finding supports the effectiveness auditory-visual program computerized in students with development dyslexia because it enabled the development dyslexic students to improve their auditory and phonological skills and the domain of reading and writing.

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G.D. GERMANO, C. SILVA, F.H. PINHEIRO, V.L. ORLANDI, L.C. SANTOS, N.A. PADULA & S.A. CAPELLINI. Study of Auditory Skills and Neuroimaging in Students with Developmental Dyslexia.

Objective: Characterize the performance of students with developmental dyslexia on auditory skills and relate with functional neuroimaging.

Participants and Methods: Twenty students participated of this study and were divided into group GI (10 students, both genders, from the 2nd to 4th grades of primary school with a interdisciplinary diagnosis of dyslexia with an average age of 10.4 years) and group GII (10 good readers students with good academic performance, paired according to gender, age and education with the GI).

It was used an assessment of auditory processing (Dichotic Disyllabic Alternate test - SSW) and neuroimaging exams (SPECT). Statistical analysis was used the Mann-Whitney test and Wilcoxon Test.

Results: The classification of SSW indicated losses of degree severe, moderate and mild. The most recurring type of disorder was the gradual loss of memory, which is in the review of the neurological topodiagnosis a change in previous and frontal temporal lobes. Only one subject presented difficulty in phonemic decoding, with involvement of the posterior temporal lobe. The data found on the SSW corroborate with neuroimaging exams (SPECT), which showed that students had commitment in both hemispheres and hypoperfusion of left temporal lobe.

Conclusions: We concluded that the students with developmental dyslexia showed changes in auditory skills that can be associated with the failure of auditory perception generated by auditory dysfunction resulting from low blood flow in the temporal region

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A. LISCHINSKY, T. TORRALVA, F. TORRENTE & F. MANES. Axis I Psychiatric Comorbidity in Adult Attention Deficit Hyperactivity Disorder (ADHD).

Objective: To Determine the AXIS I psychiatric co-morbidity prevalence in adult ADHD patients according to DSM IV TR

Participants and Methods: 98 adult patients consulted in a memory and behavioral neurology clinic and were diagnosed as ADD (n = 35) or ADHD (n = 63). All patients were evaluated with the MINI (Mini International Neuropsychiatric Interview) semi structured interview for DSM IV.

Results: 57 patients (58.16%) presented at least one Axis I disorder. This percentage was higher in the ADHD group (n = 43; 68%) than in the ADD group (n = 15, 40%). Mood disorder was similarly frequent in both groups (ADHD: 39.6%; ADD 31%); followed by anxiety disorders (ADHD 14.2%; ADD 5.7%), and substance abuse (ADHD 14.2%; ADD 2.8%).

Conclusions: Axis I Psychiatric co-morbidities in adult ADHD patients are very common. The frequency is substantially higher in ADHD (hyperactive impulsive combined type) patients. We found that mood disorders were predominant in both groups, in contrast with substance abuse and anxiety disorders, both of which were more frequent in the ADHD group. These results are discussed in the context of advances in the neurobiological bases of these disorders.

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A. NICO. Clinical Multidisciplinary Evaluation of patients examined in Brazilian Dyslexia Association - ABD-(Sao Paulo- Brazil-2007).

Objective: To show that all the data of psychological, phonologic, ophthalmologic evaluations and audiometric and hearing processing are coincident with all international research. Also to show the role of art therapy a new offer for parents in ABD. The data, show, the concern, emotions and worries of parents facing the difficulties of sons and daughters before evaluation (during shelter) through sketches and pictures made by the parents.

Participants and Methods: The number of patients evaluated: 365, being 230 severe dyslexics. Of the severe, 59 were chosen because all of them have the same auditory processing, ophthalmologic and ABD evaluation.

Conclusions: From all the dyslexics (59), with IQ (WISC III) above average (71% high) and in the motor-visual test, Bender with 59% low, the measures of the language ability (WISC III), like verbal memory (digits), Working memory (math) and long term memory (information), they are below average. Self esteem of the patients is 100% harm. The predominant laterality was mixed with a 100% of dysgraphia. Are also altered all tests of the oral and written language like: disnomia (100%), copy (very slow), text dictation, spontaneous written sentences, reading and comprehension. Still auditory and visual processing are greatly altered. Correspondence: *Angela Nico, Brazilian Dyslexia Association, A. Angelica 2318/7o floor, Sao Paulo 01228-200, Brazil. E-mail: angelanico@uol.com.br*

M.C. OLIVEIRA, M.C. MORAIS & S. CIASCA. Neurological Evaluation in Children with Attention Deficit Hyperactivity Disorder.

Objective: The Attention Deficit Hyperactivity Disorder constitutes a common disorder in childhood, being an important cause of school failure and medical assessment. The literature emphasizes the importance of neurological examination, traditional and developmental, in these children, due to the high prevalence of alterations of these examinations in children with the Attention Deficit Hyperactivity Disorder. The objective of this study is to evaluate possible alterations of neurological examinations in children with Attention Deficit Hyperactivity Disorder and to compare them with the ones of children with Learning Disability exclusively and with literature.

Participants and Methods: Neurological examinations in 40 children divided in two groups will be performed, being twenty with Attention Deficit Hyperactivity Disorder and twenty with Learning Disability. The children with confirmed diagnosis of Attention Deficit Hyperactivity Disorder had been previously submitted to evaluations with a multidisciplinary team at the Laboratory of Learning Disability and Attention Deficit Hyperactivity Disorder/ UNICAMP.

Results: The partial results show alterations in the evaluations of the patients with Attention Deficit Hyperactivity Disorder in comparison with those without this disorder. It is observed, in the first ones, high prevalence of deficits in the functions: fine coordination (80%), appendix coordination (60%), motor persistence (50%), dynamic balance (50%) and static balance (40%).

Conclusions: The inquiry indicates that discrepancies between the two groups really exist and that these small findings can contribute for the evaluation and diagnosis of these patients.

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F.H. PINHEIRO, C. SILVA, G.D. GERMANO, V.L. ORLANDI, L.C. SANTOS, N.A. PADULA & S.A. CAPELLINI. Assessment of Sequential Auditive Memory and Neuroimaging Study in Students with Developmental Dyslexia.

Objective: Evaluate the performance of students with developmental dyslexia in tasks of sequential auditory memory and relate to functional neuroimaging.

Participants and Methods: Twenty students participated of this study and were divided into group GI (10 students, both gender, from the 2nd to 4th grade of primary school with interdisciplinary diagnosis of dyslexia with an average age of 10.4 years) and group GII (10 good readers students, paired according to sex, age and education level with the GI). The tasks applied were the Memory Sequential for non-verbal sounds, Memory Sequential for verbal sounds, sound localization, and logoaudiometry Pediatric. Also were used neuroimaging exams (SPECT). Statistical analysis was performed using the Mann-Whitney Test, the Wilcoxon Test.

Results: There was a statistical significant difference suggesting better performance of GII in relation to the GI on the sequential memory for verbal sounds, binaural integration and separation, competitive memory from right for relations speech/competition and competitive relationship ipsilateral left to speak/competition. There was no statistical significant difference in rate of recognition of speech. The findings of neuroimaging showed 70% of schools with bilateral involvement in the hemisphere and 60% of schools with hypoperfusion of left temporal lobe.

Conclusions: We conclude that student with developmental dyslexia showed changes in auditory skills, sequential memory that can be associated with the failure of auditory perception generated by the auditory processing deficits resulting from low blood flow in the temporal region. Correspondence: *Fabio H. Pinheiro, pos graduation student - mastering, Unesp, José Bonifácio 269, Marília 17509-220, Brazil. E-mail: fabiohenriquepinheiro@yahoo.com.br*

F.H. PINHEIRO, C. SILVA, G.D. GERMANO, V.L. ORLANDI & S.A. CAPELLINI. Assessment of Students with Developmental Dyslexia in Phonemic and Syllabic Tasks.

Objective: Evaluate the performance of children with developmental dyslexia in phonemic and syllabic tasks and to compare with good readers.

Participants and Methods: Twenty-six children participated in this study, from 8 to 12 years, both genders, from 2nd to 4th grades of public school, divided into GI (13 children with interdisciplinary diagnosis of developmental dyslexia) and GII (13 children with good school performance, paired by gender, age group with GI).

It was used to Phonological Awareness Test. Statistical analysis was used the Mann-Whitney Test and Wilcoxon Test.

Results: We observed statistical significant difference between the children of the GI and GII in the task of syllabic and phonemic transposition, exclusion, synthesis, segmentation and implementation showing better performance of GII in relation to GI.

The children of GI presented the written level of pre-syllabic and syllabic highlighting the difficulty in understanding mechanism of letter-sound conversion.

Conclusions: Children with developmental dyslexia had difficulties in analysis, synthesis and segmentation in both phonemic and syllabic tasks. The children of GI were late in construction of writing, in at least two years compared with GII, suggesting that the alphabetical principle system of writing of the Portuguese has to be taught on school environment. Correspondence: *Fabio H. Pinheiro, pos graduation student - mastering, Unesp, José Bonifácio 269, Marília 17509-220, Brazil. E-mail: fabiohenriquepinheiro@yahoo.com.br*

C. SALGADO, R. LIMA & S. CIASCA. The neuropsychologia of the visual attention in children with developmental dyslexia.

Objective: The aim of the work was to describe the attentional performance of children with diagnosis of developmental dyslexia

Participants and Methods: 6 children with dyslexia had participated of the study, both the sexes, with average age of 10 years, evaluated in individual sessions in the Clinic of Neuro-Dificuldades de Aprendizagem of the Hospital of Clínicas/UNICAMP-Brazil. For the attentional evaluation the instruments had been used:) Subtestes of Escala de Inteligência Wechsler - WISC-III (Code - B and To look Symbols - B), Tests of Cancellation (Geometric Letters in Row and Figures) and Trail Making Test (TMT-A).

Results: the results had shown a general standard of slower answers, bigger number of errors for omission and disorganized use of resolution strategies, mainly in tasks that demanded greater have controlled and supported attention visual.

Conclusions: The findings suggest that it seems to have a damage in the attention supported visual in the dyslexia, possibly related with problems in the conscription and distribution of necessary cognitives resources for the processing of visual information.

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G. SANTOS, M.M. TOLEDO, E. GALEMBECK & S.M. SIASCA. The Use of Artificial Neuronal Network in Diagnostic of ADHD Disorder and its Subtypes in Children.

Objective: Our aim was to design a multilayer perceptron network, an artificial neural network model (ANN), as a computer aided decision-make in ADHD children's diagnosis.

Participants and Methods: This experiment was run with 40 children grouped in two clusters: ADHD-I, subtype inattentive and ADHD-C, subtype combined. The control group was composed by 30 children without behavioral impairments such as neurological, cognitive or emotional. All subjects were assessed by a multidisciplinary staff of the Laboratory of Learning Disability and Attention Deficit (DISAPRE), Faculty of Medical Sciences, UNICAMP. The software was developed in Borland Delphi 5, based in a mlp library. To implement the supervised learning of the neuronal network, we chose, in a aleatory fashion, 28 individuals proceeding from the groups ADHD-I and ADHD-C, and 21 individuals from the control group.

Results: The software quality assessment was accomplished by Bayesian analysis as follow: sensibility (90,00%), specificity (88,88%), positive predictive value (94,66%), positive likelihood ratio(8,09) and negative likelihood ratio(0,11).

Conclusions: As we can see, the performance of the model hava pointed out the potentiality of computer aided decision-make, based in ANN, as an approach to get simulation and diagnostic improvement of complex disorders such as ADHD and its subtypes.

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C. SILVA, F.H. PINHEIRO, G.D. GERMANO, V.L. ORLANDI & S.A. CAPELLINI. Cognitive-Linguistic Performance of First to Fourth Graders in Municipal Public Schools.

Objective: Characterizing and comparing the performances of students from 1st to 4th grades by using the Brazilian Adaptation of the Cognitive - Linguistic Performance Test - group and individual version.

Participants and Methods: There were 130 subjects participating in this study, ranging from 1st to 4th graders of a municipal public school, both males and females, within an age range of 7,5 to 10,5 years old. As for the procedure, the Brazilian adaptation of the Cognitive - Linguistic Performance Test was used.

Results: The results showed that the speed of access to mental lexicon is directly related to the ability of phonological awareness, working memory and reading and writing, because the students who presented difficulties in the group CLPT demonstrated alterations in the tasks of naming and visual memory (repetition of picture sequences beyond 2), reversibility (perception of details in pictures and countdown) and phonological awareness (rhyme and alliteration) regardless of serialization, showing the occurrence of relation among the abilities of phonological awareness, memory and reading and writing under dictation.

Conclusions: Phonological awareness and reading and writing are processes that develop and strengthen mutually, once the initial stages of phonological awareness (rhyme and syllable awareness) contributed to the initial development of the reading process. However, difficulties in rapid automated naming, phonological ability and memory generate learning problems which are perceptible in relation to the class-group. Correspondence: *Cláudia Silva, Pos graduation student - mastering, UNESP, Av. Sargento Ananias de Oliveira, 760 apt.2, Marília 17515-020, Brazil. E-mail: caucau_mar@yahoo.com.br*

M.M. TABAQUIM & A.P. SPADOTTI. COGNITIVE-LINGUISTIC ABILITIES IN CHINDREN OF THE FUNDAMENTAL TEACHING: A NEUROPSYCHOLOGICAL STUDY.

Objective: The objective of this study was to verify the levels of phonological awareness for the reading ability in fundamental teaching scholars, analyzing the cognitive-linguistic levels compared to the reading, writing and arithmetic calculation performance.

Participants and Methods: Twenty students of the 5th series of Brazilian public school fundamental teaching, in the age group from 11 to 13 years, both genders and average-low class were part of this study. The employed evaluation instruments were: School Performance Test, Reading level proves and Phonological awareness test.

Results: The results evidenced phonological awareness levels below of the expected for the age and education, compared to the profile-pattern scored in the research. Comparing the performances in the learning and phonological awareness proofs, it was verified that 75% of the subjects had inferior classification to the expected average in the writing, arithmetic and reading proofs and 95% presented levels of phonological awareness committed, being in the logographic and alphabetical phase of the development. Such conditions are significantly alarming considering the researched school series. The low scores in the phonological awareness proofs demonstrated a causal effect on the prejudiced performance in the school learning tasks, with positive statistical correlation and significant bicausal probability.

Conclusions: The study attested the negative impact of the cognitive-linguistics abilities in the scholars' academic performance, allowing the recognition of flaws in the processing integrity in associative cortical areas, necessary to the language acquisition and development.

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L.H. URIBE. Social Competence in ADHD Children. Views from the Theory of Mind and Executive Functioning.

Objective: Findings between studies on Social Competence (SC) reveal a lack of specificity regarding the role of Executive Functioning

(EF) and Theory of Mind (ToM) development on the difficulties experienced by ADHD children. Based on the identification of social and cognitive deficits as well as the progresses in the comprehension of an advanced ToM in ADHD children, this research was aimed to analyze the relationships between these three domains and to explore whether the hypothesized relation between EF and ToM has an implication on SC impairments.

Participants and Methods: 22 children aged 7 to 10 years old and diagnosed as ADHD-C were compared to an age-matched control group on parents and teachers behavioral rating scales, as well as on the performance of EF and ToM tasks, and a questionnaire of social interaction strategies.

Results: In addition to some EF deficits, ADHD children showed difficulties to provide appropriate justifications in second-order false belief tasks. These children exhibited more externalizing behaviors and their social interaction strategies were poor and, even sometimes, included high levels of aggressiveness. An absence of relations between externalizing behaviors and ToM tasks was also identified.

Conclusions: The role of EF in social interaction strategies and ToM is underline in ADHD children. The analysis of EF and ToM implications in SC suggested that neither cognitive processing nor lack of behavioral regulation seem to determine disruptive behaviors. Results underline the acquisition of ToM in ADHD children, but application of this knowledge in social real life might be impaired due to visuo-spatial working memory difficulties.

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S. VICARI, D. MENGHINI, A. FINZI & G. CARLESIMO. Visual, Spatial, Verbal Short and Long Term Memory Impairments in Developmental Dyslexia.

Objective: The present study was aimed at clarifying the role of short and long term memory in reading disabilities.

To this aim we tested verbal, visual and spatial short and long term memory in children and adolescents with developmental dyslexia (DD) and we compared their performances with that of normal reader (NR) controls.

Participants and Methods: We examined the performances of two groups of individuals. The first group consisted of 60 children and adolescents with DD (M/F = 33/27; age range 8-17). The second group was composed by 65 NR children and adolescents (M/F=37/28; age range 8-16). The battery of tests developed by Vicari and coworkers (Vicari, 2007) was used for the assessment of verbal, visual-spatial and visual-object short and long term memory.

Results: Our results showed poor performances of individuals with DD on all the memory tests administered, thus confirming in DD individuals a poor storage not only for verbal but also for visual and spatial materials.

Conclusions: Our data documented many multiple deficits in memory functioning in people with DD. These findings support the hypothesis of DD as a multi-compontial neuropsychological disorder and not just a side effect of a linguistic impairment.

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Other

J. FUMAGALLI, V. JAICHENCO & A. RAITER. The Role of Phonological Units during Reading Development.

Objective: The present study examines the sensibility to phonological units: syllable, phonemes, rimes and onsets, in preliterate and literate children. One important concern of this study is to establish if the position of the unit is relevant for recognition processes.

Participants and Methods: The study involved 132 children from: preschool, kindergarten, 1st grade, 3rd grade and 6th. Children were

assessed with "Buscasílaba", this test was used to determine children's ability to recognize a syllable previously presented in a group of words that includes this syllable at the beginning, in the middle or at the end of the word and with "Buscasonido", a battery used to assess children's ability to recognize a phoneme previously presented in words that have the sound in different positions. Preschool and kindergarteners were also tested with a task in which children were asked to identify drawings beginning or ending with the some syllable or the some phoneme. Children from 1st, 3rd and 6th grade answered an oral task "Pares si - Pares no" (adapted from Goikoetxea, 2005), the purpose of this test was to determine children's ability to say if a pair of words share the initial syllable, the onset or the initial phoneme or if the words share the ending syllable, the rime or the last phoneme.

Results: Data analysis reflects an early sensibility to syllabic and phonemic information even before formal training in reading and reports an increasing sensibility to other phonological units (rime and onset). Furthermore, the analysis shows a relevant role of the initial position in all units since kindergarten as well as a difficulty recognizing final phonemes and onsets. The differences in performance between units tend to diminish with reading acquisition and training.

Conclusions: The study shows the early awareness to phonological information in Spanish children and suggests the importance of unit type and position in the word. Finally rejects the unit size hypothesis according to Treiman y Zukowski 1991-1996.

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T. SHANY UR, S. SHAMAY TSOORY & R. TOMER. Developmental Progression of Affective versus Cognitive Theory of Mind among Typically Developing Children.

Objective: Theory of Mind (ToM) is an essential step in children's social-cognitive development that may be jeopardized following brain injuries. Recent lesion and imaging studies suggest differential involvement of regions of the prefrontal cortex in cognitive and affective ToM processing, the former concerning understanding others' beliefs and latter concerning understanding others' emotions. The objective of the present study was to examine this distinction with respect to child development.

Participants and Methods: The study examined cognitive versus affective ToM among typically developing children in grades 1, 3, and 6 (N=90), using cognitive and affective comparable versions of several ToM tasks: first- and second- order false belief, false attribution, irony and deception.

Results: ANOVAs showed improved performance with increasing age for all tasks. Performance on cognitive tasks was significantly better than on matched affective tasks at all ages, excluding the irony test. However, there was a significant interaction between age and type of task, such that the difference between cognitive and affective ToM decreased with increasing age.

Conclusions: These results reflect advancements in integrating ToM and affective processing with increasing age, and suggest a distinct developmental pattern for cognitive and affective aspects of ToM.

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Symposium 12: Rehabilitation of Executive Functions

Chair: Teresa Torralva

2:00-3:30 p.m.

T. TORRALVA, C. MATEER, T. TORRALVA & B. WILSON. Rehabilitation of Executive Functions.

Symposium Description: Executive functions play a major role in everyday functioning. Indeed, patients with executive function impair-

ments find it difficult to perform properly in real-life settings, which have a high executive demand. We will discuss different strategies aimed at improving this form of mental processing. Prof. Mateer will provide insight into various approaches used in the field of rehabilitation of executive functions. Prof. Torralva will discuss problem solving training in patients after traumatic brain injury. Prof. Wilson will delve into the incorporation of electronic devices designed to counteract the executive deficits of patients with different pathologies. The strategies portrayed by this series of lectures will reflect the variety of interventions currently employed in clinical rehabilitation intended to improve the quality of life of patients with everyday life deficits.

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C. MATEER. Rehabilitation of Executive Functions.

Objective: Components of executive functioning, including initiation, complex attention, prospective memory, planning, sequencing, and organization often serve as strong neuropsychological predictors of everyday abilities. They involve cognitive and self-regulatory skills necessary to engage successfully in purposeful activities. Executive functioning has been shown to play a major role in instrumental activities of daily living, financial management, and driving, as well as return to vocational activities. Four broad approaches to the management of executive function will be described: 1) environmental organization to provide additional support and structure; 2) the use of external cues for initiating activity; 3) the training of task-specific functional routines; and 4) the training of self-regulatory and self-management strategies for behavior and cognition. Examples of these approaches will be provided together with a discussion of the strengths and limitations of each. A model for selecting interventions for executive function based on a client's level of awareness and capacity for self-regulation will be provided.

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T. TORRALVA. The Rehabilitation of Executive functions post Traumatic Brain Injury.

Objective: Individuals with deficits in executive functions live with numerous challenges to effectively function in their social, emotional, behavioural and cognitive domains. Although questions have been raised in the literature concerning the understanding of this term and its relation with the frontal lobes, the literature on rehabilitation has begun to document the effectiveness of a variety of approaches aimed at addressing impairments in this area. Both complex abilities and basic components of executive control can be the focus of intervention. Our experience with a specific training procedure, Problem Solving Group, in Traumatic Brain Injury patients will be presented.

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B. WILSON. Electronic Devices for Helping People with Executive Deficits.

Objective: To describe research investigating the use of electronic devices to reduce the everyday problems of people with executive deficits following brain injury.

Participants and Methods: Three devices namely a paging system, an alerting tone and a mobile telephone were used to improve the everyday functioning of patients with executive deficits. Both single case experimental designs and group designs were employed to evaluate the effectiveness of these devices.

Results: In each study, use of an electronic device improved functioning and reduced everyday problems. There was both a statistically and a clinically significant difference between baseline and treatment or between the group receiving treatment and the control group.

Conclusions: Electronic devices have a useful role to play in the rehabilitation of survivors of brain injury who have problems with deficits of planning, initiation and organisation.

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Symposium 13: The Boundary between Neuropsychology and Psychiatry

Chair: Carlos Mangone

2:00–3:30 p.m.

C.A. MANGONE, M. CETKOVICH, A. LISCHINSKY, F. TORRENTE & C.A. MANGONE. **The Boundary between Neuropsychology and Psychiatry.**

Symposium Description: Background: Psychiatry is an old discipline and neuropsychology is younger, but the boundaries between each other must be well known by both. Although nowadays it is recognized how closely interwoven neuropsychology and psychiatry, too often cognitive conditions, are under-recognized and left untreated, resulting in years of misery for patients

Objective: To explore the potential bridge of cognitive performance of some psychiatric entities. The focus will be on the connection of basic neuropsychology and psychiatric constructs, particularly around the corticolimbic, frontal posterior and lateral axes of brain organization

Topics to be discussed by each speaker:

-Cetkovich M, MD: Neurocognitive impairment in schizophrenia being core features of the disorder, arises as one of the most promising factors to be taken in account in order to improve our awareness of its neurobiological underpinnings, as well as to the development of new therapeutic approaches

-Lischinsky A, MD: ADD with/without hyperactivity affects 9% of children and 4% of adults, affecting attention, executive functions, codification strategies, time organization, planification and behaviour regulation. The frontocortical NA inhibitory influences over the striatal subcortical DA structures are deregulated.

-Torrente F, PhD: Apathy is associated with reduced attention and speed of information processing. It refers to a decline in self-initiated behaviour. Right frontosubcortical circuits are involved.

-Mangone CA, MD: Vascular cognitive Impairment is a heterogeneous syndrome that involves several entities: Multi-infarct dementia, dementia due to subcortical or strategic infarcts, vCIND and CADASIL. Attention, executive functions, verbal fluency, abstract thinking and cognitive reaction speed are the main cognitive function engaged.

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C.A. MANGONE. Neuropsychological Manifestations in Vascular Cognitive Impairment.

Objective: Vascular cognitive Impairment (VCI) is a heterogeneous pathology that involves several entities: Multi-infarct dementia, dementia due to subcortical or strategic infarcts, vCIND (vascular cognitive impairment no dementia) and CADASIL (Cerebral Autosomal Dominant Arteriopathy with Subcortical Infarcts and Leukoaraiosis).

Vcind involves subjects with cognitive performance between 1 and 1.5 SD of contemporaries normal subjects mean in assessments of free recall, attention, executive function, abstract thinking, cognitive reaction speed and verbal fluency. Depression can be associated. They have good performance in the basic and Instrumental activities of daily living (ADL-IADL). They present multiple ischemic periventricular white matter lesions clinically asymptomatic most of them.

The presence of Vascular and/or Metabolic risk factors is the rule and 50% of patients progress to dementia in 3 to 5 years.

Three years follow up period of 50 patients 67 (10,36) years of age, 50% male, 9,56 (3,3) years of education. 82% had memory impairment, 90% hypertension; 82% hypercholesterolemia; 14% diabetes; 58% abdominal obesity; 26% smokers and 10% alcoholic, will be presented. Clinically they were assessed with 24 hs ambulatory monitoring of arterial pressure (AMAP), echo-doppler of carotids to measure intima-media thickness, homocysteinemia, ECG. Brain MRI or CT.

Neuropsychologically: the RAVLT, TMT part B, Stroop test, WCST, Continuous performance test (attention & concentration); planning, and verbal fluency were performed.

It is hypothesized that an early identification of these patients plus its neuroprotective treatment and control & prevention of vascular and metabolic risk factors will prevent their progression to dementia.

Results will be discussed

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M. CETKOVICH. Cognitive Dysfunction in Schizophrenia.

Objective: Schizophrenia is a disease characterized by the presence of psychotic symptoms accompanied by so called negative and disorganization phenomena. In recent years it has become clear that neurocognitive disorders are a core aspect of this disease and correlate with clinical and functional outcome. Notwithstanding, current pharmacological approaches seems to have a marginal therapeutic effect on these aspects of the disease. In order to design new therapeutics it is important to delineate which are the core features of this neurocognitive impairment. Verbal memory, executive function and verbal fluency have being shown to be the more distorted cognitive domains in schizophrenia. Several attempts were made to correlate cognitive dysfunction with symptomatic profile, with no clear results. Several reasons could account for this lack of correlation. The first one is the still no solved problem of the improper definition and operacionalization of schizophrenia phenomenology. It seems that under the "schizophrenia umbrella" different illnesses –or different clinical presentations of the illness- are involved. It is widely accepted that for biological research, a narrow phenotype definition is needed, in order to be able to make proper correlations. "Intermediate phenotypes" are simple traits linked to a known biological substrate, reachable with simple tests. Neurocognitive deficits represent intermediate phenotypes; on refining them, we will be closer to identify neurobiological substrates linked to the disease and novel therapeutic targets. In this realm we studied a sample of schizophrenic patients on a complete battery of neuropsychological tests, with a focus on decision-making profiles as measured by the Iowa Gambling Task (IGT), and compared them with a sample of bipolar patients and a control group. Results will be discussed.

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A. LISCHINSKY. Neuropsychiatric and Neuropsychological manifestations of ADHD.

Objective: Attention Deficit Disorder with and without hyperactivity affects 9% of children and is widely accepted that symptoms persist in adulthood in approximately 60% of patients. The prevalence in adult population is about 4% and the prominent neuropsychological symptoms are related to executive functions deregulation, which affects attention, modification strategies, time organization, planning, inhibitory control, self monitoring, and behavior regulation. This is congruent with dysfunction of corticostriatal circuits that involve dopamine pathways. Although neuropsychological symptoms are prominent, psychiatric comorbid disorders are very common and may account for the functional impairment in social, academic and work settings. For this reason, diagnosis of ADHD may be overlooked or postponed among adults. These facts are discussed in the context of advances in the neurobiological bases of these disorders.

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F. TORRENTE. Apathy in Psychiatric problems.

Objective: In his pioneering writings, Marin (1990, 1991) defined apathy as "a lack of motivation not attributable to diminished level of consciousness, cognitive impairment or emotional distress". More recently, Levy and Dubois (2006) proposed that apathy could be conceptualised as "the quantitative reduction of self-generated voluntary and purposeful behaviors". Generally speaking, apathy is due to an alteration of the systems that generate and control voluntary actions, involving different regions of the prefrontal cortex and of the basal ganglia. Even though apathy gathered attention in recent years as a distinctive symptomatic dimension present in most neuropsychiatric disorders, little is known about its actual nature and treatment. In this presentation we will make a review about its distinctive symptomatic characteristics, about its causes and mechanisms and finally about the current therapeutic alternatives. After that, we will present our own data about a sample of patients with mixed psychiatric diagnosis studied with instruments specifically targeted to assess apathy and other relevant psychiatric symptoms and traits. Correspondence: *Carlos A. Mangone, MD, Neurology, Santojanni General Hospital, Pilar 950, Capital District C140SINH, Argentina. E-mail: camangone@fibertel.com.ar*

Invited Symposium 1: Learning and Developmental Disabilities in Latin America: A Three Hand Approach

Chair: **Jorge Eslava**

2:00–3:30 p.m.

J. ESLAVA, M. BONILLA & V. REIGOSA. Learning and Developmental Disabilities in Latin America: A Three Hand Approach.

Symposium Description: In this symposium we will present research on learning disabilities, addressing the special characteristics of Latin American population.

The first presentation will focus on neuropsychological aspects of epileptic encephalopathy, which clearly extends beyond the classical aphasia description. Presenter 2 will deal with aspects of developmental dyscalculia: the cognitive phenotype and its neural bases, as well as prevalence rates. The third presentation will describe an intervention program for ADHD treatment conducted in preschoolers.

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J. ESLAVA & L. MEJIA. Epileptic Encephalopathy: Much more than Aphasia and Epilepsy.

Objective: In 1957 Landau and Kleffner described the association between acquired aphasia in childhood and Epilepsy. Unnoticed to most (maybe even to them), this description introduced a theoretic contradiction of enormous importance: Epilepsy (until then – and even today) defined around a paroxysmal activity, accepted within its limits a non paroxysmal condition (aphasia), sometimes even as the main expression of the condition. After four proposals for classification of the Epilepsies over 25 years, the category "Epileptic Encephalopathy" finally found a place in the international classification from where it will continue to challenge many concepts in these areas.

We present a cohort of patients that contribute to widen the cognitive and behavioural phenomenology of the epileptic phenomena. In particular, we emphasize the fact that we not only observe acquired neuropsychologic phenomena but developmental expressions as well. Analysis of our material and of the literature in general lead us to the following

conclusions: the neuropsychological phenomena associated to the Landau-Kleffner syndrome and various epileptic encephalopathies, goes beyond the aphasic symptoms into various praxic, gnosis, behavioural and attentional difficulties. Recent evidence suggests that many "specific language impairments" as well as patients within the autistic spectrum are in fact epileptic encephalopathies. The common denominator, seems to be bioelectric synchrony which interferes with normal background rhythms, and which can express itself both as paroxysmal symptoms and as permanent or prolonged neuropsychologic phenomena. The theoretic model that seems to best fit with the classic descriptions of the condition is the model of chaos. From this perspective, the absence or perturbation of chaos – expressed as bioelectric synchrony – leads to the pathologic symptoms described in the epileptic encephalopathies, signed by a poor, rigid, inadequate, neuropsychologic expression.

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V. REIGOSA. Developmental Dyscalculia: Prevalence, Cognitive Phenotype and Neural Bases.

Objective: It has been suggested that Developmental Dyscalculia (DD) is a specific learning disability arising from defective basic numerical capacities. Most prevalence studies have been carried out based on this theoretical approach. To date, there is a lack of agreement concerning the phenotype of DD and there have been few studies of the ontogenesis of normal or abnormal brain systems for number processing. We report: 1) prevalence data of DD based on the first large scale prevalence study using a new standardised battery of numerical capacities, 2) cognitive phenotype of DD and 3) volumetric, connective, and morphologic changes in the brains of DD, otherwise normal children (DD-oN), and DD children with Neurofibromatosis Type-1 (DD-NF1) using high resolution anatomical images. VBM analysis and dissimilarity analysis between the Fractional Anisotropy maps were performed. The prevalence of DD was estimated at 5.9%. The ratio of boys to girls was 1.3:1. Neuropsychological double dissociations between deficits in subitizing, counting and magnitude comparison were found in DD children. Neuroimaging data showed a reduced gray matter in right superior Parietal lobe but no anomalies in white matter architecture in DD-oN with respect to normal children whereas, DD-NF1 showed reduced gray matter in right Inferior Parietal lobe respect to DD-oN. Other brain anomalies found in DD-NF1 compared to controls were reduced gray matter in left Frontal and Temporal lobes and Cerebellum, as well as, changes in white matter architecture in the same brain areas. We conclude that DD is a biological condition as frequent as Dyslexia and ADHD. Different subtypes arise because deficits on basic numerical capacities are dissociable in DD. Brain morphological changes underlie DD and some "numerical" brain areas could be highly controlled by genetic mechanisms. These findings refine the endo/phenotypic characterization of DD which is the bases of any program of research and intervention.

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M. BONILLA, L. QUINTANAR, Y. SOLOVIEVA & E. LAZARO. Neuropsychological Intervention in ADHD.

Objective: The attention deficit disorder with hyperactivity syndrome (ADHD) usually generates intense discussions, specially related to psychostimulant medications as the preferred therapeutic strategy. This paper presents the results of a multicenter research project – Puebla (Mexico) University / Colombian Institute of Neurosciences – 2.005-2.007, directed at evaluating the usefulness of a Neuropsychologic therapeutic protocol, based on the directive functions of language. We shall present the theoretic background, results of the research project and implications for the condition itself and – in a broader sense - for the field of Neuropsychologic intervention.

Participants and Methods: A group of Preschool or first graders, previously diagnosed as ADHD, but whose parents had refused medication, were enrolled in a prospective protocol (Quintanar and Solovieva 2.002). Informed consent was obtained for all of them. A control group was left out of the protocol. Both cases and controls were similarly evaluated at baseline and at the end of the study. Main inclusion criteria was a previous diagnosis of ADHD, according to DSMIV criteria. The corrective intervention was performed in an individualized setting. Intervention was directed towards the use of language in role play, enhancement of the regulatory functions of language, and induction of voluntary and involuntary attention

Results: Results showed that Neuropsychologic intervention across 100 sessions allowed a significant development of the mechanisms described. A significant decrease of mistakes was found, as well as the external regulatory help that the adult had to provide. We found in our patients a significant disturbance of regulatory and mediator functions of language, responsible, not only for the attention deficit, but for other psychologic functions were language is involved during childhood development as well.

Conclusions: We shall analyze the Neuropsychologic contents of ADHD in childhood. Baseline data showed an insufficient functional development of brain mechanisms for regulation and control, quinetic organization, spatial synthesis/analysis and unspecific brain activation. Typical mistakes that highlight this insufficient development will be showed. Endpoint evaluations showed important positive changes in these mechanisms. We believe a therapeutic corrective protocol, based on the principles of the historic-cultural perspective, is an interesting alternative for the treatment of ADHD in childhood.

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Symposium 14: Neuropsychology of Memory. Theoretical-Clinical Perspectives

Chair: Edith Labos

2:00–3:30 p.m.

E. LABOS, D. MATALLANA, S. DANSILIO, P. CARAMELLI, A. SLACHEVSKY & A. FERRERES. Neuropsychology of Memory. Theoretical-Clinical Perspectives.

Symposium Description: The present symposium comprises four expositions in which research studies on clinical neuropsychology are discussed, concerning the mnemonic performance in relation with its neurobiological substrates and theoretical paradigms.

Subjects related to the characterization of cognitive deficits in patients with Frontal Lobe Dementia (FLD), Primary Progressive Aphasia (PPA), and Semantic Dementia (SD) will be developed. The study aims to better define the memory, behavioral-social and cognitive clusters characterized in this population.

On the other hand, case study allows elucidating relevant clinical phenomena. A case study characterized by confabulation due to post-surgical amnesia in which confabulation is interpreted as a deficit in the construction and checking of memories in a damaged but still plastic system, in a declarative memory that is inherently reconstructive, is hereby introduced.

Memory evaluation is crucial since it constitutes an early marker of demential disease. A brief cognitive screening battery (BCSB) for the diagnosis of AD is introduced. The delayed recall test of the BCSB showed high sensitivity (82.2%) and specificity (90.4%) for the diagnosis in patients with medium/high levels of education.

Early detection of Episodic Memory deficits -particularly in their verbal format- are reported as preclinical markers of Alzheimer's Disease.

Evidenced findings in contemporary research and in the results obtained by our teamwork on normal population and on population with cognitive impairment (MCI and AD) in Verbal Episodic Memory tasks are discussed. Such findings have been developed in the past years within the framework of UBA's research projects.

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D. MATA LLANA. Clusters of Memory profile as well as cognitive in patients with Frontal dementia and other variants involving frontal lobe degeneration : Primary progressive aphasia (PPA), and semantic dementia (SD) compared with Alzheimer's disease patients.

Objective: Frontal lobe dementia (FLD), primary progressive aphasia (PPA), Semantic

Dementia (SD) are forms of frontotemporal lobe degeneration. The relationship, in terms of general cognition, between these conditions, remains unclear even if those patients share anatomical involvement. Our study aimed to better define the memory, behavioral-social and cognitive clusters characterizing PPA patients, SD and Frontal variant Dementia (vDFT).

Participants and Methods: We assessed cognitively and behaviorally, from a 2300

patients data at the Memory Clinic in Bogotá Colombia, four groups of newly diagnosed patients affected by AD (n=85), vDFT(n=89) PPA (n=10) and SD(10), in order to establish their cognitive-behavioral pattern.

Results: We found, as expected, differential performances in episodic memory and profiles similar but distinct of both the verbal fluency and naming tasks as well as behavioral symptoms and signs in AD, PPA, vDFT and SD. Factor analysis-extracted three main factors 'mnestic', 'behavioral' and 'linguistic' clearly correlated to each group.

Conclusions: The evidence of a characteristics cognitive profile, highlights how all three pathologies state the differences among them. Role of behavioral early findings will lead to the analysis of new information regarding both cognitive and behavioral patterns; thus, it should be considered in further studies in order to analyze uniquely human aspects of social behavior and emotion by the possible enrolment of exclusive role of the von Economo neuron (VEN), a large bipolar projection neuron found only in great apes and humans.

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S. DANSILIO. DELAYED CONFABULATION IN A YOUNG AMNESIC PATIENT.

Objective: Classically, confabulation has been ascribed to an amnesic syndrome associated to frontal dysfunction, in a context of anosognosia. It appears at the beginning of the amnesic condition and it resolves in a very few months. Here JB is presented, who suffers of an amnesic syndrome due to a quirsurgically sectioning of the posterior trigon tract. More than a year afterwards

Participants and Methods: JB starts to produce confabulated episodes, without major changes in her amnesic status. Confabulation is explored in the presentation of two short stories, were the production increases in delayed recall. But answering to a questionnaire set up with her mother recalling sixteen important events of the last 4 years

Results: JB produces confabulated events in 62.5 % of the evocated narrative. No confabulation was found of episodes before the lesion (an intracerebral bleeding). Metamemory is deficient. Implicit memory is intact. A dysexecutive syndrome is found.

Conclusions: A frontal hypofunction is informed in the SPECT. The confabulation is interpreted as a deficit in the construction and checking of memories in a damaged but still plastic system, in a declarative memory that is inherently reconstructive. The possible contribution of executive and metamemory is considered.

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P. CAMELI. A brief cognitive screening battery for the diagnosis of dementia in elderly with heterogeneous education.

Objective: Performance in cognitive tests is highly influenced by age, education and culture. Many batteries for the screening and diagnosis of dementia were developed in countries where low education and illiteracy are uncommon and hence may not be suitable for evaluation of populations with heterogeneous educational background.

The objective is to present the results from different studies conducted with the Brief Cognitive Screening Battery (BCSB) developed by our research group some years ago.

Participants and Methods: The BCSB was employed for the diagnosis of dementia and AD in literate (28 controls/17 patients) vs illiterate (23 controls/17 patients) individuals and for diagnosis of AD in subjects with medium/high levels of education (73 patients/94 controls).

Results: The delayed recall test (DR) of the battery proved to be more accurate than DR of the word list from the CERAD battery for the diagnosis of dementia in illiterate subjects (sensitivity=93.3%, specificity=95.7%, AUC-ROC=0.975). DR of the BCSB also showed high sensitivity (82.2%) and specificity (90.4%) for the diagnosis of AD in patients with medium/high levels of education. A mathematical model/formula including the results of core tests was elaborated and can be employed in clinical practice.

Conclusions: The BCSB is a simple and useful tool for diagnosis and screening of dementia, particularly AD, in elderly populations with heterogeneous education.

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E. LABOS. VERBAL EPISODIC MEMORY. Clinical predictor of Alzheimer's Disease.

Objective: The deficit of Verbal Episodic Memory (VEM) is considered as an EA preclinical marker and a relevant symptom of the amnesic MCI.

The object of this exposition aims to introduce clinical evidence registered at the early onset of Alzheimer's disease. Likewise, it encourages discussion of the results obtained by our teamwork (Universidad de Buenos Aires' projects), based on the application of VEM tasks in normal and pathological population.

Participants and Methods: A clinical and neuropsychological evaluation combined with Neurophysiologic EEG and Neuroimaging studies, was performed in a group of 107 patients (Age: 73,92+-8,55; Level of instruction: 9,18+-3,78) with amnesic MCI diagnose (Petersen 1995-2000).

Word Recall test was selected as marker of VEM deficit.

Statistics: Wilcoxon rank-sum (Mann-Whitney) test

It was elaborated a Verbal Learning Profile (VLP), including the percentage estimation of recalled words in each trial, as well as the learning consistency (estimation of the words systematically recalled in the three trials).

Results: The VLP study revealed relevant differences with the controls in the Learning percentage, with less relevance in the oldest group. Low Consistency values were only registered in the group of patients.

Conclusions: The results are discussed under the light of present theoretical models. Likewise, hypothesis are formulated concerning the different mnestic strategies which are at stake, the declination of cognitive resources affected by age and the early deficit of this subsystem in MCI where a high percentage of patients transform it into AD. It is concluded that the VEM constitutes a possible preclinical marker of disease.

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**Symposium 15:
Towards a Psychological and Neuropsychological
Assessment Integration**

Chair: Vanina Schmidt

3:45–5:00 p.m.

V. SCHMIDT. Psychological Assessment Contribution to Neuropsychological Assessment. Still Something to Say.

Objective: Through more than a century, Psychological Assessment has shown its expertise for the exploration and diagnoses of different human behavioural parameters. The aim of this work is to present a synthesis of the contribution that Psychological Assessment (PA) has done to Neuropsychological Assessment (NA). The adaptation of instruments belonging to different contexts requires the use of highly sophisticated procedures. These procedures are revised in this presentation, considering the current discussion about the cultural aspects of assessment. Strategies that allow the establishment of psychometric properties of neuropsychological instrument are exposed. A critical review of the use of the cut-off score is presented regarding two key concepts for NA: sensitivity (percentage of positive cases that the test correctly identified) and specificity (percentage of negative cases that the test correctly identified).

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I. INJOQUE-RICLE. Psychological Assessment Contribution to the Validation of Verbal Working Memory Tests.

Objective: It is usual practice to use tests created in different cultures to assess a wide range of cognitive aspects. When these materials are used, the validation process is extremely important, even when the instruments were created in the same language, but in a different cultural context. This process includes both the stimulus and the instructions. Even more, not only a content validation is needed, criterion-related validity measures and reliability indexes are also necessary. The necessary steps to achieve a content validity of verbal instruments created in a foreign language will be presented, and examples of this process with the verbal tests of the Automated Working Memory Assessment Battery (AWMA, Alloway, Gathercole, & Pickering, 2004; Translation and validation: Injoque-Ricle & Burin, 2007) will be given. The AWMA is used to assess Working Memory in children, adolescents and young adults, and includes six verbal tests: Digit Recall, Backwards Digit Recall, Word Recall, Nonword Recall, Listening Recall, and Counting Recall. Finally, the steps to achieve a proper cultural validation will be shown. This will allow us to obtain a valid and reliable instrument to assess children's and adolescent's Verbal Working Memory in our cultural context.

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M. WILSON. Psychometric Properties of a Language Assessment Instrument in Spanish: the BEA Battery.

Objective: In order to achieve reliable interpretation of clinical assessment results clinicians must count on standardized and validated tools (Lezak, 1995; Spreen & Risser, 2003). Thus, we present the study of the psychometric properties of the Batería de Evaluación de la Afasia (Language Assessment Battery; BEA; Wilson, Jaichenco & Ferreres, 2005) based on dual route models and cognitive processing. Results. Aphasic patients scored significantly lower ($p < .05$) than normal controls in almost all the subtests (criterion validity). Additionally, some subtests significantly correlated with relevant external measures: Direct and inverse digit span, Analogies (Wechsler, 2002), and the Boston Naming Test (Kaplan, Goodglass y Weintraub, 1986) (concurrent va-

lidity). Conversely, none of the subtests correlated significantly with a non-verbal task: Block design (Wechsler, 2002) (discriminant validity). On the other hand, results showed good internal consistency reliability (almost all α -coefficients were equal or superior to .70). Conclusions. These results suggest that the BEA battery seems to be a reliable and valid instrument to assess language processing in Spanish. In the same way, it shows that the field of Psychometrics can offer Neuropsychological assessment a good baseline for better and more reliable interpretation of patient's results.

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V.I. SCHMIDT, N. LEIBOVICH DE FIGUEROA, I. INJOQUE RICLE & M. WILSON. Towards a Psychological and Neuropsychological Assessment Integration.

Symposium Description: Psychological Assessment (PA) and Neuropsychological Assessment (NA) represent two differentiated and, at times, divorced ways of assessment. Although during last decades there has been a growing interest on both approaches integration, this goal still remains an aspiration. Both, PA and NA, require a conceptual framework or theory, and instruments are the operationalization of a psychological or neuropsychological construct. That is why it is of fundamental relevance to the instrument's validity and reliability in every construction and/or adaptation. In the present symposium, advantages of PA and NA integration will be discussed, as well as the reasons for its delay (Dr Nora Leibovich de Figueroa). In the first exposition, the contribution of PA to NA will be discussed through key concepts such as validity, reliability, cut-off score, sensitivity and specificity (Dr Vanina Schmidt). The aim of the second exposition is to present the necessary steps required to manage an accurate adaptation of verbal instruments. This process will be exemplified with Verbal Tests from a Working Memory Battery for children, adolescents and young adults (Automatized Working Memory Battery; AWMA; Alloway, Gathercole & Pickering, 2004; Adaptation: Injoque-Ricle & Burin, 2007). In the third exposition, we present the study of the psychometric properties (criterion, concurrent and discriminant validity, and internal consistency) of the Language Assessment Battery (BEA; Wilson, Jaichenco & Ferreres, 2005). Final discussion will be presented with a special focus on the exposed examples as concrete ways of integrating both approaches (Dr Nora Leibovich de Figueroa).

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**Symposium 16:
Role of Neuropsychologist in Neurosurgery: Surgery
for Epilepsy, Surgery in Parkinson Disease and
Surgery in Chronic Pain**

Chair: Maria Cristina Pinto Dussan

3:45–5:00 p.m.

M. PINTO DUSSAN, O. AGUILAR, R. RIAÑO, G. JUAN & A. RESTREPO. Role of neuropsychologist in Neurosurgery: surgery for epilepsy, surgery in Parkinson Disease and surgery in chronic pain.

Symposium Description: The symposium aims to present to the neuropsychologist international community the scope of the neurocognitive assessment in neurosurgery. Will be presented advances in intraoperative language monitoring during surgery for epilepsy, preoperative and postoperative evaluation in the surgical protocol of subthalamic stimulation in Parkinson's disease and the evaluation of chronic pain, his exaggeration and simulation.

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A. OSCAR. Role of the neuropsychologist in epilepsy surgery.

Objective: The aim is to clarify the role of the neuropsychologist in epilepsy surgery, especially when a resection area identified as eloquent (involved in memory and language) or areas vital to motor and sensory processes.

Participants and Methods: There will be a tour pointing out the functions of the neuropsychologist at the preoperative stage, intraoperative and postoperative monitoring. It highlights the relevance and functional welfare since the neuropsychology can be achieved in the patient and other professionals how to obtain information that would in the success, minimizing risks and consequences of neurosurgery.

Results: The process begins with the admission of the patient to the protocol of epilepsy surgery. In the preoperative phase, the neuropsychological assessment determines what cognitive functions are preserved and altered and its relationship with focal lesions corroborated with neurological examinations and imaging, which makes it easier for the medical staff to decide whether the patient is a suitable candidate for surgery. If the process continues, we propose an intraoperative monitoring protocol of language and memory, motor or sensory functions (as applicable), adapting Ojeman's protocol to the type of patient (usually children) and the implementation of surgical familiarization strategies where the patient becomes used to the intraoperative procedure, which will increase the likelihood of success of the surgical process

Conclusions: Finally, a neuropsychological assessment after the surgery is performed with an postsurgical follow-up to a year to objectify the outcome of the procedure and the patient's degree of functionality. Correspondence: *Maria Cristina Pinto Dussan, Pontificia Universidad Javeriana, Carrera 5 N° 39 - 00, Bogotá 00000, Colombia. E-mail: mcpduss@hotmail.com*

R. RODRIGO. Role of Neuropsychologist in Parkinson Surgery.

Objective: The present communication aims to show the neuropsychologist's role in the preoperative and postoperative evaluation in the surgical protocol of subthalamic stimulation in Parkinson's disease.

Participants and Methods: The importance of the neuropsychologist to determine if the patient is or not is a candidate for surgery is shown. For this, it is necessary to use an assessment protocol that allows to detect the presence of cognitive alterations or a possible dementia. In addition, the role of the neuropsychologist in a postoperative evaluation is shown, because in the event of a bad implantation of the electrode cognitive and psychiatric disorders may appear.

Results: In this communication, a case of Parkinson Surgery and the role of neuropsychology in this intervention will be presented.

Conclusions: Is fundamental the presence of neuropsychologist in a Parkinson surgery, because, he is a specialist to determine cognitive alterations.

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G. JUAN DANIEL. Role of Neuropsychologist in chronic pain surgery.

Objective: The present communication aims to show the neuropsychologist's role in the chronic pain surgery.

Participants and Methods: A single protocol is shown, (a) instruments commonly used to measure current and chronic pain, (b) psychological instruments commonly used to measure current and chronic pain and its simulation, (c) neuropsychological tests, (d) experimental techniques, (e) electrophysiological measures correlated or not correlated with chronic pain, with his overstatement and its simulation and (f) behavioral factors that, according to recent research, correlate with exaggeration and simulation of pain.

Results: In this communication, a case of chronic pain surgery and the role of neuropsychology in this intervention will be presented.

Conclusions: The presence of the neuropsychologist in this intervention is fundamental to determine if the patient exaggerates or simulate pain or if the chronic pain is real.

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Poster Session 3: Language, Cognition, Perception

3:45–5:00 p.m.

Attention

S. FERNÁNDEZ GUINEA, M. GARCÍA-VIEDMA & R. MARTOS MONTES. Information recuperation strategies in mild Alzheimer's disease: evidence from a random number generation task.

Objective: The random generation tasks imply to produce sequence of letters or numbers that contains no discernible patterns. The random generation reflects the capacity to switch retrieval strategies and is considered an operation of Central Executive (Baddeley, 1996), because to make a random sequence demand the constant intervention of the Central Executive to switch of retrieval plans in order to break up stereotyped or repeated sequences.

In early stages of Alzheimer disease (AD) are present deficits related to the Central Executive components (inhibition of irrelevant information and coordination of more than one task). It is possible that the patients also show problems with the capacity to switch retrieval strategies. Thus we explored the performance of mild AD patients in a random generation task.

Participants and Methods: Fourteen patients with initial AD and fourteen healthy older adults make a random numbers generation task. The task consists of producing random sequences with the 1 to 5 digits. We use the indexes of RgCalc program (Towse & Neil, 1998) for the analyses.

Results: The results show significant differences between both groups in the following indexes: First-Order Difference or FOD (-3) [$F(1, 26) = 5.676, p=.025$], FOD (0) [$U = 49.5, p=.023$], Repetition Distance or RP (1) [$U = 42, p=.009$] and RP (4) [$F(1,26)=5.788, p=.024$].

Conclusions: These results would point a different performance of both groups in this task. The AD patients produce more occurrences of same response choice; meanwhile the healthy older people use backward counting strategies and produce responses more varied than AD patients.

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M.I. KOUSHIOU, E. CONSTANTINO & M.N. AVRAAMIDES. Object And Gist Perception in a Dual Task Paradigm: Is Attention Important?

Objective: To investigate, using a dual task paradigm, the extent to which low level (gist perception) and high level (object categorization) processing take place under conditions of inattention.

Participants and Methods: Thirty-seven psychology students carried out an attentionally demanding central task, while performing simultaneously a secondary task, that is object categorization or gist identification in natural scenes.

Results: Performance on the central task did not differ between the two secondary-task conditions suggesting comparable attentional focus. Participants were more accurate on object than gist categorization ($p < .001$). A Multivariate Analysis of Variance (MANOVA) revealed that partici-

pants with high accuracy on the central task were also more accurate on object categorization ($p < .05$). No significant effect was found, though, on gist identification. A one-way ANOVA testing the effect of stimuli type (object/gist categories) revealed that participants were better in recognizing buildings and city scenes among object and gist categories respectively ($p < .01$).

Conclusions: Gist perception, not previously studied under dual task conditions, and object categorization are feasible without full deployment of attention. It seems that participants performing better on the central task developed a strategy to divide their attention more efficiently and therefore recognise peripheral images more accurately. This was especially the case in object categorization and can be attributed to the saliency of the figures contained in object recognition images. Further research using neuroimaging methods is expected to reveal the neurological underpinnings of parallel processing as this occurs in real-life situations.

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M. MIMURA, Y. FUJITA, A. YAMAMOTO, H. TOMIOKA, A.J. ISOMURA, H. KOBAYASHI & S. IJIMA. Detecting Risk of Drivers with Brain Damage Using a Functional Visual Field Device.

Objective: It is of great interest to appropriately evaluate driving ability of individuals with focal brain damage. The present study aimed to devise a handy apparatus to measure functional visual field (FVF) and demonstrate its usefulness for evaluating driving-related activities in brain damaged individuals.

Participants and Methods: Participants consisted of 20 healthy and 8 brain-damaged individuals who hold driver's license. Etiologies of brain damage included cerebrovascular disease and traumatic brain injury. Each individual was evaluated using a newly devised FVF apparatus. This FVF device included four subtests in which simple reaction time (RT) to centerly-presented stimuli, RT of go/no go judgment to centerly-presented stimuli, RT to peripherally-presented stimuli, and RT in dual task condition (combining central go/no go judgment and peripherally-presented stimuli), respectively was measured respectively. In addition, each brain damaged individual received full neurological, neuropsychological and neuroimaging examination.

Results: Significant age effect was obtained in the overall performances of the FVF. The performance of the subtests, specifically dual task, was in parallel with clinical judgment of driving abilities based on other measures (self and/or caregiver's report, performance on neuropsychological tests, on-road performance including accidents). In addition, some, but not all individuals with brain damage showed gradual improvement in FVF as they repeated examination. The results may suggest that the present FVF device is useful for driving rehabilitation.

Conclusions: Newly devised FVF apparatus is useful to easily evaluate driving-related cognitive activities of individuals with brain damage.

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E. MOES & L.G. MIARMI. Relationship between Mindfulness and Resistance to Distraction on Simon tasks.

Objective: Mindfulness is typically measured with questionnaires relying on self-report such as the Mindful Attention Awareness Scale (MAAS) or Kentucky Inventory of Mindfulness Skills (KIMS). Little work has been done on the relationship between self-report and objective measures of attention or executive ability. Given the relationship between inattention and poor executive ability in ADHD, we hypothesized that inattention (as measured by these scales) would predict poor performance on executive tasks.

Participants and Methods: We examined the relationship between self-ratings of mindfulness and performance on an inhibitory task (the Si-

mon task, Simon, 1969). Participants were required to respond rapidly to the meaning of the words LEFT or RIGHT regardless of the side of the screen on which they appeared. In the high perceptual load condition they also had to ignore a distracting stimulus on the opposite side from the word. A difference score between the high and low load conditions was computed, to assess increased ability to resist distraction. In addition to the Simon tasks, college undergraduates were administered the KIMS ($N = 22$) and the MAAS ($N = 52$).

Results: Significant differences were found in performance between the high and low load conditions. As predicted, a significant relationship was found between the difference score and the KIMS Act with Awareness scale ($r = .451$, $p = .018$), but, contrary to expectation, not with the MAAS ($r = -.132$, $p = .175$).

Conclusions: Results are discussed in terms of construct validity of self-report measures and inconsistencies in extant literature using these instruments.

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S. URQUIJO & J. RUBIALES. ATTENTION AND READING ACQUISITION. VARIATIONS ACCORDING TO THE AGE AND SOCIOECONOMIC LEVEL.

Objective: Describe and analyze the variations in the relations between the attention capacity and the performance in reading activities, considering the age and the socioeconomic and cultural level in children of the first cycle of the primary school.

Participants and Methods: 250 children, with ages between 6 and 9 years, students of primary, public and private schools, of the city of Mar del Plata, Argentina. Instruments: Scales of reading and attention of Bateria de Evaluación Neuropsicológica Infantil -ENI- and Stroop Test.

Results: The statistical analyses allow to confirm variations in the relations between the attention capacity and the performance in different reading activities (reading of words, pseudo words, orations, understanding and precision), based on the age and the socioeconomic and cultural level of subjects. Additionally, the results show evidences of significant differences of the attention capacity, depending on the used instruments to evaluate it.

Conclusions: The results sustaining the idea of the attention capacity development and the narrow relations that maintains with the processes of reading learning, demonstrating the influences of means on both processes. Additionally the interaction between hereditary and environmental factors is discussed.

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Epilepsy

P. SOLIS, S. ODDO, A. LOMLOMDJIAN & S. KOCHEN. "Naming Task in temporal lobe epilepsy patients. Modularity and Plasticity"

Objective: Naming tasks is used for language assessment, in temporal lobe epilepsy patients. Neuropsychological evaluation shows, commonly, an impaired performance, according to frequent word-finding complaints on spontaneous speech. The aim of this study is to discuss different ways of language processing.

Participants and Methods: We selected 118 refractory temporal lobe epilepsy patients surgical candidates evaluated with the Boston Naming Test (visual confrontation).

Results: Of the total population 60% have deficits. There was no correlation with lesion laterality, years of evolution and education.

Conclusions: This finding could be due to a semantic memory or to a lexical access disfunction. Recent studies have reported naming performance differences when stimuli was presented with a visual input vs. an auditory input in this group of patients. These findings correlates with functional magnetic resonance and cortical stimulation studies, and are similar to the preliminary results, that our group have observed .

It would exist alteration in different stages of single word naming processing, that might be related to different cortical areas and would have a prognostic value in surgical decision making process.

It has been demonstrated that in Temporal Lobe Epilepsy patients, there are atypical localization and distribution of language areas due to reorganization phenomenon.

Development of functional techniques of magnetic resonance and electrophysiological methods contributes to investigate "in vivo" psycholinguistic models.

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Executive Abilities/Frontal System

M. FROUFE & R. ALELÚ. EXECUTIVE (dys)FUNCTION AND AGE: STRATEGIC PERFORMANCE BASED ON EXPECTATIONS.

Objective: The executive function (EF) includes a series of higher cognitive activities: planning of complex and new actions, inhibition of processing of distracting information, and many others. These activities are controlled by a versatile mental system, with a neurological base in the prefrontal cortex, especially the anterior cingulate and other neocortical areas. The objective of the present work is to study one of these mental activities across the life span: the ability of strategic performance based on expectations developed by means of new use of familiar stimuli.

Participants and Methods: Five groups of different ages (5-6, 7-9, 10-12, 23-45, and 65-76 years) were submitted to a variant of the Stroop task, with only two colours names and two colours patches (red and green), and a strong predominance (84%) of incongruent closed trials over the congruent ones (16%). In this situation, a shorter reaction time and a shorter error number in the incongruent trials denotes a strategic performance.

Results: a) Children five years old already demonstrate strategic performance; b) adults over 65 manifest a significant loss of this capacity.

Conclusions: The strategic performance capacity develops in the early years and suffers deterioration after sixties. This pattern of development is consistent with those found in other cognitive operations of the EF. The current data do not allow us to know what happens with this function before the age of five and after 76. This is a research to be done.

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V. MARTINEZ, L. MANOILOFF & J.C. GODOY. Wisconsin Card Sorting Test: Performance of Adolescents with Different Patterns of Alcohol Consumption.

Objective: Alcohol consumption affects differentially the adolescent's CNS functioning. Specifically, cognitive traits such as Executive Functioning (EF) (associated with complex processes such as planning, judgment and decision making) have seen to be impaired due to long term alcohol consumption. In the present study, EF of adolescents belonging to the National University of Córdoba (Argentina) was assessed utilizing the WCST.

Participants and Methods: A Simple Prospective Ex Post Facto design was used. Six groups were defined considering patterns of alcohol consumption and gender as independent factors: Low Consumers (N=21; 8 men), Moderate Consumers (N=18; 7 men) and Binge Consumers (N=27; 11 men). All EF assessments were made by means of the WCST Spanish adaptation (De la Cruz, 1997).

Results: The original scores were analyzed using a two-way ANOVA (Group x Gender). None of the independent factors considered under analysis significantly affects any of the dependent measures considered in the study.

Conclusions: Several hypotheses could be considered, in order to explain the lack of significant effects. First, the WCST might not be sensitive enough to obtain evidence of cognitive flexibility and conceptual-

izations between adolescents, disregarding that might be sensitive under different conditions (older participants and/or heavier alcohol consumers). Secondly, the upper range of heavier alcohol drinkers was not considered when selecting the subject's sample included in the study. Finally, all levels of consumption registered and included in the study were lower than the ones reported by the general literature.

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D.M. HULAC, E. MCCONNELL, C.M. ZAFIRIS, A.G. SCHRADER, E.M. MANTERIS & R.C. D'AMATO. Understanding Executive Functioning in Female Adolescents Using the BRIEF.

Objective: Recent research in clinical neuropsychology has demonstrated that executive functioning is a critical component of neuropsychological abilities. The BRIEF and the Basic Achievement Skills Inventory Reading and Math subtests were administered to determine whether a correlation exists between academic achievement and EF.

Participants and Methods: To evaluate EF, this study examined 93 females between the ages of 12 and 18, currently residing in a residential treatment center (RTC). The Behavioral Rating Inventory of Executive Functioning-Parent Rating Scale (BRIEF) is a rating scale typically used in schools and clinical practice to assess executive functioning (EF) and its subtypes, such as planning and organization, emotional control, working memory, initiating, and monitoring behavior. The BRIEF was designed to alleviate many of the ecological validity concerns involved in assessing EF.

Results: The individual subscales of the BRIEF were found to correlate highly with one another from a sample of adolescent females in an RTC. Findings indicated that the BRIEF measure only a single construct. Similarly, in this sample of adolescent females, the BRIEF did not provide information needed to better understand which executive deficits were manifested. Subsequently, this measure was unable to improve classification methods.

Conclusions: Results from this study demonstrated a significant moderately negative correlation between EF and Verbal achievement and between EF and Mathematical achievement.

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K.J. BJORAKER, C.M. ZAFIRIS, A.G. SCHRADER, E. MCCONNELL, E.M. MANTERIS & R.C. D'AMATO. How do Students who Demonstrate Emotional Disabilities Compare to Children who are Normal on the NEPSY: A Developmental Neuropsychological Assessment.

Objective: Research has suggested that children with emotional disorders display a variety of neuropsychological impairments. This research examined the validity of the NEPSY-A Developmental Neuropsychological Assessment (NEPSY) in children with an emotional disability and in a normal control group of children. Previous research has indicated several basic neuropsychological frontal lobe deficits in children with emotional disabilities. These impairments have related to attention problems, reasoning and planning difficulties, communication deficits and behavioral issues.

Participants and Methods: A Multivariate Analysis of Variance conducted on the composite scores and the 14 NEPSY subtests revealed significant group differences. Participants included a group of 30 children identified as emotionally disabled and a group of 30 normal control group children.

Results: The Language domain contributed most significantly to domain group membership. When consideration was given to the relationship with other variables, the subtests with the most discriminative ability were the NEPSY subtests Comprehension of Instruction, Speeded Naming, and Auditory Attention and Response Set. Examination of the efficiency of classification suggested that 14 subtests of the NEPSY correctly identified 88% of the subjects as members of their respective groups. This study clearly provided a neuropsychological profile of children with emotional disabilities.

Conclusions: It seems critical to integrate an emotional agenda into our current neuropsychological framework if we are to increase the efficacy and utility of assessments, and improve the ability of psychologists and neuropsychologists to render appropriate diagnostic and treatment recommendations for these children.

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W.R. SCHAMBER, A.G. SCHRADER, C.M. ZAFIRIS, E. MCCONNELL, E.M. MANTERIS & R.C. D'AMATO. Evaluating the Executive Functions of Children who have Experienced a Trauma using Selected Subtests from the Delis Kaplan Executive Function System.

Objective: Executive functioning (EF) is an important area of study in the field of neuropsychology because of its implications for treatment planning. This study assessed the EF of children age 8 to 12, who had experienced a significant trauma. Presently, little research is available on how trauma affects neuropsychological abilities. It was hypothesized that children who have experienced trauma will be at a disadvantage in comparison to their peers due to decreased cortical arousal, and therefore, decreased executive abilities.

Participants and Methods: This research studied 20 participants and a normal control group of 20 children to answer the question of whether children who have experienced a trauma displayed decreased EF abilities. The comparison/normal group was matched to the experimental group controlling for age, gender, race, parent education, school grade, parent age, parent marital status, and socioeconomic status. Selected subtests of the Delis Kaplan Executive Function System (DKEFS) were employed to assess children's abilities in the area of EF (Delis, Kaplan & Kramer, 2001). An Analysis of Variance and T-tests were conducted to examine the data of the five DKEFS subtests and total DKEFS test scores.

Results: This research demonstrated that children who had experienced a trauma performed significantly lower on EF tests when compared to their same age peers.

Conclusions: These findings showed that children who have experienced a trauma performed differently than normal children in their ability to self regulate, plan activities, and organize their behavior. It is clear that children who have experienced a trauma need specialized neuropsychological treatment if they are to succeed.

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C.F. MOREIRA, C.C. ALMEIDA ROCCA, C.L. RODRIGUES, E.R. ANDRADE, L. FU I & D. FUENTES. Controlled study about Decision-making between children with bipolar disorder (BD) and Attention Deficit Hyperactivity Disorder (ADHD).

Objective: Impaired decision-making is a key-feature of many neuropsychiatric disorders. Inappropriate risk-taking and disadvantageous decision-making have been described as major behavioural characteristics of patients with attention-deficit/hyperactivity disorder (ADHD) and bipolar disorder (BD). These children are found to show an altered sensitivity to reinforcement such as reward and response cost.

The aim of this study was investigated the performance of children diagnosed with ADHD and bipolar disorder in the Iowa Gambling Task.

Participants and Methods: A group of children met DSM-IV criteria for ADHD (N=18) and bipolar disorder (N=9) were assessed by a version of the Iowa Gambling Task. The mean age of the sample was 13 years and an average of six years of education. We evaluated general level of intelligence and the overall scores of Barratt Impulsiveness Scale (BIS-11A).

Results: There were no group difference in the Iowa Gambling Task performance. Our data suggest that decision-making is similar in both pathologies.

Conclusions: These data are preliminary and suggest that it is necessary more studies in the area.

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G. PLUCK, S.A. SPENCE, O. LAGUNDOYE, D.C. MACLEOD, R. RELE, K.H. LEE & R.W. PARKS. Apathy and Executive, but Not Disinhibition Behavioral Traits are Raised in Polysubstance Abusers.

Objective: Prefrontal-subcortical circuits are closely associated with goal directed behavior and have been implicated in cognitive disruption associated with substance misuse. Three broad behavioral manifestations of neurophysiological disruption to these circuits have been described, apathy associated with the anterior cingulate circuit, executive dysfunction with the dorsolateral prefrontal circuit and disinhibition with the orbitofrontal circuit. We hypothesized that traits linked to these circuits measured with the Frontal Systems Behavior Scale (FrSBe) would reveal behavioral patterns indicative of impairment, in people with polysubstance abuse problems.

Participants and Methods: Thirty nine polysubstance abusers, attending a drug treatment service were recruited to the study. These were predominantly receiving methadone or subutex treatment and were otherwise currently abstinent. Twenty-five participants without a history of drug abuse acted as a control group. All participants were asked to complete the self-report FrSBe scale and substance misuse histories and demographic information were recorded.

Results: The raw scores of the polysubstance abusers and controls were compared for levels of apathy, disinhibition and executive dysfunction using ANCOVA calculations covarying for level of education and age. It was found that the polysubstance abuse group scored significantly higher on the subscales of apathy and executive dysfunction, but not on disinhibition.

Conclusions: Results suggest that apathy and executive function problems, but not disinhibition are raised in currently abstinent polysubstance abusing individuals. This in turn would suggest greater impairment of the brains anterior cingulate and dorsolateral prefrontal cortical-subcortical circuits, compared to the orbitofrontal circuit. These results contrast with previous research suggesting an opposite pattern of disruption in non-clinical samples of drug users in which disinhibition, is most strongly associated with polysubstance abuse.

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I.C. PUERTA, D.A. PINEDA & E. ARANGO. FACTOR STRUCTURE OF THE EXECUTIVE BEHAVIOR.

Objective: To analyze the factor structure of the executive behavior, using a Behavior Rating Inventory of Executive Function (BRIEF) in offender with conduct disorder (OCD) adolescents and its probable clinical utility.

Participants and Methods: The Behavior Rating Inventory of Executive Function was used to assess the executive behavior in a sample of 56 offender with conduct disorder adolescents and 72 healthy controls, aged 12 – 17 years old.

Results: Exploratory Factor Analysis (EFA) of BRIEF produced one factor, which explained 88,9% of variance of BRIEF-parents for the total sample, 87,6 of the variance for OCD group and 78,1% of the variance for control group. While, BRIEF-teachers produced the same factor, which explained 81% of the variance for the total sample, 76% for OCD and 77% for control groups. This factor was interpreted as a Behavior Monitoring System (BMS).

Conclusions: The BMS is assumed as an executive activity that controls the compartment directed to the goal of adaptive social manners. Comparison between OCD and control groups using the BMS dimension found statistically significant differences, which can have an important clinical utility.

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M. RAMÍREZ & F. OSTROSKY-SOLÍS. Long term cognitive sequelae in traumatic brain injury: A study on Executive Functions.

Objective: TBI is a clinical-pathological entity that produces physical and cognitive sequelae even 10 years following the lesion. Although attention and memory impairments have been reported, also comprise deficit in executive functions. This Executive Functions (EF) include inhibitory control, planning, organization; follow a sequence to achieve a goal, meta-cognition, mental flexibility, working memory and others (Goldberg & Bougakov, 2005; Luria, 1976). However, studies on FE and TBI with a long period of outcome in Latin-American populations are limited. The purpose of the present study is analyzing the changes on EF in TBI's patients with different levels of severity and the influence of outcome years.

Participants and Methods: 17 TBI patients (mild, moderate and severe) were evaluated; approximately 36 months after lesion, mean age of 28 years old, and $x = 15.5$ years of education. A control group was matched by age, sex and years of education with TBI group. Both were evaluated with the Frontal Lobes Battery (Flores, Ostrosky-Solís & Lozano, 2007). The data acquired were analyzed with a Kruskal-Wallis statistic.

Results: Significant statistical differences were found on 8 of the 14 subtests; severe TBI patients have lower scores. Cerebral areas detected with deficit were anterior prefrontal cortex, orbitofrontal cortex and dorsolateral frontal cortex.

Conclusions: The data obtained suggest that even though long periods of outcome following TBI exists significant sequelae that affect the performance of patients, this mean that is necessary evaluate EF in TBI patients and design rehabilitation programs appropriated.

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R. RAMOS CUEVAS & B. TÉLLEZ ALANÍS. Exploring the Interrelation of Executive Functions during Child Development.

Objective: The research of development of Executive Functions (EF) has employed factorial analysis with the objective to explore how EF are related during childhood (Anderson et al., 2001). The purpose of the present study was to identify the links that EF establish between them in children between the ages of 7 and 12 years.

Participants and Methods: The EF of attention, inhibition, flexibility, monitoring and planning were studied in 45 healthy children, distributed in three groups: 7-8, 9-10 and 11-12 years old. A spatial conflict task was used to evaluate attention, a go-no go task for inhibition, a switching task for flexibility, appreciation of the execution in the same switching task for monitoring, and the Tower of London for planning. In each one of the groups, a factorial analysis of principal components with a type varimax orthogonal rotation was performed.

Results: The same number of factors was detected (4) in small children and older ones, while in medium children more factors were found (6). In the older children, the parameters that evaluate the same EF loaded in a same factor, this suggests that in these children EF are separated and defined, whereas in younger children, EF are interdependent and with undefined borders. It was also observed, in all groups and all factors, that there is a clear influence of the inhibition in the development of the EF evaluated.

Conclusions: These results indicate that the interrelationships between the EF change during the development and that the inhibition is key for the consolidation of the executive control.

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C. ROCCA, M.B. MACEDO SOARES, C. GORENSTEIN, R.S. TAMADA, C.K. ISSLER, R.S. DIAS, K.M. ALMEIDA, A. SCHWARTZMANN, J. AMARAL & B. LAFER. Verbal fluency dysfunction in euthymic bipolar patients: A controlled study.

Objective: To study the executive functioning in euthymic bipolar patients in comparison to healthy controls and to examine the relationship between neuropsychological deficits and clinical variables.

Participants and Methods: Twenty-five euthymic bipolar patients and 31 controls underwent a battery of executive tasks including mental flexibility, inhibitory control and verbal fluency tests.

Results: There were no significant differences between bipolar patients and controls in relation to mental flexibility and inhibitory control. However, patients performed worse than controls on verbal fluency tests. Poor performances on the Stroop Test and the Hayling and Brixton Tests - part A were associated to lifetime occurrence of psychotic symptoms, prior number of episodes, and previous hospitalizations.

Conclusions: In our study, only verbal fluency tests differentiated bipolar euthymic patients from healthy controls. Patients who showed deficits in information processing speed and inhibitory control had more episodes and hospitalizations and lifetime occurrence of psychotic symptoms.

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S. ROJAS, M. TAPIA, M. YAÑEZ & J. DE LA CRUZ. The Neuropsychological Assessment of a Child with Prefrontal Lobes Agenesis.

Objective: Evaluate cognitive functions in a case of a child with agenesis of the frontal lobes.

In children, the results obtained along 10 years of studies, show that the EF development is a process that get maturity in many states and in many times across the child development, in where they dont have and special dayline time in life otherwise some aspects of the brain development do.

The impact of the damage to the frontal lobe and executive deficits resulting therefore in the long term is an issue that continues being studied. Anderson (2002; en Stuss y Knight, 2002) in a single case study found that the damage to frontal lobes produce deficits in other areas such as cognition, language, motor skills and visual, and not just in EF, unlike adults who have suffered damage to the frontal lobe show deficits specific in EF.

Participants and Methods: One mexican, male, 8 years 11 months old, right handed, with a third year of primary school in special education. He was assessed with the WISC III, Bender Test, Recognition of sounds, global reading images, Tower of London, WCST, Stroop and Behavioral Assessment System (BASC)

Results: The results of the WISC-R, showed that he has an IQ of 57, which located him as a child with mental retard.

In agree with the diagnostic criteria of DSM-IV TR, he has mild mental retardation. He has a psychomotor development appropriate to their age. No problem for locomotion or movements directed, touch thin or thick.

Conclusions: He shows behavioural problems, many of them related to the lack of judgement, lack of internalization of societal rules and the lack of boundaries, all these pathologies associated with the damage to the frontal lobe. In the same way, He has problems with the motivation to carry out activities, Answer questions that he was asked to do, and even recreation, which is also associated with the pathology of the frontal lobes.

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C.A. SALGADO, R. LIMA & S. CIASCA. Executive Functions in students with developmental dyslexia.

Objective: This study investigated the performance of children with developmental dyslexia in tests that evaluate different components of the executive functions

Participants and Methods: Six children, of both the genders and with average age of 10 years had been evaluated in individual sessions using a battery of neuropsychological tests. The used tests had been: Trail Making Test (TMT-B), Stroop Color Word Test (SCWT), Tower of London (TOL) and Wisconsin Card Sorting Test (WCST).

Results: The children had mainly presented difficulties in the tasks that had involved the functions of inhibition, cognitive conflict, visual selective attention, planning capacity, auto perception of errors and change in the use of strategies cognitive ahead of ambient contingencies.

Conclusions: the results corroborate with literature and suggest that children with dyslexia demonstrate damages in different components of the executive functions. Such findings can be considered in the planning of the intervention of the children with specific learning disabilities.

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A. SLACHEVSKY CHONCHOL & C.A. PEREZ JARA. Ecological Evaluation of Planning: Development of a Virtual Version of the Multiple Errands Test: Preliminary results.

Objective: Standard neuropsychological tests for planning assessment do not always reveal the extent of everyday life difficulties after brain injury because they are rich in environmental cues and examiner-provided structure and subjects have a single explicit problem to tackle. Some patients that show a normal performance in the classic neuropsychological tests have clear executive problems in their daily life. Shallice and Burgess have proposed a more ecologic test to evaluate planning, the Multiple Errand Test.

The objective of our study was to design and evaluate a virtual version of the Multiple Errand Test aimed at allowing an easier administration and higher replicability.

Methods: We developed a virtual version of the Multiple Errand Test consisting on a shopping task carried out using a touch screen. Participants were required to complete a number of simple tasks without breaking a series of rules.

Participants and Methods: 17 patients and 17 controls were evaluated with i) validated behavioural executive dysfunction questionnaires with emphasis in planning (Everyday Live Disorganization Scale, Dysexecutive Questionnaire, Patient Competency Rating Scale and "Inventaire du Syndrome Dysexécutif Comportemental"); ii) validated cognitive efficiency and executive function neuropsychological tests (Dementia Rating Scale, Frontal Assessment Battery at bedside, Modified Version of the Wisconsin Sorting Test, Morphological and Categorical Verbal Fluency, Trail Making Test and Graphic Series of Luria); iii) neuropsychological tests for the evaluation of planning (Tower of London, Hotel Test, Six Elements Test); iv) the virtual version of the Multiple Errand Test.

Results: We report preliminary results of our study on this sample of subjects showing that patients took more time, completed fewer tasks and demonstrated a lack of awareness of their performance.

Conclusions: These preliminary results suggest that the Virtual Multiple Errand Test could be a useful tool for a more ecological evaluation of planning.

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M.E. ZAPATA, D.A. PINEDA, I.C. PUERTA & D.C. AGUIRRE. Executive function and executive behavior in offender conduct disorder adolescents.

Objective: To compare the cognitive executive function and executive behavior in offender conduct disorder (OCD) adolescents.

Participants and Methods: sample was constituted by 120 OCD adolescents and 120 healthy non offenders without conduct disorder (control) adolescents, aged 12 to 16 years old, males, and living in the Valle de Aburrá – Colombia. Instruments: Diagnostic Interview for Children

and Adolescents – IV – Revised for Parents (DICA IV – R-P) for CD diagnosis, Wisconsin Card Sorting Test (WCST), verbal fluency, Stroop Test, and the Behavior Rating Inventory for Executive Function (BRIEF), which assesses inhibition, flexibility, emotional control, working memory, organization/planning and control. Statistical analysis: SPSS 12,0 was used for comparisons.

Results: statistically significant differences between OCD adolescents and controls on BRIEF and cognitive executive function tasks were found, which can have utility in clinical evaluation.

Conclusions: study allows establishing the utility of the cognitive executive function tasks and the BRIEF to evaluate the frontal functions related to conduct disorder and other disruptive problems.

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Language: Aphasia

L.C. BARTOLONI, C. SERRANO, L. RIQUELME, A. MANZANAL, G. ROSATTO, S. LOUIT, A. TARATUTO & R.E. ALLEGRI. Rapidly Progressive Aphasia: A Clinical, Radiological, and Pathological Study.

Objective: This report concerns an autopsy case of rapidly progressive aphasia.

Participants and Methods: The patient was an Argentine man who was 76 years old at the time of death. Clinical history and neurological examination were performed. Moreover, he was evaluated with brain MRI and brain biopsy.

Results: The family history did not reveal hereditary burden. He developed rapidly progressive language disturbances and cognitive impairment at age 75. Neurological examination revealed motor aphasia with dementia, blindness, followed by myoclonus in superior limbs and partial seizures. Neuroradiological examination revealed left fronto-temporal hyperintensities. He died of respiratory difficulty 11 months after the disease onset. Macroscopically and neuropathological analysis were performed.

Conclusions: Based on these clinicopathological findings and a review of the literature, this case will be discussed.

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A. MUNARRIZ-IBARROLA & M. EZEIZABARRENA. Phonological Paraphasias of a Bilingual.

Objective: Goal of this presentation is to study the phonological paraphasias produced by a bilingual with anomia in order to examine the preserved information (metrical or segmental) during the retrieval of phonological information

Participants and Methods: A Spanish-Basque bilingual adult with phonological anomia participated in a longitudinal study which consisted of several production tasks such as spontaneous speech production, reading aloud, repetition, etc.

Results: Most items exhibit the same metrical information (stress, number of syllables) as the target word, what indicates that the metrical information is preserved. In contrast, the segmental information appears to be mainly affected in such paraphasias (cf. Biran & Friedman 2005). Different kinds of phonological processes like substitutions (42%), additions (30%), omissions (15%) and metathesis (13%) are attested. There is a clear preference for regressive processes in both languages (cf. Ardila 2001). The onset position of the syllable appears to be the most prominent, as it becomes the principal source position of the substituted or added segment. The target position of the "displaced" segment is mostly the coda position. Thus, the maintenance of the position seems not to apply universally, contrary to suggested by Shattuck-Hufnagel (1992) among others.

Conclusions: The results are compatible with the assumption of parallel processing of metrical and segmental information during lexical retrieval processes (Levelt 1999).

Moreover, the phonological paraphasias follow the same patterns in both languages despite the different degree of fluency and lexical accessibility of the tested person in both languages. This result is compatible with the assumption of the unique phonological production model in bilinguals.

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S. JACUBOVICH. COGNITIVE NEUROPSYCHOLOGY AND REHABILITATION: A CASE OF ANOMIA.

Objective: The development of rehabilitation programs for neuropsychological patients based on cognitive models, require two kinds of hypothesis: one for the locus and extension of the damage and another indicating and accounting for the programs adequate for rehabilitation. The detailed cognitive models provide a better theoretical framework for interpreting the patterns of damage and for thinking hypotheses about the effect due to a specific intervention. The aim of this study was to establish which of two alternative therapy programs, a semantic one and a formal one, is supposed to be the most effective for an aphasic patient with severe nominative deficit, because the nature of it was unclear.

Participants and Methods: We used a cross design for single case. A corpus of 78 stimuli divided in three sub-sets of 26 elements was used: first, one set was applied in the semantic program; second, another set was applied in the formal program; the remaining set was not treated.

Results: The patient showed an improvement for all treated stimuli, those treated with the formal therapy being statistically significantly better than those treated with the semantic therapy. No improvement was exhibited for untreated stimuli.

Conclusions: These results allowed the most adequate therapy to be chosen on based grounds.

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K. MARCOTTE, D. TREJO MARTINEZ, J. ALVAREZ, R. CONDE & A. ANSALDO. Neural Correlates of Semantic Feature Analysis in an Hispanic Broca's Aphasia Patient.

Objective: Semantic Feature Analysis (SFA) is an effective approach to improve naming abilities. In a previous single-case study, we described the impact of SFA on brain plasticity, but more studies are still required to describe the neural networks underlying SFA. This event-related fMRI study reports on the neural substrate sustaining the naming improvement in a Spanish-speaking participant with chronic Broca's aphasia.

Participants and Methods: JJ is a 55 years old patient, who suffered from a left fronto-temporal stroke one year prior to this study. Language assessment showed severe Broca's aphasia and verbal apraxia. To examine the neural substrate allowing for improvement, we designed a pre-post therapy event-related fMRI study. Activation maps with trained nouns and verbs were contrasted to activation maps resulting from pre-therapy anomia's.

Results: JJ showed significant improvement to name trained verbs and nouns. Neuroimaging results showed that naming trained nouns resulted in less activated areas in comparison to anomia's activation maps. Specifically, the activations were located in visual, semantic and articulatory processing areas. Pretraining anomia's also showed activation in language-related areas, but more areas were required. Conversely, we observed an enlargement activated areas with trained verbs in comparison to pre-therapy anomia's. Moreover, a shift of activations from the LH to the RH was observed after therapy.

Conclusions: This is the second case report of efficient therapy with SFA following naming deficits in chronic and severe Broca's aphasia. Brain plasticity operated differently with verbs and nouns, probably due to the impact of lesion location and pre-therapy naming abilities with nouns and verbs.

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K. MARCOTTE & A. ANSALDO. Brain plasticity in a Primary Progressive Aphasia patient: Neural Correlates Associated with Improved Naming Abilities.

Objective: In a previous study with a post CVA participant with chronic Broca's aphasia, SFA resulted in a concentration of the pre-therapy network. This study reports on the impact of Semantic Feature Analysis (SFA) on the neural substrate sustaining the naming improvement associated with SFA in a Primary Progressive Aphasia (PPA).

Participants and Methods: FC is a 60 years old man, diagnosed with PPA two years prior to the present study. FC showed severe non-fluent Broca's aphasia. He received intensive SFA therapy, and the neural substrate allowing for the improvement on oral naming was examined within a pre-post therapy event-related fMRI study. Contrasts with trained and spontaneously named items were performed.

Results: FC showed significant improvement in naming with treated nouns and verbs. With treated nouns, significant activations included the left STG, right CingG and right PHipG, whereas correct pretraining naming recruited the cuneus bilaterally, right fusiform gyrus and right PostCG. With verbs, post-therapy activations included bilateral IPL, left MTG, left lingual gyrus and right MTG. Conversely, pre-therapy verb naming had resulted in activations in the left PreCG, MedFG bilaterally, right SFG and right STG.

Conclusions: SFA was an efficient approach to improve naming deficits in a case of PPA. Further, post-therapy-related brain plasticity resulted in an enlargement of the network sustaining correct naming, a pattern that is the reverse of that observed with a stroke chronic Broca's aphasia. The impact of SFA is highlighted in the recruitment of specific-to-language areas. These results also suggest adapted brain plasticity following PPA.

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B.G. ORTUÑO. Activities for language rehabilitation.

Objective: The objective was to design and gather a set of activities and exercises suitable to work with aphasic patients.

Participants and Methods: A theoretic review of significant concepts about language disorder and rehabilitation strategies is included. The present material was designed using Spanish common words, validated in patients and theoretically sustained on psycholinguistic studies in Spanish. It includes a great variety of exercises and activities that can be performed as therapeutic support and also practical suggestions for both specialists and patient's relatives.

Results: Activities are grouped in 4 areas which have increasing complexity levels: Production, Comprehension, Repetition and Naming. The pictures and drawings that are included were designed and worked with aphasic patients. The results are two books that take into consideration both theoretical and practical aspects. A book and a workbook.

Conclusions: The presented material is suitable for language rehabilitation in adults. The material allows oral as well as written performance of the exercises and is based on a solid set of theoretical concepts with direct application to clinical practice.

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J.P. PÁEZ & M. FIERRO. Aphasias in Spanish Speakers.

Objective: This paper aims to present a revision from an investigative approach, on aphasias in Spanish speakers, which is contextualized within the localizationist model. At the same time, the review seeks to establish neuroanatomic correlations with symptoms or set of symptoms as a result of brain injury.

Participants and Methods: The design is correlational descriptive.

Results: The studies reviewed mainly by Muñoz (2007) reported cases of Spanish speakers with different types of aphasia, which are classified as skill in the language areas (nomination, fluidity, listening com-

prehension and repetition) and relates certain diagnostic brain area with some linguistic ability. From this, it was found that in Spanish speakers individuals with aphasia can be found variety of parafasias (Cueto et al., 2002). Depending on the type of parafasia, it can be determined the type of damage (Ardila et al., 1998).

Among the most interesting are those made with Broca aphasic (Ostrosky et al., 1999), in the understanding of active and passive sentences, ie. fluency and understanding of the syntax, with the main effect for the word "a", but no significant affections to order words, vs. control, which it used word order. This may be due to the high degree of flexibility of the Spanish language. It has also been found proper implementation in the task of linking with subject and verb omissions articles in the phrases (Ardila, 1999; Rye & Obler, 2001; Schnitzer, 1989), difficulty in the use of denial, and other characteristics, (Bastiannase et al., 2002). Unfortunately, there are few studies from the hearing point of view.

Conclusions: It was concluded that aphasia significantly alter the role of Spanish language due to the characteristics of the language. Further research is required in the design of protocols for evaluation and treatment for aphasics characteristics.

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Y.D. SASSON, L. SABE, A. CERVIO, A. AMENGUAL, F. MELI & R. LEIGUARDA. Dissociation Between Direct Cortical Stimulation and Postsurgical Language Deficit in a Patient with a Left Premotor-Prefrontal Tumor.

Objective: Transcortical motor aphasia (TMA) induced by damage of the dominant supplementary motor area (SMA) is characterized by initial mutism and thereafter by non-fluent speech with phonological parafasias and normal repetition and comprehension. We present a patient with a left premotor-prefrontal tumor in whom direct cortical stimulation did not cause any language deficit but who developed post surgically a TMA.

Participants and Methods: A 62-year-old right-handed patient presented with a generalized tonic-clonic seizure. Examination on admission was normal. MRI showed a left dorsal premotor-prefrontal tumor without involvement of the SMA. fMRI with a phonological paradigm revealed activation rostral to the lesion.

A comprehensive language evaluation was performed prior and after surgery. During direct cortical stimulation patient was requested to name 10 figures, produce automatic series and repeat 10 words. Spontaneous language was evaluated during the whole procedure.

Bipolar cortical mapping was performed during 1 msec with an amplitude of 2-8mA and a frequency of 60Hz.

Results: Direct cortical stimulation of the normal tissue surrounding the tumor did not induce any language deficit. However, the patient awoke from surgery with mutism. Six days after surgery a non-fluent, effortful speech with prolonged latencies and phonological parafasias but with normal repetition and comprehension appeared. The patient recovered completely in 6 weeks with specific linguistic treatment.

Conclusions: The type of aphasia and its recovery, in the absence of any language deficit induced by cortical stimulation, highly suggest a disconnection between SMA and inferior frontal gyrus and/or striatal structures due to damage to white matter structures.

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C.M. SERRANO, M. MARTELLI, A. MANZANAL, G. TUFFRO, C. DILLON, D. SARASOLA, C. RANALLI, F. TARAGANO & R.F. ALLEGRI. A clinical scale for the staging of Primary progressive aphasia (PPA).

Objective: Primary progressive aphasia (PPA) is an uncommon neurodegenerative syndrome characterized by a relatively isolated dissolution of language followed by deterioration of general cognitive function and of activities of daily living after 2 or more years (M.-M. Mesulam, 1982, 2001).

It is difficult to demonstrate cognitive decline in PPA because such methods as

The Clinical Dementia Rating (CDR), a global rating device, were developed

by Alzheimer type dementia, where the memory is the principal domain. Objective: Develop a clinical rating scale for patients with PPA.

Participants and Methods: In the present study, were tested 26 patients with PPA using a modified version of the CDR (Hughes CP, 1982). This scale measures language as fundamental domain, nonverbally abilities (global cognition) and functional/ social performance.

Results: The clinical scale for the staging of Primary progressive aphasia was found to distinguish subjects with a wide range of cognitive function, from mild to severely impaired PPA patients.

Conclusions: PPA patients can be distinguished in different stages using a clinical rating scale which considers language as a fundamental domain. Correspondence: *Cecilia M. Serrano, Ph, Laboratorio de Memoria. SIREN., HospitalZubizarreta, Instituto Universitario CEMIC., Nueva York 3952, Buenos Aires 1419, Argentina. E-mail: carodillon@hotmail.com*

C.M. SERRANO, M. MARTELLI, A. MANZANAL, C. DILLON, M. ITURRY, D. SARASOLA, F. TARAGANO & R.F. ALLEGRI. Neuropsychiatric Symptoms in Primary Progressive Aphasia.

Objective: Primary progressive aphasia (PPA) represents a clinical syndrome linked to multiple degenerative diseases. The diagnosis of PPA is made when language is the only area of salient and progressive dysfunction for at least the first two years of the disease.

The aim of this study was to determine both the presence and type of neuropsychiatric manifestations in PPA patients and to compare them with normal controls.

Participants and Methods: 26 subjects with PPA were assessed and 20 normal controls matched by age and education. Neuropsychiatric symptoms were assessed by the Neuropsychiatric inventory (NPI-Q) .

Results: Depression (70%) Apathy (61%) and anxiety (52%) were the most common symptoms in the PPA group . Statistically significant differences were observed between the PPA and control groups regarding the above mentioned symptoms ($p < 0.05$).

Conclusions: PPA is associated with a high rate of neuropsychiatric symptoms (depression, apathy and anxiety). These symptoms have serious adverse consequences.

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C.M. SERRANO, M. MARTELLI, C. DILLON, M. ITURRY, G. ROJAS, L. BARTOLONI, F. TARAGANO & R. ALLEGRI. Depression in Primary Progressive Aphasia.

Objective: Primary Progressive Aphasia (PPA) is a clinical dementia syndrome in which language functions decline over time while other cognitive domains and insight remain relatively preserved for at least 2 years. PPA patients may experience depression in this evolutive period. The aim of this study was to determine the presence of depression in PPA patients and to compare them from normal controls.

Participants and Methods: Beck Depression Inventory (BDI) scores from 18 PPA patients and 20 normal controls were compared.

Results: A significant proportion of PPA patients scored in the clinically depressed range ($p < 0.001$). Although PPA patients as a group were not clinically depressed, they reported more symptoms of depression than controls.

Conclusions: Patients with PPA should be evaluated for depression so that they may be appropriately treated.

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Y. SEVILLA, V. JAICHENCO, A. OLMEDO, M. WILSON, M.E. SÁNCHEZ & A. FERRERES. **Sentence Repetition Therapy. A Case Exploring the Relationship between Working Memory and Sentence Comprehension.**

Objective: This study presents a case of an aphasic patient with mild language comprehension difficulties and verbal working memory deficit. Aiming at verifying whether an enhancement of her phonological storage abilities could benefit her sentence comprehension skills, a sentence repetition therapy was applied.

Participants and Methods: Based on Francis, Clark & Humphrey (2003), a treatment was designed to improve the patient's capacity to store phonological information by means of the repetition of sentences with increasing length but constant simple syntactic structure. The therapy programme lasted 7 weeks and involved an everyday practice at home and two monitoring sessions at the hospital facilities.

Results: After therapy, the patient showed a significant improvement of her sentence repetition skills on treated and non-treated items. Other Working Memory measures –digit span and reading span tasks– also showed considerable improvement evidencing the enhancing of her storage abilities. The therapy also benefited significantly her performance at sentence comprehension tasks.

Conclusions: The program proved to be effective to rehabilitate the patient's phonological storage abilities and led to subsequent improvement of her sentence comprehension skills. This contributes to clarify the relationship between working memory and sentence comprehension.

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Language: Other (e.g., Naming, Fluency, Reading)

V.O. CUNHA, C. SILVA, F.H. PINHEIRO, G.D. GERMANO & S.A. CAPELLINI. **Performance of Students from 1st to 4th Grades of the Elementary Level in Metalinguistic and Reading Skills.**

Objective: This study aimed at verifies the performance of students from 1st to 4th grades of the elementary level in their metalinguistic and reading skills in specifics tests elaborated to this study, the focused aspect was reading at the decoding level.

Participants and Methods: A total of 120 students from 1st, 2nd, 3rd and 4th grades of a municipal school of the city of Marília-São Paulo-Brazil was evaluated, divided in 4 groups, respectively GI, GII, GIII and GIV. The tests which were elaborated and used were: Tests of metalinguistic skills (syllable identification and initial phoneme, end and medial, and segmentation, addition, substitution, subtraction, combination of syllables and phonemes), besides repetition of non-words; reading tests (reading of real words and non-words reading).

Results: The statistical analyse of the results with Kruskal-Wallis, Mann-Whitney and Wilcoxon tests revealed statistically significant difference with the performance in all the tests became gradually superior from 1st to 4th grades; the students obtained superior averages in the identification tests as compared to the manipulation ones; the performance in the syllabic tests was superior to the phonemic ones; the time of reading of real words and of non-words decreased from the 1st to 3rd grades, remaining equal or close among the latter and the 4th grade; the performance in working memory was superior in the 4th grades; the metalinguistic skills of syllables are acquired before the phonemics, because students from 1st grades already possess this ability.

Conclusions: Based on results, we concluded the elaborated tests seemed to be effective in their objectives.

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V.O. CUNHA, C. SILVA, F.H. PINHEIRO, G.D. GERMANO & S.A. CAPELLINI. **Analysis of the Mistake in the Proof of Scholars' Reading from 1st to 4th Grades of Public Teaching.**

Objective: This study had as objective analyzes the mistake in the proof of scholars' reading from 1st to 4th of public teaching.

Participants and Methods: They were appraised 120 students of the 1st, 2nd, 3rd and 4th grades of the municipal schools of Marília-São Paulo-Brazil's city, divided in 4 groups, respectively GI, GII, GIII and GIV. The applied proofs were: reading of real words and reading of no-words. The analysis criterion were based on Gouladrís (2004), which verified the types of mistakes committed in the reading of real words as: regularity effect (PR_REC), words visually similar (PR_VS), sound attempts badly happened (PR_TSMS), it fails in the application of orthographic rules (PR_FARO) and refusals (PR_REC); in the reading of no-words the considered mistakes were: lexicon (PP_LEX), sound attempts badly happened (PP_TSMS), it fails in the application of orthographic rules (PP_FARO) and refusals (PP_REC).

Results: The statistical analyse of the results with Kruskal-Wallis and Mann-Whitney tests revealed that there were statistically significant difference in the reading of real words in PR_VS, PR_REC, PR_TSMS, PR_FARO and in reading of no-words just in PP_TSMS; the scholars' performance was turning superior of the 1s to 3rd grades, with to 4th grade obtaining more mistakes than to antecedent.

Conclusions: Based on these results, we concluded that the performance became gradually superior from 1st to 3rd grades; that the performance in recognition of words and of no-words improvement with the sequence of grades and that the performance of GIV was due at a time of smaller reading in relation to the other groups.

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M.I. DÍAZ. **Interdisciplinary Treatment of Stuttering.**

Objective: The motivation for the development of this poster proposal arises from the following: What happens to a patient who sutters that reaches a particular stage in the speech therapy treatment during which he or she experiments all or some of the following items:

*finds himself/herself stuck, without possibilities of getting any further, where, for example, he cannot make use of the strategies for speaking in different life events;

*significant blocks that lead to frustration and the feelings and sensations associated to them;

*discomfort in the use of strategies making the message to lose content value and spontaneity?.

Participants and Methods: This work bases on the stage of treatment which comprises the period in which the patient can make use of fluency enhancement strategies.

In order to get closer to the answer to this approach, suttering will be considered as multifactorial, in which neurophysiological, psychocognitive and social factors intervene and are interrelated.

Results: I will consider the therapeutic proposal by José Antonio García Higuera called "Psychological Therapy for Suttering" which is based on the phases of stuttering therapy proposal by Van Riper and the Acceptance and Commitment Therapy by Hayes and others, of a cognitive and behavioural basis.

Conclusions: I will also add to my knowledge as a psychologist my life experience as a person who sutters since I was 4 and as a speech therapy patient.

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F.R. GÓMEZ VELÁZQUEZ, A.A. GONZÁLEZ-CARRIDO, M. AMANO & D. ZARABOZO. **Working Memory, Phonological Awareness and Naming Speed in Children with Mathematics and Reading Disabilities.**

Objective: To evaluate the relationship of working memory, phonological awareness and naming speed skills in the development of reading and mathematics abilities.

Participants and Methods: One-hundred twenty one right-handed, 7 year-old children from regular school in Guadalajara, México, voluntarily participated. The formal reading instruction began in Grade 1, with Spanish as primary language. The participants were retested annually until the Third Grade in: naming speed, phonological awareness, letter-sound knowledge and verbal working memory. Reading abilities and math achievement were only evaluated in Grade 3. The performance on these tests was used to classify children into four groups: Control (C), Math difficulty (MD), Reading difficulty (RD) and Math and Reading difficulty (MD/RD).

Results: Results from tasks applied in First Grade showed that letter naming speed was the best predictor of reading abilities while verbal working memory and phonological awareness scores represented the best predictor for math achievement in Grade 3. Children with MD and MD/RD showed a similar pattern of math difficulties and RD and MD/RD showed a similar pattern in reading difficulties.

Conclusions: Our results indicate that verbal working memory have significant correlations with phonological abilities in Grade 1, and moderate correlations with reading and math skills in Grade 3. The performance on phonological awareness tasks could rely on verbal working memory capacities thus possibly explaining their accurate prediction on math achievements.

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A.A. GONZÁLEZ GARRIDO, F.R. GÓMEZ-VELÁZQUEZ & D. ZARABOZO. Naming Speed & Attention Tasks.

Objective: Naming skills had been used as reading efficiency predictor in children, while cognitive attention is recognized as essential on word decoding accuracy. The aim of the present study was to evaluate the performance of average and slow namer children on continuous attention tasks.

Participants and Methods: Twenty-eight subjects were selected from a three hundred seven-year-old children pooled from four general elementary schools according to their performance in four naming tasks (drawings, letters, numbers and colors) and divided in two groups: Average namers (AN): 14 participants with average naming times (NT) in the vicinity of the general population mean, and Slow namers (SN): 14 children with NT greater than two standard deviations in two or more fast-naming tasks. Both groups were matched according to age, handedness, gender, educational level, full scale IQ score -normal for all the participants- and school to which they attended to. They all performed two CPT (X and A-X) tasks while EEG was simultaneously recorded from 21 scalp locations.

Results: SN children showed significantly slower reaction times than the AN in the two versions of the CPT task. In addition, ERPs showed a prominent fronto-parietal difference-waveform component (averaged ERP target - averaged ERP non-target) peaking at P390 during the CPT A-X task, that it was not relevant in the alternative task.

Conclusions: Slow naming speed in several naming tasks could typify a general processing slowness. However, electrophysiological differences between average and slow naming children could represent a dissimilar ability to access to working memory resources in order to get benefits from the contextual environment.

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M.C. LACERDA, C. SOARES, V. SOARES & L. CAIXETA. COMPARATIVE PROFILE OF LANGUAGE DISORDERS BETWEEN SUBCORTICAL DEMENTIA OF GRAY AND WHITE MATTER.

Objective: To characterize the language alterations standard, highlighting differentiating elements, in subcortical dementia of gray and white matter.

Participants and Methods: Five patients with Subcortical Gray matter Dementia (SGD) and seven patients with Subcortical White matter Dementia (SWD) were evaluated by using the following tests: Boston Diagnostic Aphasia Examination, Boston Naming Test, Token Test and Verbal Fluency. All the patients were also submitted to Neuropsychological assessment.

Results: The patients with SGD presented a reduction in the number of produced words, reduction of the syntactic complexity, melodic line and the phrases extension, as well as, alteration of articulatory agility, dysarthria and perseveration. The patients with SWD presented reduction of verbal fluency, anomia, difficulty in contextualizing the ideas, severe apraxia, lack of pragmatism, disfluency and clinical picture compatible with expressive aphasia.

Conclusions: The linguistic alteration, presented in SGD group, was characterized by impairment of motor program of speech articulatory gestures by the presence of the hyperkinetic dysarthrophonia. In the group of patients with SWD, the linguistic alteration is characterized by expressive aphasia. Ours demonstrate that this alteration is exuberant and frequent in lesions of white matter, probably explained by the lesion of the arcuate fasciculus or by the cortical atrophy associated in these diseases.

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L.M. MANOILOFF, M. ARTSTEIN, M. CANAVOSO, L. FERNANDEZ, M. MORONI & J. SEGUL. Norms Psycholinguistic for a Set of 400 Experimental Pictures for Spanish-Speaking Local Population.

Objective: The study of the cognitive processes in the production of language demands careful selection of stimuli, being necessary to have normative databases.

The main goal of the present research was to collect normative data for the set of 400 figures taken from Cycowicz, Friedman, Rothstein and Snodgrass, 1997 (including the 260 figures of Snodgrass and Vanderwart, 1980) in a sample of native Argentineans Spanish-speaker.

Participants and Methods: The pictures have been standardized on the following variables: name agreement, image agreement, familiarity, visual complexity, image variability, age of acquisition and verbal associate.

Results: The obtained norms were compared with the normative data of other studies in Spanish, English and French. This comparison has put in evidence the variability of some of the measures (for example, name agreement in naming and verbal association) among the different studies.

Conclusions: This evidence confirms the necessity to elaborate specific norms, adapted to the studied population's linguistic and socio-cultural context.

The naming picture is a task very frequently used in psychology and in neuropsychology in experimental research and diagnostic; the availability of these norms in our context will allow a rigorous selection of stimuli to be used in this test.

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M.M. MARTÍNEZ-CUITIÑO, Y. SEVILLA & V. JAICHENCO. Cumulative Semantic Inhibition in Picture Naming: Experimental Data in Spanish.

Objective: Prior presentation of a semantic related stimulus has been proved to affect the speed at which the target is processed. Howard et al. (2006) showed that previous retrieval of other exemplars of the same semantic category slows down subjects' naming latencies of successive members of the same category. This effect was called 'cumulative semantic inhibition'. This study aims at investigating whether this effect reported in English picture naming also occurs in Spanish.

Participants and Methods: As in the original design, 24 subjects named 120 pictures consisting of series of five pictures drawn from each of the 24 semantic categories (with interleaved fillers). The number of intervening trials between successive presentations of members of the same category varied from 2 to 8.

Results: Subjects' naming latencies were slowed by the preceding member of the category, independently of the lag elapsing since the previous presentation of a category member.

Conclusions: Cumulative semantic inhibition effect also occurs in Spanish picture naming as it does in English. The evidence is discussed in reference to three specific properties of word production models: competition, priming, and shared semantic activation.

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A. OLMEDO, M.M. MARTÍNEZ-CUITIÑO, M. WILSON & V. JAICHENCO. Spanish word spelling to dictation and its irregularities: More than one task to evidence Surface Acquired Dysgraphia.

Objective: In deep languages as English or French, some Surface Acquired Dysgraphia (SD) patients have been reported. They showed irregular words writing impairment (i.e. words that share the same phonology but have different orthography). In a transparent language as Spanish SD patients have also been reported but assessed with a spelling to dictation task of words with orthographic stress marks (García-Orza & León Carrión, 2001). The aim of this work is to present a set of lexical-semantic tapping tasks that take into account the irregularities the Spanish writing system has in order to assess the presence of SD.

Participants and Methods: Two semantic dementia patients (MB and RM) were administered Regular (RW) and Irregular Words (IW), Non-word (NW), Homophonic heterographic words with a semantic context spelling to dictation tasks, plus Written picture naming and Foreign loan words Spelling to dictation tasks.

Results: Both patients show a normal performance on RW and NW writing but had difficulties to write IW, where GPC rules are not enough to perform the task. In IW writing they showed orthographic errors.

Conclusions: These results show that this set of specific tasks enable to assessment of spelling to dictation difficulties and particularly, possible SD patients in a transparent language as Spanish.

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J.P. PÁEZ, X. SARMIENTO & M. FIERRO. Neurocognitive Factors Presents in the Learning of the Reading in Spanish Language.

Objective: This work has the goal to identify and analyze the neuropsychological components and the cognitive processes of the learning and lecture in Spanish, highlighting the relevance of the memory in the reading process and the mechanism used in the grapheme recognition, syllabs or words, in order to the posterior Spanish text comprehension.

Participants and Methods: This work is based on the descriptive method.

Results: The acquisition of the reading process it is mediated by the individual brain development (Neuronal and hemispheric), and the cognitive components that the individual acquired during growing, as attention and memory (Visual, phonetics, semantic and working memory). In the cognitive neuropsychology framework, it is proposed the relevance of other processes that affect the lecture learning and development, as the phonologic abilities, which are reached through the recognition and identification capacity of visual stimuli, the new vocabulary acquisition, the working memory acquisition and the individual ease that it is has to be developed to maintain the concentration and the attention to the various stimuli.

Conclusions: in the different proposals of the information processing model, referred to the lector process, it can be identified and established, which are the routes used to developed the reading ability (Phonetic and semantic lexical) including also the sub lexical analysis and the lexical one; such processes will allow us to identify the significative differences between the procedures used in the Spanish reading learning and the reading learning in other languages.

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A. SANGUINETTI, A. LOPEZ-SALA, M. ALQUEZAR, R. COLOME, C. BOIX & A. SANS. Remediation' stages in dyslexia: a neuropsychological model.

Objective: Dyslexia is an specific reading disability characterized by a difficulty in the mastery of reading. Children with dyslexia show hypoactivity in typical reading brain areas.

Researchers have shown that the brains of dyslexic children can be rewired (after undergoing intensive remediation training) to function more like those found in normal readers.

Participants and Methods: We propose, based on a neuropsychological model, to stimulate the involved cerebral region depending on the different phases of dyslexia.

Results: 1st stage: phonological awareness (conscious sensitivity to the sound structure of language): left superior and medial temporal region and prefrontal cortex.

2nd stage: grapheme-phoneme correspondence (phonological route): left angular gyrus (Brodmann's area 39).

3rd stage: fast word recognition ability (lexical route and orthographic stage): left fusiform gyri.

4th stage: writing essays and reading text (intonation, comprehension...): global bilateral brain areas.

5th stage: compensatory strategies for studding: global bilateral brain areas.

Conclusions: We think that this project is a practical tool to work with dyslexic children and to delimitate some specific lines in a remediation, and unify terminology.

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A.C. VILLAR. Agrammatism and functions words: cohesion and coherence.

Objective: Agrammatism is known as a disorder that leads to difficulties with sentences and discourse. Some researchers claim that differences between patients are so great that a unitary theory will not be possible. The symptoms are: reduced variety of grammatical form, omission of functions words (articles, pronouns, auxiliaries, prepositions) and inflections, omission of main verbs and a slow rate of speech.

The main objective is to analyse the resources the patients have to build cohesion in their discourse while they cant use the function word properly. Because of their difficulties, the patients uses more lexical cohesion than grammatical cohesion

Participants and Methods: This research analyses the oral narrative production of agrammatic patients using linguistic concepts such as: "reference" and "ellipsis" in relation to grammatical cohesion and "conjunction", "reiteration" and "collocation" in reference to lexical cohesion.

Results: The patients performances reveal that the their discourse is build on a semantic basis to the detriment of the estructure. This pattern is shown in almost all patients.

Conclusions: When a patient with agrammatism can not make use of the functions words to build up cohesion, they use the lexical cohesion to put togheter their discourse as their compensatory strategie.

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T. WASSERMAN & L. WASSERMAN. The Effects of Simultaneous Bilingual Language Development on Verbal Cognition and Academic Skill Development.

Objective: It has been presumed that any deleterious effects on cognition of simultaneous bilingual language acquisition dissipate over time. The developmental trajectory of this process has not been clearly established. The present paper provides preliminary data that effects on verbal cognitive skill persist longer than anticipated.

Participants and Methods: The children attended English speaking schools. The parents, both fluent in English were of German extraction

and the mother spoke to the children in German to facilitate acquisition of that language. The children fluent in both languages, were female identical twins age seven and a male sibling age 5. They were assessed using the current Wechsler Scales appropriate for their ages and Academic measures from the Woodcock Johnson Scales of Achievement. The children were enrolled in academically advanced school programs and were progressing satisfactorily.

Results: The three children had identical patterns of test performance. There were significant VIQ-PIQ discrepancies in favor of PIQ. In each case level of academic skill attainment was consistent with measure level of verbal cognition. The twin girls had almost identical profiles and VIQ-PIQ differences while the younger brother has a similar but larger modality discrepancy.

Conclusions: Effects of simultaneous bilingual language development on verbal cognition are still apparent at age seven. As expected there appears to be a developmental trajectory of improving acquisition of verbal cognitive skills. The effects of bilingual language development linger longer than anticipated and include fewer alternative words and a narrower overall descriptive lexicon.

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L.A. ZANÍN, C. LEDEZMA, F. GALARSI, E. GIL & M. DE BORTOLI. Verbal Test and Academic Performance in Argentine Students.

Objective: Verbal fluency (VF) is the capacity to produce words. Verbal aptitude (VA) is the ability to understand and express verbally ideas (Kohan, 2004).

The objective of this work was to investigate the correlation between VF, VA and academic score (AS) in students of the Psychology program at the National University of San Luis, Argentina.

Participants and Methods: Thirty-eight females and ten males (mean age=23.13 years; SD=9.41) were asked to name animals (semantic verbal fluency: SVF), and after, words beginning with the letter P (phonologic verbal fluency: PVF) during one minute. The VA was evaluated by BAIREA-A test, a multiple choice format verbal test (Kohan, 2004). The subjects must choose the right item about definitions (BAIREA-definition: Bd) and synonymous (BAIREA-synonymous: Bs). Further, AS was recorded.

Results: For VF, the means (SD) were: SVF=15.95 (4.61); PVF=15.46 (5.59). The VA was: Bd=12.87 (2.41); Bs=8.38 (2.71) and BAIREA-total=21.36 (4.30). The AS was 8.32 (0.82).

SVF presented positive correlations with Bd, Bs, Bt and AS ($p < 0.027$). PVF had only positive correlation with AS ($p = 0.002$). The BAIREA-A test and VF scores were higher in subjects with $AS \geq 8$ (Student's t test, $p < 0.040$).

Conclusions: Verbal ability and word fluency are some of the essential processes of thought. The good correlation between SVF and BAIREA-A test suggests that both tests refer to semantic memory. The higher values in the verbal tests in students with AS upper than 8 suggest also that these tests may be good predictors about the academic performance.

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A.M. ZILLOTTO. PRECISE TOOLS IN THE DIAGNOSIS AND MEASUREMENT OF THE LEVEL OF DYSGRAPHIA.

Objective: To verify the presence of dysgraphia and its different degrees with the specific criterion for the concrete analysis from the handwriting that establishes the Scales "E" and "D" of Psychiatrist J. de Ajuriaguerra those that leave from expectable characteristics in the infantile handwriting at every chronological moment of their evolution, determined statistically

Participants and Methods: Participants:

Evaluation of case: 3rd pupil grade, state school, Province Buenos Aires - Argentina

Method:

According to presence degree (1 - 1/2 - 0) the 30 handwriting characteristics defined by Scale "E" and 25 graphical characteristics by Scale "D": handwriting in infantile surface, inflated, absence of movement, great, irregular, letters in two pieces, clumsy capital letters, tie points, collages, zones badly differentiated, delayed canes, dirty set, dents in inner round letters, forms imperfect of curls, shocks, juxtapositions, fluctuating lines, irregular inclination, etc.

The score of each item is multiplied by the ponderable coefficient (1 - 2 - 3), that responds to the degree of expectable presence in each chronological age.

Total score Scale "E": dysgraphia presence

Scale "D": degree

More than 19 points: very dysgraphic

14 to 19: dysgraphic

10 to 14: presumption of dysgraphia

Results: The Scales determine presence and level of dysgraphia on statistical base of specific handwriting characteristics. Analyzed case: 25.5 = very dysgraphic

Conclusions: The application of Scales "E" and "D" to in detail identify graphical characteristics that determine the diagnosis of dysgraphia and its level, which limits slants and makes possible later differentiated interventions.

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Memory

N. ABREU, J.O. BUENO & G.F. XAVIER. ADHD Subtypes Impairs Long Term Memory.

Objective: Attention Deficit Hyperactivity Disorder (ADHD) is the most common psychiatric disorder among children and teenagers, with a prevalence of 6%. ADHD disorder has three subtypes: inattentive (ADHD-I), hyperactive (ADHD-H) and combined (ADHD-C). The symptoms include cognitive disturbances as memory problems. This research was conducted to test long term memory in ADHD subtypes and to analyze long term memory deficits aetiology.

Participants and Methods: 44 children and teenagers with ADHD (ADHD-I, n=17; ADHD-H, n=11; ADHD-C, n=16; age: 12,8 y; 6,1 years of education) and 44 healthy participants (Control group, age: 12,11; 6,4 years of education). An experiment was developed to investigate memory (MEMO). The experiment consisted of 64 figures in 4 different presentations. Each presentation had 16 figures designed to measure immediate and delayed recall in four conditions: serial categorizable memory, grouped categorizable memory, serial non-categorizable memory, and grouped non-categorizable memory. Intelligence and attention were also assessed.

Results: The recall of ADHD-I and ADHD-C groups was worse in the categorizable and non-categorizable serial conditions; the performance of all three ADHD groups was worse than that of the control group with respect to the two grouped conditions, but ADHD-I and ADHD-C were the worst.

Conclusions: These results suggest memory deficit for long and short-term memory on ADHD independent of memory strategies contribution. Correspondence: *Neander Abreu, Ph.D, Centro de Ciências da Saúde, Universidade Federal do Recôncavo da Bahia, Rua Rubem Berta, 339/602, Ed. Praia de Guarujá Pituba, Salvador 41810-045, Brazil. E-mail: neandersa@hotmail.com*

F. ANDELMAN, Y. ZEIDMAN, A. KORCZYN, V. VACHAPOV, R. VERCHOVSKY, I. HALPERIN, I. FRIED, M. NEUFELD & A. SCHWEIGER. RAVLT as an Instrument in Differential Diagnosis of MCI.

Objective: Previous research suggests that patients with Alzheimer's disease (AD) manifest more "false alarm" (FA) responses than patients

with Huntington disease (Delis et al, 1991) or normal controls (Greenaway et al, 2006). It has also been shown that 50% of patients with minimal cognitive impairment (MCI) develop dementia within 5 years (Gauthier et al, 2006). An early diagnosis of MCI, when treatment is most effective, and prediction of incipient AD, are thus very important. The objective of this study was to characterize the error pattern of a recognition memory test in patients with MCI. We compared FA error rate in patients with MCI to FA in patients with temporal lobe epilepsy (TLE), who exhibit memory decline without dementia.

Participants and Methods: 33 MCI patients whose MMSE scores were between 25 and 27 participated in the study, and were compared to 97 TLE surgical candidates. FA rate was used to analyze the recognition memory errors of the Rey Auditory Verbal Learning Test (RAVLT).

Results: Independent sample t-test analysis demonstrated that MCI patients committed significantly more FA errors than TLE patients ($p=0.01$). In addition, a significant negative correlation between the number of FA errors and the score on the MMSE was found in the MCI group ($p=0.04$).

Conclusions: The present findings suggest that a high number of FA errors, if corroborated by additional research, characterizes MCI, and may be used in the normal elderly population as predictive of incipient MCI. A follow up study is underway to better define the subgroup of patients that will progress to AD.

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M.E. BENASSI-WERKE, O.F. BUENO, M. QUEIROZ, R.S. ARAÚJO & M.G. OLIVEIRA. Working Memory for Tones, Words and Pseudowords in Amateurs and Professional Singers and Absolute Pitch Musicians.

Objective: We intended to investigate whether working memory can deal in the same way with verbal sounds (numbers and pseudowords) and non-verbal sounds (tones) and, thus, verify whether the central executive manipulates similarly those materials.

Participants and Methods: Forward (FS) and backward span (BS) tests for digits, pseudowords and tones were compared in three groups: amateur singers ($n=18$), professional singers ($n=20$) and absolute pitch musicians ($n=15$). For data analysis we used two-way ANOVA for repeated measures to compare digit, pseudowords and melodic spans between the groups.

Results: We found that backward melodic span was lower than backward verbal span, suggesting that melodic material has different characteristics from verbal material. However, in absolute pitch group, when one uses purely verbal or verbal and any other strategy for tones recall, there is an increase in forward melodic span, indicating that verbal association to tones may help evocation. There is no increase in backward melodic span, probably because absolute pitch musicians used some strategy different from the verbal one to recall tones in backward.

Conclusions: Although those results do not allow us to affirm the existence of an exclusive loop for melodic material, they support the need of further investigation to better characterize melodic material storage and its manipulation in working memory.

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E.C. FROW, S. LAH & L. MILLER. The Emotional Content of Autobiographical Memories in Patients with Frontal Lobe Lesions.

Objective: In patients with frontal lobe lesions deficits have been found in executive skills, emotion processing and retrieval of autobiographical memories. The autobiographical memory deficits have been attributed to impaired executive skills. It is unknown, however, whether these deficits are also associated with difficulties in emotional processing. These in turn could impact on the emotional intensity of autobiographical memories.

Participants and Methods: The study included patients who had acquired, non-progressive frontal lobe lesions ($n=12$) and control subjects ($n=10$). The groups did not differ on age at assessment, gender distribution, or estimated premorbid IQ. All subjects were administered tests of executive skills (e.g., COWAT), emotion recognition (Montreal Set of Facial Displays of Emotion) and autobiographical memories (AMI and Top 5 Emotional Memories).

Results: On tests of executive skills and emotion recognition, patients performed worse than control subjects ($p<.05$ and $p=.001$ respectively). Patients also recalled a significantly smaller amount of episodic autobiographical detail ($p<.05$) and showed a tendency to recall fewer intense emotional memories compared to the control subjects ($p<.06$). Interestingly, both the number of autobiographical episodic details and the number of emotionally intense autobiographical episodes recalled correlated with emotion recognition ($r=.61$, $p<.01$ and $r=.51$, $p<.02$), but not with executive skills.

Conclusions: For the first time, we have shown that, in patients with frontal lobe lesions, poor recall of autobiographical episodes is more closely linked with emotion processing deficits than with impaired executive functioning. Correspondence: Eleanor C. Frow, Doctorate of Clinical Neuropsychology, Clinical Psychology, University of Sydney, 6/90-94 Parramatta Road, Stanmore, Sydney, NSW 2048, Australia. E-mail: eleanorfrow@gmail.com

R. GRASSI-OLIVEIRA, G. ROHENKOHL & L.M. STEIN. Decreased False Recognition Due to Gist Memory Impairment in Depressed Women with Childhood Emotional Neglect.

Objective: Based on neurodevelopmental findings associated with childhood neglect and the developmental aspect of recognition memory, the aim of the present study is to evaluate whether women with Major Depression Disorder (MDD) and childhood emotional neglect (CEN) are less susceptible to false recognition.

Participants and Methods: Eighteen outpatients with recurrent unipolar depression without CEN (EN-), 19 outpatients with recurrent unipolar depression with CEN (EN+) and 15 healthy controls were compared in recognition performance on Deese's procedure modified by Roediger and McDermott's (DRM).

Results: Participants with CEN were less able to produce false recognition of semantically related words. In addition, they were significantly impaired in their ability to utilize gist information available from semantically related categories of verbal presented words. The CEN group was not significantly impaired in terms of recognition of targets and novel lures, performing similarly to control and depressed patients without CEN. All these effects were found after important variables had been controlled.

Conclusions: Taking in consideration some limitations of the study, the data provide further evidence that the reduction in false recognition in CEN is specific to a gist memory impairment and could be related with semantic representations structures and functions. Particularly we suggest that the early emotional deprivation could impact the neurocognitive development of semantic associations.

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C. GRECO, M. MUÑOZ RODRÍGUEZ & M.S. ISON. Contents of Memories in the Interpersonal Problem-Solving Process in Argentinean Students.

Objective: The aims of the present study were: a) to know which steps of the interpersonal problem-solving process the boys and girls remember, b) to identify the predominance of cognitive, emotional or behavioural contents in the verbal report of memories and c) to search for significant differences according to the age variable in relation to the aim set. b.

Participants and Methods: The test EVHACOSPI (García Pérez and Magaz Lago, 1998) was used to measure the cognitive skills involved in the interpersonal problem-solving process. After the presentation of an interference game, open questions were asked to assess the recuperation of verbal memory in relation to the interpersonal problem-solving.

Results: The results showed differences in the remembering steps leading to the interpersonal problem solving process and in the kind of memory contents.

Conclusions: This study represents a contribution to the search for the development of verbal memory along childhood, as well as to the type of the coping resources needed in conflictive interpersonal situations.

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E. LABOS, S. TROJANOVSKI, M.C. DEL RIO & C. RUIZ. Text Recall Test. Spanish language version and normative data.

Objective: Introduction of the Spanish language version as well as normative data of a Text Recall test (Cadilhac, 1995) of psycholinguistic and cognitive baseline. Its structure allows either the discrimination of the text's hierarchical propositions (macrostructures) or the lesser relevant ones (microstructures). The test includes Free (FR), Cued (CR) and Differed Recall.

This task evaluates Verbal Episodic Memory that were reported as pre-clinical markers of Alzheimer's disease. There are scarcity of texts in Spanish language subject to actual theoretical paradigms

Participants and Methods: 160 healthy subjects have been grouped and evaluated (age: 68.73 ± 13.68, level of instruction: 10.27 ± 4.03). Statistic Test has been used for independent samples for equality of averages.

Results: Regardless of age and level of instruction, every subject significantly recalls lesser micro rather than macro structural elements ($p < 0,01$), thus, being able to retrieve both types of information in FR. Relevant differences have been found between age groups with better response both in the younger ones ($p < 0,01$) and in those with higher level of instruction.

Conclusions: The results obtained show:

1. Evidence of a mnemonic strategy of hierarchical information selection, reflected in the macrostructural elements' higher retrieval
2. A uniform response in CR revealing that every subject tends to codify more information than what they render in FR, and
3. Impact of instruction level and age on the tasks assigned.

The test constitutes a valuable clinical application tool which aims to assess both episodic and semantic memory subsystems.

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P.A. DONNELLY KEHOE, G.L. STAHRINGER, E.J. WINGERTER, L.G. ESCHER, M.S. PERRONE, D. ZAPATA & E. LABOS. Software for Evaluation of Episodic Memory.

Objective: The Neuropsychological evaluation applied to the performance of the Episodic Memory subsystem (EM) has been shown to be an important tool for the early detection of different demential diseases. An effective evaluation of the EM requires the control of the mnemonic strategies employed and a suitable selection of stimuli, being the Verbal Version of Buschke and Grober Free and Cued Selective Reminding Test with Immediate Recall (FCSRT-IR), developed by Martial Van der Linden and his colleagues, an instrument of proven clinical use with demonstrated accuracy in characterizing early mnemonic disorders.

We introduce the Computerized Version of the FCSRT-IR Spanish Version (by Labos & al.) developed as a joint project between the Laboratory of Physiology and Biophysics (Career of Bioengineering, Universidad Nacional de Entre Ríos, Argentina) and the Research Laboratory of Cognitive Functions (College of Medicine, Universidad de Buenos Aires, Argentina) and its results in a pilot trial.

Participants and Methods: The software was used in a pilot trial, on 32 university students.

Results: The software has an interface that assists the performer like timing tasks, simplifying his labor. It also includes tools for data base usage, generation and printing of reports, statistical calculations and complementary tests like Mini Mental Scale.

Results in the pilot trial agreed with those obtained with the paper test.

Conclusions: Although it requires further validation, we can say that this software is a promising tool for neuropsychological exploration.

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S.L. NASSIF, C.A. TIEPPO, P.H. BERTOLUCCI & C. LOPES. Verbal memory in chronic cocaine users.

Objective: Evaluate cocaine effects on verbal memory of chronic cocaine users.

Participants and Methods: After a complete description of the study written consent were obtained and 54 chronic cocaine users from 2 different programs on addiction from UNIFESP were compared to 54 age-, sex- and scholar-matched drug-free subjects, using Brazilian version of Rey Auditory Verbal Learning Test (RAVLT) as a tool. The dynamic of verbal learning and memory was analyzed by fitting the data using the hyperbole equation. Hyperbole parameters were compared by X².

Results: Chronic cocaine users show similar dynamic on the acquisition of verbal memory in RAVLT comparing to non-users. On the 5 sequential trials, fitted by a hyperbole equation, it was obtained as parameters: max = 14.2 ± 1.2 and 13.5 ± 1.6 and effect 50% = 1.7 ± 0.4 and 1.6 ± 0.2, to non-users and chronic cocaine users respectively.

A new list of words (interference list) was presented once, asked to immediate recall and, just after, without present RAVLT word list, the recall was asked. Interference decreases the capacity of recall in chronic cocaine users comparing to non-users, 7.4 ± 0.4 x 8.9 ± 0.4, $p = 0,015$, respectively.

The consolidation of verbal memory was tested asking a free recall of the RAVLT word list after a long delay (20 min). Chronic cocaine users recalled fewer words than non-users: 8.0 ± 0.5 x 9.2 ± 0.4, $p = 0,047$, respectively. Subtracting the number of correct words verbalized on the 5th trial from the number of correct words after a long delay it was obtained the number of words that was forgotten in 20 min. The number of forgot words was higher in chronic cocaine users than in non-users 3.5 ± 0.5 x 1.7 ± 0.5.

Conclusions: Cocaine has no effects on the acquisition process of immediate verbal memory. However it increases the effects of verbal interference on verbal memory evocation, and decreases the retention of the verbal memory after a long delay (20 min). Taken together, cocaine decreases the efficiency of verbal memory but not the acquisition process.

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J. PAIS & S. CASTRO. Memory Functioning in Old Adults with Depressive Symptoms: the Value of the Position Test.

Objective: Memory dysfunction is frequently observed in depression. Performance in neuropsychological tests may be affected by depression, making difficult to distinguish memory deficits associated with depression from those usually observed in dementia. Finding neuropsychological measures of memory impairment that are not associated with depression is an important step to improve patients' diagnosis and care. The objectives of the present study are to evaluate memory performance in older adults with depressive symptoms and to evaluate the efficacy of an adapted version of a visual spatial memory test, the Position Test, PT (Calero & Navarro, 2003) in the differential diagnosis between dementia (associated with worse results in PT, *ibid.*) and depression.

Participants and Methods: Participants were selected from two Portuguese communities and invited to complete a battery of memory tests:

logical and visual memory of Wechsler Memory Scale, WMS (Portuguese version included in the Lisbon Battery for Assessing Dementia), PT, Rey Auditory Verbal Learning Test, RAVLT (Learning Potential version) and Geriatric Depression Scale, GDS (15-item version). Five-hundred adults were observed.

Results: One-hundred-and-seventy-four participants out of 500 had important depressive symptoms, according to a 5-point cut-off criterion in the GDS. Average age in depression group was 72 years (± 7.9); in remaining participants (no depression group) average age was 70 years (± 6.4). A comparison of test results in both groups showed that the depression group performed significantly lower in WMS and RAVLT scores, except in rates of forgetting, where groups were similar. More importantly, there were no between-group differences in the Position Test. Furthermore, no significant correlations were found between scores in this test with GDS.

Conclusions: Performance in the Position Test appears to be unaffected by depression; as such, this test can be effective in differentiating between memory deficits in dementia from those in depression.

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Y.D. SASSON, M.E. MARTIN, L. CRIVELLI, J.A. CAMPOS, M.L. CALCAGNO, L. SABE & R. LEIGUARDA. Verbal Memory Profile in Patients With Mild Cognitive Impairment, Alzheimer's Disease And Normal Aging.

Objective: To study the pattern of cognitive deficits in patients with Mild Cognitive Impairment (MCI), Alzheimer's Disease (AD) and Normal Aging (NA) using Rey Auditory Verbal Learning Test (RAVLT; Rey, 1941). To assess the capacity of this test to differentiate MCI from Normal subjects.

Participants and Methods: RAVLT was used to assess memory function across groups of 30 EA, 25 MCI and 20 NA subjects. Learning, delayed recall, recognition were studied. Moreover, indexes of primacy, middle and recency effects in learning and delay trials were compared across groups.

Results: MCI subjects displayed a pattern of deficits closely resembling that of AD, however MCI performance was significantly worse than NA ($p < 0.001$) across trials and there were larger differences in trials 4 and 5 ($p < 0.00$, $p < 0.001$). MCI performance was significantly worse than that of controls and better than that of AD patients across memory indices. Median scores of Primacy were significantly different between the three groups ($P < 0.0001$); Middle were also significantly different ($P < 0.0001$) as well as Recency ($P = 0.0152$). In this last variable, DCL did not differ from DTA. Similar results were found in the delay tests: Primacy ($P < 0.0001$), Middle ($P < 0.0001$) and Recency ($P < 0.0001$); and in this last variable DCL did not differ from DTA.

Conclusions: These findings support the clinical usefulness of the RAVLT to discriminate verbal memory performance between NA, MCI and AD. Recency index is a valid measurement to discriminate between patients and normal subjects. A similar memory profile is observed in AD and MCI patients.

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Visuospatial Abilities

K.A. KAPLOUN, C.A. ABEARE & O. CHU. Handedness and Mental Rotation.

Objective: The purpose of the current study was to compare the ability to mentally rotate 3-D geometric shapes in Consistent Left-handers, Inconsistent Left-handers and Right-handers. It was expected that Consistent Left-handers (CLHs) would exhibit the strongest ability for mental rotation whereas Right-handers (RHs) would exhibit the weakest ability. It was predicted that Inconsistent Left-handers (ILHs) would perform at a level between the Right-handers and Consistent Left-handers.

Participants and Methods: Eighty-nine undergraduate participants completed the Edinburgh Handedness Questionnaire (Oldfield, 1971), the MNI Handedness Questionnaire (Grovit & Zener, 1962), and the 36-item Waterloo Handedness Questionnaire – Revised (Steenhuis & Bryden, 1989) in order to thoroughly assess handedness. The paper-and-pencil Revised Mental Rotation Test-A (MRT-A; Peters et al., 1995) was administered in order to assess participants' ability to mentally rotate 3-D geometric designs.

Results: Overall, there was a significant interaction between gender and handedness group on the MRT-A. Specifically, females performed poorly on the MRT-A regardless of their handedness, whereas ILH males demonstrated much greater ability. Further, it was found that RH and CLH males performed similarly to females of all handedness groups.

Conclusions: The present study supports the idea that individuals of "inconsistent" handedness have greater access to right hemisphere resources and therefore display the greatest mental rotation ability. The effect of gender was primarily carried by ILH males, who performed better than all other groups regardless of handedness or gender. This finding illustrates the need to consider handedness in neuropsychological research and practice.

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FRIDAY MORNING, JULY 4, 2008

Symposium 17:

Cognitive Impairment and Functional Outcome in Bipolar Disorders: The Challenge of Heterogeneity

Chair: Sergio Strejilevich

8:30–10:00 a.m.

S. STREJILEVICH, S. FRANGO, D. MARTINO & C. LOPEZ JARAMILLO. Cognitive impairment and functional outcome in bipolar disorders: the challenge of heterogeneity.

Symposium Description: Cognitive impairments have been reported in euthymic patients with bipolar disorder (BD) and their relatives. Verbal memory, attention, and executive function impairments are the most consistent findings. Likewise, cognitive functioning has been associ-

ated with different measures of functional outcome as social and occupational functioning or employment status. However, whereas many patients affected by BD pursue a chronic and deteriorating course, others maintain a high level of social and occupational functioning throughout their illness and some might have particular abilities in creativity. Cognitive impairments and creative capacity, could be genetically determine. Recently it was reported that both, cognitive impairment and general function are heterogeneous and correlated.

Which is the best model to explain a disorder intrinsically heterogeneous? Which is the best model to help clinicians and patients to understand the dramatic differences in the prognosis of this disease?

In the symposium, participants will review and discuss the available data trying to answer these questions.

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C. LOPEZ JARAMILLO. Influence of Recurrency in Cognitive Performance in Patients with Bipolar I Disorder.

Objective: It has been reported that patients with Bipolar I Disorder (BDI) may show impairment in cognitive functions such as memory, attention and executive functions, even during euthymic periods. However, it is still not clear whether these disturbances are equally present in patients that have experienced very few episodes as in patients with a history of several episodes of the disease. The long term effect of the episodes on cognitive function is still a matter of debate.

The presentation will focus on a study run in our laboratory in which 29 patients with BD with only 1 or 2 episodes were compared to 52 BD patients with 4 or more episodes and 53 healthy subjects. Mean illness duration was 9 years. Memory, attention and executive function were assessed in the three groups.

The multiple-episodes group showed significant differences with the group of patients with only 1 or 2 episodes in the Logical Memory sub-test of the Wechsler Memory Scale. The former group also showed significant differences when compared to the control group on semantic memory, executive function and psychomotor speed. The 1-2 episodes groups differed from controls only on semantic memory.

Presence of frequent episodes can lead to a worsening on memory abilities and to the beginning of an impairment of executive functioning. Recurrency can impair cognitive abilities on BDI patients in a progressive and permanent manner. Thus, prevention of new episodes is highly important.

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D. MARTINO. Cognitive Heterogeneity and Functional Outcome in Bipolar Disorder.

Objective: Cognitive impairments have been reported in euthymic patients with bipolar disorder (BD), and they were associated with different measures of functional outcome. However, although many patients pursue a chronic and deteriorating course, others maintain a high level of social and occupational functioning throughout their illness. It may result paradoxical to suppose that these patients with "high functioning" have severe cognitive impairments. Alternatively, it may be possible that a subgroup of patients has a cognitive functioning within normal limits. A previous study that compared cognitive functioning between patients with BD and schizophrenia found a bimodal pattern for executive functions in the bipolar cohort, with many in the group indistinguishable from healthy controls and many indistinguishable from the group with schizophrenia (Altshuler et al, 2004). Another study by Martínez-Arán et al (2007) reported that patients with higher levels of psychosocial functioning had lower cognitive impairments than those with poorer functional outcome. Our group (Martino et al, 2008) found in a sample of 50 patients with BD that 38% of patients had none cognitive domain affected, while 40% had 1 to 2, and 22% had 3 to 5. In our study, patients with cognitive functioning within normal limits had better psychosocial functioning than patients with cognitive domains affected.

Taken together, these data bring support to the hypothesis that extension and severity of cognitive impairments may be heterogeneous in patients with BD, and it might contribute to explain the variability in functional outcome.

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S. FRANGO. The Maudsley Bipolar Disorder Project: Executive Dysfunction in Bipolar Disorder I and its Clinical Correlates.

Objective: Cognitive abnormalities are increasingly recognized as a feature of bipolar I disorder (BDI.) but there is limited information regarding the pattern and severity of cognitive impairment during remission and its relationship with clinical variables.

Participants and Methods: Forty-four remitted BDI patients recruited from a representative treatment sample and an equal number of matched healthy volunteers underwent comprehensive clinical and cognitive assessments. Cognitive evaluation covered the domains of IQ, memory, and executive function. The profile of cognitive deficits in patients was examined, and the correlation of executive function with clinical features and treatment variables was explored.

Results: Remitted BDI patients were impaired in tests of executive function compared with healthy participants. Within the patient group, current antipsychotic treatment predicted worse performance across all executive function tests, whereas duration of illness predicted loss of inhibitory control. Residual mood symptoms, regardless of polarity, had a negative impact primarily on measures of attentional interference.

Conclusions: These results suggest that impaired executive function might be an important feature of BDI. Antipsychotic treatment, duration of illness, and level of symptoms are the most significant contributors to the observed impairment.

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Paper Session 2: Research and Treatment of Executive Functions

8:30–10:00 a.m.

B. TÉLLEZ ALANÍS, T. ARÁMBURO MURO & I. BARONA RODILES. Interrelations of the Executive Functions: Differences between Young and Elderly Adults.

Objective: The interrelations between the Executive Functions (EF) have been studied with factorial analysis. In the present study the purpose was to identify the links that the EF establish amongst themselves in young and elderly adults.

Participants and Methods: The EF of selective attention, inhibition, flexibility, monitoring and planning were evaluated in a group of 20 young adults (mean age 24 years \pm 2.7) and in a group of 20 elderly adults (mean age 64.8 years \pm 3.1). A spatial conflict task was employed to evaluate selective attention, a go-no go task for inhibition, a switching task for flexibility, appreciation of the execution in the switching task for monitoring and the Tower of London for planning. In each group a factorial analysis of principal components with a type varimax orthogonal rotation was performed. The analysis included seven variables: two of flexibility task, two of planning task and one of attention task, one of inhibition task and finally one of monitoring task.

Results: Two factors were detected in young adults while 3 factors were found in elderly adults. A planning factor was detected in both groups. Additionally, in young adults all the remaining variables loaded positively in another factor while in elderly adults the attention, inhibition and flexibility loaded in a same factor and monitoring loaded in another one.

Conclusions: These results suggest that planning is a independent function in both ages, that in young adults several EF are interrelated as Posner et al. (2003) have pointed, and that in elderly adults there are a defined separation between monitoring and another EF.

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M. TURNER, P. BURGESS, L. CIPOLLOTTI, C. FRITH, S. GILBERT, T. SHALLICE & J. SIMONS. Confabulation, Reality Monitoring and the Inferior Medial PFC: Converging Evidence from Lesion and Functional Imaging Studies.

Objective: Confabulation, the pathological production of false memories, occurs following a variety of etiologies involving the frontal lobes. However the critical frontal regions and specific cognitive deficits involved remain unclear. This paper reports three studies investigating the association between confabulation, reality monitoring and the inferior medial PFC.

Participants and Methods: In experiment one, the occurrence and localization of confabulation was investigated in an unselected series of 38 patients with focal frontal lesions. In experiment two, 4 spontaneously confabulating patients with damage to inferior medial PFC were given a reality monitoring task investigating their ability to distinguish between heard and imagined words. In experiment three, 16 healthy participants took part in an event related fMRI study comparing reality monitoring to temporal source monitoring abilities.

Results: Experiment one revealed an association between confabulation and lesions affecting the inferior medial PFC. Experiment two revealed a tendency to misidentify imagined words as externally presented in confabulating patients with damage to inferior medial PFC. Results from experiment three indicated that a corresponding region of inferior medial PFC was recruited by healthy participants when determining whether imagined stimuli had been perceived or imagined, and that reduced activity in this region was associated with making “imagined-to-perceived” misattribution errors.

Conclusions: These findings provide converging evidence from lesion and neuroimaging studies suggesting that reality monitoring abilities are associated with the inferior medial frontal lobe. An impairment in discriminating between real and imagined events might account for some confabulations seen in neurological patients with damage to inferior medial PFC.

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A.J. VERDEJO-GARCÍA, M. EXPÓSITO, M. PÉREZ-GARCÍA, F. CRUZ & C. CAMPOY. Executive functions in youths with obesity.

Objective: Obesity is a complex chronic disease that tends to initiate during childhood. From a neuropsychological point of view, obesity can be conceived as a form of “food addiction”, and the mechanisms involved in goal-directed behavior and decision-making could be similarly affected in both disorders. The aim was to explore executive function and decision-making performance in youths (aged 13-16) diagnosed of obesity, as compared to a group of controls with normal weight. We hypothesized that participants with obesity would perform poorer than controls on tests taxing cognitive inhibition and decision-making.

Participants and Methods: We designed a preliminary case-control study in the framework of a project aimed to reduce obesity (EVASYON project). 26 youths diagnosed of obesity and 10 youths with normal weight volunteered in the study. We administered a battery of neuropsychological tests to all participants, including: Letter Number Sequencing and Similarities from the WAIS-III, Stroop, Trail Making Test, the Zoo Map subtest from the BADS, and the Iowa Gambling Task. We conducted t-tests to examine differences between groups on the neuropsychological indices.

Results: There were significant differences between groups on the Stroop (interference score), $t(1,34)=3.33$, $p<0.002$; the Trail Making Test (time part B), $t(1,34)=1.99$, $p<0.05$; the Zoo Map (planning time), $t(1,34)=-4.36$; $p<0.001$; and the Iowa Gambling Task (net score), $t(1,34)=-2.7$; $p<0.01$. For all indices, obese youths performed poorer than controls.

Conclusions: Youths with obesity had poorer performance than matched controls on neuropsychological indices of cognitive inhibition, flexibility and decision-making, but not working memory or reasoning. This preliminary data suggest that obesity may be associated with subtle alterations in “hot” but not “cold” executive functions.

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J. DOUGLAS. Social Communication following Severe Traumatic Brain Injury: The Role of Executive Function.

Objective: This study investigated chronic social communication impairment and evaluated the contribution of executive function to the experience of social communication difficulties following severe traumatic brain injury (TBI).

Participants and Methods: Participants were 43 TBI dyads (TBI adults and close relatives) and 43 control dyads. TBI participants were at least 18 years old at the time of injury (mean 32.93 ± 11.37). All had sustained severe injuries (mean PTA 45.19 ± 39.15 days) and were at least 2 years postinjury (mean 5.36 ± 3.61). The La Trobe Communication Questionnaire (LCQ) was used to measure social communication ability. The LCQ is a 30-item questionnaire based on universal principles underlying social discourse; self-report and close other versions are available in English and Spanish. Executive function measures included: the FAS verbal fluency task to provide an index of inhibition, cognitive flexibility and task management; the RAVLT as a measure of the ability to maintain and manipulate information over time; and the SCOLP as an index of speed of processing.

Results: Perceptions of TBI participants and their relatives were significantly correlated ($r = .63$, $p < .001$) and significantly different from those of controls ($F(1, 84) = 37.2$; $p < .001$). Chronic difficulties in conversation clustered primarily in three domains of social discourse (Quantity, Relation/Relevance, Manner) and performance on executive function measures predicted 37% of the variability in LCQ scores.

Conclusions: Given that executive control processes exert substantial influence on social communication after TBI, it is important that social communication treatment programs include strategies specifically designed to support executive function.

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E.C. MIOTTO, J.J. EVANS, M.S. LUCIA & M. SCAFF. Neuropsychological Rehabilitation and Longer Term Follow Up in Patients with Executive Dysfunction.

Objective: The present study investigated the effectiveness and longer term follow-up of a group-based Attention and Problem Solving (APS) treatment approach to executive impairments in patients with frontal lobe lesions.

Participants and Methods: Thirty subjects with lesions in the frontal lobes, 16 with left frontal (LF) and 14 with right frontal (RF) lesions, were allocated into three groups, each with 10 participants. Initially, the APS treatment was compared to two other control conditions, an information/education (IE) approach and a waiting list or traditional group (TR), with each of the control groups subsequently receiving the APS intervention in a crossover design. Evaluation of the treatment was carried out through three baseline assessments and two follow ups, six months and four years later.

Results: There was an improvement on some executive and functional measures after the implementation of the APS programme in the three groups. Employment status before treatment was as follows: full-time employment/study (N=3); part-time employment/study/volunteer work (N=8); unemployed (N= 19). Four years later, a follow up of employment status was: full-time employment/study (N=4); part-time employment/study/volunteer work (N=10), unemployed (N=4). For the remaining, 3 patients died, 8 moved away and 1 had tumor recurrence and retired.

Conclusions: The results are discussed in terms of models of executive functioning and the effectiveness of domain specific interventions in the rehabilitation of executive dysfunction.

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M.L. CUOMO. Ecological Program for Rehabilitation of Executive Functions.

Objective: Objective: To present RECOFE (Ecological Cognitive Rehabilitation of Executive Functions) as a strategic program to be used within the educational psychology field for Attention Deficit Disorder with or without Hyperactivity is an executive function disorder; specifically a deficit in inhibitory control of behavior, information processing and attentional control.

Participants and Methods: Methodology: RECOFE can be used as an approach to rehabilitate the processes implied in executives functions. RECOFE is made up of two techniques: "Supermarket" and "Walking around the city". Both of them are play-oriented techniques that benefit the processes of goal selection, inhibitory control of behavior, planification, monitoring and the resolution of problems in child everyday life. Both techniques also promote strategic learning by means of the development of metacognitive abilities.

Results: Significant changes in the executive function processes have been observed in children included in the program.

Conclusions: Conclusion: this finding proves the importance of the Ecological Cognitive Rehabilitation and RECOFE as a helpful approach within the educational psychology field of work that enables us to move the results from the professional's office to everyday life.

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Symposium 18:

Difficulties in the Access to the Linguistic Processor System among Different Children Populations.

Chair: Héctor Waisburg

8:30–10:00 a.m.

H.A. WAISBURG, M.M. BOULLÓN, A.H. MAIOCCHI, V.I. PICCINI & M.V. MAGGIO. DIFFICULTIES IN THE ACCESS TO THE LINGUISTIC PROCESSOR SYSTEM AMONG DIFFERENT CHILDREN POPULATIONS.

Symposium Description: Different investigations in children demonstrated the genetic influence in communicative skills and language development. It assumes major evidence in some cases, as Specific Language Impairment, Pervasive Developmental Disorder and dyslexia. Other syndromes recognizing genetic origin show particular profiles of language development and learning. Among these populations, results of evaluation are discussed.

1. Neurofibromatosis 1. Difficulties in the access to lexical, phonologic and syntactic stores are detected. Semantic system shows better organization. Profiles are alike in all cases. It is thought that learning disabilities proceed from that particular language impairment.
2. Pervasive Developmental Disorder. Difficulties in the access to lexical store and comprehension impairment are evidenced, being especially affected the pragmatic aspects of communication, describing similar pathological linguistic patterns in all children.
3. Specific Language Impairment. Three cases of lexical-syntactic features and seven with phonologic-syntactic ones are detected. Deficit in the auditory lexicon and its connection with the semantic system, in the former, and deficit in the output lexicon with difficulties of access to phonologic loop in the second, are presumed in these cases.
4. Prader-Willi Syndrome. Phonological simplifications, limited activation of lexical representations and deficit of phonological buffer are found, and evidence of better results in semantic areas, are exhibited in these cases. Difficulties in the mentioned access are thought to produce learning disabilities as part of cognitive limitations as well.

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M. BOULLÓN. Difficulties in the Access to the Linguistic Processor System among Different Children Populations-Neurofibromatosis.

Objective: Results of neurolinguistic and executive visual functions in ten children with NF1 (ages 5 – 10 years) are considered in order to determine difficulties in the access of visual and linguistic information and its relationship with specific impairments.

Detection of difficulties in the access to the lexical store appears as lexical anomalies and the presence of numerous phonological deficits appears as phonological ones. At the same time, difficulties in the access to the lemma store, resulting grammatical deficit in every one of cases, were found.

On the contrary, the access to lexical meaning runs efficiently and thus, the resolution of tests eliciting meaning comprehension and verbal fluency are above of the curve in the majority of cases.

Two important common deficits refer to an incomplete treatment of the visual input and the resolution of graphic executive functions, which causes the fall of the curve in all cases.

An important observation results of the likelihood of the profiles, which describes sharp forms, except in one case.

It is possible to presume that the quality of the deficits correlates well with the learning disabilities observed in the majority of cases and, besides, it is possible to think that an underlying dysfunction of brain mechanisms have operated in early years of life, consequence of interaction between genetic determination and its normal evolution

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V. PICCINI. Difficulties in the Access to the Linguistic Processor System among Different Children Populations.PWS.

Objective: Results of an executive function test and a neurolinguistic evaluation in children aged five to ten, who suffer from Prader-Willi Syndrome, are analysed in order to determine whether there are difficulties in the access to the linguistic processing system and its relationship with other deficits.

Phonological simplifications, limited activation of lexical representations and deficits in the phonological buffer are found, as well as limitations in the sequential processing, short term memory. Perception and attention show a slower processing of the verbal input, which is proportional to the quantity and complexity of the information which has to be processed.

This carries important morphosyntactic correlates in the input and output.

On the other hand, there is evidence of good semantic processing. Periphrasis, rounding, gestures in naming tasks are examples of it, as well as a good performance in verbal fluency. However, this group of children have a better performance in viso-graphic skills than in the verbal ones.

In addition, children suffering from Prader-Willi have a limited access to reading and writing skills because of a serious deficit in the phonemic-graphemic conversion.

Difficulties in the acquisition and development of the linguistic processing system are shown in lexical and phonological anomalies, dis-syntax and agrammatical deficits.

As a result, as these difficulties are part of cognitive limitations, they affect the social, communicative and scholar spheres, restricting the general performance.

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A. MAIOCCHI. Difficulties in the Access to the Linguistic Processor System among Different Children Populations.PDD.

Objective: It was analyzed the formal and functional aspects of the executive and linguistic competence in a population of children with medical diagnosis of pervasive developmental disorder (PDD).

It is possible to establish that the whole population, except one, has a descended level of receptive-expressive vocabulary. These children show a deficient organization of the lexicon.

All members of this group present a deficient grammatical organization in the comprehension of structures, as well as in the use of morphemes.

The deficit in the semantic organization could be explained by difficulties in the activation of grammatical features and the activation of on going lexical representations.

The total amount of children presents a serious deficit in the semantic aspect of language in relation to processes of conceptualization.

The pragmatic area reveals disabilities in the receptive and expressive aspects. They present pathological patterns of communication and language such as: echolalias, repetitive productions, television-like language, and also, in some cases, prosodic alterations.

As a result, they show a peculiar access to the processing system which begins at the level of the auditive analysis and directly –and asemanticly- activates the phonemic storage via a direct acoustic-phonological way, without activating –or with an incomplete activation- of the rest of the modules. In all ten cases, children show a better performance in visual-executive tasks than in linguistic ones.

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M.V. MAGGIO. Difficulties in the Access to the Linguistic Processor System among Different Children Populations. SLI.

Objective: An evaluation of linguistic and executive functions of ten children with specific language impairments –SLI- (aged 5-10) was achieved, in order to find out a possible common pattern of affected functioning among them.

Diagnosis of SLI was accomplished in account of the following different factors: language acquisition age, qualitative features of the linguistic production, persistence of sintomatology, quantitative performance in language tests and normal IQ or slightly near normality.

According with results, it was possible to classify the linguistic deficits in three main cases of lexical-syntactic syndrome (LSS) and seven of phonological-syntactic (PSS) one, associated with some characteristics of dyspraxia and phonologic disprogrammation.

In each one of cases, reception and comprehension of verbal equations were better solved than those of the expressive items of the language tests. Children suffering from SLI showed limitations in several modules of the processing system.

Patients with SLI – PSS show major deficit in the expressive formulation of language while the SLI – LSS ones show semantic content deficit as well.

It is supposed that deficits in the phonological lexicon relates to a primary defect in the SLI – PSS while in SLI – LSS cases, deficits seem to relate to an auditory input defect.

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Paper Session 3: Adults: Cognitive Disturbances in TBI, Epilepsy, ADHD & Chronic Pain

8:30–10:00 a.m.

A.A. PEREIRA. Prospective Memory after Traumatic Brain Injury: Error Type and Its Implications for Rehabilitation.

Objective: The purpose of this study was to develop further understanding on prospective memory after TBI and to discuss possible implications for rehabilitation.

Participants and Methods: Thirty-nine adults between 21 and 47 years of age (M= 32.4 years, SD =2.5) with TBI, who were not receiving inpatient rehabilitation services, were recruited. Participants presented an average of 15 years of education (SD= 2.5). The Cambridge Prospective Memory Test (CAMPROMPT) was used as a measure of prospective memory.

Results: The CAMPROMPT mean score for the sample was 25.18 (SD=7.55) which is within the average range. The sample presented 43.6% of participants with prospective memory scores below average, 43.6% with average scores, and 12.8% with above average scores in the CAMPROMPT.

Errors in retrieving an intended action at an appropriate moment, or omissions, occurred more frequently (56.35%) than errors due to loss of intention content (43.63%). An one sample chi-square was calculated and showed that there was a significant difference among the various categories ($\chi^2 = 15.67$, $df = 3$, $Sig = .001$). In order to analyze what was the relationship of type of errors (omissions and loss of intention) and context of retrieval (Event-based and Time-based) in the sample, a phi coefficient was calculated (.29, $\alpha = .001$) which indicated a significant relationship.

Conclusions: A high incidence of PM problems was observed. Participants presented more omissions while responding to event-based tasks and more loss of content during time-based tasks. Implications could be derived to rehabilitation intervention. For example, the care giver or professionals working with persons with prospective memory problems after TBI could avoid giving tasks that are event-based unless the activity is a well established routine.

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M. RAMÍREZ & F. OSTROSKY-SOLÍS. NEUROPSYCHOLOGICAL FUNCTIONING AFTER 36 MONTHS FOLLOWING TRAUMATIC BRAIN INJURY.

Objective: The long term neuropsychological functioning of a group 15 adults with traumatic brain injury and who did not receive neuropsychological rehabilitation was assessed at 48 months post-injury (range 18 to 120 months).

Participants and Methods: A sample of 15 TBI patients (7 severe and 8 moderate) with a mean age of 28.26 and a mean of education of 15.88 years. Participants were evaluated with the Neuropsi Attention and Memory Neuropsychological Battery (Ostrosky-Solís et al. 2003). Patient group was matched by age, level of education and sex with a control group of voluntary participants with not neurological damage.

Results: Significant statistical differences were obtained in 13 subtests, including working memory, logical memory, Stroop task and associated learning.

Conclusions: The various types of neuropsychological functioning were affected to different degrees indicating that different aspects of cognition are more susceptible to injury, and that recovery takes place at a differential rate across functions. The implications for the development of effective rehabilitation interventions are outline.

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T.I. MCGIBBON, A.S. JANSARI & G. GASKELL. Say it Again? The Importance of Repeated Recall for Ensuring Consolidation in 'Long-term Amnesia' (LTA).

Objective: Long-term amnesia (LTA) denotes slowly developing anterograde amnesia despite normal performance on clinical measures of memory (Kapur et al., 1997). This study investigated the onset and profile of this accelerated forgetting, over the first 24 hours, by extending an ongoing study of a temporal lobe epileptic, RY (Jansari, Davis, Firminger, Ward & Kapur, 2005). In view of evidence for the importance of sleep in memory consolidation (e.g. Stickgold, 2005) the role of sleep in LTA was also investigated.

Participants and Methods: RY's performance was compared with that of 5 matched controls in two word-pair association experiments. Experiment 1 compared cued-recall after 12 hours of wakefulness or 12 hours including a night's sleep. Experiment 2 tested cued-recall and recognition at multiple delays (5, 30, 55 and 240 minutes) and assessed the benefits of repeated recall.

Results: Experiment 1 provided clear evidence of LTA in both conditions and in the absence of overt epileptic seizure. Experiment 2 detected onset of accelerated forgetting between 30 and 55 minutes, as measured by both cued-recall and subjective quality of recognition. In contrast, repeated cued-recall at multiple time points sustained cued-recall performance to 24 hours.

Conclusions: Neither sleep nor overt epileptic seizure is necessary for LTA to occur. Evidence indicates successful encoding, followed by loss of memory traces in the medial temporal lobe before secondary consolidation can occur, suggesting either failure of a maintenance process or active disruption through sub-clinical epilepsy. Finally, a repeated recall strategy seems to improve consolidation, limiting the impact of LTA. Correspondence: *Terry I. McGibbon, Psychology, University of East London, 7 Parkwood House, 31 Parkwood Road, London SW19 7AQ, United Kingdom. E-mail: u0520845@uel.ac.uk*

T. HIRVIKOSKI, A. NORDENSTRÖM, T. LINDHOLM, E. OLSSON, A. NORDSTRÖM, F. LINDBLAD & S. LAJIC. Deficient Cardiovascular Stress Reactivity Is Associated with Poorer Cognitive Performance in Adults With ADHD.

Objective: Prolonged stress impairs prefrontal cognitive functions, whereas short term stress can enhance cognitive functions such as attention and memory, thus facilitating the individual's ability to cope with stress. We studied the cardiovascular stress reactivity and the association between stress reactivity and cognitive performance in adults with ADHD.

Participants and Methods: Heart rate (HR), blood volume pulse (BVP, a measure of vasoconstriction) and arterial oxygen saturation (SaO₂) were assessed in 30 adults with ADHD with no psychoactive medication, and 30 healthy controls during: (1) non-stress baseline; (2) cognitive stress (Paced Auditory Serial Addition test, PASAT); and (3) non-stress recovery. The Visual Analogues Scale was used to assess self-perceived stress.

Results: The group with ADHD had similar overall HR, BVP and SaO₂ values as controls (Repeated Measures ANOVA, all $p > .05$) but differed in stress reactivity (interaction effects, $p < .05$). Despite higher self-perceived stress, the group with ADHD had a significantly lower rise in HR and SaO₂ from baseline to stress phase, and the stress reactivity was altered with an increase in BVP instead of an expected decrease, as seen in healthy controls. The inadequate stress reactivity was associated with poorer performance on PASAT. On the contrary, stress reactivity did not correlate with general cognitive ability (estimated IQ). There were no between-group differences in estimated IQ.

Conclusions: Adults with ADHD had an inadequate cardiovascular stress reactivity which was associated with poorer performance on a task loading on executive functions and attention (PASAT), i.e. functions that are typically inferior in persons with ADHD as compared to controls. The deficient biological stress response may be associated with poorer ability to cope with stress in everyday life.

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P. MONTOYA, C. WALTEROS, C. SITGES & J. CAMPOS. Chronic pain impairs decision-making on the Iowa Gambling Task.

Objective: Recent evidence suggests that chronic pain could be the result of a complex interaction between sensory processing, attention, cognition, and emotion. Furthermore, it has been argued that chronic pain should be considered a 'cognitive state', which might interfere with other emotionally charged cognitive states. The present study examines the possibility that a chronic pain condition, such as fibromyalgia, is associated with deficits in normal cognitive functioning.

Participants and Methods: 15 patients with fibromyalgia (FM) aged between 42 and 66 years, and 15 age-matched healthy controls (HC) participated in the experiment. All subjects filled anxiety (STAI) and depression (BDI) questionnaires. In addition, following standardized tests were used to assess neuropsychological functioning: Iowa Gambling Test (IGT), Stroop task, Canavan Conditional Associative Learning Task, and WAIS.

Results: The net number of choices made from advantageous after subtracting choices made from disadvantageous decks was significantly lower in FM patients as compared to healthy controls (HC) ($F[1,28]=8.55, p < .01$). Furthermore, the time-course of choices showed that healthy controls gradually shifted their preference toward the advantageous decks, whereas chronic pain patients showed a persistent trend toward the disadvantageous decks. Significant group differences were found on the 3. and the 5. block of cards.

Conclusions: The behavioral performance of chronic pain patients on the IGT seems to be similar to that exhibited by patients with lesion of the ventromedial prefrontal cortex. These findings provide further support for the hypothesis that chronic pain patients have an abnormal vulnerability to the negative emotional context during the brain processing of somatosensory information.

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K.E. HALL, C.L. ISAAC, P. HARRIS & R. ROWE. Using Illness Representations to Understand the Nature of Memory Complaints in Epilepsy.

Objective: Numerous studies have reported that memory complaints in epilepsy show a greater association with anxiety and depression than with performance on neuropsychological memory tests. Memory complaints may be an indicator of poor adjustment to living with epilepsy. We explored the hypothesis that memory complaints in epilepsy are related to how people perceive their epilepsy, using Leventhal's common sense model of illness representations. This model explicates how people represent their personal experience of illness and proposes that the content of these representations can be organised in terms of five dimensions: identity, cause, timeline, consequences, and cure and controllability.

Participants and Methods: Using a cross-sectional design, 97 participants with IGE and TLE completed a self-report questionnaire of verbal and visual memory (the Multiple Abilities Self-Report Questionnaire) and a test of objective verbal and visual memory (Doors and People). Participants were administered Kemp's (1999) semi-structured interview for illness representations in epilepsy and also completed measures of adjustment (the HADS and COPE).

Results: Self-report correlated with objective measures for visual memory ($p < .05$) but not for verbal memory. Contrary to expectation, anxiety and depression did not correlate with self-reported verbal or visual memory. Multiple regression analysis showed that both self-reported verbal and visual memory were predicted by illness representations on three dimensions (consequences, identity, and cause) but not by mood or objective verbal memory.

Conclusions: Findings support a role for illness representations in understanding memory complaints in epilepsy. As an adjunct to neuropsychological assessment, epilepsy patients with memory complaints may benefit from interventions that address illness representations.

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**Symposium 19:
For Better or Worse: Memory Changes Across the Lifespan**

Chair: Barbara Wilson

10:30 a.m.–12:00 p.m.

B.A. WILSON, F. VARGHA-KHADEM, M. KOPELMAN, L. CLARE & E.L. GLISKY. For Better or Worse: Memory Changes Across the Lifespan.

Symposium Description: This symposium is concerned with memory changes over time in children, younger adults and older adults.

It is also concerned with different diagnostic conditions. The opening talk offers some definitions of recovery and looks at factors influencing recovery of memory functioning. We then hear of a 12 year old boy who became amnesic as a result of epilepsy and hypoxia. His cognitive profile is described both soon after the incident and three years later. His episodic memory deficits did not appear to change over time. The next paper focuses on the long term outcome of people who became amnesic as a result of herpes simplex encephalitis. After a description of the neuropsychiatric, neuropsychological and neuroimaging findings from studies of these patients, three case studies with very different outcomes are reported. We then look at people with Alzheimer's Disease. This study compares AD patients to healthy age matched participants and explores differences in brain activation patterns in encoding and retrieval processes during an associative learning task using functional magnetic resonance imaging (fMRI). The patients with AD showed a different pattern of brain areas recruited during associative memory processes which in turn might influence intervention strategies. The final paper is a longitudinal study of a cohort of non brain injured people aged 65-92 to see what changes in memory and executive functioning occur in a normal ageing group and which demographic variables affect the rate of change.

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B.A. WILSON. Recovery of Memory Functioning.

Objective: This paper addresses recovery of memory functioning in people with non-progressive brain injury. As recovery means different things to different people, some definitions of recovery are offered. The one selected for the purpose of this review is "complete or partial resolution of deficits incurred as a result of an insult to the brain" (Wilson 1998). Following a brief description of the mechanisms of recovery, consideration is given to the factors affecting recovery.

Participants and Methods: Literature review of studies looking at recovery in children and adults with brain injury. These include recovery from post traumatic amnesia and recovery from the vegetative and minimally conscious states. Attempts to improve on recovery through rehabilitation are also considered.

Results: Factors affecting recovery include age, cognitive reserve, aetiology, severity of impairment and psychosocial aspects.

Conclusions: Conclusions to be drawn are 1) people with memory problems typically show some resolution of deficits 2) the recovery process following TBI is usually longer than that for other conditions such as encephalitis or hypoxic brain damage 3) age may have some bearing on the amount of recovery but this is influenced by other factors such as whether the lesion is focal or widespread 4) several processes are involved in the mechanisms of recovery 5) there is evidence that rehabilitation can reduce some of the everyday problems faced by people with brain injury.

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F. VARGHA-KHADEM, P. MARTIN-SANFILIPPO & M. CHADWICK. Onset of Developmental Amnesia at Age 12 Following Acute Hypoxia/Ischaemia and Status Epilepticus.

Objective: Many believe that children show better recovery from focal brain damage than adults. However, in the absence of data on the status of cognitive development prior to the onset of pathology, it is difficult to determine the extent of recovery.

Participants and Methods: We report the case of Thomas, who, despite neonatal diagnosis of partial agenesis of the corpus callosum and hydrocephalus, achieved normal developmental milestones and age ap-

propriate levels of intelligence, language, semantic knowledge and academic attainments. There was no indication of memory or learning problems prior to an episode of status epilepticus as a result of a blocked shunt. Following surgical intervention, Thomas made a good physical recovery but had developed a severe anterograde amnesia.

Results: Neuropsychological assessment carried out six months after the acute episode revealed a profile characteristic of developmental amnesia. All aspects of delayed memory and every day memory were severely impaired. In addition, nonverbal intelligence had declined by about 20 points relative to the premorbid standard.

An MRI scan revealed small hippocampi with increased signal intensity. There was evidence of mesial temporal lobe damage centred on the parahippocampal gyri. The scan confirmed agenesis of the corpus callosum and revealed decompression of the ventricular system as a result of the right transparietal shunt.

Further assessment carried out three years after the onset of the amnesic syndrome, showed recovery consistent with premorbid level of function, in all aspects of cognitive function except delayed memory and learning, and everyday memory remained chronically impaired.

Conclusions: The profile characteristic of developmental amnesia can emerge in childhood as a result of an acute episode of hypoxia/ischaemia involving seizures. Furthermore, this profile is distinct and can prevail against the background of pre-existing callosal agenesis and hydrocephalus. Finally, the selective impairment in episodic memory is chronic and does not appear to recover over time.

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M. KOPELMAN. Long-term outcome in herpes encephalitis amnesia.

Objective: This talk will begin with a brief summary of the neuropsychiatric, neuropsychological, and neuroimaging findings in herpes encephalitis patients.

Participants and Methods: The relationship between neuropsychological findings and neuroimaging observations will be reviewed. Outcome studies since the institution of effective antiviral agents will be considered, and the poor outcome of a famous case, CW, will be reviewed in the context of those findings. After consideration of findings in patient groups, the talk will focus on three case-reports of patients who suffered herpes encephalitis: a professional artist and two professional musicians with contrasting outcomes.

Conclusions: Neuropsychological outcome depends on how rapidly antiviral agents are administered. Further, slow improvements can occur through time. Very different residual patterns of deficit can occur, dependent upon the site(s) of focal structural damage.

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L. CLARE, J. VAN PAASSCHEN, D. LINDEN, B. WOODS & M. RUGG. Differences in Brain Activation During Associative Learning in People with Alzheimer's Disease and Older Controls.

Objective: Memory impairments observed in Alzheimer's disease (AD) are thought to be distinctly different from normal age-related memory decline. In early-stage AD, alternative networks may be used during a memory task to compensate for loss of function in medial temporal lobe regions.

Participants and Methods: We explored differences in brain activation patterns in encoding and retrieval processes during an associative learning task using functional magnetic resonance imaging (fMRI). Using a blocked design, 16 people with early-stage AD and 12 older controls were scanned while performing a face-name association task.

Results: During encoding, controls demonstrated higher activation than the AD group in bilateral frontal regions, right parietal lobe, and bilat-

eral fusiform gyrus. During retrieval, controls showed higher activation in bilateral middle frontal gyrus, left parietal lobule, fusiform gyrus and extrastriate cortex. The AD group did not demonstrate memory-related activation in left middle frontal areas or in the left parietal lobule. Unlike controls, AD patients showed increased activity during encoding in the left precuneus, and recruited the left posterior cingulate during retrieval.

Conclusions: In line with previous findings, AD patients showed a different pattern of brain areas recruited during associative memory processes. The recruitment of areas not involved in memory in older adults may indicate that certain regions play a compensatory role in AD. This may have implications for rehabilitative interventions.

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E.L. GLISKY, L. RYAN & K. WALTHER. Longitudinal Changes in Memory and Executive Function in Normal Aging.

Objective: Increasing age is associated with increased variability in cognitive function: Some older adults remain active and high functioning well into their 80s while others are struggling to keep going at 65. A challenge for psychologists and neuroscientists has been to try to account for this variability and to identify what is "normal" and what may be pathologic.

Participants and Methods: This presentation will illustrate this variability in two cognitive domains that appear most affected by age—memory and executive function—in a large cohort of "normal" older adults aged 65-92.

Results: Data will also be presented showing longitudinal changes in two neuropsychological composite measures of medial temporal/memory function and frontal/executive function, and some of the demographic variables that appear to affect the rates of change. In addition, neuroimaging data will be shown, indicating that for a subset of older adults with genetic risk for Alzheimer's disease, age-related declines in gray and white matter are steeper, whereas for those taking anti-inflammatory medications, declines are reduced.

Conclusions: Changes in memory and executive function that occur with normal aging are affected by a range of individual difference variables—demographic, health-related, and biologic.

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Paper Session 4: Assessment

10:30 a.m.–12:00 p.m.

E. AMBRON, S. DELLA SALA & R. MCINTOSH. Exploring an Attraction Account of Closing-in Behaviour.

Objective: 'Closing-in behaviour' (CIB) is the tendency in copying or imitation tasks to perform the copy abnormally close to or on top of the model. It is often observed in patients with dementia and in preschool children. The aim of this study was to test if CIB exhibited in dementia and in childhood reflects a default manual attraction towards the focus of visual attention (attraction hypothesis). Moreover, we tested if a similar manual bias could be induced in normal participants by performing a continuous movement in a different spatial location from the focus of attention.

Participants and Methods: Experiment 1: a 62 year-old woman (MW) with moderate Alzheimer's disease and CIB was presented with two tasks: a straight-line drawing task combined with a letter-naming task, and a gesture production task combined with a letter-naming task.

Experiment 2: 15 preschool children (3-5 years old) were presented with a straight-line drawing task combined with an animal-naming task.

Experiment 3: 16 undergraduate students were asked to perform a continuous pointing movement in conjunction with identification of the letter "k" in a sequence of letters.

Results: Experiment 1 showed that the patient's productions migrated towards the location of visual attention imposed by the letter stimuli in both tasks (drawing and gestures). These results were replicated with preschool children in experiment 2. Finally, CIB was mimicked in normal participants, showing a manual bias toward the focus of attention

Conclusions: These results support the attraction hypothesis of CIB and suggest CIB reflects a manual attraction toward the focus of visual attention.

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C. SOO, R. TATE, K. HOPMAN, M. FORMAN, T. SECHENY, V. AIRD, S. BROWNE, C. COULSTON, L. DIFFLEY & J. HUMMELL. Reliability and validity of the Care and Needs Scale (CANS) for assessing support needs following traumatic brain injury.

Objective: The Care and Needs Scale (CANS; Tate, 2004) was developed to address the lack of suitable instruments available for measuring support needs of individuals with traumatic brain injury (TBI). This research aimed to systematically examine the psychometric properties of the CANS focusing on reliability, validity and responsiveness.

Participants and Methods: Participants were individuals with TBI aged 16-65 years recruited from three Brain Injury Rehabilitation Units in Sydney, Australia. Inter-rater reliability and one-week test-retest reliability were examined in a sample of 30 clients from Liverpool Hospital. Reliability of proxy ratings between the client, relative and clinician was investigated in a sample of 40 clients from the Royal Rehabilitation Centre Sydney (RRCS). Seventy clients from RRCS and Westmead Hospital were recruited to examine criterion (concurrent) and construct (discriminant) validity. Criterion (predictive) validity and responsiveness were investigated in a sample of 40 inpatients from RRCS and Westmead Hospital.

Results: Intra-class correlation coefficients (ICC) indicated excellent inter-rater (ICC =.93 to.96) and test-retest (ICC =.98) reliability. Reliability of proxy ratings between the client, relative and clinician was fair to good (ICC=.49 to.72). Evidence for concurrent validity was shown by moderate correlation coefficients between the CANS and other measures currently used for people with TBI (Supervision Rating Scale and Functional Independence Measure; r s=.61 to.66). Predictive validity and responsiveness were shown with rehabilitation discharge CANS scores predicting functioning 6-months later. The CANS was also able to discriminate between different levels of injury severity ($p<.01$) and functional independence ($p<.001$).

Conclusions: These results add to the evidence regarding the CANS' excellent measurement properties: it is reliable, valid and responsive to changes that occur across recovery. Findings support the application of the CANS for clinical and research purposes.

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E. LABOS, K. ZABALA, A.B. FLORES & S. TROJANOVSKI. ASSESSMENT PROTOCOL OF HUMOR COMPETENCE.

Objective: Introducing an assessment protocol of humor competence of psycholinguistic perspective aiming to interpret humor-associated mechanisms and their underlying cognitive processes.

Participants and Methods: The protocol includes interesting tasks considering the relationship between the subject and the norm: representational ones (rules of social interaction, representations of time and space) and linguistic ones (plurality of sense, homonymy, homophony, metaphors). Stimuli under auditory-verbal and visual modalities (texts, images) are introduced.

Production is assessed by requesting the narration of a joke.

The protocol was administered to 14 patients with single injuries in the right hemisphere and the results were compared with a parallel control group.

As a pilot proof, it was administered to 162 normal subjects of different sex, age and educational level.

Results: The population with right injury showed differential comprehension disorders with failures in metaphors, homophonies and hominimies; failures in production and paradigmatic aspects and dissociation related to the rupture of representational vs. linguistic rules.

Significant differences were observed between comprehension and production with decrease of the latter in aged subjects in the control population. Variability in narrative contents was registered. Age and education constituted relevant variables regarding the interpretation of the material.

Conclusions: The protocol allows discriminating and interpreting failures in humor processing in terms of activity levels, involving sensorial, linguistic and thinking processes. It makes possible the detection of dissociations related to tasks and type of stimuli: linguistic/not linguistic, auditory/visual, metonymy/sense.

It is considered a valuable neuropsychological evaluation tool, provided to investigate the cognitive substrates of humor competence.

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J. ARANGO-LASPRILLA, C. MARQUEZ DE LA PLATA, M. ALLEGRET, A. MORENO, L. TÁRRAGA, M. LARA, M. HEWLITT, L.S. HYNAN & C.M. CULLUM. Utility of the Texas Naming Test to Discriminate Demented and Nondemented Spanish-speakers.

Objective: To determine the utility of the Texas Naming Test (TNT), a test developed to identify word finding difficulties in Hispanics, for discriminating Spanish-speaking individuals with and without dementia.

Participants and Methods: 104 individuals with a diagnosis of dementia (36 from Colombia vs. 68 from Spain) and 61 nondemented controls (21 Colombians vs. 40 Spaniards) were administered the TNT as part of a brief neuropsychological assessment.

Results: After controlling for age and education, the results of a two between factors ANCOVA revealed main effects for diagnosis ($p < 0.001$) and country of origin ($p < 0.01$), and a diagnosis by country interaction ($p < 0.05$). Contrasts showed that Colombians with dementia ($M = 17.1$, $SE = 1.1$) scored significantly lower than nondemented Colombian controls ($M = 26.1$, $SE = 1.3$), nondemented Spaniards ($M = 28.0$, $SE = 0.9$), and Spaniards with dementia ($M = 22.9$, $SE = 0.7$). The MMSE and the TNT were highly correlated across the sample as a whole ($r = 0.73$, $p < 0.001$), and Colombians with dementia had significantly lower MMSE scores, than the three other groups after controlling for age and education.

Conclusions: The Texas Naming Test appears to effectively discriminate Spanish-speaking individuals with and without dementia among Spanish and Colombian cohorts. Moreover, the results show the more severe the dementia, the more severe the naming deficit, as Colombians with dementia had the lowest MMSE scores and the poorest performance on the TNT of all four groups. Longitudinal studies investigating the usefulness of the TNT in the progression of dementia in Spanish-speaking populations is warranted. Correspondence: *Juan Carlos Arango, Ph.D, Physical Medicine & Rehabilitation, Virginia Commonwealth University, 730 E Broad St., 4th Floor, Room 4230a, Richmond, VA 23219. E-mail: jcarangolasp@vcu.edu*

C. ARMENGOL & E. MOES. Spanish Adaptation of the D-KEFS Card Sorting Test – Mexican Norms.

Objective: Adapt D-KEFS Card Sorting for Mexicans, obtain preliminary norms, and compare performance across modalities.

Participants and Methods: One hundred and four first to sixth graders (ages 6-6 to 13 years) from a middle class elementary school in Mexico City were individually administered an adaptation of the Card Sorting subtest of the D-KEFS

Results: Significant modality effects were obtained: for the perceptual condition a clear developmental trend was observed (3 categories at age 7 vs. 8 at age 12), while on the verbal condition this was not the case (2 categories at ages 7 and 8, and from ages 9 to 12, 3 categories were generated). Qualitatively, novel categories were generated by Mexican children. There were no gender differences for the verbal modality, but girls did better perceptually.

Conclusions: Results parallel American norms, indicating consistency of the Spanish adaptation with the original instrument. Culture appears to impact on category generation. Language development may be a factor in the modality differences observed. Further studies will specifically address these factors.

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T. JUDD. Beyond Bilingual Aphasia: Adaptive Behavior in Bilingual Assessment.

Objective: Assessing bilingual clients presents distinctive issues and challenges that go beyond issues of monolinguals, even when the monolingual assessment uses an interpreter across languages. Bilinguals have distinctive skills and challenges in their everyday lives that can be affected by brain injury. These skills can have major implications for rehabilitation goals and approaches, educational strategies, employment, and disability. Except for bilingual aphasia, neuropsychological tests do not address these issues. Neuropsychological assessment must address these through inference, informal tests, and non-test means.

This presentation will address general bilingual evaluation issues of: ethics (especially competence and discrimination); the neuropsychologist's language skills; use of interpreters; test sources and equivalence; non-equivalence of language functions in different languages (e.g., different writing systems); domains of language competence and use; taking a history of language learning and use; estimating pre-illness language skills in various domains (oral and written language; academic versus emotional language use, etc.) in each language; choosing the language(s) of assessment; and conceptual scoring. The presentation will also address special bilingual skills and issues, including: learning (or continuing to learn) a second language; strategies for learning literacy in each language; learning disability differences across languages; the memory and attention demands of interpreting and translating skills; and the communication pragmatics of code switching (when to use which language with whom). These issues can be addressed through language-specific tests, improvised tests, exploration of the client's educational/employment context and available language and learning resources, in-context behavioral observations, and directed interviews of informants. This presentation will be bilingual (English/Spanish). Correspondence: *Tedd Judd, PhD, Neuropsychological and Psychoeducational Services, 12 Bellwether Way #223, Bellingham, WA 98225. E-mail: t.judd@comcast.net*

Symposium 20: Reading Development and Reading Disabilities: Neuropsychological Processes and Intervention Studies

Chair: Virginia Jaichenco

10:30 a.m.–12:00 p.m.

V. JAICHENCO, R.D. MORRIS, C. BURANI, J. FLETCHER & D. FRANCIS. Reading Development and Reading Disabilities: Neuropsychological Processes and Intervention Studies.

Symposium Description: Modern societies expect that virtually all children learn to read. To be illiterate is to be at a profound disadvantage in the contemporary world (Ellis, 1993). For this reason, this symposium will focus on reading processing abilities in children, but

also in reading disabilities and remediation programs. In her presentation, Dr Burani will show that morphemes are also reading units in a shallow language and will raise the issue of the usefulness of training dyslexics in a morpheme based way. Dr Morris will discuss the effectiveness of intensive programs that address multiple areas of reading deficits in dyslexic children. Dr Fletcher's presentation will focus on different approaches to early intervention and will show that layering classroom intervention and supplemental instruction for students at risk can have successful results. Finally, Dr Francis will present a study of literacy acquisition in English Language Learners, especially Spanish native speakers, and will examine the effectiveness of training children at risk with the same design used in English native speakers.

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C. BURANI. Morpho-lexical reading in dyslexic and skilled readers of a transparent orthography (Italian).

Objective: Italian developmental dyslexics show extremely analytical and fragmented reading aloud which results in severe slowness and a marked length effect without selective deficit for non-words, suggesting over-reliance on the non-lexical reading routine. In a series of studies we showed that morphological constituents (roots and derivational suffixes) are available to Italian dyslexic children. Similarly to chronologically-matched skilled readers and reading-matched younger normally-developing children, dyslexics read pseudowords made up of a root and a derivational suffix faster and more accurately than simple pseudowords. Unlike skilled readers, only dyslexics and reading-matched younger children benefited from morphological structure also in reading aloud words. Both word length and word frequency interacted with the effect of morphological structure, with longer and lower-frequency words more subject to morphemic reading than shorter and higher-frequency words. Overall, these data show that, in a transparent orthography, readers of different skills may take advantage of lexical reading units (morphemes) of larger than the single grapheme grain-size. It is proposed that morphemes are reading units that prove useful in processing all linguistic stimuli, including words, in individuals with limited reading ability (dyslexics and younger readers) who did not fully develop mastering of whole word processing. The training of morpheme-based reading is indicated as specifically useful for word decoding and comprehension in dyslexia. Correspondence: *Virginia Jaichenco, Instituto de Lingüística, Facultad de Filosofía y Letras, Universidad de Buenos Aires, Holmberg 1783, Buenos Aires 1430, Argentina. E-mail: vjaichen@psi.uba.ar*

R.D. MORRIS, M. LOVETT, M. WOLF & R. SEVCIK. Outcome Studies for Multi-component Reading Interventions for Dyslexia.

Objective: The effectiveness of different multiple-component, deficit-directed reading intervention programs for dyslexic children in elementary school were evaluated in a series of studies against alternative treatment control programs. In one study, 279 young disabled readers in 2nd and 3rd graders were taught by research teachers for 70 hours on a 1:4 ratio and evaluated at 0, 35, and 70 hours of instruction and one year later. Growth curve methodology was used to analyze changes in reading measures over the year of instruction and on follow-up. Results showed significant improvements in basic reading skills for the reading programs which were maintained on follow-up. In a second study, over 429 disabled readers in 1st through 4th grade participated in a study focused on better understanding instructional intensity, with some groups of children receiving instruction in a one-to-one format, some in small groups of 4 students, and others in classroom level instructional groups. In addition, some student received 100 hours of instruction while others received 200 hours of instruction over a 2 year period. Results again showed significant improvements in basic reading skills for the reading programs. Overall, dyslexic children are responsive to explicit, intensive multiple-component intervention programs which attempt to address their multiple areas of deficit when compared to more single-component interventions, and their reading gains in reading are maintained.

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J. FLETCHER. Multi-Tiered Reading Intervention: Preventing Reading Disabilities.

Objective: Introduction: Different approaches to early reading intervention either attempt to enhance core classroom reading instruction or provide tutorials to children who are struggling. Although both approaches are effective, this approach is costly and may not provide maximal benefits. Layering classroom interventions and providing small group tutoring interventions to children who are inadequately responsive to classroom instruction may be more cost-effective and yield better outcomes than either approach alone.

Method and Results: Eleven studies were identified in the North American literature that evaluated the effects of layering classroom and small group/tutorial interventions. When this layering occurred, such as through the provision of tutorial instruction for students who did not respond adequately to enhanced classroom instruction, the number of at-risk students is reduced from rates of about 20% to rates of 1-5% depending on the specific outcome that is evaluated. Some outcome studies show that these changes are effective through grade 5. There is good evidence of generalization to multiple domains of reading, including accurate decoding, fluency, and comprehension. The most effective programs were comprehensive and explicit programs that integrated instruction in these three domains of reading.

Discussion: In many children, reading disabilities can be prevented through early identification and intervention. The most successful programs use enhanced classroom instruction for primary prevention and provide supplemental instruction for students who continue to struggle.

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D.J. FRANCIS. The Development of Language and Literacy in Spanish-speaking Children.

Objective: Introduction: The fastest growing subgroup in US public schools is the group of children known as English Language Learners. Estimates place the ELL population at over 9.9 million students. In the last two decades, the population of ELLs has grown 169 percent and collectively speaks over 400 different languages, with Spanish being the most common (i.e., spoken by 70% of ELLs). ELLs present a unique set of challenges to educators because of the central role played by academic language proficiency in the acquisition and assessment of content-area knowledge. Until recently, this population of students has received little attention in the empirical research literature on language and literacy acquisition.

Methods and Results: The presentation examines findings from a program of research initiated 6 years ago on the development of language and literacy in Spanish-speaking children. We will examine the role of phonological abilities in English and Spanish in the development of word reading skills using multi-level confirmatory factor analysis to isolate the relations among students and classrooms. We will also examine the effectiveness of interventions for at-risk readers designed according to the same principles of design used in the construction of effective interventions for native speakers of English at-risk for reading failure.

Discussion: Together the findings from these studies highlight communalities in the acquisition of literacy among ELLs and native speakers of English that appear to generalize to the learning of all alphabetical languages.

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Symposium 21:
Neuroscience of Impulsivity: Neuropsychological, Personality, Neuroimaging and Molecular Approaches of Impulsive Behavior

Chair: Daniel Fuentes

10:30 a.m.–12:00 p.m.

D. FUENTES, H. CORREA, L. MALLOY-DINIZ, C. ROCCA & D. FUENTES. Neuroscience of Impulsivity: neuropsychological, personality, neuroimaging and molecular approaches of impulsive behavior.

Symposium Description: Many approaches have been used to study impulsivity, but studies about its neurobiological bases have been insufficiently studied.

Attention-deficit/hyperactivity disorder, bipolar disorder, pathological gambling, and suicide behavior are frequently comorbid and overlapping diagnoses.

The relationship between impulsivity and these psychiatric conditions have been consistently showed and Impulsivity emerges as strong candidate to be a trait linking different psychiatric populations to biological markers like abnormal brain structures, neuropsychological deficits and polymorphisms in genes.

The results of several studies support the existence of different components of impulsivity: motor, cognitive, attentional and related to novelty seeking personality trait. Most importantly, this symposium also highlights the complementary nature of neuropsychological measures, self-report questionnaires, neuroimaging and genetic expression in the assessment of impulsivity.

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D. FUENTES, G. BUSATTO, H. TAVARES, L. MALLOY-DINIZ, A. BARREIROS, F. DURAN, C. CASTRO & C. GORENSTEIN. Mapping brain structure and personality traits in pathological gamblers.

Objective: The aims of this study are to investigate if there are volumetric abnormalities involving the cortico-basal-ganglionic-thalamic circuitry in pathological gamblers and to correlate this circuitry with personality traits.

Participants and Methods: 30 male pathological gamblers, closely matched to 30 healthy volunteers, were scanned using a 1.5T MRI equipment and answered the Cloninger's Temperament and Character Inventory-TCI. Volumetric differences and the presence of significant linear correlations between gray matter volumes and personality traits were investigated using Voxel-Based Morphometry (VBM), with statistical values corrected for multiple comparisons.

Results: Pathological gamblers presented smaller right dorsal head of caudate than healthy volunteers (37 voxels; $p=0.01$). Gamblers presented significant positive correlations between bilateral putamen and lentiform nucleus volumes and the TCI factor Novelty Seeking (right: 213 voxels; $p=0.001$; left: 73 voxels; $p=0.01$), and negative correlation between the volume of the left anterior cingulate cortex and the TCI factor Harm Avoidance (453 voxels, $p<0.01$).

Conclusions: Our study, the first to analyze the relationship between VBM-based brain volumes and personality in pathological gambling, using the largest sample of pathological gamblers among neuroimaging studies, showed brain structural abnormalities in circuits implicated in behavioral regulation. These regions were correlated with personality traits associated to impulsivity and compulsivity.

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L. MALLOY-DINIZ, W. LEITE, G. CAPELINI, H. CORREA, D. FUENTES & A. BECHARA. Impulsivity in adults with attention deficit/hyperactivity disorder.

Objective: The objective of this study was to address the presence of impulsive behavior in ADHD adults measured by neuropsychological tests and self-report scales.

Participants and Methods: We studied a sample of 100 adults with ADHD and 106 healthy comparison controls using the Barratt Impulsivity Scale Version 11 (BIS), Cloninger's Temperament and Carter Inventory (TCI) and neuropsychological tasks, namely the Continuous Performance Task (CPT-II) and the Iowa Gambling Task (IGT). Subjects had equal intellectual level (measured by Raven's Progressive Matrices), years of formal education and age.

Results: The ADHD group showed more signs of impulsivity on the three dimensions of BIS, they committed more errors of omission and commission on the CPT-II, and they made more disadvantageous choices on the IGT. They also showed more signs of novelty seeking and harm avoidance and poor self-defectiveness on TCI.

Conclusions: These results support the existence of deficits related to different components of impulsivity: motor, cognitive, attentional and related to novelty seeking among adults with ADHD. Most importantly, this study also highlights the complementary nature of self-report questionnaires and neuropsychological tasks in the assessment of impulsivity in ADHD adults.

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H. CORREA. Suicide and Impulsivity.

Objective: It has been demonstrated in many families and twin studies that suicide is, at least partially, under genetic control, but the genes responsible have not been identified. Furthermore, it has been demonstrated that suicide occurs almost always in people suffering from a psychiatric disorder. Yet, even considering that the presence of a psychiatric disorder appears to be necessary, it is not a sufficient condition for suicidal behavior (actually most of the psychiatric patients will never kill themselves) and the transmission of the suicidal is independent of psychiatric disorders.

Participants and Methods: The relationship between impulsivity and suicide behavior has been consistently showed and Impulsivity emerges as strong candidate to be a trait linking suicide behavior to biological markers like genes.

Results: The relationship between impulsivity and suicide behavior has been consistently showed and Impulsivity emerges as strong candidate to be a trait linking suicide behavior to biological markers like genes.

Conclusions: In our study we proposed to assess impulsivity using neuropsychological tests in different groups of psychiatric patients associating these results with the suicide behavior history and characteristics as well with polymorphisms in genes linked to serotonergic system.

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C. ROCCA. Neuropsychological impairments in children with Attention Deficit Hyperactivity Disorder (ADHD) and Bipolar Disorder.

Objective: Attention-deficit/hyperactivity disorder (ADHD) and bipolar disorder (BPD) are frequently comorbid and overlapping diagnoses. The psychiatric and behavioral symptoms associated with ADHD and BPD have significant overlap. Cognitive profile in children with ADHD and bipolar disorder remains controversial and it has been insufficiently studied. These pathologies show failure in self-regulation and a negative impact on neuropsychological performance.

Participants and Methods: Objective measures of attention, concentration, and executive functions can be used effectively in the assessment to help differential diagnosis of bipolar disorder (BD) and attention-deficit hyperactivity disorder (ADHD) in children.

Results: We studied neuropsychological deficits between children with attention deficit hyperactivity disorder (ADHD) and bipolar disorder through a neuropsychological battery (intellectual efficiency; executive functioning; planning, response inhibition and decision-making; attention; praxis; memory and learning processes). We also applied some behavioral scales as: Multidimensional Anxiety Scale for Children (MASC); Barratt Impulsiveness Scale (BIS 11A) and Children's Depression Inventory (CDI). The results of neuropsychological tests were correlated with the results of scales.

Conclusions: Future studies should evaluate the effectiveness of neuropsychological assessment in these cases and the importance of rehabilitation programs, which seek through cognitive training to minimize the impact of the neuropsychological deficits in the everyday life.

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D. FUENTES, G. BUSATTO, H. TAVARES, L. MALLOY-DINIZ, A. BARREIROS, F. DURAN, C. CASTRO & C. GORENSTEIN. Mapping brain structure and personality traits in pathological gamblers.

Objective: The aims of this study are to investigate if there are volumetric abnormalities involving the cortico-basal-ganglionic-thalamic circuitry in pathological gamblers and to correlate this circuitry with personality traits.

Participants and Methods: 30 male pathological gamblers, closely matched to 30 healthy volunteers, were scanned using a 1.5T MRI equipment and answered the Cloninger's Temperament and Character Inventory-TCI. Volumetric differences and the presence of significant linear correlations between gray matter volumes and personality traits were investigated using Voxel-Based Morphometry (VBM), with statistical values corrected for multiple comparisons.

Results: Pathological gamblers presented smaller right dorsal head of caudate than healthy volunteers (37 voxels; $p=0.01$). Gamblers presented significant positive correlations between bilateral putamen and lentiform nucleus volumes and the TCI factor Novelty Seeking (right: 213 voxels; $p=0.001$; left: 73 voxels; $p=0.01$), and negative correlation between the volume of the left anterior cingulate cortex and the TCI factor Harm Avoidance (453 voxels, $p<0.01$).

Conclusions: Our study, the first to analyze the relationship between VBM-based brain volumes and personality in pathological gambling, using the largest sample of pathological gamblers among neuroimaging studies, showed brain structural abnormalities in circuits implicated in behavioral regulation. These regions were correlated with personality traits associated to impulsivity and compulsivity.

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FRIDAY AFTERNOON, JULY 4, 2008

Poster Session 4:

Aging, Dementia, Psychopathology, Emotions

12:00–1:30 p.m.

Aging

D.F. ESTRELLA, M.G. SERRANO & J.A. LÓPEZ. Cognition as part of the psychological health in assessing the quality of life in a sample of retirees and pensioners of the UADY and ISSSTEY.

Objective: To determine the attitude of older persons to their quality of life

Participants and Methods: The 74 subjects were selected by a non-probability sampling intentional quota (30 men and 44 women). People sixty years or older, male and female, retired or pensioners at the Autonomous University of Yucatan (UADY) and Institute of Social Security and Services for State Workers (ISSSTE) which were applied 2 instruments: a questionnaire which included sociodemographic dimensions: demographic; literacy; conformation household services and income, and service doctor, and a scale of attitude toward the quality of life of 115 reagents, which was built based on the following dimensions: physical health, psychological health, level of independence, social relations and environment. Reliability analysis obtained when making The Cronbach Alpha was 0.94.

Results: The results showed a positive attitude of the elderly toward their quality of life. Also say they should be given more social participation among older adults. They believe that being healthy makes them more independent and to improve their quality of life, friends and family play a big role. Say they are satisfied with what makes life with a positive attitude toward their quality of life. Also in terms of gender, there are statistically significant differences in some of the items of the scale as it believes that anyone can learn to improve their quality of life as well as older adults who are so sure of themselves as who are not elderly, being more positive attitude of women. Despite this, we conclude that the attitude of the elderly did not differ in terms of gender.

Conclusions: To get a better quality of life in old age suggests act in the way of prevention and promotion biopsychosocial.

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C. FELDBERG, F. TARTAGLINI, A. CLEMENTE & D. STEFANI. PERFORMANCE, CONTROL BELIEFS, AGING AND VERBAL MEMORY SELF-EFFICACY: IN OLDER ADULTS WHO LIVE IN THE INDEPENDENT CITY OF BUENOS AIRES.

Objective: In the present study it will be evaluated the incidence that control beliefs have in episodic memory performance and verbal memory self-efficacy beliefs.

Participants and Methods: There were assessed 200 older adults that reside in the Independent City of Buenos Aires. A descriptive-correlational design of cross section was used.

Instruments:

*Mini Mental State Examination (MMSE)

*Geriatric Depression Scale (GDS)

*Neurological background Interview

*Episodic memory Self Efficacy Inventory

*California Verbal Learning Test.

*Control beliefs :it was used a multiple-choice question about performance perception after the administration of memory test. An open question was also administered, where the participants had to argument their performance perception, which was categorize in internal or external locus of control.

Results: From the values obtained in the statistical analysis made, ANOVA ($F_0 = 7.65$; $p < .001$ it exists a relationship between control beliefs in older adults and self efficacy beliefs, especially with the dimension self efficacy strength. It also exists a relationship between control beliefs and verbal memory performance in the (CVLT) ANOVA ($F_0 = 6.58$; $p < .001$)

Conclusions: Different studies among older adults, suggest that people with a more internal locus of control tend to be more inclined toward applying some form of coping mechanism which then in turn leads to enhanced performance in memory tests. Persons with a more internal locus of control believe they have control over their memory abilities; consequently, they may apply more efficient strategies to cope with memory loss.

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A. VILLAVICENCIO, B. MENEGOLA, J. RODRIGUES, M. SIQUEIRA & M.A. PARENTE. Lexical Organization and its Dissolution in Ageing.

Objective: Kim and Thompson (2004) proposed that Alzheimer causes the loss of semantic information and disorders in the production of verbs with specific semantic content. This work investigates the process of lexical organization and its dissolution in ageing. The goal of this research is to gain a better understanding of the effects of Alzheimer in the structure of the mental lexicon.

Participants and Methods: We compare three populations:

- (a) 40 young adults (M= 21.53 years old and SD=1.97),
- (b) 22 normal elderly (M= 72.4 and SD=8.2) and
- (c) 23 Alzheimer patients (M= 75.6 and SD=6.7). We compared the results of a naming task in 17 action films in Brazilian-Portuguese and the resulting organization of the mental lexicon in each of these groups. A computer model was constructed from the labels produced by each group, generating a graph structure, according to the following procedure: (1) each label was represented as a node x in graph G ; (2) then for each film, a central node corresponding to the most frequent label proposed for that film was linked to all the other nodes for labels proposed for that film, forming a radial-like cluster. 3 different models were produced with distinct characteristics.

Results: A preference for generic labels was found in the elderly population and still more evidently in the Alzheimer patients that were significant when compared to young adults.

Conclusions: Our results confirm the idea that there is a reorganization of the semantic relations of the lexicon with ageing, with new connections between labels emerging and others disappearing.

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Assessment/Psychometrics

C.V. SCHWARTZ BARUJ. INTEGRAL NEUROPSYCHOLOGIC BATTERY FOR THE DETECTION OF THE EARLY ALZHEIMER DISEASE (BINAM - EAP).

Objective: Build and statistically validate an instrument of neuropsychological assessment of Early Alzheimer Disease, to adapt it to the reality of the country in which it is applied. (Argentina), that allows to discriminate against the modality of processing of the information of the subject, and the personal, more effective strategies of resolution of problematic situations, and that is a simple, of easy application and evaluation.

Participants and Methods: This investigation arises from the need to conduct comprehensive assessments of cognitive functioning in older adults, to detect early, mild cognitive impairment and.

The importance of developing the BINAM - EAP is that it is an instrument developed and validated specifically to evaluate cognitive functions of early affectation in older Argentine people.

Results: Much evidence of frequent use, do not qualify psychometric needed to be used. The battery is sensitive to the detection of incipient deterioration in cognitive function. It was demonstrated that a single test can evaluate different functions, without overburdening a battery of tests.

Conclusions: Among the findings are mentioned:

The provision of objective evidence about the areas of early involvement in old age, which makes it possible to limit the exploration to them.

The Battery generated a stimulating effect on the subjects, rather than exhausting, which opens up new perspectives in the evaluation and open the discussion on the current neuropsychological assessment.

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Behavioral Neurology

C.G. ABEL, G.M. STEIN, A. TOMOKO, N.S. GARRETTO & S.E. ROBERTO. Relationships Between Asymmetry Of Motor Symptoms And Cognitive Performance in Parkinson's disease. Retrospective Study Of 27 Patients.

Objective: To study the relationship between motor symptoms asymmetry and cognitive performance in Parkinson's non demented idiopathic Parkinson's disease. Although several studies have investigated this issue, in non demented Parkinson's disease patients, very few studies have used quantitative motor evaluations and considered variables that can influence cognitive performance.

Participants and Methods: Subjects assessed were 27 right handed Parkinson's disease patients divided according to the more affected side. Both groups were matched by age, education, onset age, disease course, Hoehn & Yahr, global motor impairment severity calculated from the motor part of the Unified Parkinson's Disease Rating Scale, Luria Manual Sequences, ideomotor transitive praxis, Beck Depression Scale (BDS) and Mini Mental status Examination (MMSE). Motor asymmetry ranged between 50 to 80%. Neuropsychological battery included Wisconsin Card Sorting Test, Rey Auditory Verbal Learning Test (RAVLT) and a short form of the Buschke Reminding Test (BRT). Between group comparison were done through the "t" test for independent samples.

Results: Between groups comparison demonstrated a significant lesser performance in the RIGHT group (left hemisphere dysfunction) only on the memory domain: verbal learning ($p = 0.039$) and delayed free recall ($p = 0.043$) without significant differences in learning when using encoding strategies (BRT) or free recall facilitated by retrieval cues (RAVLT).

Conclusions: These results show that patients with greater motor impairment on the right side displayed a worse performance on verbal learning and delayed free recall. In conclusion PD patients with more severe left hemispheric impairment are also more affected in memory performance, without significant differences on executive function, logical reasoning, visuospatial function and language. However, greater asymmetries of motor impairment could display asymmetries on other cognitive domains.

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C. DILLON, C. ZEGARRA, C.G. RANALLI, C.M. SERRANO, M. ITURRY, D. SARASOLA, V. VILLAR, F. TARAGANO & R.F. ALLEGRI. Executive Dysfunction in Subtypes of Geriatric Depression (Major depression, Dysthymia, Mood Disorder Unspecified).

Objective: Neuropsychological deficits are a potential part of the clinical presentation in late life depression. Studies of geriatric patients with major depression have documented disturbances in executive functioning, including impaired planning, organizing, initiating, sequencing, shifting, and information processing speed, and working memory.

The purpose of this study is to characterize the neuropsychological profile of different subtypes of geriatric depression.

Participants and Methods: Executive functioning of 69 adults with 3 different subtypes of geriatric depression were compared with 27 healthy subjects. Depressive patients were categorized in 3 different groups using SCAN 2005 (Schedules of Clinical Assessment in Neuropsychiatry). Different Neuropsychological Tests were performed to evaluate executive functions: Wisconsin Card Sorting Test (WCST), Trail Making Tasks, Digit Span, Verbal fluency, serial designs.

Results: Depressive patients were divided in three groups according to DSM IV and CIE 10 criteria (SCAN 2005): Group 1: 26 patients with Major depression (G1), group 2: 27 patients with dysthymia (G2), group

3: 16 patients with Mood disorder unspecified (G3). Mood disorder unspecified patients (G3) demonstrated the poorest performance on verbal fluency ($p < 0.05$), TMT A and B ($p < 0.05$), perseverations; while Major depressive and dysthymic patients (G1 and 2) showed significant impairment ($p < 0.05$) in attention tasks of WCST (non-persistent errors and categories), digit span (direct and indirect), and phonological fluency.

Conclusions: Patients with Mood disorder Unspecified had significant impairment in

executive functioning while major depressive and dysthymic patients demonstrated more attentional deficit. Mood Disorder Unspecified when geriatric depression tends to have notable executive dysfunction is important to consider.

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C. DILLON, C.M. SERRANO, M. ITURRY, G. ROJAS, S. O NEILL, L. LOÑ, F. TARAGANO & R.F. ALLEGRI. Geriatric Depression in a Memory Laboratory Unit.

Objective: Several Studies had demonstrated cognitive disorders in geriatric depression. In the other hand, mild cognitive impairment is frequently associated to depressive symptoms. At time of diagnosis, this constitutes a notable controversy

Hypothesis: Subtypes of geriatric depression have different cognitive profile. Aims: Discriminate different subtypes of geriatric depression and evaluate their cognitive profile.

Participants and Methods: Seventy depressive outpatients from the Memory Unit (Hospital Zubizarreta), classified in three different groups according to SCAN 2005 diagnosis (Schedules of clinical assessment in Neuropsychiatry, OMS) and twenty nine normal controls matched by age and educational level were assessed.

Age: 64.8 +/- 8.5, Educational level: 11 +/- 4, MMSE: 27.9 +/- 3. All were assessed with an extensive neuropsychological battery.

Results: Depressive patients were divided in three groups: Group 1: Major depression, group 2: dysthymia, group 3: mood disorder unspecified. Significant differences ($p > 0.05$) were found in multiple cognitive domains (memory, attention, language, executive functions, visuospatial abilities) between depressive patients and normal controls. Intrusions, language and verbal fluency impaired were found in the three groups. Mood disorder unspecified (group 3) demonstrated higher memory impairment than the other groups (1 and 2).

Conclusions: Geriatric Depression had multiple domain cognitive impairment. Mood disorder unspecified exhibited more severe disorder than the other subtypes of depression and could be probably considered at risk of mild cognitive impairment

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K. KOSMA, A. SIANNI, K. LIATSOS, A. CANOTOPOULOU & V. ROUMBOS. Alterations of impulse control in patients receiving antiparkinsonian agents.

Objective: Aim of the present study was to evaluate the frequency of compulsive behaviours in patients with PD receiving different kinds of anti-Parkinson medication.

Participants and Methods: 142 patients, 55 females and 87 males (mean age 57.6 years) with Parkinson's disease (mean duration 33 months) were included in the study. Patients were free of active psychiatric illness and were receiving anti-Parkinson therapy for at least 3 months.

Results: 32 patients were receiving levodopa monotherapy, 20 were under levodopa and one dopamine agonist (pramipexole or ropinirole), 54 were under one or two dopamine agonists (pramipexole or ropinirole) 20 were under rasagiline only and 16 under rasagiline and levodopa. 9 out of 142 patients (6.3%) of the Parkinson treated patients

were detected to suffer from compulsive behaviours of different kinds. 8 patients were males and 1 was a female (mean age 55.8).

6 patients were receiving dopamine agonists only, 2 patients were receiving levodopa and a dopamine agonists and 1 patient was on levodopa monotherapy.

Conclusions: Compulsive behaviours were associated with the use of dopamine agonists alone or in combination with levodopa but not with treatment with rasagiline when it was used alone or in combination with levodopa. Younger males tend to suffer more frequent from these complications, therefore they should be informed about the risk to develop treatment-associated behavioural changes

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Cognitive Neuroscience

J.J. CERVANTES. Evaluation of executive functions in women with borderline personality disorder (BPD).

Objective: The aim of this study was to evaluate the executive functions in a inpatient group diagnosed with BPD and compare them with a control group.

Participants and Methods: We included eleven women with BPD and five women in the control group. We used the semistructured interview for axis II of the DSM-IV (SCID-II). We applied both groups a battery of executive functions validated in Mexico (Flores, Ostrosky-Solis 2006).

Results: Performance of Borderline patients was significantly lower, in 6 of 14 tasks of neuropsychological battery, in comparison to control group. Patients showed significant differences in gambling test ($U = 6.5$, $p = 0.017$), in Wisconsin Card Sorting Test ($U = 5$, $p = 0.007$), in tasks related with semantics and proverbs ($U = 8$, $p = 0.017$; $U = 10.5$, $p = 0.049$), in tasks related with working memory ($U = 5.5$, $p = 0.012$). Attention processes and metacognition were preserved, and they didn't showed mistakes in set maintenance.

Conclusions: This results suggest a low behavioral self-monitoring for the manifestation of risky behavior, a poor mental flexibility that is reflected in the observed difficulty to change behavioral answers in form of changes in contingencies (set-shifting). In the other hand, they don't show metacognition disruptions and they do detect mistakes, what means they can focus on a target, but have trouble on changing attention focus.

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A. IBANEZ, J. SCHROEDER & E. HURTADO. Gesture Integration and Meaning Construction During Natural Speech in Mild Cognitive Impairment and Alzheimer Patients: an ERP study.

Objective: Currently, ERPs research can be used as tool to examine cognitive function in Mild Cognitive impairment (MCI) and probably to investigate its neural progression to Alzheimer's disease (AD). We study the electrophysiological correlates of cross-modal semantic integration of gesture and speech in literal and metaphoric expressions, in participants with confirmed diagnosis of MCI, mild AD and Controls matched by age, IQ and gender.

Participants and Methods: We recorded event-related potentials (ERPs) while

10 MCI, 12 AD and 10 Controls participants viewed short video streams of bodily gestures (arm/hand gesture) congruent or incongruent with the literal or metaphorical meaning of verbal expressions. We record both the gesture stroke onset and the word onset of metaphoric and literal expressions

Results: Both AD and MCI participants shows an impaired amplitude, latency and morphology of N400-like component, compared to controls. AD participants have a stronger deficits related to N400 amplitude, es-

pecially in more abstract semantic integration (Metaphoric expressions) suggesting that N400-like component elicited by co-gesture speech can serve as an early biomarker for the development of AD.

Conclusions: These results demonstrate an electrophysiological deficit in co-gesture speech semantic integration in MCI subjects, and a stronger deficit in AD; suggesting a possible use of N400-like component related to co-gesture speech as a biomarker for early AD.

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J. KAMIENKOWSKI, M. WINOGRAD, S. VANOTTI, M. SALADINO, F. CÁCERES & M. SIGMAN. Information Processing in Multiple Sclerosis Patients.

Objective: When two tasks are presented simultaneously or at a short stimulus onset asynchrony (SOA), a systematic delay in the execution of the second task is observed while response times (RT) to the first task are unaffected. This phenomenon, referred as Psychological Refractory Period (PRP), has been widely used in normal subjects to understand the temporal organization of different stages of information processing. Here we investigate PRP performance in patients with Multiple Sclerosis (MS) with Relapsing-remitting pattern. Since a primary aspect of the pathophysiology of MS is demyelination of long distance fibers, we hypothesized that the dynamics of information processing may be affected, even at early stages of the disease when no other cognitive impairments are evident.

Participants and Methods: PRP performance was evaluated in MS patients and in control subjects. Cognitive general performance in MS patients was evaluated using the Brief Repeatable Battery-Neuropsychology, Trail Making and Conners Performance Test.

Results: We found that performance in dual-task is significantly impaired in MS patients. First, MS patients perform slower than controls in PRP tasks. This is particularly accentuated in the response time to the second task, which is affected by dual-task interference. Second, we observed a strong effect of notation in the patient group: the difference between the RTs in words-written numbers vs. digits-written numbers trials was significantly higher than in the control group. In addition, patients manifested a systematic difficulty in executing both tasks in close succession.

Conclusions: From this preliminary experiment, we can conclude that MS patients with no evident signs of cognitive disabilities, have already compromised some particular aspects of information processing.

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S. OKAJIMA, C.C. ROCCA, F.N. DEMETRIO & C.T. TUNG. Cognitive Profile of Bipolar Patients Treated with Memantine: a Description of Three Cases.

Objective: The objective of this study was to perform a pilot-study, in order to examine the possible beneficial effects of memantine, added to regular medication in use by the patients, in patients with treatment-resistant Bipolar Disorder.

Participants and Methods: Three patients that were using regular medication that could cause cognition impairment (eg, topiramate) were evaluated before they took memantine and after 4 months of continuous use. It was used clinic anamnesis for collection of demographic information and the rates of Hamilton Rating Scale for Depression and Anxiety (HAM-D, HAM-A) and Young Mania Rating Scale (YMRS). Neuropsychological tests were used for evaluation of attention, memory, speed of processing, executive functions and intellectual efficiency. The same tests were used in the reassessment and were presented in the same order.

Results: In reassessment, patients showed improvement in mood symptoms, assessed by the scales. Overall, some of the functions evaluated also showed improvement, the more expressive results were in tests of verbal and visuospatial memory.

Conclusions: Memantine could have improved the performance of these patients in the evaluation as reported in their everyday lives. Randomized double-blind controlled studies are needed to validate this pilot-study.

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G. ORELLANA, A. SLACHEVSKY & M. PEÑA. Role of executive attention and strategic self-regulation in first episode of schizophrenia.

Objective: Contribute to explain the mechanisms of behaviour disorders in schizophrenia, specifically disexecutive behaviour. Two functions have not been completely studied in schizophrenia: executive attention and strategic self-regulation of behavior. The aim of our study is to determine which of the three attentional networks – alert, orientation and executive attention – works abnormally in schizophrenia and if patients present an upheaval the self-regulation. We also study the relation between troubles in these functions and the existence of psycho-social problems.

Participants and Methods: 20 patients, of both sexes, aged 18 to 30 years, each with only one psychotic episode treated. The following tests were applied: Test of Raven to evaluate IQ; ANT to evaluate attentional networks; Mattis's Dementia Rating Scale, WCST and FAB to evaluate executive functions and Six Element Test to evaluate strategic self-regulation. The disexecutive behaviour was evaluated the DEX and the Grefex's questionnaires. In order to evaluate schizophrenia symptoms, we applied PANSS. A group of 20 healthy controls matched by sex, age and educational level was included in the study.

Results: Our results revealed that patients presented an specific disorder in the executive attention, and poor performances in the Six Elements Test – they applied non efficient strategies during the execution of the task. Moreover, patients presented statistical differences with controls in Raven, WCST, Mattis's Dementia Rating Scale, FAB and disexecutive questionnaires. Performances in executive attention and Six Elements Test are correlated with some disexecutive questionnaires subtests. Performances in executive attention and Six Elements Test are not correlated with Mattis and Raven.

Conclusions: Our results suggest that troubles in executive attention and strategic auto-regulation could explain some pathological behaviours in schizophrenia.

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Dementia Alzheimer's Disease

R.L. ADLINGTON, K.R. LAWS & T.M. GALE. The Role of Surface Information and Colour on Picture Naming in Alzheimer's Disease.

Objective: There is much inconsistency in the literature, regarding whether category-specific deficits occur in patients with dementia of Alzheimer's type (DAT), which may partly be attributed to; ceiling effects/the skewed distribution of control data, and the modality of image presentation. As such, the aim of this study was to explore picture naming in DAT patients and age matched controls, across different image modalities (colour, greyscale, and monochrome) using stimuli with below ceiling naming performance in healthy participants.

Participants and Methods: Three experiments were conducted, all of which employed a naming task using stimuli derived from the Hatfield Image Test (HIT). Colour images were used in experiment 1 (15 patients, 13 controls); whilst experiments 2 (12 patients, 13 controls) and 3 (14 patients, 14 controls) employed greyscale and monochrome line-drawn versions of exactly the same images respectively.

Results: Experiments 2 and 3 revealed a significant advantage for non-living things. Within-group comparisons showed that control performance improved linearly with the addition of surface detail, across both living and non-living categories. Thus, control naming was significantly

better with colour than greyscale, and with greyscale than monochrome images. By contrast, modality had no effect on the ability of DAT patients to recognise non-living things, though recognition of living items was significantly better when the images were presented in colour or greyscale, than when they were presented in monochrome.

Conclusions: These findings are discussed in relation to current theories of object recognition, and in regard to the implications of these findings for the use of line drawings to explore category-specificity in DAT patients. Correspondence: *Rebecca L. Adlington, BSc Psychology, Psychology Department, University of Hertfordshire, College Lane, Hatfield, Hertfordshire AL10 9AB, United Kingdom. E-mail: r.l.adlington@herts.ac.uk*

V.S. BAHIA, M.T. CARTHERY-GOULART, M.M. NOVELLI, E.M. KATO, R. AREZA-FEGYVERES, P. CARAMELLI & R. NITRINI. Functional disability in Alzheimer's disease: a validation study of the Brazilian version of the Disability Assessment for Dementia (DAD).

Objective: The assessment of activities of daily living (ADLs) is very important both to the diagnosis and staging of dementia. The objective of this study was to verify the applicability and validity of the Brazilian version of the Disability Assessment for Dementia (DAD).

Participants and Methods: The DAD was administered to caregivers of 89 patients with probable Alzheimer disease (AD) and 40 healthy controls. Patients were followed by a multidisciplinary team at the Behavioral and Cognitive Neurology Unit, Hospital das Clínicas, University of São Paulo School of Medicine.

Results: AD patients and controls mean ages were respectively 76.4 ± 6.9 and 72.7 ± 13.7 years ($p=0.007$). Mean MMSE scores were 17.4 ± 5.0 and 26.1 ± 5.1 ($p<0.001$) and scores for the DAD were 68.4 ± 19 and 97.3 ± 15.6 ($p<0.001$), respectively. DAD scale showed good internal consistency (Cronbach's $\alpha = 0.77$) and was correlated to the MMSE ($r=0.44$; $p<0.001$). Test-retest and inter-examiner reliability were also high. The AD group showed better performance in basic ADLs than in instrumental ADLs ($p<0.001$). As expected, controls didn't exhibit deficits in the areas evaluated.

Conclusions: The Brazilian version of the DAD is an adequate and reliable tool for functional assessment in AD patients.

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L. CAIXETA, M. CAIXETA & V.M. CAIXETA. Neuropsychology of the Self: Insight Deficits (Anosognosia) in Frontotemporal Dementia and Alzheimer's Disease.

Objective: We objective to describe and compare insight deficits and related variables in Alzheimer's disease and frontotemporal dementia in order to suggest potential neurobiological basis to self-awareness and a particular affiliation to frontal lobes.

Participants and Methods: Twenty patients with Frontotemporal Dementia (FTD) and 22 with Alzheimer's Disease (AD) were evaluated in one specific dimension of self-consciousness: insight. Cognitive (Mini-Mental State Examination – MMSE – Folstein et al., 1975), functional (Pfeffer et al., 1982), psychopathological (Frontal Behavioral Inventory – FBI – Kertesz et al., 1997) and neuroimaging (SPECT scans) measures were statistically analysed in association with measures of insight (Scale to Assess Unawareness of Mental Disorder – SAUMD – Amador et al., 1993), making use of univariate analysis, Fisher Exact Test, student test.

Results: - Insight deficits were invariably important and frequent in FTD, but more mild and variable in AD. Insight deficits showed association with frontal damage. Insight was significantly associated with some variables (severity of illness, functional adaptation, negative symptoms), but not with others (sex, age, duration of illness, years of education) in a general form for FTD and AD groups.

Conclusions: Insight deficits seem to be more related to the topography of degenerative lesions than to the type of dementia and have predictive value to program more early and intensive actions in order to minimize socio-functional limitations related to deficits in in-

sight. Such deficits seem to constitute markers of the pathophysiological process involved in the deterioration of the frontal lobe executive functions. Many of the more representative FTD behaviors may be understood as phenomenological manifestations related to insight deficits.

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A.L. FERNÁNDEZ & L.M. MANOILOFF. Long-term Cognitive Treatment of Alzheimer's Disease: A Single Case Study.

Objective: To evaluate the effects of long-term cognitive rehabilitation treatment in a patient diagnosed with Alzheimer's disease.

Participants and Methods: One individual diagnosed with Alzheimer's dementia (AD) was treated with neuropsychological rehabilitation techniques as well as drugs for a period of 2 years and 10 months. An A–B–A–B design was performed for the cognitive treatment. Neuropsychological treatment consisted of a combination of direct re-training and training in activities of daily living. Cognitive performance was monitored with the Mattis Dementia Rating Scale.

Results: Results showed improvement and a slower decline during the treatment phases (A) as compared to the no-treatment phases (B). The Conceptualisation and Attention subscales

benefited most followed by the Memory subscale. Benefits were also observed in the performance of activities of daily living, specially as regards functional independence.

Conclusions: Long-term treatment was shown to be effective in AD. Although cognitive drugs may have been beneficial neuropsychological rehabilitation played a crucial role in the success of this treatment, appearing as a necessary condition.

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S. FERNÁNDEZ GUINEA, M. DELGADO, E. PÉREZ, A. FRANK & J. ÁLVAREZ. VERBAL WORKING MEMORY MEASURES AND SENTENCE COMPREHENSION IN ELDERLY PEOPLE AND ALZHEIMER'S DISEASE PATIENTS.

Objective: Working memory is a memory system that not only stores but also processes information. In sentence comprehension, the storing function is associated with partial and final products maintenance, and the processing information function is related with syntactic analysis, thematic assignation and the comparison and integration of information. There is evidence that working memory resources are altered in elderly people and Alzheimer's disease patients. But the results of several studies do not show that these groups of people have more difficulties to process syntactic complex sentences. In order to explain these results have been proposed two hypothesis: some authors propose the existence of a general verbal working memory system, meanwhile others defend a subdivided specific verbal working memory system for this linguistic process. The main objectives of this research are: 1) analyze different measures designed to assess verbal working memory and 2) compare the performance of elderly people and Alzheimer's disease patients on measures of working memory and sentence comprehension.

Participants and Methods: Different measures of working memory (general and linguistic specific components) (Digits and Letters subtest, an Spanish version of Daneman and Carpenter's task, n-back paradigm, etc.) and a sentence comprehension battery (ECCO) were applied to two groups: healthy elderly people ($n=12$) and mild Alzheimer's disease patients ($n=10$), diagnosed following the NINCDS-ADRDA criteria.

Results: The preliminary data show a poorer significant different performance on specific verbal working memory measures of Alzheimer's disease patients compared with elderly people. These patients also presented poorer results in complex sentence comprehension tests.

Conclusions: Verbal working memory deficit could be related with complex sentence comprehension difficulties observed in mild Alzheimer's disease patients.

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Y. FERNÁNDEZ-GARCÍA, M. BOBES-LEÓN, E.C. RUIZ-LÓPEZ, F. LOPERA, Y.T. QUIROZ, Y. ITURRIA & Y. ALEMÁN. ERPs and MRI study in early stage of Alzheimer's Disease.

Objective: Alzheimer's disease (AD) diagnosis depends mainly on clinical criteria. It is important to find objective markers. This work studies ERPs (N400 component) and MRI, morphometry and fractional anisotropy (FA) in early stages of AD

Participants and Methods: Two populations were tested, families with the E260A presenilin-1 mutation and amnesic mild cognitive impairment (aMCI) patients. In both high density ERP were recording during a semantic task for studying the N400 component. Topography and inverse solution analysis (ISA) were carried out. For MCI patients also T1 and DTI image were obtained on a 1.5T MRI scanner. Brain structure volumetric measures and FA in the white matter tracts with a t-test voxel to voxel, were carried out.

Results: In the familiar forms the behavioural data and N400 amplitude are similar for both healthy subjects (HS) and asymptomatic carriers (AC), the mildly demented (MD) showed decreased. The topographic distributions of N400 were different between HS and AC. The ISA showed two N400 main neural sources: anterior cingulate and left temporal pole for HS; the last were absent for the AC group. The aMCI results replicated it, with different N400 amplitude and topography compare to elderly controls. Gray matter atrophy in temporal regions and FA decrease in some tracts were found aMCI.

Conclusions: Functional damaged of the temporal pole is related to familiar AD progression, are consistent with semantic processing impairment. Congruent, there is gray and white matter damage in aMCI. Relevant issue. The combined study of electrophysiological markers and the gray and white matter combined study allow a better understanding of cognitive deficits in the preclinical stage of AD.

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P. FIGUEIREDO, R. LEMOS, I. SANTANA, M. VAN ASSELEN, M. SIMÕES & M. CASTELO-BRANCO. SPECIFIC VISUAL DEFICITS IN MILD COGNITIVE IMPAIRMENT AND ALZHEIMER'S DISEASE.

Objective: Mild cognitive impairment (MCI) is thought to represent a transitional stage between normal aging and early dementia, particularly Alzheimer's disease (AD). Visual impairments have been reported in AD, consistently with the presence of cortical degeneration in visual areas. We aimed to investigate whether such deficits are already present at the stage of MCI.

Participants and Methods: Groups of amnesic MCI (N=20), AD (N=20) and matched controls (N=20) were studied. Patients were recruited following diagnosis through neurological and neuropsychological assessment, using Petersen's classification criteria for MCI. All participants provided informed consent and underwent ophthalmologic examination to exclude any relevant retinal pathology.

Cognitive function was assessed using a neuropsychological battery, consisting of: WAIS III – Vocabulary, Digit Span and Digit Symbol; Rey Auditory Verbal Learning Test (AVLT); Benton Visual Retention Test and Benton Face Recognition Test. Visual function was further assessed using psychophysical tests: Frequency Doubling Test; Cambridge Colour Test; Structure From Motion (SFM) perception and visual search.

Results: Statistical analysis of the data showed significant effects of group in all tests. Post-hoc comparison between groups revealed significant impairment of AD patients relative to controls in all tests, while MCI patients were impaired only in AVLT recall, Digit Symbol

task, SFM discrimination threshold and visual search reaction times. In all cases, MCI patients were significantly less impaired than AD patients.

Conclusions: Our results confirm the presence of severe visual function deficits in AD, by using objective psychophysical tests of contrast sensitivity, colour perception, structure from motion and face perception. In MCI patients, specific deficits were found for SFM and visual search, suggesting that parietal function becomes affected early in the course of disease, while occipital cortex degeneration probably occurs only at a later stage of dementia.

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R.L. GRILLO & C.A. MANGONE. Differential Diagnosis Between Depression and Very Mild Cognitive Impairment. Effortful vs Automatic Memory Process.

Objective: To Determine markers for differential diagnosis among Depressive patients (DP), very mild Alzheimer Disease (vmAD) and Normal Controls (NC)

Participants and Methods: Memory Processes are classified as active or effortful and automatic. Active memory process codifies, retrieves and recognizes materials previously presented and require great attention demand and correct storage information. Automatic memory processes require less concentration and attention demand but need to maintain precise storage information.

Associative priming and automatic memory processes are useful to differentiate between DP, vmAD and NC

25 DP, 25 vmAD and 27 NC age and education matched were assessed with MMSE, ADAS, Hamilton Depression Scale (HDS), GDS (Reisberg) and Stimulus Modality Monitor Test (SMM) and compared regarding free recall, associative semantic processing of 32 pairs of items, half of which were words and half pictures. Half of pairs were coherent and half not.

Results: Only the associative priming in the drawing modality of the unrelated associates significantly differentiates among the 3 groups. In the incidental learning NC and DP had normal scores compared to vmAD

Conclusions: Memory processes without great attention requirements are useful to differentiate among the 3 groups. The incidental learning phase of SMM shows benefits when a correct diagnosis and treatment between vmAD and DP is needed.

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B.L. BROOKS, G.L. IVERSON, H.H. FELDMAN & J.A. HOLDNACK. Minimizing misdiagnosis: Evaluating new psychometric criteria for memory impairment using the WMS-III with patients with known dementia.

Objective: Memory impairment, a central criterion of prodromal (i.e., mild cognitive impairment) and probable dementia, can be easily misdiagnosed because obtaining some low scores is common in healthy adults. The objective of the present study is to present new psychometric criteria for determining possible and probable memory impairment that minimize misdiagnosis.

Participants and Methods: The criteria for memory impairment were established using 550 healthy older adults (55 to 87 years old) and examined in 34 patients with probable AD. The memory measures included Logical Memory (story recall), Word List, and Visual Reproduction (design recall) from the WMS-III. These 3 tests yield 8 age-corrected scores for learning, recall, and recognition. Criteria for determining memory impairment were based on the prevalence of low scores in healthy older adults when simultaneously examining all 8 scores. The criteria were adjusted for estimated intellectual abilities.

Results: In healthy adults, the number of low scores needed to identify memory problems increases with lesser intellectual abilities and fewer years of education. When applying the new criteria to the sample of pa-

tients with probable AD, 100% were classified as having probable memory impairment.

Conclusions: This study presents the first step in examining a psychometrically derived methodology that minimizes the misdiagnoses of memory impairment. It is imperative to reduce misdiagnosis in order to (a) optimize patient care, (b) provide an accurate foundation for identifying biological and neurological markers in prodromal dementia, and (c) successfully develop disease-modifying treatments. Future research will apply these criteria to patients with prodromal AD.

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A. LLORENTE, C. BINDSCHAEDLER, C. CÁCERES & A. JARNE. Provoked Confabulations in Mild Alzheimer's Dementia.

Objective: To describe the frequency and intensity of provoked confabulations, and to examine its relationship with memory, executive functions and global cognition.

Participants and Methods: 33 elderly subjects with mild Alzheimer's dementia and 37 elderly without dementia between 65 to 85 years of age entered the study. We used the Spanish version of Dalla Barba provoked confabulation's interview, the Spanish version of Grober and Buschke memory test, two tests of the Peraita-Adrados et al.'s semantic memory battery, the Spanish version of the Mattis dementia rating scale with particular emphases in the two subscales of executive function and the Bisiach et al.'s anosognosia scale.

Results: Patients with Alzheimer's dementia made about 14% provoked confabulations. Sixty-four percent of the Alzheimer's dementia patients were considered mild confabulators and presented two times more confabulations than the non confabulators group. All patients with Alzheimer's disease presented a classic amnesic syndrome, with a deficit in encoding and retrieval memory processes, regardless of whether they were confabulators or not. The confabulators group obtained better performance in the conceptual semantic memory task (U de Mann-Whitney=70, $p=0,036$) and in global cognitive performance as assessed by the Mattis dementia rating scale total score (U de Mann-Whitney=65,50, $p=0,022$). They also had a trend towards better executives abilities on the initiation/perseveration subscale than non confabulators (U de Mann-Whitney=75, $p=0,058$).

Conclusions: In mild Alzheimer's dementia, provoked confabulations are frequent but mild in intensity. An amnesic syndrome seems to be a necessary condition for the production of provoked confabulations but, paradoxically, provoked confabulations also require relatively preserved global cognition, semantic processes and some aspect of the executive functions. These results do not support the hypothesis of executive dysfunction or global cognitive impairment in provoked confabulations.

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M.J. MARQUINE, E.L. GLISKY, E. RECKNOR & S. RAPCSAK. Self and Other-Person Knowledge in Alzheimer's Disease and Mild Cognitive Impairment.

Objective: Individuals with Alzheimer's Disease (AD) are often described as "no longer being themselves". However, relatively little is known about the extent to which personality trait knowledge is affected in AD or other memory disorders. Only one case study has been reported in the literature exploring such knowledge in an individual with AD. The aim of the present study was to explore the extent to which patients with mild cognitive impairment (MCI) and AD retain and/or update their self-knowledge.

Participants and Methods: Ten individuals with AD, 10 individuals with MCI, and 10 controls underwent neuropsychological evaluation. Additionally, participants and their informants completed personality

trait questionnaires to assess consistency and "accuracy" of self- and other-person knowledge.

Results: Intraclass correlation coefficients between personality traits ratings were computed to assess self- and other-person knowledge. A between-subjects analysis of variance on these measures showed that AD patients were as consistent as MCI patients in rating themselves, but were less accurate than MCI patients and controls in doing so. In contrast, there were no group differences on other-person knowledge measures. Further, AD patients who showed inaccurate (but consistent) knowledge of self, tended to rate themselves as they used to be prior to disease onset. Results from a multiple linear regression analysis found frontal function to be the main predictor of accuracy of self-knowledge.

Conclusions: At least some AD patients, particularly those with compromised frontal functioning, may be unable to update their sense of self and may be operating based on knowledge of a former self.

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I.C. PUERTA, R. MÚNERA, J. CHAVARRIAGA & J. MARTÍNEZ. Symptoms behaviour early in Alzheimer dementia.

Objective: Cognitive symptoms are associated with dementia, although there is a high risk of behavioral symptoms initially. By the above, the objective is to determine the frequency of behavioral symptoms associated with Alzheimer dementia.

Participants and Methods: Reviewed the medical records for a study retrospective in a group of 68 carriers of the E280A PS1 mutation, Attending the Neurosciences group (Medellin-Colombia).

Results: The behavioral symptoms early in Alzheimer Dementia were most prevalent irritability, apathy, crying, sadness, sleep disturbance and eating disorder.

Conclusions: The behavioral symptoms Could be part of the category of a disorder of mood, interpreted as an early symptom of developing Alzheimer dementia or at least as a rule modifying the age of onset.

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J. RINALDI, G. SBARDELLOTO, C.H. KRISTENSEN & M.M. PIMENTA PARENTE. TEXTUAL READING COMPREHENSION AND LEXICAL PRODUCTION IN ALZHEIMER DISEASE PATIENTS.

Objective: aim of this study was to verify naming and reformulation of actions difficulties in AD patients and their relation with the retelling of stories.

Participants and Methods: We observed 28 elder participants: 17 - probable AD and 11 - control, with schooling ≥ 4 years. The textual reading comprehension was measured through four stories with descriptive and narrative textual structure. The lexical production was verified by 17 actions in video, assessed by the participants' first and second verbal emission.

Results: The results showed that the retelling of stories is a task that discriminates patients with AD from healthy individuals. The naming and reformulation of actions tasks did not show significant differences among the patients and their controls. A positive correlation was found between the difficulties in retelling stories and the reformulation of the naming of actions. These results confirm previous findings that show the preservation of naming actions in patients with AD, in the familiar actions, and that the retelling of short stories is an instrument that discriminates patients with AD from healthy elders.

Conclusions: They also suggest that the difficulties in retelling are related to failure in reformulating information, perhaps originated from mechanisms of decreased labor memory.

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J.C. RODRIGUES, M.L. CHAVES & M.M. PARENTE. Cross-cultural effects on action naming in French and Brazilian Portuguese native speakers Alzheimer's disease patients.

Objective: Patients with probable Alzheimer's disease (AD) have significant difficulty in naming. Although this deficit has been the subject of considerable investigation for nouns, the impairment for verbs in AD is less well understood. The objective of this work is to evaluate the influence of the language, as expression of culture, and of the neurodegenerative process, on verb responses in native speaker samples from France and Brazil.

Participants and Methods: Study participants were 47 patients with AD (24 French and 23 Brazilian) and 46 normal elderly (24 French and 22 Brazilian). Age and gender were controlled. Participants performed a task of naming actions presented by short videos. Responses were classified according to three criteria: verbal response, specificity and conventionality.

Results: Analysis with no schooling control showed: (1) effect of AD on verb responses; (2) effect of country and group on specificity; and (3) an interaction between country and AD on conventionality. However, the model with schooling as covariate did not show significant effect of Group and Country or their interaction for verbal and specificity scores. A significant effect of the interaction of Country and Education was observed when specificity was analyzed. Moreover, a significant interaction between Group and Country regarding conventionality was found independent on education.

Conclusions: The French AD patients were the less conventional group, followed by the Brazilian AD patients, the French Normal Elderly, and the Brazilian Normal Elderly, who were the more conventional group. These results show that contradictory data found in literature can be due to a lack of control of schooling.

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W.Y. RUBINSTEIN & D. POLITIS. HETEROGENEITY CLINIC OF DEMENCIA AND APRAXIA SEVERITY IN ALZHEIMER DISEASE PATIENTS.

Objective: Clinical Alzheimer Disease (AD) evolution introduced large clinical heterogeneity.

While some studies with patients with AD found that apraxia is a function early altered their relationship to clinical diversity has not been severely studied.

It had been described different clinical subtypes; Mayeux reported the existence of 4, which have different levels of severity and cognitive function. The clinic diversity has not been clearly investigated.

Objectives: study the relation between Mayeux clinical subtypes, dementia severity, limb apraxia and functional decline in AD patients.

Participants and Methods: We tested 49 AD patients. We administered the Praxis Battery (Politis & Margulis) and used the Index of Katz and Questionnaire of Lawton & Brody to see the performance in the basic activities of daily living and the Instrumental activities of daily living. We used Clinical Dementia Rating, el Global Deterioration Scale and Mini-Mental State Examination to assess severity of dementia.

Results: We found strong relationship between Mayeux classification and dementia severity, apraxia severity and functional decline.

Conclusions: Dementia severity, apraxia severity and functional decline seems to accompany the different clinical subtypes described by Mayeux, thus the detection and evaluation of the same could contribute to the AD clinical classification and prognosis.

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J.C. ZARRA & L.C. SCHMIDT. Association between Memantine and Galantamine as a treatment of Alzheimer's disease.

Objective: The efficacy, safety, and tolerability of nootropic cholinergic agent: galantamine (with a dual mechanism of action on the cholinergic system) and moderate affinity NMDA- receptor antagonist: memantine were assessed taking into account the profile of patients with neurocognitive disorder: Alzheimer's disease, from the clinical aspects and the different classifications.

Participants and Methods: The experience included 188 patients who were enrolled in a prospective, observational, multicenter, and open-label study to receive 16 mg/day of galantamine and 30 mg/day of memantine for 12 months of treatment of addition.

Results: The therapeutic response was measured using the Mini Mental State Examination (MMSE), Clinical Dementia Rating (CDR), Alzheimer's Disease Assessment Scale (ADAS-GOG) the Clinical Global Impression Scale (CGI) and the UKU scale of adverse effects taking into account the efficacy, safety and adverse events of the treatment.

Conclusions: The final results of the study showed that galantamine with addition memantine improves cognition, behavioural symptoms, and the general well-being of patients with cognitive impairment: Alzheimer's disease. The incidence of adverse events was not significant and a very good profile of tolerability and safety was observed.

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Dementia Subcortical (e.g., Huntington's, Parkinson's, PSP)

J.B. ALLEN. Working Memory and subjective memory complaints in a sample of individuals with PD and their caregivers.

Objective: The current study sought to gain normative and correlational information on two versions of the Memory Assessment Clinics Scales within a sample of 29 healthy individuals and 26 individuals with Parkinson's Disease. Normative information was obtained on the MAC-S and MAC-F for each of five global domains (ability, frequency, description, speed, and distress). Additionally, scores on these reported memory symptoms were related to performance on a variety of formal working memory measures (Seashore Tonal Memory, Logical Memory, Spatial Span, Letter-Number Sequencing).

Participants and Methods: Fifty-five participants (26 participants with a diagnosis of Parkinson's Disease and 29 health control participants) completed a series of working memory measures and subjective memory complaint questionnaires

Results: Along with significant differences in MAC-S and FAC-F scores between control and PD participants on a number of domains (e.g. MAC-F Ability $t=4.25$, $p<.001$). A number of significant correlations emerged for the MAC scales and formal measures of working memory (e.g. Logical Memory II and MAC-S Frequency $r=.48$).

Conclusions: Implications for improving clinical assessment and family/caregiver information will be discussed.

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L.M. CASAS, U. RODRIGUEZ & J. SALVADOR. Screening of Cognitive Skills in Young People With Parkinsonism.

Objective: Parkinson's disease (PD) is a progressive neurodegenerative disorder associated with motor, cognitive and affective symptoms. This study explore the cognitive skills of young people with Parkinsonism.

Participants and Methods: Twelve patients (3 female), with mild to moderate primary and secondary parkinsonism, with mean age of 40.3 (S.D. 7.4) years, were recruited in a public institution. The mean time since diagnosis was 6.42 (S.D. 4.08) yrs. The mean of education was 8.17 (S.D. 1.4) yrs.

All subjects tested when optimally medicated. Instruments used were MMSE and FAB. We agreed a cutoff score of 24 in the MMSE to suspect cognitive decline associated with dementia, and a cutoff score of 12 in the FAB for frontal lobe dysfunction.

Results: The group had a MMSE mean score: 26.64 (S.D. 2.06). Frequently errors were found in mental calculation and delayed recall. In the FAB, the mean punctuation was 14.79 (S.D. 1.76). Many patients had troubles with: similarities / conceptualization, lexical fluency, motor programming with absence of kinetic melody and inhibitory control while performing a go-no go paradigm. All did well following conflicting instructions and voluntary control-prehension.

There were no differences between people with primary or secondary parkinsonism. None of the participants went under the score for dementia or executive frontal dysfunction, nonetheless those with more years of formal education performed better in the FAB.

Also it was found that writing quality and drawing ability were more impaired in subjects who had been suffering the disease for long time.

Conclusions: Obtained data was similar with literature which points to preserved naming, repetition and writing abilities in PD, and problems when maintaining a relevant task set in working memory due to impaired attentional processes. This is a first step to demonstrate that young people with parkinsonism show cognitive impairments, preferably of the frontal lobe, just as the older patients. Nonetheless further investigation is needed. Correspondence: *Luz M. Casas, unam, 709 recife, col. lindarista GAM, Mexico City 07300, Mexico. E-mail: psycholuz@yahoo.com*

K.M. LOMBARDI & E. MOES. Vision and gait: Self-report versus performance in Parkinson's disease.

Objective: Self-report measures provide a time-effective and practical means of assessment. However, their utility is limited by their criterion validity, i.e., the extent to which they actually predict what they purport to measure. Parkinson's disease (PD) is characterized by both gait-related and visual (including reading speed) problems. This study sought to determine to what extent self-reported awareness of difficulties in either area was related to actual performance.

Participants and Methods: Twenty-two community-dwelling volunteers with Hoehn & Yahr Stage I-II PD were administered a demographic questionnaire, a visual difficulties questionnaire, the Pelli-Robson Contrast Sensitivity test, the Snellen acuity test, the Nelson-Denny Reading Test (NDRT) to measure reading speed, the Shipley Institute of Living Scale to obtain a measure of cognitive status, and were asked to walk 10 meters twice at their preferred speed in an indoor hallway setting. Step length and walking speed were recorded. Mean age was 68 years (SD = 11.5). As a whole the group was highly educated with a mean of 17 years of schooling (SD = 2.54) and included 14 males and 8 females. All participants were taking dopaminergic medication; however, medication was not withheld for the purpose of this study. No on/off episodes were observed during testing.

Results: Self-reported visual problems were moderately related to both contrast sensitivity and acuity, but not to cognitive status. Self-report of reading speed was moderately related to cognition but not to reading speed on the NDRT. Self-reported difficulties ascending or descending stairs were not related to stride length or walking speed, nor was cognitive status.

Conclusions: Results are consistent with prior studies, and suggest that self-report of difficulties is an unreliable indicator of actual ability in PD and cannot replace standardized testing and performance measures. Correspondence: *Elisabeth Moes, Ph.D., Psychology, Suffolk University, Donahue 619, 41 Temple Street, Boston, MA 02108-2770. E-mail: elisabethmoes@yahoo.com*

C. SOARES, L. CAIXETA, V. DIAS & M.C. LACERDA. LANGUAGE ABNORMALITIES in HUNTINGTON'S DISEASE.

Objective: Investigated language deficits in Huntington's disease

Participants and Methods: five (5) members of the same family with Huntington's disease (HD), using Boston Diagnostic Aphasia Examination protocol to test language functions in various modalities

Results: Huntington's disease was identified with a significant reduction in number of words produced, a diminished level of syntactic complexity, reductions of melodic line, phrase length, articulatory agility, and grammatical form, and increases in paraphasic errors and word-finding difficulty. The growing gradient of language disturbance seen when considering the members of the family beginning from the youngest and with less

duration of disease to the oldest and with more duration of disease seems to reflect the pattern of progression observed along time in one subject

Conclusions: The most characteristic speech features included in Huntington speech are sudden forced inspiration or expiration, irregular articulatory breakdowns, phonatory impairments (such as harsh or strained-strangled voice quality and excess loudness variations), and prosodic changes (such as monotony, prolonged intervals, inappropriate silences, and excess and equal stress) The data support the hypothesis that progressive neostriatal pathology affects linguistic processing also in a progressive way, depending mainly on disease duration of each case.

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A.I. TROSTER, S.P. WOODS & K. MOHN. Prospective Memory in Parkinson's Disease: An Evaluation with the Memory for Intentions Screening Test (MIST).

Objective: Studies of prospective memory (PM) in Parkinson's (PD) disease are equivocal about PM impairment but agree that working memory is critical to PM. The purpose of this study was to evaluate PM in PD using the Memory for Intentions Screening Test (MIST). Given the fronto-subcortical pathology of PD, it was anticipated that PD would be more impaired on time- than event-based tasks, that this impairment would be related to attention/working memory, and that akinetic-rigid PD would consequently be more impaired than tremor-predominant PD.

Participants and Methods: 31 patients with PD (mostly Hoehn and Yahr stages II and III) were administered the MIST and Mattis Dementia Rating Scale (DRS-2). MIST performance was compared to a matched normal control group's (NC; n=17).

Results: The PD group's MIST performance (summary score) was mildly impaired (about 1.5 standard deviations below the NC mean). Performance on time- and event-based tasks was similar, but poorer on items involving verbal (z -1.36) than action responses (z -0.75). MIST scores were correlated with DRS-2 Attention, Initiation/Perseveration, and Memory scores. Verbal-response item performance was more strongly associated with Memory (r=0.63) than Initiation/Perseveration (r=0.37), whereas action-response items showed the converse pattern (Memory r=0.38, Initiation/Perseveration r=0.50). There were no differences in MIST between akinetic-rigid and tremor-predominant PD.

Conclusions: Patients demonstrated mild PM impairment which may emerge only later in PD. PM impairment was independent of PD subtype. Although event- and time-based task performance was similarly compromised, tasks requiring verbal responses revealed greater impairment than action items. Correlations with a cognitive screening measure showed that impairment on verbal items is predominantly related to memory and perhaps to dysfunction of a different neural system than the frontal-subcortical dysfunction underlying diminished initiation associated with poor performance on action response items.

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Dementia: other (e.g., Semantic Dementia, FTD, VaD)

L. CAIXETA, V.D. SOARES & M.C. LACERDA. Neuropsychological and Behavioral Aspects of White Matter Dementia.

Objective: To characterize white matter dementia in behavioral and cognitive terms.

Participants and Methods: We evaluated with a comprehensive neuropsychological battery (WAIS) and with Neuropsychiatric Inventory 10 different cases, each one illustrative of a dementia subtype that could be assigned under the category of 'white matter dementia': CADASIL, progressive subcortical gliosis, progressive multifocal leukoencephalopathy, normopressure hydrocephalus, metachromatic leukodystrophy, HIV dementia complex, Binswanger's disease, multiple sclerosis, Alexander's disease and brain injury.

Results: Pattern of neuropsychological performance in the presented cases, for instance, can be associated to a general slowing of cognition, i.e., impaired speed of information processing, sustained attention deficit, executive dysfunction, memory (mainly retrieval) deficits, insight impairment and, sometimes, visuospatial impairment. Behavioral profile is characterized most of the time by frequent and severe psychiatric symptoms specially related to the domains of delusion, agitation, apathy, disinhibition and aberrant motor behavior. Psychiatric phenomena (personality changes, apathy, disinhibition, delusions) may be a syndromic stamp compounding the clinical picture of this sort of dementia, in the sense that they may be much more common, for example, than in cortical dementia.

Conclusions: The composition of exuberant psychiatric symptoms and personality changes (mainly apathy, but also disinhibition) with neurological signs (pyramidal alone or associated with extrapyramidal signs, ataxia and urinary incontinence) and with specific cognitive impairment, should rise strongly the possibility of a white-matter dementia, instead of a cortical or subcortical form of dementia.

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L.L. MANSUR, I.A. CARVALHO, G.M. PONGRACZ, V.S. BAHIA & R. NITRINI. Analysis of Oral and Written Discourse in Patients with Frontotemporal Lobar Degeneration.

Objective: Discourse analysis allows linguistic examination in various levels: phonologic, syntactic, semantic and pragmatic. Patients with frontotemporal lobar degeneration (FTLD) may have difficulties in any of these aspects, as a result of an inability to be aware of contexts, to decide on importance and to integrate elements according to these features. The goal of this study is to compare FTLD discourse to control subjects to verify type of difficulty.

Participants and Methods: Eight FTLD patients (FG) (mean age: 59.25 ± 10.22 ; mean education: 12.88 ± 4.64 years) and six subjects with no dementia (CG) matched by age and education (mean age: 58.67 ± 10.95 , $p=0.948$; mean education: 13.17 ± 4.58 years, $p=0.736$) were assessed with four boards with different degrees of visual complexity to compose oral and written descriptive discourses.

Results: In oral discourse, FG differed from CG only on number of pauses longer than two seconds ($p=0.003$), total number of errors made on speech monitoring abilities ($p=0.031$), word substitution ($p=0.035$) and word revision ($p=0.014$). In written discourse, there are significant statistical differences on total number of words used ($p=0.006$), number of complex sentences used ($p=0.006$) and mean number of conjunctions used ($p=0.002$).

Conclusions: Patients were able to accomplish oral and written discourses, which mean that they are still able to use contexts as long as they are conducted to it, like in the tested situation. Deficits in oral discourse may be caused by both linguistic formulation and monitoring failure. In written discourse, these failures are combined to abstraction difficulties being a probable cause for the difficulties observed.

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D. FERNANDEZ-DUQUE, S.D. HODGES, J.A. BAIRD & S.E. BLACK. "I (don't) now how you feel": Empathy in Frontotemporal Dementia and Alzheimer's Disease.

Objective: Empathy—comprehending somebody else's feelings—has both cognitive and emotional dimensions. Empathy is abnormal in patients with behavioral variant of frontotemporal dementia (FTD-b), who are often unable or unwilling to take other people's feelings into account when deciding how to act. Is that deficit caused by a cognitive inability to understand what the other person is feeling?

Participants and Methods: Using naturalistic stimuli, we assessed empathic accuracy (i.e., the ability to infer how other people are feeling) in three groups of subjects: healthy elderly adults, patients suffering from the behavioral variant of frontotemporal dementia (FTD-b) and patients suffering from Alzheimer's disease (AD). After watching video-

taped interviews of everyday people (non-actors) discussing an emotionally-relevant event in their lives, participants answered questions regarding the interviewee's feelings.

Results: Both patient groups inferred emotions as accurately as healthy elderly, provided the emotions were displayed unambiguously and consistently across the interview. However, when the displayed emotions became less clear and more ambiguous, both patient groups showed impaired performance relative to healthy elderly participants.

Conclusions: The similar profile on emotional accuracy across the two clinical groups despite their vast differences in social skills provides evidence that cognitive processes affected in dementia are an important substrate for normal empathic accuracy. It also raises the possibility that deficits in empathic accuracy may account for little, if any, of the social inadequacies of FTD-b. We discuss these results in the relation to FTD's other social skills such as recognition of facial emotions, theory-of-mind reasoning, and metacognitive judgment.

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A. MIDORIKAWA & M. KAWAMURA. Emergence of geometrical ability in a case of frontotemporal lobar degeneration (FTLD).

Objective: It has been reported that some unilateral FTLD patients showed development of several artistic ability after onset of the disease, such as painting or composing. Presumed mechanism of the development of these abilities was that the right hemisphere function was released from the damaged left hemisphere function. However, there was no report about abilities of bilateral FTLD patients. In this paper, we investigate the residual function of a patient with FTLD.

Participants and Methods: A patient was a 66-year-old female. Her symptoms began in 2000, and her condition gradually deteriorated. She stopped most spontaneous activities, but she did walk around and eat independently. Neurological examination showed a strong grasping reflex in both hands and compulsive laughter. MR imaging showed dense atrophy in the frontotemporal lobe, but the parieto-occipital lobe was well preserved. Method: We placed scissors and a piece of paper with a simple line drawing (e.g., a star shape), or white A4 sized paper in front of her.

Results: She would take a paper and immediately start to cut it. Her cutting behaviour was very reasonable and accurate; she started from the end point of the ideal extension line arising from an actual line and cut out the figure leaving a narrow blank space (usually within a millimeter). Additionally, when she handled a blank A4-sized piece of paper, she started the cutting behaviour without hesitation. In this situation, her cutting pattern was extremely accurate when compared to the paper containing a figure. Aside from the first segment, she cut the paper with a fixed ratio in successive trials. The ratio between the remaining paper and the cut paper was consistently 0.2

Conclusions: We hypothesize that her excellent cutting behaviour might be a novel symptom: the emergence of the hidden parieto-occipital lobe function due to the freedom from the bilateral frontal lobe occupation. Her geometrical ability might also imply that our brains are affected by mathematical homogeneity by nature.

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D. POLITIS, W.Y. RUBINSTEIN & P. MOYANO. Mirror neurons systems in frontotemporal dementia.

Objective: Several studies found relationship between alterations in social cognition (SC) and apraxia in patients with autism. Mirror neurons systems (MN) have been postulated as the common neural substrate.

The alterations in the SC are characteristic of frontotemporal dementia (FTD). Although there are isolated descriptions on the association between FTD and apraxia, this relationship has not been assigned to that entity.

Objectives

Studying the presence of apraxia and its relationship with the SC in patients with FTD.

Participants and Methods: Were studied 17 patients diagnosed with FTD (frontal variant) with an extensive neuropsychological battery that included: test SC (Reading the Mind in the Eyes RV, Baron-Cohen et al; Faux Pas, Stone et al; False belief Baron - Cohen, et al.; Gaining Task, Bechara et al.), and a battery Praxias (Politis).

Results: The 17 patients studied had evidence of alterations in CS, and 15 had apraxia.

We found significant correlation between the tests Faux Pas and false belief in the total return on the battery praxias also among faux pas and testing tools, discrimination, determination and designation by function. In addition false belief correlated with input audioverbal, Pantomimes, discrimination and gestural decision.

Conclusions: The high frequency of apraxia and found correlations with CS could indicate a common substrate for both processes. This system me be the MN systems in the premotor cortex.

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N.S. VIGLIECCA & G.P. ALEMAN. PATIENTS WITH OR WITHOUT BRAIN ISCHEMIC LESIONS: A MULTIVARIATE AND MULTIFACTOR DEMENTIA APPROACH.

Objective: To study the anatomical and cognitive profiles of patients with (PW) or without (PWO) brain ischemic lesions attempting to describe, by this way, the particular combination of multiple dependent variables independently of other pathophysiological aspects.

Participants and Methods: Patients referred for suspected dementia were classified according to the report of both their caregivers in the Blessed dementia rating scale (BDRS) (scores of 4 or higher were included) and their radiologist in the computed tomography scanning (CT) or magnetic resonance imaging (MRI) (no lesions or ischemic or atrophic lesions were included). Patients with other dementia causes (metabolic, infectious, etc.) according to laboratory analyses were excluded. A comprehensive neuropsychological battery was administered to all the participants.

Results: One factor was extracted by the principal component method for six anatomical indexes. PW (N=12) or PWO (N=89) were similar in the BDRS, mini mental state (MMSE), geriatric depression scale (GDS) and other psychiatric and neurological manifestations but different in the Hachinski ischemic score (HIS). By using 10 cognitive subtests of the battery the discriminant analysis indicated an accurate classification of cases of 97% for PWO and 73% for PW. Subtests included in the model were: Repetition of words and sentences; Singing; Praxia (under a verbal command); Verbal written comprehension; Reading; Postural imitation; Visual memory; Auditory gnosis; Time required to perform the battery; and Cued story recall (Cronbach's alpha=0.75/one factor solution).

Conclusions: This neuropsychological pattern can be interpreted as one preliminary model which significantly differentiates between patients with Alzheimer and vascular dementias with a wide range of impairment. Correspondence: *Nora S. Vigliecca, PhD, CIFYH, CONICET, Pab. Agustín Tosco, Ciudad Universitaria, Córdoba 5000, Argentina. E-mail: nsvigliecca@gmail.com*

Demyelinating Disease/ Multiple Sclerosis/ALS

D. HERRERO. Information Processing in Multiple Sclerosis (MS): Comparison of Latency of Response with Healthy People.

Objective: 1. To know reliability and validity of "Procesinf" software, developed to measure response time.

2. To draw the normative learning curve for both MS group and healthy group, as well as theoretic curve in terms of said results, according to the 13 Hull's theory postulate. 3. Determinate whether exists alteration in the information processing speed in Multiple Sclerosis, comparing the curves.

4. To find the correlation between years with MS (from diagnostic) and information processing speed in MS Group.

Participants and Methods: GRUPO A: Multiple Sclerosis

n = 21 (Men: 46,8%; Women: 57,2%)

Edad: M = 52,6 SD = 9,31

GRUPO B: Healthy People

n = 20 (Men: 42,8%; Women: 57,2%)

Edad: M = 49,35 SD = 7,15

PROCEDURE: Lay and application of developed software ("Procesinf") "Procesinf", that consists in a screen wich consists in a visual display screen that three seconds after the participant presses the button its colour changes, being the objetive press again the button as soon as the participant perceives this change. Each participant completed ten trials of this task. Software give the participant the time (in thousandths) that he/she has delayed. Each curve point is the middle of scores of the group in this trial.

Results: Correlation Information Processing speed – Years with MS:

r=.275 p=.228

T test for the middle of Response Time (the middle of ten trials):

t(39)=4.104 p<.0001

Reliability (Cronbach's Alpha) "Procesinf": Grupo A = .960 Grupo B = .938 Validity (critery: Number and Digits Test) r=.704

Conclusions: 1. "Procesinf" show a great reliability and a great validity, which demonstrates that this software is a good instrument to diagnose MS.

2. Although in the two groups response time is reduced in each trial, information processing is slower in MS group than in healthy people group.

3. Correlation between variables "latency of response" and "years with MS" isn't significant; in spite of this, we can see a little positive correlation.

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I. INTROZZI & A. COMESAÑA. Analysis of the use of internal organization strategies in patients with multiple sclerosis.

Objective: This work analyses the use of internal organization strategies in patients with a diagnosis of multiple sclerosis (MS) clinically defined and with deficiencies in episodic memory. The theoretical framework for this analysis is taken from Gershberg and Shimamura (1985), which distinguish between two fundamental kinds of strategies: semantic grouping strategies and subjective association strategies. The frequency of use of these resources in learning lists of words and free recall tasks constitute adequate measures to value the mnemonic processes of codification and recall.

Participants and Methods: The test included a group of 36 patients with MS diagnosis and a control group of normative population (n=36) equalized by age and educational level. Both groups were administered the list of words from the Test de Aprendizaje Verbal España Complutense, with the goal of analyzing the frequency of use of both strategies in learning and consequent recall (both short and long range).

Results: The results obtained show the existence of significantly inferior average values in every index employed in the clinical group, with the exception of the use of subjective organization strategies in the word-learning task.

Conclusions: These data suggest a dysfunction in the codifying and memory recall processes.

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M. DRAKE, V. KURLAT, G. LUETIC, R. ALLEGRI & A. CARRA. Effects of Glatiramer Acetate Therapy on Attention and Memory in Relapsing Remitting Multiple Sclerosis Patients.

Objective: Disease-modifying agents may prevent or reduce the severity of cognitive impairment in multiple sclerosis. Objective: to study the effects of glatiramer acetate(GA)treatment on cognition in relapsing remitting (RR) MS patients

Participants and Methods: Twenty-three MS patients and 25 healthy controls (HC) participated in the study. Groups did not differ on age,

education or gender. All participants underwent a comprehensive neuropsychological assessment including measures of verbal memory, attention, language, information processing speed and executive functions. Patients were assessed at baseline and after one and two years of treatment with GA.

Results: At baseline, significant differences were found between MS patients and HC on : the word list learning task (WLLT) trial 2, trial 3 and delayed free recall (DFR), the semantic fluency task (SFT), the Trail Making Test (TMT) A and B, the PASAT, the Symbol Digit Modalities test (SDMT), the Number-Letter Sequencing, Digit Span, Visual Span, Similarities and Matrix Reasoning subtests from the Wechsler scales and on Tower of London-execution time. Patients performance at one year showed significant improvement on one memory measure (DFR; $p=0.016$) and two attentional tests (SDMT: $p=0.04$; Digit Span, $p=0.014$). At two years, patients showed improvement on two memory tasks (WLLT trial 2, $p=0.03$; DFR, 0.003), two controlled attention tests (PASAT, $p=0.044$; TMT-B, $p=0.029$), and a measure of abstract reasoning (Similarities, $p=0.031$). No deterioration was observed in any of the remaining tests, neither at one nor two years of treatment

Conclusions: GA therapy may have beneficial effects on attention and memory functioning of RRMS patients

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V. KURLAT, G. ROJAS, J. HALFON, R. ALLEGRI, A. CARRA & M. DRAKE. Attention Deficits in Relapsing Remitting Multiple Sclerosis.

Objective: It has long been held that attention function is frequently impaired in multiple sclerosis, but the pattern of the attentional impairment has not been sufficiently studied Objective: to study the pattern of attention dysfunction in relapsing remitting multiple sclerosis patients (RRMS)

Participants and Methods: Forty RRMS patients and 35 healthy controls, matched for age and educational level, participated in the study. Sustained attention was measured with Trail Making Test (TMT)-A, Symbol-Digit Modalities Test (SDMT), Forward Digit Span (FDS) and Forward Visual Span (FVS) subtests from the Wechsler Scales. The Elevator Task with Distraction from the TEA battery and errors on SDMT were used as measures of selective attention. Paced Auditory Serial Addition Test (PASAT), TMT-B, the Serial Seven Subtraction Task (S7ST), Number-Letter Sequencing (NLS) Backward Digit Span (BDS) and Backward Visual Span assessed attentional control.

Results: RRMS patients performed significantly worse ($p < 0.05$) than healthy controls on the TMTA, SDMT, FDS, FVS (sustained attention) and on NLS, PASAT BDS, S7ST and TMTB (attentional control). No significant differences were found on test of selective attention. PASAT and BDS significantly correlated ($p < 0.05$) with tests of memory, language and executive function. TMT A showed a significant correlation with EDSS scores ($r = 0.473 - p = 0.004$) and illness duration ($r = 0.374 - p = 0.02$)

Conclusions: Attention is not homogeneously impaired in RRMS. Sustained and controlled aspects of attention are disrupted, while selective attention is preserved. Correlation of controlled attention tests with other cognitive measures may support the hypothesis of cognitive impairment in MS as secondary to a primary deficit in attention or controlled information processing. TMTA may not be useful as a pure attentional measure because of the motor confounds, but it can be helpful for tracking illness evolution

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Emotion

U. CLARK & A. CRONIN-GOLOMB. Impairments in Facial Emotion Recognition are Associated with Increased Interpersonal Problems in Parkinson's Disease.

Objective: Several studies have reported facial emotion recognition (FER) abnormalities in Parkinson's disease (PD). As yet unexamined is the impact of FER impairments on the psychosocial functioning of PD patients. The present study investigated the relation between FER and interpersonal problems in PD.

Participants and Methods: We included 20 non-demented PD (10 men) and 23 age- and education-matched healthy control participants (HC) (11 men). We assessed FER using a forced-choice labeling task in which facial photographs (10 each: Anger, Disgust, Fear, Happiness, Neutral, Sadness, Surprise) were individually displayed. To examine psychosocial functioning we administered the Inventory of Interpersonal Problems questionnaire, which assesses interpersonal distress in eight domains.

Results: Relative to HC, PD patients exhibited impairments in recognizing Anger and Surprise and reported higher rates of self-assertion difficulties. Significant correlations between FER and interpersonal difficulties were observed in the PD participants only: Impairments in FER, particularly for Fear and Sadness, correlated with increased social connection difficulties, frustration in social relationships, desire to connect with others, and use of domineering/controlling behaviors. Increased interpersonal difficulties also correlated with increases in depression ratings in PD and HC participants.

Conclusions: In summary, increases in FER abnormalities correlated with increased interpersonal difficulties in PD, suggesting that FER abnormalities may negatively impact interpersonal functions in PD patients. PD-related FER impairments are thought to arise from disrupted cortico-limbic connections, suggesting the possibility that abnormalities in this system may also account for increased rates of psychosocial difficulties. Correspondence: *Uraina Clark, PhD, The CORO Center, Neuropsychology Clinic, Brown Medical School, 3rd Floor, Suite 317, One Hopkin Street, Providence, RI 02903. E-mail: urainac@yahoo.com*

T. EDGINTON, A. JANSARI & H. ZACHARIA. The Functional Dissociations Between Immediate and Delayed Emotional Memory Processing Following Right Temporal Lobe Damage.

Objective: To further investigate the fractionation of emotional processes that underpin the immediate recognition, identification and expression of emotion and the subsequent recollection of affective material.

Participants and Methods: We report a single case study of a 36-year-old female who reports selective emotional memory deficits following the surgical removal of a right temporal lobe haemangioma. Performance on traditional and sophisticated neuropsychological tasks, designed to assess independent and combined areas of memory and emotion, was measured and correlated with physiological measures using galvanic skin responses.

Results: Immediate and delayed recall of verbal material for words and stories was within the normal range, learning and recognition performance and autobiographical memory performance was also within normal limits. In terms of emotional processing, performance on the Eyes task (Baron-Cohen et al, 2001) and the TASIT (McDonald et al, 2003) was within the normal range. More sophisticated measures of emotional memory revealed a specific deficit in the autobiographical recall of emotional details on the Flashbulb memory task and JWALK (Jansari and Ward, 2005). In addition preliminary results comparing galvanic skin responses between emotionally salient and neutral pictures suggest a dissociation between immediate and delayed emotional processing.

Conclusions: These data confirm the fractionation of emotional memory processes that are associated with the perception, interpretation and expression of emotional material and are suggestive of a dissociation between immediate affective processing and recollection of affective content in memory associated with right amygdala damage that contrasts with impaired immediate affective content associated with prefrontal lobe damage (Damasio, 1994).

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M.G. JUSTO, C.P. SIMÃO & A.T. MARTINS. Age Differences in Social Emotions Recognition.

Objective: The main objective of this study was to understand age effect in social emotion (Arrogance, Guilt and Jealousy) recognition.

Participants and Methods: A hundred and one participants were distributed by age groups (children, adolescents and adults). They had to recognize 27 photos representing social emotions. It was asked the dominant emotion in each photo. All participants were screened with cognitive tests.

Results: Our results suggest that age has influence in the recognition of social emotions in study.

Conclusions: Social emotions are better recognised by adults, probably due to social factors as the stimulus increased exposure.

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C.P. SIMÃO, M. JUSTO & A. MARTINS. Gender Effect in Basic and Social Emotion Recognition.

Objective: The goal of the present assignment was to assess the differences between sexes, in emotion recognition.

Participants and Methods: On a group of 60 participants (30 men and 30 women) were applied cognitive tests, a basic emotion recognition visual paradigm and a social emotion recognition visual paradigm. These final paradigms were composed by the presentation of 54 basic emotion representative photographs and 27 social emotion representative photographs.

Results: The results suggest that in basic emotions there is no difference in emotion recognition between men and women. Social emotions recognition show the existence of differences between men and women. Women present a better performance in social emotions recognition, comparatively to men.

Conclusions: Basic emotion recognition appears to be universal, while social emotion recognition seems to have a gender influence.

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C. RAMPONI & P.J. BARNARD. An Investigation of Mood Effects and Valence Effects on Conceptual Implicit Memory.

Objective: Mood effects (Exp.1) and valence effects (Exp.2) on conceptual implicit memory were investigated using a method sensitive to the presence of contamination of a conceptual implicit test by the use of an intentional retrieval strategy. Depression has an adverse effect on explicit memory and neutral material is less well remembered than emotional material. Conceptual implicit memory, but not perceptual implicit memory, has been found to be impaired in depression, but this finding could also be the consequence of test contamination.

Participants and Methods: In two experiments matched implicit (free association) and explicit versions (cued recall) of a word association test were compared. In Experiment 1, effects of mood were investigated: 32 dysphoric and 32 control participants were compared on these tests. In Experiment 2, valence effects were investigated: neutral and emotional paired-associates were compared.

Results: For Experiment 1 control participants and all Experiment 2 participants, depth-of-processing effects for compound associates were present in explicit memory but absent in implicit memory. This difference showed that the implicit test was not contaminated. However, in Experiment 1, dysphoric participants demonstrated evidence of test contamination. In Experiment 2, emotional pairs were better recalled than neutral pairs, but a valence effect was not obtained in the implicit test.

Conclusions: Previous results of the effects of depression on conceptual implicit memory should be interpreted with caution because of the possibility of contamination. Voluntary/conscious remembering appears to be required for observing a memory advantage for emotional material. This result has implication for mood congruent effects in implicit memory.

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M. ROCA, T. TORRALVA, A. CHADE, G. GOMEZ AREVALO & F. MANES. Emotion Recognition in Early Parkinson Disease.

Objective: Due to the fact that the neural basis of emotion recognition are implied in Parkinson Disease (PD) pathology, emotion recognition

in this disease is now becoming an important subject of study. Different studies of emotion recognition in PD have shown contradictory evidence, probably because of the variability of tasks and tasks difficulty, the lack of documentation of clinical variables (stage and duration of the disease) and the lack of importance given to the presence of concomitant cognitive deficits or medication effects. The goal of this investigation was to study emotion recognition in a cohort of early diagnosed Parkinson disease with a task that assesses emotion recognition with different levels of difficulty.

Participants and Methods: We compared 19 early PD patients with healthy matched controls (N=8) with the Emotion Hexagon Task. This test contains morphed continua pictures ranging between the following six expression pairs: happiness–surprise, surprise–fear, fear–sadness, sadness–disgust, disgust–anger, anger–happiness. Patients were also assessed with a test of recognition of famous faces and with a complete cognitive battery that included tests of attention, memory, visuo-perceptual abilities and executive functions.

Results: Significant differences between PD and normal controls were found in the recognition of anger, fear and sadness faces presenting more difficulties in recognizing more ambiguous pictures.

Conclusions: Differences could not be explained for the presence of other cognitive deficits or the use of dopaminergic drugs.

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Normal Aging

B. BALDIVIA & O.A. BUENO. The Contribution of Complexity of Work on Cognitive Functioning of Healthy Elderly and the Relationship with Cognitive Reserve Concept.

Objective: To investigate if complexity of work (involving demands with things, data and people) is associated to performance of healthy elderly on cognitive tasks, and if this relation can be isolated from confounding variables (years of schooling, socio-economic level and intelligence).

Participants and Methods: Seventy two healthy elderly were submitted to neuropsychological assessment and had their complexity and psychosocial demands of work evaluated. The complexity of work level divided the sample in groups and had their cognitive performance compared by ANOVA. The confounding variables (years of schooling, intelligence and socioeconomic level) effect were isolated by ANCOVA.

Results: Confounding variables explained the cognitive performance on tests of episodic memory, verbal fluency and attentional tests. Complexity of work effect was isolated related to better performance on Figure Complex of Rey copy, suggesting that demands of work are associated to executive planning and visuo-constructive abilities.

Conclusions: Our results suggest that complexity of work can be considered a measure of cognitive reserve, which acts minimizing the age-related cognitive decline.

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C. CHIU & M. HUA. Episodic Memory Feeling-of-Knowing in Normal Elderly Individuals.

Objective: The issue of whether aging affects feeling-of-knowing (FOK) function of episodic memory has been controversial. Methodological drawbacks, such as inadequate FOK measures and confounding variables of the demographical data might account for such inconsistent findings. In order to clarify this debatable issue, we made an attempt to minimize these pitfalls in the present study. Thus, the primary objectives of this study were to explore episodic memory FOK function in normal aging and its possible neuropsychological mechanism.

Participants and Methods: Thirty four normal older adults and 35 normal young controls matched for sex, education level and VIQ of the WAIS-R were participated in the study. Each subject received a series of neuropsychological test battery and recall-judgment-recognition (RJR) paradigm.

Results: The results revealed: (1) that FOK accuracy did not vary by age, and (2) FOK judgment task performance in normal aging was significantly correlated with parts of frontal neuropsychological measures while normal young participants' judgment performance was remarkably correlated with episodic memory function tests.

Conclusions: On the basis of the results, it appeared that the underlying neuropsychological mechanisms for FOK judgment of episodic memory between normal aging and their normal young counterparts were different. However, since this conclusion was merely based on neuropsychological measure correlates rather than on the structural or functional neuroimaging findings, further investigation thus is merited.

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F.J. SÁNCHEZ, A. ORELLANO, A. TABULLO, C. MARRO, L. MARTIN, M.E. TABERNERO, A. YORIO & E. SEGURA. NORMAL AGING EFFECTS ON CATEGORY LEARNING.

Objective: The ability to form categories purportedly gives rise crucial linguistic capacities (Hayes, 1989). Category learning has been operationalized with stimulus equivalence tasks (Sidman 1982). Age-related differences on task performance have been previously reported (Wilson and Milan, 1995; Pérez Gonzalez, 1999). The aims of the present study were to examine age effects on category learning, and to compare it with a verbal fluency task.

Participants and Methods: Thirteen elderly subjects (mean age: 75 ± 4.27 years) and ten younger adults (mean age: 26.2 ± 8.3 years) participated in the study. Subjects performed a stimulus equivalence task and a verbal fluency (phonologic and semantic) test.

Results: Ten younger adults, and only one elderly adult passed the stimulus equivalence task. Differences on task performance were statistically significant ($p < 0.0001$). A negative correlation between stimulus equivalence scores and age was observed ($\rho = -0.731$). Younger adults scores were higher on semantic, but not phonologic, verbal fluency ($p = 0.015$). Positive correlations were found between stimulus equivalence and semantic fluency scores ($Rho = 0.657$).

Conclusions: Observed differences between younger and elderly subjects replicated previous findings. This results are consistent with the decline of concept formation which occurs during normal aging (Junque, 1994). The correlation found between stimulus equivalence and semantic fluency might indicate that semantic memory is involved in category learning. Brain imaging studies have shown this functional overlap (Dickins, 2001). It could be argued that category learning depends on executive processes, as has been reported for verbal fluency. Executive function is known to be affected by normal aging.

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Other

Y. FARIAS SARQUÍS & L.P. ARMATTA. Prevalence of Subtypes of Mild Cognitive Impairment.

Objective: The aim of the present study was to estimate the percentage of prevalence of Mild Cognitive Impairment (MCI) in two of its clinical manifestations: MCI Amnesic and Multiple Domain.

Participants and Methods: The data was collected from three institutions: Hospital Córdoba, Facultad de Psicología de la Universidad Nacional de Córdoba and Instituto de ciencias aplicadas Semas in Córdoba, Argentina. Prevalence of MCI subtypes was also calculated according to age, in two ranks of 50-64 and 65-80 years and gender, using regression analysis.

Results: Among the 95 cases that conformed the sample, 68 (71.6%) were identified as normal, 10 (10.5%) as amnesic type and 17 (17.9%)

as multiple domain type. In relation to age, the same percentage of cases was found in both ranks in the MCI amnesic type and a larger prevalence of MCI multiple domain type in the 50-64 rank. Regarding gender, no significative difference of prevalence was found in either type of MCI.

Conclusions: This results are consistent with previews data from other populations.

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M. ROCA, M. CETKOVICH-BAKMAS, T. TORRALVA, E. GLEICHGERRCHT, P. LOPEZ, S. STREJILEVICH, L. CLARK & F. MANES. Pathological Gambling During Manic Episodes in Bipolar Disorder.

Objective: The aim of the present study is to analyze the performance on a decision-making task in a patient with bipolar disorder who experienced a sudden onset of addictive gambling behavior exclusively during the course of manic episodes.

Participants and Methods: The patient (L.R.) was assessed with the Iowa Gambling Task and his performance was compared with a group of normal controls (NC), a group of patients with bipolar disease (BD) and a group of pathological gamblers (PG).

Results: L.R. differed in his decision-making profile from pathological gamblers and patients with bipolar disorder. L.R. also differed from control subjects in the early appearance of his risk aversion and in the speed in which he developed his risk aversive strategy.

Conclusions: The addictive and reversible gambling developed throughout manic episodes in our patient with BD seems related to abnormal functioning of the prefrontal cortex. This case, with coexisting PG and BD, lends additional support to the hypothesis that an abnormal functioning of the PFC might be implicated in the pathophysiology of gambling behavior.

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G. ROJAS, C. DILLON, C. SERRANO, V. VILLAR, L. BARTOLONI & R. ALLEGRI. SUBGROUPS OF PATIENTS WITH LOGICAL MEMORY DEFICIT IN PATIENTS WITH MILD COGNITIVE IMPAIRMENT.

Objective: Discriminate different sub-groups of patients with MCI with impairment in logical memory.

Participants and Methods: The present diagnosis of mild cognitive impairment (MCI) involves a diverse group of patients. The results of logical and episodic memory assessed by list-learning and story recall tasks differ in the different patients. We selected 166 patients with diagnosis of MCI. MCI patients were categorized in 3 different groups: Group 1 (G1): patients with memory list-learning compromise, group 2 (G2): patients with impairment only in story recall and group 3 (G3): patients with impairment in both tests.

Memory impairment was defined as a score ≤ -1.5 standard deviation (SD) in the variables delay story recall (RDH) and/or the variable free recall (RS) of the list of words from the Signoret battery.

Results: No differences in Beck and the NPI Inventories were observed between the groups. ANOVA for patients with isolated deficit in logical memory (G1) revealed a worse performance in the Trail Making A ($p=0.001$, average 128 seconds) and the direct digit span ($p=0.022$, average 5.16). In addition, they presented poorer performance in denomination test ($p=0,002$) and semantic fluency ($p=0,044$). The correlation demonstrated a tendency ($r=-0,43$; $p=0,057$) towards a more severe impairment in the RDH while trail making A task takes more time in G1 patients. These results were not correlated with the executive functions.

Conclusions: This finding is consistent with the fact that isolated deficit in logical memory in MCI patients can be influenced by a specific compromise in attention. This group (G1) could be considered a different subtype of amnesic MCI.

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K. TOWGOOD, J. MEUWESE, S. GILBERT & P. BURGESS. Single Case Series Study of Neuropsychological Function in Adults with Autism Spectrum Disorder.

Objective: The purpose of the current study was to apply multiple case series methodology to investigate whether there was a unique pattern of cognitive strengths and weaknesses associated with Autism Spectrum Disorder (ASD). A secondary aim was to investigate whether the neuropsychological case series approach yielded additional information not apparent from a group study approach.

Participants and Methods: An extensive battery of neuropsychological tests was administered to a group of 21 ASD participants (mean age 31.76) and a group of 22 matched control participants (mean age 30.64). All data was analysed on a group and single case study basis.

Results: Group analysis revealed limited impairment in the ASD group across the full range of tests. Single case study analysis revealed more interesting findings. This data demonstrated that 38% of individuals with ASD demonstrated a pattern of three or more cognitive deficits, 57% a pattern of two or more deficits and 90% demonstrated one or more deficit. With regard to cognitive strengths, 19% of ASD individuals revealed a pattern of three or more cognitive strengths, 29% a pattern of two or more strengths and 43% had one or more cognitive strengths. Also of note, significant heterogeneity was observed in the ASD population, particularly on measures tapping executive function.

Conclusions: The pattern of variability within individuals and across tests suggests that analysis at the single case level may hold distinct advantages over analysis at the group level. It also challenges accounts of ASD symptoms that invoke a single executive construct.

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Psychopathology/Neuropsychiatry/Other

E. GLEICHGERRCHT, F. MANES, M. ROCA, S.A. STREJILEVICH & T. TORRALVA. Decision-making in Bipolar Disorder and Schizophrenia: a Comparative Approach.

Objective: Bipolar disorder and schizophrenia are two distinct nosologies that have been shown to share overlapping genes. While previous studies have looked at patients with bipolar disorder (BIP) and schizophrenia (SCH) independently, few authors have compared both neuropathologies from a holistic approach.

Participants and Methods: The present study compared the performance of BIP (n = 15), SCH (n = 15) and healthy controls (n = 15) on a complete battery of neuropsychological tests, with a focus on decision-making profiles as measured by the Iowa Gambling Task (IGT). An innovative approach was used to supplement the results of the IGT standard block analysis, in which groups were compared on a trial by trial basis according to their relative risk preference.

Results: We found that this approach was clearer in its qualitative information, but it also revealed significant differences between groups that were oblivious with the regular analysis. Additionally, an intra-group comparison of risky versus safe cards showed significant differences only among controls, revealing only this group adopts a convenient strategy. Significant correlations were found for both the last block and the overall IGT score with measures of memory, attention, and executive functions.

Conclusions: Studies of this caliber are crucial in our understanding of clinical profiles associated with illnesses that are usually exclusively analyzed from a psychiatric perspective, by incorporating neuropsychological variables and innovative approaches to their analysis.

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E. GLEICHGERRCHT, T. TORRALVA, A. LISCHINSKY, M. ROCA & F. MANES. A Life with ADHD: Neuropsychological Profile of Elderly Patients with Attention Deficit Hyperactivity Disorder.

Objective: Attention deficit hyperactivity disorder (ADHD) is a lifespan disorder sometimes overlooked or misdiagnosed in early childhood. These undiagnosed patients go undetected until they get older and complain of cognitive deficits. However, this condition is neglected in the differential diagnosis in memory clinics. Our study aimed at characterizing the way in which cognitive domains evolve with a long history of ADHD, in a population of senior ADHD patients.

Participants and Methods: A complete neuropsychological battery was administered to a group of older subjects with recent ADHD diagnosis (age > 58 years; oADHD; n = 10), a control group matched by age and gender (CTR; n = 10), and a group of younger ADHD patients (age < 20 years; yADHD; n = 10).

Results: Groups were effectively distinguished by their age, with no significant differences found between their years of education, ensuring highly comparable results. Performance on the Trail A test, which measures sustained attention, differed significantly between oADHD and yADHD, but neither group performed significantly worse than CTR. Both groups exhibited significantly different scores than CTR on the Letters & Numbers test, which involves a strong executive component, but the clinical groups did not differ between themselves.

Conclusions: Attention deficits in older ADHD are greater than those observed in younger ADHD patients, while executive functions in both older and younger ADHD patients are impaired compared to controls. Further studies are needed to characterize elderly patients with ADHD.

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M. LUQUE, I. GARRIDO & N. MARCOS. Decision-making functioning and personality in eating disorder patients.

Objective: The pathological behavior of patients with an eating disorder reflects a deficit in real-life decision-making. The aim of this study is to explore the decision-making functioning of eating disorder patients, including AN, BN, and eating disorders not otherwise specified. Moreover, we want to study whether there is a link between personality traits and decision-making in eating disorder patients.

Participants and Methods: The sample consisted of 49 patients attended at our eating disorders unit and fulfilling DSM-IV-TR criteria for an eating disorder, and 39 healthy volunteers. Patients and controls were assessed using the Iowa Gambling Task. This task simulates real-life decision-making by assessing the ability to sacrifice immediate rewards in favor of long term gains. As some studies have demonstrate some relation between personality traits and decision-making functioning, the Temperament and Character Inventory-Revised, the Sensitivity to Punishment and Sensitivity to Reward Questionnaire, and the Barratt Impulsiveness Scale were also used.

Results: Eating disorder patients performed poorly in the Iowa Gambling Task compared to controls, confirming a deficit in decision-making in these patients. Regarding personality traits, impulsivity was negatively correlated with decision-making functioning in eating disorder patients.

Conclusions: In conclusion, our results suggest a specific deficit in eating disorder patients which may be related to their pathological eating behavior. Patients with higher impulsivity appear to show more decision-making impairments. Larger samples are necessary to find possible differences in decision-making between different eating disorder diagnoses.

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D.J. MARTINO, A. IGOA, E. MARENGO, M. SCÁPOLA, E. AIS, L. PERINOT & S.A. STREJILEVICH. Neurocognitive and Clinical Predictors of Long-Term Outcome in Bipolar Disorder.

Objective: The aim of this study was to estimate which neurocognitive and clinical variables would predict long-term outcome in patients with bipolar disorder (BD).

Participants and Methods: Thirty five patients with euthymic BD completed a neurocognitive battery to assess verbal memory, attention, and executive functions at study entry. The course of illness was documented prospectively for a period longer than 12 months using a modified life charting technique based on the NIMH life-charting method. Psychosocial functioning was assessed with the GAF at the end of follow-up period when patients were euthymic. Spearman correlation was used to estimate association between cognitive and clinical variables with GAF. Analysis regression was used to estimate which of these variables would predict long-term psychosocial functioning.

Results: Performance in measures of verbal memory ($R=0.37$, $p=0.02$), attention ($R=0.46$, $p=0.006$), and executive functions ($R=0.35$, $p=0.04$), as well as the time spent with subclinical depressive symptoms along follow-up ($R=-0.54$, $p=0.001$) were associated with psychosocial functioning at end of study. Impairments in verbal memory ($\beta=3.6$, $t=2.6$, $p=0.01$), and in attention ($\beta=3.3$, $t=2.5$, $p=0.01$), and subclinical depressive symptomatology ($\beta=-0.3$, $t=-2.4$, $p=0.02$) were independent predictors of psychosocial functioning at the end of the study ($F=9.3$, $p>0.001$) explaining 43% of variance.

Conclusions: In addition to findings of previous cross-sectional studies about relationship between cognitive impairments and psychosocial functioning, our results suggest that cognitive impairments might be predictors of long-term outcome in BD, and this effect may not be mediated by clinical symptomatology.

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D.J. MARTINO, E. MARENGO, A. IGOA, E. AIS, M. SCÁPOLA, L. PERINOT & S.A. STREJILEVICH. Social Cognition and Decision Making in Euthymic Bipolar I and II Disorders.

Objective: The aim of this study was to assess performance of patients with euthymic bipolar disorder type I (BDI) and II (BDII) in measures of social cognition and decision making and determinate their grade of correlation with psychosocial functioning.

Participants and Methods: Thirty one patients with euthymic BDI, 27 with BDII, and 30 healthy controls were included. All participants completed the Faux Pass test (ToM), the Mind in the Eyes Reading test (MER), the Ekman-60 (facial emotion recognition), and the Iowa Gambling Task (IGT; decision making). Psychosocial functioning was assessed with the GAF. ANOVA was used to assess differences between the three groups. Spearman correlation was used to estimate association between cognitive impairments and GAF.

Results: Patients with BDI had lower performance than healthy controls in ToM, with BDII having an intermediate performance ($F=3.79$, $p=0.04$). Both groups of patients had lower recognition of fear regardless healthy controls in the facial emotion recognition task ($F=5.19$, $p=0.007$). No differences were found between groups in performance in the MER test and in the IGT (all $p>0.05$). There was a trend to significant association between fear recognition and GAF ($R=0.25$, $p=0.054$).

Conclusions: Patients with BD I as well as those with BDII might have impairments in ToM and recognition of fear even during remission. However, these impairments may have lower impact in psychosocial functioning than impairments decryped in traditional neurocognitive tasks.

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W. PERRY, A. MINASSIAN, E. FERGUSON, J. YOUNG & B. HENRY. Inhibitory Deficits, Executive Dysfunction and COMT in Patients with Bipolar Mania.

Objective: Bipolar Disorder (BD) with mania is a highly recurrent and chronic psychiatric disorder, characterized by inhibitory deficits and executive dysfunction. While the cognitive impairment associated with BD is now well characterized, little is known about potential genetic contributions to cognitive deficits. Dysregulation of the dopamine (DA) system is thought to contribute to BD mania as well as other neuropsychiatric disorders such as schizophrenia. Genetic variability of the catechol-O-methyltransferase (COMT) gene, which regulates DA levels, has received increasing attention as a possible modulator of inhibitory deficits and executive dysfunction in patients with schizophrenia, but little is known if this relationship is true for patients with BD.

Participants and Methods: We studied 9 acutely manic BD patients on the Wisconsin Card Sorting Test, and the Go-No-Go and Spatial Working Memory measures from CogTest.

Results: We found a strong relationship between WCST perseverative errors and the presence of the COMT-Valine (Val) allele ($Rho=.65$). In contrast we found a relationship between the presence of the COMT-Methionine (Met) allele and measures of disinhibition and impulsivity ($Rho=.77$ - .82).

Conclusions: The findings are discussed in terms of the COMT gene and baseline dopaminergic tone in frontal regions. The findings, while on a small sample, are promising and can help in identifying endophenotypic markers of BD that are associated with a gene that critically influences regulation of DA. Future studies will focus on creating transgenic animals that carry these different alleles and assess their behavioral phenotype in animal analogs of the WCST and the Go-No-Go task.

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D. ROSSINI & H. TAVARES. A comparison of process related to attentional and executive functions in pathological gamblers before and after therapeutic intervention.

Objective: Compare attentional and executive process in pathological gamblers (PG) before and after therapeutic intervention, supposing a better neuropsychological performance after treatment.

Participants and Methods: 53 PG had to be between 29 and 70 years old (25 man) after, at least, three months of treatment at clinical hospital. Clinical report and diagnosis criteria was initially used and was assessed in start and at the end of treatment: i) depression and anxiety symptoms (Beck Depression/Anxiety Scales); ii) impulsivity (Barrat Impulsivity Scale/BIS); iii) compromising with gamble (Gambler's Follow-up Scale and Gambling Symptom Assessment Scale); iv) cognitive beliefs (Gambler's Beliefs Questionnaire); v) attentional and executive functions (Immediate/Delayed Memory Task-IMT/DMT, Go Stop Task, Matching Familiar Figure Test, Complex Rey Figure/CRF and Wisconsin Card Sorting Test).

Results: Results analysis, by Wilcoxon test, indicated significant differences between i, ii, iii and iv data, with better performance after treatment, except by BIS attention factor. At item v, was get better in CRF (copy and these execution time), in percentage of correct responses and lower latency in filler stimulus at IMT.

Conclusions: It was observed an important improve of behavioural and clinical aspects after treatment, but a smaller frequency of differences in neuropsychological functions. It was inferred that, besides clinical improve, could be a neuropsychological background indicating a particular cognitive style in this populations that have to take into account in the conducts adopted. However, an amplification of the study is necessary to investigate the relations between aspects evaluated and to verify if beneficial alterations are supported at long term.

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D. ROSSINI, C.C. ROCCA, D. FUENTES, B. LAFER & H. TAVARES. Pilot study about decision-making assessment between patients with bipolar disorders and pathological gambling.

Objective: Verify possible differences about decision-making ability (DM) between populations with impulse characteristics.

Participants and Methods: 19 patients with bipolar disorder (BD) were compared to 19 pathological gamblers (PG), through computerized battery, that looked for treatment at a clinical hospital. The groups were composed by treatment seeking patients, paired by sex (six men), with similar educational level (difference until five years of formal education), and aging from 26 to 62 years old. The BD group presented 10 subjects euthymic, 7 depressed, and 2 in mixed episode. The PG group presented 15 subjects depressed. DM was evaluated through the Iowa Gambling Task (decks A and B: high immediate gain but in the long run they incur higher loss, versus decks C and D: lower gains, but in the long run they incur smaller losses).

Results: Results analysis was no indicate significant differences between samples of clinical aspects (present manic and/or depressive episode) and of data from DM, in that BD had (mean/deck) 19,53/A; 20,74/B; 21,84/C; 17,82/D and PG 19,47/A; 18,26/B; 17,16/C; 21,68/D.

Conclusions: Understanding DM as part of executive functions, was discussed the observation of similarities among these two psychiatry populations with impulse characteristics, but that have different psychopathological expressions (BD and PG). It was speculated that DM would be a common factor in distinct impulsive clinical populations. However, this study used a focal analysis in a short sample, needing search the others aspects of executive functions and a better neuropsychiatry variables control, as well health volunteers comparison.

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V.D. SOARES, L. CAIXETA, C. SOARES & M.C. LACERDA. HERPETIC ENCEPHALITIS: COGNITIVE, BEHAVIORAL and NEUROIMAGING CHARACTERIZATION.

Objective: We aim to evaluate cognitive and behavioral aspects related to herpetic encephalitis and correlate dementia with neuroimaging pattern in patients with this disease

Participants and Methods: Participants: Ten patients diagnosed with herpetic encephalitis, HIV negative, attended and followed at Tropical Diseases Hospital in Goiânia, institution linked to the Federal University of Goiás. Patients were evaluated in the following domains: cognitive evaluation using a comprehensive neuropsychological protocol including evaluation of memory, attention, language, praxias, orientation and executive function; Methods: neuropsychiatric exam; functional evaluation using Pfeffer's scale of daily living activities and neuroimaging evaluation (cranial computerized tomography – CT- and/or magnetic resonance imaging – MRI).

Results: All of the patients presented with cognitive and behavioral alterations, but in different degrees, dependent upon the following variables: intensity of the structural abnormalities in neuroimage exams; latency until the beginning of specific treatment with aciclovir, and others. Memory deficit pattern found in herpetic encephalitis resembles that observed in Korsakoff syndrome and in Alzheimer's disease. Behavioral symptoms were compatible with Kluver-Bucy syndrome and resembled that observed in frontotemporal dementia. Neuroimaging exams showed asymmetric mesial temporal pathology in most of the cases with extension to the orbitofrontal areas in some cases.

Conclusions: Dementia in herpetic encephalitis is featured by neuropsychological aspects that resemble Alzheimer's disease and frontotemporal dementia.

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D. YATES, S. CORRÊA, T. CLARISSA, F. KAPCZINSKI & S. DITTMANN. Cognitive Abilities and Clinical Variables in Bipolar I Patients and Healthy Controls.

Objective: Several studies have demonstrated that patients with Bipolar Disorder present cognitive deficits during mood episodes as well as in remission. This study had the objective to compare the cognitive functioning of a Brazilian sample of bipolar euthymic and depressed patients with healthy controls using the subtests from the Wechsler Adult Intelligence Scale – Third Edition (WAIS-III) and the Wisconsin Card Sorting Test (WCST). This study had also the intention of exploring which clinical variables had an impact in the performance of the subtests that constitute this scale, as well as which cognitive deficits might have an association with working functioning.

Participants and Methods: In this study, 33 depressed patients, 29 euthymic and 33 healthy controls were enrolled. Subjects with comorbid disorders, which could be related to cognitive function were excluded. The neuropsychological assessment consisted of the Brazilian version of the WAIS-III and the WCST. The WAIS-III was applied in order to evaluate the abilities verified by the individual subtests, and the WCST was applied in order to assess set shifting and working memory.

Results: Significant associations were found between several subtests and clinical variables within each group of bipolar patients. Variables that indicate the severeness of the disorder (age at onset, number of years undiagnosed, number of (hypo)manic episodes, number of hospitalizations, number of suicide attempts), data related to pharmacological treatment and scores on mood symptoms were found to interact with cognitive scores in the stepwise regression analyses.

Conclusions: The results are discussed considering the neuropsychological profile of the disorder.

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Psychopathology: Anxiety/Stress

C.C. D'ALCANTE, A. TAUB, M. HOEXTER, A. LOPES, M. BATISTUZZO, J. CECCONI, S. BORCATO, C. BELOTTO, J. DINIZ & E.C. MIGUEL. Neuropsychological performance of treatment naïve OCD patients.

Objective: Our aim is to compare the performance of treatment naïve OCD patients and controls on measures of visual and verbal memory.

Participants and Methods: 17 OCD patients (DSM-IV criteria), with no pharmacological or psychotherapeutic treatments, and 17 healthy controls were assessed with the Wechsler Abbreviated Scale of Intelligence (WASI), Brief Visual Memory Test (BVMT), Rey Complex Figure, California Verbal Learning Test (CVLT), and Logical Memory subtest (WMS-R). Groups were matched by gender, age, level of education, hand dominance, socioeconomic status. Mann Whitney statistical test was applied.

Results: OCD patients showed an impairment on verbal IQ ($p=0.003$), when compared to controls, mainly due to vocabulary subtest ($p=0.004$). There was no difference on Full IQ ($p=0.051$), Performance IQ ($p=0.173$), similarity subtest ($p=0.614$), BVMT, Rey Complex Figure ($p=0.249$) and Logical Memory subtest.

Conclusions: Our study suggests that treatment naïve OCD patients show a worse performance on vocabulary subtest, impacting on verbal and performance IQ when compared to controls. These results raise the question of the validity of applying IQ as matching criteria, suggesting that differences on this measure can be related to the disease itself. We hypothesize that worse performance of expressive vocabulary can be related to executive dysfunctions. Further studies are necessary to clarify these findings.

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C.C. D'ALCANTE, A. TAUB, M.Q. HOEXTER, M.C. BATISTUZZO, J. CECCONI, A. LOPES, S. BORCATO, C. BELOTTO, J. DINIZ & E.C. MIGUEL. **Does the Verbal IQ good matching criteria for OCD? : Neuropsychological findings on treatment naïve patients.**

Objective: To investigate with a treatment naïve obsessive-compulsive disorder (OCD) patients if IQ (intellectual quotient) measures are a good matching criteria to show likely neuropsychological deficits in this psychopathology.

Participants and Methods: Our aim is to compare the performance of treatment naïve OCD patients and controls on measures of intelligence. 17 OCD patients (DSM-IV criteria), with no pharmacological or psychotherapeutic treatments, and 17 healthy controls were assessed with the Wechsler Abbreviated Scale of Intelligence (WASI). Groups were matched by gender, age, level of education, hand dominance, socioeconomic status. Mann Whitney statistical test was applied.

Results: OCD patients showed an impairment on verbal IQ ($p=0.003$), when compared to controls, mainly due to vocabulary subtest ($p=0.004$). There was no difference on Full IQ ($p=0.051$), Performance IQ ($p=0.173$), similarity subtest ($p=0.614$).

Conclusions: Our study suggests that treatment naïve OCD patients show a worse performance on vocabulary subtest, impacting on verbal and performance IQ when compared to controls. These results raise the question of the validity of applying IQ as matching criteria, suggesting that differences on this measure can be related to the disease itself. We hypothesize that worse performance of expressive vocabulary can be related to executive dysfunctions, especially mental flexibility. These findings could explain too the results of other studies that find impairments on full IQ in OCD serious patients. Further studies are necessary to clarify these findings.

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R. JURADO, S. FERNÁNDEZ GUINEA, F. DENIA, D. TABOADA & C. MINGOTE. **ATTENTION AND WORKING MEMORY ALTERATIONS IN ANXIETY DISORDERS: POSTTRAUMATIC STRESS AND PANIC DISORDERS.**

Objective: Attentional processes are a main way for a correct interaction with the environment and also, for the processing of information and working memory. Because of that, the study of the attentional components in mental disorders is of great interest.

The objective of this study is to study the working memory and attentional performance of subjects suffering from anxiety disorders – Posttraumatic Stress Disorder (PTSD) and Panic Disorder (PD) – in order to determine whether there are differences when compare with healthy subjects.

Participants and Methods: The sample was composed by two anxiety disorders patients groups: Posttraumatic Stress Disorder ($n=30$) and Panic Disorder ($n=26$), diagnosed following DSM-IV criteria, and a healthy control group ($n=26$). The following tests were employed: Stroop, Toulouse Piéron Sustained Attention Test, Trail Making Test, Digits and Letters subtest from WAIS-III.

Results: PTSD patients show a slower performance in colors naming, more mistakes in sustained attention and difficulties in alternating attention in comparison with the other two groups. In relation with working memory test, these PTSD patients had a significant poorer performance. However, PD patients had a performance similar to control group in attention and working memory tests.

Conclusions: These results could help to delimitate and consolidate PTSD construct from the rest of anxiety disorders, which share some psychopathological characteristics with PTSD. Here we have found differences in attentional performance among PTSD subjects, PD subjects and healthy subjects. Neuropsychological deficits shown by PTSD patients could explain their difficulties with the control of attentional resources for the maintenance of information while it is used.

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C. ISAAC, D. CUSHWAY & G. JONES. **Forgetting of Emotional and Non-Emotional Words in Posttraumatic Stress Disorder (PTSD).**

Objective: Despite evidence for functional abnormalities in the amygdala in PTSD, no studies have investigated the possibility that people with PTSD have cognitive deficits associated with this dysfunction. Evidence suggests a role for the amygdala in the consolidation of emotional material into long-term memory via its links with the hippocampus. The primary aim of this study was to investigate the possibility that people with PTSD show abnormal forgetting of emotional stimuli that would be consistent with abnormal amygdala functioning.

Participants and Methods: Participants were eight people with symptoms of PTSD and eight healthy controls. Patients with longstanding symptoms and with co-morbid psychiatric disorders were excluded. No patient had experienced loss of consciousness during trauma. Patients and controls were matched for age and IQ.

Participants were tested on memory for lists of words in two conditions. In the first the list comprised emotional words and in the second it comprised non-emotional words. Lists were presented on separate occasions and order was counterbalanced. Presentation of the lists was titrated so that performance of groups was matched at a short delay of 20 seconds. Memory was tested again following one hour.

Results: The PTSD group forgot emotional stimuli at an accelerated rate in comparison with controls. Forgetting of non-emotional stimuli proceeded at a more normal rate. Forgetting assessed by recognition was normal regardless of emotionality of the stimuli.

Conclusions: These results provide evidence that amygdala dysfunction can impact on memory for emotional material in people with PTSD. This difficulty could underlie reports of poor memory in this disorder. Correspondence: *Claire Isaac, Psychology, University of Sheffield, University of Sheffield, Western Bank, Sheffield S10 2TN, United Kingdom. E-mail: c.lisaac@sheffield.ac.uk*

S.M. MALTA, C.M. ARAUJO, A.P. JACKOWSKI, J.G. BORGIO, L.S. CYPRIANO, S.B. ANDREOLI, M.M. FEIJÓ, A.L. LACERDA, J.J. MARI & R.A. BRESSAN. **Learning and executive functions associated with reduced hippocampal volume in PTSD.**

Objective: To assess the correlations between neurocognitive functions and hippocampal atrophy in subjects with posttraumatic stress disorder (PTSD)

Participants and Methods: Ten subjects with PTSD from Sao Paulo City (5 males; mean age 27.5 ± 5.8 years; 10.3 ± 1.8 years of education; all right-handed; from a catchment's area of Sao Paulo city) as determined by the Clinician-Administered PTSD Scale (CAPS), underwent MRI scans and neuropsychological assessment. Cognitive functioning was assessed by using Rey Auditory Verbal Learning Test (RAVLT), Digit Span (WAIS III), Stroop Test (Trenerry et al., 1989), and Wisconsin Card Sorting Test (WCST). The hippocampus was outlined in the sagittal view according to anatomical guidelines of Schumann et al., 2004.

Results: There was a negative correlation between the number of errors on the WCST and the left hippocampus volume ($r=-0.73$; $p<0.025$). A strong correlation between learning scores ($r=0.86$; $p<0.003$) and the left hippocampus volume was observed in PTSD subjects. We also found a positive correlation involving conceptual processing ($r=0.69$; $p<0.037$) and the left hippocampus volume. There was no correlation involving memory, attention measures, and hippocampal volume.

Conclusions: Although preliminary, the present findings suggest that learning, capacity of abstraction and executive functioning impairments observed in subjects with PTSD might be related to left hippocampal atrophy. Future follow-up studies examining larger samples are warranted to validate these preliminary findings.

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A. TAUB, C. DÁLCANTE, D. FUENTES, A. LOPES, M. MATHIS, M. BATISTUZZO, M. HOEXTER, F. GOUVEA, M. CANTERAS, B. GREENBERG, G. NORÉN, S. RASMUSSEN & E. MIGUEL. **Impact of Ventral Capsular - Ventral Striatal Gamma Capsulotomy on Cognitive Functions of Patients with Refractory OCD One Year After the Procedure.**

Objective: Investigate the impact of ventral capsular and ventral striatal Gamma Knife capsulotomy on the cognitive functions of five patients with refractory OCD one year after the procedure.

Participants and Methods: Five patients were assessed by a comprehensive battery of tests, including measures of attention and psychomotor speed (Trail Making Test), verbal memory (Wechsler Memory Scale - Revised - logical memory subtest), verbal learning (Rey Auditory Verbal Learning Test) and intellectual functions (WASI) before and one year after the procedure. Score averages were compared by non-parametric tests.

Results: We found improvements on Full IQ ($p=0.04$, from 04 to 13 pts), Verbal IQ ($p=0.04$, from 04 to 14 pts), verbal skills ($p=0.04$, from 2 to 25 pts), psychomotor speed ($p=0.04$ from -7 sec to -85 sec) and verbal memory ($p=0.04$, from -5 to 16).

Conclusions: Despite the small sample size and the lack of a control group, no deterioration of performance on cognitive functions was observed. On the contrary, the patients' performance improved on Full IQ, Trail Making Test A, Vocabulary and Logical Memory measures. These data suggest that the procedure does not have a negative impact on the cognitive domains assessed. Correspondence: *Anita Taub, Psiquiatria, Hospital das Clínicas da Faculdade de Medicina da USP, Rua Dr Orídio Pires de Campos, 785, São Paulo 01060-970, Brazil. E-mail: anita@clinicaanitaub.com.br*

Psychopathology: Depression

M.A. BUTTERS, R.K. BHALLA, H.J. AIZENSTEIN, C.F. REYNOLDS & J.T. BECKER. **The Association Between Middle Cingulate Gyrus Volume And Cognitive Function In Late-Life Depression.**

Objective: Late-life depression (LLD) is associated with structural brain abnormalities and cognitive impairment. The purpose of this study was to identify brain regions associated with cognitive function (normal or impaired) in elderly depressed subjects who responded to anti-depressant treatment.

Participants and Methods: Thirty-eight subjects > 65 years with a history of non-psychotic, unipolar major depression underwent comprehensive neuropsychological testing and structural MRI following treatment response. Subjects' cognitive status was classified as normal or impaired. High-resolution T1-weighted brain MRIs were processed using an automatic labeling pathway method. We first examined bivariate correlations to identify regions highly related to cognitive status. We then selected 6 regions - inferior frontal, cingulate, and hippocampus (right and left) - and used logistic regression to predict cognitive status.

Results: After controlling for age, gender, and race, only left middle cingulate gyrus (CG) volume was associated with impaired cognitive functioning. When CG volume was dichotomized based on the 95% CI, the risk of impairment was 2.72 times greater among subjects with atrophic left middle CG. CG volume was not related to lifetime duration of depression, and results suggested a complex relationship among age, depression duration, cardiovascular disease and CG volume.

Conclusions: The left middle subregion of the CG best predicts cognitive status following response to treatment for LLD. Other studies have found lower CG volumes in LLD, particularly for subjects with later lifetime onset of depression. To our knowledge, this is the first study to identify a specific subregion of the CG associated with cognitive impairment in LLD. Correspondence: *Meryl A. Butters, Ph.D., Psychiatry, University of Pittsburgh, WPIC Rm462, 3811 O'Hara St, Pittsburgh, PA 15213. E-mail: buttersma@upmc.edu*

K. KOSMA, A. SIANNI, K. LIATSOS, A. GANOTOPOULOU & V. ROUMBOS. **Depression presenting with memory complains in the elderly and its diagnostic approach in Primary Care Settings.**

Objective: Aim of the present study was to detect the proportion of elderly patients that suffer from depression and present with memory deficits in a primary care setting.

Participants and Methods: 154 patients (mean age 68.3 years) with memory complains were examined at the Health Center of Skiathos for a period of one year. Patients were examined clinically and by the M.M.S.E. Depressive affect, sudden start and rapid deterioration of cognitive dysfunction in conjunction to a retained every day living functional level were the main points on which diagnosis of depression was based on. An antidepressive medication was prescribed and patients were reevaluated 3 months later. Statistical analysis used the Students t-test.

Results: 22 patients (14,3%) were evaluated to suffer from depression and their memory complains were attributed to that. Mean value of M.M.S.E. was 17.28 before treatment and 26.34 after treatment. Statistical analysis revealed a significant improvement of the mean value of M.M.S.E. ($t\text{-value}=7,68$ for 8 degrees freedom, $p<0,001$)

Conclusions: Depression presenting with memory complains can be a major diagnostic problem for the primary care physician. Poor performance of those patients in the usual screening tests for dementia should be interpreted with caution since depression may present with a similar clinical picture.

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J. LEE, S.A. LANGENECKER, A.M. KADE, E.F. SANDERS, L.A. BIELIAUSKAS & M.G. MCINNIS. **An Investigation of Age Differences on Neuropsychological Performance in Individuals with Bipolar Disorder.**

Objective: Research has shown that individuals with bipolar disorder often demonstrate worse performance on measures of neuropsychological functioning especially in the domains of executive function, learning and memory, and psychomotor speed. However, studies on older individuals with bipolar disorder are very limited. The present study investigated whether older individuals with bipolar disorder demonstrate increased age-associated cognitive decline compared to their psychiatrically healthy age-peers.

Participants and Methods: Seventy-nine individuals with bipolar disorder diagnosis and twenty-nine healthy controls were included in the study. Each group was divided into two sub-groups based on age: Younger groups aged 54 and under; Older groups aged 55 and older. A neuropsychological test battery including the Wechsler Abbreviated Scale of Intelligence (WASI), Rey-Osterrieth Complex Figure Test (RCFT), California Verbal Learning Test-II (CVLT-II), Purdue Pegboard, Wisconsin Card Sorting Test (WCST), Controlled Oral Word Association Test (COWAT), Animal Fluency, Trail Making Test (TMT), WAIS-III Digit Symbol Coding, and Stroop was given to each participant.

Results: Results indicated worse performance in the bipolar disorder groups compared to healthy controls on measures of the RCFT, Purdue Pegboard, CVLT-II, COWAT, TMT, Digit Symbol Coding, and Stroop. Older groups performed worse on the measures of RCFT, Purdue Pegboard, CVLT-II, TMT, and Digit Symbol Coding. Interaction between age and disorder was found only on the COWAT.

Conclusions: Our results were consistent with previous research findings that suggest cognitive inefficiencies in the domains of memory, executive function, and psychomotor speed in individuals with bipolar disorder. Additionally, our findings suggest that generally, older individuals with bipolar disorder continue to experience the same degree of cognitive inefficiencies as they age, but that their difficulties are generally not magnified with age.

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C. MORAES, A.L. MORENO, C. ABUJADI & S.M. CIASCA. Emotional symptoms in patients in conflict with the law.

Objective: To verify the presence of depressive, anxiety and somatic symptoms in adolescents in conflict with the law.

Participants and Methods: The sorting instruments of symptoms were the Child Behavior Checklist (CBCL 6/18), subscales I, II, III, answered by the parents, and the Children's Depression Inventory (CDI), answered by the adolescents. Two groups were studied: 15 adolescents in conflict with the law and 17 adolescents who were not in conflict with the law. The groups were paired according to age and socioeconomic level. The results were analyzed statistically using the Q-test, independent T-test and analysis of variance (ANOVA).

Results: Through CDI depressive symptoms were found in 13.33% of the adolescents of the study group and in 17.65% of the adolescents in the control group ($p = 0.628$). Through CBCL anxiety/depression symptoms were found in 17.65% of the adolescents in conflict with the law and in 20% of the control group ($p = 0.699$). There were symptoms of social retraction in only one girl of the control group. Regarding the somatic symptoms, the study group showed higher percentage in relation to the control group (26.7% and 11.76%, respectively, $p = 0.274$). Out of the six adolescents who presented somatic symptoms, five of them were girls.

Conclusions: It is noted that no higher rates of depressive, anxiety and somatic symptoms were found in adolescents in conflict with the law, when compared with normal controls.

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A.L. RUIZ-RIZZO. Attention and Executive Function in subjects with Major Depression.

Objective: To compare performance between subjects with and without Major Depression in executive function and attention's tests.

Participants and Methods: 14 subjects with Major Depression (MD), 7 with onset < 21 (cases A) and 7 with onset in adulthood (cases B) and 13 age-, education- and gender-matched healthy controls. Cases were recruited from recent MD-research databases. Participants met and signed an informed consent. Neuropsychological battery included tests for memory; attention (TMT, A-B; Stroop Test and WMS digits) and executive function (WCST-64; WAIS-III blocks designs). Analysis of data was made for last two, by 2 independent samples nonparametric tests.

Results: Performance between cases and controls was significantly different ($p < .05$) with poorer performance of cases for TMT-B time ($p = .043$), blocks raw score ($p = .025$) and WCST Conceptual Level Answers (CLA) ($p = .014$). Poorer performance too was found for cases A for only WCST former dimension and also total errors ($p = .035$) and non-perseverative errors ($p = .022$) when comparisons were made against controls with similar characteristics (controls A). Performances comparisons either between cases B and controls B or between A and B cases revealed no differences. When analyses 'cases vs. controls' were made excluding cases who 'felt down' (< 5 in a 10-mood scale), no difference was found.

Conclusions: MD-subjects performed poorer in "speed processing" and "conceptualization" components. MD subjects with onset < 21 failed in "self-monitoring" and "conceptualization". MD-subjects with onset \geq 21 did not significantly differ from controls in their performance. Any difference was not found for both MD groups; neither for cases vs. controls excluding low mood-perceived cases.

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Psychopathology: Schizophrenia

A.G. CAPOVILLA, A.A. BERBERIAN, B.T. TREVISAN & J.C. OLIVEIRA. Working Memory Assessment in Schizophrenic Patients and Their First-Degree Relatives.

Objective: Working memory (WM) deficits has been verified in schizophrenic patients and their non-psychotic relatives, in comparison to the health population. However, the precise pattern of neurocognitive declines is still unclear. Furthermore, there are few studies directed for validity evidences of neuropsychological assessment tests for schizophrenia in Brazil. The present study assessed Visual and Auditory WM in schizophrenic patients, their health siblings and health control subjects.

Participants and Methods: Seventeen outpatients were recruited from a Brazilian particular psychiatric clinic. All patients met the DSM-IV criteria for schizophrenia and were on typical antipsychotic medications. Seventeen siblings and seventeen healthy control subjects participated, all nonpsychotic according to DSM-IV criteria. All participants were assessed using Computerized Visual and Auditory Working Memory during the regular period of treatment. Age, scholarship, and nonverbal intelligence were used as covariants.

Results: Schizophrenic patients performed worse than healthy subjects in all measures of WM. Siblings reached a medium average between patients and healthy subjects in Auditory WM. In Visual WM Test, they reached the lower performance, however there was not significant difference from the patients.

Conclusions: These findings suggest that WM ability is impaired in schizophrenic patients and that siblings also display similar pattern of impairment. An interested result is that siblings performed equal than patients in Visual WM ability. These findings corroborate literature's studies and might be useful for a better understanding of the cognitive problems which occur in schizophrenia, future genetic dissection of schizophrenia and more effective strategies for the treatment of this disorder. Correspondence: *Alessandra G. Capovilla, Doctor, Psychological assessment, University of San Francisco, Rua Nicolau Pereira Lima, 535, Sao Paulo 05539000, Brazil. E-mail: acapovil@usp.br*

D. DE ACHÁVAL, E.Y. COSTANZO, I. JÁUREGUI, M.E. MARTÍN, L. SABE, A. CHIODI, I. VÁZQUEZ, R.D. FAHRER, R.C. LEIGUARDA & S.M. GUINJOAN. Performance in Tests of Facial Emotion Recognition and Theory of Mind in Proband with Schizophrenia and their Unaffected First-Degree Relatives.

Objective: Social cognition is affected in individuals with schizophrenia. It is unclear to what extent the deficits are shared by unaffected family members and the nature of the relationship between deficits in social cognition subcomponents: visual emotional processing and verbal theory of mind.

Participants and Methods: The performance in tests of emotional processing in faces (Baron Cohen, 1997) and eyes (Baron Cohen, 2001), in a test of social faux pas (Stone, 2002) and in theory-of-mind stories (Happé, 1999) were tested in 16 individuals with chronic, stable schizophrenia attending the Cognitive Neurology and Psychiatry Section of FLENI, 19 first-degree relatives, and in 20 healthy persons. A one-way ANOVA was used to compare the groups, followed by a Tukey test.

Results: Patients had a poorer overall verbal performance in recognition of faux pas stories ($F = 4.851$, $p = 0.018$) and theory-of-mind stories ($F = 3.411$, $p = 0.032$), but in our sample there were no significant differences in the visual emotional processing tested in eyes and faces. First-degree relatives of schizophrenic patients showed an impaired recognition of faux pas stories in comparison with healthy persons ($p = 0.044$). We observed no significant differences in performance in social cognition tests between patients and their relatives. Performance in visual and verbal tests of social cognition were correlated in relatives ($r = 0.77$, $p < 0.001$) and patients with schizophrenia ($r = 0.493$, $p = 0.052$), but not in healthy individuals.

Conclusions: Our results suggest that individuals with schizophrenia and their first degree relatives display a similar pattern of social cognition information processing, although social cognition deficits seem less intense in the latter.

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F.S. GALAVERNA, J. MARINO & M. ABRAHAM. Organization of the semantic memory in schizophrenic patients to compare it with a group of normal subjects using verbal and category fluency tests.

Objective: To explore the organization of the semantic memory in schizophrenic patients and compare it with a group of normal subjects using verbal and category fluency tests, and assess the semantic organization in patients according to their educational level, cognitive processes, schizophrenia subtype and the age when the pathology manifested.

Participants and Methods: 26 schizophrenic patients and 79 normal subjects were assessed. The organization of semantic memory derived from the construction of the perceptual map which was obtained from the Correspondence Analysis.

Results: A lack of organization was observed in patients semantic structure in both verbal fluency tests compared to normal subjects, which is consistent with previous studies.

Conclusions: When subgroups of patients were compared according to their educational level, cognitive processes, schizophrenia subtypes and the age when the pathology manifested, it was observed that the lack of semantic organization underlies the pathology, as the other considered variables can be affecting other cognitive components of the test, because differences were observed as regards number of words produced but not in semantic structure. This lack of organization was observed in patients in general. Besides, a Cluster Analysis was done to observe how patients were grouped according to their profiles words in the verbal category fluency test, and the results indicated that patients were grouped according to educational level, cognitive processes and schizophrenia subtype.

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S.M. MALTA, C.R. REIS, H. HYAGIU & V.B. LANDIS. Executive functioning in first and multiple episode schizophrenia patients: associations with clinical variables.

Objective: To compare executive and intellectual functioning in first and multiple episode schizophrenia patients and evaluate the relationship between executive performance and clinical variables.

Participants and Methods: Twenty four first-episode schizophrenia outpatients were compared with multiple episodes schizophrenia outpatients followed by the Schizophrenia Program of the Department of Psychiatry Universidade Federal de São Paulo (UNIFESP, paired by gender, schooling, age of onset and socio-economic status. All patients were treated and stables, using the same medication and dosage for last six weeks. Both group were submitted to a battery of tests to assess executive functions: Digit Span, Wisconsin Card Sorting Test (WCST), Verbal Fluency (letters and categories), Trail Making Test and Hanoi Tower and a test for intellectual level, Raven's Progressive Matrices. Clinical variables were assessed with the illness history of each patient.

Results: Both groups of schizophrenia patients presented similar performance in the most executive and intellectual measures. Patients with multiple episodes presented best performance at digit Span forward ($t=2.028$; $p=0.048$). Number of intermissions showed positive correlation with WCST (percentage of perseverative errors: $r=0.35$; $p=0.013$) and Verbal Fluency (FAS: $r=0.35$; $p=0.013$).

Conclusions: The present findings suggest multiple and first episode schizophrenia presented similar executive functioning, but attention is better in the multiple episode group. The results also suggest that the cognitive flexibility and verbal fluency of both groups of patients become worse as the number of intermissions grows bigger.

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J. PEÑA, N. OJEDA, P. SANCHEZ, A.B. YOLLER, E. ELIZAGARATE & J. EZCURRA. The moderating role of Cognition in Chronic Patients with Schizophrenia.

Objective: The relation between verbal fluency (VF) and processing speed (PS) in schizophrenia has been extensively reported, as well as the relation between VF and misleading reasoning and abstract thinking (AT). This study aims to explore if the influence of VF on misleading reasoning and abstract thinking could be moderated by PS.

Participants and Methods: 95 schizophrenic (DSM-IV criteria) hospitalised were assessed in terms of sociodemographics, clinical and cognitive variables.

Mean age was ($X=37.02 \pm 11.15$), education, ($X=9.48 \pm 3.21$), years of illness ($X=15.29 \pm 9.56$), and mean days of hospitalisation ($S=676.95, +1645.77$). Total score obtained in the PANSS, revealed a chronic mean profile in our sample (PANSSTot $X=48.94, +14.97$ PANSSNeg $X=27.81 \pm 10.13$, PANSSPost $X=23.51, +10.81$). Difficulties with AT, as assessed by PANNS was $X=3.76, +1.89$. Slowness in the sample was severe (TMT-A, $X=69.90 \pm 50.34$).

Results: As expected, mean score in VF was also severely impaired ($X=20.00 \pm 9.45$) and predicted significantly misleading reasoning and abstract thinking ($B=-.617, p<.001$). A series of hierarchical multiple regression analyses indicated that the association between the VF and AT was moderated by PS. The interaction term VFxPS was significant ($B=.466, p<.05$).

Conclusions: The analysis of this moderation indicated that the association between reasoning and verbal fluency is lower among those patients with low processing speed.

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Psychopharmacology

R.D. CREAN, K. BUFFKINS & B. MASON. Gabapentin Effects on Executive Functions in Treatment Seeking Cannabis Dependent Subjects.

Objective: Cannabis is the most widely used illicit drug among adolescents and young adults. Cannabis use impairs executive functioning, creating a vulnerability to fail to inhibit maladaptive behaviors which could contribute to continued use and relapse. Yet, treatment of cannabis dependence (CD) has largely utilized Cognitive Behavioral Therapy, which relies on intact cognitive functions. Gabapentin has been shown in our lab to be effective for reducing cannabis use and disturbances in sleep and affect that are common during withdrawal in CD subjects. Other work has found gabapentin to improve some aspects of cognitive functioning. Our objective was to evaluate the effects of gabapentin 1200mg/d vs. placebo for reducing cognitive impairments associated with CD.

Participants and Methods: Long-term marijuana users seeking treatment were randomly assigned to 1200mg/d gabapentin or placebo and completed three substests (Trail Making, Verbal Fluency and Color-Word Interference) of the Delis-Kaplan Executive Function System (D-KEFS) at baseline and 4-week follow-up.

Results: Subjects were 32 males and 5 females, ages 20 to 59, who met DSM-IV criteria for current CD. Baseline performance for the group as a whole showed significant impairments in visual and motor cognitive flexibility compared with normative data. The gabapentin group had significant improvement in motor speed, cognitive flexibility and verbal fluency from baseline to Week 4, compared with placebo

Conclusions: Long-term cannabis use was associated with impairments in executive functioning performance, which is consistent with recent neuroimaging findings. Treatment with gabapentin improved some aspects of executive functioning compared with placebo. Gabapentin may provide important pharmacotherapy for CD and the neuropsychological deficits related to this disorder.

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A. ZANINOTTO, S. POMPÉIA & O.A. BUENO. Nootropic Effects of Acute Oral Donepezil in Healthy Volunteers.

Objective: To investigate the time-course of acute cognitive effects of oral donepezil in young healthy subjects.

Participants and Methods: This was a double-blind, randomized, parallel group design study with 24 young, healthy male volunteers. Subjects received placebo or donepezil (5 mg p.o.) and were tested twice, 90 min. after ingestion (time 1, corresponding to the time most studies have tested the effects of the drug); and 210 min after treatment (time 2), which is close to theoretical peak-plasma concentration. The test battery included classical episodic memory and psychomotor tasks, working memory tasks, tests of 5 visual-spatial abilities from the ETS Kit of Factor-Referenced Tests, and Visual Inspection Time (IT).

Results: Donepezil improved performance in most tests irrespective of time after treatment. It increased scores in 3 of the 5 visuospatial abilities, two of which involve considerable central executive participation, and improved backward digit span. Subjects who took donepezil also had higher delayed recall of prose scores despite having equivalent immediate recall of prose. Donepezil improved IT only at time 1, but IT reaction time improved at time 2.

Conclusions: Acute oral 5 mg doses of donepezil improve visuospatial abilities, central executive functioning and episodic memory even before peak-plasma concentration of the drug is reached.

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Invited Symposium 2: Are We Actually Close to an Accurate Detection of a Pre-Dementia Stage?

Chair: Mariel Pellegrini

2:00–3:30 p.m.

M. PELLEGRINI, R. ALLEGRI, F. MANES, E. LABOS & R.G. MORRIS. Are We Actually Close to an Accurate Detection of a Pre-Dementia Stage?

Symposium Description: Despite many controversies, there are repeated reports that non demented persons with cognitive impairment have a higher chance of progressing to dementia. Therefore, accurate identification of this population at risk for developing a dementia syndrome continues to be a topic of major interest, with numerous studies endeavoring to explain the nature of cognitive impairment in non demented elderly persons. Up to date, neuropsychological criteria played a crucial role addressing the cognitive impairment in individuals who have no dementia diagnosis, but much work is still required to clarify with greater precision the transitional zone between healthy aging and the first signs of dementia. In this symposium, the issue of dementia detection as early recognition will be considered. The first presentation will open a discussion about the clinical usefulness of the MCI construct. The second presenter will focus on neuropsychological findings that have proved helpful for symptomatic pre-dementia detection. Finally, limitations of standard neuropsychological assessment will be discussed, particularly for the case of MCI.

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R. ALLEGRI. Mild Cognitive Impairment: Believe It or not?

Objective: Mild cognitive impairment (MCI) was originally defined as this transitional state that can precede dementia but the condition and the rates of conversion remains controversial. MCI is now the focus of natural histories studies, along with Alzheimer's disease (AD) prevention. The objective of our presentation will be the question of whether MCI is a well enough established entity that can be a diagnosis in medical practice and a valid target of Alzheimer's prevention therapy. MCI was originally defined as progressive memory decline, prodrome of Alzheimer's disease. More recently the construct has been expanded to other cognitive domains with other po

tential causes like normal aging, frontotemporal dementia, vascular dementia, etc. Despite many consensus conferences, experts cannot agree on critical aspects of MCI label, particularly on its clinical utility. Based on neuropsychological criteria, a hippocampal memory profile has been proposed for MCI of Alzheimer-type or prodromal AD, as a more useful concept. Validation studies and prospective cohorts are needed to advance these criteria. We have no doubt, that in the future, the diagnosis of AD will be in the early pre-dementia stage and it will benefit from combination of neuropsychology, neuroimaging and biomarkers

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M. PELLEGRINI. Early Detection of Dementia. From Neuropsychological Research to Clinical Practice.

Objective: Dementia is strongly associated with age. With increasing life expectancy, the number of old people have been consistently growing and with them, those who are at risk of developing a dementia syndrome. In recent years, many attempts have been made to clarify about the possibility of defining a clinical entity for the condition of declining cognitive abilities associated with ageing and its boundaries with dementia, particularly with Alzheimer's disease (AD). Along with the continuum hypothesis, the transition between normal ageing and dementia has been recognized as a period in which some cognitive impairment take place although it does not interfere notably with activities of daily life. Several constructs have been proposed to describe this intermediate state, and a great deal of research has been directed to develop clear and precise diagnostic and clinical criteria, but also with a great variability in its results. Despite of an actual degree of uncertainty about which approach can prove to be more useful, some neuropsychological findings that were stated as AD predictors are straightforward: the deficits in episodic memory and other cognitive domains including mental speed, category fluency and executive tests. In this presentation we will review many unresolved issues concerning conceptual difficulties and the different neuropsychological criteria employed, with a special focus in all the work on the early cognitive profile, and the neuropsychological measures and tests that seem to have been more useful.

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F. MANES. Accelerated Forgetting in Subjects with Memory Complaints: A New Form of Mild Cognitive Impairment?

Objective: A study was carried out to investigate accelerated forgetting of new verbal and visual material in participants complaining of memory loss, individuals with Mild Cognitive Impairment and controls. All groups were evaluated with a standard neuropsychological battery and two tests of delayed recall 6 weeks apart with the experimental tasks. Individuals with memory complaints, but not MCI, performed normally compared to controls on immediate and 30 minute recall, but showed a striking impairment in verbal and visual memory after 6 weeks. Accelerated forgetting may go undetected on standard neuropsychological evaluation in some patients complaining of memory problems.

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**Paper Session 5:
Language, Aphasia, Reading Disorders**

2:00–3:30 p.m.

L. COLOMBO, S. MARCOLINI, C. CORNOLDI & R. TUCCI. Phonological and Working Memory Effects on Written Spelling of Italian Adults with Developmental Reading Deficits.

Objective: We explored written spelling ability in Italian adults with childhood reading deficits (CRD). These may be reflected in a low ability in reading and spelling (Bruck, 1990; Shaywitz et al., 2003) despite normal achievement in scholastic career. As childhood reading impairments may depend on deficits in phonological processing (Ramus, 2003; Snowling, 2000) we investigated if disrupting the ability to use phonological memory would impair performance in the CRD group. Subjects wrote under dictation while concurrently articulating “la la”, which should impair the ability to refresh the phonological representation of the stimulus, and interfere with sequential operations involved in spelling.

Participants and Methods: Spelling under dictation was performed in three conditions: single task; spelling with concurrent articulation, CA (divided attention); foot tapping, TP (divided attention control).

Subjects. 19 CRD subjects and 24 control subjects, students of the University of Padua, participated in the experiment. CRD subjects were recruited through a questionnaire in which students reported if they experienced reading problems during childhood.

Materials. Seventy-two three- and four-syllable words and 24 nonwords were presented.

Results: ANOVA's with 3 within -subjects (Task, 3; Lexicality, 2; Length, 2) and 1 between-subjects (Group, 2) factors were carried out. Dependent variables were RTs and error percentage.

RT analysis. There were effects of task and lexicality, but no group effect. Error analysis. CRD group made more errors overall (14%) than control (7%). Most errors occurred in CA condition, for long stimuli, in both groups (words: 34%, CRD, 9%, control; nonwords: 49% CRD, 29%, control). For words, task by group interaction showed group effect in CA. For nonwords, errors were overall more numerous in CRD group.

Conclusions: Developmental reading deficits are reflected in the spelling performance of adults, particularly in divided attention conditions, and when the secondary task involves phonological memory.

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M.M. MARTÍNEZ-CUITIÑO, M.A. WILSON, C. BURANI & B.S. WEEKES. Lexical Reading without Semantics: Central Surface Alexia in Spanish.

Objective: Reading without meaning has been reported in deep orthographies such as English and Chinese. These patients typically show unimpaired irregular (IW) and regular (RW) word reading co-incident with semantic impairment. Some reading theorists have argued that this dissociation is evidence of a lexical non-semantic route for reading that activates the phonological form of whole words directly from orthographic input (Coltheart, 2001). To date, few of these patients have been reported in more transparent languages such as Spanish where most words are regularly spelled. The Spanish spoken in Argentina retains the original orthography of foreign loan words (shampoo) as well as their pronunciation (‘sham-‘pü) transforming them into a type of irregular word in Spanish.

Participants and Methods: Here we report two Spanish-speaking semantic dementia patients (MB and RM) tested with lexical decision tasks, Irregular (loan) and regular word, and non-word reading, and semantic tapping tasks.

Results: Both MB and RM showed unimpaired non-word, regular word and irregular word oral reading co-incident with impaired semantic access to the meaning of the same words. Patients’ performance has been compared to that of normal control subjects by means of Chi-square tests.

Conclusions: We argue that the pattern showed by these patients is compatible with the profile of oral reading without meaning described in deep orthographies, thus providing evidence of a lexical non-semantic route for oral reading in a language with a transparent script.

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R.M. WOOD & C. MATE-KOLE. Explicit Processing of Nonwords in Two Patients with Deep Dyslexia.

Objective: Deep dyslexics make semantic (street → “road”), derivational (child → “children”), visual (status → “statue”), and function word errors (for → “and”; Marshall, Newcombe, & Marshall, 1970) when reading aloud. They also experience difficulty in reading aloud nonwords (Marshall & Newcombe, 1987). Models of deep dyslexia [e.g., the right-hemisphere hypothesis (Coltheart, 1983), and the dual route model (Coltheart, Curtis, Atkins, & Haller, 1993)] assume that deep dyslexics cannot process phonology. However, recent studies (Buchanan, Hildebrandt, & MacKinnon, 1994, 1996, 1999) have shown that some deep dyslexics can implicitly process phonology. Buchanan and colleagues (1996) maintain that explicit phonological processing is eradicated in deep dyslexia. We disagree; we discuss two deep dyslexics who explicitly processed phonology.

Participants and Methods: TA was 21-year-old man who suffered an embolic infarct of the middle cerebral artery; AW was a 24-year-old woman who suffered a left cerebrovascular accident.

Results: Despite displaying the classic symptoms of deep dyslexia (including an inability to read aloud nonwords), each patient scored 25/25 on a forced-choice, nonword recognition task. This task involved distinguishing a previously-seen target nonword from a foil nonword by pointing (placement of the targets was counterbalanced across trials). Additionally, AW scored 20/20 on a similar task, and 8/10 on a recognition task in which targets were presented auditorally in the familiarization phase.

Conclusions: TA and AW explicitly processed phonology; an ability long assumed to be absent in deep dyslexia. Models of deep dyslexia (e.g., the dual route model) must therefore be modified to include an ability to extract phonology from orthography.

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F. SERRANO & S. DEFIOR. Word spelling in Spanish dyslexia: The effect of the type of item.

Objective: This research investigates Spanish dyslexic spelling abilities, especially focusing in how Spanish writing code complexities influence the dyslexic children’s literacy abilities. The main aim is to study the influence of linguistic structure (consonant cluster, complex and simple graphonemes) on children spelling performance, even though all structures are consistent. Consonant cluster and complex graphonemes spelling are phonologically more demanding so the prediction is a lower spelling performance in both types of structures, because dyslexic children present poor phonological processing.

Participants and Methods: A reading level-match design was used in which participant were 31 dyslexic children, 31 chronological age-matched children and 31 reading level-matched children. A dictation task with simple and complex words and words with consonant cluster was carried out. Word lexical frequency was controlled in order to study its effect on spelling performance.

Results: Results show that complex graphonemes create difficulties in dyslexic word spelling. A more interesting result concerns problems in consonant clusters spelling despite of this structure is orthographically consistent.

Conclusions: These difficulties are related to the dyslexics’ poor phonological skills. The work raises questions about the items used for the identification and diagnosis of dyslexic problems.

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S. CARLOMAGNO. Evaluating Aphasic Discourse by Referential Communication Task.

Objective: Discourse abilities of aphasic speakers may be evaluated in terms of “effectiveness in exchanging ideas in conversation” or “speech information content” (Armstrong, 2000; Ramsberger & Rande, 2002). The present study points on these aspects of aphasic discourse evaluation by examining their performance in a referential communication task (RCT). **Participants and Methods:** Sixty-seven normal and 63 left-hemisphere damaged subjects (15 non-aphasic and 48 with moderate or severe aphasia at the AAT and CADL evaluation) received the Cookie Theft Picture Description task (CIU evaluation, Nicholas and Brookshire, 1993) and a RCT where participants could rely on non-verbal resources to optimize effective referencing (Hengst, 2003; Carlomagno et al., 2005). The latter provided measures of: a) discourse information content (production of Crucial Information), b) effectiveness in producing reference (number of Misunderstanding Incidents), c) conversational support from the examiner (Miniturns for accomplishing the task), d) non-verbal communicative behaviour (Informative Gestures).

Results: All these measures discriminated between aphasic and non-aphasic subjects or between subjects with different aphasia severity (MANOVA). The RCT Crucial Information score was related to the CIU score ($r_s=.74$), while the Misunderstanding Incident to the CADL ($-.82$). Correlation between the Crucial Information score and effectiveness in referencing was low and some aphasic subjects had normal referential accuracy but very low Crucial Information score. In these subjects the Informative Gestures score increased.

Conclusions: The data support the hypothesis that evaluation of “discourse efficiency” or “discourse information content” of aphasic speakers correspond to different constructs due to the variety of verbal and non-verbal communicative strategies they use in communicative interaction. RCT may be used for evaluating these aspects of functional re-organization of communication after aphasia.

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S. JACUBOVICH. ACALCULIA: ZERO IN TRANSCODIFICATION TASKS.

Objective: Studies of number production and comprehension provide evidence for a modular organization. The abilities of processing include a) Arabic (“46”) and verbal (“forty six”) numbers reading, writing, oral production and auditory comprehension b) conversion from these formats to internal representations of quantity, and vice-versa.

Arabic and verbal systems share some common rules, although we can see several important differences in the application of some of them. In Arabic notation, “0” implies the absence of units to multiply by 1, 10, 100 and so on, while in the verbal system, it is indicated by the omission of one part of the sequence.

In this work, the transcoding ability of two patients with developmental dyscalculia was studied.

Participants and Methods: In this work, the transcoding ability of two patients with developmental dyscalculia was studied.

Results: The results show that most of the errors were significantly related to the presence or absence of “zero”. A particular error pattern was found: selective impairment for “syntactic zero” targets, dissociated from the preserved use of “lexical zero” in transcoding tasks.

Conclusions: Three theoretical models describing the transcoding mechanisms were considered: the asemantic model of Dehaene & Cohen (1995). The semantic model of McCloskey (1985-1982). Finally, the lexical-semantic model of Power & Dal Martello (1990-1997). The latter results the more explicit model to explain the patients’ impairments.

Finally, it can be concluded that the distinction between the “lexical zero” and the “syntactic zero”, as well as the knowledge about specific application rules, is useful for the design of habilitation and rehabilitation strategies.

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Symposium 22: Behavioral Intervention in Children with Autism Spectrum Disorders

Chair: **Nora Grañana**

2:00–3:30 p.m.

N. GRAÑANA, R. VERNESCU, M. GARCIA COTO & M. AGOST CARREÑO. Behavioral Intervention in Children with Autism Spectrum Disorders.

Symposium Description: The objective of the symposium is to discuss the state of the art of behavioural interventions in autism spectrum disorders, to consider neuropsychological processing, the development of programs of intervention, and evaluating the impact of the intervention in psychoeducative profile. Miguel Garcia Coto will discuss neuropsychological processing in children with autism which determines the curricula. Roxana Vernescu will describe the program development in a center of autism. And Maria Agost Carreño will show the impact of the program in an autistic population.

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R. VERNESCU. Program Development for Children with Autism and Related Disorders.

Objective: Children with Autism and related Pervasive Developmental Disorders exhibit a complex profile of strengths and needs. While diagnostic classifications evoke a stereotypical picture for this population, parents and professionals alike have long recognized that no two children, youths, or adults on the spectrum ever present with identical strengths and needs profiles. Individual differences often present a challenge to systems with limited resources. However, a family-centred framework that includes ongoing assessment of strengths and needs across the life-span is key to the development of effective services. Successful programs are designed to fit the child/family. Within such frameworks, care coordination and transition planning starts at diagnosis and continues into late adulthood. Key elements to developing successful programs will be discussed with examples from two Canadian programs

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M.A. GARCIA COTO. Role of Neuropsychological Assessment in the Design of an Intervention Program for Autism Spectrum Disorders.

Objective: Autism spectrum disorders present a wide range of behaviour problems, language disorders and qualitative different impairment of joint attention.

In this presentation we will analyze the process of planning, directing and monitoring effective programs for individuals with autism, and the competencies that they require to develop their learnings.

The program can build a bridge between the style of processing and learning and the acquisition of new abilities. Because of the diversity of needs of individuals in the autism spectrum and the array of specific competencies amongst the pool of potential service providers, we need to focus on the match between their needs and the specific competencies of a particular program.

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M. AGOST CARREÑO. Educational and Therapeutic Program for Children with Autism Spectrum Disorders.

Objective: The aim of this presentation is to evaluate the outcomes of a group of children with autism spectrum disorders in their cognitive performance after six months of treatment.

The CETNA program seeks to integrate the principles behind the different approaches (Applied Behavioral Analysis, Sensory Integration, Floortime, Music therapy, Speech and Language Therapy) in order to provide a comprehensive, integrated treatment model. The children attend the program 15 weekly hours. We administered the Psicoeducacional Profile 3rd edition (Shoppler and others, 2005) within a 6 months interval. Results showed statistically significant differences on the 3 composite scores: Communication Motor and Overall Development Score.

The CETNA program can be an effective intervention model.

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Symposium 23: Neuropsychological Aspects of Multiple Sclerosis in Children and Adults

Chair: Marina Drake

2:00–3:30 p.m.

C. FILLEY, S. TENEMBAUM, S. VANOTTI, S. RAO & M. DRAKE. Neuropsychological Aspects of Multiple Sclerosis in Children and Adults.

Symposium Description: Multiple sclerosis (MS) is a chronic inflammatory demyelinating disease that can affect cognitive and emotional functioning. It has been estimated that about 50% of MS patients present some degree of neuropsychological impairment. Memory, attention, executive function and information processing speed are the most commonly reported impaired aspects of cognition.

The symposium will focus on some relevant aspects of cognitive dysfunction in MS patients across the life span.

Silvia Tenenbaum will present data of intellectual functioning in children with MS. Sandra Vanotti will talk about presentation, nature, and prevalence of cognitive impairment in young adulthood. Steven Rao will focus on the relationship of neuroimaging studies and cognition in MS. Marina Drake will review some data of the effects of disease modifying agents on the cognitive outcome of MS patients.

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S. VANOTTI. Cognitive Impairment in the Early Phase of Multiple Sclerosis.

Objective: Cognitive Impairment (CI) is a well-known feature of Multiple Sclerosis (MS). There is a general consensus regarding the nature

of cognitive dysfunction, as controlled neuropsychological studies have consistently shown relative decline on tasks assessing recent memory, attention, processing speed, visuospatial abilities and executive functions. In contrast, intellectual functions and language skills generally remain preserved.

The early detection of cognitive changes contributes to the recovery of cognitive domains, and it is essential for a patient's psychosocial function. Research results reveal that CI is the first reason for dismissal from employment. Recent studies have been published regarding cognitive impairment during the early stages of the disease. Amato (2001) conducted a study among 50 patients with Relapsing-Remitting (RR) and Primary Progressive pattern during the early stage of the disease and obtained that 26% of patients showed CI after less than two years of disease duration. Achiron (2003) found that 80 of 150 patients with ≤ 5 years of evolution showed deficits on verbal fluency and episodic memory. As well CI was detected in patients with a very recently diagnosed clinically isolated syndrome suggestive of MS. (Feuillet, 2007).

Appropriate assessment tools were needed to detect CI during the early stage of the disease.

In Argentina through two Multicenter Studies we obtained the validation of the Neuropsychological Screening Battery for MS (Rao, 1991) and the Multiple Sclerosis Neuropsychological Screening Questionnaire (Benedict, 2003) in its Spanish version.

In this symposium we will review the recent literature in this issue. Also, we will present the neuropsychological batteries available in Argentina

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S. RAO. Neuroimaging and Cognition in Multiple Sclerosis.

Objective: This presentation will focus on the relationship between the patterns and severity of neuropsychological impairment in multiple sclerosis (MS) and changes in brain structure and function revealed by various MRI techniques. The presentation will also examine the role of MRI techniques in serving as imaging surrogates in the evaluation of symptomatic and disease-modifying interventions in MS

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M. DRAKE. Treatment with Disease Modifying Agents. Its Effects on Cognition.

Objective: Cognitive impairment is a frequent finding in multiple sclerosis (MS). It can occur at any time in the course of the disease and can even be the first presenting symptom. The deficit significantly affects everyday activities and has a negative impact on social and occupational functioning. Although there is currently no specific treatment for cognitive impairment in MS, research from the last decade has shown some promising results. Symptomatic therapy with anticholinesterase inhibitors has proved to have a positive effect on memory functioning. Treatment with disease modifying agents (DMA) has been shown to have positive clinical and MRI effects on MS patients. There is evidence that it is effective in reducing the relapse rates, decreasing MRI T2-weighted lesion occurrence and slowing sustained disability progression. MRI measures of lesion burden and brain atrophy have been found to correlate with cognitive impairment. It seems reasonable, then, to expect that treatment with DMA may exert some beneficial effect on cognitive status in MS patients.

In this presentation we will review some studies focusing on the effects of DMA on cognition and we will present some preliminary data from research conducted at our laboratory

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S. TENEMBAUM & A. SOPRANO. Neuropsychological Impact of Multiple Sclerosis in Pediatric Patients.

Objective: Cognitive dysfunction and psychological distress occur in 30 to 70% of adult patients with multiple sclerosis (MS). Domains commonly affected in adults include learning-memory, attention-information processing speed, verbal fluency, executive functioning, and visuospatial skills. There is increasing appreciation that MS can begin at all ages of the pediatric population, with an estimated 2 to 5% of patients with MS experiencing their first clinical symptoms before age 18. While cognitive deficits and psychosocial difficulties have also been observed in children with MS, they are poorly understood and rarely documented. The few studies available from United States and Canada report frequency rates from 35 to over 90% of children with MS experiencing significant cognitive impairment. To address the neuropsychological impact of MS in pediatric patients in Latin-America, children and adolescents with MS were examined at two different sites: the Pediatric MS Clinic at the National Pediatric Hospital Dr. J. P. Garrahan (Buenos Aires, Argentina) and the University Hospital of Maracaibo (Maracaibo, Venezuela), between 1999 and 2008. Cognitive evaluation included: global cognitive function (Wechsler Intelligence Scale for Children-III, Stanford-Binet), attention, memory, receptive and expressive language, executive functioning, and visuospatial and motor functions. Preliminary results show that all children demonstrated impairment on at least one test, and most of them had full scale IQ scores below the normative mean. Cognitive functioning was strongly related to several clinical variables, including longer disease duration, total number of relapses and younger age at MS onset. Cognitive dysfunction is a major aspect of the disease that must be assessed and monitored over time in children and adolescents with MS. Comprehensive treatment planning for pediatric MS patients should involve early recognition that they may require academic accommodations for their education.

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Symposium 24: Neuropsychological Assessment: an Ecological View of Classic Tests

Chair: *Silvia Figiacone*

3:45–5:00 p.m.

S.R. FIGIACONE, M.A. MÁRQUEZ, C. GUNTIN & M.P. ALTAMIRANO. Neuropsychological Assessment: an Ecological View of Classic Tests.

Symposium Description: Psychiatric patients usually display dysfunctional neuropsychological profiles in classical tests showing abnormal responses that does not mean much from a quantitative perspective. Qualitative approaches have been created to take a deep look on these subtle differences. Meanwhile the need to improve clinical value on neuropsychological assessment had lead to the creation of ecological tools that pretend to recreate real life demands.

The assessment of individual capacities to deal with environmental demands is crucial to make an accurate strengths and weaknesses profile and to understand an individual behavior. Classical instruments designed by classical authors have been used for years in the assessment of individuals who suffer different kind of affections which concern the central nervous system. Since their creation they were thought to measure cognitive and executive abilities and to get an extensive comprehension about behaviors and solving problem ability. The challenge is to stare at these classic instruments with an ecological look. These symposium reviews three universally used classic instruments: The Rey Osterrieth Complex Figure, The Wisconsin Card Sorting Test and The Wechsler Intelligence Test from an ecological point of view. Clinical data of psychiatric patients will be introduced and different patterns of performance in these tests by different clinical samples will be discussed.

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C. GUNTIN. An Ecological Look on the Wisconsin Card Sorting Test.

Objective: To review ecological possibilities of Wisconsin Card Sorting Test Administration

Participants and Methods: Psychiatric patients WCST protocols will be presented as well as ecological observations among their performances

Results: Psychiatric patients exhibit disfunctional patterns of response in WCST administration. They display more perseverative responses and errors and less conceptual responses. They also have difficulties in achieving all the categories expected. These results suggest executive function deficits.

Conclusions: The Wisconsin Card Sorting Test (WCST) measures executive functions and is a classical and valuable instrument in the field of neuropsychological assessment. Created more than 50 years ago, it is currently used in clinical and experimental settings. The authors aimed to get an approach to an individual capacity of dealing with the environmental demands, especially ambiguous environmental demands, reading environmental feedback and given proper responses in a flexible way. It is a rich and easy administering tool that has been repeatedly proven as a successful neuropsychological assessment instrument. Psychiatric patients usually display dysfunctional behaviors in dealing with environmental demands, especially ambiguous environmental demands. The WCST is sensible to these dysfunctional patterns of behavior and, ecologically read, very useful to make inferences about why some individuals behave as they do in spite of the negative value of this behavior in terms of individual – environmental relations. Clinical data of psychiatric patients' performance on this test will be presented as well as clinical and ecological inferences of their responses.

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M.P. ALTAMIRANO. Wechsler Intelligence Tests: an Ecological Interpretation.

Objective: To propose an ecological reading of the Wechsler Intelligence Test

Participants and Methods: Psychiatric patients protocols recruited from clinical experience in a psychiatric setting

Results: The Wechsler Intelligence Test results are suitable of ecological reading from a Neuropsychological Perspective

Conclusions: For years, the Wechsler Intelligence Tests have been universally used to measure intelligence in clinical and educational settings as well. In his original work Wechsler pointed out the adaptative value of intelligence and the need to integrate cognition to emotion and conduct aspects of behavior in responding to environmental demands. Easy to use, administer and interpret, the Wechsler Intelligence Test provide a strengths and weaknesses profile that can be neuropsychologically read. Neuropsychological assessment of psychiatric patients in order to understand how they behave and why they behave like they do is critical since the literature is suggesting repeatedly that psychiatric disorders implies neuropsychological deficits among their symptoms. An ecological look at the Wechsler Intelligence Batteries is extremely useful in the assessment of children and adults with psychiatric disorders as it allows to do clinical and daily living inferences about intelligence and behavior relationships in adaptative and dysfunctional behavior. Protocols and ecological reading of Wechsler tests results will be presented and clinical material of psychiatric patients will be discussed in order to propose a more comprehensive interpretation of Wechsler tests results.

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S.R. FIGIACONE & L. SPRAGGON. Ecological Scopes of Rey Osterrieth Complex Figure.

Objective: To recollect ecological and qualitative data on ROCF protocols of psychiatric patients

Participants and Methods: 200 ROCF protocols and 50 normal control protocols are reviewed searching different types of errors and suggesting its ecological value according psychiatric diagnoses

Results: different types of errors in the ROCF are displayed in different psychiatric patients and in normal controls

Conclusions: Since its creation, the Rey Osterrieth Complex Figure (ROCF) has been extensively used in neuropsychological assessment for clinical and experimental purposes. Several forms of administration and interpretation were developed and used since Andre Rey published his original work. It has been originally created to assess incidental learning, a key process in learning and adaptive behavior which provides flexibility and fastness to human responses to environmental demands. Nowadays it is frequently used to assess visuoconstructional abilities, visual memory and planning ability. Psychiatric patients usually display dysfunctional patterns of response in the ROCF suggesting difficulties in regard to incidental learning and thus in behavioral flexibility in responding to environmental demands. Data of two hundred psychiatric patients and fifty normal controls protocols will be introduced and clinical and ecological implications about incidental learning and cognitive flexibility regarding ROCF performance will be discussed.

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Symposium 25: Neuropsychological Assessment Contribution to Decision Making in Epilepsy Surgery

Chair: Patricia Solis

3:45–5:00 p.m.

P. SOLIS, S. KOCHEN, S. ODDO & C. LOMLOMDJIAN. NEUROPSYCHOLOGICAL ASSESSMENT CONTRIBUTION TO DECISION MAKING IN EPILEPSY SURGERY.

Symposium Description: Symposium participants:

- a. Neuropsychological evaluation protocol in epileptic patients candidates to surgery: Dr. Carolina Lomlondjian
- b. Functional magnetic resonance. Paradigms of evaluation in language and memory. Wada test : Lic. Patricia Solis
- c. Presentation of case histories: Dr. Silvia Oddo

Abstract:

Surgery is the recommended treatment for those patients whose seizures cannot be controlled with pharmacological therapy. The evaluation of a surgery candidate consists of two phases: a first noninvasive stage and a second more aggressive one, which is performed in patients whose diagnosis could not be clearly made.

The objective of this presentation is to discuss the contribution of the cognitive evaluation in the decision making process in patients with epilepsy who are candidates to surgery. We will present the cognitive evaluation protocol used at our center, as well as our experience in functional MRI and Wada Test. Finally, there will be a presentation of patients with temporal lobe epilepsy and hippocampal sclerosis who are candidates to surgery, according to their neuropsychological evaluation and functional magnetic resonance. Image studies and videos will also be included. There will be a time for discussion.

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C. LOMLODJIAN. Neuropsychological Evaluation Protocol in Epileptic Patients Candidates to Surgery.

Objective: This presentation will deal with the objectives of neuropsychological evaluation in epilepsy, its contribution to the decision making, cognitive areas of interest and currently tests used. The Epilepsy Center Protocol will be presented and results of assessments before and after surgery will be shown. Finally, the Center's findings in a large population of Spanish-speaking refractory epilepsy patients will be discussed.

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P. SOLIS. Functional Magnetic Resonance Image and Wada Test. Paradigms of Evaluation in Language and Memory.

Objective: This presentation will focus on functional images in comparison with Wada test as the goal standard method to lateralize cognitive functions.

fMRI language and memory paradigms used on the Epilepsy Center will be presented and some technical issues will be discussed.

Some results in a group of refractory epilepsy patients, and the comparison with neuropsychological standard evaluation will be presented. Finally, advantages and disadvantages of the method, sensibility and specificity will be discussed.

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S. ODDO. Clinical Applications and Case Presentations.

Objective: We will present the study protocol and decision making in some cases of refractory epilepsy patients, who were surgical candidates. Neuropsychological evaluation, fMRI findings, neurophysiology findings, including video-EEG results will be shown.

Finally, a general, interactive, discussion of cases will have place.

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Poster Session 5:

Rehabilitation, Medical Disorders, TBI, Stroke

3:45–5:00 p.m.

Aneurysms

D.V. ANDREOTTI, H.J. FONTANA, C. MÚNERA & H.M. BELZITI.
Cognitive deficits after ruptured Anterior Communicating Artery Aneurysms. D. Andreotti, H. Fontana, C. Múnera, H. Belziti. Hospital Central de San Isidro. Servicio de Neurocirugía Provincia de Buenos Aires, Argentina.

Objective: Patients with an ACoA ruptured aneurysm present occasionally a triad of symptoms: amnesia, confabulation and personality changes, called ACoA Syndrome. It is unfrequent, and many authors deny its existence.

In some cases the triad is observed, others, present few deficits that last for short periods. Some patients reach a total recovery, others have permanent deficits that affect their functional capacity and quality of life. Trials to group patients with different symptomatic features were done, but this goal was achieved partially.

We analyze the cognitive performance of a group of patients treated in our Service, attempting to clarify about the existence and variants of the syndrome.

Participants and Methods: The clinic histories, neuroradiologic studies, neurocognitive assessments of 19 patients operated on an ACoA between 1997 to 2007 were analyzed. One patient with the full syndrome had an aneurysm of the right posterior communicating artery. Age interval of 33 to 70 years, 8 females and 11 males. Mean level of education: 9 years.

Results: Asymptomatic: 7

Transient symptoms: 10, (6 disexecutive function and confabulation and 4 memory deficits and confabulation)

Presented the complete syndrome: 4 (for 3 and 6 months, persistent in the others).

Conclusions: This syndrome does exist and could also be found in patients with other localization.

It could exist subgroups with different profiles. One with memory deficits and confabulation, other with executive disfunction, and few with only personality changes.

The presence of non treated hydrocephalus and bilateral lesions could aggravate duration and severity.

Confabulation could be assumed as part of the disexecutive syndrome. Personality changes may be consequence to the localization of the lesion and de disconexion of prefrontalorbital areas.

Amnesia could be explained by lesions in the diencephalon and basal forebrain.

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Autoimmune Disorders (e.g., CFS, Lupus, fibromyalgia)

H. CERVERA SILVA & L.G. RUIZ PINEDA. DETECTION OF NEUROPSYCHIATRIC AND COGNITIVE DISORDERS IN SYSTEMIC LUPUS ERYTHEMATOSUS PATIENTS AT A MEXICAN HOSPITAL.

Objective: Systemic lupus erythematosus (SLE) is a chronic autoimmune disease with an important inflammatory component, that can affect the CNS, leading to behavioral and cognitive problems

Objective To study the presence of psychiatric disorders and cognitive impairment in SLE patients

Participants and Methods: In a descriptive, cross-sectional study, we studied 53 patients with diagnosis of SLE. In order to evaluate cognitive performance every patient was assessed with the following tests: Stroop test, Rey Complex Figure Test, and Wisconsin Card Sorting Test. Presence or absence of impairment was determined in every patient

Results: Statistical analysis of descriptive variables was performed to obtain central measures of tendency. Chi-square test was used for categorical variables and a Mann-Whitney U test was performed for comparison of ordinal variables. Presence of Psychiatric diagnoses was found in 33 patients (73%) and cognitive impairment was found in 84.9 % of patients. Statistical significant results were found when the Stroop test was associated with presence of psychiatric diagnosis, ($X^2 = 0,050$; $p=0,005$). Rey Complex Figure test, (Copy form) showed a significant association with presence of psychiatric disorder ($X^2 = 0,090$; $p=0,005$).

Conclusions: Presence of cognitive impairment in SLE patients and its association with neuropsychiatric disorders has been evident in the case of verbal and visual stimulus interference skills, and visuospatial abilities, Learning of novel stimuli and abstraction ability are preserved. Correspondence: *Lizeth G. Ruiz Pineda, Health mental, HIM, periferico sur No. 3707-478. Col. Heroes Padierna, Magdalena Contreras 10700, Mexico. E-mail: lizeth_rp5@hotmail.com*

M.L. GARAU, S.S. LOPEZ, M.A. PAGANO, A. ALLIEVI, M.C. BASTA, M.L. LOPEZ LLANO, J. ZIRULNIK, J. MAZZUCO, L. MARTINEZ, P. MANUCCI & A. CAPIZZANO. Neuropsychiatry in Systemic Lupus Erythematosus (SLE). Preliminary Report.

Objective: Many neuropsychiatric manifestations were described in patients with SLE and no prior psychotic or neurological impairment. The aim of this preliminary study was to assess the prevalence of psychiatric and cognitive disturbances in patients with SLE without prior neurological events and to analyze their association with different variables.

Participants and Methods: In 22 SLE patients a clinical, neurological, neuropsychological and psychiatric assessment was performed. Laboratory measurements included anti-DNA and anticardiolipin antibodies. A structural MRI and MRI spectroscopy (MRIs) were also performed. Each assessment was made in a blind condition regarding the results obtained by other raters. Cognitive impairment (CI) was defined as having a performance in 2 or more tests ≥ 2 SD above the mean for a comparable group. Fischer exact test was used to analyze the association between variables.

Results: 20 out of 22 patients completed the protocol. Mean age was 28.9 years (range 19-39), mean years of education 16.6 (range 3-17). All patients were female. Structural and MRIs were normal in all cases. Twelve patients (60%) had mild anxiety and 10 (50%) mild depression. There were no moderate or severe psychiatric disturbances. Eight patients showed CI (40%). The presence of CI was not associated with any laboratory, neuroimaging or psychiatric finding ($p>0.05$).

Conclusions: Even using conservative criteria, we found a high frequency (40%) of CI in female patients with SLE and no previous neurological disturbance. In this preliminary report no association was found between CI and other variables, such as imaging and laboratory results. Correspondence: *Maria L. Garau, MD, Neurology, Hospital J. A. Fernández, Florida 15 - 40 piso, Buenos Aires 1005, Argentina. E-mail: mlgarau@ciudad.com.ar*

Behavioral Neurology

C.G. ABEL, G.M. STEIN, S. PEREYRA, M.R. NUÑEZ, G. RODRIGUEZ, C.A. MANGONE, O. GENOVESE, R.F. ALLEGRI & S.E. ROBERTO. Cognitive Disturbance In Amyotrophic Lateral Sclerosis: Retrospective Study Of 51 Patients.

Objective: to assess the prevalence of cognitive defects and the frequency of dementia in a retrospective sample of Amyotrophic Lateral Sclerosis (ALS) patients and the relationships between motor dysfunction and cognitive performance. Although (ALS) is a degenerative disorder involving upper and lower motor neurons, a variable degree of impairment in executive functions (EF) had been described in non demented ALS patients.

Participants and Methods: Records from 51 patients with a neuropsychological evaluation, were assessed. Between groups comparisons were: 1- "t" test against 0 in non demented ALS patients (49), 2- "t" test for independent samples between a subgroup of ALS (40) and 10 control subjects (CO) matched by age, sex, education and Mini Mental State Examination (MMSE), 3- "t" for paired samples to compare ALS with bulbar impairment versus ALS spinal impairment, 4-ANOVA between ALS and non demented patients with subcortical degenerative disease in their early stages, restricted to the basal ganglia (BG) and cerebellum (CB): 30 Parkinson's (PD) and 21 cerebellar patients (CD), matched by sex, education and MMSE.

Relationship between cognitive and motor variables were assessed through Pearson correlation.

Results: ALS group demonstrated a cognitive performance similar to CO, including the Wisconsin Card Sorting Test. The CD group performed significantly poorer than CO and PD groups on EF and reasoning tasks. Only 3 ALS patients showed a fronto-temporal pattern of dementia. Within the ALS group lower scores on the MMSE correlated with severity of weakness, atrophy and upper neuron dysfunction of bulbar muscles.

Conclusions: ALS and CO groups demonstrated a similar cognitive performance. The severity of bulbar involvement in ALS was associated with a lower global cognitive efficiency. Besides, subcortical degenerative disorders, particularly CD showed greater impairment on EF. Large prospective studies avoiding motor bias on cognitive measures are required to detect subtle cognitive dysfunction.

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C.G. ABEL, S.M. GUSTAVO, M.R. NUÑEZ, M.S. GALARRIGUI, T. ARAKAKI, G. OSVALDO, M.A. CARLOS, G. NELIDA, A.F. RICARDO & S.E. ROBERTO. Decision Making Ability and Social Cognition: A role of the Cerebellum? An Assessment of Patients with Basal Ganglia and Cerebellar Subcortical Degenerative Diseases.

Objective: To study the possible contribution of cerebellum (CB) and basal ganglia (BG) in Executive Function (EF), Social Cognition (SC) and decision making (DM). The role of the BG and CB in SC and its interaction with attention and EF has not been studied.

Participants and Methods: Tests of EF, SC, DM and procedural learning were administered to four groups: control subjects (CO=7), Parkinson's disease (PD=6), Huntington's disease (HD=6) and pure progressive degenerative ataxia (PPA=7). Between group comparisons was done in two steps: 1-CO with non demented neurological groups, PD and PPA matched for age, education, depression, Mini Mental Status Examination (MMSE) ≥ 26 , 2-Neurological groups matched by age, education, disease course, depression and MMSE. Non parametric test were used.

Results: 1-Between group comparisons ($p \leq 0.05$): all the neurological groups were similarly impaired on SC tasks. PD group showed a dissociation between impaired SC and preserved EF. HD and PPA groups demonstrated a similar impairment on both EF, reasoning and SC tasks. Additionally HD performed poorly on episodic and semantic memories. The CO and PPA groups demonstrated a significant learning effect on procedural learning tasks.

2-Correlations ($p \leq 0.01$): attentional impairment strongly correlated with cognitive defects in the 3 neurological groups, showing the PPA group a strong relationship between poor response inhibition and low performance in EF and SC tasks. Bradykinesia, but not chorea and behaviour (Depression and anxiety) correlated strongly ($p=0.000$) with processing speed and cognitive performance in the HD group.

Conclusions: We concluded that: 1-a low intellectual performance in the 3 neurological groups was related to attentional impairment, 2-EF/SC dissociation in PD can appear early, 3-marked impairment in EF and SC in the PPA group was related with poor response inhibition, 4-role of the CB in SC modulation and its possible implication in psychiatric pathology.

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Child - Acquired Disorder: TBI

C.G. ABEL, G.M. STEIN, M.R. NUÑEZ, M.S. GALARRAGUI, N. GARRETTO, R. ALLEGRI & R.E. SICA. Dissociation Between Executive Function And Social Cognition In Patients With Early Parkinson's Disease.

Objective: The impairment of visuospatial and executive function (EF) in Parkinson's Disease (PD) patients has been described in several studies. However the defects of Social cognition (SC) and its relationship with the executive dysfunction has been not been yet studied.

Participants and Methods: This study assessed 18 PD patients Hoehn & Yahr between 2 and 3 and a disease course of 4.6 ± 2.37 years and 12 control subjects (CO) matched by education, sex and MMSE. A comprehensive neuropsychological battery including EF and SC tasks, based in Theory of Mind (ToM), referred as the ability to attribute mental states to self and others.

Results: ANCOVA by age and Beck Depression Scale did not show group effects for EF. However a group effect was demonstrated on ToM task. ANOVA showed a statistically significant lower performance for the PD group on measures of attentional: Trail Making Test A ($p=0.021$), non perseverative errors ($p=0.047$) from the Wisconsin test and a strongly significant lower FP detection than CO ($p=0.001$). Besides PD demonstrated a higher and strongly significant dissociation between the ratio of belief (ToM) over the control questions from TOM tasks, performing even better than CO on the later questions ($p=0.0000$).

We did not find correlations between performance on EF and SC tasks.

Conclusions: The early impairment of the SC in PD could be helpful to identify subjects with risk of cognitive decline. These findings suggest that degeneration of meso-corticolimbic dopaminergic could be important even in early stages of PD impairing decision-making and to reach an appropriated adaptive behavior.

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Cognitive Intervention/Rehabilitation

M.F. DORREGO, Y. VASCHETTO & L. ALBERTI. Evidence that Song Facilitates Memory in an Amnesic Patient.

Objective: There have been little systematic investigation carried in amnesic patients ability to learn a new song. The purpose of this experiment was to determine whether the melody facilitates the memory of the lyrics of a song in an amnesic patient, named M.C.

Participants and Methods: M.C. was an 18 years old patient, who after a severe traumatic brain injury (TBI) with four years of evolution showed severe anterograde amnesia, with indemnity of implicit memory. Formerly, M.C. had had some musical knowledge and three years after the accident, he underwent a detailed musical assessment. The test battery revealed a preserved perception (discrimination of pitch, interval, rhythm and metre) and production of musical skills (singing and instrumental performance). In this experiment, two songs released after the injury where selected and presented to our patient (lyrics alone and lyrics and melody in combination) during 10 days. A procedure related to the stem completion tasks used in implicit memory was used and M.C. was asked to generate the lyrics of the studied song and verse. In both cases, M.C. was cued to produce a target line of lyric or melodic phrase in response to cueing with the preceding line or phrase. The instructions were implicit insofar as no reference to previous episodes were made.

Results: Results indicate that M. C. showed a significant advantage to recall the melodic phase (lyrics and melody in combination) as opposed to the line of lyric (learned without melody combination).

Conclusions: This finding provides support for the idea that the additional structure imposed by melody can serve as a useful mnemonic and an alternative direction in rehabilitation.

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N.V. ESCALANTE & C.A. MANGONE. Multi - Stimulation Cognitive Program.

Objective: To verify if a Multi-Stimulation Cognitive Program improves neuropsychological performance in vascular cognitive impaired no demented patients (vCIND) and in degenerative mild cognitive impairment (MCI).

Participants and Methods: A systematized Multi-Stimulation Cognitive program was carried out. It consists in nineteen sessions of ninety minutes each, once per week. A maximum of ten participants were included to let focus in their difficulties. It consists of theoretical aspects of the cerebral function, didactic explanations and training in mnemonic strategies.

15 MCI subjects (Age: $61 (\pm 3.9)$ Formal Education: $13.73 (\pm 2.9)$ years) and 15 vCIND patients (Age: $64 (\pm 3.7)$ Formal Education: $9.40 (\pm 3.3)$ years) were evaluated pre and post Program with a neuropsychological battery that included: MMSE, RAVLT, Trail Making A and B, Clock drawing Test, Porteus labyrinth, Number Cancellation and WCST.

Results: According to the post-program evaluation, the MCI group showed a tendency in improvement in the RAVLT memory recognition ($p < 0.08$) and got better in executive function ($p < 0.02$). vCIND group improved in verbal free recall ($p < 0.009$) and visuoconstructive capacity ($p < 0.05$). Both groups improved their immediate episodic memory (MCI $p < 0.02$ and vCIND $p < 0.009$), got a greater cognitive flexibility ($p < 0.02$) and concentration (MCI $p < 0.004$; vCIND $p < 0.01$).

Conclusions: This program preserved non affected functions and improved some of them in MCI and vCIND.

Participants changed their subjective position as a result of a greater understanding of their memory function, achieving a better interaction with others.

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C.V. PRADE & S.S. LACERDA. Neuropsychological Rehabilitation after Severe TBI from Acute to Chronic Stages: Case Report.

Objective: To present the neuropsychological rehabilitation of a patient who sustained cognitive and behavioral disturbances after severe traumatic brain injury (TBI), from acute to chronic stages of recovery.

Participants and Methods: Male patient, 28 years old, incomplete undergraduate in Economy, sustained a TBI due to a fall. In the acute stages of recovery the interventions were focused on the family, including orientations about recovery from TBI, according to the patient's evolution monitored by Galveston Orientation and Amnesia Test and Rancho Los Amigos scale. In the post-acute stage, he started the neuropsychological rehabilitation program established after a functional interview, application of neuropsychological tests and ecological measures as Rivermead Behavioral Memory Test (RBMT-E). Those suggested main deficits in executive functions, memory and visual-motor processing besides behavioral disturbances as depression, emotional lability and impulsivity. The rehabilitation techniques were based in cognitive training, compensatory strategies and role-playing addressing difficulties presented on daily activities and vocational reintegration.

Results: Some initial goals had been achieved: effective use of external memory and organization aids; gradual return to structured activities at the office; reduction on the frequency of lability and impulsivity problems, like irritation directed to others. On European Brain Injury Questionnaire (EBIQ), he shows improvements in all factors evaluated and in his performance on neuropsychological measures.

Conclusions: In TBI, neuropsychological rehabilitation goals must be specific for each recovery phase. In this case, the initial monitoring of cognitive status and familiar approach was essential to adequate their expectation about patient's evolution and the rehabilitation process. The post-acute stage was mainly focused on functional goals related to the patient's professional and day-living activities, which brings important gains in terms of his functionality outcome.

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M. LEVÍN. Paper: Offer of Intervention in children with cognitive deficient functions from the model of Mediated Learning Experience (MLE).

Objective: This work presents a set of tasks that were created from Feuerstein's developments, who proposes a model of Dynamic Assessment (DA) this one has three phases. Its phases are: a) Test phase; b) Intervention phase; c) Post-test phase.

There are described the activities, the interventions of the mediator and pupils' answers. Besides, there are analyzed the results of the Post-test phase and the qualifications of the children.

Participants and Methods: The designed activities used with children of fourth course from a public school of the city of San Miguel de Tucumán, Argentina. During the Test and Post-test phases, the analogies subtests and constructions with cubes from Wechsler Intelligence Scale for Children, WISC III are used.

The instruments of the Program of Intervention were constructed from the cognitive abilities evaluated and the Feuerstein model of the cognitive map. The mediations realized during the training are exemplified in this work.

The instruments of the Program of Intervention were constructed from the cognitive abilities evaluated and the Feuerstein model of the cognitive map. The mediations realized during the training are exemplified in this work.

Results: Differences in the child's cognitive abilities for account of the post-test phase are identified as the result of the assistance performed in the intervention phase. 60 % of the children who realized the program of intervention improved in Language. The group control improved 35 %.

Conclusions: The results allow to infer that the activities designed for the phase of intervention contributed to the cognitive modification that was reflected in better school yield of the children.

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S. MOOS, A.M. DIAZ & M.B. LUPANI. Results of a Cognitive Stimulation Program in Healthy Adults.

Objective: Objective: To examine the response to cognitive stimulation in healthy adults (MMSE 27/30)

Participants and Methods: Participants and Methods: The participants underwent cognitive training in groups of 8-15 men and women (40-80 yrs) for 12 weeks (1/week, 2 hours). The functions exercised were attention, memory, mental flexibility, spatial orientation, sensory stimulation, executive function, creativity, numerical exercising and language skills. After completion of program the participants were asked to report the changes they observed and their general impression of the experience. The subjective qualitative reports of the participants were evaluated.

Results: Results: 43 participants out of 58 responded. The analysis showed: 83,7% (36) gained insight of their cognitive style; 53,5% (23) a more flexible attitude; 34,9% (15) emphasized experiencing pleasure and affective ties to the group; 25,6% (11) applied learnt strategies to their daily living; 23,3% (11) applied learnt strategies to memorization and organization; 20,9% (9) less resistance to challenge (leaving their comfort zone, taking up new activities, less fear of failure or ridicule); 20,9% (9) raise in self-esteem 14% (6) reported improved concentration; 14% (6) improved attention; 11,6% (5) better control of impulsivity and 11,6% (5) improved attitude towards difficulties

Conclusions: Results: 43 participants out of 58 responded. The analysis showed: 83,7% (36) gained insight of their cognitive style; 53,5% (23) a more flexible attitude; 34,9% (15) emphasized experiencing pleasure and affective ties to the group; 25,6% (11) applied learnt strategies to their daily living; 23,3% (11) applied learnt strategies to memorization and organization; 20,9% (9) less resistance to challenge (leaving their comfort zone, taking up new activities, less fear of failure or ridicule); 20,9% (9) raise in self-esteem 14% (6) reported improvement in concentration; 14% (6) improved attention; 11,6% (5) better control of impulsivity and 11,6% (5) improved attitude towards difficulties

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L. PÖSSEL. The Psychological Effects of a Computerized Cognitive Rehabilitation Program on Patients With Neurocognitive Disorders.

Objective: With the object of lending support to neurocognitive rehabilitation following the Supraparadigmatic integrative model proposed by R. Opazo (1997), the study investigated the relation between the results of a computerized cognitive rehabilitation program (that of the Institute for Neurocognitive Rehabilitation Nexos Institute) and the general psychological behavior of patients with neurocognitive development disorders.

Participants and Methods: During the study, thirty subjects with ages ranging from eighteen to thirty seven years were trained. The following instruments were used to measure pre-post training changes: the Nexos evaluation protocol and the integrative clinical evaluation record (FECI) Specifically, post-training changes in affective, biological, cognitive, environmental-behavioral, systemic and self subsystems were measured, as were also those changes in specifically trained neurocognitive functions.

Results: The results of the study indicate that substantial changes exist in the biological and cognitive subsystems as a result of Nexos cognitive function training.

Those patients who obtained greater advances in cognitive functionality were observed to suffer lower levels of Alexithymia. This observation is coherent with those studies which underline the relation between affective factors and cerebral plasticity.

The study's findings underline the importance of taking into account the functioning of patients varied psychological subsystems in programs of cognitive rehabilitation

Conclusions: The study's results also suggest that changes in the affective subsystem demand longer periods of training and that the cognitive changes are a necessary but not sufficient condition for structural changes to be generated in patients. The study's findings underline the importance of taking into account the functioning of patients varied psychological subsystems in programs of cognitive rehabilitation. Correspondence: *Leonora Pössel, Master, Instituto Nexos, La Oración, Las Condes 45, Santiago 0000, Chile. E-mail: leonora.poessel@gmail.com*

G. PEÑA, I. MOSQUERA, J. MEJIAS & F. PUCCIO. Intensive cognitive neurorehabilitation program improved the functional outcome of patient with ischemic and hemorrhagic cerebral vascular accident (CVA).

Objective: For common CVA treatment, the cognitive neurorehabilitation has not been employed as a primary treatment option. The neurocognitive deficit as a consequence of a CVA will be as disabling than motor deficit. We evaluate the efficacy of an intensive cognitive neurorehabilitation program (ICNP) in functional outcome of patients with ischemic and hemorrhagic cerebral vascular accident (CVA).

Participants and Methods: We study a 59 year old male patient with ischemic without aphasia and 56 year old male patient with hemorrhagic CVA and expressive aphasia, who assisted to INNAP. Patient was evaluated before an after cognitive neurorehabilitation program with a magnetic resonance imaging (MRI), neurological examination and a standardized neuropsychological battery tests.

Results: In both patients the MRI do not shows anatomical changes in brain damage area after the treatment. However, in both CVA patients, the treatment results indicate an important reduction of deficit manifested in all neuropsychological tests. The treatment exercises was conducted to improve the cognitive areas as attention, concentration, reaction times, memory, execute function, arithmetic reasoning and calculus, visuospatial and visuoconstructive abilities, praxis and gnosis; and also in hemorrhagic patient the exercises included the language and communication capacity. Both patients increase their cognitive function reaching their independence in the daily living activities and returning to their work activities. Additionally the hemorrhagic patient was able to talk fluently.

Conclusions: In both CVA patients the ICNP using together with others treatment as a motor therapy will be a successful management to improve functional outcome and independence of the CVA patients.

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M.E. PORTA, M.A. CARRADA & M.S. ISON. The Effects of a Phonological Awareness Training Program on Attention Efficiency in Children Growing Up in At-Risk Conditions of Social Vulnerability.

Objective: Using a pretest-posttest group comparison design, this 20-week study investigated the effects of a phonological awareness training program (PATP) on attention efficiency (AE) in first-grade children.

Participants and Methods: Fifty seven first graders (Age=5 to 6 years) from Mendoza, growing up in at-risk conditions of social vulnerability, participated in this quasi-experimental study. We administered the PATP (Porta, 2005) to the experimental group (n=28). The program consisted of 3 20-min lessons each week and included metalinguistic games. The control group (n=29) received a shorter alternative program focused on grammar development. Using the Magallanes Scales for Visual Attention (García Pérez & Magaz Lago, 2000), we obtained pretest and posttest measures of children's attention efficiency.

Results: ANOVA showed significant effects of the PATP ($p < 0.017$) and of time ($p < 0.0001$) on AE. For both groups, posttest AE score means were higher than pretest score means. Pretest measures showed that the AE score mean for the EG was lower than that for the CG. However, after administering the PATP to the EG, posttest data showed no between-group differences in AE, indicating that the EG had matched the CG in AE. Then, we contrasted the differences between pre- and post-AE score means for the 2 groups: We found that the EG gained greater AE than the CG.

Conclusions: Children's attention efficiency not only improves as they develop, but also increases by means of a structured PATP. Our findings verify the effect of the PATP we developed on AE, and are relevant to studies assessing the relationship between reading acquisition and attention efficiency.

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C.N. GOMES, T.B. SANTOS, G. COUTINHO & P. MATTOS. Neuropsychological Rehabilitation Pos Status Epilepticus: a Case Report.

Objective: Neuropsychological Rehabilitation (NR) is a somewhat recent neuropsychological field that intends to restore cognitive functions impaired after a neurological event. The current study will present the NR of a patient that suffered a Status Epilepticus (SE), associated to several complaints, mainly related to memory impairments

Participants and Methods: ACP, 17 years old, male, high school student, started facing some difficulties in daily activities after the SE. He was submitted to the first neuropsychological assessment three months after the episode; therefore NR was recommended. After a follow-up of 10 months he was submitted to another neuropsychological evaluation.

Results: The first assessment documented deficits of both sustained and focused attention, short-term (both auditory and visual) and prospective memory; some behavioral changes were also observed. NR planning was based considering not only the cognitive deficits, but also considering the cognitive functions that were more preserved, like language, visual motor dexterity, planning abilities and cognitive flexibility. NR occurred twice a week and comprised strategies of restoring functions, anatomic reorganizing and functional adapting. The findings of the second neuropsychological assessment revealed global improvement of general cognitive performance, mainly in memory, attention and non-verbal abilities.

Conclusions: The major improvement was seen in quality of life, given that the patient could better adapt himself to school environment, improve academic performance and could also start working as a monitor of a subject he used to face serious difficulties.

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A. TOLEDO & H.E. MANZUR. Assessment of the efficacy of a Cognitive Stimulation Treatment in Children with ADHD between 9 and 14 years old.

Objective: The most widespread therapy for the attention deficit hyperactivity disorder (ADHD) is stimulant medication. Other kinds of treatments have been less well studied.

In view of this we wanted to assess the efficacy of a computerized treatment for the stimulation of cognitive functions in the improvement of the attention function in children between 9 and 14 years old with ADHD.

Participants and Methods: The sample included 15 children between 9 and 14 years old affected of ADHD, who were evaluated before and after a four month cognitive stimulation period. The evaluation of attention was performed with the Toulouse Piéron test, a standardized test for that purpose.

We used the Wilcoxon test for the assessment of the statistical differences between the Toulouse scores before and after the cognitive stimulation treatment.

We also used the U of Mann-Whitney to evaluate differences between sex and use of medication.

Results: By applying the Wilcoxon test to the Toulouse scores obtained before and after the treatment we found a significant improvement with a 95% of confidence ($p < 0.005$).

We did not find any differences between before/after scores when separated by sex and use of medication.

Conclusions: The results obtained allow us to conclude that the cognitive stimulation treatment produces a significant improvement in the attention function in children with ADHD.

We believe this improvement is due to the cognitive stimulation function treatment and not due to the medication because we did not find significant differences (U of Mann-Whitney) between those with medication (n=8) and those without (n=7). This result is more relevant when considered the mean time use of medication which was 5 years.

Further research and better study design is required for the establishment of clear-cut conclusions about the cognitive stimulation treatment, nevertheless we believe that the present results provide strong evidence in favour of the named treatment specially taking into account the reduced number of participants (n=15).

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M. VALADEZ SIERRA, R. TROYO SANROMAN, R. ZAMBRANO GUZMAN & E. DE ALBA VILLEGAS. JUVEPICE program as a tool for psychoeducational intervention in children with ADHD.

Objective: Objective: Today, many different interventional programs for ADHD children can be found in the market. However, most of them are basically centered on the performance of paper-and-pencil activities and focused on children's deficiencies, that is, on what they can't do. Valadez, Reynaga and De Alba developed JUVEPICE (I play, see, think, create and listen), a program for ADHD children between 6 and 12 years old that focuses on areas regarded as the most important to be reinforced: self-concept and self-esteem, visual and auditive attention, social skills and creativity.

Participants and Methods: Methodology: This program was applied to a sample of 5 to 9 year-old children with ADHD combined type who were on medication and receiving psychoeducational attention for the first time. Conners' rating scales for parents and teachers and Human Figure Drawing test were applied and daily records were taken.

Results: Results: Conners' scales for parents showed significant differences for all categories. In the scale for teachers differences were significant only for the demands for attention category. The DFH test showed important changes in impulsiveness and a tendency to change in aggressiveness and guilt feelings: in all cases the retests scored lower. The daily records showed an improvement in cooperative work and sociability.

Conclusions: Conclusion: According to these results, JUVEPICE program has proved to be an effective tool in order to work with this population.

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S. VANOTTI, C. FELDBERG, N. IRRAZABAL, V. KURLAT, M. RUOTOLO, S. VILAS, V. VILLAR, I. DEMEY, V. SOMALE, F. CÁCERES & R. ALLEGRI. Battery for the evaluation of neurological patients and their caregivers in cognitive stimulation/rehabilitation therapy.

Objective: Cognitive neurorehabilitation is the set of therapeutic strategies that tends to rehabilitate the cognitive abilities and modify behavior patterns. Such therapy includes the patient, his/her family and/or friends.

The caregiver is that person who provides assistance and care to people with different neurological disorders. Caregivers suffer physical, psychological and social disturbances and they are considered a risk group. The feeling of burden is one of their stress-related manifestations.

objective: To present a battery for the assessment of neurological patients and caregivers in order to measure the social and functional state of the caregiver and to assess its acceptance and usefulness.

Participants and Methods: The areas evaluated include: self-memory perception of the patient both perceived by the patient and the caregiver (Questionnaire of Daily Forgetfulness, Van der Linden), patient and caregiver quality of life (World Health Organization Quality of life- Brief, WHOQOL-BR-F), instrumental and basic daily activities (Lawton and Brody's Instrumental Activities of Daily Living and the Lawton's ADL Scale), caregiver's burden manifestations (Caregiver Burden Interview, Zarit), patient's and caregiver's depression symptoms (Inventory of Depression, Beck) and neuropsychiatric manifestations of the patient assessed by the caregiver (NPI-Q, Boada).

Conclusions: The effect of the stimulation/rehabilitation treatment will be analyzed in each of the aspects included in the neurological disorders. The existence of an interrelationship among such aspects will be explored, thus trying to detect which one of these variables more frequently affect the wellbeing of patients and caregivers. In the first 26 patients and 20 caregivers, this battery was administered with good tolerance and acceptance.

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H. WAISBURG, L. BIN, A. ZAMBARBIERI, A. DIEZ & P. KESTELMAN. Interdisciplinary diagnosis and treatment of children. Cognition, behaviour and emotion.

Symposium Description: The Department of Interdisciplinary Clinics at the Dr. Juan P. Garrahan Pediatrics Hospital in Buenos Aires, was created in 1989. Its purpose is the prevention, diagnosis, follow-up and guidance of pediatric chronic illnesses.

Within this framework, we have created programs covering the different pathologies, where assistance melds with secondary prevention, teaching and investigation.

Members of this department (Neurolinguist-Educational Psychologist) and of the Mental Health Dept (Psychiatrist), will explain the theoretical framework and the different diagnostic interventions carried out at this high complexity hospital.

Paradigmatically, we will present the interdisciplinary diagnosis of an eight year old patient with brain trauma occurred at the age of two, with loss of consciousness with right frontal hypodense centersubcortical lesion described as encefalomalacic lesion (CAT/September 2002) and EEG with right occipital spikes.

Neurological update (June 2007): flunked first grade, tensional headaches, stable EEG and secuelae CAT scan.

The convergence of a common unidirectional, multidimensional and interdisciplinary train of thought, makes possible that the diagnosis, treatment and follow-up are tuned to the specific need of patient and his family.

Interventions are carried out through the health services network (centered on this hospital) where the use of a common intrahospital language spreads out leading to a better sanitary decentralization in Greater Buenos Aires and countrywide. The patient was transferred to a hospital within the network.

We will present the therapeutic priorities chosen for the patient, as well as the objectives, procedures and resources put forward.

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J.C. ZARRA & L.C. SCHMIDT. MILD COGNITIVE DISORDER AND DEPRESSION: TREATMENT WITH ASSOCIATION BETWEEN GALANTAMINE AND ESCITALOPRAM.

Objective: To evaluate the therapeutic response in patients with comorbidity between Mild Cognitive Disorder and Depression in treatment with Galantamine, Escitalopram and the two drugs associated.

Participants and Methods: A group of 300 patients with symptoms of Mild Cognitive Disorder and Depression (DSM IV-R criteria) were separated in 3 groups of 100 patients. Each group received different treatment in an 8 months period:

Group 1: Galantamine 16 mg/day.

Group 2: Escitalopram 20 mg/day.

Group 3: both drugs, same dose.

Results: The therapeutic response evaluated in Hamilton Scale for Depression (HAM-D), Montgomery and Åsberg Depression Rating Scale (M.A.D.R.S.), Mini Mental State Examination (M.M.S.E.) and Global Clinical Impression (G.C.I.) scores during 8 months. In the third group who received the two drugs associated, had much better response than the others and "brain enhancer".

Conclusions: The group who received the association of the nootropic agent Galantamine with antidepressant (SSRIs) Escitalopram had a relevant satisfactory therapeutic response (the best result), so there is a possible relation between the deficit in cholinergic systems and depression. Could be cerebral cholinergic systems deficit a generator of Depressive Disorder? Correspondence: *Julio C. Zarra, Hospital Italiano de La Plata, calle 51 entre 29 y 30., La Plata 1900, Argentina. E-mail: juliozarra@hotmail.com*

J.C. ZARRA & L.C. SCHMIDT. LONG-TERM EFFICACY AND SAFETY OF GALANTAMINE IN OUTPATIENTS WITH MILD COGNITIVE DISORDER.

Objective: Galantamine is a reversible, competitive cholinesterase inhibitor that also allosterically modulates nicotine acetylcholine receptors. Inhibition of acetylcholinesterase, the enzyme responsible for hydrolysis of acetylcholine at the cholinergic cognitive impairment. To evaluate the efficacy, safety and tolerability of galantamine in long-term in Mild Cognitive Disorder.

Participants and Methods: A multicenter, open label, prospective, observational study enrolled 800 patients, more 50 years old with Mild Neurocognitive Disorder (DSM IV criteria), during 24 months of treatment with galantamine 16 mg./day. Assessments included the Mini Mental State Examination (MMSE), Clinical Dementia Rating (CDR), Alzheimer's Disease Assessment Scale (ADAS-GOG), Seven minutes test, Wisconsin card sorting test, Boston naming test, Token test, Raven Test, Brow-Peterson test, Trail making test, Functional Activities Questionnaire (FAQ), GO-NO-GO test, Global Deterioration Scale, Global Clinical Impression (GCI) and UKU scale of Adverse Effects.

Results: A total 800 outpatients were treated with 16 mg./day galantamine during 24 months, the therapeutic response evaluated with CDR, MMSE and the tests and scales of function cognitive measuring, GCI and UKU scale of adverse effects, comparing the baseline to final scores.

Conclusions: Mild Cognitive Disorder is being examined, so there aren't enough treatment for this. A long-term treatment (24 months) galantamine improves cognition and global function, behavioral symptoms and the general state well being of patients with Mild cognitive Disorder. With incidence of adverse effects not significant and a very good profile of safety, the final results of the study suggest that galantamine may be particularly appropriate in the Mild Cognitive Disorder.

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Cognitive Neuroscience

I. ALVAREZ BRAVO. Tampering with Cognoscitivas Functions Caused by the treatment of Acute Lymphoblastic Leukemia In children and adolescents.

Objective: The purpose of this study is to detect alterations in cognitive functions as a result of treatment antileucemico (chemotherapy and / or radiotherapy).

Participants and Methods: Alvarez Bravo I. *
Sánchez Cortés H. *
Chapa Velásquez R.*

Rueda Espinoza Z. B.*

López Gaytan E.**

Rosales García M.*

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The sample with which he worked was 23 children with ALL between 3 and 15 years, is a longitudinal investigation, the children were assessed before treatment and after 8 months of treatment Hospital Infantil de Morelia, Michoacan. The design type is pre-postprueba, with a control group matched by gender, age and socioeconomic status. The tests applied were Scale Weschler (WPPSI and WISC-RM), Token Test and Figure REY.

Results: Preliminary Results: In the first evaluation has been found that 65% of children with ALL (no treatment) had an IQ generally below normal in the second assessment of these children had an IQ even lower compared to their age with the control group. At ages 3 to 6 years old children with ALL presents an IQ below normal at the executive level which coincides with the data published in other investigations.

Conclusions: One thing relevante and unexpected is that children with ALL even without treatment, had an IQ below normal, and after treatment have an IQ even lower.

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E.A. CASTAÑEDA, K.M. ZEPEDA, J.S. DUEÑAS, M.M. ORTEGA, W.H. OLVERA, P.R. FRIAS, K.B. RODMAN, A.S. ORTIZ & E.A. VILATELA. Characterisation Cognitive of Patients With Autosomal Dominant Spinocerebellar Ataxia Type 10.

Objective: Describe the pattern of cognitive impairments in patients with SCA10.

Participants and Methods: 14 patients with SCA10 diagnostic (confirmed with molecular genetic testing, and different onset times). Instruments: Neurobehavioral Cognitive Status Examination (Cognistat), Wechsler Memory Scale, Beck Depression Inventory, IQ Code, Rey-Osterrieth Auditory Verbal Learning Test.

Results: Evidence of impairment in: attention in 58%, verbal memory in 35%, executive functions (43%) and cognitive deterioration (40%). Only 30% patients' depressive symptoms were observed.

Conclusions: The observed cognitive profile is consistent with the cognitive affective syndrome described by Schmahmann. We argue that patients with SCA10 have important alterations in the cerebral-cerebellar circuit leading to a disconnection between regions in the prefrontal cortex and the cerebellum. Further studies using tractography would shed light on determining the exact extent and nature of these disruptions.

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A. FAVALE, L. BIN & H. WAISBURG. Neurocognitive profile in Myelomeningocele patients.

Objective: Describing discoveries neurocognitives in patients with Myelomeningocele (MMC) in a Pediatric High Complexity Hospital.

Participants and Methods: 44 children (22 boys and 22 girls) between 5 and 17 years old with or without derivation system ventricular-peritoneal (DVP) admitted to interdisciplinaries clinical service come from MMC clinical of the Garrahan Hospital.

Evaluation instruments: Intelligent Test Stanford Binet ed. IV.

Data processing: SPSS 11.5.

Results: The 54,5% showed a slight RM. Proved more retard women (36,4%) in comparison with men (18,2%).

Score scale by age (PEE) in Verbal Reasoning (70); Abstract / Visual Reasoning (PEE: 76) and Short Term Memory (PEE: 73).

In Verbal Reasoning observe the major deficit in absurdities (Md.70). In vocabulary (Md.75) nomination and conceptualization, major performance with sig. $p=0.048$. The most compensated aspect is the Abstract/visual Reasoning (Md. 76). It evidences in Short Term Memory major deterioration in Bead Memory (Md.68) that evaluates a visual praxis sequential memory being more conserved Objects Memory (Md.89) with sig. $p=0.0001$.

The 16% presented dominance manual left (7/44).

Conclusions: The absurd item, belong to Verbal Reasoning, requires interaction between verbal and space relations.

It would be necessary continue the investigation of the interhemispherical relations and left-handed in this pathology.

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J. PANCHAL & P. VESEY. Panchal, J. & Vesey, P. (2007). Neuropsychological Follow up Over a Three Year Period in a Case of Neuro-Metabolic Disease (Wilson's Disease).

Objective: Wilson's disease (WD) is a rare genetic neurodegenerative disorder related to copper storage leading to cirrhosis of the liver, movement disorder and neuropsychological deterioration. The disease often manifests in the first or second decade and is recognised as a reversible or partly-reversible condition if treated appropriately. Literature on the degree of neuropsychological impairment in neurologically symptomatic patients has been variable. The objective of this single-case study was to:

- 1) Examine the neuropsychological profile shortly after diagnosis to investigate the degree of impairment
- 2) Monitor neuropsychological progress in the context of appropriate pharmacological treatment.

Participants and Methods: The patient was diagnosed with WD at the age of 20. He was initially assessed with a battery of neuropsychological assessments before his treatment was due to commence. As WD presents with cognitive and / or behavioural symptoms, the patient was assessed on a yearly basis to monitor any changes in his neuropsychological profile.

Results: The neuropsychological examination included the assessment of pre-morbid functioning, attention, memory, executive functioning and visual-perceptual abilities. A comparison of the 3 sets of results identified changes over the domains with significant improvements being apparent in short term memory and visual memory.

Conclusions: A range of cognitive functions had been affected including aspects of memory and frontal executive abilities. With specific treatment his neuropsychological profile highlighted partial reversal of the cognitive deficits over the two years following assessment. With literature citing partial or full recovery, the need for further studies is identified to investigate the nature of WD cognitive / behavioural improvement.

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Drug/Toxin Exposure (incl. alcoholism)

S.M. ALMEIDA, M.F. RODRIGUES, E. COSTA, A.B. BONSI & I.A. NOGUEIRA. THE IMPACT OF THE ADVERTISING IN THE YOUNG ADULTS FOR THE SELF-MEDICATION AND THE USE OF THE PSICOTROPICS.

Objective: This study it intends to understand the psicossocial impact of the advertising for the self-medication and the use of the psicotropics for the population, centering the research in the text advertising executive and its meanings front to the productions propagated in the medias of the mass. We search to determine if the televising advertising or printed contributes for the education of the society and the modifications in its behavior of consumption.

Participants and Methods: The research was organized from theoretical beddings, followed of analysis of the applied questionnaires randomized, in the graduate students, of both the sex, with age enters the 20 35 years.

Results: We had two questions of the research: People with bigger degree of escholar formation are seduced or not by the medicine advertising? The search for the cure and self-medication goes beyond the social classroom or the formation? It was verified that, when receiving sensorial information, related cerebral areas with the reason, logical reasoning, emotions and memory are activated e, according to Simonson (2001), depending on the received stimulan the emotional one is activated, leading to an modification in the behavior and the consumption.

Conclusions: Therefore, we conclude that the propaganda agencies must better choose the methods of boarding of the population, objectifying, thus, the education of professionals of the health of the population, improve the quality of the information on medicines, supplied to the consumer.

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L.A. BIELIAUSKAS, L. HARIK, S. WRIGHT & H. LEE. Administration of Drugs with Anticholinergic Properties are Not Associated with Cognitive Decrements in an Elderly VA Inpatient Sample.

Objective: Cognitive abilities can be related to the integrity of the cholinergic system. We assessed potential cognitive decrements in patients receiving Anticholinergic Therapy (ACT) and drugs with anticholinergic properties (ACP), and compared them to patients of similar age and education, but not taking these medications, on measures of general cognitive screening, attention, delirium, and learning and memory used as part of a standard neuropsychological screening battery.

Participants and Methods: Participants included patients at the Ann Arbor VAMC in the Extended Care Center who had been administered a standard cognitive screening battery between January 2000 and January 2007 (N=236). Patients with suspected dementia (Mini Mental State Exam < 18), patients who had experienced specific medical conditions known to impact cognition, patients suspected of putting forth poor effort (Rey-15 < 7), patients under 60 years of age, and patients prescribed antipsychotic medications were excluded. 145 patients ranging in age from 60 to 88 were eligible for inclusion based upon these criteria (M age = 72.04±7.98).

Results: The medicated and non-medicated groups did not differ on the MMSE, Memorial Delirium Scale, immediate, delayed, or recognition discrimination trials of the Hopkins Verbal Learning Test- 2, or on Digit Span (all $ps > .20$).

Conclusions: Contrary to some previous studies, we found no significant differences between medicated and non-medicated groups on multiple measures of cognition, suggesting that risk for impaired cognition with use of ACT or ACP may not be significant. Findings are further explored with regard to number and dosages of prescribed medications with anticholinergic properties.

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K. DALEN, S. BRUARØY, T. WENTZEL-LARSEN, M. MATTHÄUS & L. LÆGREID. Cognitive Functioning in Children Prenatally Exposed to Alcohol and Psychotropic Drugs.

Objective: Cognitive functioning in children diagnosed with Fetal Alcohol Syndrome (FAS), Fetal Alcohol Spectrum Disorders (FASD), and Psychotropic Drugs-Exposed (PDE) children was compared.

Participants and Methods: A total of 130 consecutive patients were enrolled in the study in the period 1997-2007. Of the 64 children prenatally exposed to alcohol, 29 met the criteria for FAS, whereas 35 met the criteria for FASD. Sixty-six children (PDE) had prenatally been exposed to substances like opioids, amphetamine, cannabis, di-

azepam, and SSRI. Cognitive functioning was measured with the WPPSI-R (N=63), the WISC-R (N=9), or the WISC-III (N=58). For the children tested with the WISC-III, the factors Verbal Comprehension (VC), Perceptual Organization (PO), Freedom From Distractibility (FD), and Processing Speed (PS) were also computed, and compared with the mean of the other three factors. The project was approved by the Regional Committee for Medical and Health Research Ethics.

Results: In the FAS group, Verbal IQ (VIQ=78), Performance IQ (PIQ=77), and Full Scale IQ (FSIQ=75) were significantly lower as compared to the FASD and PDE groups ($p < .01$). The IQ levels in the FASD group were as follows: VIQ=91, PIQ=94, and FSIQ=91. In the PDE group VIQ=103, PIQ=101, and FSIQ=103. In the PDE group VIQ and FSIQ were significantly higher than in the FASD group ($p < .01$). PIQ was not significantly higher than in the FAE group. In the FAS group, PS was significantly lower than the other three factors ($p = .02$). In the FASD group, PO was significantly higher ($p = .002$), whereas PS was significantly lower than the other factors ($p = .004$). In the PDE group, VC was significantly higher than the other factors ($p = .015$).

Conclusions: Prenatal alcohol exposure affects IQ levels more than PDE. However, the cognitive profiles seem to be differently affected by alcohol as compared to exposure to psychotropic drugs. Alcohol exposure seems to lower PS. PDE has more negative effect on other factors than VC, whereas PO was less affected in the FASD group.

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S.G. EVRARD, A. ROSSI, P. FONTANET, M.P. ARONNE & A. BRUSCO. LONG-LASTING BEHAVIORAL CONSEQUENCES AFTER PRENATAL ETHANOL EXPOSURE. CONTRIBUTING ROLE OF SEROTONIN AND ASTROCYTES AND THE REVERSAL ACTION OF BUSPIRONE.

Objective: Prenatal ethanol exposure (PEE) is the cause of fetal alcohol syndrome (FAS). FAS is a rather neglected cause for mental retardation, epilepsy and attention deficit with hyperactivity disorder during childhood; antisocial- and borderline personality disorders, substance abuse/dependence, psychotic and major affective disorders during adolescence and adulthood. The serotonergic system is a major PEE-affected neurotransmitter systems. Serotonin is (5HT) involved in the pathophysiology of many neuropsychiatric disorders. During prenatal-, childhood-, adolescence- and adulthood-brain development, 5HT, acting through astrocytic 5HT_{1A} receptors induce the release of a neurite growth-promoting and neurotrophic factor: the S100b protein. S100b maintains a mature and "healthy" state on neuronal circuits which ultimately subserve cognitions and behaviors.

In this work, we studied all this factors in a single experimental paradigm and the potential reversing action of a 5HT_{1A} receptor partial agonist in behavioral and morphological experiments.

Participants and Methods: Buspirone 4.5 mg/kg/day sc was given to pregnant rats from E13-E20 concomitantly with EtOH 6.6% in drinking water in a FAS model with a low PEE paradigm. Motor and anxiety systems of adult rats were behaviorally tested. Immunocytochemical experiments to explore neurons and astrocytes at different ages were made.

Results: Altered tests of motor and anxiety-like behaviors and concurrent microscopic dysmorphologies in the serotonergic system, astrocytes, and prosencephalic neurons of regions subserving cognitive and motor systems in the rat brain were found at different ages. A partial reversion of these findings were found when buspirone was given during pregnancy.

Conclusions: Buspirone, a nonbenzodiazepine anxiolytic drug in current clinical use, is able to partially reverse the deleterious actions of PEE not only on microscopic brain morphology but also in behaviors and is a potentially useful agent in order to reverse ethanol damage on human FAS.

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A.J. MARTOS MULA, J. ALTAMIRANO & G. BOVI-MITRE. Control OF Concurrent Variables in the Desings for the Analysis of the Toxic Substances' Effects on the Cognitive Processes.

Objective: Studies about toxic substances' effects on cognition frequently show contradictory results. This might be due to the fact that some of these works overlooked variables that could have been affecting the cognitive processes and masking the actual effects of toxic substances on them. The aim of the present study is to analyze which concurrent variables might be affecting cognition and bringing confusion about the effects of pesticides on motor function, attention and memory.

Participants and Methods: We tested 114 children, of ages between eight and eleven, from three localities of Quebrada de Humahuaca with different degrees of exposition to pesticides. Every child, besides being tested for attention, memory and motor function by means of neurobehavioral tests, was clinically examined in order to detect any element that could be affecting cognition. Interviews with the children's mothers were also done in order to obtain data about the educational and socioeconomic environment of each child.

Results: Most of the analyzed concurrent variables did not show any effect on the cognitive or motor processes; with the exception of: child's age and school grade, working or stay-at-home mother, number of family members and position of the child among his or her siblings.

Conclusions: When we study the effects of toxic substances on motor and cognitive processes, it is necessary to control the concurrent variables that might also affect these processes, in order to prevent any masking of the results.

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A.J. MARTOS MULA, M.A. RUGGERI & G. BOVI MITRE. The Use of Psychometric Tests in the Detection of Toxic Substances' Harmful Effects on the Nervous System.

Objective: Our research attempts to analyze which is the most effective method in the identification of early neurological and psychological alterations that occur as a consequence of chronic exposition to different toxic substances. Our greater concern is about children, since the nervous system is specially vulnerable in this developmental stage and the aim is to make an early detection of symptoms in order to prevent further problems.

Participants and Methods: We used the Manual de Pruebas Neuroconductuales (OPS) (PAHO's Handbook of Neurobehavioral Tests) adapted to children; and the WISC-III, as psychometric test. Different populations of children were analyzed, studying the effects that the exposition to toxic substances, such as arsenic or organophosphorus pesticides had on these tests results.

Results: Both the neurobehavioral and the psychometric tests detected the harmful effects of toxic substances on the nervous system. Still, the results were clearer when neurobehavioral tests were used.

Conclusions: A selection of neurobehavioral tests that makes it possible to compare the toxic substance effects on the cognitive processes within the individual's reference group could be a better choice than standardized psychometric tests which often fail to represent the reality of a great number of people. Perhaps, these psychometric tests could prove to be more helpful if a better adjustment of them and the scales to the different realities of our country is performed.

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V.T. PEDRÓN. Early onset of alcohol drinking and the development of alcohol related problems: A review of etiological hypothesis.

Objective: Early onset of alcohol drinking has consistently been associated with the development of alcohol related problems such as alcohol abuse, alcohol dependence and alcoholism (Capaldi & Yoerger, 1999; Dawson, Grant & Li, 2007; Dishion, Parker, Levin & Harford, 1996; Grant, Stinson & Harford, 2001). But the mechanisms underlying this association are still unknown. There are two main hypothesis usually discussed in the literature. The first hypothesis, often called the Causal Hypothesis, argues that early exposure to alcohol may alter critical processes during the brain development which leads to alcohol seeking behaviour in the future (Spear, 2000). On the other hand, the Vulnerability Hypothesis proposes that early drinking and alcoholism are both symptoms of an underlying vulnerability to problem behaviours (Prescott & Kendler, 1999).

Objective: To review the evidence supporting each hypothesis in order to establish which one has more empirical support.

Participants and Methods: Several papers that assess alcohol initiation were reviewed. Sources: online journal databases such as Blackwell, JSTOR, SAGE and Science Direct.

Results: The evidence from ex-post facto research suggests that early initiation and the development of alcohol problems is mediated by underlying problems such as indicators of antisocial orientation or deviant behaviour, supporting the vulnerability hypothesis. But also, there is evidence from experimental studies that support the causal hypothesis, meaning that alcohol exposure has a negative effects on the developing adolescent brain.

Conclusions: Both hypothesis have strong empirical support, thereby this review supports the idea that both hypothesis may be complementary and part of the same phenomenon, as suggested by Spear (2000). Correspondence: Valeria T. Pedrón, Instituto de Investigaciones, Facultad de Psicología - UBA, Florida 927, Loma Hermosa 1657, Argentina. E-mail: valeriapedron@hotmail.com

A.E. VÉLEZ-GARCÍA, K.C. BORJA-JIMÉNEZ & F. OSTROSKY-SOLÍS. Is Decision-Making Affected in Marijuana Users?

Objective: Cannabis is the most widely used illicit drug among adolescents and young adults. Few studies have explored the effects of marijuana use on tasks related to orbitofrontal, medial frontal cortex and amygdala. The objective of the present study was to determine if marijuana use impairs performance on a task assessing decision-making.

Participants and Methods: 63 Subjects were recruited from university community. The requirements for participation as cannabis users (n=32) were: regular use for 2 years and marijuana "Use Disorder" according to DSM-IV. 17 abusers and 15 dependents were compared to 31 nonusers. Cannabis users were instructed to abstain from cannabis and alcohol for 24 hours prior to testing. Subjects completed the Beck Depression Inventory (BDI), the Beck Anxiety Inventory (BAI) and the Executive Function Battery (Flores Lázaro and Ostrosky-Solís, 2007).

Results: No statistically significant differences were found between marijuana abusers, dependents and non-users on the BDI or BAI. Significant impairments were observed when compared to the control group in abstraction, verbal fluency, working memory and cognitive flexibility. On the gambling task significantly lower overall was found for dependents when compared to non-users. Block analysis revealed that the mean score was significantly lower for blocks 4, 5 and 6.

Conclusions: Cannabis addiction impairs executive functioning performance, including several dorsolateral and orbitofrontal functions. Marijuana users appear to make decisions that lead to immediate gains but also higher overall losses. This suggests a poor decision-making, a fact that may contribute to continue use despite potentially adverse consequences. We acknowledge the partial financial support to this project by the Universidad Nacional Autónoma de México. Macroproyecto SDEI-PTID-06-3" Correspondence: Sofía Sánchez, INCMNSZ, UNAM, Vasco de Quiroga 15, Tlalpan, Mexico 14000, Mexico. E-mail: sofiasan@yahoo.com

Emotion

A.T. MARTINS, C. SIMÃO, M. JUSTO & A. REIS. Decision Making In Moral Dilemmas Followed Traumatic Brain Injury.

Objective: The main objective of this study was to analyse the performance of Traumatic Brain Injury (TBI) participants, in a decision-making task about moral dilemmas.

Participants and Methods: Ten traumatic brain injury (TBI) participants, matched by age and education, with a group of ten control participants. We selected and adapted twenty-two dilemmas from Koenig et al. (2007) previously divided in three categories: non-moral dilemmas, impersonal moral dilemmas and personal moral dilemmas. Participants had to judge 22 hypothetical dilemmas.

Results: The results showed a higher proportion of affirmative answers in the judgment of personal moral dilemmas in TBI group when compared to the control group, while on the others conditions (amoral and impersonal moral dilemmas) there were no group differences.

Conclusions: The performance of the TBI group suggest an inadequate decision-making behaviour in resolution of some hypothetical moral dilemmas (for example, smother a baby to save others lives). The literature showed that TBI patients reveals an high rationalization behaviour when confronted with high emotional dilemmas.

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Epilepsy

I.A. HAZIN, J. FALCÃO & S. LEITÃO. Neuropsychological approach of mathematical activity among epileptic children: relevance of visuo-spatial abilities.

Objective: This research study was aimed at collecting data in order to confirm the importance of visuo-spatial abilities in mathematical activity among Brazilian school-children at elementary level (3rd to 4th levels).

Participants and Methods: Two groups participated in this study: Group A, constituted by a sample of four children (three girls and a boy), aged nine to twelve years, presenting diagnosis of generalized idiopathic epilepsy (absence); Group B, constituted by four reference-groups (a five children reference-group for each child of the Group A). These reference-groups were similar in their profile to each child of group A in terms of age, gender and kind of school – public or private. Children from both groups were submitted to neuropsychological testing and mathematical evaluation through instrument covering visuo-spatial abilities (symmetry, rotation, mental imagery and bi and three-dimensional using building blocks).

Results: Data collected confirmed cognitive impairment among epileptic children in terms of attention, verbal memory, cognitive flexibility and specially visual-spatial abilities, with consequences on school mathematical performance. On the other hand, it was verified that epileptic children benefited from the offer of cultural-mediational tools, which acted as scaffolding cultural devices with which epileptic children could compensate their difficulties and therefore minimize them.

Conclusions: This last aspect reinforces the importance of taking into account neurological and cultural aspects altogether, following the theoretical tradition firstly proposed by Alexander Luria.

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A. JAVURKOVA, P. MARUSIC, H. KRIJTOVA, M. TOMASEK, J. ZARUBOVA, M. MOHAPL & V. BENES. Neuropsychology Assessment in Temporal Lobe Epilepsy Patients after Epilepsy Surgery.

Objective: Surgery may influence cognitive function and emotion (in relation to side, extent of procedure or gender). Aim of study was to compare cognitive functioning before and after epilepsy surgery in temporal lobe epilepsy (TLE) patients.

Participants and Methods: Sixty unilateral TLE patients (mean age 33y) with left hemisphere speech were included, 30 left and 30 right-sided. Further subgroups consisted of mesiotemporal lobe epilepsy (MTLE) patients only, 20 left and 17 right-sided. Neuropsychological tests (WAIS-III, RAVLT, ROFT, BDI, EPQ/R) were performed presurgically and year after operation.

Results: Lateralization of cognitive deficit was related to side of surgery. Following surgery, on average, there was no decline in general intelligence and memory functioning. Improvement of contralateral memory function and of emotional lability and extraversion was observed. Improvement of depression was found in right-sided patients. Men showed higher intelligence, low emotional lability and high introversion before surgery, decline of general intelligence and improvement in emotional stability and depression year after surgery. Women had no postsurgical decline in general intelligence and no changes in high level of emotional lability and depression. Memory deficit was lateralized to side of resection in MTLE patients. Following surgery, decline in delayed verbal recall was observed in left-sided MTLE, right-sided improved in both verbal and nonverbal delayed recall.

Conclusions: Neuropsychological assessment is able to correctly lateralize in presurgical evaluation. Gender difference was observed in both pre- and postoperative assessment. Left-sided MTLE patients may get worse in delayed verbal recall after surgery, right-sided patients may improve in overall memory functioning

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P.A. KLAAS, J.S. HAUT, J.S. CHAPIN & R.M. BUSCH. Memory Change Following Temporal Lobectomy in Children.

Objective: The adult literature suggests that patients with temporal lobe epilepsy who showed average or better preoperative memory scores are at greater risk for memory decline following temporal lobectomy (TL), particularly following dominant temporal lobe resection (Chelune, 1991; Harvey, 2007). The current study sought to determine whether this pattern is also observed in pediatric patients.

Participants and Methods: This retrospective study included 27 children (mean age = 10.78 range 5-15 years) who underwent TL. All patients were right-hand dominant, had a FSIQ >69, and completed the Children's Memory Scale (CMS) as part of pre and postoperative neuropsychological evaluations. Memory change scores were calculated, and changes exceeding one standard deviation were considered to be meaningful.

Results: Among patients who underwent left TL (n=16), five declined on the Verbal Immediate Index and two on the Verbal Delayed Index. All of these patients, with the exception of one, had average or better verbal memory scores prior to surgery. However, not all patients with average or better scores prior to surgery demonstrated verbal memory decline. Among patients with right TL (n=11), one declined on the Visual Immediate Index and one on the Visual Delayed Index. Both had preoperative visual memory scores in the average or better range. Most children with average or better preoperative visual memory scores did not demonstrate visual memory decline.

Conclusions: This pattern of findings is similar to that reported in the adult literature in that patients who had memory declines following surgery usually had average or better preoperative scores. However, intact preoperative memory performance did not consistently forecast a postsurgical decline in memory.

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E. LAZARY. Hyperkinetic Disorder and Epilepsy or Probable Landau-Kleffner Syndrome? Neuropsychological Assessment for an Early Intervention (Case Report).

Objective: Reporting a case of a patient diagnosed with hyperkinetic disorder and epilepsy under control, who is presenting a learning im-

pairment. A neuropsychological assessment was solicited due to agitation, lack of attention and impulsiveness with the purpose of assessing the patient's intellectual SCORE and guiding the patient's family. An electroencephalogram (EEG) revealed right centrotemporal epileptic activity.

Participants and Methods: A 6-year-old, right-handed, white male exhibited an uneventful perinatal and postnatal history. Developmental motor milestones were attained within normal limits. He started attending school at the age of 2 years and 6 months. Three months later he had the first seizures. Since then, it has been verified increase in aggressiveness, isolation behavior, repetitive children's play, very agitated sleep, lack of attention and hyperactivity. From the age of 3 years and a half on, there has been significant evolution in the symptoms, including learning difficulties and problems in keeping previously acquired knowledge. In the course of the neuropsychological evaluation, the hypothesis of developing Landau-Kleffner Syndrome or one of its variations was raised, although he had not experienced aphasia.

Results: Neuropsychological findings point to standard intellectual scores, however presenting important instrumental hindrances related to perceptual-organizational and planning abilities, distractibility, and impulsiveness. It must be stressed that losses of the language abilities had been previously related.

Conclusions: If Landau-Kleffner syndrome is confirmed, ANp offers a frame in order to verify future deficits, thus allowing early intervention so as to avoid major language impairment. Besides, it contributes to differential diagnosis and helps in adequate medical treatment.

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A.M. SOPRANO, A. DE CARLO, Y. GONZALEZ AYRALA, A. PALMA & H. ARROYO. Intellectual Functioning Levels in 160 Children With Refractory Epilepsy.

Objective: To study global cognitive status in a group of children with refractory epilepsy, who were candidates for epilepsy surgery.

Currently it is estimated that the prevalence rates of mental retardation range is from 1 to 3% of the general population (WHO). These rates can increase to 12-14% in the population of epileptic children, and can even be higher in drug refractory epilepsies.

Participants and Methods: One-hundred and sixty patients (mean age: 10 years old) were studied. Global cognitive level was assessed with a test of general intelligence (Stanford-Binet, Wechsler).

Results: 61% of patients showed a global cognitive level compatible with mild to profound mental retardation; 11% of patients had an average IQ, and 28% had between below average and borderline IQ.

Conclusions: Most children with refractory epilepsy have an intellectual level that is below the average. This shows a variable but significant degree of cognitive impairment. Our data highlights the importance of including neuropsychological assessment as part of the routine protocol examination in refractory epileptic children. In this way, early detection of cognitive impairment could be possible and should complete the medical treatment with an appropriate psychological and educative intervention program.

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M.M. RUSSO, S. THOME SOUZA, E. KUCZYNSKI & C. ROCCA. Asperger Syndrome (AS) and Epilepsy: Report of Two Cases.

Objective: Many studies have pointed out a close relationship between autism and epilepsy. However, we have not found reports of Asperger Syndrome with epilepsy. The purpose of the present study is to present and discuss the findings of neuropsychological evaluation from two male adolescent patients (A and B) both diagnosed with AS and epilepsy.

Participants and Methods: Two male adolescents with 11 years old were assessed through a neuropsychological evaluation tests: intellectual efficiency, executive functioning, language, attention, praxis, memory and learning processes.

Results: Only the patient A showed a significant verbal IQ - performance IQ discrepancy on intelligence test. It was noticed in both cases impairment in attentional performance, cognitive speed, verbal memory, audio-verbal learning process and planning. In both cases, there was a good performance in block design, visual learning and memory. We observed impairments in verbal memory and learning test, these deficits may be related to frontal lobe epilepsy. It was also observed that some neuropsychological deficits associated with epilepsies of frontal lobe are also part of dysfunction in the executive functions observed in AS: reducing of cognitive speed, planning, difficulty in control of the executive attention (response selection/inhibition).

Conclusions: These case report highlights the importance of the neuropsychological evaluation of AS co-morbid with epilepsy to better characterize the deficits presented when both conditions occur concurrently. Correspondence: *Mariana M. Russo, Instituto de Psiquiatria, Hospital das Clínicas, Av. Dr. Enéas de Carvalho Aguiar, 255, São Paulo 05403-000, Brazil. E-mail: marianapsico@hotmail.com*

J.A. URE, W. DELEMBERT, M. PERASSOLO, J. OLLARI, H. VIDELA, M. DIEZ & D. HUANAMBAL. Cognitive Impairment Linked to the Age of Seizure Onset but not to the Frequency of Epileptic Attacks.

Objective: Cognitive impairment in epileptic patients is well known. It is very important to understand which factors correlate with the worsening of neuropsychological performance. Among other factors we have studied: 1) age of seizure onset, 2) frequency of epileptic attacks and 3) the influence of pharmacological antiepileptic treatment.

Participants and Methods: We have studied 36 patients under diagnoses of: a) bitemporal lobe epilepsy, b) unitemporal lobe epilepsy (left or right) and 3) tonic-clonic generalized attacks. The diagnoses were achieved through clinical files, ictal and interictal EEGs and MRI studies. These patients were matched in gender and ranged between age 15 and 55 years old. The patients assessment was conducted through: 1) Mini Mental State Examination, 2) A Test, 3) Trail Making A and B, 4) RAVLT, 5) Rey-Osterrieth Complex Figure, 6) Digit Spans, 7) Corsi Blocks, 8) Verbal Fluency, and 9) Boston Naming Test.

Results: 1) Along all the battery patients with older onset of seizures performed worse, specially when the onset of seizures was more than ten years before this study was done. 2) There was no correlation in this screening between the severity of cognitive deficits and the frequency of epileptic attacks. 3) By comparison between patients under monotherapy and others with polytherapy, those with monotherapy performed better than the patients under polytherapy.

Conclusions: 1) The severity of cognitive deficits according the age of seizure onset can be explained not only as a result of ictal events but: (a) a more prolonged interictal disorder and (b) the use of chronic antiepileptic drug treatment.

2) The lack of correlation between the frequency of attacks and cognitive deficits could be due to: (a) the presence of different types of epileptic attacks (tonicclonic, complex partial, simple partial, etc.) in our sample, and (b) different patterns of duration on each attack.

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L. VAN ITERSOM, P.B. AUGUSTIJN & L. NEIJENS. Learning and forgetting of AVL T word lists in children with focal epilepsy.

Objective: In children with epilepsy, memory problems are a common complaint associated with school failure. Identification of stages (initial acquisition, gain over trials or retention) wherein memory difficulties appear can aid in more purposeful implementation of educational measures.

We studied learning and forgetting on the Auditory Verbal Learning Test (AVLT) in various samples of children with focal epilepsy and a control group, on group and individual level.

Participants and Methods: Study group n=75 (age 6-12 years, FSIQ>75 on WISC-R/III): n=55 with focal seizures: n=25 left (LH), n=11 right hemisphere (RH), n=19 bilateral foci (BI) and 20 controls. Epilepsy subgroups were equivalent in age of onset and duration of epilepsy, presence of MRI-lesion and IQ.

Based on age related z-scores for 5 learning trials and a 25-minute delayed-recall, GLM-1 was followed by GLM-3 (repeated measures, controlling for IQ) in order to study curves of learning and forgetting. Individuals with weaknesses ($z \leq -2$) were tallied.

Results: Learning: A significant trial*group interaction is found due to a "trough" in the learning curve for LH at trial 3.

Forgetting: an overall decline, but no group effect, is seen from trial 5 to delayed recall, most conspicuous in BI. On delayed recall, 35% BI children had scores $z \leq -2$, against 0%-9% in other samples.

Conclusions: (1) After normal initial acquisition, progress in Left Hemisphere seizure-group decelerates, leading to increasing differences from normal. After the third trial, LH-children catch up; indicating that continuous presentation of trials will eventually lead to success. (2) Children with Bilateral foci forget after a delay and many will need renewed training.

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Executive Abilities/Frontal System

L.M. CASAS. Left-handed Girl With a Right Frontal Lobe ArterioVenous Malformation.

Objective: Investigate the role of the frontal lobe with a brain Arteriovenous Malformation (bAVM) which is a tangle of abnormal blood vessels. The symptoms and effects of bleeding depend on the location of the bAVM.

Participants and Methods: A 15 years-old girl had a headache history and disruptive behavior in school. After exercising, began with acute symptoms of hemorrhagic stroke. The angiography showed an bAVM in the frontal portion which was removed by surgery. After, she suffered temporary weakness in the right side of the body.

Three months after surgery was evaluated with the WISC-R, WSCT and the Token Test.

Results: Her global IQ was 94, with a discrepancy between verbal and executive function. She committed many perseverative errors in the WSCT and had few errors of comprehension in the Token Test. In general problems with attention, visual organization, time-space sequels, mental flexibility and mathematics were seen. Also the family reported emotional changes including anhedonia. Although she is left-handed, her dominant brain seems to be the left one because communication skills were not affected by the bAMV nor the surgery.

Conclusions: Today we know more about the role of the frontal lobe in neuropsychological and emotional duties. In this case we learned that the presence and removal of a bAMV in its territory means different troubles. We can only expect that brain plasticity works in order to restore the brain damages.

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Genetic disorders

D. MENGHINI, M. DI PAOLA, F. FEDERICO, S. VICARI, L. PETROSINI, C. CALTAGIRONE & M. BOZZALI. Brain and Cognitive Abnormalities in Patients with Down Syndrome.

Objective: The goal of this study was to investigate, using the voxel-based morphometry (VBM) method, the regional distribution of grey matter (GM) density in patients with Williams syndrome (WS) as a function of their neuropsychological profiles.

Participants and Methods: We recruited 12 subjects with a genetically confirmed diagnosis of WS and 13 typically developing (TD) controls. All subjects underwent a neuropsychological assessment and MRI.

T1-weighted volumes were collected and processed according to the SPM5 VBM protocol.

First, group comparisons were made to assess regional changes of GM density in WS subjects and controls. Then, GM maps from subjects with WS were regressed against the results of the neuropsychological tests on which they performed worse than controls.

Results: The comparisons between WS and TD subjects confirmed previous findings in WS. In particular, GM density reduction in the dorsal stream was found in WS group, but also additional regional changes located in the left medial temporal lobe (parahippocampal gyrus), the left middle frontal gyrus, the left posterior central gyrus and the bilateral thalamus.

In the WS group, associations between GM density and neuropsychological measures were also found.

Conclusions: Our study showed brain abnormalities in pathological subjects and association between regional GM changes and neuropsychological tests. VBM approach has the potential to clarify the anatomical substrate of the cognitive profile of patients with WS.

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G.L. SÁNCHEZ MARTÍNEZ, G. YÁNEZ TÉLLEZ & S. ROJAS ROMÁN. Neuropsychological Findings in Turner's Syndrome. One Case Analysis.

Objective: Turner's Syndrome is a genetic disorder manifested since birth and only affect female. It's caused by the partial or total loss of the second X chromosome. There has been reported different cognitive deficits in this patients like: visospatial, distraction tendency, socialization difficulties and poor comprehension of social rules; other authors report poor working memory. The verbal performance is reported to be normal. **Objective:** Assessment of attention, visuospatial and verbal abilities in patient with the syndrome.

Participants and Methods: Subject: Patient of 6 years 9 months of age, in first grade of basic education, from Mexico City. Method: To the assessment we used: McCarthy Scales of Children's Abilities (MSCA), Token Test, Test of Children Verbal Learning España-Complutense (TAVECI), Test of copy and memory Reproduction of geometric figures of Rey, Test of Perception of the Differences (CARAS).

Results: She has a mental age of 3 years, 6 months. No attention or visual memory problems. Capable to make simple calculations. With impressive and receptive language deficits. Verbal short and long term memory alterations.

Conclusions: She has significative deficits in language and verbal memory; no deficits in visuospatial performance or in attention were observed. Discussion: Differently of what other authors report, we found important deficits in verbal but not in visuospatial or attentional performance. More investigation about the cognitive implication of the syndrome is needed.

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Infectious disease: HIV/AIDS

A.A. PEREIRA, F. BORSATO & J. DIOGO. Exploratory Study on Executive Function of HIV Infected Brazilian Children.

Objective: Brazil has more than 600 thousand persons living with HIV. HIV infection affects several body systems, including the central nervous system. There is a paucity of studies about the neuropsychological consequences of HIV infection in children. The present study aimed to identify possible executive function problems in children with vertically transmitted HIV.

Participants and Methods: A total of 22 children, 15 boys and 7 girls, ages 7 to 16 years old ($M = 11$, $SD = 2$), participated on the study. Participants were recruited in a public university hospital and parents and guardians have signed an informed consent. A convenience sample was used. The Wisconsin Card Sorting Test was administered as a measure of executive function performance.

Results: Mean standard scores of different measures were calculated and showed that numbers of perseverative errors ($M = 111$, $SD = 14.2$) and conceptual level responses ($M = 108$, $SD = 13.9$) were within average, but perseverative errors ($M = 79$, $SD = 12$) were below one standard deviation from the normative mean. The mean number of categories completed for the sample was 4.4.

Conclusions: Results suggested that there is a tendency for perseveration in this group which might indicate problems with cognitive flexibility. A discussion on possible explanations for this result and suggestions on future research is presented.

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Infectious disease: Other (e.g., hepatitis C, West Nile virus)

V.D. SOARES, L. CAIXETA, C. SOARES & M.C. LACERDA. DEMENTIA and NEUROCYSTICERCOSIS.

Objective: The aim of the study is to characterize the presentation of dementia in patients with Neurocysticercosis (NCC), the most common cause of parasitic disease of the central nervous system by tissue-invasive larval forms of *Taenia solium*.

Participants and Methods: Seventy six (76) patients with NCC were analyzed through computed tomography of the brain (CTB) and standardized diagnostic tests: Neuropsychiatric Inventory (NPI), Functional Activities Questionnaire (Pfeffer) and Mini-metal State Examination (MMSE).

Results: In relation to the psychic symptoms of NPI, anxiety was the most found abnormality (53%), following irritability (46%) and dysphoria/depression (41%). Patients who presented dementia, the psychomotor agitation was common. In the sample studied, the patients with dementia (9.2%) are, in their majority, illiterate (71%) and/or have epilepsy (86%) and are at pre-senile aged (mean age of 45 years old). From these ones, 86% have inactive form of NCC, no one presented hydrocephalus. The dementia was associated to the variables: restriction on daily functional activities, epilepsy, neuroimaging with injuries in the frontal and temporal lobes.

Conclusions: The dementia observed in patients with NCC can be the combined effect of vascular injuries and multiple parasites breaking up the fronto-temporal-parietal connections related to the intellectual function in patients with vulnerable brain. We point the dementia by NCC as a possible differential diagnosis among young people in endemic areas. It is important the exclusion of NCC, once this is a potentially treatable cause of progressive dementia.

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Medical Disorders

S. FERNÁNDEZ GUINEA, R. JURADO, F. DENIA, D. TABOADA, M. JIMÉNEZ-ARRIERO & G. PONCE. STUDY OF VERBAL MEMORY IN PATIENTS WITH ALCOHOLIC AND NON ALCOHOLIC LIVER DISEASES ON THE WAITING LIST FOR LIVER TRANSPLANT.

Objective: Patients with alcoholic and non-alcoholic liver diseases often show cognitive alterations that could be consider predictors of hepatic encephalopathy (HE). HE is a complex neuropsychological syndrome affecting visual perception, attention, speed processing and visuo-constructive capabilities. One of the most questioned symptom of EH is the possible alteration of verbal learning. The main aim of this research is to know if the alcohol abuse have influence on verbal learning deficit in a hepatic cirrhosis (HC) group of patients on the liver transplantation waiting list (LT-WL).

Participants and Methods: A verbal learning test, TAVEC (an Spanish adaptation of CVLT) was used. Study variables: Total recall of words in List A and List B; short-term memory of words in List A (free recall and cued recall); semantic and serial strategies in List A and in free recall and intrusions and perseverance in List A. The sample (N=39) was divided in two groups: patient with alcoholic cirrhosis (N=18) and nonalcoholic cirrhosis (N=21). Patients with EH antecedents and without antecedents were included in the sample.

Results: There were no significant statistical differences between alcoholic patients and non-alcoholic ones in total recall of words from Lists A or B, in short-term memory of List A (free recall and cued recall) either in semantic and serial strategies. However, the results showed a link between cirrhosis type (alcoholic cirrhosis and non-alcoholic cirrhosis) and HE medical history. Alcoholic patients suffer from EH more frequently (Chi squared=5.414; $p=0.020$), than non alcoholic.

Conclusions: The results obtained in our study show that alcohol abuse and EH does not seem to have significative influence on verbal learning, in any of the variables measured. However, alcohol abuse is related with EH presence.

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M. KASHANIAN. THE EVALUATION OF THE EFFECTIVENESS OF PYRIDOXINE(VITAMIN B6)FOR THE TREATMENT OF PREMENSTRUAL SYNDROME:A DOUBLE BLIND RANDOMIZED CLINICAL TRIAL.

Objective: A comparison between Pyridoxine (vitamin B6) and a placebo for the treatment of premenstrual syndrome (PMS).

Participants and Methods: A double blind randomized clinical trial was performed on 160 university students who were suffering from PMS (according to the retrospective diagnostic criteria which had been recorded during the last 3 menstrual cycles). Then the patients were randomly assigned into two groups, and finally 94 patients who had finished the study were statistically analyzed.

In the Pyridoxine group (46 patients) vitamin B6 was prescribed at a dose of 40 mg twice daily (total 80 mg), and in the placebo group (48 patients) a tablet similar to vitamin B6 tablets in size, smell, shape and taste was prescribed 1 tablet twice daily. In both groups the tablets were started from the first day of the fourth menstrual cycle and continued for the next two cycles, and during these two cycles the symptoms were recorded.

Results: The severity of PMS in the second cycle of the treatment (in both groups) showed a statistically significant decrease ($p < 0.05$, Pair T test) and the comparison between the two groups showed that the severity of PMS in the Pyridoxine group decreased more than the placebo group, which was statistically significant ($p < 0.05$, Student T Test) and this was because of the reduction in the psychiatric rather than somatic symptoms of PMS.

Conclusions: Regarding the effect of Pyridoxine in reducing the severity of PMS, it can be suggested as a treatment for PMS, at least for the psychiatric symptoms.

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J. LÓPEZ PAZ. Evaluation of the effectiveness of a Psychoeducational On - Line Program directed to Children and Teenagers with Neuromuscular Disease.

Objective: The aim of this study was to evaluate the effectiveness of a Psiecoeducational On- Line Program for the improvement of the Health related Quality of Life in children and teenagers with neuromuscular disease.

Participants and Methods: 15 subjects with some type of neuro-muscular disease and with ages between 7 and 17 years, took part in the project. Before the application of the program, the following psicosocial variables were valued: Health related Quality of Life, Self-esteem and Coping Strategies. Children between 7 and 12 years, were evaluated with the following questionnaires: Questionnaire for the measurement of the Health related Quality of Life in children and teenagers "KINDL" (checked Version) and the Questionnaire for the Evaluation of the Self-esteem in Primary Education "A.EP". The subjects between 13 and 17 years were assessed, with another ones: "KINDL" (checked Version), the Scale of Coping for Teenagers "ACS" and the questionnaire Autoconcept Forms(Trains) 5 "AF5". The Program consists of ten sesiones constructed by different topics, with activities directed to developing and promoting the Self-esteem, the Social Abilities and the Strategies for the Resolution of Problems.

Results: Although in the case of the smaller children of 8 year-old differences were not found, in the group of children and adolescents between 8 and 18 year-old, in "pre-post", were detected variations in the quality of life levels. In particular, the improvement is more appreciable in the following indicators: emotional life and family life.

There is a significant decrease of the negative feelings of guilt. After the intervention there was: a smaller incidence of self-criticisms, perception and feeling of guilty and a higher style of causal attribution of the implication in the personal problems.

Conclusions: After the intervention phase is possible to see an improvement, mainly within the group of children and adolescents of 13 years old or more.

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J. LÓPEZ PAZ. Factors Associated with Older People Coping with Fibromyalgia Syndrome.

Objective: This study has been to gather data on situational personality traits as well as coping strategies in patients with Fibromyalgia Syndrome and analyze this information in the light of confrontation as the main variable empirical

Participants and Methods: The instruments used are: Situation Personality Questionnaire (Fernandez Seara, and Seisdedos Mielgo, 1998) and Coping Strategies Questionnaire (Rodriguez, Cano and White, 2004). The sample consists of 247 patients from hospitals and associations of patients with this condition being one hand, 87 subjects older than 60 years and, on the other hand, 46% of the sample table symptomatic pain. This sample has been collected in the provinces of Biscay and Navarre (Spain) with a random sampling and 85% women.

Results: Using a multivariate analysis (MANOVA) establishes complex interrelationships between personality traits and coping strategies combined with variables such as age, gender, presence of pain, fatigue demonstrations, activities of daily living. For example, we found that it is significant for the group over 60 years, the symptoms of pain and / or changing features 10 years for Anxiety and Cognitive Control. Not so happens to the traits of leadership and efficiency that only presents significantly when only serve to variable evolution

Conclusions: It seems to be shown that the usual condition as a symptom of fatigue against the pain symptom favors discrimination in terms of personality traits and coping styles. On the other hand, the fact that a patient with Fibromyalgia Syndrome present an evolution more or less than 10 years can lead to a greater or lesser knowledge of his illness, and therefore can stand more or less proactive and positive face with their adjustment and adaptation to the conditions and requirements in their daily lives

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M. TENORIO. Anxiety and Neuropsychology in Patients with Peritoneal Dialysis: a Cognitive Approach.

Objective: To generate a cognitive model that accounts for neuropsychological changes related to Terminal Chronic Renal Failure (TCRF) and their interaction between them and the anxiety features in adult patients under Peritoneal Dialysis.

Participants and Methods: Quantitative and qualitative methodologies were used in this research. They include a complex battery of neuropsychological tests exploring attention, memory, language, praxis and executive functions; patients' answers in ISRA, and the qualitative analysis of an interview designed for this experience.

Results: The present study reports the neuropsychological profile and anxiety characteristics experienced by adult patients with TCRF in treatment with PD. Its results show a good general neuropsychological function that interact with notorious anxiety features focused on cognitive and physiological spheres.

Conclusions: Considering the results an integrative model is proposed. It allows the interpretation of results from the biopsychosocial perspective that considers three main thematic axis of analysis around the person (ideational, emotional and relational), and four axis set in a socio-cultural frame (familiar, medical and social network and "The Other" as caregiver). Our results support the importance of having neuropsychologist in multidisciplinary teams because they impulse the construction and de-construction of the meaning of the disease.

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Neglect

F.V. LIEDTKE, L.B. DE CARVALHO, C.R. DE OLIVEIRA, G. GINDRI, J.C. RODRIGUES, R. BRONDANI, S. MARTINS, M.M. PIMENTA PARENTE & R.P. FONSECA. NEUROPSYCHOLOGICAL PROFILE OF RIGHT-BRAIN-DAMAGED PATIENTS WITH AND WITHOUT NEGLECT: ARE THERE DIFFERENCES?

Objective: Neglect can be characterized as a failure to report, respond, or orient to stimuli presented to the side opposite to the damaged hemisphere, when this failure cannot be due to either sensory or motor deficits. This study aimed at verifying if there are differences in the neuropsychological profile of patients with and without neglect.

Participants and Methods: A neuropsychological assessment was carried out in 29 individuals with a right stroke. From their low performance in at least one of the tasks line cancellation, figures copy, clock drawing, written copy and sentences reading, they were divided into two groups: without hemineglect (n=22) and with hemineglect (n=7). They did not significantly differ in age, schooling and post-onset time. They were all Brazilians, right-handed, with a first and single right vascular lesion, without history of neurologic, psychiatric, sensory disorders, substances abuse, or participation in neuropsychological rehabilitation programs. They were examined through the "Bateria Montreal de Avaliação da Comunicação - Bateria MAC" (Montreal Communication Evaluation Battery, MEC Battery) - discursive, pragmatic, lexical-semantic and prosodic processings, as well as the Neupsilin, a brief neuropsychological evaluation (time and space orientation, attention, perception, memory, arithmetics, language, praxia and executive functions). Data were analysed with t Test.

Results: The hemineglect group had significantly inferior performance ($p < 0.05$) regarding conversational and narrative discourse, verbal fluency, linguistic and emotional prosody, time and space orientation, face perception and reflexive praxia.

Conclusions: Few differences can be directly attributed to the neglect syndrome, which indicates that the occurrence of this attention and perception impairment cannot directly justify other cognitive or communicative deficits.

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Other

A. JANSARI, S. MILLER, L. PEARCE, J. CHAN & A. NICHOLLS. The Man Who Mistook His Neuropsychologist For a Popstar: When Configural Processing Fails in Selective Prosopagnosia.

Objective: Empirical evidence suggests that prosopagnosia is due to an impairment in 'configural' visual processing (e.g. Farah, 1994). We report the case of a patient, DY, who, following a right posterior cerebral haemorrhage suffers from extremely impaired face-recognition. The specificity of DY's prosopagnosia as well as the cognitive underpinnings of his deficit was explored in the current detailed single case study.

Participants and Methods: DY and matched controls participated in a series of experiments that addressed different levels of face-processing. Tests of within-category object-naming and facial emotional recognition addressed the specificity of DY's prosopagnosia. Adaptations of Moscovitch, Winocur & Behrmann's (1997) and Calder, Young, Keane & Deane's (2000) paradigms manipulated configural versus featural processing to explore DY's recognition of identity and emotion.

Results: DY performed normally for within-category discriminations and recognition of emotions highlighting the specificity of his prosopagnosia. Further, on a test of configural processing of emotions, he performed normally whilst on tests of configural processing of identity, his performance was significantly impaired.

Conclusions: The results offer support for the theory that face recognition relies heavily on configural processing. Intriguingly, a dissociation between configural processing of emotions and identity is suggested. The bearings these findings have on neuro-cognitive models of face-processing are discussed.

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J. SALVADOR, N. ALVARADO, C. SILVA & C. ARMENGOL. Neuropsychological deficits in young Mexican women at risk for developing eating disorders.

Objective: Objective: Few studies have addressed whether neuropsychological deficits exist in individuals that will later develop eating disorders (ED), but there are indications that this may be the case, and that these may contribute to development to ED. No studies of this nature exist in Mexico. This investigation sought to determine whether deficits could be found in a Mexican population, and, if present, how these compare to those seen in ED, and results found in the literature.

Participants and Methods: Method: Participants were drawn from 16-20 year old women high school and university students. They were administered the Eating Attitudes Test -40 (EAT-40). A cutoff score of > 28 points was utilized to assign 30 volunteers each to the at-risk and control groups.

The WAIS-IV), Rey Osterrieth Complex Figure, Tower of London, and Object Alternation Test were individually administered.

Results: Results: The at-risk group did significantly worse on planning, organization, cognitive flexibility, and self-regulation. This was true for visuocognitive tasks, where fragmentation, spatial orientation, and memory difficulties were found.

Discussion: Findings support the hypothesis that neuropsychological dysfunction accompany are present in young women at risk of developing ED.

Conclusions: Implications: Longitudinal studies must be conducted to establish a more definite link between these findings with the manifestation of EDs, and to compare neuropsychological functioning before and after their emergence.

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Sex Differences/Sex Hormones

C. SEGALAS, P. ALONSO, J. LABAD, A. PERTUSA, E. REAL, J. MENCHÓN & J. VALLEJO. **Gender Differences in Memory Processing in Obsessive Compulsive Disorder.**

Objective: Clinical and genetic data suggest sexual dimorphism in Obsessive-Compulsive Disorder (OCD), although results of neuropsychological studies have been less conclusive in this area. The objective of our study is to analyze the existence of gender differences in neuropsychological performance between male and female patients with OCD compared with healthy men and women.

Participants and Methods: We studied 50 patients (31 male, 19 female) with OCD who were matched for sex, age, educational level and hand dominance with 50 healthy controls (HC). A neuropsychological test battery was administered, which included tests of intelligence, attention and nonverbal memory.

Results: We used multivariate analysis of covariance to test for significant sex differences across neuropsychological functions, with independent predictors being sex, group, and sex-by-group interaction. Male patients demonstrated worse scores in the execution of nonverbal memory tasks compared with male controls, while the cognitive performance of female patients compared to healthy females was preserved.

Conclusions: These results suggest the existence of a different cognitive pattern depending on the sex of the patient.

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Stroke

D.G. ANDREWES, N. COETZEE, F. KHAN & T. HALE. **Adherence to Medication and Rehabilitation in Stroke and Amputees Living in the Community.**

Objective: Adherence to treatment has implications for the successful recovery of patients following stroke. This study aimed to investigate the correlates of adherence to medication and rehabilitation in patients following stroke compared to a non-brain damaged group of amputees with similar physical disability and systemic disease.

Participants and Methods: 136 stroke patients and 119 amputee control patients living in the community following rehabilitation were assessed at 6 weeks and 9 months following rehabilitation. Medical adherence was determined from computed adherence metrics based on pill counts and subjective reports of patient knowledge of medication use. Rehabilitation attendance was documented from clinician accounts and hospital attendance records. Assessments were designed to test a model under six components: demographic variables, social support variables, emotional variables, cognitive variables, health belief variables, and structural or disease variables.

Results: The levels of adherence are reported for the different drug categories. Levels of adherence for stroke patients were arguably sub-therapeutic on average and were lower than amputee patients. Multiple regression models for each group found that first emotional dysfunction, secondly cognitive dysfunction and thirdly health beliefs contributed to medication adherence with more mixed results for rehabilitation attendance. These results are also reported in terms of lesion location and presence or absence of a carer.

Conclusions: These findings are useful in identifying a specific profile of impairments that identify the non-compliant stroke patient. The results are further discussed in terms of the quality of contributing factors that appear to be especially relevant to brain damaged groups in general.

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S. FERNÁNDEZ, I. GONZALEZ, D. CÁNOVAS & M. JÓDAR. **NEUROPSYCHOLOGICAL DEFICIT IN PATIENTS WITH INTERNAL CAROTID ATHEROSCLEROTIC STENOSIS AND ENDOVASCULAR TREATMENT.**

Objective: Internal carotid atherosclerotic stenosis is a known risk factor for ischemic stroke. The neuropsychological profile of these patients and the effect of carotid artery stenting (CAS) in cognitive functions remain controversial.

This study analyzes the neuropsychological deficit associated with carotid atherosclerosis and the possible cognitive changes post-treatment with CAS.

Participants and Methods: A complete neuropsychological assessment was administered to 10 subjects (64-82 aged) with symptomatic atherosclerotic stenosis before CAS. The cognitive assessment was repeated 1 and 3 months after treatment. 5 of the 10 subjects were affected with right stenosis and the other 5 with left stenosis.

Results: The neuropsychological study showed under-average scores in Visual Reproduction (VR), Visual Reproduction Delayed Recall (VRDR) and Mental Control of the WMS, Visual Form Discrimination, Visual Recognition Test, Judgement Line Orientation of Benton, Stroop Test, TMT and Fonetic Verbal Fluency.

30 days after treatment, significant differences were observed in Word List first essay, Word List Learning and Delayed Recall, and VR of the WMS. 3 months after CAS significant improvement was found in Word List first essay, Word List Learning and Delayed Recall, VR and VRDR. Significant differences were not observed between the right and left stenosis group.

Conclusions: Patients affected with internal carotid stenosis present a fronto-subcortical pattern characterized by deficits in executive functions, information processing speed, psicomotor speed, visual memory and visuospatial abilities.

The neuropsychological deficits are independent of the internal carotid stenosis localization (right-left) what could be explained by the vascular compensatory brain mechanisms.

CAS improved verbal memory and visual memory in our internal carotid atherosclerotic stenosis patients.

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S.D. RODRIGUES, S.M. CIASCA & M.V. MOURA-RIBEIRO. **Effect of lesion on learning and academic skill in childhood stroke.**

Objective: Few studies have provided more detailed information about poststroke function and little is known about long-term cognitive functioning in children who have stroke. The aim of this study is to evaluate the effect of lesion on learning and academic skill in childhood stroke.

Participants and Methods: We used the Piaget's clinical method and Academic Skill Test to evaluate children of GE and GC. The SPSS for Windows (version 10.0.5) were used to analyze the statistics and the significance level adopted was $p < 0.05$.

Results: Results: Six children of GE have severe cognitive impairment and they did not answer to any type of evaluation. Comparing the cognitive structures by Piaget's clinical method of 29 children of GE and 29 children of GC we observe that GE has performance significantly inferior to the GC. In relation to academic skill, we observed that 10 (34%) of GE had resulted below of the waited one in writing, arithmetic and reading and seven have resulted below of the waited only in arithmetic. The comparison between GE and GC showed that the GC had statistical significant performance to GE in all the evaluations.

Conclusions: We conclude that the brain damage affected the learning and academic skills the children who have stroke.

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S.D. RODRIGUES, S.M. CIASCA & M.V. MOURA-RIBEIRO. Working memory in children with brain damage.

Objective: Working memory (WM) is the most significant achievement of mental evolution. WM is important because it mediates the development of many complex cognitive and academic skills. Studies show that stroke can affect WM, however there are few studies in childhood. The aim of this study was to assess WM in children's brain damage.

Participants and Methods: Twenty nine children who have stroke (GE) and 29 children without neurological injury (GC) were evaluated. The aged of the children were from 7 to 15 years old. WM was evaluated by test that involves successive tasks of nomination, association and memory (immediate and delayed) of 30 figures. The SPSS Program (version 7.5) was used to do statistics analyze.

Results: Eighteen children had ischemic stroke, nine had hemorrhagic stroke and two had both (ischemic and hemorrhagic stroke). Age of the onset, age of assessment, recurrence, localization and type of injury did not influence the performance of the GE. However, the comparison between GE and the GC showed that the GC had better performance in the immediate memory ($p=0,000$) and in the delayed memory ($p=0,000$) (Mann-Whitney Test).

Conclusions: We conclude WM was affected in children who had stroke
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A. URZÚA & F. RODRIGUEZ. DETERIORO NEUROPSICOLÓGICO EN PACIENTES CON ACCIDENTE CEREBRO VASCULAR.

Objective: Elaborar un perfil de deterioro neuropsicológico de las diversas funciones cerebrales superiores causado por un ACV

Participants and Methods: 50 pacientes de la Unidad de Medicina Física del Hospital San José al cual se le administró un Protocolo de Evaluación Neuropsicológica, comparándose luego con un grupo control de 50 sujetos evaluados con el mismo protocolo.

Results: Un 20% de la población con ACV evaluada presenta deterioro en al menos uno de los ítems evaluados, siendo las funciones ejecutivas, la memoria a largo plazo y la memoria a corto plazo las áreas mayoritariamente afectada en la población evaluada.

Conclusions: Las principales áreas afectadas fueron las funciones ejecutivas y las memorias a corto y largo plazo, hallazgo reportado en investigaciones similares que destacan las funciones ejecutivas y la memoria como el principal deterioro encontrado en pacientes ACV

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L.Y. VIVAS, S. GONORAZKY & J. VIVAS. Semantic Distance Judgement in Stroke Patients.

Objective: The semantic network processing approach states that the meanings of words are embedded in networks of other meanings. The concepts are represented as nodes that are interconnected to other nodes within the network. The concepts of the same semantic category would be nearer so that they would generate subgroups. In tasks of semantic distances judgement, healthy subjects tend to estimate major proximity between those concepts that belong to the same category. Several studies have found people with brain injuries who failed in this type of tasks. The aim of the current research is to analyze the characteristics of the process of semantic distances judgement and the configurations of the resultant networks in patients with brain injury consequence of stroke.

Participants and Methods: It has been administered the Distsem method to 25 stroke patients twice -one and three months post stroke- and to 25 healthy controls. The Distsem method is an instrument that allows to obtain the configuration of a network of concepts depending on the semantic distance judgement realized by the subjects between pairs of concepts of different and equal semantic category.

Results: In the current poster we analyse quantitatively and qualitatively the erroneous patterns found among patients and compare between: the production of the same patient in different moments, the production of the patients among them and with the productions of healthy controls.

Conclusions: The data shows that some patients tend to fail in the searching process within the network, particularly in the control of the spreading of the activation to look for the similarities requested in the task.

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Traumatic Brain Injury

M. MARZBAN, M. BAKHTIARY, M. MEHDIZADEH, M. JOGHATAEI, S. KHOEI & V. PIR HAJATI. Effect of intravenous transplantation of Human umbilical cord matrix stem Cell (Wharton jelly stem cell) on functional recovery After Traumatic Brain Injury In Rats.

Objective: Objective—This study was designed to investigate the effects of human umbilical cord matrix stemcell (hUCMC) administration in rats for one months after traumatic brain injury (TBI).

Participants and Methods: Methods—Adult male Wistar rats ($n = 30$) were injured with controlled cortical impact and divided into three groups. The treatment groups ($n = 10$ each) were injected with 2×10^6 intravenously, and vehicle group ($n=10$) received phosphate buffered saline (PBS). whereas the control group ($n = 10$) receive nothing All injections were performed 1 day after injury into the tail veins of rats. All cells label with Brdu before injection into the tail veins of rats Neurological functional evaluation of animals was performed before and after injury using Neurological Severity Scores (NSS). Animals were sacrificed 1 months after TBI and brain sections were stained by Brdu immunohistochemistry

Results: Results—Statistically ANOVA testing significant improvement in functional outcome was observed in treatment groups when compared with control ($p < 0.05$). This benefit was visible 14 days after TBI and persisted until 1 months (end of trial). Histological analysis showed that (hUCMC) were present in the lesion boundary zone at 1 months with all injected animal

Conclusions: Conclusion—hUCMC injected in rats after TBI survive until 1 months and provide functional benefit. Functional improvement may be attributed to stimulation of endogenous neurorestorative functions such as neurogenesis and synaptogenesis.

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I. BLOOMFIELD, J.J. EVANS & C.A. ESPIE. The Prevalence of Insomnia Following Traumatic Brain Injury: A Systematic Review of the Literature.

Objective: Insomnia is a common complaint after traumatic brain injury (TBI) which can exacerbate other clinical sequelae, and have negative implications for quality of life and rehabilitation progress. However, the prevalence of insomnia after TBI is unclear, with considerable variation in findings. Non-systematic reviews have been conducted previously, but they were limited by a scarcity of literature. The aim of the current systematic review was to: update the current state of knowledge in this area; answer key questions about the prevalence of insomnia after TBI and the factors influencing prevalence rates; and through consideration of methodological strengths and weaknesses to make recommendations for future research.

Participants and Methods: Eleven studies that looked specifically at sleep and TBI were identified from a systematic literature search that applied defined inclusion/ exclusion criteria. Studies were rated according to specified quality criteria. Data relating to the prevalence of insomnia were extracted.

Results: Prevalence rates for insomnia complaints reported in reviewed studies ranged from 4% to 92.6%; median 37%. The rate of people who had sustained a TBI meeting diagnostic criteria for insomnia was consistently reported to be between 25 to 30%.

Conclusions: Despite heterogeneity between studies, a consistent conclusion was that rates of insomnia in TBI samples were significantly higher than rates of insomnia in the non-injured population. We suggest that TBI patients should be screened for sleep disturbances using validated tools (PSQI and ISI). The review highlights the importance of access to psychological support so that individualised formulations and bespoke interventions can be developed. Several methodological recommendations are made. Correspondence: *Imogen Bloomfield, D Clin Psy, NHS Greater Glasgow and Clyde, Glasgow Royal Infirmary, Ward 23, Surgical Block, Glasgow G4 0SF, United Kingdom. E-mail: imogenbloomfield@yahoo.com*

K. BELL, J. HOFFMAN, N. TEMKIN, J. POWELL, R. FRASER, P. ESSELMAN, J. BARBER & S. DIKMEN. The Effect of Telephone Counseling on Reducing Post-traumatic Symptoms after Mild Traumatic Brain Injury: A Randomized Trial.

Objective: Mild traumatic brain injury (MTBI) is a significant public health problem affecting approximately one million people annually in the United States. Ten to fifteen percent are estimated to have persistent post-traumatic symptoms. We wished to determine whether focused, scheduled telephone counseling during the first 3 months after MTBI decreases symptoms and improves functioning at 6 months.

Participants and Methods: This was a two-group, parallel, randomized clinical trial with outcome assessed by blinded examiner at 6 months after injury. 366 of 389 eligible subjects age 16 or older with MTBI were enrolled in the emergency department with an 85% follow-up completion rate. Five telephone calls were completed, individualized for patient concerns and scripted to address education, reassurance, and reactivation. Two composites were analyzed, one relating to post-traumatic symptoms that developed or worsened after injury and their impact on functioning; the other related to general health status.

Results: The telephone counseling group had a significantly better outcome for symptoms (6.6 difference in adjusted mean symptom score, 95% confidence interval (CI) 1.2 to 12.0), but no difference in general health outcome (1.5 difference in adjusted mean functional score, 95% CI -2.2 to 5.2). A smaller proportion of the treatment group had each individual symptom at assessment. Similarly, a smaller proportion of the treatment group had daily functioning negatively impacted by symptoms with the largest differences in work, leisure activities, memory and concentration, and financial independence.

Conclusions: Telephone counseling, focusing on symptom management was successful in reducing chronicity of symptoms after MTBI.

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S. LUJAN, G. PETRONI, M. CHERNER, N. CARNEY, S. DIKMEN, N. TEMKIN, C. RONDINA, W. VIDETTA & R. CHESNUT. Traumatic Brain Injury in Latin America.

Objective: OBJECTIVES: Little is known about TBI in developing countries. With NIH funding, the Latin American Brain Injury Consortium (LABIC) and other North and Latin American entities, are conducting research and teaching programs about TBI. The specific aims are:

- 1) In a randomized controlled trial (3 trauma centers in Bolivia, n=300), test the effect of management of severe TBI based on ICP monitoring vs. a standard empiric protocol.
- 2) In a prospective, observational study (7 trauma centers in 5 Latin American countries, n=900), test the association between resource availability/medical management and outcomes.
- 3) Create sustainable research capacity by establishing a network of centers with investigators trained and skilled in the design, conduct, and funding of research programs to address TBI and other brain disorders in Latin America.

Participants and Methods: Data include acute care information and follow-up to 6 months after injury with the GOS-E and other measures of functional status. For the clinical trial, outcomes will also include neuropsychological assessment using a battery of measures translated and used cross-culturally by UCSD collaborators. The battery includes measures of episodic memory, information processing speed, executive functions, and attention/working memory.

Results: The first full year of the project was devoted to set-up and training. Two investigators' meetings were held in Bolivia, one involving approximately 45 people ranging from Hospital Directors to data collectors. Computers were installed, forms and a data dictionary were developed, and a training program began. Patient accession will commence in May of 2008.

Conclusions: These series of studies should provide valuable information about outcome of TBI in Latin America, how resource availability and medical management relate to outcome, and cross cultural issues in studies of TBI

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A.T. MARTINS, M.G. JUSTO, C.P. SIMÃO, F.G. ESTEVES & A.I. REIS. Social and Basic Emotion Recognition Following Traumatic Brain Injury.

Objective: Our objective is to observe changes in social and basic emotional behaviour of subjects following traumatic brain injury (TBI).

Participants and Methods: In this study we investigate the processing of social and basic emotions in a sample of 10 TBI participants' matched by age and education to a group of 10 participants. It was designed a Go/No-Go task, where each participant had to recognize faces representing three social emotions (arrogance, guilt and jealousy), and a basic emotion recognition task, where each participant had to recognize the five basic emotions in study (happiness, fear, sadness, anger and surprise).

Results: Our results suggested that TBI participants' recognition of basic and social emotions was significantly reduced relative to controls for the emotions tested. Although we observed a superior effect size, between groups, in the basic emotion task (Cohens $d = 0.54$) compared with the social emotion task (Cohens $d = 0.24$).

Conclusions: We discussed this results within the framework suggesting that the frontal lobe damage as an influence in the emotion recognition, particularly in basic emotions.

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C.M. ZAFIRIS, E. MCCONNELL, A.G. SCHRADER, E.M. MANTERIS & R.C. D'AMATO. What clinical Neuropsychologists Need to Know about TBI and School Law to be Successful.

Objective: Due to medical reorganizations, the public schools have become the most popular place for children and youth to receive neuro-rehabilitation services. Because of the unique demands of the educational enterprise, this setting may be unfamiliar territory to many clinical neuropsychologists. This poster will integrate the unique practice requirements that are necessary for practitioners to achieve success in this complex area. Public school law and ethical guidelines will provide a foundation that will bridge the gap between the neurosciences and educational practice.

Participants and Methods: A number of authors have addressed the unique demands of neuropsychological practice in the public school setting (Reynolds & Fletcher & Fletcher-Janzen, in press; Reynolds & Hynd, 2005). The primary laws, beginning with PL 94-142 (1975); Section 504 of the Rehabilitation Act (1973); America's with Disabilities Act, 1966; and Individuals with Disabilities Education Improvement Act (2004) will be reviewed and contrasted with current practice in neuropsychology including use of the DSM-IV-TR.

Results: Many practitioners in the neurosciences are not familiar with the requirements of school law. For example, the School Individual Educational Plan serves as a legal document between the school and family, guaranteeing services for children with disabilities. Information will be synthesized to provide recommendations regarding school law and ethical practice when serving children and youth with neuropsychological disorders.

Conclusions: Attendees will be informed of legal and ethical guidelines in education—that will allow clinical neuropsychological to successfully practice within the schools.

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D. PÉREZ MOJICA & R.A. GONZÁLEZ. Neuropsychological Profile of Puerto Rican War Veterans with Blast-Induced Traumatic Brain Injury.

Objective: Soldiers returning from the current war in Iraq are exposed to several sources of brain injury. Blast-induced TBI is being recognized as the current wars' signature injury, with reports varying between 30 to 60 percent of all injuries among American troops. Soldiers are also exposed to Improvised Explosive Devices (IED), leading to direct wounds mostly by blows to the head in the aftermath of the explosions. Further complications arise by the potential comorbidity with other neuropsychological or psychiatric disorders (e.g., PTSD, PCS) and their cognitive sequelae. Even though this is one of the most common causes of injury in war veterans, literature on the subject is limited. The lack of information regarding specific cognitive deficits after blasts injuries might lead to denial of rehabilitation services or omission of proper treatment and care.

Participants and Methods: We will present demographic, clinical and test performance data from 12 soldiers referred for assessment after war-related damage.

Results: The majority of these patients displayed diminished activity in tasks related to frontal and temporal areas. Mild executive, attentional and processing slowing deficits were observed in most veterans evaluated.

Conclusions: Implications and recommendations for neuropsychological assessment and treatment will be discussed. Also, we will present guidelines for establishing differential criteria between PCS, mild TBI and PTSD. Awareness must be raised on the potential deficits that are and will be detrimental to a great proportion of soldiers in the years to come.

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E.J. NIGHTINGALE, C.A. SOO & R.L. TATE. Early prognostic factors for return to work after traumatic brain injury: A systematic review.

Objective: Return to work (RTW) has been identified as being a key goal following traumatic brain injury (TBI), with estimates ranging from 10% to 70%. Prediction of post-injury employment is important for planning rehabilitation and structuring individualised vocational services. This paper presents a systematic review identifying variables and their prognostic value for RTW following TBI.

Participants and Methods: Studies examining prognostic factors were identified by searching four electronic databases, with last search performed on June 2006. Searches yielded 1,948 studies of which 55 met inclusion criteria and were subsequently rated for methodological quality. Mean methodological score for included studies was 3.9/6 (SD 0.9, range 1-6).

Results: Analysis focused on a subset of 27 studies which provided sampling from all three domains of pre-injury, injury and early post-injury variables. Few studies considered preinjury variables, apart from simple demographics. Only five studies considered preinjury employment, which was a significant predictor in each case. Severity of injury variables were invariably examined, but were significant predictors in only 8/27 studies (30%). For early post-injury variables, 14/27 studies entered cognitive vari-

ables with 12/14 (86%) identifying them as significant predictors; 3/27 studies examined neurophysical variables, with 2/3 (67%) studies finding them significant; and 12/27 studies examined multidimensional/participation variables which were statistically significant individual predictors in 8/12 (67%).

Conclusions: The results are discussed in the context of methodological issues encountered during the course of the review that require addressing in future studies.

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S.Y. TAY & S.L. COLLINSON. Understanding the Underlying Cognitive Mechanisms of Prospective Memory in Traumatic Head Injury.

Objective: Prospective memory functioning has been theorized to involve several stages and is supported by a range of cognitive abilities including executive functioning, retrospective memory, processing speed and attention. Despite its importance for independent functioning, there is a dearth of research pertaining to the traumatic brain injury (TBI) population. Furthermore, the underlying cognitive mechanisms of prospective memory failures are poorly understood.

We aim to achieve a better understanding of prospective memory and its underlying cognitive mechanisms in TBI.

Participants and Methods: Forty mild TBI patients were given a range of neuropsychological tests measuring multiple cognitive domains at 2 time points (within 2 weeks and at 3 months post injury). The extent of recovery in each individual cognitive domain and its impact on prospective memory performance post-acutely is explored

Results: Preliminary data showing the relative influence of attentional and executive abilities in the recovery of prospective memory abilities following TBI will be presented. Inferences regarding the important factors that determine prospective memory ability will also be discussed.

Conclusions: Deficits in different cognitive domains have selective impacts on the integrity of prospective memory following TBI and recovery from TBI results in domain specific improvements over time.

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I. TORRES & G. MIRANDA. Executive functions in adults with severe traumatic brain injury from de National Institute of Neurology and Neurosurgery.

Objective: The purpose of the present study was to describe and compare the impairments in the executive functions in a Mexican sample.

Participants and Methods: A sample of 9 patients with severe TBI that received medical attention in the National Institute of Neurology and Neurosurgery, were evaluated with neuropsychological tests of executive functions, the mean age was 36.2 years and $x=12.4$ years of education, with $x=64.22$ months of recovery. Patient group was matched by age, sex, and education. The neuropsychological tests included 5 tasks: Stroop, Set Test, Trail Making Test, Tower of London and the WCST, tests were administered individually in two sessions. A non parametric test was realized.

Results: TBI group shows a poor execution with statistical differences in the five tests. Interestingly, a difference in the quality of execution and the information processing speed was found.

Conclusions: TBI patients have difficulties in the executive functions even 6 years following the lesion. The assessment of executive functions is necessary to understand the process of cognitive outcome and allows the creation of specific neuropsychological rehabilitation programs.

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SATURDAY MORNING, JULY 5, 2008

**Symposium 26:
Addiction, Dual Diagnosis and Neuropsychological
Skills**

Chair: Jose Martinez-Raga

8:30–10:00 a.m.

**J. MARTINEZ-RAGA, N. SZERMAN, J. DIDIA-ATTAS & G. HARO.
Addictions, Dual Disorders and Neuropsychological skills.**

Symposium Description: Addictive disorders are chronic relapsing disorders associated with high levels of morbidity and disability. Relapse is a common problem which often is precipitated as a consequence of high levels of craving. Different factors are implicated in the neurophysiology of craving. Attention, attentional bias, and attentional deficits are key in understanding the craving and therefore can be helpful targets in counseling to prevent relapse. Similarly, the effects of certain medications that may enhance cognitive skills and thus improve the patients ability to confront craving and have better treatment outcomes. Finally, the complex relationship and the neurocognitive of cannabis abuse and schizophrenia will be explored as well.

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M. JOSE. Medications to enhance cognitive resources to avoid relapse.

Objective: To assess the evidence from the scientific literature of different pharmacological agents that may be helpful in improving cognitive resources to avoid substance use in general, psychostimulant abuse in particular, to engage in psychosocial treatments, and to reach better cocaine use outcomes.

Participants and Methods: A comprehensive search from a range of electronic databases was conducted to February 2008. In addition, references in empirical articles and narrative and meta-analytic reviews were used for further potential sources of articles.

Results: The aparent positive effects observed on specific neuropsychological tests particularly in certain patients groups suggests an inhibition of impulsive responding, which may allow for other cognitive processes to enter into the decision-making process and enhance the ability to decide whether to use or not. Medications like modafinil has been found to improve cognitive functions in several domains dependent on prefrontal cortex and cognitive control, and compared to placebo, administration of modafinil is associated with greater activation of the dorsolateral prefrontal cortex. The dorsolateral prefrontal cortex, with projections to the prefrontal cortex, amygdala, nucleus accumbens and ventral tegmental area, is involved in reward, motivation, cue-elicited craving and decision making circuits providing the substrate for integration of cognitive control (choice) and motivationally relevant information and the inhibitory control over seductive options fostering the promise of immediate reward. Furthermore, in cocaine-addicted individuals it seems that reduced frontal lobe metabolism could explain important clinical phenomena such as denial and the loss of control.

Conclusions: Certain medications may ne helpful not inonly in reducing craving, but in improving cognitive resources to allow long-term abstinence.

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J. DIDIA-ATTAS. Craving and cognitive deficit in decision making.

Objective: To explore the key components of craving or “compulsive desire” and to assess the results from a case series of outpatient cared cocaine dependent individuals.

Participants and Methods: A literature review will be conducted and a group of cocaine dependent individuals treated individually assessed using different craving scales will be presented.

Results: From the original studies conducted by Wikler the theoretical formulations on craving have changed and adapted aspects from the psychodynamic and from the neurobiological formulations. The evolution of the the concept has given increasing relevance to psychological aosects, which has become the upmost significant from the clinical perspective.

Conclusions: Several theoretical models of craving such as he neuroadaptive and processing cognitive have become more relevant and clarifying. However, management of craving requires assessment of neuropsychological state, mainly related to decision making.

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N. SZERMAN. Dual Pathology in Schizophrenia and cognitive disorders.

Objective: To review and update the state of basic and clinical research in the complex and clinically relevant field of comorbidity between Schizophrenia and substance use disorders and its relationship to cognitive disorders, as well as its implications to treatment.

Participants and Methods: A literature review of the relevant electronic databases.

Results: Community epidemiological studies reveal a high comorbidity between schizophrenia and substance use disorders, nearly fourfold that observed in general population. This dual disorder has been linked with dopaminergic dysfunction fronto-subcortical, relevant to pathoohysiology of schizophrenia, cognition (executive) and addictive behaviors. Other studies indicate the importance of a hypofunction of cortico-limbic NMDA receptors NMDA cortico-límbicos, implicated as well in addiction and cognitive disorders.

Tomados por separado, ambos tipo de trastornos presentan déficits y alteraciones cognitivas, los pacientes con esquizofrenia un 60-80% de ellos (4) y de forma mas reciente comienza a surgir interés por la presencia de estas disfunciones neuropsicológicas en la situación clínica conocida como patología dual.

Las diferentes sustancias objeto de abuso y dependencia por parte de los pacientes con trastornos del espectro de la esquizofrenia presentan al parecer un correlato distinto en el funcionamiento cognitivo por lo que es importante el conocimiento si estamos en presencia de patología dual con alcohol, nicotina, cocaína, cannabis, benzodicepinas etc.

Conclusions: Studies confirm the long-suggested adverse effects of alcohol on cognitive functioning. With regards to cannabis results from studies are somehow in schizophrenia, as neuropsychological results may even improve or show the otally opposite.

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G. HARO. Brief Psychotherapy within Dual Disorders.

Objective: To present the adaptative changes of Brief Motivational Psychoeducational Therapy, its inclusion criteria, as well as its advantages within an integrative treatment from a transdisciplinary standpoint.

Participants and Methods: To present the outline of Brief Motivational Psychoeducational Therapy and its main characteristics.

Results: Dual diagnosis is a priority in daily practice particularly regarding those patients with severe mental illness, who become often more difficult and resistant ti manage and show worse outcomes. Therefore, we devised a novel therapeutic approach, termed Brief Motivational Psychoeducational Therapy, to be applied in different settings.

Conclusions: This novel psyhchiterapeutic approach have been implemented sucesfully in different settings to improve outcomes.

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**Symposium 27:
Social Behaviour and Social Cognition Deficits in
Schizophrenia and Traumatic Brain Injury.**

Chair: Maarten Milders

8:30–10:00 a.m.

S. MCDONALD & A. SAAD. Is Implicit Social Knowledge Impaired in Adults with Severe Traumatic Brain Injury?

Objective: The role of the frontal lobes (FL) in social judgements is controversial. It may be that social stereotypes (schemas) that influence behaviour are mediated by FL systems. FL activation has been reported when making judgements of gender, race, dominance and general attractiveness of faces. Patients with FL lesions show less regulation by implicit gender stereotypes on a reaction time task than controls. Alternatively, FLs may regulate environmentally evoked responses in order to meet internal (social) goals. Thus FL damage may impair regulatory mechanism rather than the schema themselves. This study aimed to contrast these two theories using the Implicit Association Test (IAT) that measures implicit values compared to those explicitly reported.

Participants and Methods: 14 adults with severe, chronic, traumatic brain injury (TBI) (mean PTA = 95 days; mean time post injury = 11 years) and 14 demographically matched controls were compared for reaction time of responses to both stereotypically consistent word pairs (e.g. “male/strong”) and inconsistent pairs (e.g. “male/weak”) (IAT effect). Participants also completed two questionnaires tapping explicit, gender stereotypic views and a range of executive functioning measures.

Results: The TBI group was slower than controls but showed a similar IAT effect. Implicit stereotypic behaviour was correlated to explicit values in the TBI group but not the control participants. Processing speed was correlated to IAT performance. Working memory was associated to explicit stereotypes in the TBI group while mental flexibility was associated with explicit stereotypic views in controls.

Conclusions: This study supports the executive dysfunction account of post-morbid social deficits.

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A.S. COHEN. Social Cognitive Biases Across the Schizophrenia Spectrum: Believing is Seeing.

Objective: Patients with schizophrenia exhibit impairment in their ability to accurately recognize facial emotions in others, a social cognitive ability that has been associated with poor functioning. The prevailing thought concerning this impairment is that it reflects more basic neurocognitive deficits (e.g., attention). In the present talk, we present evidence to suggest that, for individuals with certain symptoms, emotion perception impairments reflect higher-order cognitive biases. That is, some individuals consistently misinterpret other peoples’ facial expressions as having an overly negative valence. Our model holds that this social cognitive bias disrupts individuals’ functioning abilities.

Participants and Methods: Data will be presented from two separate studies, one involving chronic patients with schizophrenia and the other involving healthy adults with schizotypic features. Non-psychiatric control subjects were also recruited for each study. All subjects completed a well-validated facial emotion recognition test and measures of functional ability.

Results: Neither patients nor schizotypic individuals differed from their respective reference groups in emotion perception biases. For both groups however, severity of specific symptoms was associated with increasing negativistic perceptual biases. This was particularly pronounced for disorganized symptoms in the schizotypic group. For both groups, emotion perception biases were also associated with real-world impairments.

Conclusions: Social cognitive biases in emotion perception affect functioning in individuals across the schizophrenia spectrum. The lack of an isomorphic attribution bias highlights the importance of considering illness heterogeneity when attempting to understand and treat social cognitive deficits.

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M. MILDERS, J.M. SPIKMAN, S. MCDONALD, K. KUCHARSKA-PIETURA & A.S. COHEN. Social behaviour and social cognition deficits in schizophrenia and traumatic brain injury.

Symposium Description: Impairments in social behaviour are serious consequences of brain injury or psychiatric illness. A better understanding of the causes of and deficits underlying these behavioural impairments is important for improving prediction and intervention. There has been a growing interest in deficits in social cognition and their relationship with social behaviour and this symposium will bring together recent work in this area. The symposium will present research in two patient groups in whom changes in social behaviour are frequently observed, namely patients with schizophrenia and patients with traumatic brain injury (TBI). To date, most work on the relationship between social cognition deficits and behaviour has also been carried out in these two patient groups.

Kucharska-Pietura et al. will discuss social cognition in patients with schizophrenia at different stages in their illness and show that social cognition deficits are already present at earlier stages and are state-independent. Cohen will report work showing that negative biases in the interpretation of facial expressions are associated with symptom severity in schizophrenia patients. Spikman et al. will present research in patients with TBI on the overlap between social cognition and executive functioning and address the question whether a single deficit in self-regulation could underlie the behavioural problems following TBI. McDonald and Saad’s contribution will focus on implicit social cognition in TBI patients and its relationship with behaviour and executive control. Finally, Milders et al. will report an association between impaired recognition of complex facial emotions and ratings of social behaviour in patients with severe TBI.

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J.M. SPIKMAN, W. VEENSTRA, J. VAN DER NAALT, M. MILDERS & W. BROUWER. Impaired Social Cognition in TBI Patients and its Relation to Executive Dysfunction, Injury Severity and Frontal Abnormalities on Imaging.

Objective: Severe TBI often results in problems concerning the regulation of complex behaviour. Prefrontal areas play an important role in these regulative functions; dorsolateral areas are involved in executive functions (planning and regulation of tasks) and ventromedial and orbitofrontal areas in social cognition (adequate behaviour in social/ interpersonal situations). For assessment of executive dysfunction many tests are available, but measurement of social cognition deficits is difficult: well-normed standardized tests are lacking. However, there are experimental tasks tapping elements of social cognition, for instance emotion perception, theory of mind (ToM) and empathy. Our main questions pertained to whether aspects of social cognition were impaired in TBI patients, and how these aspects were related to each other, and to elements of executive functions. Is there a single underlying deficit in self-regulation or can these functions be variably impaired? Which injury-related factors are of influence?

Participants and Methods: Performance of a group of 25 chronic TBI patients was compared to a matched group of 26 healthy controls on a range of social cognition and executive function measures.

Results: T-tests showed that patients performed worse on executive as well as social cognition measures. Within-patient group analyses showed no correlations between different measures of executive function, some correlations between measures of social cognition but no correlations between measures of both domains.

In this severe TBI group, injury related characteristics such as PTA duration and frontal lesions did not influence test performance.

Conclusions: The findings suggest that social cognition and executive functions can be variably impaired and there is no general underlying deficit in self-regulation.

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M. MILDERS, M. IETSWAART, J.R. CRAWFORD & D. CURRIE. An Association Between Impaired Emotion Recognition and Behaviour Following Traumatic Brain Injury.

Objective: Changes in social behaviour following traumatic brain injury (TBI) are well documented, but relatively little is known about possible underlying neuropsychological deficits. In a recent study we found no association between behavioural problems and impairments in emotion recognition, understanding other people's intentions or cognitive flexibility in TBI patients. Thus casting doubt on the alleged link between social cognition and social behaviour. The current paper investigates whether the absence of associations in our original study was due to: 1. the use of prototypical facial expressions; 2. the inclusion of both mild and severe TBI patients.

Participants and Methods: Recognition of facial expressions that showed a mix of emotions, obtained through computer morphing, was correlated with proxy ratings of behaviour one year post-injury in the same TBI patients (n=33) who participated in the original study. Behavioural ratings were obtained with three questionnaires: NBAP, KAS-R and DEX.

Results: TBI patients who were rated as poor in their social communication, as assessed with the NBAP, were more impaired at recognising emotions in morphed faces. This association was particularly strong in patients (n=13) with severe TBI (GCS<10). Only within this severe group did recognition of morphed expressions, but not of prototypical expressions, correlate significantly with ratings of post-injury behaviour on the KAS-R and DEX questionnaires: poorer emotion recognition was associated with more severe behavioural problems.

Conclusions: These findings suggest that emotion recognition of more subtle, and therefore more realistic, emotional expressions may be associated with problems in social behaviour, especially in patients with severe TBI.

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**Paper Session 6:
Children: Developmental and Acquired Disorders
(ADHD, TBI, HIV, Agenesis of Corpus Callosum)**

8:30–10:00 a.m.

M.F. DORREGO, S. ANA, Y. VASCHETTO, R. FESTINO & V. RAMIREZ. Early intensive rehabilitation improves IQ in children with severe TBI.

Objective: To evaluate the effects of early intensive rehabilitation program compared with that of conventional clinical care and rehabilitation on the cognitive outcomes for children with severe TBI.

Participants and Methods: Methods: Retrospective analysis of existing charts, with inclusion based on the type of injury, severity of the lesion, period time in minimum state of consciousness, age range at the time of injury and availability of the WISC III-R IQ evaluation.

Participants: 5 patients with severe TBI who underwent an early intensive rehabilitation program and 6 patients who were admitted at the outpatient clinic for a complete neuropsychological evaluation, were included in the study. The groups were similar in gender, age at the lesion and period time from the lesion to formal assessment.

Interventions:

A postacute, intensive rehabilitation program for TBI children divided in two periods. The first period designed for patients in minimum state of consciousness consists of a sensory stimulation program. The second period designed for patients in state of awareness consists of individualized occupational, speech, physical and neuropsychological therapies. The neuropsychological TBI rehabilitation program is based on a context sensitive approach, motivational or meaningful activities, tracking normal development, identification and ongoing adaptation of goals and coaching and education of family members.

Results: There were significant differences in IQ ($F(1,8)=14.63$; $p<0.005$) and school reintegration (100% vs 33 %, $p<.0039$) between children who had received the early intensive rehabilitation program vs. the conventional neurorehabilitation program in the general care system.

Conclusions: The findings support the proposition that early intensive rehabilitation along with a comprehensive neuropsychologically oriented rehabilitation program can improve the cognitive outcome as well as the school reintegration of children with severe TBI

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A. ZAMBARBIERI, P. KESTELMAN, L. BIN & W. HÉCTOR. Differential analysis of linguistic and mnemonic functions in children with Attention Deficit Hyperactivity Disorder (ADHD), with and without psychiatric comorbidity.

Objective: Analyze the specific functions of verbal memory, semantics and reading/writing in patients with and without psychiatric comorbidity as diagnosed through psychiatric and neurocognitive evaluations.

Participants and Methods: 32 patients with an ADHD diagnosis (DSM IV criteria and K-SADS Questionnaire); 16 with psychiatric comorbidity (internalizing disorders) and 16 with out.

Both attention (d2, Stroop, Wisconsin, Nepsy, Rey-Osterrieth Complex Figure; Wisc III) and neurolinguistic (TOMAL; PLO; PROLEC; PROESC; K-BIT) battery was administered.

Stats processed on SPSS 11.5 Windows.

Results: Scores obtained on Memory of Histories ($p: 0.474$), Directs Digits ($p: 0.925$) and Remember Objects ($p: 0.309$) did not show significant group differences.

Likewise, scores on semantics ($p: 0.219$), text comprehension ($p: 0.827$) and composition ($p: 0.792$) showed no significant differences.

Statistically significant differences were found in patients with psychiatric comorbidity in Remember Words Selective ($p: 0.023$) and Digit Inverse ($p: 0.023$)

Conclusions: Children with psychiatric comorbidity (internalizing predominance) show greater impairment in working memory and lexic recall, which deepens deficits school learning, psychosocial and communicational skills.

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N. ABREU, F.S. OLIVEIRA, A.S. CARDOSO, S. NUNES & N. MATTOS. ADHD Impairs Social Abilities in Teenagers: Results from a Preliminary Study in a Brazilian Sample.

Objective: Attention Deficit Hyperactivity Disorder (ADHD) is the most common psychiatric disorder among children and teenagers. ADHD disorder has three subtypes: inattentive (ADHD-I), hyperactive (ADHD-H) and combined (ADHD-C). The symptoms include cognitive, behavioral, affective, and social disturbances. Low social abilities (SA), are very important for successful life. The objective of this research was to test SA in ADHD subtypes and search for differences among them.

Participants and Methods: 44 children and teenagers with ADHD (ADHDD, n=17; ADADH, n=11;ADHDC, n=16; age: 12.8 y; 6.1 years of education) and 44 healthy participants (Control group, age: 12.11; 6.4 years of education) were assessed. An experiment was developed to investigate SA based in a basic SA exercise for children. The experiment consisted of five questions including use of strategies, social relationship, friendship, first social contact and relationship with older people and problem solution between children and their teachers. Each question was answered in an one minute interval and answers were registered for ulterior analysis. Answers were assessed by two independent judges and scored from 1 through 4 – best SA answer. Intelligence was also assessed.

Results: All the ADHD subjects and control group have normal intelligent (IQ>85,P<0.05). All three ADHD groups were worse than control group with respect to the five grouped conditions, but ADHDI was the worst.

Conclusions: These results suggest SA deficit on ADHD probably due to low social judgment and impulsivity.

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N. ABREU, F.S. OLIVEIRA, A.S. CARDOSO, S. NUNES & N. MATTOS. ADHD Impairs Verbal Fluency: Results from a ADHD Teenagers Sample.

Objective: Attention Deficit Hyperactivity Disorder (ADHD) is the most common psychiatric disorder among children and teenagers. ADHD disorder has three subtypes: inattentive (ADHDI), hyperactive (ADHDH) and combined (ADHDC). The symptoms may include verbal ability reduction. Verbal fluency (VF), is highly linked to semantic memory and phonological process. To test VF in ADHD subtypes in semantic and phonological processing in teenagers .

Participants and Methods: To test VF in ADHD . 44 children and teenagers with ADHD (ADHDD, n=17; ADADH, n=11;ADHDC, n=16; age: 12.8 y; 6.1 years of education) and 44 healthy participants (Control group, age: 12.11; 6.4 years of education) were assessed. All the ADHD subjects and control group have normal intelligent (IQ>85,P<0.05). An experiment was conducted to investigate VF based in a semantic list (animals) and FAS test . The experiment consisted of one minute interval in which subjects were requested to remember names of animals (semantic), and words initiating with letters F, A and S. Answers were assessed registered according to number of words evoked.

Results: An ANOVA with Tukey post hoc analysis showed that ADHDC had worse performance than ADHDI, ADHDH and control group on semantic test. For fonological performance (FAS test), all three ADHD groups were worse than control group, but ADHDI had the worst results (ADHDI<ADHDC<ADHDH).

Conclusions: These results suggest VF deficit on ADHD different subgroups and indicate that inattention may contribute, more than hyperactivity to impair recall and language processing.

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R. FIFER, M. MULVEY, A. CUADRA, E. WILLEN, M. GOLDMAN & L. JACOBSON. Auditory Profiles and Neurocognitive Function in HIV Children.

Objective: Objective: There is sparse literature regarding auditory function in children perinatally infected with HIV. Given that undetected auditory disorders adversely affect neurocognitive development, the objective of this study is to examine cognitive and auditory profiles of HIV positive children.

Participants and Methods: Participants and Methods: Participants included 35 children (62% female) perinatally infected with HIV who were between the ages of 7 and 17 years (x=12.3). Auditory profiles were established of peripheral hearing sensitivity and brainstem and cortical auditory evoked potentials. Children were administered standard IQ measures as part of clinical care.

Results: Results: Of the 35 participants, 24 (69%) demonstrated auditory abnormalities. Four participants showed previously undetected sensorineural hearing loss. The remaining 20 had abnormal evoked potentials: 9 abnormal auditory brainstem responses (AABR) and 11 abnormal middle latency responses (MLR). As a group, these children performed below average on cognitive measures. Children with AABR performed half a standard deviation below children with normal hearing in working memory and processing speed domains. There was no relationship between severity of disease status and auditory or cognitive functioning.

Conclusions: Conclusions: Abnormal results were observed in non-contiguous regions of the cochlea, pons, and thalamo-cortical pathways. The proportion of children with permanent, significant hearing loss was much greater than previously reported. Performance on measures that are sensitive to diffuse cognitive deficits was lower in children in the AABR group compared to other children with HIV. A complete audiological evaluation, including evoked potentials, should be a consistent component of the total care for HIV-infected children.

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H.J. HANNAY, M. DENNIS, L. KRAMER, S. BLASER & J.M. FLETCHER. Partial Agenesis of the Corpus Callosum in Spina Bifida Meningomyelocele and Potential Compensatory Mechanisms.

Objective: Partial agenesis of the corpus callosum(CC)is a frequent occurrence with spina bifida meningomyelocele (SBM). The study was designed to evaluate the likelihood of several proposed structural compensatory mechanisms for CC agenesis in children with SBM. These mechanisms include an enlarged anterior commissure (AC), the development of longitudinal bundles of Probst, and an enlarged hippocampal commissure (HC).

Participants and Methods: Typically developing normal controls (NC; n = 46) and school-aged children with SBM and shunted hydrocephalus (n = 193) underwent an MRI study. Exclusion criteria were neurological disorders unrelated to SBM, severe psychiatric disorder, uncontrolled seizure disorder, an inability to control the upper limbs.

Results: NC children had a normal CC, AC, and HC with no evidence of Probst's bundles. There were 26 regional patterns of CC structure in the children with SBM. Partial agenesis of the CC was evident in 102 children and in 15 of the CC regional patterns. Only 4.1% had a normal CC. The anterior commissure was enlarged in 3.1% and longitudinal bundles of Probst appeared in only 0.1% of the children with SBM. The HC was enlarged in 13%.

Conclusions: These findings suggest that an enlarged AC and the development of Probst's bundles are unlikely candidates for structural compensatory mechanisms for partial agenesis of the CC in children with SBM. An enlarged HC is a more promising candidate. The functionality of these white matter pathway anomalies in individual cases has yet to be determined.

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Symposium 28:

Implicit Learning From an Evolutionary Perspective: Cognitive and Electrophysiological Evidence

Chair: Ricardo Rosas

8:30–10:00 a.m.

C. MOURGUES. The Implicit Learning Universe: Discussion of Theoretical and Methodological Background.

Objective: In recent decades, implicit learning (IL) has become an increasingly significant issue in cognitive psychology. The term implicit learning is used to characterize those situations where a person learns about the structure of a fairly complex stimuli environment, without necessarily intending to do so, and in such way that the resulting knowledge is difficult to express.

Beginning with early studies, IL has been demonstrated using different experimental paradigms, which differ according to the type of indicator used, and the type of implicit knowledge acquired. Nonetheless, researchers still debate the most reliable indicators of IL. Traditionally, learning is identified as implicit to the extent that it is non-conscious and without intentionality. This discussion is grounded in the original dissociation between direct and indirect measures of learning.

We discuss the difference between direct and indirect measures in implicit learning. Direct indicators of learning are understood as those where subjects are asked to remember the content of a task in an experimental setting. This type of measure requires the conscious use of relevant knowledge. Indirect measures are those in which learning is observed without asking the subject to recall the content of the task, avoiding the use of conscious knowledge.

In this first part, we present a review about contemporary theory in IL and its applications as a framework to facilitate the holistic comprehension of our experiments and results.

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F. CERIC. How Does Implicit Learning Age? Evidence in Children, Young People and Elderly People.

Objective: Theoretically, it has been said that IL is more robust than traditional explicit learning. This quality has been linked with phylogenetical evolution, specifically, that this cognitive function is one of that few remains unchanged along the course of time. However, there is scarce evidence that demonstrates this affirmation.

We present behavioral and neurophysiological evidence accounting for IL transformation in time. For this, we took three representative groups for different vital moments (children, young people and old people) and applied an ad hoc paradigm designed for this experience.

Results allow us to discuss the relationship between IL and the cognitive change in normal aging. Furthermore, our findings are a new step to elucidate how cognitive resources are distributed.

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M. TENORIO. From Laboratory to Practical Setting: Implications for Neuropsychology.

Objective: In our research we performed neurocognitive evaluations that were afterwards linked with the direct and indirect measures of IL (behavioral data and EEG record). The results of neurocognitive evaluations show a particular pattern of temporal change in superior mental functions; this pattern does not correspond with the way of IL transformation. The difference between the patterns of change in the studied functions suggests the existence of systems that have been biologically built in a different way, i.e. they go through distinct biological processing ways. We have proposed an understanding model about the neuropsychological process underlying IL that could be used in clinical practice. Its application in neurocognitive rehabilitation gives the option to enhance declining functions because it allows the transfer of relevant information even in the absence of consciousness.

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R. ROSAS, F. CERIC, M. TENORIO & C. MOURGUES. Implicit Learning From an Evolutionary Perspective: Cognitive and Electrophysiological Evidence.

Symposium Description: The implicit learning (IL) represents an important field in cognitive psychology but it is also a novel tool for neuropsychologists in research and clinical interventions.

Since pioneer works in the field it has been said that IL is a robust cognitive function even in presence of neuropsychiatric disorders and aging process. However, there are not experimental reports that made evident this quality. We present an evolutionary study where we show the IL transformation in time. Our two main findings are: 1) there is a divergence between direct and indirect indicators of IL that show not only the validity of this experimental method but also how much we know without knowing, and 2) IL changes in time show us that the neurocognitive substrate that supports it evolves a different way from the classical cognitive functions, they also support the Model of successful aging, and open up a new space for evaluation and intervention with old people.

This symposium is composed of three complementary parts: a) The implicit learning universe: discussion of theoretical and methodological background, b) How does implicit learning age? Evidence in children, young people and elderly people, c) From laboratory to practical setting: implications for neuropsychology.

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Symposium 29: Neuropsychological Predictors and Cognitive Reserve in Alzheimer, Aô's Disease

Chair: Ricardo Allegri

10:15–11:45 a.m.

R. ALLEGRI, J. MANLY, G. CHELUNE, P. HARRIS, J. HERRERA & J. LORENZO. Neuropsychological Predictors and Cognitive Reserve in Alzheimer's Disease.

Symposium Description: Diagnosis of Alzheimer's disease is currently made in patients that meet specific criteria for dementia (DSM IV, 1994) and NINCDS ADRDA criteria (Mc Khan et al 1984). However, these criteria do not allow making an early diagnosis. Cognitive reserve is defined as the individual's capacity to use brain networks more efficiently or, in other words, to process tasks in a more efficient manner (Stern 2002). The purpose of this symposium is to discuss the neuropsychological hallmarks for prediction of very early, pre-dementia, Alzheimer's disease. Presentations will focus on the relation between cognitive reserve and the rate of conversion from normal aging and mild cognitive impairment to dementia, the cultural and educational determinants of cognitive decline and Alzheimer's disease among Spanish-speaking immigrants, and the importance of cognitive reserve for building preventive neuropsychological strategies for people at risk of developing dementia

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R. ALLEGRI. Cognitive Reserve and Rate of Conversion in Degenerative Dementia.

Objective: Mild cognitive impairment was a transitional state that can precede dementia but the rates of conversion remains controversial. Moreover, limited data are available regarding the risk factors for conversion. This presentation analyzes the role of cognitive reserve in the rate of conversion to degenerative dementia. 239 consecutive patients who criteria for the diagnosis of Mild Cognitive Impairment were recruited from the Memory Center in CEMIC University (Buenos Aires). Each patient was evaluated with a semi structured neuropsychological and neuropsychiatric protocol, and followed longitudinally five years. 83 patients became demented (78% dementia of Alzheimer type, 18% Frontotemporal dementia and 4% Lewy Bodies Disease). Risk factors of the ones who transformed to-

wards Alzheimer's dementia were education less than 12 years, MMSE less than 27, Boston naming test less than 51, IQ (Intelligence Quotient) less than 111, age more than 75 years, inactivity, and presence of intrusions in memory recall (all explain 55.5% of the variability of conversion). Conclusions: MCI is "population in risk for degenerative dementia". MCI often represents the pre-dementia stage of an Alzheimer's dementia. The study of the cognitive reserve can contribute an important evidence for the decision making process of Public Health.

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J. MANLY. What Is Cognitive Reserve? Cultural and Educational Determinants of Cognitive Decline and Alzheimer's Disease Among Spanish-Speaking Immigrants In New York City.

Objective: There is building evidence from epidemiologic, experimental, and imaging studies of the link between education and cognitive function and Alzheimer's disease among older adults. In order to measure cognitive reserve, or the ability cope more effectively with changes encountered in normal aging, researchers typically use years of education, occupational level, or administer estimates of IQ such as vocabulary tests or single word reading tasks. However, there are a number of ways in which linguistic, cultural, racial, and economic factors may affect the predictive power of these proxies. Furthermore, there may be other indicators of cognitive reserve among immigrants and ethnic minorities that are not captured by these variables. Among 1,109 Spanish-speaking immigrants age 65 and older participating in a longitudinal, community-based study of aging and dementia in Northern Manhattan, we obtained years of school, year of immigration, and place of birth, and assessed neuropsychological test performance, English reading level, and Spanish reading level. Functional, medical, and cognitive data were considered every 18 – 24 months to classify each participant as normal, MCI, or demented. We found that age and both English and Spanish reading level were the strongest predictors of cognitive test performance at baseline and cognitive change over time. These results suggest that among immigrant groups, indicators of cognitive reserve may be expanded to include measures of language proficiency, and that years of education may not adequately reflect native ability or educational experience.

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J. HERRERA. The Mini Mental State Examination and the Detection of Mild Cognitive Impairment or Early Dementia.

Objective: The most commonly used instrument in the initial phases of the diagnosis of dementia is the MINI-MENTAL STATUS EXAMINATION (MMSE). Different professions and specialties use it, some times as the principal or only measure to assess the presence of a demented state. In an ample revision of studies in which the MMSE has been used, the findings reveal, as expected, significant differences between mean scores obtained by patients with dementia and the different healthy control groups included in these studies. However, the most important finding was related to the dispersion of the scores within each group. Healthy controls typically presented a tight dispersion of the scores, with standard deviations in the order of 1 or 2 points. On the other hand, the dispersion of the scores in the groups diagnosed with dementia was much greater. This creates the real probability that patients with dementia obtain scores in the MMSE similar to those obtained by controls, thus increasing the probability of false negatives. As such, the MMSE can be a useful instrument in the detecting cognitive decline associated with dementia, although it should always be kept in mind that "absence of finding is not finding of absence"

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Symposium 30: The Unresolved Problem about Functional and Neurocognitive Differences between Schizophrenias and Bipolar Disorders: Methodological Problems or Inadequate Questions?

Chair: Sergio Strejilevich

10:15–11:45 a.m.

S. FRANGO. Fronto-temporal Function May Distinguish Bipolar Disorder from schizophrenia.

Objective: There is evidence for differential neural alterations within the prefrontal cortex (PFC) in bipolar disorder I (BDI) and schizophrenia that may translate into different cognitive deficits. Our objective was to compare the cognitive profile of stable BDI and schizophrenic patients using neuropsychological tasks which utilize frontal systems but differ in terms of the exact neural circuits and cognitive processes involved.

Participants and Methods: We studied 43 patients with BDI, 54 with schizophrenia and 46 matched healthy participants. All participants completed (i) the Wisconsin Card Sorting Test (WCST) which is known to recruit the dorsal and ventral PFC, (ii) the verbal fluency task (VFT), which engages frontal-temporal regions, and (iii) the Stroop Colour Word Test (SWCT) which depends on the integrity of the cingulo-frontal network. A series of multivariate analyses examined differences between the cognitive profiles of BD and schizophrenic patients relative to that of healthy participants controlling for general intellectual ability and gender.

Results: Bipolar disorder I patients showed minimal verbal fluency impairment while schizophrenic patients demonstrated marked deficits on this task relative to the control and BDI groups. The two patient groups had comparable performance on the WCST. In the SWCT, schizophrenic patients showed impairment in both congruent and incongruent conditions while BD patients had deficits only in the latter.

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S. STREJILEVICH, M. CETKOVICH-BAKMAS, F. SOPHIA, R. MORRIS & C. LOPEZ JARAMILLO. The Unresolved Problem about Functional and Neurocognitive Differences between Schizophrenias and Bipolar Disorders: Methodological Problems or Inadequate Questions?

Symposium Description: The classical kraepelinian division between manic depressive insanity and schizophrenia -which is still governing the current nosology- was made around the cognitive and functional impairment observed in these diseases. One hundred years later, modern neuropsychological studies cannot provide definitive support to this hypothesis. Some studies found quantitative differences in neurocognitive performance between schizophrenics and bipolar patients while others did not. Furthermore, findings of neurocognitive differences do not provide an adequate image to explain the deep differences observed in the daily life of the people affected by one or other of these diseases.

In this symposium participants will present and discuss the current data on this problem taking in account their nosological and therapeutic implications.

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S. STREJILEVICH. Cognitive Function in Schizophrenia and Bipolar Disorders: an Elusive Frontier.

Objective: The distinction between schizophrenias and bipolar disorders are still being the landmark in psychiatric nosology. In the last years, there has been an increasing recognition of the major role of cognitive features in both disorders.

Cognitive function has a strong correlation with general function in both disorders and could be used as endophenotypic markers.

However, when these disorders are contrasted in their cognitive function the results only provide quantitative differences which do not explain the bigger distance that these people experience in daily life.

Two hypotheses will be discussed: a) the cognitive instruments which have been used failed to capture the real problem of the difference between schizophrenias and bipolar disorders; or b) both disorders are the extreme of a genetic continuum where epigenetic factors print key differences.

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C. LOPEZ JARAMILLO. Genetics and Cognitive overlaps in Schizophrenia and Bipolar Disorder.

Objective: We performed a whole genome microsatellite marker scan in six multiplex families with bipolar (BP) mood disorder ascertained in Antioquia, a historically isolated population from North West Colombia. These families were characterized clinically using the approach employed in independent ongoing studies of BP in the closely related population of the Central Valley of Costa Rica. The most consistent linkage results from parametric and non-parametric analyses of the Colombian scan involved markers on 5q31-33, a region implicated by the previous studies of BP in Costa Rica. Because of these concordant results, a follow-up study with additional markers was undertaken in an expanded set of Colombian and Costa Rican families; this provided a genome-wide significant evidence of linkage of BPI to a candidate region of approximately 10 cM in 5q31-33 (maximum non-parametric linkage score=4.395, $P < 0.00004$). Interestingly, this region has been implicated in several previous genetic studies of schizophrenia and psychosis, including disease association with variants of the entropin and gamma-aminobutyric acid receptor genes. We will discuss the significance of these findings at the level of cognitive function in both disorders.

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Symposium 31: Fetal Alcohol Spectrum Disorders: Current Perspectives on Prevalence, Diagnosis, Neuropsychological Outcomes and Interventions

Chair: *Nora Grañana*

10:15–11:45 a.m.

N. GRAÑANA, R. VERNESCU, K. KERNS & R. VERNESCU. Fetal Alcohol Spectrum Disorders: Current Perspectives on Prevalence, Diagnosis, Neuropsychological Outcomes and Interventions.

Symposium Description: Prenatal alcohol exposure is a major public health concern and one of the most common preventable causes of developmental disability. Fetal Alcohol Spectrum Disorder (FASD) refers to the range of physical, mental, behavioural and cognitive disabilities in individuals resulting from maternal alcohol consumption. Children with prenatal alcohol exposure suffer numerous primary and secondary disabilities, resulting in poor long-term outcomes. This symposium will review FASD from a world wide perspective, provide information on diagnosis, review the research on neurological sequelae and neurobehavioural outcomes of children with FASD, particularly in terms of behaviour, mental health and adaptive functioning. Finally, the role of various prevention and treatment strategies and their impact for individuals with FASD and their families will be discussed.

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R. VERNESCU. Fetal Alcohol Spectrum Disorders - A Public Health Perspective.

Objective: Fetal Alcohol Spectrum Disorder (FASD) is an umbrella term used to describe a wide spectrum of physical, neurodevelopmental, behavioural, and learning disabilities due to prenatal alcohol exposure. Fetal Alcohol Syndrome (FAS) has been identified as the most common type of preventable brain damage to infants in the Western world. FASD is a major public health concern and poses a special health challenge to communities which rank poorly on health risks, and social and economic measures, with marginalized individuals often at greatest risk. Prevalence is difficult to ascertain and government statistics are likely to indicate deceptively low rates, reflecting under-recognition, diagnostic challenges, and under-reporting

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K. KERNS. FASD: Searching for a Neuropsychological Profile.

Objective: FASD refers to a spectrum of alcohol-related disabilities, diagnosis of which relies on features including a stereotypic facial dysmorphism and central nervous system (CNS) abnormalities. The range of expression is wide, from most abilities in the average range at one end of the spectrum to severe growth delay and significant cognitive disabilities (mental retardation) at the other. As mild CNS dysfunction are difficult to detect early on, diagnosis is often missed during early childhood, and only occurs with the accumulation pronounced and visible difficulties during school years.

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R. VERNESCU. Interventions for Children with FASD.

Objective: Primary deficits of children with FASD can impact on adaptive functioning and lead to a wide range of secondary disabilities. Historically, anecdotal reports, clinical, and educational wisdom have been the basis for making decisions regarding secondary and tertiary prevention for children and adults with FASD. While it is widely recognized that intervention research can provide answers for treating specific cognitive disturbances and preventing secondary disabilities, the empirical literature examining effective interventions with the FASD population is limited.

Recent research explores intervention across behavioural, social, and cognitive domains, including recall and attention. The available data will be reviewed including the need for the development of comprehensive strategies that target the strengths and needs of this population

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Paper Session 7:

Adults: Cognitive Disturbances in Medical Disorders and Drug Exposure

10:15–11:45 a.m.

A.M. CLARK, B.L. CHAN, K.M. HEILMAN & J.W. TSAO. Attention Bias Following Unilateral Upper, but Not Lower, Limb Amputation.

Objective: After limb amputation changes in the organizational map of cortical neurons occur. Neighboring representational zones of both the primary somatosensory cortex (S1) and motor cortex (M1) shift into the areas formerly represented by the amputated extremity. Phantom limb sensations of continued limb presence are also common, although typically the limb eventually fades from memory. Following limb removal and during the time a phantom is present or when the phantom abates a person might alter the distribution of attention to the right and left sides of their body due to changes in the body schema.

Participants and Methods: To determine if there is a bodily attentional bias we asked subjects (23 unilateral upper and lower amputees and 6 controls) to perform a task where they indicated their mid-sagittal plane by placing a mark on a horizontal line of 242 mm placed before them in their coronal plane (left hemisphere, centrally, right hemisphere). We then measured the direction and magnitude of any bias.

Results: Whereas control subjects demonstrated leftward pseudoneglect (116.6±2.3 mm, mean±SD) when bisecting a horizontal line placed in the right hemisphere, right upper limb amputees were able to bisect the line nearly at midline (122.0±3.4 mm, $p=0.009$). When bisecting a line placed in the left hemisphere, control subjects again demonstrated pseudoneglect (115.6±2.7 mm), while left upper limb amputees bisected the line closer to midline (119.81±2.6 mm, $p=0.043$). There were no significant differences in the location of line bisection between control subjects and unilateral left or right lower limb amputees.

Conclusions: Following upper limb amputation, there appears to be normalization of pseudoneglect in amputees. Alteration of attentional bias may be a marker for cortical reorganization or change in body image in this clinical setting.

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S. SÁNCHEZ, F. OSTROSKY-SÓLÍS, M.G. NOGUES, L.E. MORALES-BUENROSTRO & J. ALBERÚ-GÓMEZ. Cognitive Effects of Kidney Transplantation.

Objective: This prospective, longitudinal study was designed to evaluate a subset of End Stage Renal Disease (ESRD) patients before and after Kidney Transplantation (KT). The purpose of the study was to explore whether the impairment in cognitive areas is modified upon the restitution of renal function.

Participants and Methods: 15 KT recipients (11M/4F) and 13 donors -control group- (4M/9F) were tested twice: 24-48 hrs before and 6-10 months after KT by a comprehensive neuropsychological battery: NEUROPSI ATTENTION AND MEMORY, Hospital Anxiety and Depression Scale (HAD) and Epworth Sleepiness Scale. The rate of cognitive change was defined by the difference between each neuropsychological measure (post-operative vs baseline score). Renal function data was gathered for both groups. Mean group differences were assessed with paired samples T test or χ^2 . Bivariate correlations and linear regression analysis were used.

Results: Mean age (31±12.6) and years of education (13±3.8) of the KT group were not significantly different from controls. A significant improvement ($p<0.01$) in cognitive function, predominantly in Attention and Executive functions Scale was found after KT (from mild-moderate or severe impairment to normal functioning); memory impairment persisted in 13.3% patients after KT. Although 7% of the donors improved their performance, the improvement of the KT recipients was significantly higher ($p<0.05$). The scores for both groups did not correlate with the HAD or Sleepiness Scale. Significant correlation between serum creatinine and Attention and Executive functions scale was found ($r=-.433$, $p<0.05$). Serum creatinine predicted Attention and Executive functions ($r=.433$, $p<0.05$).

Conclusions: Around 30% of ESRD patients had pre-KT cognitive alterations that may interfere with their daily function. These results suggest a better quality of life through the improvement attained in cognition after KT. Correspondence: *Sofia Sánchez, INCMNSZ, UNAM, Vasco de Quiroga 15, Tlalpan, Mexico 14000, Mexico. E-mail: sofiasan@yahoo.com*

A. SANTOS & C. DERUELLE. Verbal peaks and visual valleys in theory of mind ability in Williams syndrome.

Objective: Research on theory of mind (TOM) has indeed provided a major contribution to the understanding of developmental disorders characterized by atypical social behaviour. Although Williams syndrome (WS) is characterized by unique hypersociability, to date, there is little consensus relative to TOM abilities in this genetic disorder. This study aims at providing an original contribution to this debate.

Participants and Methods: We used both visual and verbal tasks to investigate TOM - false-belief reasoning and attribution of intentions - in children and adults with WS relative to typically developing controls. This allowed us to control for the influence of WS uneven cognitive profile - increased verbal relative to visual abilities - on TOM processing.

Results: Results showed that individuals with WS perform as accurately as MA-matched controls on TOM verbal but not on TOM visual tasks. Importantly, such modality differences did not affect WS group's performance on a control condition not requiring TOM, nor were found for controls. Also, increased verbal relative to visual TOM performance in individuals with WS was found to be unrelated to their overall verbal skills.

Conclusions: Taken together, findings of this study suggest the existence of a verbal peak relative to a visual valley in TOM abilities in WS. Correspondence: *Andreia Santos, INCM - CNRS, 31, chemin Joseph Aiguier, Marseille 13009, France. E-mail: a.santos@incm.cnrs-mrs.fr*

K. TOWGOOD, M. PITKANEN, R. KULASEGARAM, S. SONI, L. REED, C. BRADBEER, A. FRADERA & M. KOPELMAN. Cognitive Function in HIV-1 Positive Gay Men in the Post-HAART (Highly Active Antiretroviral Therapy) Era – Preliminary Results.

Objective: Prior to the introduction of HAART, cognitive deficits in HIV-1 positive individuals had been estimated to fall between 30% and 50%. Current research has produced mixed findings regarding whether the introduction of HAART has changed the quantity and quality of these cognitive deficits. The objective of this study is to describe the occurrence and pattern of neuropsychological deficits in HIV-1 positive individuals in the post-HAART era.

Participants and Methods: Extensive neuropsychological, neuroimaging and clinical data is currently being collected for groups of HIV-1 positive older and younger participants and matched HIV negative controls. This presentation will focus on preliminary neuropsychological data comparing a group of 10 medically and psychiatrically stable HIV-1 positive younger patients (mean age 36) to a group of 12 matched HIV negative healthy controls (mean age 33).

Results: All patients were asymptomatic, with undetectable HIV-1 viral loads, and stable on HAART for at least six months. The analysis revealed significant group differences between the young HIV-1 positive and negative groups, predominantly on measures assessing memory. In particular, a pattern of impairment was noted on tests of immediate and delayed verbal recall, verbal learning and immediate and delayed visual recall. On these memory measures, 40% of the HIV-1 participants experienced 2 or more deficits, as measured by a performance of more than two standard deviations below the control group mean.

Conclusions: These preliminary results suggest that whilst the rate of deficit in the post-HAART era remains comparable to the pre-HAART era, there have been significant qualitative changes in the nature of these cognitive deficits.

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S. HE, S. JIA, L. YU & D. WANG. The ERP Study of the Long-term Sustained Release Naltrexone Treatment for Opioid Dependences on Their Semantic Recognition.

Objective: The experiment is aimed to explore the effectiveness of Long-term sustained release naltrexone treatment for opioid dependences on their semantic recognition.

Participants and Methods: Opioid dependences were consisted of three groups: NTX treatment group (n=35), passive abstinent group (n=26) and actively heroin consuming subjects (n=27), and adding on healthy control group (n=22). ERP and their behavior performances were synchronously recorded when they performed the recognition memory.

Results: Firstly, accuracy rate was lower and reaction time (RT) was longer in three opioid dependences groups than that of healthy control ($P<0.001$). The

patients received NTX-implanted showed better conditions in accuracy rate and RT than two non-NTX treatment groups ($P < 0.05$). Secondly, the latency of N400 for recognition memory in three opioid dependences groups showed significantly difference from healthy control ($P < 0.01$), whose latency was longer. The amplify of N400 for recognition memory in patients treated with NTX over 6 months did not differ significantly from healthy control ($P > 0.05$), which was higher than two non-NTX treatment groups, who showed a significantly difference from healthy control ($P < 0.01$).

Conclusions: Present study proved that NTX implanted group could lead to significantly better psychological conditions than passive abstinent group and non-treating group and suggested that NTX implants could ameliorate the function of nervous system of opioid dependences and improve their semantic memory.

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M. CHERNER, C. BOUSMAN, D. BARRON, S. LETENDRE, I. EVERALL, R. HEATON, J. ATKINSON & I. GRANT. Cytochrome P450 2D6 Phenotype and Methamphetamine-associated Cognitive Impairment.

Objective: Methamphetamine (meth) dependence has been associated with neuropsychological impairments that are often unrelated to meth exposure parameters such as length of abstinence, lifetime consumption, chronicity, mode of delivery, etc., suggesting individual differences in vulnerability to the neurotoxic effects of meth. We examined whether vulnerability to cog-

nitive impairment is linked to polymorphisms of liver enzyme cytochrome P450 2D6 (CYP2D6), which is responsible for oxidative metabolism of meth.

Participants and Methods: We phenotyped 53 individuals with a history of meth dependence by genotyping a panel of single nucleotide polymorphisms in the CYP2D6 gene. All were recruited in San Diego, California, USA as part of a study on the individual and joint effects of meth and HIV on the brain. None had HIV or hepatitis C. Based on published metabolic activity of CYP2D6 alleles, 33 were extensive metabolizers (EM) and 20 were intermediate/poor metabolizers (IM/PM). Participants received structured psychodiagnostic, substance use, and neuropsychological assessments. A global deficit score (GDS) reflecting number and severity of impaired neuropsychological test performances was computed from demographically adjusted T-scores.

Results: EM had worse global neuropsychological performance [GDS=0.44 (0.24) vs. 0.22 (0.25), $p < .05$] and were three times more likely (30% vs. 10%) to be cognitively impaired as IM/PM. EM and IM/PM groups had similar demographic and meth use characteristics, presence of mood disorders, and other substance use.

Conclusions: To our knowledge, this preliminary study is the first to suggest in humans that extensive meth metabolism is associated with worse neurocognitive outcomes, possibly implicating the products of meth oxidative metabolism as a source of brain injury.

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