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Individuals who have suffered a stroke are at risk for developing cognitive impairment and dementia. Thus, it is important to identify modifiable risk factor for cognitive decline in this population. Among older adults without a history of stroke, greater muscle strength is associated with better cognitive function. Whether this relationship also exist in older adults with a history of stroke is not known. Thus, we aimed to examine whether cognition, as measured by both the Montreal Cognitive Assessment (MoCA) and the 13-item Alzheimer's Disease Assessment Scale-Cognitive (ADAS-Cog 13), is associated with lower extremity muscle strength in adults with chronic stroke (> 1 year post stroke). Ninety-one community-dwelling adults, aged 55 years and older, with chronic stroke were included in this analysis. Isometric strength of the quadriceps was measured bilaterally in kilograms. Two linear regression models were constructed to determine the independent association of quadriceps strength (mean kilograms of both legs) with: 1) MoCA; and 2) ADAS-Cog 13, after controlling for age, sex, and mood. Mean quadriceps strength was independently associated with both MoCA and ADAS-Cog scores, after accounting for age, sex, and mood. Specifically, quadriceps strength explained an additional 5.6% of the variable in MoCA scores; total variance explained by the model was 12.0%. For ADAS-Cog 13, quadriceps strength explained an additional 5.4% of the variance; total variance explained by the model was 16.5%. Our current cross-sectional results suggest that the maintenance of muscle strength may be important for cognitive health in older adults who have suffered a stroke.

#### VISUAL IMPAIRMENT AND ENGAGEMENT IN COGNITIVELY STIMULATING ACTIVITIES

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We examined the relationship between visual impairment (VI) and engagement in cognitively stimulating activities using data from 924 participants in the Cognitive Vitality Sub-Study of the Health ABC Study. At Year 3 (baseline for these analyses), vision was assessed as: visual acuity (VA), contrast sensitivity (CS), and stereo acuity (SA). Participation in cognitively stimulating activities was determined based on responses to 12 questions (administered at Years 3, 5, 7, and 9) assessing frequency of participation ranging from none to daily. We calculated the total number of activities engaged in at least monthly. In cross-sectional analyses adjusted for age, race, and sex, impaired VA ( $\leq 20/40$ , 8%), CS ( $< 1.55$ , 5%), and SA ( $< 80$  secs

arc, 29%) was associated with participation in fewer cognitive activities ( $\beta = -0.54$ , 95% CI: -1.06, -0.03;  $\beta = -0.59$ , 95% CI: -0.12, 0.06;  $\beta = -0.40$ , 95% CI: -0.81, -0.18, respectively). Longitudinally, change per year in the number of activities differed by baseline participation levels. Those participating in  $\geq 5$  activities at baseline (population median) had a significant decline in the number of activities, irrespective of VI status. However, for those participating in  $< 5$  activities at baseline, the increase in these activities tended to be lesser in the VI than in non-VI groups, and for SA this increase was significantly lower for the impaired group ( $\beta_{\text{impaired}} = 0.004$ ; 95% CI: -0.05, 0.05;  $\beta_{\text{not-impaired}} = 0.06$ ; 95% CI: 0.03, 0.10; time x SA interaction  $p = 0.0496$ ). These data indicate that older adults with VI participate in fewer cognitive activities and the change in participation over time differs from those without VI.

#### ASSOCIATIONS BETWEEN COGNITIVE FUNCTION AND BIOACTIVE FOOD COMPOUNDS IN 100% WATERMELON JUICE

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Objectives: Decline in cognitive function and increases in inflammation and oxidative stress are part of normal aging. Watermelon contains numerous bioactive compounds including lycopene, arginine, and citrulline that exhibit both anti-inflammatory and antioxidant functionality. Thus, the objective of this study was to examine the effect of 100% watermelon juice supplementation on cognitive performance. Methods: A placebo-controlled, randomized, double-blind, crossover trial was conducted with postmenopausal women ( $n = 16$ ,  $60 \pm 4.1y$ ). Participants initiated a low-lycopene diet during a one-week run-in period and adhered to this diet throughout the study. For four weeks, participants were randomized to consume either two 360 mL servings of pasteurized 100% watermelon juice or a placebo beverage. Following a two-week washout period, participants received the opposite beverage for an additional four weeks. Pre/post each intervention arm, fasting blood samples were collected, and cognitive tests were administered to assess various neurocognitive domains. Statistical analyses included mixed models and Spearman correlations. Results: Serum lycopene exhibited a significant treatment effect ( $p = 0.002$ ); however, lycopene was not correlated with any cognitive test. In contrast, no significant treatment effect was observed for serum arginine or citrulline, yet arginine was significantly inversely correlated with Digit Span Forward ( $p = 0.005$ ,  $r = -0.547$ ) and Letter Fluency ( $p = 0.024$ ,  $r = -0.507$ ). Conclusion: Despite research supporting the relationship between lycopene and enhanced cognition, lycopene was not related to improvements in cognitive performance in this study. Nevertheless, consumption of 100% watermelon juice may be beneficial for increasing circulating levels of this antioxidant.