Participants were then shown closed and open versions of each shape and asked to identify which version was presented in the previous task. In the alerting/orienting task, participants made a speeded response to the location of a visual target; on a subset of trials, either nonspatial alerting or spatial orienting cues were presented 300ms prior to the target.
Results: Response times were slower and judgment accuracy greater in older adults (*p*s<0.05). However, the groups showed comparable levels of immediate and delayed repetition priming along with chance levels of recognition memory accuracy. Cortical arousal was reduced ($p<0.001$) and costs associated with spatial attention were larger ($p<0.01$) in the older adults. Despite comparable priming, cortical arousal and spatial attention were differentially related to priming across groups. In the young group, lower cortical arousal was associated with greater delayed priming (r=-.47, $p=0.017$) and slower decay rate (r=.44, $p=0.03$). In the older group, higher cost of spatial orienting was associated with greater immediate priming (r=.40, $p=0.003$) and faster decay rate (r=.29, $p=0.03$). Better category fluency performance was also associated with greater immediate priming (r=.32, $p=0.035$) and faster decay rate (r=.34, $p=0.025$) in older adults.
Conclusions: These findings suggest that different attentional systems support repetition priming across age groups. Priming is modulated by the efficiency of cortical arousal in young adults, but by the costs of spatial attention in older adults with reduced cortical arousal, consistent with a shift from bottom-up to top-down attentional processes and broader attentional scope with age.

Categories: Aging
Keyword 1: memory: implicit
Keyword 2: attention
Keyword 3: arousal
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63 In vivo Tau ([18F]-MK-6240) is Associated with Retrospective Change on Memory and Speed, but not Reasoning in Cognitively Healthy Older Adults

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Objective: Additional research is needed to better understand the relationship between early tau accumulation and cognitive decline in cognitively healthy (CH) older adults. The tau PET tracer 18F-MK-6240 has shown favorable imaging characteristics and is an ideal candidate to identify early tau accumulation in CH older adults. In the present study, we evaluated the associations between in vivo tau levels and retrospective 5-year cognitive change.
Participants and Methods: Using 18F-MK-6240 PET, we evaluated tau accumulation in 41 CH participants from Cognitive Reserve (CR) and Reference Ability Neural Network (RANN) studies. We investigated the relationships between regional PET signal and retrospective cognitive change, focusing in three cognitive domains well-established to change with aging: episodic memory, speed processing and reasoning. Latent change score analysis was applied to generate latent variables estimating the change in these domains from baseline to follow-up. Regarding tau data, we created meta-ROIs based on 16 AD-vulnerable subregions selected a priori. The tau SUVR of the subregions were averaged to create four meta-ROIs: 1) Total-AD ROI comprising all 16 areas; 2) Medial Temporal Lobe-ROI (MTL-ROI), 3) Lateral Temporal Lobe-ROI (LTL-ROI) and Cingulate/Parietal Lobe (C/P-ROI). The associations between regional tau levels and retrospective cognitive change over 5-years were investigated through regression models adjusted by age, sex, education, and baseline cognitive performance.
Results: The mean age of the sample was 67.5 years (SD=5.8, range 55 to 77 years), 53.8% were male, 63.4% White, 26.1% Black, and 7.3% Latinx. Overall, the sample was highly educated (16.20 ± 2.26) and presented high IQ scores (118.97 ± 7,76) based on American National Adult Reading Test. All participants were CH and showed cognitive decline over 5 years in all cognitive domains analyzed. Most participants were classified as Braak stage 0 (82.9%), some as Braak stage 1 (14.6%) and one participant as Braak stage 2 (2.4%). The regression models showed that higher [18F]MK-6240 SUVR was associated with steeper decline

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in memory and speed in the Total-AD meta-ROI (memory: p = .03; speed: p = .04), and in the regional ROIs, such as LCL (memory: p = .03; speed: p = .04), C/P (memory: p = .02, speed: p = .05) and MTL (memory: p = .05, speed: p = .02), with large effect sizes (f2) (>.40) for memory and medium effect sizes for speed (.20-.25). There were no associations between [18F]MK-6240 SUVR and reasoning change.
Conclusions: Our finding reinforces the notion that pathological tau in areas of early accumulation influence changes in cognitive domains known to be affected in AD even in cognitively normal individuals. The novel contribution of this work is the relevance of tau accumulation beyond episodic memory, as we observed its association with speed proceeding decline. The fact reasoning decline is commonly observed in normal aging, but here not associated with tau suggest the specificity of the tau-cognition associations. Our results should be considered with caution due to the modest sample size.

Categories: Aging
Keyword 1: cognitive course
Keyword 2: aging (normal)
Keyword 3: dementia - Alzheimer's disease
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64 Validity and Stability of Objective Measures of Subtle Functional Difficulties in Older Adults

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Objective: Self-reported mild functional difficulties are one of the most salient predictors of future cognitive decline in older adults. However, few measures of objective assessment of mild functional difficulties are available. This study explored the validity and stability of novel, performance-based measures of subtle functional difficulties in older adults without dementia using an objective and standardized test, called the Naturalistic Action Test (NAT), which has been used for people with dementia.
Participants and Methods: 40 older adults (Healthy Controls (HC), Mild Cognitive Impairment (MCI)) completed the NAT at baseline and again after one-month. The NAT requires participants to make a breakfast and a lunch using objects presented on a table. Standard cognitive tests (memory, language, etc.) also were administered at baseline only and were used to compute intraindividual cognitive variability (IIV), a sensitive measure of cognitive ability level. NAT scores reflecting micro-errors and completion time were obtained from video recordings. Micro-errors are inefficient actions that include misreaching toward the wrong object and moving objects around the table without a clear purpose. Validity of the NAT measures was evaluated in correlations with IIV, and the stability of NAT performance was evaluated using within-sample t-tests and correlations between measures at baseline and one-month.
Results: In the full sample (N =40), greater micro errors were significantly correlated with greater IIV at baseline (r=.512, p<.001) and one month followup (r=.327, p=.039). Among HC, paired t tests showed that there were no significant differences in micro-errors over one month; however, completion time was significantly slower at baseline (Md=16.06, SD=24; t(32)=3.76, p<.001). MCI participants showed a significant decrease in micro-errors (M=3.86, SD=4.4; t(6)=2.33, p=.029), but no difference in completion time. Among HC and MCI, micro errors (r=.506, p<.001), and completion time (r=.899, p<.001) were significantly correlated across time points.
Conclusions: Results show promise for novel NAT measures (time, micro-errors) as valid, objective indicators of subtle cognitive difficulties that affect everyday function. Analyses of stability of scores over time showed evidence of practice effects over time, which along with predictive validity, should be explored in future work.

Categories: Aging
Keyword 1: everyday functioning
Keyword 2: dementia - Alzheimer's disease
Keyword 3: neuropsychological assessment
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