

Abstract View**SPATIOTEMPORAL PREDICTORS OF LATER FACE RECOLLECTION: PREFRONTAL CORTEX MEDIATES TOP-DOWN MODULATION OF ENCODING**

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Functional MRI evidence suggests that memory encoding depends on prefrontal and posterior cortical mechanisms, with dissociable encoding processes supporting later recollection of event-specific details and later stimulus familiarity. Such findings suggest that prefrontal cortex plays a top-down modulatory role at encoding, although the relative timing of prefrontal and posterior neural events that predict subsequent recollection remains unclear. Using fMRI and anatomically-constrained magneto-encephalography (aMEG), we sought to delineate the spatiotemporal dynamics of encoding events leading to later recollection and familiarity. Faces were incidentally encoded during a target detection task. A subsequent recognition memory test included studied faces, unstudied faces that were perceptually similar to studied faces, and dissimilar unstudied faces. Subjects responded "remember", "know", or "new" to each test face. MEG data were submitted to source localization, using each subject's cortical surface reconstructed from MRI. MEG analyses focused on regions of interest identified by fMRI to predict subsequent face recollection (remember > know and new), including L. frontal operculum and anterior inferior prefrontal cortex, R. orbital frontal, and bilateral fusiform. MEG activity showed a temporal lag between frontal and posterior encoding responses. Specifically, recollection-selective encoding effects onset between 150-250 ms in frontal regions and between 350-450 ms in fusiform. Prefrontal top-down modulation of face-processing regions during encoding appears important for later face recollection.

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