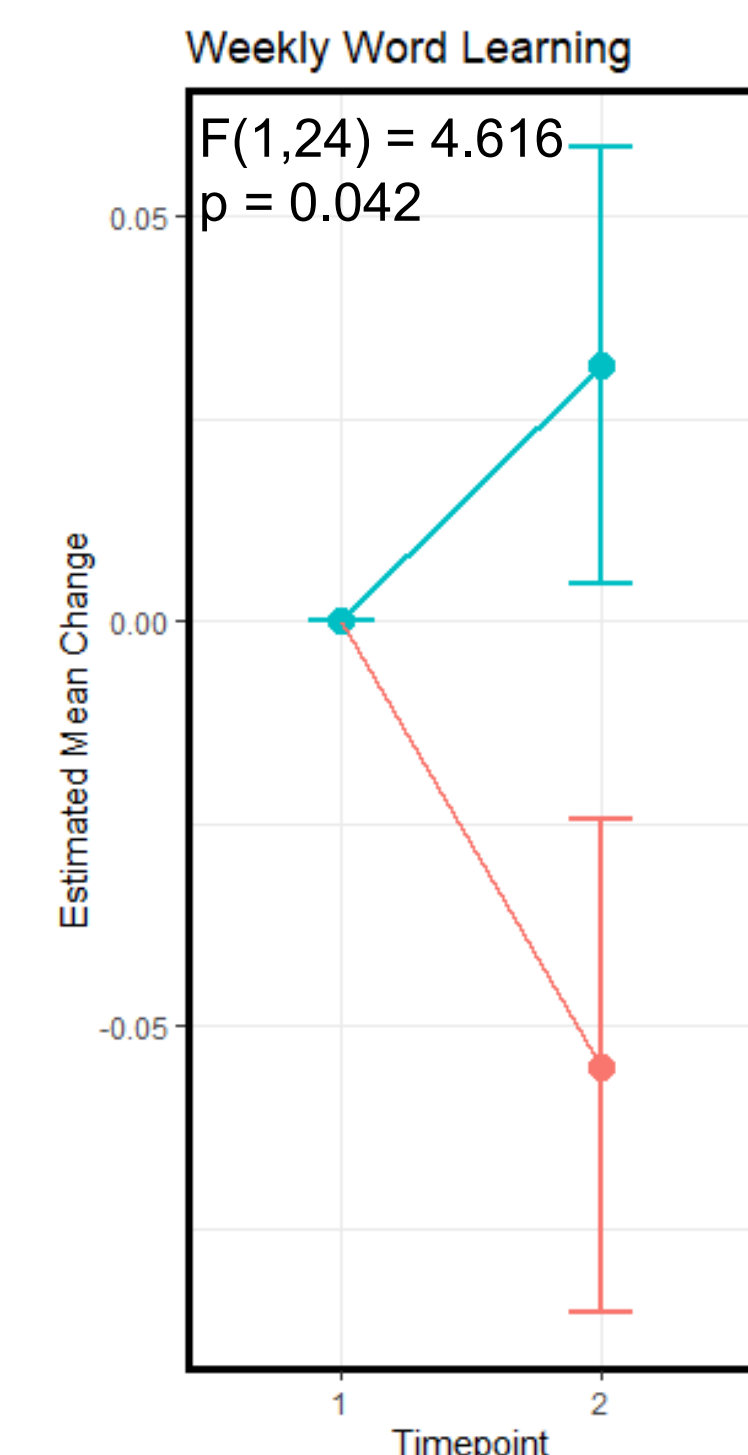
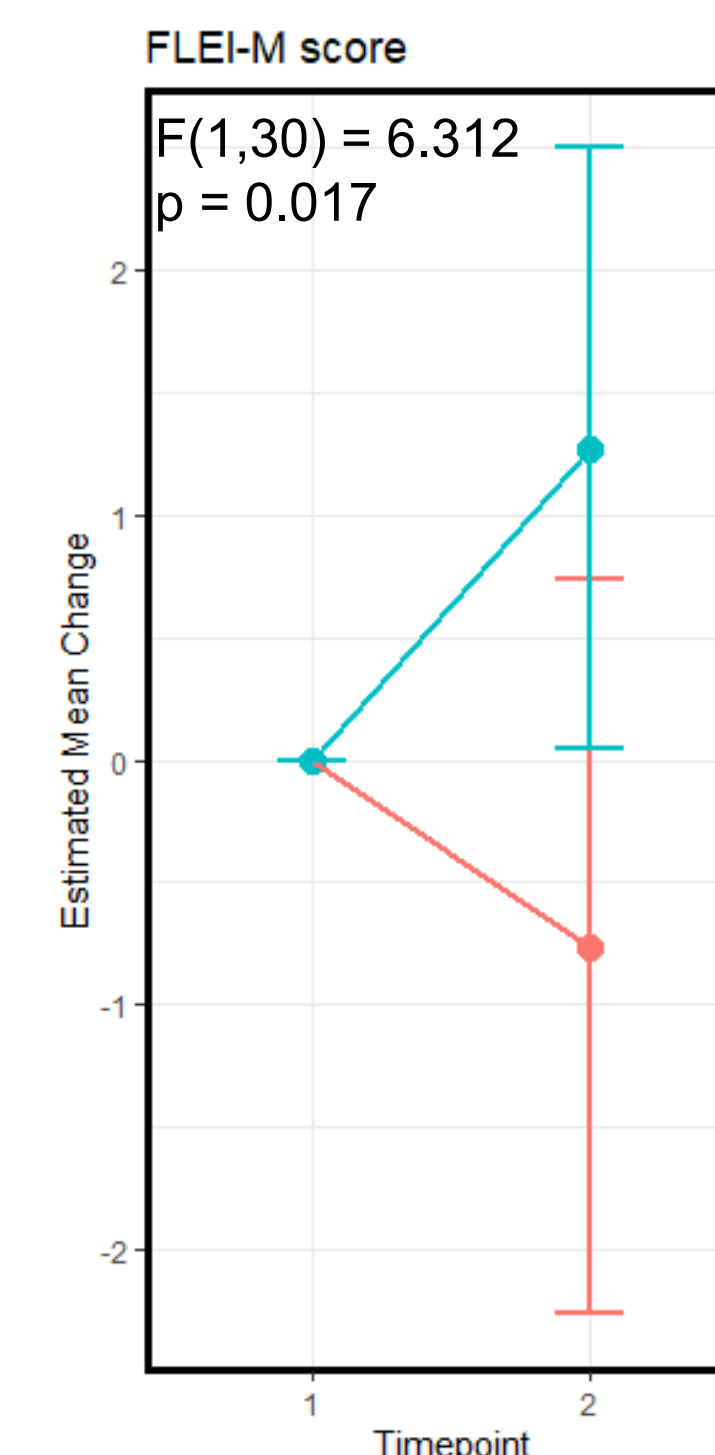
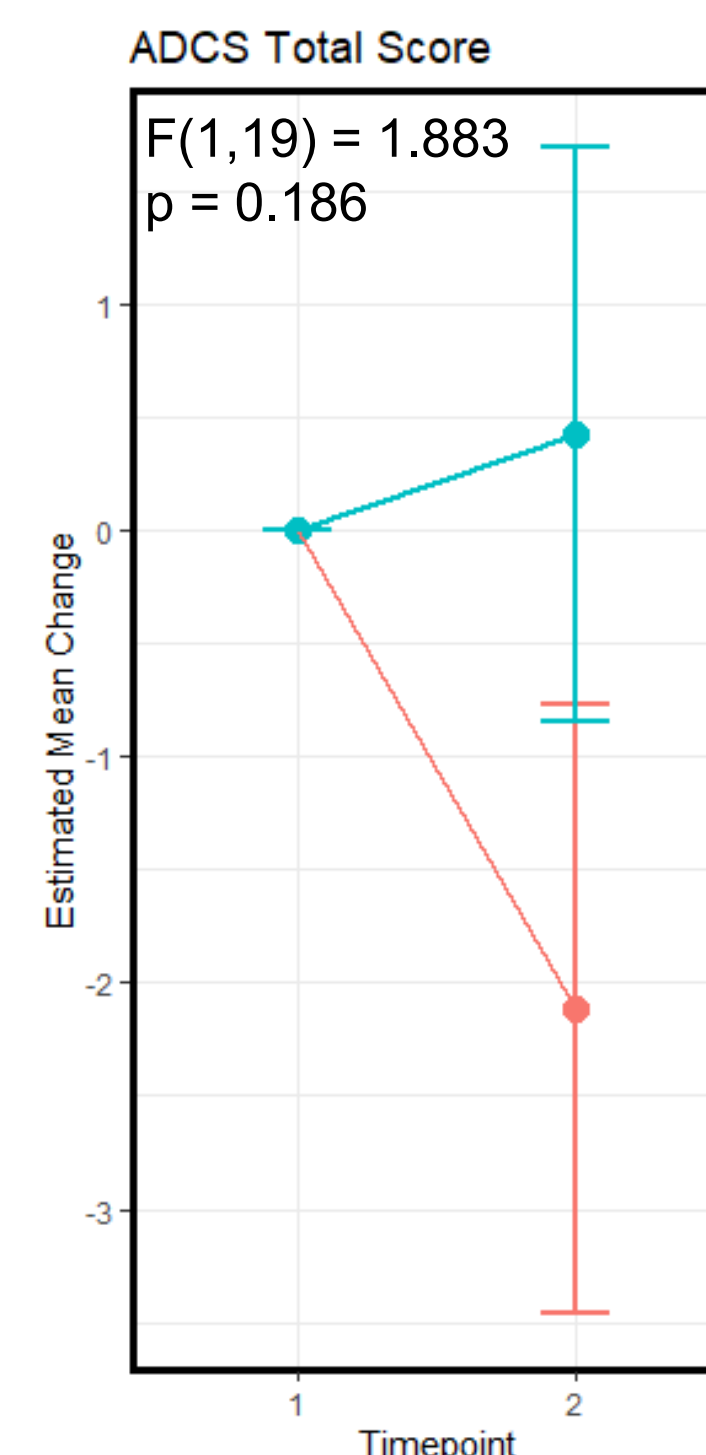
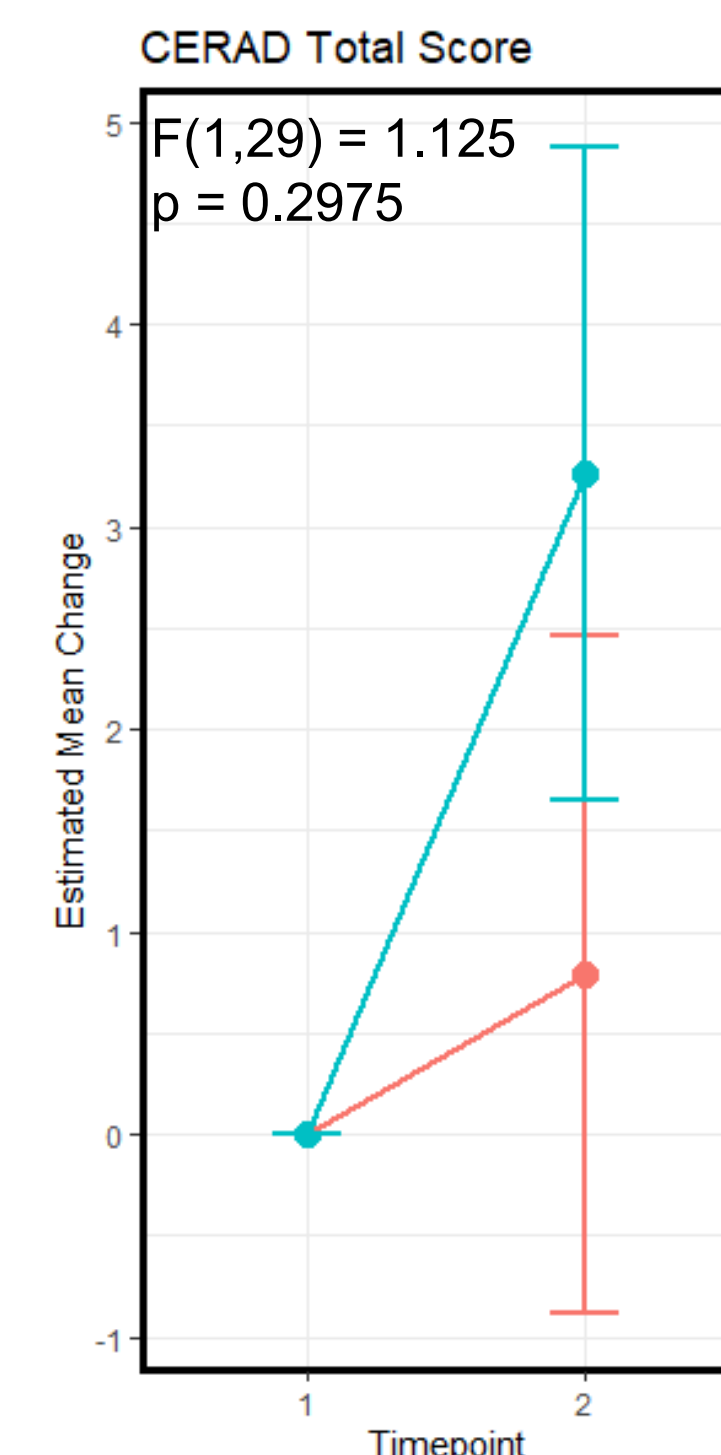
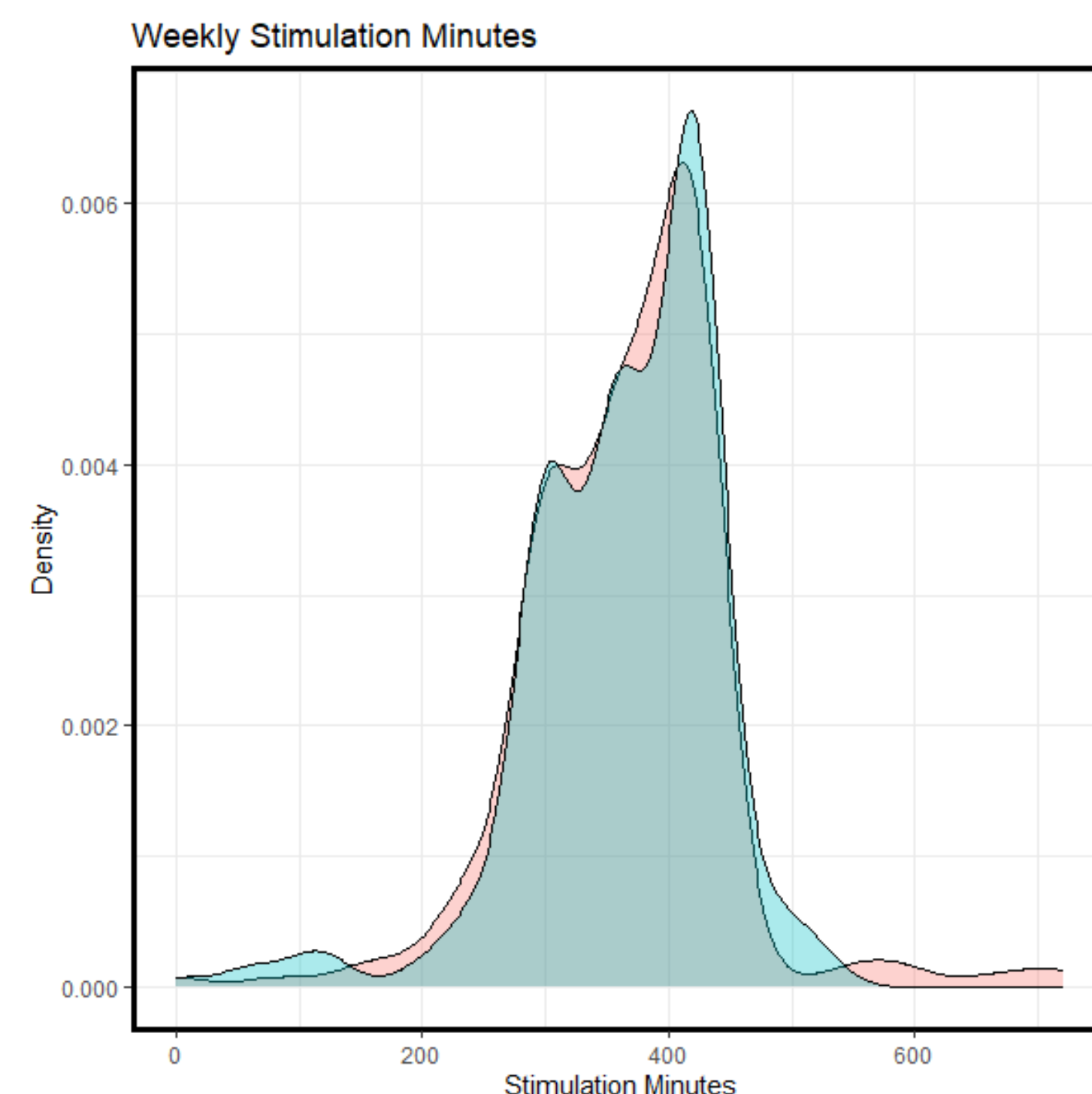
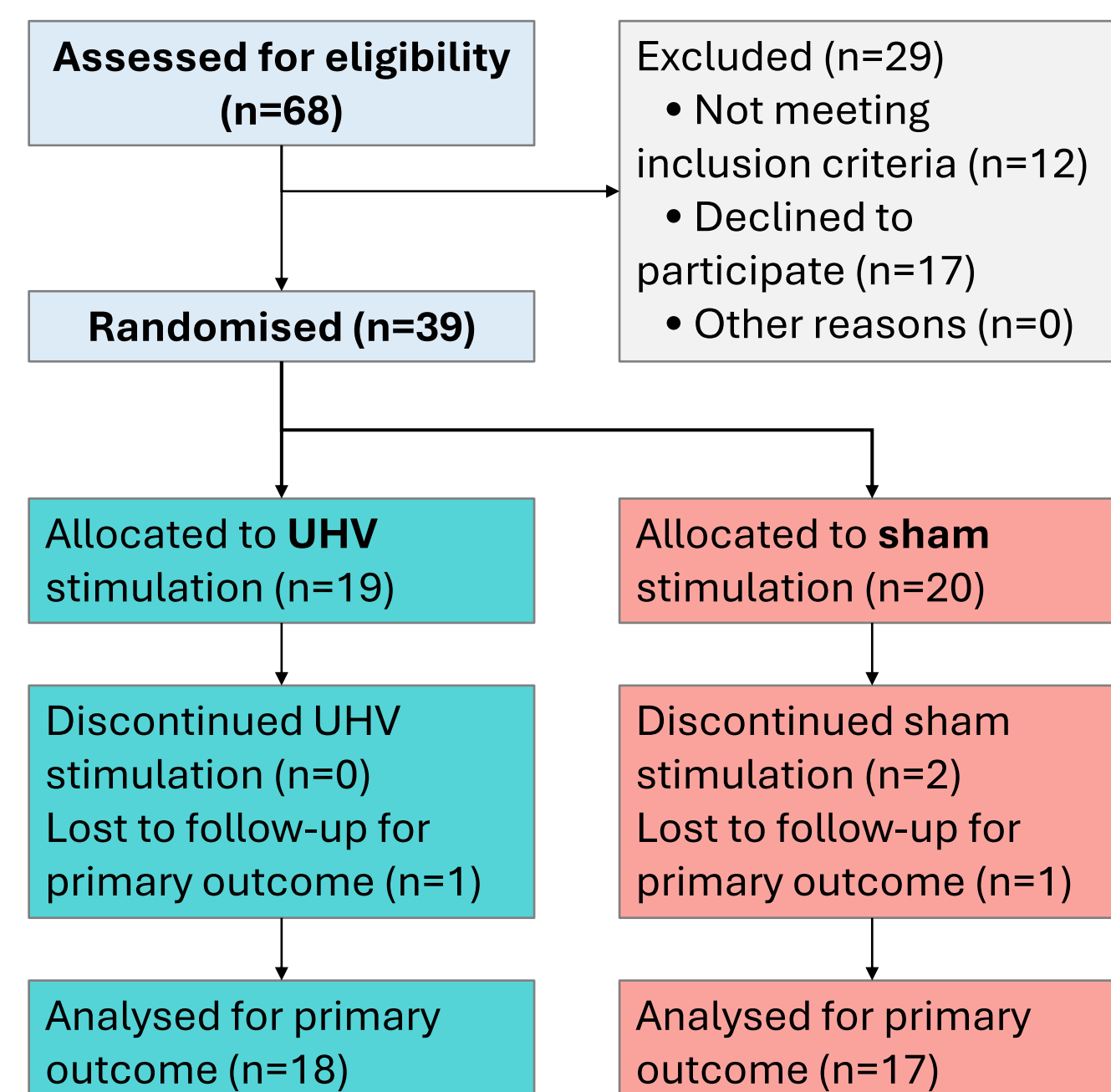
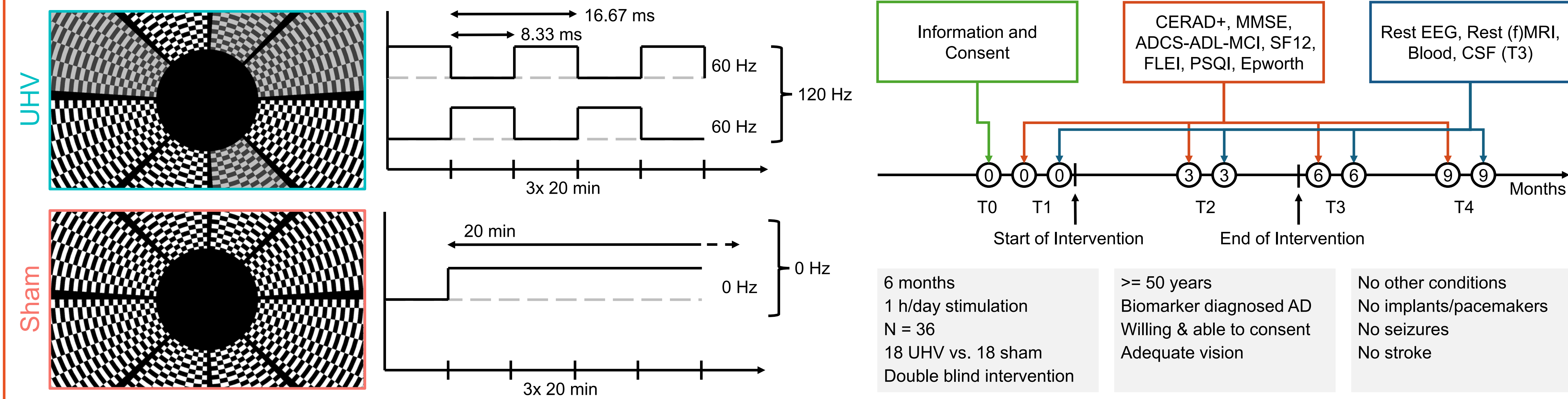


AD impairs long-term memory. Disease-modifying drugs targeting the AD neuropathology eliminate amyloid-beta from the brain, but their effect on memory is only moderate [1]. We propose an intervention [2] focused on Sharp-Wave-Ripples (SWRs): SWR density correlates with memory [3] and inducing SWRs can improve memory [4]. Ultra-high-frequency visual (UHV) stimulation offers a safe and non-invasive way to induce SWRs [5]. It could represent a therapy for memory impairment, preventing or delaying the onset of AD or cognitive decline due to aging. NIN-AD (DRKS00036848, double blind RCT) evaluates adherence and tolerability of UHV stimulation, its effects on AD symptoms and biomarkers, memory, sleep, general wellbeing, and daily functioning.



ANCOVA:
T2 score vs.

- T1 Baseline score
- Age
- Education
- Sex
- Group
- Individual intercept

The 3 months readout indicates high adherence to 1h/day self-administered stimulation. Participants report no side effects of the UHV stimulation, supporting safety of the intervention. Subjective memory assessment is significantly improved in the UHV group compared to a decline in the sham group. Neuropsychological tests and caregiver-assessment of daily living activities indicate positive trends between groups. Bi-weekly verbal memory tests indicate improved memory in the UHV group. Success of the full trial could promise safe and accessible therapies of AD, MCI, and age-related memory loss.

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