

Characterizing the Durability of Experience-Dependent Representational Changes in the Hippocampus

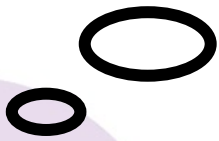


Sophie Allen

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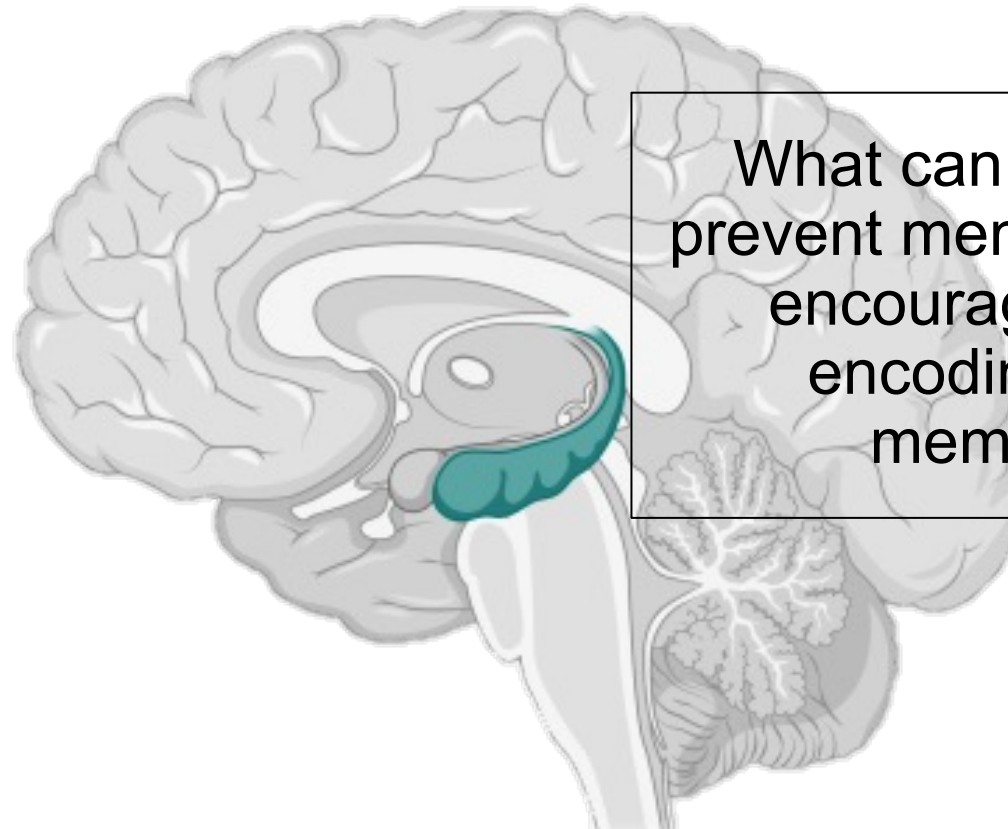
The Tyler Center for Global Studies Research Award,
Gilman International Scholarship





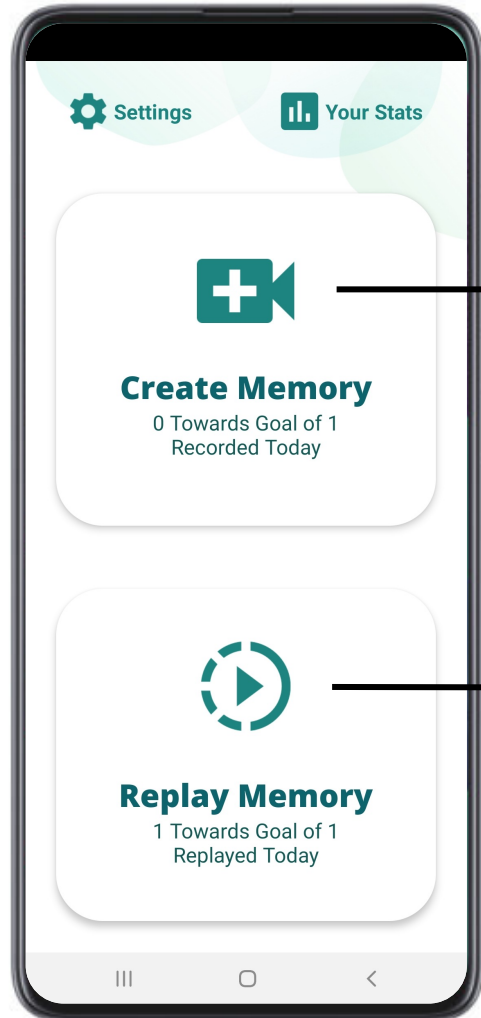


The Hippocampus Supports Autobiographical Memory



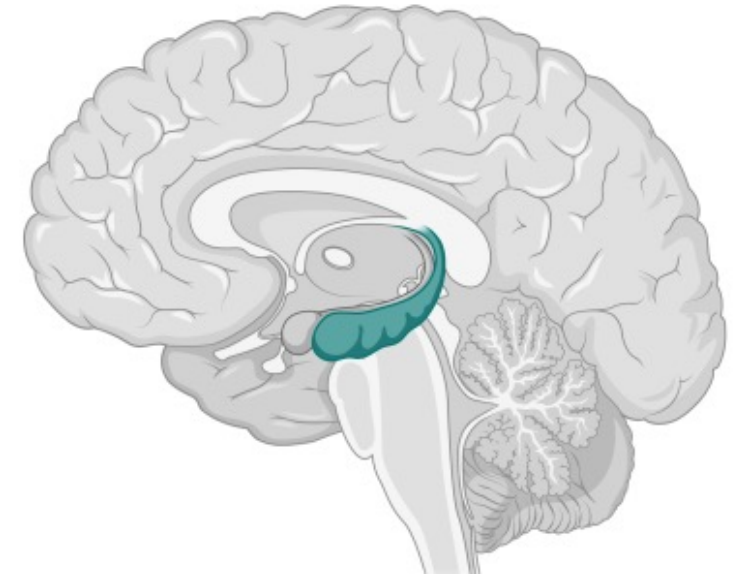
What can be done to prevent memory loss and encourage distinct encoding of our memories?

HippoCamera is a Cognitive Intervention that Mimics Hippocampal Function



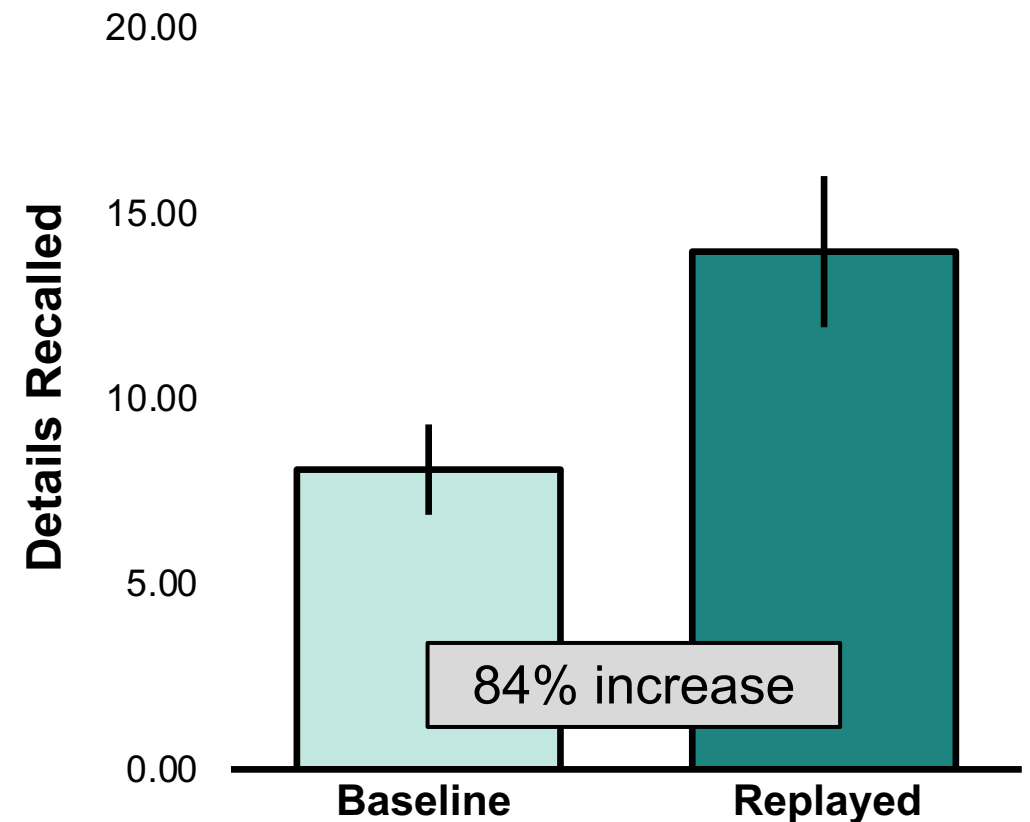
Create Memory
Record a short but rich memory cue

Replay Memory
Review previously recorded cues

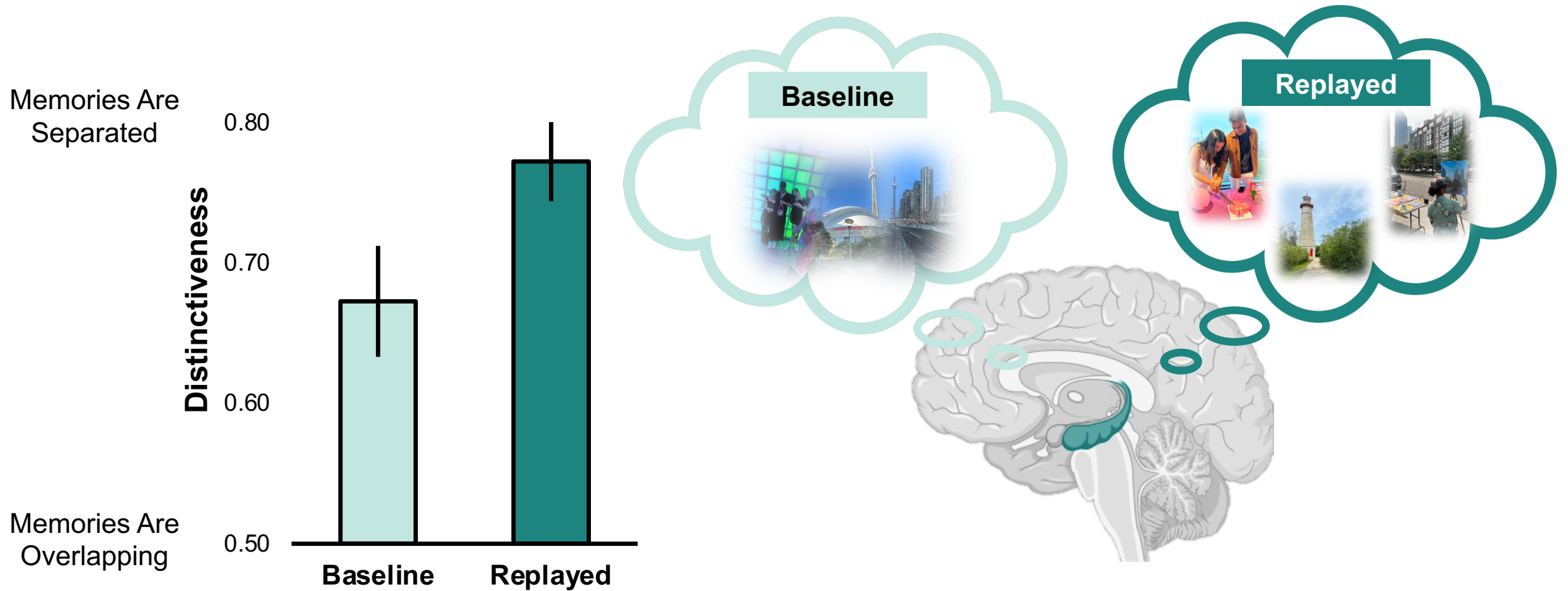


HippoCamera Improves Recall of Everyday Experiences

That was a **Friday night** and my grandkids had just arrived for their sleepover. **Emma was excited** to show me her **art project** ...



HippoCamera Promotes Distinctive Hippocampal Coding

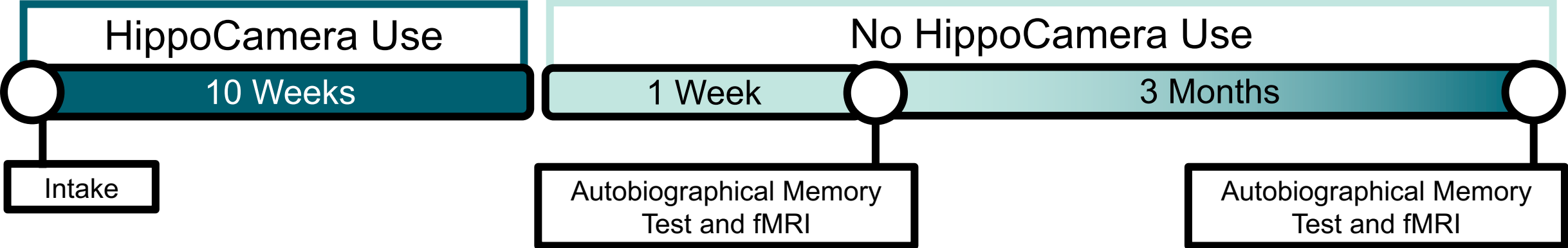




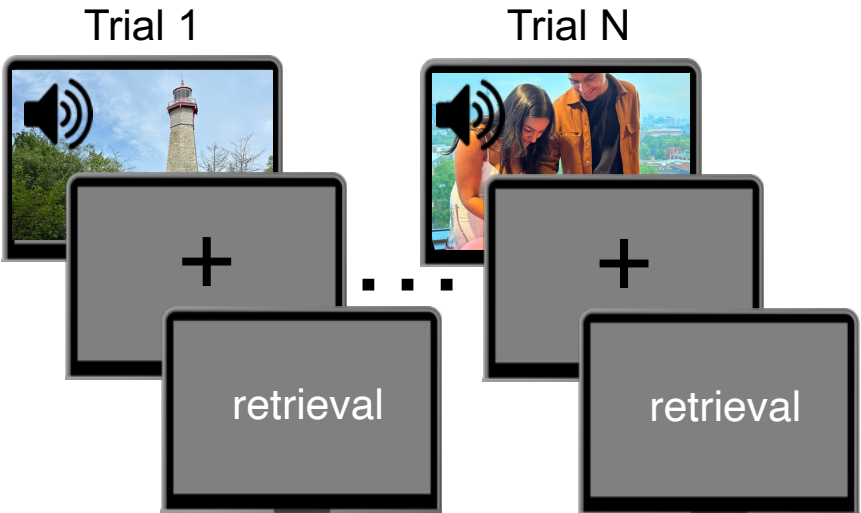
Does the boost in distinctive hippocampal coding persist through time?



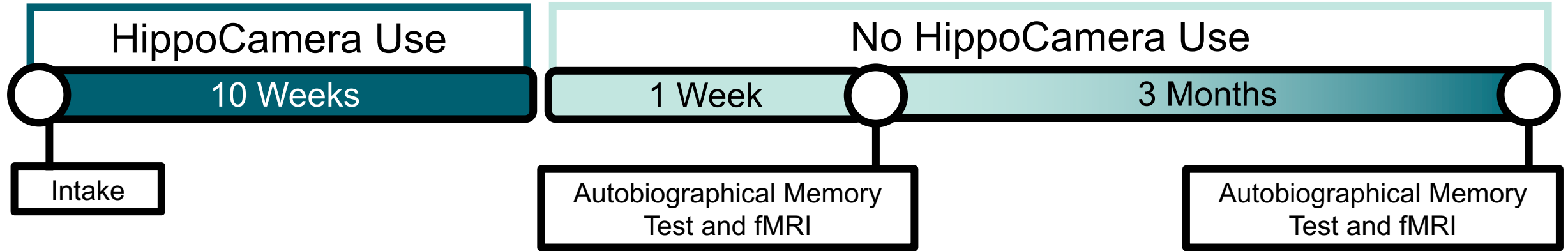
Experimental Design



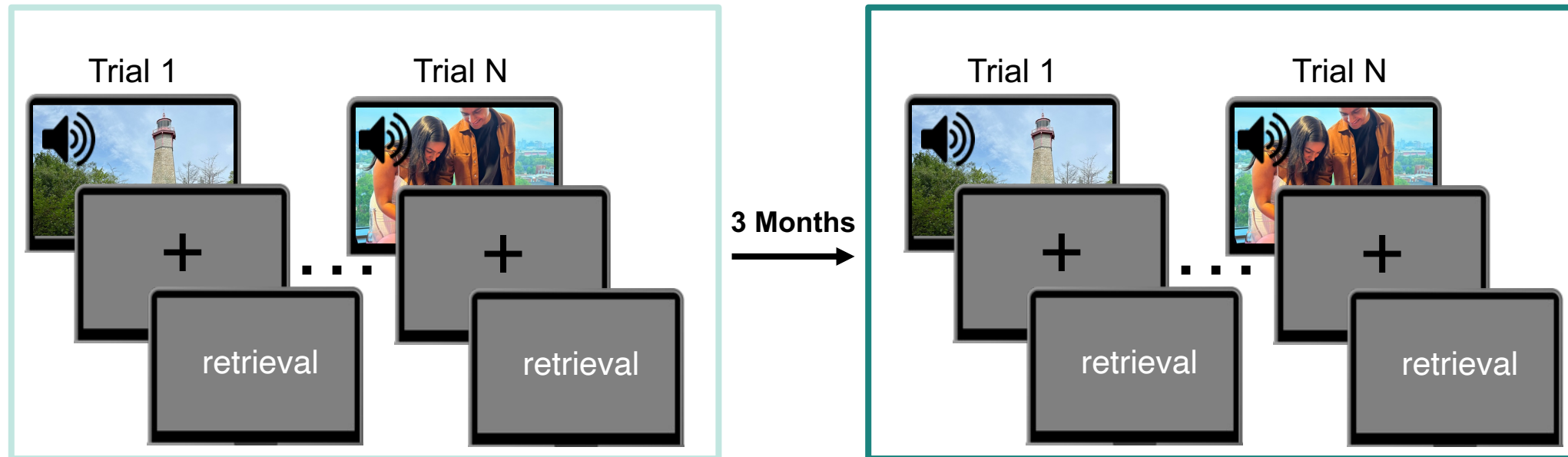
fMRI Task



Experimental Design



fMRI Task



Critical Comparison

Immediate

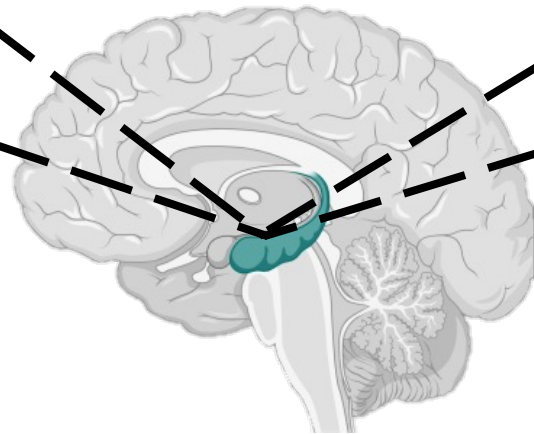
Baseline Trials

Replayed Trials

Delayed

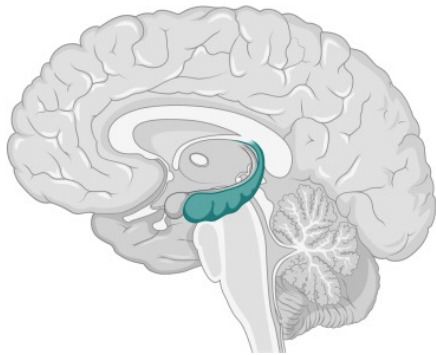
Baseline Trials

Replayed Trials

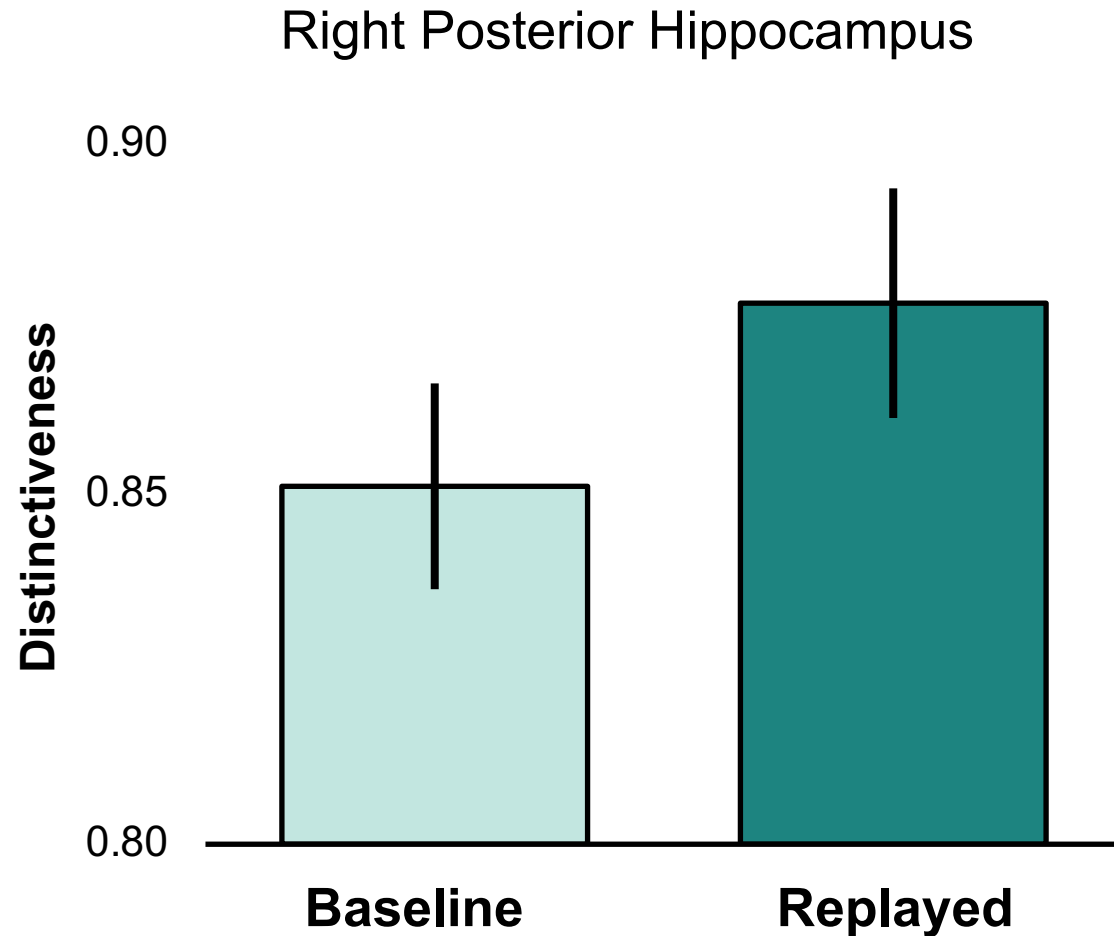


HippoCamera Increased Distinctiveness in the Hippocampus Immediately After the Intervention

Memories Are Separated



Memories Are Overlapping

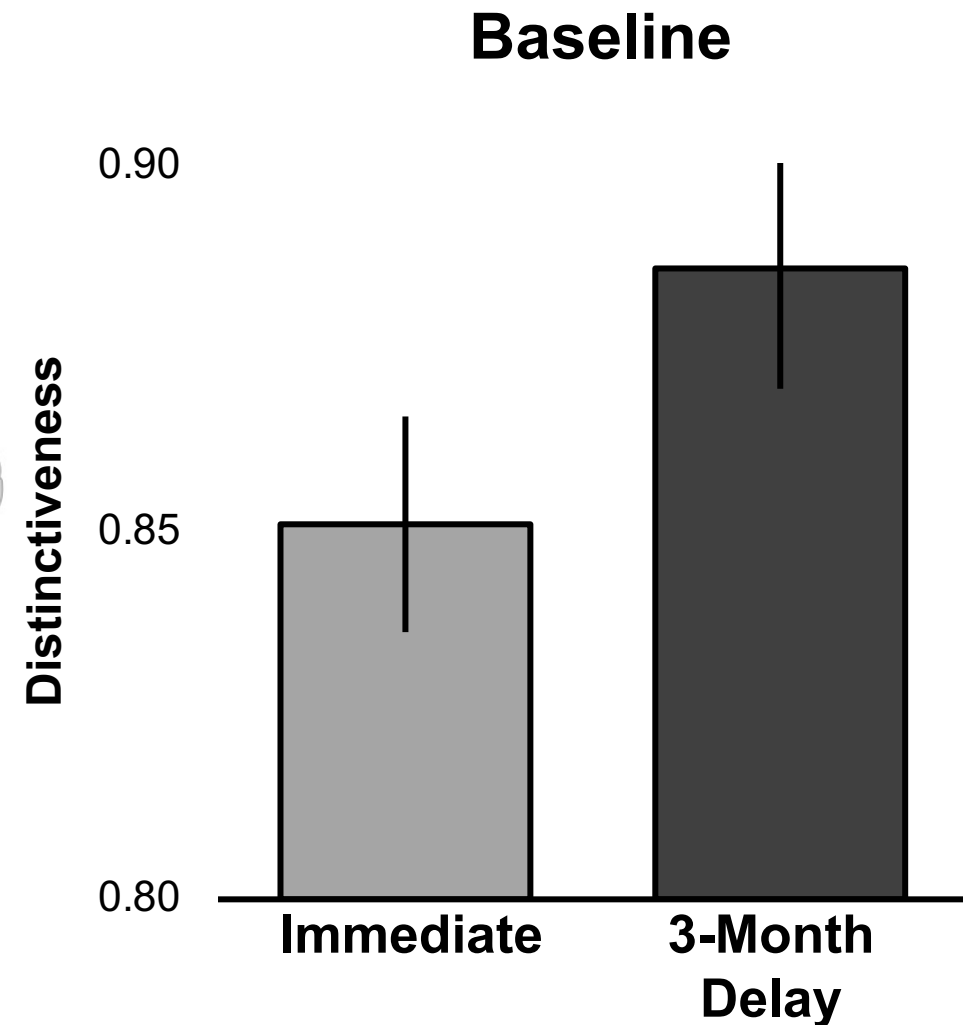


Baseline Memories Showed an Increase in Distinctiveness Over the 3-Month Period

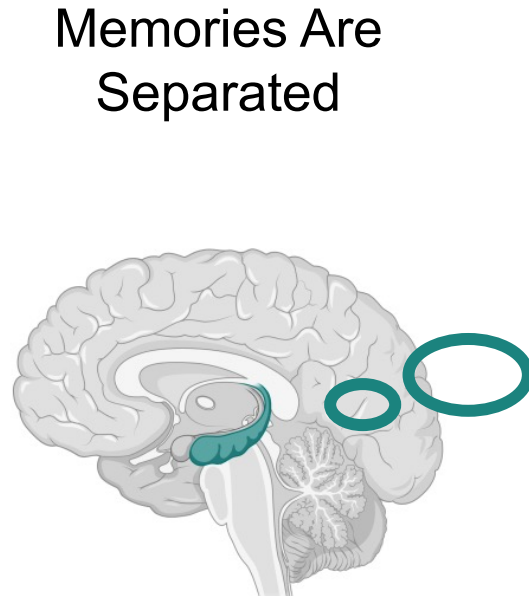
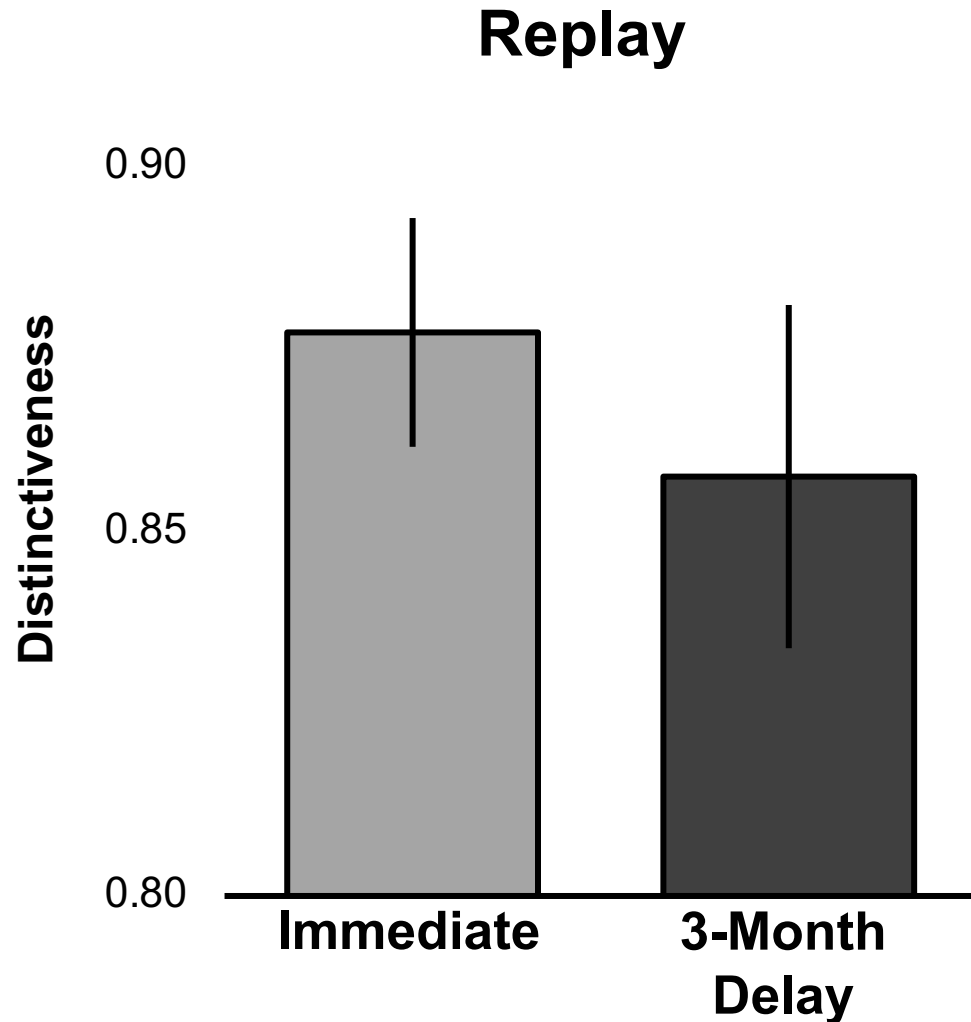


Memories Are Separated

Memories Are Overlapping



Replayed Memories Showed a Decrease in Distinctiveness Over the 3-Month Period

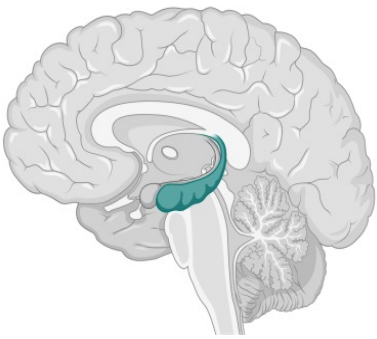


Memories Are Overlapping

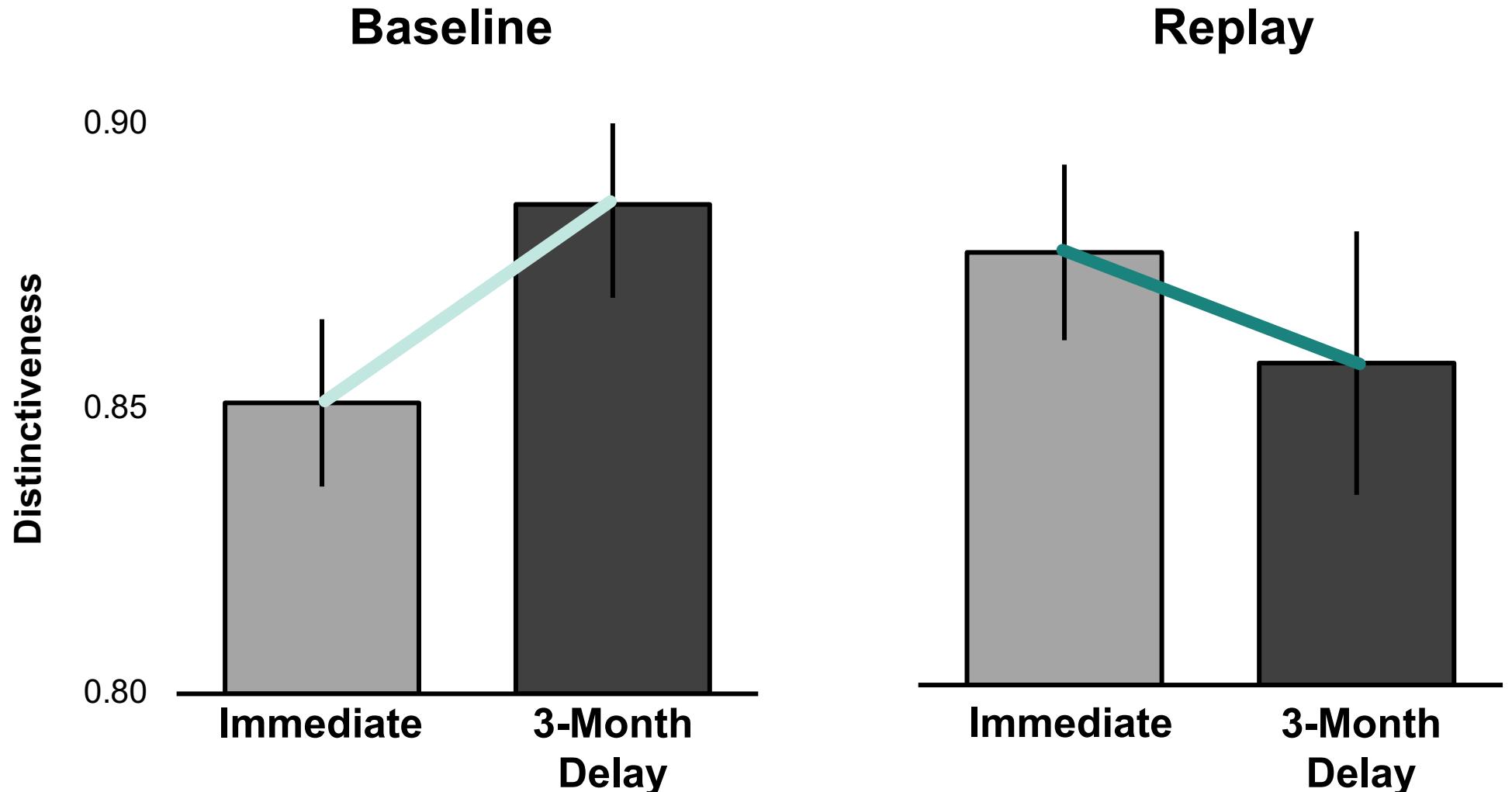


Distinctiveness of Baseline and Replay Memories Over Time

Memories Are Separated

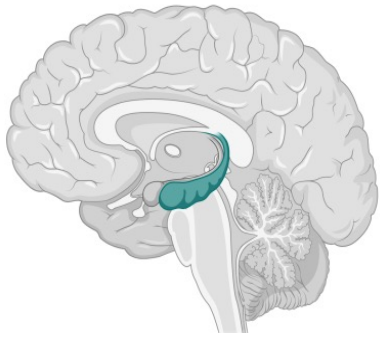


Memories Are Overlapping

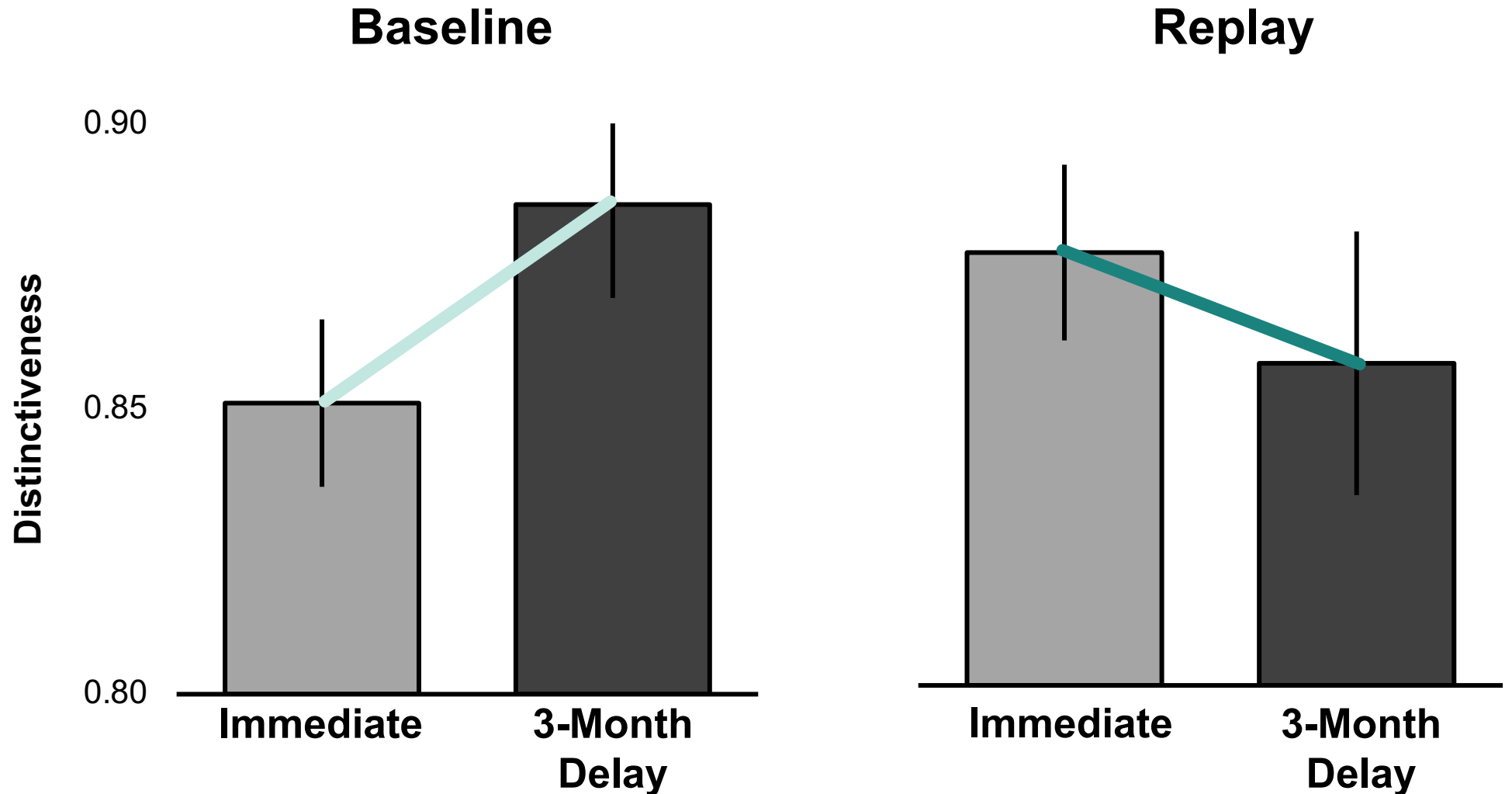


Distinctiveness of Baseline and Replay Memories Over Time

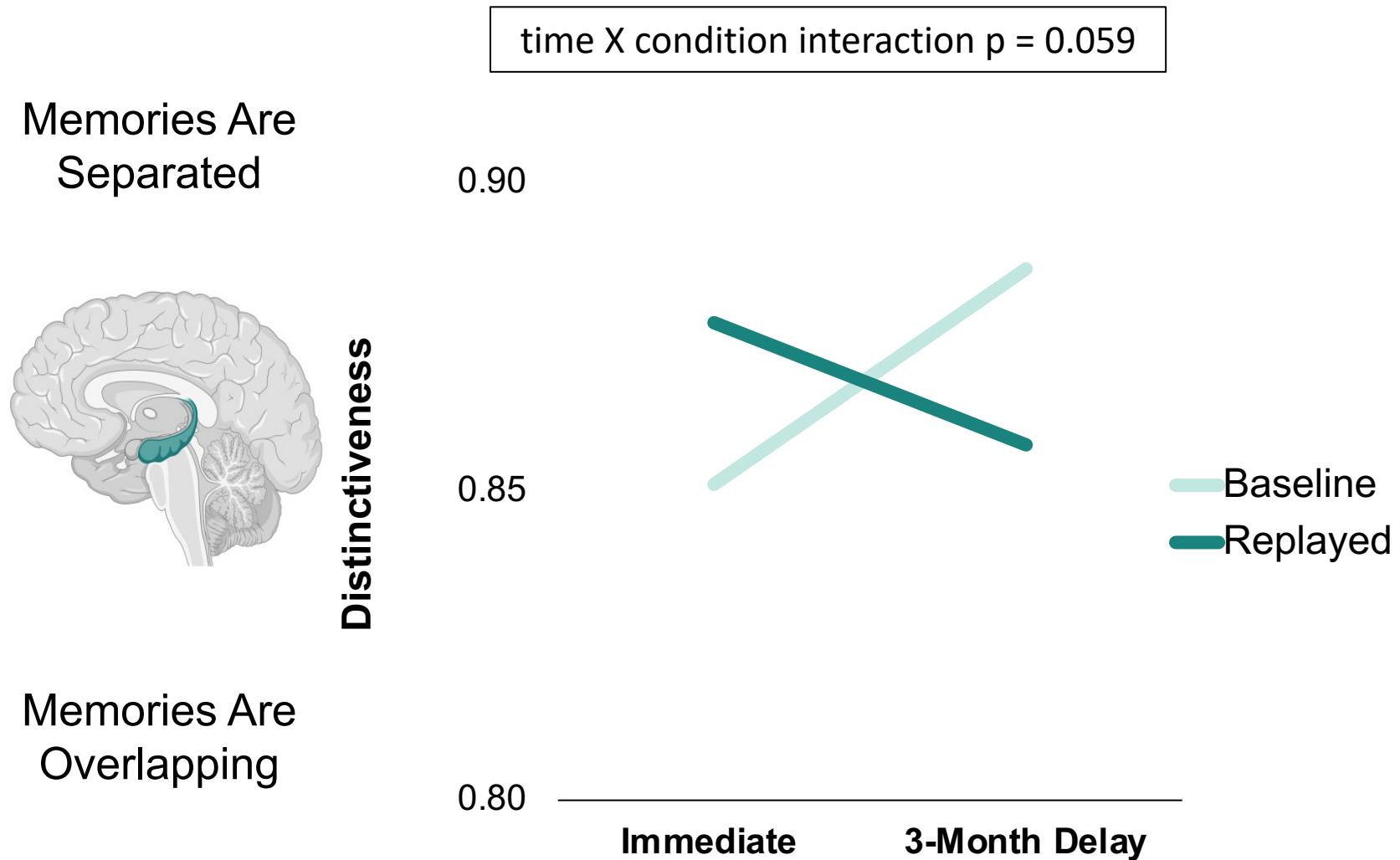
Memories Are Separated



Memories Are Overlapping



Distinctiveness of Baseline and Replay Memories Over Time





Does the boost in distinctive hippocampal coding persist through time?



Thank You



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