

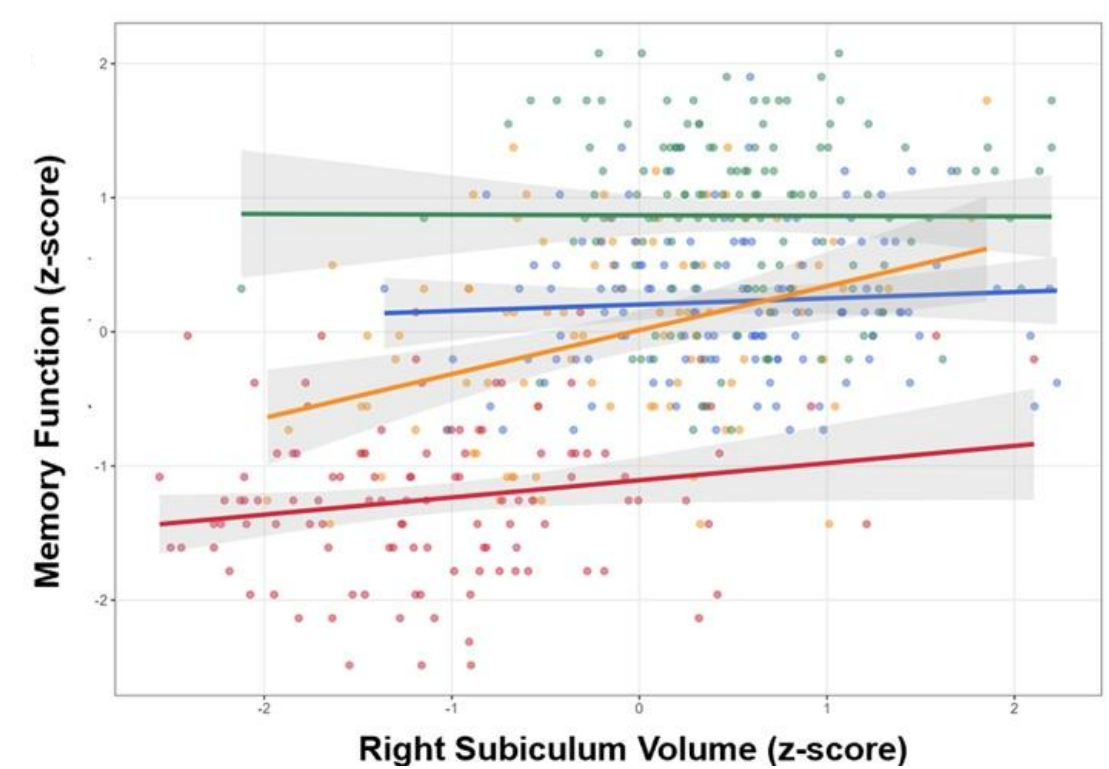
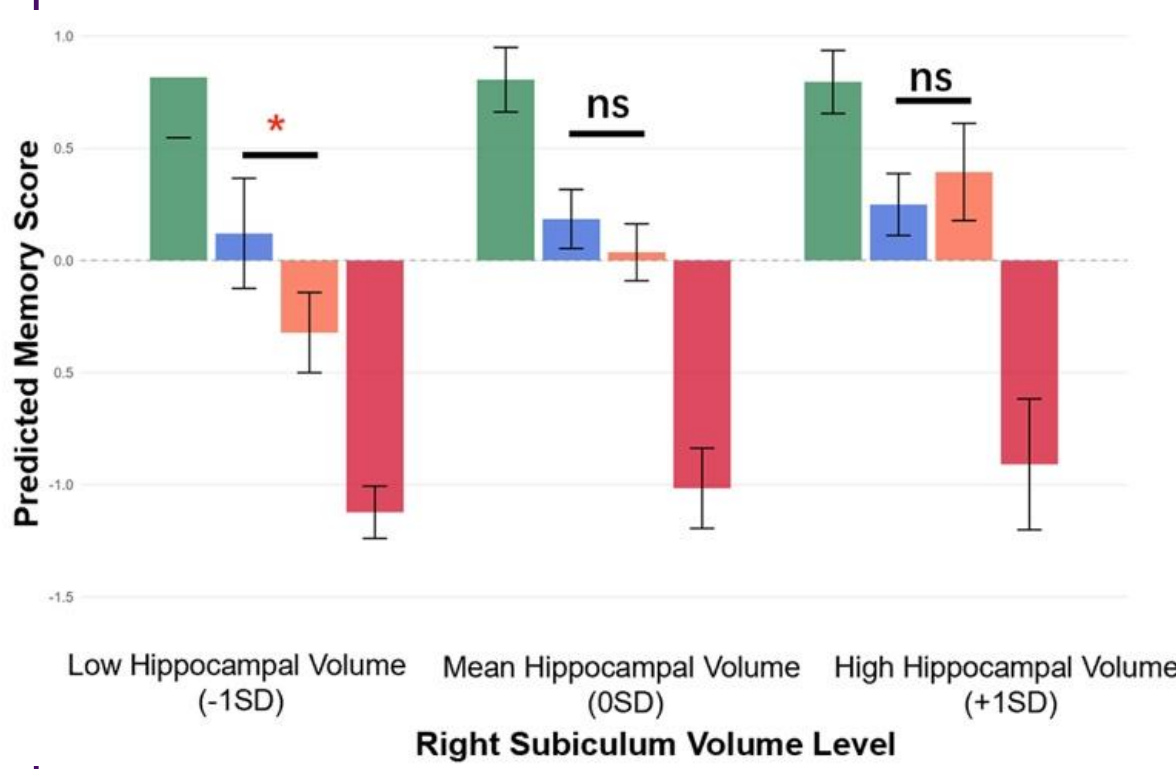
Hippocampal Network Atrophy Mediates the Amyloid-Cognition Link: Right Subiculum as Structural Reserve and Biomarker in MCI+

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- MCI+ is the pivotal stage where amyloid-beta links to coordinated hippocampal network deterioration.
- Right subiculum volume acts as both a structural reserve signal and an MRI-based amyloid-positive MCI marker.

INTRODUCTION	METHODS	RESULTS	CONCLUSIONS	REFERENCES
AD progresses from preclinical stages through prodromal MCI to dementia. Gap: stage-specific links among amyloid-beta, hippocampal subfields, and cognition remain unclear. Aim: test whether hippocampal network atrophy mediates amyloid-cognition links and whether preserved subfields indicate reserve.	C-PAS cross-sectional cohort: 465 participants. Groups: NC- n=132, MCI- n=128, MCI+ n=93, AD dementia n=112. Measures: neuropsychology, T1 MRI subfield segmentation, APOE genotype, and amyloid imaging. Analyses: elastic net, mediation, moderation, and structural covariance networks. Clinical utility: tested whether subfield volume improved MCI amyloid-status discrimination.	 MCI+ window: prominent subfield atrophy emerged at the amyloid-positive MCI stage. Mediation: amyloid-related subfield atrophy mediated global cognition, memory, and attention only in MCI+. Network effect: coordinated degeneration patterns mediated amyloid-cognition links (beta = -0.117 to -0.178). Right subiculum: preserved volume buffered memory decline and improved amyloid-positive MCI discrimination.	 MCI+ is the key phase where amyloid links to hippocampal network deterioration. Right subiculum volume may support memory maintenance under amyloid pathology. It also adds MRI-based value for identifying amyloid-positive MCI beyond clinical measures.	Selected references 1. Jack CR Jr, et al. <i>Alzheimers Dement</i>. 2024;20:5143-5169. doi:10.1002/alz.13859 2. Iglesias JE, et al. <i>NeuroImage</i>. 2015;115:117-137. doi:10.1016/j.neuroimage.2015.04.042 3. Carlesimo GA, et al. <i>Alzheimers Dement (Amst)</i>. 2015;1:24-32. doi:10.1016/j.dadm.2014.12.001 4. Alexander-Bloch A, et al. <i>Nat Rev Neurosci</i>. 2013;14:322-336. doi:10.1038/nrn3465 5. Stern Y. <i>Lancet Neurol</i>. 2012;11:1006-1012. doi:10.1016/S1474-4422(12)70191-6
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