Current Research on Multiple Births

ANNUAL BIBLIOGRAPHY – 1989

Produced by a MEDLARS search of the worlwide medical literature received by the National Library of Medicine, U.S. Public Health Service between December 1988 and April 1989. Sponsored by the Center for the Study of Multiple Birth, Chicago, Illinois.

Subject Sections*

Title, authors, and journal source, alphabetized by journal:

- ◊ Behavior and Physiology
- ◊ Genetic Traits and Methods
- ◊ Obstetrics and Pediatrics
- ◊ General

Author Section

Authors, titles, journal source, and abstract (if available), alphabetized and cross-indexed by all authors.

*The first three subject sections include other topics related to these headings. Classification is performed automatically on the basis of keywords. Some articles may appear in two or three of the specific subject sections.

BEHAVIOR & PHYSIOLOGY

† The Northwestern University Triplet Study. III: Neonatal outcome. Collins JW Jr, et al. **Acta Genet Med Gemellol (Roma)** 1988; 37(1):77–80

† Early developmental progress of preterm twins discordant for birthweight and risk. Stauffer A, et al. **Acta Genet Med Gemellol (Roma)** 1988; 37(1):81–7

† Tobacco smoking and twinning. Olsen J, et al. **Acta Med Scand** 1988;224(5):491–4

† Twin pregnancy and the effects of prophylactic leave of absence on pregnancy duration and birth weight. Rydhström H. **Acta Obstet Gynecol Scand** 1988;67(1):81–4

† Psychic vulnerability as a sequel to perinatal morbidity. A longitudinal twin study with special reference to psychiatric morbidity and inter-twin dependency. Moilanen I. **Acta Paediatr Scand Suppl** 1988;344:95–105

† Teenage alcohol use in the Australian twin register: genetic and social determinants of starting to drink. Heath AC, et al. **Alcoholism (NY)** 1988 Dec;12(6):735–41

† Genetic heritability and common environmental components of resting and stressed blood pressures, lipids, and body mass index in Utah pedigrees and twins. Hunt SC, et al. **Am J Epidemiol** 1989 Mar;129(3):625–38

† Genotypic and phenotypic similarities in pulmonary function among family members of adult monozygotic and dizygotic twins. Redline S, et al. **Am J Epidemiol** 1989 Apr;129(4):827–36

† Heritability of bone mass: a longitudinal study in aging male twins. Christian JC, et al. **Am J Hum Genet** 1989 Mar;44(3):429–33

† Investigation of the twinning rate in families with the fragile X syndrome. Sherman SL, et al. **Am J Med Genet** 1988 May–Jun;30(1-2):625–31

† The twinship: a paradigm towards separation and integration. von Broembsen F. **Am J Psychoanal** 1988 Winter;48(4):355–65

Frequency of social contact and intrapair resemblance of adult monozygotic cotwins--or does shared experience influence personality after all? Rose RJ, et al. **Behav Genet** 1988 May; 18(3):309–28

Management of perinatal loss of a twin [letter] Davis JA. **BMJ** 1988 Dec 17;297(6663):1613

† Vasoactive and atherogenic effects of cigarette smoking: a study of monozygotic twins discordant for smoking. Lassila R, et al. **BMJ** 1988 Oct 15;297(6654):955–7

† Twin birth and adult psychiatric disorder. An examination of the case records of the Maudsley Hospital. Chitkara B, et al. **Br J Psychiatry** 1988 Mar;152:391–8

† The influence of postmenstrual age estimation on the scatter of brainstem auditory evoked potential latencies. Vles J, et al. **Brain Dev** 1989; 11(1):40–2

† Parent playfulness: a case study of infant twins with handicaps. McCollum JA. **Child Care Health Dev** 1988 Jul–Aug; 14(4):235–53

† Decreased beta-adrenergic receptor density and catecholamine response in male cigarette smokers. A study of monozygotic twin pairs discordant for smoking. Laustiola KE, et al. **Circulation** 1988 Nov;78(5 Pt 1):1234–40

† Enhanced activation of the renin-angiotensin-aldosterone system in chronic cigarette smokers: a study of monozygotic twin pairs discordant for smoking. Laustiola KE, et al. **Clin Pharmacol Ther** 1988 Oct;44(4):426–30

† Monozygotic twins concordant for autism and hyperlexia. Smith IM, et al. **Dev Med Child Neurol** 1988 Aug;30(4):527–31

† Neurological outcome of twins dissimilar in size at birth. Ylitalo V, et al. **Early Hum Dev** 1988 Aug–Sep;17(2–3):245–55

† Lifestyle and blood pressure levels in male twins in Utah. Slattery ML, et al. **Genet Epidemiol** 1988;5(4):277–87

† Lifestyle factors in monozygotic and dizygotic twins. Heller RF, et al. **Genet Epidemiol** 1988; 5(5):311–21

† Breech births in twin pregnancy: an analysis of Apgar score and perinatal mortality from a Nigerian sample. Fakeye O. **Int J Gynaecol Obstet** 1988 Aug;27(1):11–6

Behavioral deviance in 13-year-old twins: an item analysis. Stevenson J, et al. **J Am Acad Child Adolesc Psychiatry** 1988 Nov; 27(6):791–7

Fragile X in female autistic twins [letter] Le Couteur A, et al. **J Autism Dev Disord** 1988 Sep; 18(3):458–60

† Monozygotic female twins with autism and the fragile-X syndrome (AFRAX). Gillberg C, et al. **J Child Psychol Psychiatry** 1988 Jul; 29(4):447–51

† Concordant Gilles de la Tourette's syndrome in monozygotic twins: a clinical, neurophysiological and CT study. Vieregge P, et al. **J Neurol** 1988 Jul;235(6):366–7

Size for gestational age and neonatal temperament in full-term and preterm AGA-SGA twin pairs. Riese ML. **J Pediatr Psychol** 1988 Dec; 13(4):521–30

† Simultaneous recording of fetal breathing movements and body movements in twin pregnancy. Zimmer EZ, et al. **J Perinat Med** 1988;16(2):109–12

† Perinatal mortality in twin pregnancy: an analysis of birth weight-specific mortality rates and adjusted mortality rates for birth weight distributions. Fabre E, et al. **J Perinat Med** 1988; 16(2):85–91

† Genetic and environmental variance in content dimensions of the MMPI. Rose RJ. **J Pers Soc Psychol** 1988 Aug;55(2):302–11

† Neuroticism, extraversion, and related traits in adult twins reared apart and reared together. Pedersen NL, et al. **J Pers Soc Psychol** 1988 Dec;55(6):950–7

† Anorexia nervosa: evidence for a genetic basis. Holland AJ, et al. **J Psychosom Res** 1988; 32(6):561–71

† Monozygotic twins concordant for the narcoleptic syndrome. Douglass AB, et al. **Neurology** 1989 Jan;39(1):140–1

† Neuropsychological effects of irradiation and chemotherapy treatments upon children with acute lymphoblastic leukemia: a case study of monozygotic twins. Prince MT, et al. **Neurotoxicology** 1988 Fall;9(3):341–9

Methodological issues in family, adoption, and twin research. Svikis DS, et al. **NIDA Res Monogr** 1988;89:120–33

Analytical approaches to twin and family data. McGue M. **NIDA Res Monogr** 1988;89:134–49

Exploring drug abuse with genetic strategies: cautionary tales. Gottesman II. **NIDA Res Monogr** 1988;89:150–64

The twin method in the study of vulnerability to drug abuse. Pickens RW, et al.

† indicates that an abstract appears with the citation in the author section.

NIDA Res Monogr 1988;89:41-51

† Genetics or environment? Type A behavior and cardiovascular risk factors in twin children. Meininger JC, et al. **Nurs Res** 1988 Nov-Dec; 37(6):341-6

† The effect of mode of delivery on the risk of intraventricular hemorrhage in nondiscordant twin gestations under 1500 g. Morales WJ, et al. **Obstet Gynecol** 1989 Jan;73(1):107-10

† Ultrasound detection of Down syndrome: is it really possible? Lynch L, et al. **Obstet Gynecol** 1989 Feb;73(2):267-70

† The growth discordant twin. Blickstein I, et al. **Obstet Gynecol Surv** 1988 Sep;43(9):509-15 (48 ref.)

Counseling families with twins: birth to 3 years of age. Becker PG. **Pediatr Rev** 1986 Sep; 8(3):81-6

† The familial aggregation of Alzheimer's disease: an epidemiological review. Rocca WA, et al. **Psychiatr Dev** 1988 Spring;6(1):23-36 (47 ref.)

Factorial and criterion validities of telephone-assessed cognitive ability measures. Age and gender comparisons in adult twins. Nesselroade JR, et al. **Res Aging** 1988 Jun; 10(2):220-34

† Dental age and asymmetry in the formation of mandibular teeth in twins concordant or discordant for oral clefts. Nyström M, et al. **Scand J Dent Res** 1988 Oct;96(5):393-8

† The Genain quadruplets. Mirsky AF, et al. **Schizophr Bull** 1988;14(4):595-612

Stability of genetic determination from age 2 to age 9: a longitudinal twin study. Lytton H, et al. **Soc Biol** 1988 Spring-Summer;35(1-2):62-73

† Physical exercise provokes platelet desensitization in men who smoke cigarettes--involvement of sympathoadrenergic mechanisms--a study of monozygotic twin pairs discordant for smoking. Lassila R, et al. **Thromb Res** 1988 Jul 15; 51(2):145-55

† indicates that an abstract appears with the citation in the author section.

† Genetic factors in the electrocardiogram and heart rate of twins reared apart and together. Hanson B, et al. **Am J Cardiol** 1989 Mar 1;63(9):606–9

† The probability of dizygosity of phenotypically concordant twins. Meulepas E, et al. **Am J Hum Genet** 1988 Dec;43(6):817–26

† Absence of detectable chromosomal and molecular abnormalities in monozygotic twins discordant for the Wiedemann–Beckwith syndrome. Litz CE, et al. **Am J Med Genet** 1988 Jul;30(3):821–33

† Genetic and environmental components of serum creatine kinase (CK) and pyruvate kinase (PK) in normal twins: implication for genetic risks estimates in Duchenne muscular dystrophy carriers. Rapaport D, et al. **Am J Med Genet** 1988 Oct;31(2):291–8

† Diagnosis of trisomy 18 in monozygotic twins by cordocentesis. Shah DM, et al. **Am J Obstet Gynecol** 1989 Jan;160(1):214–5

Fragile site 1q44 involved in nasopharyngeal carcinoma. A study of a marker chromosome der(1)t(1;3)(q44;p11). Xia JH, et al. **Cancer Genet Cytogenet** 1988 Oct 1;35(1):135–40

† Normal DNA polymorphism at the low density lipoprotein receptor (LDLR) locus associated with serum cholesterol level. Pedersen JC, et al. **Clin Genet** 1988 Nov;34(5):306–12

† Twin study of genetic and environmental effects on lipid levels. O'Connell DL, et al. **Genet Epidemiol** 1988;5(5):323–41

† Genetic determination of the human EEG. Survey of recent results on twins reared together and apart. Stassen HH, et al. **Hum Genet** 1988 Oct; 80(2):165–76

† Genetic and environmental variance in content dimensions of the MMPI. Rose RJ. **J Pers Soc Psychol** 1988 Aug;55(2):302–11

† Neuroticism, extraversion, and related traits in adult twins reared apart and reared together. Pedersen NL, et al. **J Pers Soc Psychol** 1988 Dec;55(6):950–7

† Anorexia nervosa: evidence for a genetic basis. Holland AJ, et al. **J Psychosom Res** 1988; 32(6):561–71

Stability of genetic determination from age 2 to age 9: a longitudinal twin study. Lytton H, et al. **Soc Biol** 1988 Spring–Summer;35(1–2):62–73

† indicates that an abstract appears with the citation in the author section.

OBSTETRICS & PEDIATRICS

† Mode of delivery in multiple birth of higher order. Feingold M, et al. **Acta Genet Med Gemellol (Roma)** 1988; 37(1):105–9

† The Northwestern University Triplet Study. I: Overview of the international literature. Keith LG, et al. **Acta Genet Med Gemellol (Roma)** 1988;37(1):55–63 (44 ref.)

† The Northwestern University Triplet Study. III: Neonatal outcome. Collins JW Jr, et al. **Acta Genet Med Gemellol (Roma)** 1988; 37(1):77–80

† Early developmental progress of preterm twins discordant for birthweight and risk. Stauffer A, et al. **Acta Genet Med Gemellol (Roma)** 1988; 37(1):81–7

† Triplet and higher-order births: what is the optimal delivery route? Thiery M, et al. **Acta Genet Med Gemellol (Roma)** 1988; 37(1):89–98 (24 ref.)

† Tobacco smoking and twinning. Olsen J, et al. **Acta Med Scand** 1988;224(5):491–4

† Twin pregnancy and the effects of prophylactic leave of absence on pregnancy duration and birth weight. Rydhström H. **Acta Obstet Gynecol Scand** 1988;67(1):81–4

† Is cesarean section justified for delivery of the second twin? Pschera H, et al. **Acta Obstet Gynecol Scand** 1988;67(4):381–2

† Spontaneous resolution of hypofibrinogenemia associated with death of a twin in utero: a case report. Chescheir NC, et al. **Am J Obstet Gynecol** 1988 Nov;159(5):1183–4

Prenatal diagnosis of dicephalous conjoined twins in a triplet pregnancy. Apuzzio JJ, et al. **Am J Obstet Gynecol** 1988 Nov;159(5):1214–5

† Diagnosis of trisomy 18 in monozygotic twins by cordocentesis. Shah DM, et al. **Am J Obstet Gynecol** 1989 Jan;160(1):214–5

Management of perinatal loss of a twin [letter] Davis JA. **BMJ** 1988 Dec 17;297(6663):1613

† The influence of postmenstrual age estimation on the scatter of brainstem auditory evoked potential latencies. Vles J, et al. **Brain Dev** 1989; 11(1):40–2

Prenatal diagnosis of conjoined twins with real-time ultrasound. A case report. Gao J, et al. **Chin Med J [Engl]** 1988 Jan;101(1):58–60

† Neurological outcome of twins dissimilar in size at birth. Ylitalo V, et al. **Early Hum Dev** 1988 Aug–Sep;17(2–3):245–55

Prolapse of four legs in an undiagnosed conjoined thoracoomphalopagus twins: an uncommon presentation. Adetoro OO, et al. **East Afr Med J** 1986 Dec;63(12):822–5

† Fetal blood sampling in twin pregnancies. Prenatal diagnosis and management of 19 cases. Cox WL, et al. **Fetal Ther** 1987;2(2):101–8 (16 ref.)

† Diagnosis and treatment of twin to twin transfusion in the mid-second trimester of pregnancy. Weiner CP. **Fetal Ther** 1987; 2(2):71–4

Aminophylline as diazepam antagonist in a preterm infant [letter] Rathi SK. **Indian Pediatr** 1988 Aug;25(8):803–4

† Breech births in twin pregnancy: an analysis of Apgar score and perinatal mortality from a Nigerian sample. Fakeye O. **Int J Gynaecol Obstet** 1988 Aug;27(1):11–6

† The recognition and significance of the vanishing twin. Jackson J, et al. **J Am Board Fam Pract** 1989 Jan–Mar;2(1):58–63

Size for gestational age and neonatal temperament in full-term and preterm AGA–SGA twin pairs. Riese ML. **J Pediatr Psychol** 1988 Dec; 13(4):521–30

† Simultaneous recording of fetal breathing movements and body movements in twin pregnancy. Zimmer EZ, et al. **J Perinat Med** 1988;16(2):109–12

† Perinatal mortality in twin pregnancy: an analysis of birth weight-specific mortality rates and adjusted mortality rates for birth weight distributions. Fabre E, et al. **J Perinat Med** 1988; 16(2):85–91

† First-trimester bleeding and the vanishing twin. A report of three cases. Saidi MH. **J Reprod Med** 1988 Oct;33(10):831–4

Routine ultrasound scanning in twin pregnancies [letter] Smith AP, et al. **Lancet** 1988 Oct 29; 2(8618):1029

The Multiple Births Foundation. Bryan EM. **Midwife Health Visit Community Nurse** 1988 Dec;24(12):513–5

Selective delivery of an acardiac, acephalic twin. Robie GF, et al. **N Engl J Med** 1989 Feb 23; 320(8):512–3

† The effect of mode of delivery on the risk of intraventricular hemorrhage in nondiscordant twin gestations under 1500 g. Morales WJ, et al. **Obstet Gynecol** 1989 Jan;73(1):107–10

† Ultrasound detection of Down syndrome: is it really possible? Lynch L, et al. **Obstet Gynecol** 1989 Feb;73(2):267–70

Vertical transmission of Citrobacter diversus from mother to infant [letter] Walter E. **Pediatr Infect Dis J** 1988 Sep;7(9):675

† indicates that an abstract appears with the citation in the author section.

GENERAL

Twin research.
Acta Genet Med Gemellol (Roma) 1988; 37(1):1-109

† Multiple intracranial aneurysms in identical twins. Weil SM, et al. **Acta Neurochir (Wien)** 1988; 95(3-4):121-5 (18 ref.)

Osteogenesis imperfecta in twins: case report and review of literature. Sameshima K, et al. **Acta Paediatr Jpn Overseas Ed** 1988 Oct; 30(5):621-6 (22 ref.)

† Aspartylglucosaminuria in a Puerto Rican family: additional features of a panethnic disorder. Chitayat D, et al. **Am J Med Genet** 1988 Nov; 31(3):527-32

† Laterality defects in conjoined twins: implications for normal asymmetry in human embryogenesis. Cunniff C, et al. **Am J Med Genet** 1988 Nov; 31(3):669-77

† The Northwestern University triplet study. IV. Biochemical parameters. Creinin M, et al. **Am J Obstet Gynecol** 1988 Nov;159(5):1140-3

Discordance of accommodative esotropia in monozygotic twins. Bucci FA JR, et al. **Am J Ophthalmol** 1989 Jan 15;107(1):84-5

† Bilateral absence of the ulna in twins as a manifestation of the split hand--split foot deformity. Beck RB, et al. **Am J Perinatol** 1989 Jan;6(1):1-3

† Genetic susceptibility to multiple sclerosis. A co-twin study of a nationwide series. Kinnunen E, et al. **Arch Neurol** 1988 Oct;45(10):1108-11

Monozygotic twins discordant for Duane's retraction syndrome. Case report. Kaufman LW, et al. **Arch Ophthalmol** 1989 Mar;107(3):324-5

Undescended testis: a dual lesson. Cutner A, et al. **Br J Urol** 1988 Sep;62(3):273-4

† Simultaneous gastric cancer in monozygotic twins. Matsukura N, et al. **Cancer** 1988 Dec 1; 62(11):2430-5 (28 ref.)

† Alterations in T-lymphocyte subpopulations in type I diabetes. Exploration of genetic influence in identical twins. Johnston C, et al. **Diabetes** 1988 Nov;37(11):1484-8

† On the unpredictable development of congenital cytomegalovirus infection. A study in twins. Ahlfors K, et al. **Early Hum Dev** 1988 Dec; 18(2-3):125-35 (36 ref.)

† The frequency of multiple births in Gondar Hospital northwestern Ethiopia. Zein AZ. **Ethiop Med J** 1989 Jan;27(1):21-6

† The within-pair EEG similarity of twins reared apart. Stassen HH, et al. **Eur Arch Psychiatry Neurol Sci** 1988; 237(4):244-52

† Heritability estimate for refractive errors--a population-based sample of adult twins. Teikari JM, et al. **Genet Epidemiol** 1988;5(3):171-81 (34 ref.)

† Alcohol effects on the percentage of beta waves in the electroencephalograms of twins. Christian JC, et al. **Genet Epidemiol** 1988;5(4):217-24

† Chlamydia trachomatis infection in dizygotic twins delivered by caesarean section. Bell TA. **Genitourin Med** 1988 Oct;64(5):347-8

Are individuals born as twins at a higher risk of developing Crohn's disease? [letter] Zlotogora J, et al. **Gut** 1989 Jan;30(1):141-2

† Nutrient intake and blood pressure: families of adult identical twins. Miller JZ, et al. **J Am Coll Nutr** 1988 Dec;7(6):509-18

† Delta 4-3-oxosteroid 5 beta-reductase deficiency described in identical twins with neonatal hepatitis. A new inborn error in bile acid synthesis. Setchell KD, et al. **J Clin Invest** 1988 Dec;82(6):2148-57

† The telecanthus-hypospadias syndrome. Stevens CA, et al. **J Med Genet** 1988 Aug;25(8):536-42 (12 ref.)

† Progression from MERRF to MELAS phenotype in a patient with combined respiratory complex I and IV deficiencies. Byrne E, et al. **J Neurol Sci** 1988 Dec;88(1-3):327-37

† Oral squamous cell carcinoma in identical twins: report of a case. Bhaskar PB, et al. **J Oral Maxillofac Surg** 1988 Dec;46(12):1096-8

Congenital central hypoventilation syndrome in monozygotic twins. Khalifa MM, et al. **J Pediatr** 1988 Nov;113(5):853-5

† Deterioration of renal function in a conjoined twin: lack of compensatory renal hypertrophy. Snow BW, et al. **J Pediatr Surg** 1988 Sep; 23(9):857-8

† Intraventricular hemorrhage in preterm twin gestation infants. Viscardi RM, et al. **J Perinatol** 1988 Spring;8(2):114-7

† Continent urinary reconstruction in ischiopagus tripus conjoined twins. Holcomb GW 3d, et al. **J Urol** 1989 Jan;141(1):100-2

Congenital cytomegalovirus infection in one monozygotic twin [letter] Seguin J, et al. **JAMA** 1988 Dec 9;260(22):3277

Antenatal diagnosis of a set of conjoined twins presenting with unusual ultrasound findings. Hurren AJ, et al. **JCU** 1988 Nov-Dec; 16(9):672-4

Idiopathic membranous nephropathy in 2 twin brothers [letter] Vangelista A, et al. **Nephron** 1988;50(1):79-80

† Aseptic necrosis of the femoral head supervening on systemic lupus erythematosus in identical twins--case report. Itoman M, et al. **Nippon Seikeigeka Gakkai Zasshi** 1988 Jun; 62(6):609-15

† Molecular genetic prenatal determination of twin zygosity. Kovacs B, et al. **Obstet Gynecol** 1988 Dec;72(6):954-6

Answer please. Diastrophic dwarfism. Johnson C, et al. **Orthopedics** 1988 Oct;11(10):1501-2

† Hereditary long QT syndrome associated with cardiac conduction system disease. Greenspon AJ, et al. **PACE** 1989 Mar;12(3):479-85

† Neonatal melioidosis: a report of 5 cases. Lumbiganon P, et al. **Pediatr Infect Dis J** 1988 Sep;7(9):634-6

Hypertrophic pyloric stenosis, ultrasonic appearances in a small baby. Bisset RA, et al. **Pediatr Radiol** 1988;18(5):405

† Magnetic resonance imaging of the cerebral malformation in Miller-Dieker syndrome. A case report. Smith J, et al. **S Afr Med J** 1988 Dec 17;74(12):639-40

† Subcutaneous silicone implants in pectus excavatum. Sørensen JL. **Scand J Plast Reconstr Surg Hand Surg** 1988; 22(2):173-6

† indicates that an abstract appears with the citation in the author section.

AUTHOR SECTION

A

Abel PD see **Cutner A**

Ahlfors K, Ivarsson SA, Nilsson H: On the unpredictable development of congenital cytomegalovirus infection. A study in twins.
Early Hum Dev 1988 Dec;18(2-3):125-35 (36 ref.)
Two cases of congenital cytomegalovirus (CMV) infection in twins are reported. In addition, congenital CMV infection in twin pairs described in the literature is reviewed. The relationship of monochorionic vs. dichorionic placentas and monozygosity vs. dizygosity in the development of congenital infection in either one or both members in a pair of twins is discussed.

Alglay S see **Zimmer EZ**

Allen JR see **Heller RF**

Allen JR see **O'Connell DL**

Alviggi L see **Johnston C**

Amaducci L see **Rocca WA**

Ameli S see **Collins JW Jr**

Ameli S see **Creinin M**

Ameli S see **Keith LG**

Apuzzio JJ, Ganesh VV, Chervenak J, Sama JC: Prenatal diagnosis of dicephalous conjoined twins in a triplet pregnancy. Am J Obstet Gynecol 1988 Nov;159(5):1214-5

B

Balistreri WF see **Setchell KD**

Barrasse LD see **Greenspon AJ**

Baughman RA see **Bhaskar PB**

Beck RB, Brudno DS, Rosenbaum KN: Bilateral absence of the ulna in twins as a manifestation of the split hand--split foot deformity.
Am J Perinatol 1989 Jan;6(1):1-3
Bilateral absence of the ulna and ulnar rays in twin female infants are described as a manifestation of the split hand--split foot deformity (ectrodactyly). Family history revealed the father had a unilateral split hand. Given the wide variability of expression of this disorder and the availability of prenatal diagnosis, there is a need for obstetricians and pediatricians to recognize parents with this malformation and appreciate the potential for severely affected offspring.

Becker PG: Counseling families with twins: birth to 3 years of age. Pediatr Rev 1986 Sep;8(3):81-6

Bell TA: Chlamydia trachomatis infection in dizygotic twins delivered by caesarean section.
Genitourin Med 1988 Oct;64(5):347-8
Chlamydia trachomatis was isolated from the conjunctiva, pharynx, and rectum of one 10 day old twin delivered by caesarean section without prior rupture of the chorioamnion and from the pharynx of her brother. The means by which C trachomatis causes such infection is not known.

Benirschke K see **Cunniff C**

Benirschke K see **Jackson J**

Berg K see **Pedersen JC**

Bergeman CS see **Nesselroade JR**

Berkowitz GS see **Lynch L**

Berkowitz RL see **Lynch L**

Berry DH see **Prince MT**

Bescos JL see **Fabre E**

Bhaskar PB, Smith RG, Baughman RA: Oral squamous cell carcinoma in identical twins: report of a case.
J Oral Maxillofac Surg 1988 Dec;46(12):1096-8
This case report describes two middle-aged identical female twins with a mild to moderate history of tobacco and alcohol abuse who developed squamous cell carcinomas in the same anatomic sites. By exclusion of major factors, a correlation between heredity and the incidence of cancer in these cases appears likely; however, carcinogenic agents (tobacco and alcohol) must also be considered as contributing factors. Close observation of siblings (and certainly twins) is recommended when head and neck carcinoma occurs prior to middle age. Although no genetic population prone to oral cancer is known, the disease is rare enough in younger individuals to raise the question of a possible genetic predisposition.

Bishop DT see **Slattery ML**

Bisset RA, Gupta SC: Hypertrophic pyloric stenosis, ultrasonic appearances in a small baby.
Pediatr Radiol 1988;18(5):405

Blickstein I, Lancet M: The growth discordant twin.
Obstet Gynecol Surv 1988 Sep;43(9):509-15 (48 ref.)
The study of growth discordancy in twin gestation has gathered great momentum in recent years. Divergent intertwin growth is believed to be a direct result of the process of twinning and of the inability of the uterine environment to provide for the increased demand of multiple fetuses. The smaller twin faces increased risk of perinatal mortality and morbidity as well as reduced physical and mental development in later life. The advent of ultrasonography enabled a fairly accurate prediction of growth disparity. Although extensive investigative efforts have clarified many questions regarding divergent twin growth, the question how to manage such pregnancies remains to be answered. The present article is a review of the literature concerning the clinical aspects of growth discordant twins.

Blix K see **Gillberg C**

Bomben G see **Stassen HH**

Bønnelykke B see **Olsen J**

Bonomini V see **Vangelista A**

Booysen JT see **Smith J**

Bouchard T see **Hanson B**

Brudno DS see **Beck RB**

Bryson SE see **Smith IM**

Bucci FA JR, Catalano RA, Simon JW: Discordance of accommodative esotropia in monozygotic twins.
Am J Ophthalmol 1989 Jan 15;107(1):84-5

Burns KA see **Stauffer A**

Burns WJ see **Stauffer A**

Byrne E, Trounce I, Dennett X, Gilligan B, Morley JB, Marzuki S: Progression from MERRF to MELAS phenotype in a patient with combined respiratory complex I and IV deficiencies.
J Neurol Sci 1988 Dec;88(1-3):327-37
Identical twins developed myoclonic epilepsy in their teens. One twin remained mildly affected but the other went on to develop sensorineural deafness and ataxia with lactic acidosis and ragged red fibres leading to a diagnosis of mitochondrial encephalopathy. Multiple stroke-like episodes with hemiparesis followed, indicating progression from a MERRF to a MELAS phenotype. Biochemical studies revealed a severe deficiency of mitochondrial NADH-ubiquinone reductase and a moderate deficiency of cytochrome aa3. Western immunoblotting experiments using polyclonal antibodies raised against human placental cytochrome oxidase identified a similar profile of bands to those seen in controls, supporting the view that cytochrome aa3 deficiency in this case may be a secondary consequence of a failure of assembly related to a severe proximal respiratory chain defect.

AUTHOR SECTION

C

Campbell D see **Smith AP**
Capella-Pavlovsky M see **Cox WL**
Casaer P see **Vles J**
Catalano RA see **Bucci FA JR**
Cetrulo C see **Feingold M**
Chaudhury A see **Feingold M**
Chervenak J see **Apuzzio JJ**

Chescheir NC, Seeds JW: Spontaneous resolution of hypofibrinogenemia associated with death of a twin in utero: a case report. Am J Obstet Gynecol 1988 Nov;159(5):1183–4
Spontaneous resolution of hypofibrinogenemia after intrauterine death of one twin occurred and suggests that prophylactic heparin therapy in such cases is unnecessary.

Chitayat D, Nakagawa S, Marion RW, Sachs GS, Hahm SY, Goldman HS: Aspartylglucosaminuria in a Puerto Rican family: additional features of a *panethnic disorder*. Am J Med Genet 1988 Nov; 31(3):527–32
We report on 3 Puerto Rican brothers with the clinical and laboratory findings of aspartylglucosaminuria (AGU). Their parents were first cousins. The affected sibs have the "cardinal" manifestations of AGU, including developmental disabilities, progressive "coarsening" of the face, and early onset of hepatosplenomegaly. Biochemical studies showed elevated levels of urinary aspartylglucosamine and very low activity of aspartylglucosaminidase(AGA) in cultured fibroblasts. With long term follow-up, previously undescribed manifestations were noted, including radiographic evidence of spondylolysis and spondylolisthesis in early childhood and development of macro-orchidism during puberty. This family shows that AGU is not limited to individuals of Finnish background, but that the gene is panethnic in distribution and that additional changes, not previously noted, may present with advancing age.

Chitkara B, Macdonald A, Reveley AM: Twin birth and adult psychiatric disorder. An examination of the case records of the Maudsley Hospital.
Br J Psychiatry 1988 Mar;152:391–8
We compared the general distribution of diagnoses in 20,895 patients at the Maudsley Hospital with that of 504 patients born twins, including 117 twins where the co-twin had died before the age of 15. Significant differences in diagnostic distribution were found in the co-twin-dead compared with the co-twin-alive group; the former received diagnoses of schizophrenia, personality disorder, or substance abuse more often than the latter. While there were no overall differences between twins and non-twins, there were relatively more twins in the above three diagnostic groups. We suggest that the factors leading to the death of one twin are implicated in the later psychiatric morbidity of the survivor.

Chitkara U see **Lynch L**
Cho CT see **Seguin J**

Christian JC, Li TK, Norton JA Jr, Propping P, Yu PL: Alcohol effects on the percentage of beta waves in the electroencephalograms of twins.
Genet Epidemiol 1988;5(4):217–24
Electroencephalogram (EEG) recordings were made from 26 pairs of monozygotic (MZ) and 26 pairs of dizygotic (DZ) adult male twins, before and after alcohol ingestion. After a baseline EEG and a light breakfast, 1.2 ml/kg of ethanol was given orally over 15 min and the EEG repeated four times at hourly intervals. Alcohol caused a significant drop in the percentage of beta waves (14–30 cycles/sec) during the 1st hr. For the percentage of beta waves in 38 pairs of twins with complete data, MZ twin beta-wave intraclass correlations (RMZ) ranged between 0.85 and 0.91 before and after alcohol, but the DZ intraclass correlations (RDZ) started at 0.54 and fell to 0.05 at 2 hr after alcohol before recovering to baseline levels. These correlations resulted in heritability estimates [2(RMZ-RDZ)] of 0.68 at baseline and 1.73 at 2 hr. A heritability of 1.43 was found for the 1st hr drop in percentage of beta waves (RMZ = 0.78, RDZ = 0.06). These unrealistically high heritabilities, due to RDZ's approaching 0.0, suggest a failure of assumptions in the linear twin model that was used. Also, these findings are similar to, but more exaggerated than, findings in resting EEG's and visually evoked EEG potentials of twins and are compatible with the influence of gene interactions.

Christian JC, Yu PL, Slemenda CW, Johnston CC Jr: Heritability of bone mass: a longitudinal study in aging male twins. Am J Hum Genet 1989 Mar; 44(3):429–33
Midshaft radial bone mass was first measured from 1970 through 1972 by photon absorptiometry in 42 pairs of monozygotic (MZ) and 38 pairs of dizygotic (DZ) male Caucasian twins (age 44–55 years). The MZ intraclass correlation (rMZ) of .70 was significantly larger (P less than .05) than the DZ correlation (rDZ) of .45, providing evidence for genetic influences (Smith et al. 1973). Radial bone mass measurements repeated 16 years later (1986–87) on 25 of the MZ pairs and on 21 of the DZ pairs revealed an rMZ of .61 and an rDZ of .44, but the difference was not significant (P greater than .05). The twins had an average radial mass loss of 0.49%/year between the two examinations. The rMZ (.52) and rDZ (.49) values for the 16-year loss in radial mass were both significantly different from zero, but their similar size indicated that the correlations were due to nongenetic factors. In a search for the source of genetic influences on adult radial mass, heritability was estimated by the formula 2(rMZ - rDZ) for radial width and was found to be .66 and .76 (P less than .05) for examinations 1 and 2, respectively. An index of radial density (mass/width) was calculated, and the differences between rMZ and rDZ were not significant at either examination. The intraclass correlations (rMZ = .35; rDZ = .43) were both significant for the loss of bone density between examinations but provided no evidence for genetic influences, results similar to the findings for the loss of mass.(ABSTRACT TRUNCATED AT 250 WORDS)

Christian JC see **Miller JZ**
Coates PM see **Meininger JC**
Colletto GM see **Rapaport D**

Collins JW Jr, Merrick D, David RJ, Ameli S, Ogata ES: The Northwestern University Triplet Study. III: Neonatal outcome.
Acta Genet Med Gemellol (Roma) 1988;37(1):77–80
Limited data suggest that cesarean section (CS) may be the preferred method of delivery for triplets. Despite this, it is also felt that the third triplet is at great risk at delivery. We reviewed our experience of 14 triplet pregnancies at Northwestern University between 1981 and 1985. All deliveries were attended by neonatal teams in sufficient number to resuscitate each infant. Of the 14 pregnancies, two ended in previable loss. Thirty-six infants were born from 12 pregnancies of a mean gestational age of 33 weeks (28–38 weeks). The overall survival was 97.3%. Two

women delivered vaginally. While the first was successful, the second resulted in vaginal delivery of the first two triplets followed by emergency CS for the third. That infant had a cord blood pH of 6.96 (BE-19), was resuscitated and survived. All 10 CS were successful. The mean cord blood gas tensions and pH were normal. In addition, Apgar scores, the requirement for mechanical ventilation or supplemental oxygen, and mortality did not differ between the first and third-born triplet. These observations suggest that CS was beneficial. Our very low mortality rate supports the concept that CS delivery and aggressive neonatal resuscitation and therapy greatly enhances survival.

Comings DE see **Kovacs B**

Cox WL, Forestier F, Capella-Pavlovsky M, Daffos F: Fetal blood sampling in twin pregnancies. Prenatal diagnosis and management of 19 cases.
Fetal Ther 1987;2(2):101-8 (16 ref.)
Twin pregnancies pose particular problems in both prenatal diagnosis and obstetric management. We present 19 twin pregnancies that underwent fetal blood sampling (FBS). The indications were mostly similar to those for singleton pregnancies, with both fetuses being sampled. There was one indication specific to twin pregnancies; disseminated intravascular coagulation in the retained twin after the death-in-utero (DIU) of the other. In 5 cases, only 1 twin was sampled; in 2 because the second twin was female in the diagnosis of an X-linked disorder; in 1 because of technical failure, and in 2 the other twin had predeceased. Eight pregnancies continued after the FBS delivering 2 live, healthy infants, though 5 were delivered before 37 weeks of gestation. In 7 cases there was a discordance in the diagnosis between the twins. In 3 of these cases the affected fetus underwent selective termination by air embolism; in 2 cases the pregnancies were continued and the affected twin not resuscitated; 1 pregnancy is still in progress, and 1 patient had a non-medically supervised termination of both twins in another country. Two patients miscarried within a week of the FBS. Two patients had only 1 living twin at the time of FBS; 1 had a second DIU a month after the FBS and the other a neonatal death at 11 days of age in an infant with severe porencephaly. FBS is technically feasible for similar indications as for singleton pregnancies though discordance in diagnosis raises specific management problems.

Creinin M, MacGregor S, Socol M, Hobart J, Ameli S, Keith LG: The Northwestern University triplet study. IV. Biochemical parameters.
Am J Obstet Gynecol 1988 Nov;159(5):1140-3
Umbilical arterial and venous blood gas indices of 11 triplet pregnancies were reviewed. Ten sets of triplets were delivered by cesarean section and one set was delivered vaginally. Mean 1-minute Apgar scores were significantly lower in the group of infants delivered third than in either of the other birth order groups. There were no statistically significant differences when the mean umbilical arterial or venous pH, PCO2, and base deficit were compared among any one triplet and the other two. Similarly, no significant differences were found when these parameters were compared by birth order in relation to mean 5-minute Apgar scores, mean birth weights, and mean gestational ages at delivery. Birth order did not appear to significantly influence acid-base status, although it may become significant with an increasing time in utero after delivery of the firstborn infant. Further study is necessary to investigate whether there is a critical interval of delivery whereby the infants remaining in utero become acidotic.

Cunniff C, Jones KL, Jones MC, Saunders B, Shepard T, Benirschke K: Laterality defects in conjoined twins: implications for normal asymmetry in human embryogenesis. Am J Med Genet 1988 Nov; 31(3):669-77
We evaluated six pairs of conjoined twins: four pairs were dicephalus, and two were of the ischiopagus type. In three of the four dicephalus pairs, the right twin had an abnormality of laterality that included a right aortic arch, reversed great vessel orientation, bilateral right-sided isomerism of the lungs, asplenia, and situs inversus of the viscera. The left twin had normal great vessel orientation and situs solitus in each case. The finding that was unique in these three dicephalus twin pairs was their fused hearts, which were similar in orientation and configuration. The fourth dicephalus twin pair had one normally rotated heart, which was located in the midline and had normally placed chambers and great vessels. Each twin of this pair had normal visceral situs. In the two pairs of ischiopagus twins, each pair had two separate hearts, with normal cardiac structure and great vessel relationships. The viscera expressed normal laterality. Documentation of a defect in laterality in the right twin in three conjoined twin pairs with fusion of the hearts, combined with the presence of normal laterality in three pairs without cardiac fusion, has implications regarding the mechanisms leading to laterality of the human embryo. We suggest that rotation of the heart initiates the embryo's process of lateralization and that the laterality defects of the viscera seen in the right twin are a result of their abnormal cardiac rotation.

Cutner A, Abel PD: Undescended testis: a dual lesson. Br J Urol 1988 Sep;62(3):273-4

D

Daffos F see **Cox WL**
Daniels H see **Vles J**
David RJ see **Collins JW Jr**
Davis JA: Management of perinatal loss of a twin [letter] BMJ 1988 Dec 17;297(6663):1613
de Agustin JL see **Fabre E**
de Martinville B see **Litz CE**
Dennett X see **Byrne E**
Derom R see **Thiery M**
Dev VG see **Shah DM**
Donn SM see **Viscardi RM**
Douglass AB, Harris L, Pazderka F: Monozygotic twins concordant for the narcoleptic syndrome. Neurology 1989 Jan;39(1):140-1
We report the first documented monozygotic twins who both had the narcoleptic syndrome. We assessed monozygosity by HLA antigens and by blood groups. In contrast to virtually all other narcoleptics, they had HLA-DQ1 instead of HLA-DR2; this helped to localize the gene, and perhaps explains its greater expressivity in these than in other twins.
Duckett JW see **Holcomb GW 3d**
Duckett JW see **Snow BW**
Dunn BE see **Lytton H**

E

Eckert E see **Hanson B**
Erkkola R see **Ylitalo V**

AUTHOR SECTION

F

Fabre E, González de Agüero R, de Agustin JL, Pérez-Hiraldo MP, Bescos JL: Perinatal mortality in twin pregnancy: an analysis of birth weight-specific mortality rates and adjusted mortality rates for birth weight distributions.
J Perinat Med 1988;16(2):85–91
The objective of this study is to compare the fetal mortality rate (FMR), early neonatal mortality rate (ENMR) and perinatal mortality rate (PMR) of twin and single births. It is based on a survey which was carried out in 22 Hospital Centers in Spain in 1980, and covered 1,956 twins born and 110,734 singletons born. The FMR in twins was 36.3/1000 and 8.8/1000 for singletons. The ENMR in twins was 36.1/1000 and 5.7/1000 for singletons. The PMR in twins was 71.1/1000 and 14.4/1000 for singletons. When birthweight-specific PMR in twin and singletons births are compared, there were no differences between the rates for groups 500–999 g and 1000–1499 g. For birthweight groups of 1500–1999 g (124.4 vs 283.8/1000) and 2000–2999 g (29.6 vs 73.2/1000) the rates for twins were about twice lower than those for single births. The PMR for 2500 g and over birthweight was about twice higher in twins than in singletons (12.5 vs 5.5/1000). After we adjusted for birthweight there was a difference in the FMR (12.6 vs 9.8/1000) and the PMR (19.1 vs 16.0/1000, and no difference in the ENMR between twins and singletons (5.9 vs 6.4/1000), indicating that most of the differences among crude rates are due to differences in distribution of birthweight.

Fakeye O: Breech births in twin pregnancy: an analysis of Apgar score and perinatal mortality from a Nigerian sample. Int J Gynaecol Obstet 1988 Aug; 27(1):11–6
Perinatal mortality (PNM) rates are reported for 146 twin-1 and 192 twin-2 breech births among 622 consecutive twin pairs delivered at the University of Ilorin Teaching Hospital, Ilorin, Nigeria. Stillbirths and infants with severe asphyxia (Apgar score 1–3) were recorded in significant proportions of both first and second twin breech infants. PNM rates were 13.7% twin-1, 18.8% twin-2; corrected PNM for infants weighing 2.0 kg or more, were 9.3% and 12.4% for twin-1 and twin-2, respectively. Twin specific breech PNM decreased with increasing birthweight of first and second twin to a low optimum in the weight group 2.5–2.9 kg, and thereafter rose for both first and second twin with birthweight 3.0 kg and above. Factors such as low birthweight, breech/breech presentation, breech extraction and retained second twin breech contributed significantly to the high PNM rates. More favorable PNM rates were recorded among a limited number of breech infants delivered by primary cesarean section for breech/breech or first twin breech presentations. A liberal approach to cesarean section delivery for breech twin births, and particularly for paired breech/breech presentations is strongly advocated.

Feingold M, Cetrulo C, Peters M, Chaudhury A, Shmoys S, Geifman O: Mode of delivery in multiple birth of higher order.
Acta Genet Med Gemellol (Roma) 1988;37(1):105–9
A retrospective review of triplets delivered at a Boston perinatal center from 1977 to 1986 was performed. Comparison was made between this group (study group) and previously published data on triplets in our institution (control group). Since 1977 there was a more liberal use of abdominal delivery. Cesarean sections (CS) of all triplets with malpresentation was our protocol. Of the 15 sets of triplet pregnancies in the study group, 11 were delivered by CS and 4 by vaginal delivery, vs only 1 CS in the control group which consisted also of 15 triplets. The corrected mortality rate in the study group was lower than in the control group (2.6% vs 7.1%) but did not reach statistical significance. Apgar scores at 1 and 5 minutes were significantly higher in the study group (P less than 0.002). Apgar scores for the third triplet were also higher in the study group (P less than 0.05). In comparing the combined mortality and morbidity between the study group and the control group, no difference was found in the first triplet, but those of the second and third triplets were significantly lower in the study group. Of interest is the finding that the combined mortality and morbidity was not different statistically among the first, second, and third triplets in the study group, while in the control group an increase from the first to the third triplet was noted (21%, 31%, and 43%, respectively). A more liberal approach toward abdominal delivery of pregnancies of higher fetal number is advocated.

Fineberg NS see **Miller JZ**
Flavin MA see **Khalifa MM**
Folk ER see **Kaufman LW**
Forestier F see **Cox WL**
French TK see **Slattery ML**
Friberg L see **Pedersen NL**
Furukawa K see **Matsukura N**

G

Gallagher P see **Meininger JC**
Ganesh VV see **Apuzzio JJ**
Gao J, Gao YF: Prenatal diagnosis of conjoined twins with real-time ultrasound. A case report.
Chin Med J [Engl] 1988 Jan;101(1):58–60
Gao YF see **Gao J**
Gaylord S see **Morales WJ**
Geifman O see **Feingold M**
Gillberg C, Ohlson VA, Wahlström J, Steffenburg S, Blix K: Monozygotic female twins with autism and the fragile-X syndrome (AFRAX).
J Child Psychol Psychiatry 1988 Jul;29(4):447–51
Identical female twins with the combination of infantile autism, mild–moderate mental retardation and the fragile-X (q27.3) chromosome abnormality are described. The case report highlights the need for chromosomal cultures in both boys and girls presenting with the "Kanner syndrome".
Gilligan B see **Byrne E**
Giudici M see **Greenspon AJ**
Goldman HS see **Chitayat D**
Goldstein I see **Zimmer EZ**
González de Agüero R see **Fabre E**
Gottesman II: Exploring drug abuse with genetic strategies: cautionary tales. NIDA Res Monogr 1988; 89:150–64
Graham P see **Stevenson J**
Greenspon AJ, Kidwell GA, Barrasse LD, Hessen SE, Giudici M: Hereditary long QT syndrome associated with cardiac conduction system disease. PACE 1989 Mar;12(3):479–85
This report describes the cardiac conduction abnormalities, detected by invasive electrophysiological study, in two identical siblings with symptomatic congenital long QT syndrome. Both patients had evidence of intra-Hisian conduction delay in response to programmed atrial

AUTHOR SECTION

stimulation and pacing induced infranodal block was seen in one of the two patients. The response of the observed conduction delay to autonomic interventions is described. The observed electrophysiologic abnormalities are consistent with previously reported pathological findings and document the association of functional conduction system disease with congenital QT prolongation.

Greiner AL see **Weil SM**
Grim CE see **Miller JZ**
Gupta SC see **Bisset RA**

H

Haapanen A see **Lassila R**
Hahm SY see **Chitayat D**

Hanson B, Tuna N, Bouchard T, Heston L, Eckert E, Lykken D, Segal N, Rich S: Genetic factors in the electrocardiogram and heart rate of twins reared apart and together. Am J Cardiol 1989 Mar 1; 63(9):606–9

Important physiologic mechanisms have been thought not to exhibit large amounts of variability, due in part to the assumption that critical biologic functions will have evolved to an evolutionary optimum. The attainment of this optimum would necessarily eliminate individual differences in these variables. Using a sample of monozygotic and dizygotic twins reared apart since birth or early infancy, 12-lead electrocardiographic recordings and vectorcardiograms were obtained. Values of these variables for monozygotic and dizygotic twins reared together were obtained from other studies. Maximum likelihood tests of genetic and environmental components of variation for PR interval, QRS duration, QT interval and ventricular rate indicated a significant contribution of genetic effects (most heritabilities ranged from 30 to 60%), with a negligible contribution from common familial environmental effects.

Harris L see **Douglass AB**
Hasstedt SJ see **Hunt SC**
Hayes P see **Morales WJ**
Hayman LL see **Meininger JC**
He XX see **Xia JH**

Heath AC, Martin NG: Teenage alcohol use in the Australian twin register: genetic and social determinants of starting to drink.
Alcoholism (NY) 1988 Dec;12(6):735–41

Retrospective information about teenage alcohol use was obtained from 1589 adult twin pairs aged 20–30 years from the Australian twin register. Twin pairs were highly concordant both for teenage drinking (or abstinence) and for early versus late onset of drinking. Sociodemographic variables (e.g., paternal occupation and parental religious affiliation) and psychosocial variables (e.g., personality and attitudinal traits), assessed when the twins were adults, were comparatively poor predictors of teenage drinking. Environmental influences on onset of drinking appeared to be sex-specific, i.e., uncorrelated over twins from unlike-sex pairs. Among drinkers, early versus late onset of drinking was more strongly influenced by inherited factors in females, but by shared features of the social environment (e.g., family background or school experience) in males.

Heller RF, O'Connell DL, Roberts DC, Allen JR, Knapp JC, Steele PL, Silove D: Lifestyle factors in monozygotic and dizygotic twins.
Genet Epidemiol 1988;5(5):311–21

In examining genetic influences on biological variables using twins, it may be important to examine the distribution between and within twin pairs of demographic and lifestyle factors that may themselves affect the biological variable being studied. We explored the distribution of demographic and lifestyle factors that may affect blood lipid levels or ischaemic heart disease (IHD) risk among a sample of 106 monozygotic (MZ) and 94 like-sex dizygotic (DZ) twin pairs. In our sample, MZ twins were statistically significantly different from DZ twins only in marital status, cigarette smoking habits, and the ratio of polyunsaturated to saturated fat (P:S ratio) in their dietary intake. The latter variable was among many dietary variables examined (using 4-day weighed food diaries), and the size of the difference in intake was small. When comparisons were made of the similarities within twin pairs, we found members of MZ twin pairs to be statistically significantly closer than DZ twins in educational achievement, occupation, cigarette smoking, and exercise habits, and the number of days a week on which alcohol was consumed. These last three variables were consistently closer among twins with closer contact than among those with a smaller degree of current shared environment. For 12 of the 13 nutrients examined, the within-pair correlations were higher for MZ than for DZ twins, although our test for significant genetic variance showed statistical significance only for intake of complex carbohydrates. We conclude that MZ twins share demographic and lifestyle factors that might influence the risk of IHD and blood lipid levels to a greater degree than do DZ twins, although it is difficult to say if these similarities in lifestyle result from genetic influences or not. Nevertheless, ascribing differences between correlations in MZ and DZ twin pairs for lipid levels as being purely "genetic"—as implicit in conventional measures of heritability—is likely to overestimate the influence of genetic factors.

Heller RF see **O'Connell DL**
Herman CE see **Stauffer A**
Hessen SE see **Greenspon AJ**
Heston L see **Hanson B**
Heubi J see **Setchell KD**
Heyman S see **Snow BW**
Hobart J see **Creinin M**

Holcomb GW 3d, Keating MA, Hollowell JG, Murphy JP, Duckett JW: Continent urinary reconstruction in ischiopagus tripus conjoined twins. J Urol 1989 Jan;141(1):100–2

The principle of the continent urinary reservoir involves use of a variety of intestinal segments providing continence, a mechanism of antireflux and a catheterizable stoma in either an abdominal or pelvic location. This concept was used to create a continent urinary reservoir in a 3-year-old former ischiopagus tripus conjoined twin. The solitary renal unit had been drained into a hydrocolpos with an antirefluxing ureteral reimplantation at separation. The patient remained incontinent through the urogenital sinus. At subsequent reconstruction the posterior aspect of the hydrocolpos was tubularized as a vagina, while the remainder of the hydrocolpos was augmented with ileum to create a urinary reservoir. The conduit was constructed with imbricated ileum, in which myectomy had been performed to allow for easier imbrication and tubularization for a narrow neourethra. A second set of conjoined twins have been separated similarly. Of these twins 1 will undergo creation of a continent urinary reservoir in an identical fashion. This represents the first report of the use of hydrocolpos

AUTHOR SECTION

in the creation of a urinary reservoir.

Holland AJ, Sicotte N, Treasure J: Anorexia nervosa: evidence for a genetic basis. J Psychosom Res 1988; 32(6):561–71

This paper reports the preliminary results of a combined twin and family study of anorexia nervosa. Fifty-six per cent of the 25 female monozygotic (MZ) twin pairs and 5% of the 20 female dizygotic (DZ) twin pairs were concordant for anorexia nervosa. Nearly 5% of other female first degree relatives also had a history of anorexia nervosa. Analysis of data from the Eating Disorders Questionnaire (EDI) given to the twins and data as to weight loss, length of amenorrhoea and other characteristics of anorexia nervosa, together with the twin and family data, supports the hypothesis that genetic factors are very significant in the aetiology of anorexia nervosa. Analysis of this data using established techniques of psychiatric genetics suggested that up to 80% of the variance in liability to anorexia nervosa may be accounted for by genetic factors. The problems of this type of analysis are discussed as is the background to the genetics of weight and appetite control. A genetic/environmental model accounting for the features of anorexia nervosa is proposed.

Hollowell JG see **Holcomb GW 3d**

Hopkins PN see **Hunt SC**

Hunt SC, Hasstedt SJ, Kuida H, Stults BM, Hopkins PN, Williams RR: Genetic heritability and common environmental components of resting and stressed blood pressures, lipids, and body mass index in Utah pedigrees and twins. Am J Epidemiol 1989 Mar; 129(3):625–38

The relative contributions of genes and shared environment to cardiovascular risk factors were studied in twins and pedigrees in 1983–1985. Sitting, standing, isometric hand grip, bicycling, and mentally stressed (serial subtraction) blood pressures were obtained from 146 male monozygous twins, 162 male dizygous twins, and 1,102 healthy adults in 67 Utah pedigrees. Fasting total plasma cholesterol, triglycerides, high density lipoprotein cholesterol (HDL), and body mass index were also measured. Heritability was estimated before and after adjusting for 12 environmental variables (measures of socioeconomic status; personality types; exercise levels; use of tobacco, alcohol, coffee, etc.) by using age-adjusted twin intraclass correlations. These heritabilities were compared with those obtained from a variance components analysis of the pedigree data separating genetic and common household effects. Sitting and standing blood pressure heritability estimates were much higher from twin than from pedigree data (39–63% in twins vs. 16–22% in pedigrees), as were those for cholesterol and triglycerides (65 and 75% from twins vs. 42 and 37% from pedigrees) and body mass index (51 vs. 21%). Estimates were similar for heritability of HDL cholesterol (51 vs. 45%). Most of the stressed blood pressure heritabilities were similar to sitting blood pressure estimates. No common household effect (except for adjusted HDL cholesterol (24%), p less than 0.01) was statistically significant for the lipids, blood pressures, or body mass index. Environmental variables correlated much better in monozygous twins and spouses than in dizygous twins, brothers, or sisters. Spouse correlations for lipids, blood pressures, and body mass index were low, with a maximum of 0.12 (p less than 0.05) for HDL cholesterol. We conclude that genes contribute much more than shared environment to the well-recognized familial correlation of blood pressures, lipids, and body mass index.

Hunt SC see **Slattery ML**

Hurren AJ, Sommerville AJ, Warren VF: Antenatal diagnosis of a set of conjoined twins presenting with unusual ultrasound findings. JCU 1988 Nov–Dec; 16(9):672–4

I

Imai T see **Itoman M**

Itoman M, Imai T: Aseptic necrosis of the femoral head supervening on systemic lupus erythematosus in identical twins--case report.
Nippon Seikeigeka Gakkai Zasshi 1988 Jun; 62(6):609–15

Identical twins who grew up in different environments from 100 days after birth developed systemic lupus erythematosus (SLE), followed later by aseptic necrosis of the femoral head (ANFH). Diagnosis of SLE was made in the younger sister (case 1) at age 14 and the elder (case 2) at 21 years of age. ANFH developed in these cases 5.9 and 1.2 years after the onset of SLE respectively. From some ovular identifications, they were diagnosed as being completely identical. These cases are of particular interest, since they suggest that hereditary factors are concerned with the development of ANFH to some degree.

Ivarsson SA see **Ahlfors K**

J

Jackson J, Benirschke K: The recognition and significance of the vanishing twin.
J Am Board Fam Pract 1989 Jan–Mar;2(1):58–63

With the advent of sonography, a twin pregnancy may be diagnosed in early gestation. Serial sonographic examinations can show the disappearance of one of two twins. We offer evidence of an early twin pregnancy with a "vanishing twin," resulting in a liveborn singleton plus a fetus papyraceus. There is an increasing body of information about explanations, management, and complications associated with a multiple gestation and fetal death. The distinction between monochorionic and dichorionic twins is important in their management and for both maternal and fetal prognosis. Identification of dizygotic twins through chromosomal or sonographic studies, revealing separate placentas, separate membranes, or different sexes, theoretically allows the physician to predict a favorable outcome for the live twin and the mother.

Jeanty P see **Shah DM**

Johnson C, Yngve DA: Answer please. Diastrophic dwarfism. Orthopedics 1988 Oct;11(10):1501–2

Johnston C, Alviggi L, Millward BA, Leslie RD, Pyke DA, Vergani D: Alterations in T-lymphocyte subpopulations in type I diabetes. Exploration of genetic influence in identical twins. Diabetes 1988 Nov;37(11):1484–8

To evaluate factors influencing the alteration in subsets of T-lymphocytes, we studied 24 pairs of identical twins discordant for insulin-dependent (type I) diabetes mellitus. Subsets were assessed by monoclonal antibodies and a pure preparation of peripheral blood mononuclear cells obtained by centrifugation of heparinized whole blood with a Ficoll/Triosil gradient. In 12 pairs studied within 5 yr of diagnosis, we observed a reduction in the percentage of cells reacting with OKT8 (recognizing the CD8 antigen present on the suppressor/cytotoxic

subset) (P less than .05), but a similar level was detected in their nondiabetic cotwins. In 12 pairs studied greater than 5 yr after the diagnosis and in whom the nondiabetic twin is less likely to develop diabetes, the percentage of cells reacting with OKT8 was reduced in both the diabetic (P less than .05) and the nondiabetic (P less than .01) twins. Reductions were also seen with OKT3 (recognizing the CD3 antigen present on the total T-lymphocyte population) and OKT4 (recognizing the CD4 antigen present on the helper/inducer subset), but only in the diabetic twins from the group with longer discordance. We conclude that a reduced percentage of suppressor/cytotoxic cells is associated with type I diabetes, but the reduction appears to be genetically determined. Total T-lymphocytes are also reduced but mainly in the helper/inducer subset and only in diabetic patients of long duration. Such a reduction cannot therefore be primarily genetically determined.

Johnston CC Jr see **Christian JC**
Jonasson A see **Pschera H**
Jones KL see **Cunniff C**
Jones MC see **Cunniff C**
Jörg J see **Vieregge P**
Juntunen J see **Kinnunen E**

K

Kaprio J see **Kinnunen E**
Kaprio J see **Laustiola KE**
Kaprio J see **Rose RJ**
Kaprio J see **Teikari JM**
Kaufman LW, Folk ER, Miller MT: Monozygotic twins discordant for Duane's retraction syndrome. Case report. Arch Ophthalmol 1989 Mar; 107(3):324–5
Keating MA see **Holcomb GW 3d**
Keith DM see **Keith LG**
Keith LG, Ameli S, Keith DM: The Northwestern University Triplet Study. I: Overview of the international literature.
Acta Genet Med Gemellol (Roma) 1988;37(1):55–63 (44 ref.)
The international literature on triplet births is surveyed. No definitive work on triplet gestations exists. The relatively few articles on this subject are divided into three categories: 1) national data; 2) local, regional or hospital series; 3) case reports. Clinical concerns, such as prematurity, low birth weight, bed rest, and tocolysis, are discussed with specific reference to literature citations.
Keith LG see **Creinin M**
Kermans G see **Thiery M**
Kero P see **Ylitalo V**
Ketonen L see **Kinnunen E**
Khalifa MM, Flavin MA, Wherrett BA: Congenital central hypoventilation syndrome in monozygotic twins. J Pediatr 1988 Nov;113(5):853–5
Kidwell GA see **Greenspon AJ**
Kingma H see **Vles J**
Kinnunen E, Juntunen J, Ketonen L, Koskimies S, Konttinen YT, Salmi T, Koskenvuo M, Kaprio J: Genetic susceptibility to multiple sclerosis. A co-twin study of a nationwide series.
Arch Neurol 1988 Oct;45(10):1108–11
The problems of differentiation between environmental and genetic influences on the development of multiple sclerosis are well known. Twin studies may provide valuable information on this question. However, most published twin series are selected and no through clinical twin studies based on epidemiologic series have been carried out. In this study, all available same-sex twin pairs with clinically definite multiple sclerosis derived from the Finnish Twin Cohort of 15815 pairs were studied by clinical evaluation, magnetic resonance imaging, and visual and auditory evoked responses. The mean length of follow-up of the pairs after the onset of symptoms of multiple sclerosis was 20 years. Two of the seven monozygotic pairs were concordant; one was definitely so, and in the other, the co-twin of the index case had, in addition to clinical findings, white matter changes suggestive of multiple sclerosis in magnetic resonance imaging and abnormal visual evoked responses. All six dizygotic pairs were discordant. The frequency of the HLA antigen DR2 in probands (69%) was significantly increased, but the distribution among the healthy subjects and patients showed nonsignificant differences. The results indicate a genetic influence on the susceptibility to multiple sclerosis, although still unknown genetic determinants are possible involved.
Kiyama T see **Matsukura N**
Knapp JC see **Heller RF**
Knapp JC see **O'Connell DL**
Knuppel RA see **Morales WJ**
Kodama A see **Sameshima K**
Konttinen YT see **Kinnunen E**
Koskenvuo M see **Kinnunen E**
Koskenvuo M see **Lassila R**
Koskenvuo M see **Laustiola KE**
Koskenvuo MK see **Teikari JM**
Koskimies S see **Kinnunen E**
Kovacs B, Shahbahrami B, Platt LD, Comings DE: Molecular genetic prenatal determination of twin zygosity. Obstet Gynecol 1988 Dec;72(6):954–6
A method of human identity determination using synthetic oligonucleotide probes was applied to prenatal determinations of twin zygosity. Deoxyribonucleic acid "fingerprints" were obtained from chorionic villi or amniocytes. In all cases, the technique predicted twin zygosity with very small tissue samples. The accuracy and simplicity of the method far exceed those of any other currently used technique. This technique should be applicable in those situations in which prenatal determination of relationship is needed.
Kuida H see **Hunt SC**

L

Laing S see **Sherman SL**
Lancet M see **Blickstein I**
Lassila R, Laustiola KE: Physical exercise provokes platelet desensitization in men who smoke cigarettes—involvement of sympathoadrenergic mechanisms—a study of monozygotic twin pairs discordant for smoking. Thromb Res 1988 Jul 15; 51(2):145–55
Since chronic smoking is known to be a dominant risk factor for morbidity and mortality in cardiovascular diseases related to enhanced atherogenesis and arterial thrombogenesis, the mechanisms causing these effects are of interest. The present study aims to assess the basic biochemical and haemorheological parameters among male monozygotic twinpairs, who have been discordant for smoking in average for over 20 years. Because smoking is known to cause enhanced sympathoadrenergic activation, the study was designed to further stimulate this by means of physical exercise. The platelet aggregation in vitro and serum-thromboxane B2 (S-TxB2) did not differ

AUTHOR SECTION

at rest, but after exercise smokers' platelets were desensitized to all doses of adrenaline and low doses of ADP as well as collagen and the levels of S-TxB2 were lower than among nonsmokers. This finding was supported by the decreased release of serotonin and TxB2 during aggregation induced with adrenaline. The leucocyte counts were significantly higher among smokers at rest and haematocrit as well as platelet counts showed the same tendency. Fibrinogen tended to be be elevated among smokers after exercise and together with haematocrit levels implicated increased blood viscosity. FVIII, vWF and beta-thromboglobulin did not differ. In conclusion we suggest that in smokers the significant exhaustion of platelets to in vitro stimulation might be a consequence of continuous platelet activation during physical stress. This phenomenon together with our other findings implies that the sympathoadrenergic system has a multiple role in vivo, which needs further research to elucidate the mechanisms involved in the effects of smoking on cardiovascular diseases.

Lassila R, Seyberth HW, Haapanen A, Schweer H, Koskenvuo M, Laustiola KE: Vasoactive and atherogenic effects of cigarette smoking: a study of monozygotic twins discordant for smoking. BMJ 1988 Oct 15;297(6654):955-7
The mechanism by which atherosclerotic disease is induced by cigarette smoking has not yet been identified unequivocally. Chronic cigarette smoking and the generation of vasoactive prostanoids and the size of carotid atherosclerotic plaques were studied in nine pairs of identical male twins discordant for smoking for over 20 years. The urinary excretion of 2,3-dinor-thromboxane B2 (thromboxane B2 metabolite) of the smoking twin was significantly higher (on average 1.8 times higher) in every pair and that of 2,3-dinor-6-keto-prostaglandin F1 alpha (prostacyclin metabolite) was significantly higher (on average 1.3 times higher) in eight of the nine pairs. The ratio of excretion of these metabolites was significantly higher, being 4.0 (95% confidence interval 2.7 to 5.4) among the smokers compared with 2.9 (2.1 to 3.8) among the non-smokers, thus favouring a mechanism of vasoconstriction. Excretion of the thromboxane B2 metabolite was related to the urinary concentrations of nicotine metabolites. Atherosclerotic plaques detected by ultrasonography in the carotid arteries were significantly larger among smokers but did not correlate with the urinary excretion of prostacyclin and thromboxane B2 metabolites or intensity of smoking. Smoking was concluded to induce activation of platelets by an effect mediated by nicotine. The increased prostacyclin production, on the other hand, suggested a compensatory mechanism for the general vasoconstrictive properties of cigarette smoking.

Lassila R see **Laustiola KE**

Laustiola KE, Lassila R, Nurmi AK: Enhanced activation of the renin-angiotensin-aldosterone system in chronic cigarette smokers: a study of monozygotic twin pairs discordant for smoking. Clin Pharmacol Ther 1988 Oct;44(4):426-30
Plasma renin activity (PRA) and aldosterone concentration were measured before and during submaximal exercise in 10 male monozygotic twin pairs who were discordant for smoking. In nine twin pairs PRA was higher in the smoker both at rest and during exercise. The mean PRA was 99% higher at rest and 84% higher during exercise than in nonsmokers. Plasma aldosterone levels were higher at rest in seven smokers and during exercise in eight smokers compared with the respective nonsmokers. The mean aldosterone level at rest was 23% and during exercise 40% higher in the smokers than in the nonsmokers. Chronic smoking induces increased PRA, which results in increased aldosterone formation, presumably via enhanced generation of angiotensin II. This may partly explain the greater vasoconstrictive reactivity typical of the arteries of chronic smokers.

Laustiola KE, Lassila R, Kaprio J, Koskenvuo M: Decreased beta-adrenergic receptor density and catecholamine response in male cigarette smokers. A study of monozygotic twin pairs discordant for smoking. Circulation 1988 Nov;78(5 Pt 1):1234-40
The effect of long-term cigarette smoking on beta-adrenoceptor density and catecholamine response was studied in 10 monozygotic male twin-pairs discordant for smoking, with an average discordance time for smoking of 23 years (range, 12-35 years). The density of beta-adrenergic receptors was 40% lower in the lymphocytes of smoking twins compared with their nonsmoking cotwins (beta-receptor density, 6.7 +/- 1.2 and 11.1 +/- 1.8 fmol/10(6) cells, respectively; p less than 0.05). The corresponding apparent Kd values were 31.7 +/- 5.5 and 26.7 +/- 5.4 pM, respectively. Stimulation of the lymphocyte beta-receptors resulted in significantly lower levels of cyclic adenosine monophosphate in the smokers compared with the nonsmokers (16.2 +/- 3.3 vs. 29.2 +/- 6.5 pmol/10(6) cells, p less than 0.05). When subjected to submaximal exercise, the smokers had a lower level of cyclic adenosine monophosphate in plasma (25.9 +/- 1.2 vs. 28.6 +/- 1.0, p less than 0.05) and a net decrease was seen in plasma free fatty acids in the smokers compared with a net increase in the nonsmokers (-15% vs. +19%, p less than 0.01). The total plasma catecholamine level was, in the basal state, significantly higher in smokers compared with nonsmokers (74.8%, p less than 0.05). The intrapair difference in plasma norepinephrine predicted well the intrapair difference in beta-receptor density (r = -0.84, p less than 0.001). We conclude that the autonomic neurohumoral response evoked by cigarette smoking results in downregulation of beta-adrenergic receptors in long-term smokers.

Laustiola KE see **Lassila R**

Le Couteur A, Rutter M: Fragile X in female autistic twins [letter] J Autism Dev Disord 1988 Sep; 18(3):458-60

Leslie RD see **Johnston C**

Lewitter FI see **Redline S**

Li LY see **Xia JH**

Li TK see **Christian JC**

Litz CE, Taylor KA, Qiu JS, Pescovitz OH, de Martinville B: Absence of detectable chromosomal and molecular abnormalities in monozygotic twins discordant for the Wiedemann-Beckwith syndrome. Am J Med Genet 1988 Jul;30(3):821-33
Monozygotic twins discordant for the Wiedemann-Beckwith syndrome (WBS) were studied by cytogenetic and molecular methods to determine if a genetic lesion could be detected in the affected child. Probes known to be localized on the short arm of chromosome 11 and a low copy-repetitive probe were used. No genetic lesions could be ascertained in normal or affected tissue obtained from the WBS twin.

Lumbiganon P, Pengsaa K, Puapermpoonsiri S, Puapairoj A: Neonatal melioidosis: a report of 5 cases. Pediatr Infect Dis J 1988 Sep;7(9):634-6
Melioidosis, caused by Pseudomonas pseudomallei,

occurs in tropical areas and is diagnosed mostly in adults. In Khon Kaen, a province of northeast Thailand, five cases of infantile melioidosis were managed at Srinagarind Hospital. The patient's specimens were submitted to microbiologic and serologic examination for P. pseudomallei demonstrated by indirect hemagglutination. Possible modes of transmission such as environment, perinatal exposure and venereal transmission were investigated.

Lykken D see **Hanson B**

Lykken DT see **Stassen HH**

Lynch L, Berkowitz GS, Chitkara U, Wilkins IA, Mehalek KE, Berkowitz RL: Ultrasound detection of Down syndrome: is it really possible?
Obstet Gynecol 1989 Feb;73(2):267–70
Several ultrasonographic signs have been described in second-trimester fetuses at high risk for Down syndrome. We examined these parameters in twin pregnancies in which one fetus was affected with Down syndrome and the other was normal. Biparietal diameter to femur length ratio was concordant (either normal or abnormal) in eight of nine sets of twins. Actual femur length to expected femur length ratio was concordant in seven of nine sets of twins. Nuchal fold thickening (6 mm or more) correctly identified five out of nine affected fetuses and was not present in any of the normal fetuses. In conclusion, neither ratio was helpful in differentiating the fetus with Down syndrome from its normal cotwin. A thickened nuchal fold was the most informative parameter examined.

Lytton H, Watts D, Dunn BE: Stability of genetic determination from age 2 to age 9: a longitudinal twin study. Soc Biol 1988 Spring-Summer; 35(1–2):62–73

M

McClearn GE see **Nesselroade JR**

McClearn GE see **Pedersen NL**

McCollum JA: Parent playfulness: a case study of infant twins with handicaps.
Child Care Health Dev 1988 Jul–Aug;14(4):235–53
This longitudinal case study was designed to provide descriptive data on game playing between one mother and father and their infant twin sons, each of whom had handicaps. Specific issues addressed were the proportion of interaction time spent playing parent/infant games, the types and characteristics of the games played, whether these varied between the mother and father, and whether there was a relationship between parental game playing and the developing but different abilities of the infants. Results showed many parallels with existing literature on parent/infant games and on differences between mothers and fathers. Results also indicated variations in game playing in relation to the extent of handicap in the infant.

Macdonald A see **Chitkara B**

MacGregor S see **Creinin M**

McGue M: Analytical approaches to twin and family data. NIDA Res Monogr 1988;89:134–49

Marion RW see **Chitayat D**

Martin NG see **Heath AC**

Marzuki S see **Byrne E**

Matsuda Y see **Sameshima K**

Matsukura N, Onda M, Tokunaga A, Yoshiyuki T, Shimizu Y, Nishi K, Furukawa K, Yoshiyasu M, Kiyama T, Tanaka N, et al: Simultaneous gastric cancer in monozygotic twins. Cancer 1988 Dec 1; 62(11):2430–5 (28 ref.)
Monozygotic twins developed gastric cancers that were found almost simultaneously. A 47-year-old man complained of nausea and vomiting; an upper gastrointestinal series and endoscopy revealed advanced gastric cancer invading the serosa. Palliative subtotal gastrectomy was performed. In his asymptomatic twin a gastric polyp was detected during a screening examination, and this was observed for 2 years. After the former twin had undergone surgery, the latter twin was given a detailed endoscopic examination, and biopsy revealed gastric cancer limited to within the mucosa. Curative subtotal gastrectomy was performed. The noncancerous gastric mucosa of the former twin showed severe intestinal metaplasia, but that in the latter showed only spotty metaplasia. They had lived together for 40 years, but the former was a heavy smoker and drank alcohol, while the latter did not. These differences in taste might have contributed to the observed difference in intestinal metaplasia, which indicates chronic mucosal damage.

Mehalek KE see **Lynch L**

Meikle AW see **Slattery ML**

Meininger JC, Hayman LL, Coates PM, Gallagher P: Genetics or environment? Type A behavior and cardiovascular risk factors in twin children.
Nurs Res 1988 Nov–Dec;37(6):341–6
The heritability of Type A behavior and other cardiovascular risk factors was investigated in twin school-age children. The purpose was to differentiate those risk factors that have the potential to respond to environmental and life-style changes. The sample consisted of 71 monozygotic and 34 same-sex, dizygotic twin pairs 6 to 11 years old residing in the Philadelphia metropolitan area. Systolic and diastolic blood pressure, triceps skinfold thickness, body mass, and fasting blood specimens for lipid profiles were collected during home visits. Teachers rated the children's Type A behavior and two of its subcomponents, impatience-aggression and competitive achievement-striving, using the Matthews Youth Test for Health. Statistically significant heritability estimates were found for Type A behavior and its subcomponents, triglycerides, systolic blood pressure, and body mass. Nevertheless, there was substantial environmental influence on these risk factors. The greatest environmental influence was observed for HDL-cholesterol, LDL-cholesterol, apolipoprotein-B and diastolic blood pressure.

Melamed J see **Stauffer A**

Merrick D see **Collins JW Jr**

Meulepas E, Vlietinck R, van den Berghe H: The probability of dizygosity of phenotypically concordant twins. Am J Hum Genet 1988 Dec; 43(6):817–26
A basic element in the determination of the zygosity of a twin pair is the proportion of genotypically concordant pairs among the dizygotic pairs. Two methods to derive this proportion are in common use: the first method requires a laborious enumeration of parental genotypic mating types, and the second method relies on a set of formulas, one for each of the possible combinations of genotypes of two full sibs. In this paper the relation between both methods is uncovered. The set of formulas of the second method is reduced to a single general formula, of which the connection with the ITO method (Li and Sacks 1954) is indicated. By applying both methods in turn to an example concerning the MNS blood group system (Fisher 1951), Fisher's way of performing the calculations according to the 'first method is unraveled, and the preferability of

the second method is made clear. Next, formulas are derived for the probability of genotypic or phenotypic concordance of dizygotic twins when direct information on the genotype or phenotype of one of the parents is available. The case of an X-linked locus is also considered. To facilitate applications, tables are given.

Miller JZ, Christian JC, Fineberg NS, Grim CE: Nutrient intake and blood pressure: families of adult identical twins. J Am Coll Nutr 1988 Dec; 7(6):509–18

To investigate the relationship of dietary intake to blood pressure, 198 adults and 53 children who were members of 92 nuclear families completed a 3-day diet diary prior to an outpatient clinic examination for cardiovascular disease risk factors. Nutrient intake was significantly related to age and anthropometric variables in adults. Sodium and potassium intake were related to blood pressure in adults, but this relationship was no longer significant after adjustment for caloric intake. The diet and blood pressure relationships in children were less clear. Multiple linear regression techniques using age, anthropometric variables, and nutrient intake demonstrated that in adults age and skinfold were the principal determinants of blood pressure, but in children age and saturated fat intake were most likely to enter the equations. In comparisons of normotensive and hypertensive adults, there were no differences in the dietary intakes of these electrolytes. The results of this investigation underscore the complex interaction of nutrient intake with body size and age. Investigators who focus only on a few nutrients and fail to account for other sources of variation can be misled.

Miller MT see **Kaufman LW**

Millward BA see **Johnston C**

Mirsky AF, Quinn OW: The Genain quadruplets. Schizophr Bull 1988;14(4):595–612

The Genain quadruplets are a unique set of monozygous women who are concordant for schizophrenia but discordant for the severity of their disorder. They were studied by David Rosenthal and colleagues at the National Institute of Mental Health in the late 1950's when they were in their twenties and again in 1981 when they were 51. They are faring about as well now as they ever have in their adult lives. The results of psychological tests, some of which were repeated more than 20 years apart, are discussed, as are the effects of medication on attention and memory. The differential response of the Genains to neuroleptic drugs, as well as certain other findings in the 1981 study, leads to a different conclusion about the discordant severity of their disorder from that reached in 1963 by Rosenthal and Quinn. These observations emphasize the value of long-term followup studies in genetically related individuals, with repeated assessments of the same functions.

Miyata K see **Sameshima K**

Moilanen I: Psychic vulnerability as a sequel to perinatal morbidity. A longitudinal twin study with special reference to psychiatric morbidity and inter-twin dependency.

Acta Paediatr Scand Suppl 1988;344:95–105

In this follow-up study 497 twins from 335 twin deliveries were examined between the ages of 12–20 years to ascertain late effects of perinatal complications and mild neurological abnormalities on mental health, by means of questionnaires filled in by the parents and by the twins themselves. One third of the twins had not suffered from any perinatal complications, while one third had been small for gestational age, one third had been born prematurely and one third had suffered from respiratory disorders. Neonatal hypoglycaemia had been found in 22% and hyperbilirubinaemia in 7% of the twins. Perinatal complications had occurred in almost all those twins who later underwent inpatient psychiatric treatment. Most perinatal problems were reflected in the twin's dependency on his co-twin, showing in particular a cumulative effect when occurring simultaneously. Those twins who are currently more dependent learned to walk and speak later than the non-dependent ones, and their EEG background activity of ten years ago, at the age of 2–10 years, was more abnormal than that of the non-dependent ones, indicating brain organic, i.e. probably perceptual, factors enhancing the development of inter-twin dependency. The dependent twins were more submissive and had the most frequent feelings of inferiority. The neurological, psychological and family interactional factors that cause a twin to distrust himself and depend on his co-twin are also discussed in this study.

Morales WJ, O'Brien WF, Knuppel RA, Gaylord S, Hayes P: The effect of mode of delivery on the risk of intraventricular hemorrhage in nondiscordant twin gestations under 1500 g. Obstet Gynecol 1989 Jan;73(1):107–10

The effect of birth order, presentation, and mode of delivery on neonatal outcome in nondiscordant twin gestations under 1500 g was investigated. All neonates had echoencephalograms performed by the fourth day of life to diagnose the presence and severity of intraventricular hemorrhage. One hundred fifty-six sets of twins were included in the study, of which 59 were in a vertex/vertex presentation, 59 in vertex/nonvertex presentation, and 38 with twin A in a nonvertex presentation. Second twins were characterized by a higher incidence of respiratory distress syndrome (RDS): 66 versus 54% (P less than .05), and severe grades of intraventricular hemorrhage: 30 versus 19% (P less than .01). For vertex/vertex twins, cesarean delivery did not result in improved outcome. Rather, the incidence of RDS was significantly increased in neonates from this group delivered by cesarean birth: 67 versus 46% (P less than .01). Among twins in which at least one of the fetuses was in a nonvertex presentation, those born via cesarean delivery demonstrated a lower incidence of both severe grades of intraventricular hemorrhage and mortality. However, after multivariate analysis to correct for differences in birth weight between the groups, no advantage for cesarean delivery could be demonstrated. Therefore, differences in birth weight, rather than in mode of delivery, accounted for the differences in the neonatal outcome of nonvertex-presenting twins.

Morgan MA see **Robie GF**

Morley JB see **Byrne E**

Murphy JP see **Holcomb GW 3d**

N

Nakagawa S see **Chitayat D**

Naritomi K see **Sameshima K**

Nesselroade JR, Pedersen NL, McClearn GE, Plomin R, Bergeman CS: Factorial and criterion validities of telephone-assessed cognitive ability measures. Age and gender comparisons in adult twins. Res Aging 1988 Jun;10(2):220–34

Nielsen J see **Olsen J**

AUTHOR SECTION

Nilsson H see **Ahlfors K**
Nishi K see **Matsukura N**
Norton JA Jr see **Christian JC**
Nurmi AK see **Laustiola KE**
Nyström M, Ranta R: Dental age and asymmetry in the formation of mandibular teeth in twins concordant or discordant for oral clefts.
Scand J Dent Res 1988 Oct;96(5):393–8
The aims of this investigation were: 1) to study the effects of zygosity and the type of cleft on dental age in pairs of twins concordant or discordant for oral clefts, 2) to compare dental age in the twins with that in a population of normal Finnish children, and 3) to study asymmetry in the formation of mandibular teeth with regard to zygosity and the type of cleft. Twenty-two pairs of twins (8 mono- and 14 dizygotic) and one set of monozygotic triplets concordant or discordant for cleft lip (CL), cleft palate (CP), or both (CLP) were investigated. Four of eight mono- and 12 of 14 dizygotic pairs were discordant for clefts. An orthopantomogram of both twins was taken on the same day. In 7 of the 8 monozygotic (88%) and in 4 of the 14 dizygotic (29%) pairs, the dental age was the same in both twins. Of the 12 pairs discordant for clefts, the dental age of the twin with cleft was delayed in 5, advanced in 3, and the same in 4 compared with that of the twin without a cleft. The means of chronologic age and dental age were counted separately for the cleft subgroups and the non-cleft (NONC) group. The dental age was advanced in the CL twins and in the NONC twins, and was the same as chronologic age in the CP twins, but it was delayed in the CLP twins. Asymmetric formation of the 14 mandibular teeth (mostly the second premolars) was encountered in 3 of 8 CLP, in 3 of 18 CP, in 1 of 16 NONC, and in none of 5 CL children. The great similarity in tooth formation among the monozygotic twins indicates strong genetic control of dental maturation in twins concordant and also discordant for cleft.

O

O'Brien WF see **Morales WJ**
O'Connell DL, Heller RF, Roberts DC, Allen JR, Knapp JC, Steele PL, Silove D: Twin study of genetic and environmental effects on lipid levels.
Genet Epidemiol 1988;5(5):323–41
A study of 106 pairs of monozygotic (MZ) and 94 pairs of dizygotic (DZ) twins tested the hypothesis that part of the previously described genetic influence on blood lipid levels can be ascribed to closer similarities among MZ than among DZ twin pairs in environmental factors that affect lipid levels. Participants were adult twin volunteers (age 17–66; 64 male and 136 female pairs) who were selected from the NH & MRC Twin Registry or were respondents to advertisements. They completed a 4-day weighed food diary from which mean nutrient intake was derived. Information on lifestyle and demographic variables was obtained by questionnaire and a nonfasting blood sample was taken for measures of total, low-density lipoprotein (LDL) cholesterol, and high-density lipoprotein (HDL) cholesterol and the HDL2 and HDL3 subfractions. Height and weight were measured, and body mass index (BMI) was calculated (kg/m2). Estimates of the heritability of sex-adjusted lipid levels were 0.72 for total cholesterol, 0.79 for HDL cholesterol, 0.69 for HDL2, 0.20 for HDL3, 1.06 for LDL cholesterol, and 0.44 for sex-adjusted BMI. In all cases except for HDL3, genetic variance was statistically significant. After adjusting for the effects of environmental variables in three different ways, the estimates of heritability were somewhat lower for total cholesterol, HDL2, and BMI, and those for HDL cholesterol (borderline) and LDL cholesterol (definitely) remained statistically significant but were decreased. A genetic influence on HDL3 was not found. Adjusted heritability estimates obtained from one method of analysis were 0.35 for total cholesterol, 0.49 for HDL, 0.04 for HDL2, -0.34 for HDL3, 0.66 for LDL, and 0.32 for BMI. These results suggest that the assumptions made in the classical twin study approach are not appropriate when examining genetic effects on lipid levels or BMI, or indeed on any biological variable that may be affected by environmental factors that tend to be more similar in MZ twins than in DZ twins. In these circumstances, more complex models may be needed to differentiate between genetic and environmental influences.
O'Connell DL see **Heller RF**
Ogata ES see **Collins JW Jr**
Ohlson VA see **Gillberg C**
Olivi A see **Weil SM**
Olsen J, Bønnelykke B, Nielsen J: Tobacco smoking and twinning. Acta Med Scand 1988;224(5):491–4
In a case–control study an association was found between mothers' smoking habits and the frequency of dizygotic twinning. As cases were included all twins born in Denmark in 1984 and 1985. A random sample of 1.5% of mothers to singletons, born in the same period were selected as controls. Only live-borns, conceived after no hormonal treatment, were included in the study. The finding may be due to the well-known anti-estrogen effect of smoking.
Onda M see **Matsukura N**

P

Payne GG Jr see **Robie GF**
Pazderka F see **Douglass AB**
Pedersen JC, Berg K: Normal DNA polymorphism at the low density lipoprotein receptor (LDLR) locus associated with serum cholesterol level.
Clin Genet 1988 Nov;34(5):306–12
A restriction fragment length polymorphism (RFLP) at the low density lipoprotein receptor (LDLR) locus detectable with the restriction enzyme PvuII exhibits association with total serum cholesterol level. People who are homozygous for absence of the PvuII restriction site have a significantly higher total cholesterol level than heterozygotes (the number of homozygotes for presence of the restriction site was too small to permit meaningful comparison). This difference is significant at the 2% level. Thus, this study of sex- and age-adjusted cholesterol levels in a sample of healthy people yields additional evidence and sustains our previous proposal that normal alleles at the LDLR locus contribute to the population variation in total cholesterol levels. Absence of the PvuII site appears to confer an odds ratio of approximately 2.7 for having a cholesterol level in the top quartile of the population distribution.
Pedersen NL, Plomin R, McClearn GE, Friberg L: Neuroticism, extraversion, and related traits in adult twins reared apart and reared together.
J Pers Soc Psychol 1988 Dec;55(6):950–7
The relative importance of genetic and environmental factors for neuroticism, extraversion, impulsivity, and monotony avoidance were estimated in a sample of 99 monozygotic and 229

dizygotic pairs of twins reared apart (TRA) and a matched sample of 160 monozygotic and 212 dizygotic pairs of twins reared together (TRT). The average age was 58.6 (SD = 13.6); 72% of the twins were 50 or older. Model-fitting analyses verified the importance of genetic factors for all four measures; from 23% to 45% of the total variation was attributable to genetic sources. There was considerable evidence that these factors were operating in a nonadditive manner for extraversion and impulsivity. Shared environment accounted for less than 10% of the variance; some evidence for selective placement was found for neuroticism.

Pedersen NL see **Nesselroade JR**
Pengsaa K see **Lumbiganon P**
Pérez-Hiraldo MP see **Fabre E**
Pescovitz OH see **Litz CE**
Peters M see **Feingold M**
Phillips J see **Shah DM**
Pickens RW, Svikis DS: The twin method in the study of vulnerability to drug abuse.
NIDA Res Monogr 1988;89:41-51
Pickens RW see **Svikis DS**
Platt LD see **Kovacs B**
Plomin R see **Nesselroade JR**
Plomin R see **Pedersen NL**
Prince MT, Souheaver GT, Berry DH: Neuropsychological effects of irradiation and chemotherapy treatments upon children with acute lymphoblastic leukemia: a case study of monozygotic twins. Neurotoxicology 1988 Fall;9(3):341-9
Numerous attempts have been made to determine the effects of irradiation and chemotherapy upon cognitive functioning when used for treatment of acute lymphoblastic leukemia (ALL). While many studies have demonstrated a deleterious effect, others have found no significant changes in neuropsychological functioning. The uncertainty regarding the cognitive effects of these treatments is exemplified via a presentation of monozygotic twins who were evaluated via neuropsychological tests. The children received similar induction-consolidation therapy which included intrathecal methotrexate and cranial irradiation. Neuropsychological tests yielded almost identical I.Q. patterns, however, subtle differences were noted between the children when abstract reasoning abilities, achievement tests scores, motor speed, grip strength, performance on complex tasks requiring haptic sensitivity, and fingertip sensitivity were observed. This discussion also summarizes the previous findings related to cognitive function after chemotherapy and radiation therapy and some of the confounding factors which have been noted.
Propping P see **Christian JC**
Propping P see **Stassen HH**
Pschera H, Jonasson A: Is cesarean section justified for delivery of the second twin?
Acta Obstet Gynecol Scand 1988;67(4):381-2
During the last 7-year period, the second twin was delivered by cesarean section in three of 161 twin pregnancies in our Department. The main reasons for this procedure were fetal distress caused by malpresentation or cord prolapse in 2 cases and in the third case placental separation. Cesarean section for delivery of the second twin is justified only in selected cases.
Puapairoj A see **Lumbiganon P**
Puapermpoonsiri S see **Lumbiganon P**
Pyke DA see **Johnston C**

Q

Qiu JS see **Litz CE**
Quinn OW see **Mirsky AF**

R

Rachmilewitz D see **Zlotogora J**
Ranta R see **Nyström M**
Rapaport D, Colletto GM, Zatz M: Genetic and environmental components of serum creatine kinase (CK) and pyruvate kinase (PK) in normal twins: implication for genetic risks estimates in Duchenne muscular dystrophy carriers. Am J Med Genet 1988 Oct;31(2):291-8
The serum activity of creatine kinase (CK) and pyruvate kinase (PK) was measured in 98 pairs of same-sex Brazilian twins. The purpose of this study was to estimate the genetic and environmental components of serum activity levels for both enzymes. Heritabilities were estimated separately by path analysis in each sex. The results showed that CK and PK activities are under genetic control in normal males and females. Environmental components were not statistically significant for CK or PK. The genetic component of both enzymes estimated in females has implications in the calculation of genetic risks for Duchenne muscular dystrophy carriers.
Rathi SK: Aminophylline as diazepam antagonist in a preterm infant [letter] Indian Pediatr 1988 Aug; 25(8):803-4
Rayburn WF see **Viscardi RM**
Redline S, Tishler PV, Rosner B, Lewitter FI, Vandenburgh M, Weiss ST, Speizer FE: Genotypic and phenotypic similarities in pulmonary function among family members of adult monozygotic and dizygotic twins. Am J Epidemiol 1989 Apr; 129(4):827-36
Population studies have demonstrated that obstructive airways disease aggregates within families. The authors used a twin family model of analysis to estimate the genetic and environmental influences on pulmonary function. A total of 1,635 members of 414 families of adult twins (252 monozygotic, 162 dizygotic) enrolled in the Greater Boston Twin Registry were studied between 1981 and 1982. Correlations in levels of forced expiratory volume in one second (FEV1) and forced vital capacity (FVC), adjusted for age, sex, height, and current smoking status, were compared among 16 groups of relatives sharing various degrees of genetic relatedness. A direct relation between shared genotype and the magnitude of the familial correlations for pulmonary function was observed. For FEV1, the correlations were 0.71 for monozygotic twins (100% shared genotype), 0.16 to 0.29 for relatives with 50% shared genotype, 0.09 to 0.27 for relatives with 25% shared genotype, 0.06 for cousins with 12.5% shared genotype, and -0.14 to 0.14 for unrelated family members. Correlations for FVC were similar. Stratification of the analysis by concordance or discordance for passive tobacco smoke exposure or for frequency with which families visited one another did not systematically alter these relations. These data suggest that phenotypic similarities in pulmonary function relate directly to genetic similarities, and are consistent with a multifactorial mode of inheritance.
Reveley AM see **Chitkara B**
Rich S see **Hanson B**
Riese ML: Size for gestational age and neonatal

AUTHOR SECTION

temperament in full-term and preterm AGA-SGA twin pairs. J Pediatr Psychol 1988 Dec;13(4):521-30

Roberts DC see **Heller RF**

Roberts DC see **O'Connell DL**

Robie GF, Payne GG Jr, Morgan MA: Selective delivery of an acardiac, acephalic twin. N Engl J Med 1989 Feb 23;320(8):512-3

Robinson H see **Sherman SL**

Rocca WA, Amaducci L: The familial aggregation of Alzheimer's disease: an epidemiological review. Psychiatr Dev 1988 Spring;6(1):23-36 (47 ref.)
This report reviews current data on the familial aggregation of Alzheimer's disease (AD). Single pedigree reports indicate that in few families AD is inherited as an autosomal dominant single gene disorder. Family studies show that first-degree relatives of AD patients have a higher lifetime incidence of AD than the general population or groups of nondemented subjects. Case-control studies indicate that the risk of developing AD is significantly higher for subjects with family members affected by dementia than for those without. The concordance rate in monozygotic twin pairs was found to be much lower than expected from an autosomal dominant disease. These data are inconclusive; however, they suggest that in future etiologic studies 3 types of AD should be considered separately: autosomal dominant, familial, and sporadic. Subclassification of AD by type of occurrence generates groups of patients which are probably more homogeneous regarding etiology.

Rose RJ: Genetic and environmental variance in content dimensions of the MMPI. J Pers Soc Psychol 1988 Aug;55(2):302-11
To evaluate genetic and environmental variance in the Minnesota Multiphasic Personality Inventory (MMPI), I studied nine factor scales identified in the first item factor analysis of normal adult MMPIs in a sample of 820 adolescent and young adult co-twins. Conventional twin comparisons documented heritable variance in six of the nine MMPI factors (Neuroticism, Psychoticism, Extraversion, Somatic Complaints, Inadequacy, and Cynicism), whereas significant influence from shared environmental experience was found for four factors (Masculinity versus Femininity, Extraversion, Religious Orthodoxy, and Intellectual Interests). Genetic variance in the nine factors was more evident in results from twin sisters than those of twin brothers, and a developmental-genetic analysis, using hierarchical multiple regressions of double-entry matrixes of the twins' raw data, revealed that in four MMPI factor scales, genetic effects were significantly modulated by age or gender or their interaction during the developmental period from early adolescence to early adulthood.

Rose RJ, Kaprio J: Frequency of social contact and intrapair resemblance of adult monozygotic cotwins--or does shared experience influence personality after all? Behav Genet 1988 May; 18(3):309-28

Rosenbaum KN see **Beck RB**

Rosner B see **Redline S**

Rutter M see **Le Couteur A**

Rydhström H: Twin pregnancy and the effects of prophylactic leave of absence on pregnancy duration and birth weight. Acta Obstet Gynecol Scand 1988; 67(1):81-4
The purpose of the study was to evaluate the effects of taking prophylactic leave of absence from work during a twin pregnancy. Pregnancy outcome for 78 women who were prescribed prophylactic leave of absence from work to prevent preterm delivery was compared with a group of 78 twin-pregnant controls who did not take prophylactic leave. Gestational duration and birth weight did not differ between the two groups. The results indicate that prophylactic leave of absence from work did not improve the outcome of a twin pregnancy.

S

Sachs GS see **Chitayat D**

Saidi MH: First-trimester bleeding and the vanishing twin. A report of three cases. J Reprod Med 1988 Oct;33(10):831-4
Ultrasonic examination of early pregnancies can lead to the discovery of vanishing twins. The main reason for such an evaluation is bleeding in the first trimester. Three women came to the emergency room of a community hospital with pelvic cramps and significant uterine bleeding containing clots. In two cases the cervix was soft and dilated, but in no case was the uterus smaller than was appropriate for the gestational age. Ultrasonic evaluation revealed a set of twins in all three patients. Patient 1 experienced early disappearance of a gestational sac (before ten weeks). Ultrasound demonstrated a blighted ovum in patient 2 until the 24th week of pregnancy. Macroscopic examination of patient 2's placenta at the birth of a normal, term, singleton infant revealed a compressed gestational sac. Patient 3 had developed a fetus papyraceous of 26 weeks' gestational size along with a normal singleton pregnancy. The only apparent complication associated with disappearance of a twin was first-trimester bleeding. Apparently a vanishing twin need not adversely affect the development of a coexisting singleton pregnancy. Therapeutic dilation and curettage for threatened or inevitable abortion should be avoided until a sonogram rules out the presence of a potentially surviving twin.

Salmi T see **Kinnunen E**

Sama JC see **Apuzzio JJ**

Sameshima K, Kodama A, Tshiani K, Matsuda Y, Miyata K, Naritomi K: Osteogenesis imperfecta in twins: case report and review of literature. Acta Paediatr Jpn Overseas Ed 1988 Oct;30(5):621-6 (22 ref.)

Saunders B see **Cunniff C**

Schäfer C see **Vieregge P**

Schoeman JF see **Smith J**

Schork MA see **Viscardi RM**

Schweer H see **Lassila R**

Seeds JW see **Chescheir NC**

Segal N see **Hanson B**

Seguin J, Cho CT: Congenital cytomegalovirus infection in one monozygotic twin [letter] JAMA 1988 Dec 9;260(22):3277

Setchell KD, Suchy FJ, Welsh MB, Zimmer-Nechemias L, Heubi J, Balistreri WF: Delta 4-3-oxosteroid 5 beta-reductase deficiency described in identical twins with neonatal hepatitis. A new inborn error in bile acid synthesis. J Clin Invest 1988 Dec; 82(6):2148-57
A new inborn error in bile acid synthesis, manifest in identical infant twins as severe intrahepatic cholestasis, is described involving the delta 4-3-oxosteroid 5 beta-reductase catalyzed conversion of the key intermediates, 7 alpha-hydroxy-4-cholesten-3-one and 7 alpha,12 alpha-dihydroxy-4-cholesten-3-one for chenodeoxycholic and cholic acid synthesis, to the respective 3 alpha-hydroxy-5 beta (H) products. This defect was detected by fast atom bombardment

ionization-mass spectrometry from an elevated excretion and predominance of taurine conjugated unsaturated hydroxy-oxo-bile acids. Gas chromatography-mass spectrometry confirmed these to be 7 alpha-hydroxy-3-oxo-4-cholenoic and 7 alpha,12 alpha-dihydroxy-3-oxo-4-cholenoic acids (75-92% of total). Fasting serum bile acid concentrations were greater than 37 mumol/liter; chenodeoxycholic acid was the major bile acid, but significant amounts of allo(5 alpha-H)-bile acids (approximately 30%) were present. Biliary bile acid concentration was less than 2 mumol/liter and consisted of chenodeoxycholic, allo-chenodeoxycholic, and allo-cholic acids. These biochemical findings, which were identical in both infants, indicate a defect in bile acid synthesis involving the conversion of the delta 4-3-oxo-C27 intermediates into the corresponding 3 alpha-hydroxy-5 beta(H)-structures, a reaction that is catalyzed by a delta 4-3-oxosteroid-5 beta reductase enzyme. This defect resulted in markedly reduced primary bile acid synthesis and concomitant accumulation of delta 4-3-oxo-and allo-bile acids. These findings indicate a pathway in bile acid synthesis whereby side chain oxidation can occur despite incomplete alterations to the steroid nucleus, and lend support for an active delta 4-3-oxosteroid 5 alpha-reductase catalyzing the conversion of the delta 4-3-oxosteroid intermediates to the respective 3 alpha-hydroxy-5 alpha(H)-structures.

Seyberth HW see **Lassila R**

Shah DM, Jeanty P, Dev VG, Ulm JE, Phillips J: Diagnosis of trisomy 18 in monozygotic twins by cordocentesis. Am J Obstet Gynecol 1989 Jan; 160(1):214-5

The incidence of monozygotic twins with trisomy 18 is 1 in 1,000,000 births. We report a case diagnosed prenatally with lymphocyte culture from fetal blood samples obtained by cordocentesis. Fetal growth lag and structural malformations detected by ultrasonography indicated chromosomal abnormality. A saline solution infusion technique ensured that cordocentesis obtained a sample from each twin.

Shahbahrami B see **Kovacs B**

Sheffield L see **Sherman SL**

Shepard T see **Cunniff C**

Sherman SL, Turner G, Sheffield L, Laing S, Robinson H: Investigation of the twinning rate in families with the fragile X syndrome. Am J Med Genet 1988 May-Jun;30(1-2):625-31

An excess of twins in families with the Martin-Bell or fra(X) syndrome was noted previously in one family study [Fryns, 1986]. We tried to confirm this observation in a second large sample of families from a different population. We calculated the number of twin births among the total number of live births of known obligate carriers found in fra(X) families ascertained in New South Wales, Australia. We only included births of known sex and excluded triplets. There were 5 male pairs, 3 female pairs and 9 unlike sex pairs of twins born among 752 live births. Thus the twining rate was 1/44 per live birth. We compared this rate to that found in two different types of individuals: 1) the rate of 1/96 which was obtained from the 1985 vital statistics for New South Wales, and 2) the rate 1/75 obtained from a sample of live births of obligate carriers with hemophilia A. The increase in twinning among heterozygotes with the fra(X) was highly significant when compared to the census data (p less than 0.001). However, it was not significantly different from that in the hemophilia data (p less than 0.05) which were collected in the same way as in the fra(X) families.

Shimizu Y see **Matsukura N**

Shmoys S see **Feingold M**

Sicotte N see **Holland AJ**

Silove D see **Heller RF**

Silove D see **O'Connell DL**

Simon JW see **Bucci FA JR**

Slattery ML, Bishop DT, French TK, Hunt SC, Meikle AW, Williams RR: Lifestyle and blood pressure levels in male twins in Utah. Genet Epidemiol 1988; 5(4):277-87

Healthy male monozygotic (MZ) and dizygotic (DZ) twin pairs (MZ pairs = 77; DZ pairs = 88) were studied to assess the effect of dietary intake, physical activity, physical fitness, body mass index (BMI), sum of the triceps and subscapular skinfold measurements, alcohol and caffeine consumption, and smoking patterns on blood pressure. Data on physical activity, detailed dietary intake, medical history, and demographics were obtained from a questionnaire. A bicycle ergometer was used to estimate level of fitness; other medical information was ascertained from physical examination. After normalizing the study variables, intraclass correlations for BMI and the sum of the triceps and subscapular skinfold measurements were higher in MZ than in DZ twin pairs (BMI: MZ r = 0.76, DZ r = 0.48; skinfolds: MZ r = 0.73, DZ r = 0.28), as were VO2max(MZ r = 0.63, DZ r = 0.25) and post-bike heart rate (MZ r = 0.69, DZ r = 0.19). Both systolic (SBP) and diastolic blood pressure (DBP) had high heritability estimates (SBP = 0.60, and DBP = 0.66). Using factor analysis, four major lifestyle factors were identified and categorized as: 1) dietary intake; 2) a factor heavily weighted by cigarette smoking, alcohol and caffeine consumption; 3) fatness; 4) physical activity and physical fitness. Adjustment for these factors did not alter heritability estimates for either SBP or DBP.

Slemenda CW see **Christian JC**

Smith AP, Campbell D: Routine ultrasound scanning in twin pregnancies [letter] Lancet 1988 Oct 29; 2(8618):1029

Smith IM, Bryson SE: Monozygotic twins concordant for autism and hyperlexia.

Dev Med Child Neurol 1988 Aug;30(4):527-31

The authors describe male monozygotic twins, Jon and Jay, who are concordant for autism and hyperlexia. Autism and mental retardation were diagnosed at the age of 2 years 5 months. Jay was the more advanced twin in motor co-ordination, attention span and receptive abilities, but had frequent tantrums. When psychologically assessed at 7 years 2 months, Jon showed borderline/severe mental retardation on the measure of non-verbal intelligence and Jay was moderately retarded. Their receptive language age was greater than their expressive language age: Jon's speech was less mature but more communicative and Jay's was perseverative and ritualistic. Even though Jon was the more mentally retarded twin, Jay was the more autistic in some behavioral aspects. These twins highlight the relationship between autism and hyperlexia.

Smith J, Schoeman JF, Booysen JT: Magnetic resonance imaging of the cerebral malformation in Miller-Dieker syndrome. A case report.

S Afr Med J 1988 Dec 17;74(12):639-40

Absent or defective cortical gyri (lissencephaly) combined with a characteristic phenotypic appearance was first reported by Miller and Dieker in 1963 and the clinical, computed tomographic and pathological features of this syndrome have been

AUTHOR SECTION

extensively reviewed. We report on magnetic resonance imaging of the brain in a sporadic case of this syndrome.

Smith RG see **Bhaskar PB**

Snow BW, Duckett JW, Heyman S: Deterioration of renal function in a conjoined twin: lack of compensatory renal hypertrophy. J Pediatr Surg 1988 Sep;23(9):857–8

The renal function of conjoined twin girls was evaluated by radioisotopic, radiographic, and laboratory techniques. The smaller of the twins was shown to have severe impairment of renal function, but due to the "auto-dialysis" by her normal twin, she was able to maintain a normal BUN and creatinine. Compensatory hypertrophy was not found in the normal twin, despite renal failure and loss of renal mass in the smaller twin.

Socol M see **Creinin M**

Sommerville AJ see **Hurren AJ**

Sørensen JL: Subcutaneous silicone implants in pectus excavatum.

Scand J Plast Reconstr Surg Hand Surg 1988; 22(2):173–6

In seventeen patients presenting funnel chest a subcutaneous implantation of silicone prostheses was performed. In nine patients seromas were aspirated postoperatively. Five patients were reoperated, one for correction of a displacement of the prosthesis, one for size reduction and one for implant removal, because of various complaints not related to the prosthesis. At the final evaluation sixteen out of seventeen patients expressed satisfaction with the result.

Souheaver GT see **Prince MT**

Speizer FE see **Redline S**

Stassen HH, Lykken DT, Bomben G: The within-pair EEG similarity of twins reared apart.

Eur Arch Psychiatry Neurol Sci 1988;237(4):244–52

Within the broader context of our investigations into the heredity of the human EEG, we analysed the EEGs of 28 pairs of monozygotic and 21 pairs of dizygotic twins who were separated as infants and reared apart. The principal goal of this study was to determine the degree to which environmental factors possibly influence the development of a person's EEG. Monozygotic twins reared apart were, with respect to their EEGs, only slightly less similar to each other (if there is any difference at all) than the same person is to himself over time. For dizygotic twins reared apart, we verified the findings of our previous study, namely, that the average within-pair similarity of EEGs estimated from a sufficiently representative sample of fraternal twins was significantly higher than the average inter-individual similarity of EEGs obtained from unrelated persons. The results on both monozygotic and dizygotic twins, yielded conclusive proof that the individual EEG pattern is predominantly determined by hereditary factors.

Stassen HH, Lykken DT, Propping P, Bomben G: Genetic determination of the human EEG. Survey of recent results on twins reared together and apart.

Hum Genet 1988 Oct;80(2):165–76

In this article, we have discussed recent progress in quantifying the genetically determined component of the resting EEG. This progress has been made possible in particular by the application of advanced information processing techniques such as "supervised learning," and the development of a problem-oriented "similarity" concept. Our work aimed at modeling previous findings regarding the distinct individuality of human brain-wave patterns, the high similarity between the EEGs of monozygotic twins, and the average within-pair similarity of dizygotic twins. Thus, we had three objectives: First, we wanted to improve the quantification of EEG characteristics with respect to reproducibility and specificity by means of adaptive procedures and repeated measurements. Second, we wanted to compare the "typical" within-subject EEG similarity with the "typical" within-pair EEG similarity of monozygotic and dizygotic twins brought up together. Finally, we were interested in the degree to which environmental factors affect the characteristics of human brain-wave patterns. Our investigations were based on the empirical data derived from five different populations: (1) 81 healthy subjects, (2) 24 pairs of monozygotic twins brought up together, (3) 25 pairs of dizygotic twins brought up together, (4) 28 pairs of monozygotic twins reared apart, and (5) 21 pairs of dizygotic twins reared apart. Following our similarity conception, repeated measurements on the set of 81 individuals were used as design samples, and new registrations from the same individuals taken 14 days later were referred to as test samples in order to develop the appropriate method and to determine all required calibration parameters. This specific approach allowed us to construct EEG spectral patterns which, with a specificity and reproducibility of greater than 90% each, largely met the requirements of genetic EEG studies. Hence, we were able systematically to investigate the within-pair EEG similarity of our twin samples.(ABSTRACT TRUNCATED AT 400 WORDS)

Stauffer A, Burns WJ, Burns KA, Melamed J, Herman CE: Early developmental progress of preterm twins discordant for birthweight and risk.

Acta Genet Med Gemellol (Roma) 1988;37(1):81–7

Studies of developmental progress in high-risk twins have disparate findings. In this study, we report the outcome of 45 twin pairs born between 26 and 37 weeks gestation, and whose birthweights ranged from 840 to 2000 g. No significant differences were found for weight, risk and birth order. However, earlier preterm infants were found to have significantly lower mental scores on the Bayley Scales of Infant Development at 24 months, and lower IQ scores on the Stanford Binet Intelligence Scale at 36 months. These findings imply that gestational age is a powerful variable in determining developmental outcome.

Steele PL see **Heller RF**

Steele PL see **O'Connell DL**

Steffenburg S see **Gillberg C**

Stevens CA, Wilroy RS Jr: The telecanthus-hypospadias syndrome. J Med Genet 1988 Aug;25(8):536–42 (12 ref.)

The telecanthus-hypospadias (BBB) syndrome is characterised by widely spaced inner ocular canthi and hypospadias of variable degree. Heterozygous females have telecanthus. We have summarised the historical and phenotypic findings of 21 patients in seven previous publications. We have also had the opportunity to evaluate personally 12 families with a total of 18 affected males. The most frequent anomalies in patients previously reported are telecanthus 21/21, hypospadias 19/21, cleft lip/palate or uvula 7/21, high, broad nasal bridge 15/15, cranial abnormality 6/21, congenital heart defect 5/21, cryptorchidism 9/21, and mental retardation 11/17. In our series, the most frequent anomalies include telecanthus 18/18, hypospadias 18/18, cleft lip/palate or uvula 8/18, high, broad nasal bridge 10/11, cranial abnormality 12/18,

AUTHOR SECTION

congenital heart defect 3/18, upper urinary tract anomaly 4/9, and mental retardation 10/12. There is also an increased incidence of like-sex twinning, 11/18 in our families. This syndrome must be more common than reflected in published reports. Based upon the observation that males are much more severely affected than females and the lack of male to male transmission, it appears that this condition is most likely to be inherited in an X linked fashion. Further elucidation of the phenotype and documentation of the inheritance is needed. The distinction between the telecanthus-hypospadias syndrome and the G syndrome also needs further clarification.

Stevenson J, Graham P: Behavioral deviance in 13-year-old twins: an item analysis.
J Am Acad Child Adolesc Psychiatry 1988 Nov; 27(6):791-7

Stults BM see **Hunt SC**
Suchy FJ see **Setchell KD**

Svikis DS, Pickens RW: Methodological issues in family, adoption, and twin research.
NIDA Res Monogr 1988;89:120-33

Svikis DS see **Pickens RW**
Swennen C see **Vles J**

T

Tanaka N see **Matsukura N**
Taylor KA see **Litz CE**
Tazzari R see **Vangelista A**

Teikari JM, Kaprio J, Koskenvuo MK, Vannas A: Heritability estimate for refractive errors--a population-based sample of adult twins.
Genet Epidemiol 1988;5(3):171-81 (34 ref.)
The population-based Finnish Twin Cohort study was used to establish a heritability estimate for refractive errors especially for myopia. The twin cohort was derived from adult same-sexed twins in Finland. The total number of twins with both members alive in 1984 was 23,570. Of these, 3,676 twin pairs were monozygotic, and 8,109 pairs dizygotic. The sample for the present study was linked from the Finnish Police Force data base in 1984, where information of a person's possession of a driver's license and the obligation to wear glasses for far correction when driving a motor vehicle is recorded. Correlations in liability were estimated according to a multifactorial method of Smith. Falconer's heritability was 0.62 among males and 0.98 among females in the age group 28-29 years. When compared to previous twin studies of myopia, the proband concordance rates were higher for both MZ and DZ twin pairs.

Thiery M, Kermans G, Derom R: Triplet and higher-order births: what is the optimal delivery route? Acta Genet Med Gemellol (Roma) 1988; 37(1):89-98 (24 ref.)
Data concerning 16 triplet and higher-order deliveries (resulting in a total of 56 infants) are reviewed. The vaginal delivery rate was 81%. Maternal morbidity was more serious after abdominal delivery. Prematurity (less than 36 weeks gestation) rate amounted to 68%. Overall perinatal and neonatal mortalities for infants born after 28 weeks gestation and weighing at least 1000 g were 7% and 3%, respectively. We doubt that neonatal outcome could have been markedly improved by performing more cesareans. The importance of antenatal care is stressed.

Tishler PV see **Redline S**
Tobler WD see **Weil SM**
Tokunaga A see **Matsukura N**
Treasure J see **Holland AJ**
Trounce I see **Byrne E**
Tshiani K see **Sameshima K**
Tuna N see **Hanson B**
Turner G see **Sherman SL**

U

Ulm JE see **Shah DM**

V

van den Berghe H see **Meulepas E**
Vandenburgh M see **Redline S**

Vangelista A, Tazzari R, Bonomini V: Idiopathic membranous nephropathy in 2 twin brothers [letter]
Nephron 1988;50(1):79-80

Vannas A see **Teikari JM**
Vergani D see **Johnston C**

Vieregge P, Schäfer C, Jörg J: Concordant Gilles de la Tourette's syndrome in monozygotic twins: a clinical, neurophysiological and CT study.
J Neurol 1988 Jul;235(6):366-7
A 19-year-old male twin pair were concordant for suffering from Gilles de la Tourette's syndrome in different forms and severity. CT revealed ventricular asymmetries of varying degree within the normal range and there were no neurophysiological abnormalities. The interrelationship of genetic and environmental factors in phenotyping the syndrome is discussed.

Viscardi RM, Donn SM, Rayburn WF, Schork MA: Intraventricular hemorrhage in preterm twin gestation infants. J Perinatol 1988 Spring;8(2):114-7
The incidence of intraventricular hemorrhage (IVH) in twin pregnancy infants with birthweights less than 1500 g in a 5 year period was examined retrospectively. Of the 70 infants in this birthweight category (for which IVH status was known) born at the University of Michigan Medical Center between January 1980 and December 1984, 20 had IVH (29%) (p = NS). The only significant association with IVH was respiratory distress. Presentation, route of delivery, a low 5 minute Apgar score, and time between first and second delivery were not significant factors. However, a multiple logistic regression of the infants categorized by IVH status demonstrated significant effects of twinship itself and of birth order within a given twinship. The unexpected low incidence of IVH in this high risk group suggests that better obstetric and neonatal management of low birthweight preterm twins at tertiary care centers may result in improved survival and decreased morbidity including intraventricular hemorrhage.

Vles J, Kingma H, Swennen C, Daniels H, Casaer P: The influence of postmenstrual age estimation on the scatter of brainstem auditory evoked potential latencies. Brain Dev 1989;11(1):40-2
In normal twins the brainstem auditory evoked potential (BAEP) was recorded. The inter-individual variation of the I-V peak latency-interval within the twins appears to be of the same order of magnitude as the variation of the I-V peak latencies generally observed in infants. Consequently we conclude that in low-risk twins the inter-individual variation of the I-V peak latencies of the BAEP is maximally 0.4 msec and cannot be ascribed to a difference in postmenstrual age.

Vlietinck R see **Meulepas E**

AUTHOR SECTION

von Broembsen F: The twinship: a paradigm towards separation and integration. Am J Psychoanal 1988 Winter;48(4):355–65
The twinship paradigm describes a pattern of dyadic, quasi-object relationship, the purpose of which is to facilitate differentiation, separation, and integration. Twinships can arise at any point in the life cycle, when the self faces a developmental impasse. The twin functions as an alter-ego. Twin selection is based on two principles, namely, sympathetic resonance of experience, and difference. The two essentials of the resonance are similarity of developmental task, and similarity of obstacles to its accomplishment. The essentials of the difference lie in the fact that the twin is seen either as an idealized alter-ego, or as the carrier of the self's intolerable aspects. Twinships can collapse, in the presence of massive investment in the archaic symbiotic bond. They then lose their transitional status, and can degenerate into a fixation on a separation-impeding dyadic mode of relating.

W

Wahlström J see **Gillberg C**
Walter E: Vertical transmission of Citrobacter diversus from mother to infant [letter]
Pediatr Infect Dis J 1988 Sep;7(9):675
Warren VF see **Hurren AJ**
Watts D see **Lytton H**
Weil SM, Olivi A, Greiner AL, Tobler WD: Multiple intracranial aneurysms in identical twins.
Acta Neurochir (Wien) 1988;95(3–4):121–5 (18 ref.)
Familial intracranial aneurysms are well documented, with the highest association occurring among siblings. Five pairs of identical twins with subarachnoid hemorrhage have been previously reported. We present the sixth set of identical twins with multiple aneurysms. These cases represent the first report in the literature of multiple mirror aneurysms in identical twins. One twin presented with subarachnoid hemorrhage. Her sister, who was asymptomatic, had elective angiography which demonstrated multiple aneurysms in locations identical to her sister's aneurysms. In families in which a twin presents with subarachnoid hemorrhage, it is appropriate to recommend angiography to the asymptomatic twin.
Weiner CP: Diagnosis and treatment of twin to twin transfusion in the mid-second trimester of pregnancy. Fetal Ther 1987;2(2):71–4
Acute hydramnios in the second trimester of pregnancy associated with twin to twin transfusion is a rare and usually disastrous complication. Few infants survive the neonatal period. We report a case of acute hydramnios prior to 20 weeks of gestation secondary to twin to twin transfusion documented by fetal blood samples obtained using cordocentesis. Selective fetacide was performed using a new procedure after a pericardial effusion had failed. The hydramnios resolved and the surviving co-twin was delivered at term.
Weiss ST see **Redline S**
Welsh MB see **Setchell KD**
Wherrett BA see **Khalifa MM**
Wilkins IA see **Lynch L**
Williams RR see **Hunt SC**
Williams RR see **Slattery ML**
Wilroy RS Jr see **Stevens CA**

X

Xia JH, Li LY, He XX, Xiao JY: Fragile site 1q44 involved in nasopharyngeal carcinoma. A study of a marker chromosome der(1)t(1;3)(q44;p11).
Cancer Genet Cytogenet 1988 Oct 1;35(1):135–40
Xiao JY see **Xia JH**

Y

Ylitalo V, Kero P, Erkkola R: Neurological outcome of twins dissimilar in size at birth.
Early Hum Dev 1988 Aug–Sep;17(2–3):245–55
The neurological outcome of dissimilar twins was studied in 22 pairs of babies having a birth weight difference of 25% or more (mean 1748 vs. 2531 g). In weight, height and head circumference no statistically significant difference could be found at the study time (mean age of the children 9.4 years) between the groups. In gross motor performance and mean school age grades there were no differences but in fine motor performance–balance–coordination (P less than 0.02) and visuomotor perception (P less than 0.01) a statistically significant difference was found favouring the larger group. It is concluded that dissimilarity carries an increased risk for signs of minimal brain dysfunction in the smaller twins.
Yngve DA see **Johnson C**
Yoshiyasu M see **Matsukura N**
Yoshiyuki T see **Matsukura N**
Yu PL see **Christian JC**

Z

Zatz M see **Rapaport D**
Zein AZ: The frequency of multiple births in Gondar Hospital northwestern Ethiopia. Ethiop Med J 1989 Jan;27(1):21–6
The frequency of multiple births was analysed using data on 12287 deliveries conducted at the Gondar College of Medical Sciences Teaching Hospital in Northwestern Ethiopia, between 1977 and 1985. There were a total of 183 multiple births giving a frequency of 14.9 per thousand deliveries. The prevalence rates of twins and triplets were 14.4 and 0.49 per thousand deliveries respectively. Increasing rates of twinning by maternal age and parity were observed, the peak prevalence was seen after the sixth parity and in mothers 40–44 years old. Using Weinberg's differential method, the monozygous and dizygous twinning rates per thousand deliveries were 4.8 and 11.7 respectively. The latter rate tended to increase with both parity and maternal age. The findings of this study suggest a lower frequency of multiple births than in previous reports from Ethiopia and other African countries and hence are not characteristic of the continent. The rates found occupy an intermediate position between those for Caucasians and Africans. Multicentre data should, therefore, be analysed to confirm the findings of this and other reports concerning multiple births in Ethiopia.
Zimmer EZ, Goldstein I, Alglay S: Simultaneous recording of fetal breathing movements and body movements in twin pregnancy. J Perinat Med 1988; 16(2):109–12
Fetal breathing and body movements were simultaneously evaluated in twin pregnancies in order to determine to what extent these activities occur in a synchroneous pattern in both twin fetuses and if fetal position, presentation or sex have an

influence on their behavior. Thirty healthy pairs of twins at 34–37 weeks of gestation were studied. Twenty-six percent of fetal body movements and 49% of breathing movements occurred simultaneously in both fetuses. The overall total simultaneous fetal activity rate was 53.3%. The length of breathing movements and total activity (summation of breathing and body movements) of the fetuses positioned on the right side of the uterus were significantly longer than in fetuses positioned on the left side of the uterus ($p = 0.002$) and (p less than 0.0001) respectively. This was also true for subgroups where only fetuses in the same presentation or of the same sex were compared. It is concluded that the fetus positioned on the right side of the uterus is more active and that fetal sex or presentation had no significant effect on intrauterine fetal activity in twin pregnancies.

Zimmer-Nechemias L see **Setchell KD**

Zlotogora J, Rachmilewitz D: Are individuals born as twins at a higher risk of developing Crohn's disease? [letter] Gut 1989 Jan;30(1):141–2

https://doi.org/10.1017/S0001566000002749 Published online by Cambridge University Press