

measure of processing speed, the Digit Symbol Substitution Test (DSST).

**Participants and Methods:** CRF, DSST scores, and WML volumes of cognitively normal adults (n=91) aged 55-80 years were included in this analysis. The WML data was corrected for total intracranial volume and was log transformed. A linear regression model included the number of accurately completed items on the DSST as the dependent variable and age, sex, relative VO<sub>2</sub> max, WML volumes and the interaction between relative VO<sub>2</sub> max and WML volume as the predictor variables.

**Results:** Main effects of age, sex, VO<sub>2</sub> max and WML volume on the DSST were observed. Greater age, higher WML volume, and lower relative VO<sub>2</sub> max were associated with poorer performance on the DSST. In addition, females (n=55) performed better than males (n=36) on the DSST. No significant interaction was observed between VO<sub>2</sub> max and WML volume on DSST scores.

**Conclusions:** Our results show that 1) WML and relative VO<sub>2</sub> max independently contribute to processing speed performance in older adults as measured by the DSST, and 2) WML do not moderate the relation between VO<sub>2</sub> max and the DSST. Strengths of this study include gold-standard measurement of CRF and WML volumes as predictors of performance on the DSST in older adults. Further research is warranted to understand how vascular aging and brain health indicators interactively or interdependently impact cognition in aging.

**Categories:** Aging

**Keyword 1:** aging (normal)

**Keyword 2:** information processing speed

**Keyword 3:** brain function

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### 36 Regional Amyloid and Memory in Amyloid Positive and Negative Older Adults

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**Objective:** Alzheimer's disease (AD) pathophysiology, including  $\beta$ -amyloid (A $\beta$ ), can be appreciated with molecular PET imaging. Among older adults, the distribution of A $\beta$  standard uptake value ratios (SUVR) is typically bimodal and a diagnostic cut is applied to define those who are amyloid 'positive' and 'negative'. However, it is unclear whether the dynamic range of SUVRs in amyloid positive and negative individuals is meaningful and associated with cognition. Previous work by Insel and colleagues (2020) used screening data from the Anti-Amyloid Treatment in Asymptomatic Alzheimer's (A4) trial to demonstrate subtle associations between a cortical summary SUVR and cognition, particularly on the Free and Cued Selective Reminding Test (FCSRT). We followed up this study to determine the extent to which regional SUVR is associated with performance on the FCSRT in amyloid positive and negative participants screened for participation in the A4 study.

**Participants and Methods:** We accessed regional A $\beta$  SUVR, including anterior cingulate, posterior cingulate, parietal, precuneus, temporal, and medial/orbital frontal regions, along with FCSRT15 and demographic data from 4492 A4 participants at screening. Participants were coded as amyloid positive (n=1329; 30%) or amyloid negative (n=3169; 70%) based on a summary SUVR of greater than or equal to 1.15. We used separate general linear models to examine the association of total or regional SUVR, amyloid positivity status, and the interaction of SUVR and amyloid status with FCSRT scores. We compared model fits across regions with the Akaike Information Criterion (AIC). We ran post hoc correlational analyses examining the relationship between SUVR and FCSRT scores stratified by amyloid status in the case of significant interactions. Results were similar with and without demographic adjustment.

**Results:** There was a significant interaction of summary and all regional SUVR with FCSRT scores in addition to main effects of amyloid positivity. In all models, there were small negative associations between SUVR and memory in amyloid positive individuals. For amyloid negative individuals, there was a significant and very small negative association

between SUVR and FCSRT scores only in the parietal lobes and precuneus regions. Model fits were generally similar across the different analyses.

**Conclusions:** In this sample of individuals screened for a secondary prevention trial of AD, there were consistent associations between A $\beta$  SUVR in all regions and memory for those considered amyloid positive. However, for individuals considered amyloid negative, there were only very small associations between SUVR and memory in parietal and precuneus regions. We conclude that the dynamic range of amyloid may be relevant among those with diagnostic evidence of amyloidosis, but that subtle A $\beta$  accumulation in posterior regions may relate to declining memory in "subthreshold" states.

**Categories:** Aging

**Keyword 1:** neuroimaging: functional

**Keyword 2:** neurocognition

**Keyword 3:** positron emission tomography

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### 37 Perceived Financial Exploitation Vulnerability is Associated with Morphometry of the Parahippocampal Gyrus and Entorhinal Cortex in Cognitively Normal Older Adults

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**Objective:** Prior work suggests financial exploitation vulnerability may be an early behavioral manifestation of Alzheimer's disease (AD). Brain morphometric measures of the parahippocampal gyrus and entorhinal cortex have been shown to be sensitive to early AD progression. We hypothesized that perceived financial exploitation vulnerability may be associated with morphometric measures of the parahippocampal gyrus and entorhinal cortex in

cognitively unimpaired older adults. We secondarily investigated the association of morphometric measures with neuropsychological measures.

**Participants and Methods:** The sample consisted of 39 cognitively unimpaired older adults (mean age = 68.74  $\pm$  6.43, mean education = 16.87  $\pm$  2.35, 77% female). Cognitive impairment was screened using the telephone version of the Montreal Cognitive Assessment (MoCA) and the cut-off was 21 for study participation. Perceived financial exploitation vulnerability was characterized using a 6-item self-report measure derived from the contextual items of the Lichtenberg Financial Rating Scale. Neuropsychological measures included the CVLT-II Long Delay Free Recall (verbal memory), Benson Complex Figure Recall (visual memory), and Verbal Fluency: Phonemic Test from the Alzheimer's Disease Centers' Uniform Data Set (UDS) version 3. Brain images were collected on a 7 Tesla Siemens Magnetom with the following parameters: TE=2.95ms, TR=2200ms, 240 sagittal slices, acquired voxel size (avs)=0.7mm x 0.7mm x 0.7mm. Structural brain images were processed using FreeSurfer version 7.2.0. Cortical thickness and volume measures were generated using the Killiany/Desikan parcellation atlas. Regions were averaged across hemispheres to obtain a single value for each region. Volume measures were adjusted for intracranial volume. Bivariate analyses were conducted to assess relationships between each outcome variable and potential confounders (age, sex, and education). Linear regression models were adjusted for any covariates significantly associated with the outcome variable (none for perceived financial exploitation vulnerability; sex and age for verbal memory; education for visual memory; sex for verbal fluency).

**Results:** Smaller entorhinal cortex volume ( $\beta$  = -1275.14,  $SE$  = 582.79,  $p$  < 0.05) and lower parahippocampal gyrus thickness ( $\beta$  = -3.37,  $SE$  = 1.57,  $p$  < 0.05) were significantly associated with greater perceived financial exploitation vulnerability. Lower entorhinal cortex thickness was marginally associated with greater perceived financial exploitation vulnerability ( $\beta$  = -2.03,  $SE$  = 1.11,  $p$  = 0.08). Higher parahippocampal gyrus thickness was associated with better verbal fluency ( $\beta$  = 17.66,  $SE$  = 7.01,  $p$  < 0.05). Higher entorhinal cortex thickness was associated with better visual memory ( $\beta$  = 4.71,  $SE$  = 1.73,  $p$  < 0.05). No