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## Neural Responses to Emotional Involuntary Memories in Posttraumatic Stress Disorder: Differences in Timing and Activity

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**Abbreviations:** PTSD: POSTTRAUMATIC STRESS DISORDER; ACC: ANTERIOR CINGULATE CORTEX; PCC: POSTERIOR CINGULATE CORTEX; IPC: INFERIOR PARIETAL CORTEX; VMPFC: VENTROMEDIAL PREFRONTAL CORTEX; MTL: MEDIAL TEMPORAL LOBES; IAPS: INTERNATIONAL AFFECTIVE PICTURE SYSTEM; SPGR: SPOILED GRADIENT RECALLED; TR: REPETITION TIME; TE: ECHO TIME; TI: INVERSE RECOVERY TIME; SPM: STATISTICAL PARAMETRIC MAPPING; FIR: FINITE IMPULSE RESPONSE; FDR: FALSE DETECTION RATE; FWE: FAMILY-WISE ERROR

### Abstract

Background: Involuntary memories are a hallmark symptom of posttraumatic stress disorder (PTSD), but studies of the neural basis of involuntary memory retrieval in posttraumatic stress disorder (PTSD) are sparse. The study of the neural correlates of involuntary memories of stressful events in PTSD focuses on the voluntary retrieval of memories that are sometimes recalled as intrusive involuntary memories, not on involuntary retrieval while being scanned. Involuntary memory retrieval in controls has been shown to elicit activity in the parahippocampal gyrus, precuneus, inferior parietal cortex, and posterior midline

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