Conclusions: This pilot study provided support for the use of telephone- and video-administered cognitive assessments using the UDSv3 among individuals with normal cognitive function and some degree of cognitive impairment. Participants found the experience similarly pleasant and no more difficult than in-person assessment. Test scores obtained remotely correlated well with those obtained in person, with some variability across individual tests. Adjudication of cognitive status did not differ significantly whether it was based on data obtained remotely or in-person. The study was limited by its' small sample size, large test-retest window, and lack of randomization to test-modality order. Current efforts are underway to more fully validate this battery of tests for remote assessment.
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Keyword 1: teleneuropsychology
Keyword 2: psychometrics
Keyword 3: dementia - Alzheimer's disease
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52 Memory Learning Curve and in vivo Brain Pathology in Non-Demented Individuals with Autosomal Dominant Alzheimer's Disease: Findings from the Colombia-Boston Biomarker Study

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Objective: Associative memory is impacted early in Alzheimer's disease (AD). Poorer performance on associative memory tests has been related to greater amyloid and regional tau burden in preclinical AD. Our group previously examined the association of brain pathology and performance on the Free and Cued Selective Reminding Test (FCSRT) in Autosomal Dominant Alzheimer's Disease (ADAD), finding that associative memory summary scores distinguished non-demented mutation carriers from non-carriers several years before clinical onset of cognitive impairment. In the current study, we examined whether FCSRT learning slopes were associated with brain pathology in a sample of ADAD carriers and non-carriers.
Participants and Methods: There were 119 participants including 57 non-demented carriers of the Colombian kindred with the Presenilin1 E280A mutation and 62 non-carrier family members (mean age= 36.3, 60% female). Participants were administered the Mini-Mental State Examination (MMSE), a measure of global cognitive status, and the FCSRT, which consists of three trials in which participants are asked to freely recall the same list of 16 items. It is a well-established measure known to be sensitive to early changes in AD. A subsample of 69 participants (32 carriers and 37 non-carriers) underwent positron emission tomography (PET) to measure in vivo cortical amyloid-beta (Pittsburgh compound B, PiB), and regional tau (Flortaucipir, FTP) burden in entorhinal and precuneus regions, which are among the earliest sites of tau accumulation in this ADAD population. Mann Whitney U tests, Spearman correlations, and chi-square tests were used to examine group differences and relations among variables of interest. Learning slope was calculated by subtracting the number of items freely recalled in FCSRT Trial 1 from the number of items freely recalled in Trial 3.
Results: Compared to non-carriers, carriers had greater cortical amyloid-β and regional tau burden, lower MMSE scores (mean [SD]: carriers= 27.5 [2.7]; non-carriers= 28.8 [1.0]), and lower scores on total immediate/ delayed free/ cued recall scores on the FCSRT (all $p<.01$). The groups did not differ on age, sex, or education level (all $p> 0.05$). In the whole sample and in carriers only, we found that higher MMSE scores were associated with higher learning slope, meaning faster learning (whole group $\rho= 0.25$, $p= 0.006$; carriers $\rho= 0.30$, $p=0.029$). In the whole sample, we found that lower learning slope was associated with higher levels of amyloid ($\rho=-.34$, $p=.006$) and tau in the left, right, and bilateral precuneus region ($\rho=-.43$, $p<.001$; $\rho=-.46$, $p<.001$; $\rho=-.45$, $p<.001$). In carriers only, lower learning slope was associated with higher tau burden in the left,

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right, and bilateral precuneus specifically (ρ=-.43, p=.017; ρ=-.48, p=.008; ρ=-.46, p=.010, respectively). No significant associations were found in non-carriers.
Conclusions: These findings suggest that learning curves on an associative memory test may be sensitive to preclinical pathological changes in AD, specifically within the precuneus, a brain region known to be involved in cue reactivity, episodic memory retrieval, and mental imagery strategies. Future studies with larger samples are warranted to further examine associations between the FCSRT learning curves and regional tau accumulation in individuals with ADAD.

Categories: Neurodegenerative Disorders
Keyword 1: dementia - Alzheimer's disease
Keyword 2: test reliability
Keyword 3: cognitive screening
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53 REM Sleep Behavior Disorder in Parkinson's Disease : Longitudinal Effects on Brain Lateralization

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Objective: Laterality of motor symptom onset in Parkinson’s disease (PD) is well-known and under-appreciated. It is still unclear though if this laterality might have an influence on other symptoms. Specifically, REM sleep behavior disorder has been shown to be a factor that has a high probability to be lined to PD. In this study we analyzed the longitudinal effect of REM symptomatology on brain lateralization in PD.
Participants and Methods: We used the baseline and 3-year visit data of 116 participants (67 without REM (PD-non-REM), 49 with REM (PD-REM)) aged 37-81 years from the Parkinson’s Progression Markers Initiative (PPMI) dataset. Statistical 3T MRI data (cortical thicknesses, areas, foldings of cortical Desikan atlas and volumes of subcortical regions) were obtained via FreeSurfer 7.1.1. Lateralization was computed using the formula: (left-right) / (lef +right). Mixed ANOVAs were performed on each region of interest.
Results: Our findings showed an increased right asymmetry of the paracentral lobule area and of the pars orbitalis area and volume in PD-REM. There was a reduced right asymmetry of the parietal inferior volume at baseline in PD-REM, whereas REM symptomatology had a stable effect at the 3 years visit. At baseline, there was an increased left asymmetry of the thickness of the caudal anterior cingulate, pars orbitalis and pars triangularis regions in PD-REM. After 3 years, there was an increased right asymmetry in those regions. The precentral, frontal superior and transversal temporal gyri showed inverse results: an increased right asymmetry of the thickness at baseline and an increased left asymmetry after 3 years. Finally, REM symptomatology is associated with more significant increases of the left asymmetry of the frontal superior gyrus volume and of the right asymmetry of the supramarginal gyrus volume after 3 years than at baseline.
Conclusions: These results provide evidence of the modulating effect of the disease progression on the relationship between REM symptoms and brain lateralization in PD.

Categories: Neurodegenerative Disorders
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Keyword 2: laterality
Keyword 3: sleep disorders
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54 Sleep and Circadian Rhythms in Premanifest Huntington’s disease: Relationship with Cognition

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Objective: Huntington's disease (HD) is a neurodegenerative disease characterised by motor, psychiatric and cognitive decline. Currently, no treatments have been identified in HD for slowing down cognitive decline or improving cognitive function. We are interested in identifying potentially modifiable factors in HD that can be targeted to improve or maintain

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