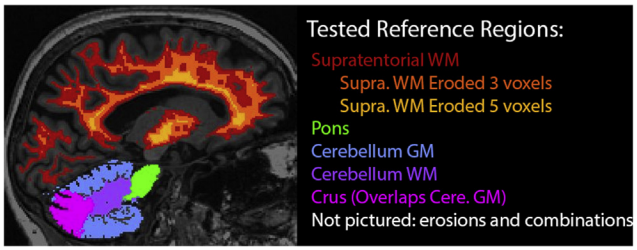

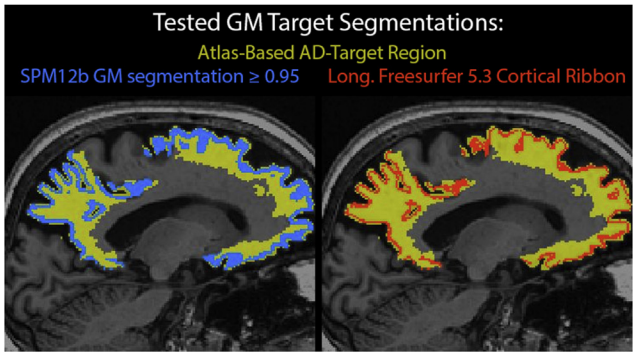

values), longitudinal plausibility (frequency of implausible apparently-decreasing within-subject trajectories), and group separability (AUROC of predicting unlikely vs. likely PiB accumulators from slope values). **Results:** 82/180 methods achieved at least 0.90 performance on all criteria; differences between the best performing methods were not significant. In general, sharply-segmented GM segmentations outperformed broader ones. SPM vs Freesurfer had mixed tradeoffs. Reference regions using supratentorial WM were highly reliable but performed poorly on plausibility criteria. Cerebellar GM was outperformed by cerebellar WM, whole cerebellum, crus, and pons, which were all roughly equivalent. Methods with PVC were each better or not significantly worse than those without. **Conclusions:** Our results support the use of PVC, narrow GM-segmentation targets, and whole-cerebellum, cerebellum-WM, crus, or pons reference regions for SUVR calculations.

IC-04-05 MULTISITE HIPPOCAMPAL SUBFIELDS REPRODUCIBILITY: A EUROPEAN 3T STUDY

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Background: Hippocampal subfields are differentially affected in Alzheimer's Disease (Hanseeuw BJ, 2011; Lim HK, 2012). However, their volume reproducibility has been poorly investigated. We report the evaluation of the across-session test-retest reproducibility of the hippocampal subfields segmentations derived from Freesurfer in 65 healthy elderly subjects. We compared the subfields reproducibility i) averaging or not two within session T1 images and ii) relative to the whole hippocampus. **Methods:** Five healthy local volunteers (55-90 ys) were enrolled in 13 3T MRI sites (Siemens, GE, Philips) across Europe and were scanned in two sessions at least a week apart. All analyses were performed using the longitudinal pipeline of Freesurfer v5.1.0 (Reuter M, 2012; Jovicich J, 2013) on the neuGRID platform (https://neugrid4you.eu/). The whole hippocampal volume was extracted from the "aseg.stat" file of Fresurfer. For each site and ROI, volumes reliability was computed evaluating test-retest absolute differences relative to the mean (absolute error) and test-retest spatial reproducibility (DICE). **Results:** Subfields analysis was focused on: Cornu Ammonis (CA) 1, CA2-3, CA4-dentate gyrus (DG), subiculum, presubiculum, fimbria and hippocampal fissure. Within session averaging of two T1 images gave a significant improvement in the mean test-retest reproducibility of all hippocampal subfields. Absolute errors across MRI sites was comparable to that found for whole hippocampus (about 2%) for CA2-3, CA4-DG and subiculum, about 5% for CA1 and presubiculum, around 15% for fimbria and hippocampal fissure. The DICE results were in line with the absolute error analysis (excellent for CA2-3, CA4-DG, subiculum, good for CA1 and presubiculum, poor for fimbria and hippocampal fissure). **Conclusions:** Averaging the within session T1 images allowed to improve the Freesurfer subfields reproducibility at each site. Despite the differences of the 13 MRI scanner configurations we found good and consistent hippocampal subfields reproducibility for CA2-3, CA4-DG, subiculum, CA1 and presubiculum. Pharmacog is funded by the EU-FP7 for the Innovative Medicine Initiative (grant 115009).