operationalized as the z-score composite of the immediate and delayed recall totals from the Spanish English Verbal Learning Test and the Weschler Memory Scale (WMS)-III Logical Memory 1 and 2. Executive functioning was operationalized as the z-score composite of scores from the WMS-III Digit Span, Verbal Fluency (FAS), and Trails B. Analyses of covariance were used to explore racial/ethnic group differences in self-reported levels of social support. Multiple linear regression models examined (1) ethnicity x social support interactions on cognition, and (2) ethnicity-stratified social support and cognition associations. Covariates included age, education, sex, yearly income, and depressive symptoms.
Results: H/L older adults reported less perceived social support compared to NHWs ($F = 41.16$, $p < .001$). There were no significant ethnicity x social support interactions on episodic memory (ß = 0.04, $p = .53$) or executive functioning (ß = 0.004, $p = .95$). However, stratified models revealed that more social support was associated with better memory performance in H/Ls (ß = 0.08, $p = .01$), but not in NHWs (ß = 0.0004, $p = .99$). No significant associations between social support and executive functioning were observed amongst H/Ls (ß = -0.01, $p = .60$) or NHWs (ß = 0.04, $p = .29$).
Conclusions: Although H/Ls reported lower levels of social support relative to NHWs, we observed that social support was linked to better memory performance within the H/L group only. Results suggest that culturally tailored interventions which encourage strong interpersonal relationships and caring for family could enhance social support in H/Ls and thus help to prevent memory decline. Future work should focus on the development of assessment measures that better characterize unique cultural elements of social support within H/Ls, such as multigenerational households, and explore the direct effects of social support on brain metrics.

Categories: Aging
Keyword 1: aging (normal)
Keyword 2: diversity
Keyword 3: memory: normal
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2 Water-Based Exercise Improves Cognition and Reduces Neurological-Related Plasma Proteins in Older Adults.

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Objective: In the United States, Alzheimer's disease (AD) is the most common cause of dementia and the seventh leading cause of death. Exercise has demonstrated health benefits in older adults and reduces the risk of developing AD. Exploring underlying biological mechanisms of exercise could aid in identifying therapeutic targets to prevent AD progression, especially for high-risk individuals such as those with Mild Cognitive Impairment (MCI). Many studies of dementia focus on memory; however, executive function and processing speed are also vulnerable to the neuropathology that causes AD. This exploratory study aimed to identify potential mechanisms by which physical activity can facilitate change in cognitive functioning in older adults. This was accomplished by investigating correlations between changes in neurology-related plasma proteins and changes in measures of executive function and processing speed after participation in a water-based exercise intervention.
Participants and Methods: The sample included 20 older adults with amnestic MCI, ages 55-82 years (mean 68.15 ±7.75). Participants were predominately male (90%), White (70%), and non-Hispanic (85%), with more than high school education (95%). Participants engaged in supervised high-intensity water-based exercise three times per week for six months. Neuropsychological assessments and blood samples were assessed at baseline and after completion of the exercise intervention. Cognitive measures included: the

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Digit Span subtests from the Wechsler Adult Intelligence Scale, 4th Edition, Trail-Making Test (TMT), Stroop Color Word Test (SCWT), and the Symbol Digit Modalities Test (SDMT). Plasma protein levels were analyzed using the Olink Target 96 Neurology assay (Uppsala, Sweden), selected a priori for the established markers linked to neurobiological processes and diseases. Changes in cognitive measures and protein levels were assessed using paired-sample t-tests, and Pearson's correlations were calculated for significant findings.
Results: Participants' cognitive performance significantly improved on the SCWT color trial (t = -2.19, p = 0.042) and SDMT (t = -2.17, p = .043). Significant decreases in plasma proteins levels were found for GDNF family receptor alpha-1 ([GFRA1]: t =2.05, p = 0.055), neuroblastoma suppressor tumorigenicity-1 ([NBL1]: t = 2.13, p= .046), and neuropilin-2 ([NRP2]: t = 2.61 p= 0.017). Correlational analyses showed reductions in NBL1 were significantly associated with changes in both SDMT (r = -.61, p = 0.006) and the color trial of SCWT (r = .48, p = .038), and NRP2 was significantly associated with improvement on the SDMT (r = -.46, p = 0.045). GFRA1 was not significantly associated with change on any cognitive measure.
Conclusions: In a sample of older adults with MCI, participation in high-intensity water-based exercise led to significant improvements in cognitive function as well as changes in neurological plasma proteome. Improved outcomes in processing speed, attention, visuospatial scanning, and working memory were associated with changes in specific plasma protein concentrations. This highlights potential activity-dependent neurobiological mechanisms that may underlie the cognitive benefits derived from physical activity. Future studies should explore these findings in Randomized Control Trials with a comparative condition and larger sample size.

Categories: Aging
Keyword 1: mild cognitive impairment
Keyword 2: cognitive functioning
Keyword 3: cognitive neuroscience
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3 Body Mass Index Partially Mediates Gait Speed and Executive Functioning in Older Adults

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Objective: Gait speed is associated with poorer executive functioning performance in older adults such that individuals with slower gait speed have shown declines in cognitive flexibility and set-shifting. Body mass index (BMI) is associated with sedentary lifestyles and slower gait speed, and has demonstrated negative effects on executive set-shifting in this population. However, the interaction between gait speed, BMI, and executive functioning has yet to be examined. The purpose of this study is to investigate the potential mediating effect of BMI on the negative relationship between gait speed and executive functioning in older adults.
Participants and Methods: The sample included 154 community-dwelling older adults drawn from two clinical trials. Participants were recruited from the VA Palo Alto Health Care System and Stanford/VA Alzheimer's Disease Research Center. Gait speed was measured using the six-minute walk test, with longer distances representing faster gait speeds. Weight and height were used to calculate BMI. Each participant completed the Trail Making Test Part B (TMTB), which was used to measure executive functioning. A simple mediation analysis was performed using SPSS PROCESS Macro version 3.5. The outcome variable for the analysis was TMTB completion times. The predictor variable was gait speed, and the mediator variable was BMI. Age was entered as a covariate. We hypothesized that gait speed will negatively predict time to completion on the executive functioning task. We also hypothesized that BMI will mediate this relationship.

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