

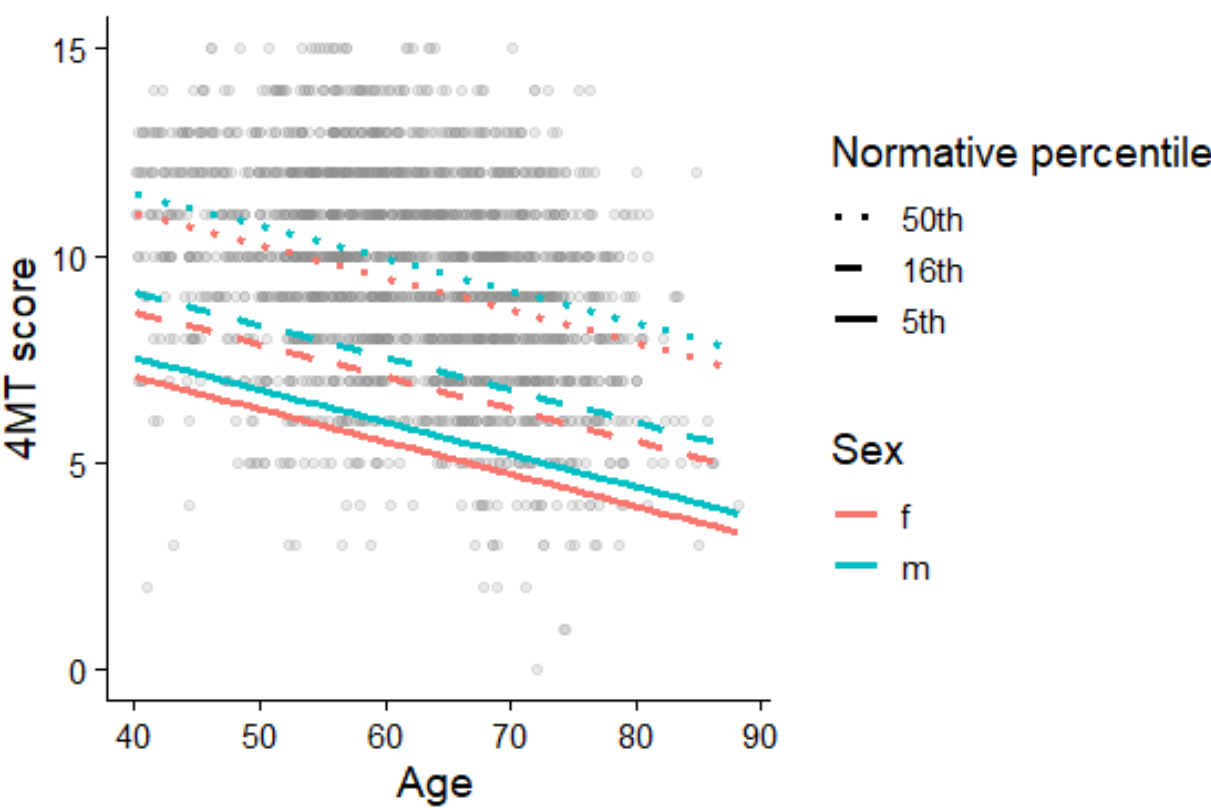
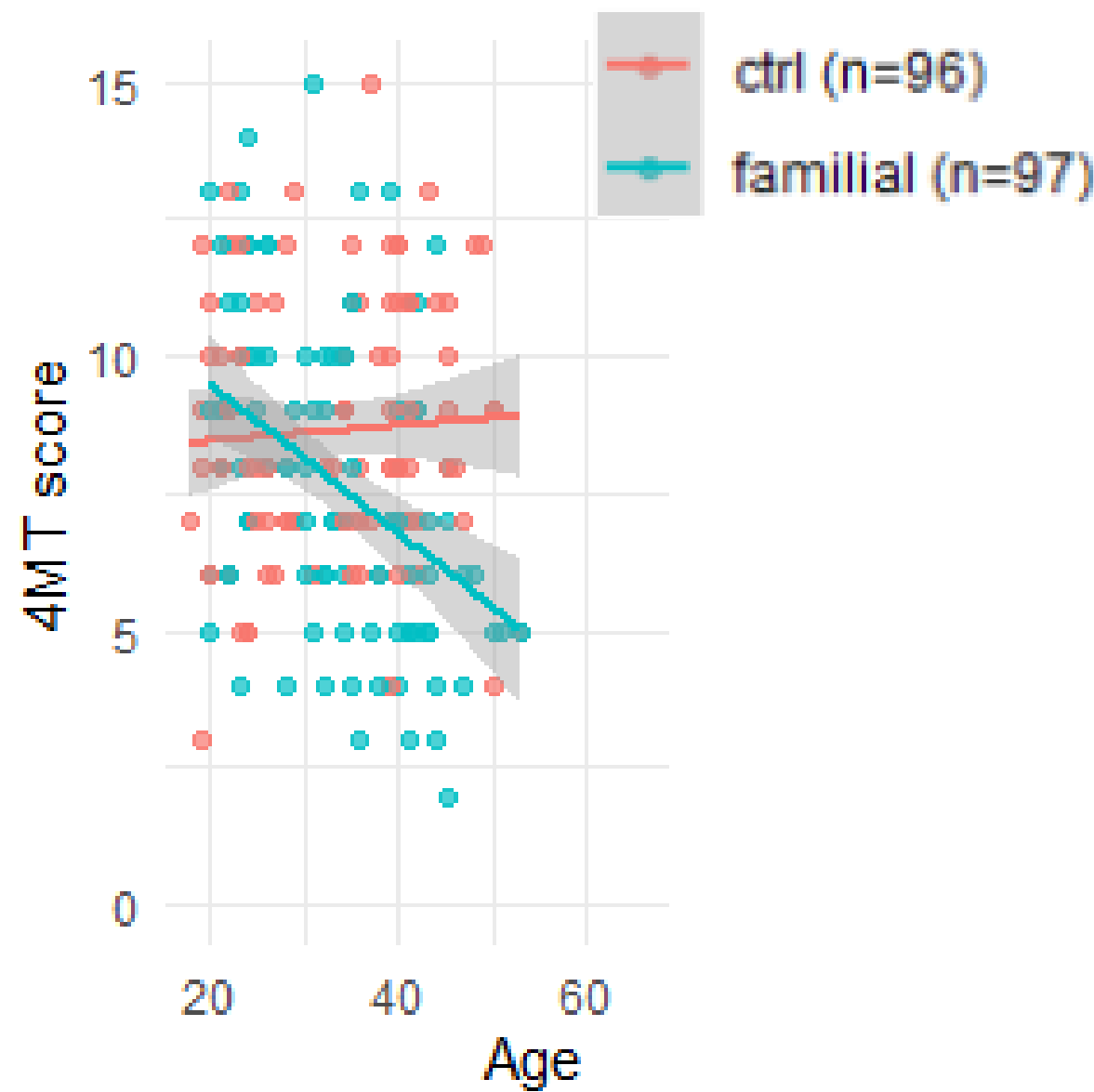
The Four Mountains Test of Spatial Memory: Next steps in translating from the lab to clinics for diagnosis of early Alzheimer’s disease

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A low-cost, language- and cultural-independent spatial memory test can help detecting early change in hippocampal function in AD. Ready for clinics!

Introduction	Normative data with demographic variables	Item-level analysis	Impaired 4MT score in familial AD	Conclusions
- Four Mountain Test (4MT) is a quick (<10min) hippocampus-dependent memory test that can be used for early AD diagnosis [1,2,3] - To translate the 4MT for routine clinical use, normative data adjusted for key demographic variables is necessary. - We investigated the accuracy of individual test item to maximise test efficiency. - We tested the utility of 4MT in detecting familial AD in a non-Western population. sample 8 sec target and foils	- EPAD and PREVENT cohorts (n=1861, 40-88 yr) [4,5] - We modelled 4MT score adjusted for age, sex and years of education - Demographically adjusted 4MT score for 5th, 16th, 50th percentile point  Normative percentile 50th 16th 5th Sex - f - m score = $\beta_0 + \beta_1 \cdot \text{age} + \beta_2 \cdot \text{sex} + \beta_3 \cdot \text{yrEdu}$ $\beta_0=12.7, \beta_1=-0.078, \beta_2=0.47, \beta_3=0.096$	- Each of 15 test items requires a different level of spatial updating ability (large view change=more challenging). - Younger adults and male were particularly better at difficult items Small view change Large view change Viewpoint change Age Sex	PSEN1 carriers (familial AD cohort in Colombia) showed a difficulty in 4MT 20 years earlier than control [new data].  ctrl (n=96) familial (n=97)	- With established normative dataset and diagnostic value in both sporadic and familial AD, 4MT can be easily incorporated in clinics - In the future, 4MT items can be optimised by adjusting the view change. References [1] Hartley et al. 2007 Hippocampus [2] Pengas et al. 2010 J Alzheimers Dis [3] Wood et al. 2016 Front. Neurology [4] Ritchie et al. 2020 J Prev Alzheimers Dis. [5] Ritchie & Ritchie 2024 BMJ Open 