

Abstract View

REMEMBER THE SOURCE: IDENTIFYING THE SPATIOTEMPORAL CORRELATES OF RETRIEVAL WITH AND WITHOUT RECOLLECTION

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Neurocognitive processes underlying recollection of episodic detail are thought to support the recovery of source information. Here, event-related fMRI explored whether source retrieval, relative to memory without recollection, is associated with (a) the recapitulation of processes engaged during the encoding of the event, (b) differential reliance on hippocampal retrieval computations, and (c) monitoring processes subserved by prefrontal cortex. Magnetoencephalography (MEG) further indexed the temporal dynamics of these retrieval computations. Subjects were enrolled in the fMRI study and approximately 9 months later in the MEG study. During encoding, the subjects processed words under one of two orienting tasks. On the following day, fMRI or MEG scans accompanied a recognition test that probed for item and source memory. fMRI data revealed that during retrieval, memory with source recollection elicited greater activation relative to memory without recollection in parahippocampal and left inferior prefrontal regions that were engaged during encoding, suggesting recapitulation. Hippocampus was preferentially active during memory with, relative to without, recollection, but also was engaged during correct rejections (CR) and false alarms (FA), supporting a role in recollection and in encoding during retrieval attempts. Finally, left frontopolar cortex was engaged during memory with and without recollection, and during FAs and misses, but not during CRs, supporting a role in post-retrieval monitoring. Initial MEG results suggest that these spatially localized retrieval processes are temporally separable.

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