

MEG CORRELATES OF EPISODIC ENCODING: EFFECTS OF NOVELTY,
CONTENT, AND SUBSEQUENT MEMORY

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Episodic encoding depends on prefrontal-posterior cortical interactions that differ with stimulus novelty (novel/repeated) and stimulus content (word/picture), and that correlate with subsequent memory (remembered/forgotten). In particular, prefrontal and posterior regions demonstrate greater responses to novel stimuli and to stimuli that will be later remembered, with these responses tending to differentially lateralize for words and pictures (Wagner et al., 1998; Kirchoff et al., 2000). In this study, we used magnetoencephalography (MEG) to investigate the temporal dynamics of these cortical responses during incidental episodic encoding. MEG was recorded while subjects processed novel (presented once) and repeated (presented multiple times) pictures and words, making an indoor/outdoor judgment for each. Approximately 20 hrs later, subsequent recognition memory was assessed (non-scanned). The MEG encoding data were analyzed by stimulus type, novelty status, and (based on recognition performance) subsequent memory. Initial results revealed differential responses at left and right frontal-temporal sensors for repeated relative to novel stimuli, with these responses differing across stimulus type. These data provide temporal information regarding the relative onset of novelty and subsequent memory effects in prefrontal and posterior cortical regions, permitting assessment of whether prefrontal bias mechanisms guide episodic encoding in a top-down manner. Supported by NIDCD; Ellison Medical Foundation; Surdna Foundation.