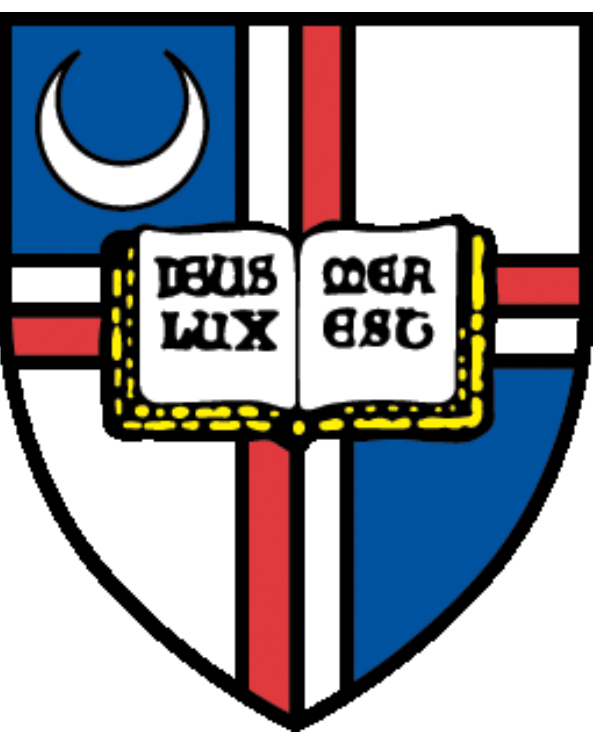




SPATIAL CONTEXTUAL CUEING IN PATIENTS DIAGNOSED WITH MILD COGNITIVE IMPAIRMENT AND MILD ALZHEIMER'S DISEASE

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Abstract

To investigate implicit learning of visual contexts in patients with mild cognitive impairment (MCI) and mild stage of Alzheimer's disease, we used a contextual cueing paradigm in which people attempted to locate and identify a target item presented in a display of distractors. Unbeknownst to participants, some displays contained repeated configurations which provided a contextual cue to the location of the target, while other novel displays were generated randomly (Chun & Jiang, 1998). Chun et al have shown facilitated search for repeated compared to novel contexts. This advantage occurred implicitly in that people could not recognize the repeated configurations with better than chance accuracy. This learning is said to rely on the medial temporal lobe system in that amnesic patients with damage to parahippocampal areas failed to show contextual cueing (Chun & Phelps, 1999; Manns & Squire, 2001). We investigated whether contextual learning was impaired in MCI and mild AD patients, a condition apparently involving medial temporal lobe atrophy, by comparing 8 patients to 8 healthy elderly adults on the contextual cueing paradigm. We found that patients showed less contextual cueing than elderly controls. This suggests that patients diagnosed with MCI and mild AD have difficulty learning contextual information that requires binding of multiple cues and depends on medial temporal lobe structures.

Goals

- To determine whether patients diagnosed with Mild Cognitive Impairment (MCI) and mild Alzheimer's disease are able to learn co-variations between events and their context.
- To investigate whether MCI and mild AD patients show contextual cueing deficits compared to healthy elderly controls.
- To determine whether such learning occurs in the absence of ability to recognize co-variations explicitly.

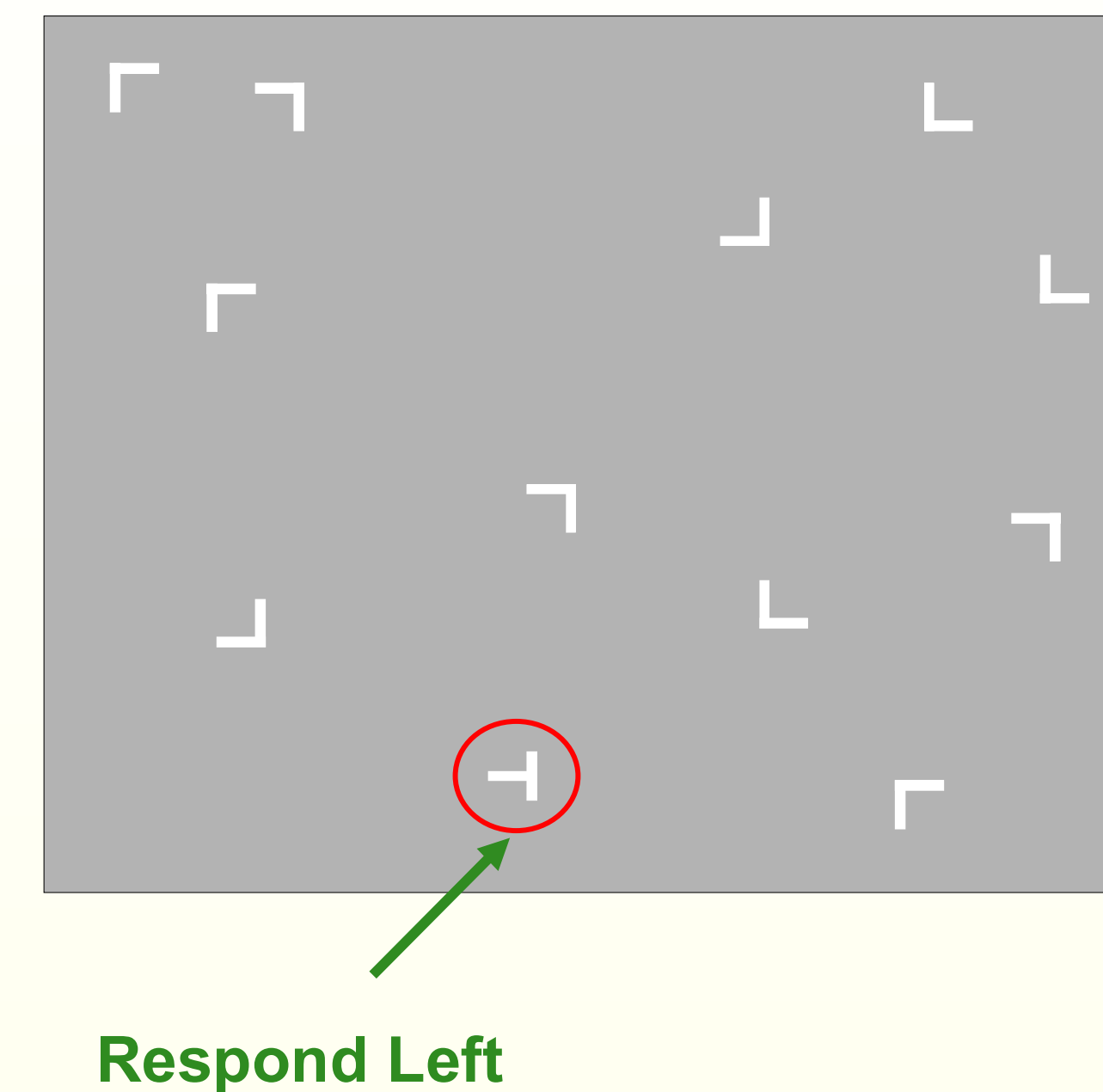
Participants

	Patients	Elderly Controls
Gender	1F, 7M	6F, 2M
Age	77 (5.86)	79 (6.32)
Education	18.25(1.98)	18.25 (1.91)
Self-rated health	4.13 (0.99)	4.63 (0.74)

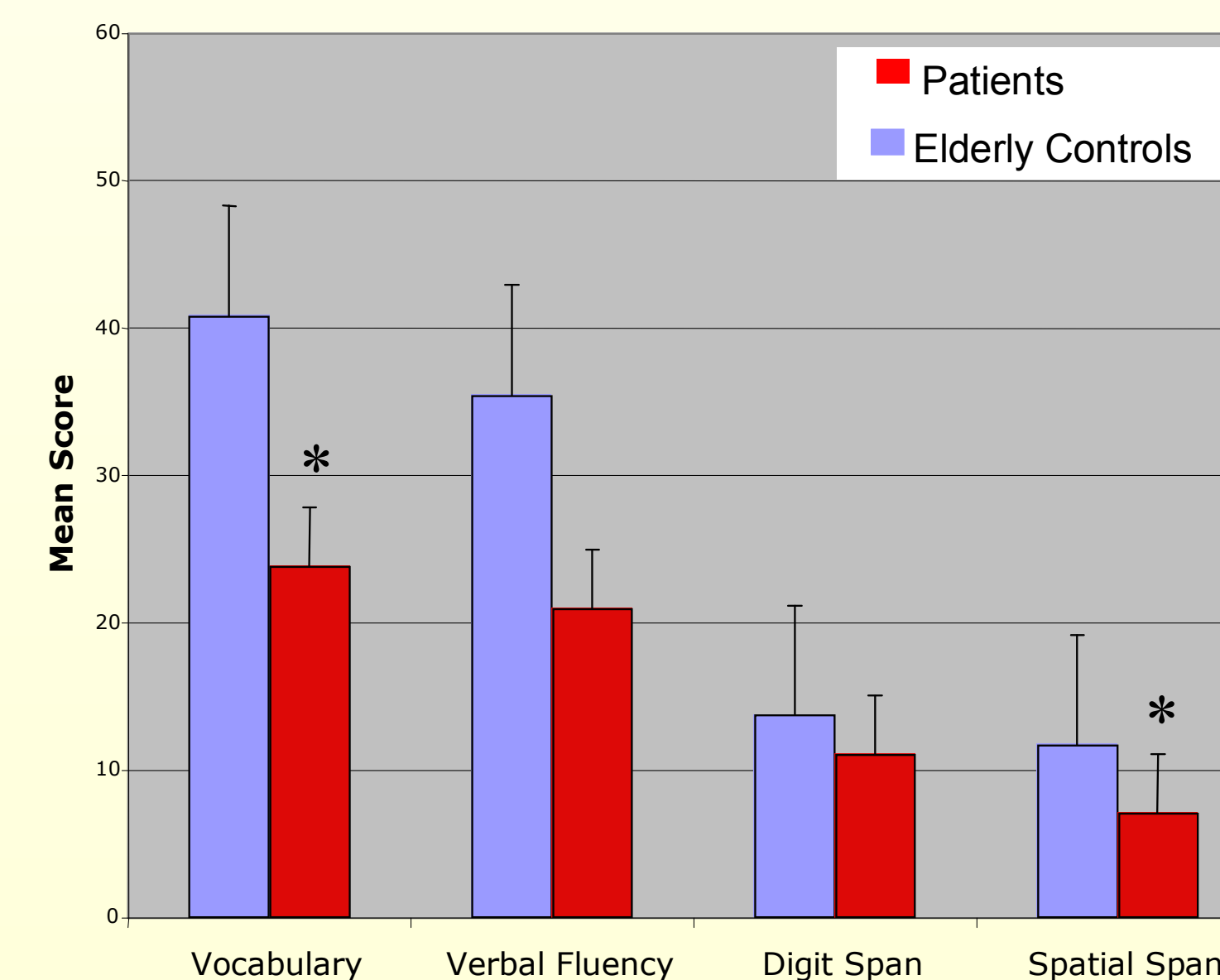
Note: Standard deviations in parentheses

Method

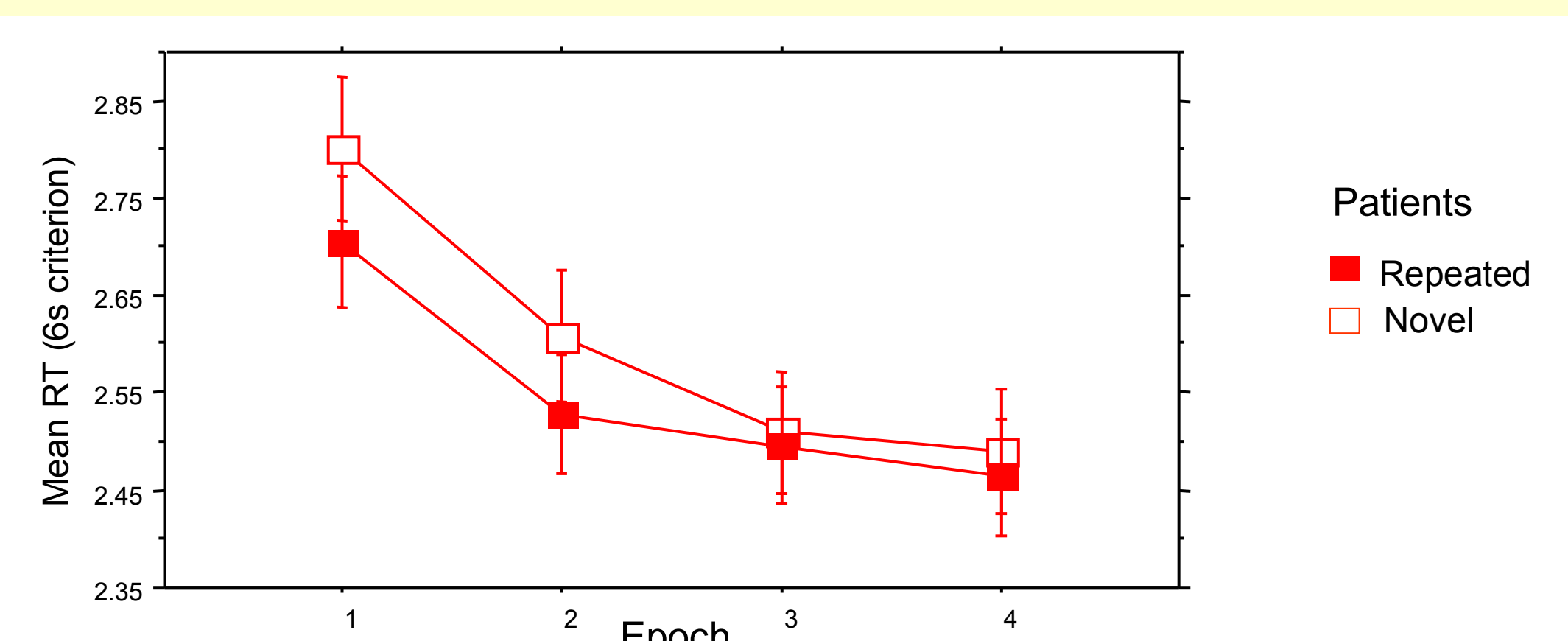
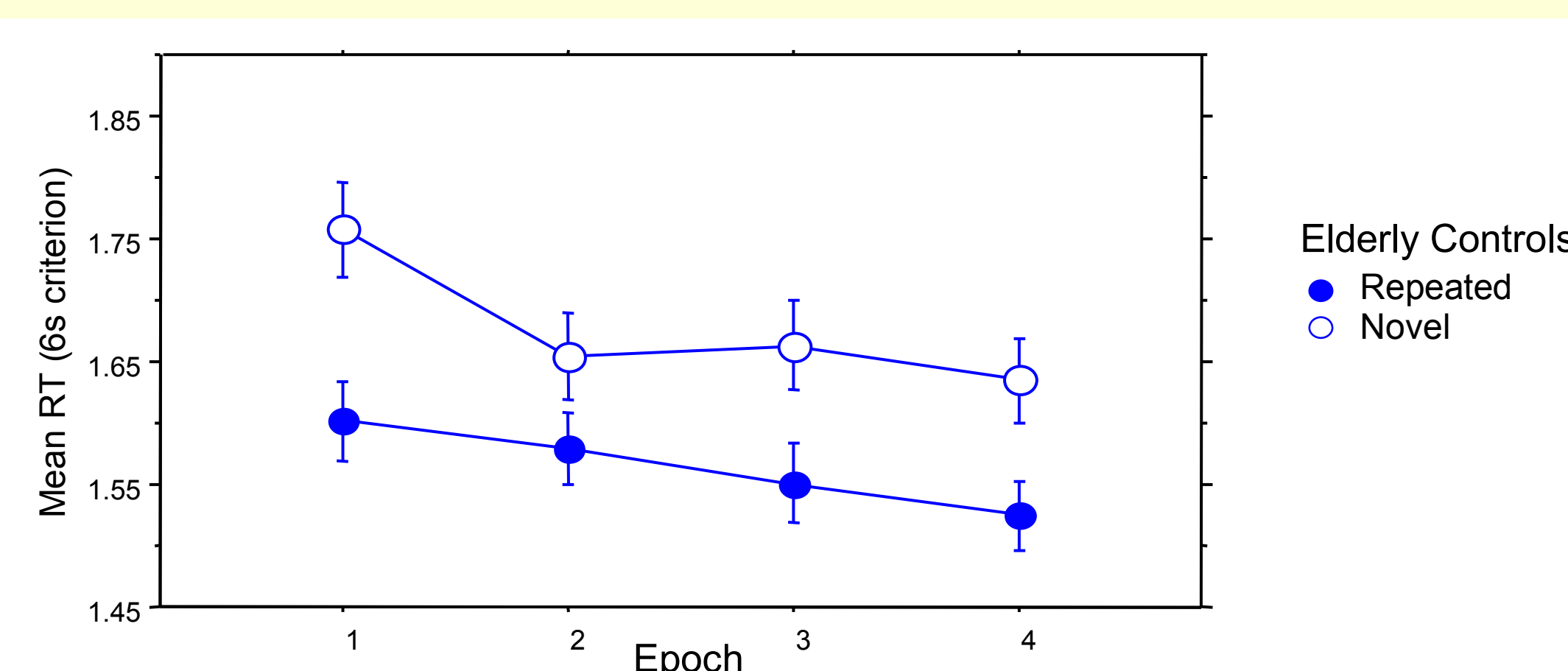
- Visual search task
- Visual array of 12 items
 - 11 distractors (L's--orientation varies)
 - 1 target (**horizontal T**)
- 1 block = 24 trials
 - 12 **repeated** configurations
 - 12 **novel** configurations
- On repeated trials
 - Configuration predicts **location** of T
 - NOT direction of T
- 20 blocks (1 epoch = 5 blocks)
- Measure of learning: difference in performance between repeated and novel trials (**trial-type effect**).



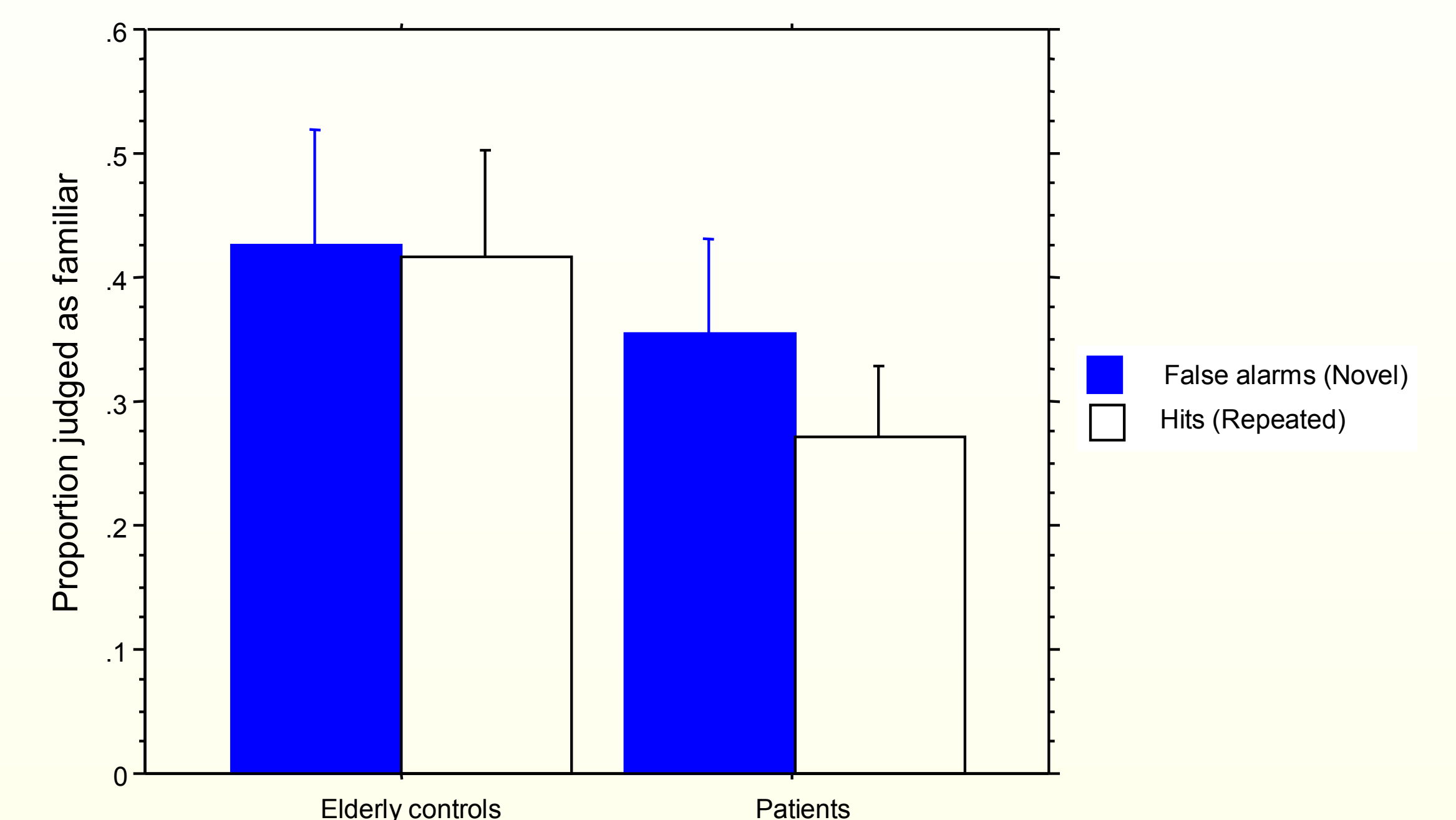
Performance on Neuropsychological Tests



Learning on Contextual Cueing Task



Recognition Test



Conclusions

- ❖ People were not able to explicitly recognize repeated configurations; patients made more false alarms than hits.
- ❖ MCI and AD patients showed a smaller contextual cueing effect compared to healthy elderly controls.
 - These findings are consistent with the medial temporal lobe role in context learning.

References

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Society for Neuroscience Conference, Orlando, FL
November 2-7, 2002
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Supported by NIA Grant R37 AG15450, Predoctoral Fellowship F31 AG05919, and MO1-RR13297-01A1 GCRC Program of NCRR, NIH.