

Abstract View

REMEMBER THE SOURCE: NEURAL CORRELATES OF RETRIEVAL WITH AND WITHOUT RECOLLECTION

A.D. Wagner^{1,2*}; I. Kahn¹; L. Davachi¹

1. Brain and Cognitive Sciences, MIT, Cambridge, MA, USA

2. MGH-NMR Center, Charlestown, MA, USA

Source memory depends on mnemonic processes that support the recollection of episodic detail. Relative to memory without recollection, source retrieval is posited to (a) entail the recapitulation of processes engaged during the encoding of event details, and (b) differentially rely on hippocampal function. To test these hypotheses, event-related fMRI indexed neural activation during retrieval with and without source recollection. For "place" encoding trials, subjects imagined a visual scene corresponding to an adjective. For "read" encoding trials, subjects covertly pronounced the adjective backwards. On the following day, fMRI scans accompanied a recognition test that probed for item and source memory. A companion study (Davachi et al.) revealed that "place" encoding yielded greater posterior parahippocampal activation relative to "read" encoding. Here, the retrieval scans revealed that item memory with recollection of the "place" source ("hit-hits") elicited greater parahippocampal activation relative to item memory without recollection ("hit-misses"). Moreover, hippocampal activation during hit-hits was greater than that during hit-misses and false alarms, but was similar to that during correct rejections. These data indicate that (a) source recollection during retrieval may depend on recapitulation of processes that supported the encoding of specific episodic details, and (b) although hippocampal processes are differentially engaged during retrieval with, relative to without, recollection, hippocampal activation also appears to differ across correct and incorrect retrieval trials.

Supported by: NIDCD; Ellison Medical Foundation; Surdna Foundation