

# Stress-induced out-of-context activation of memory.

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## Source

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## Abstract

Inappropriate recollections and responses in stressful conditions are hallmarks of post-traumatic stress disorder and other anxiety and mood disorders, but how stress contributes to the disorders is unclear. Here we show that stress itself reactivates memories even if the memory is unrelated to the stressful experience. Forced-swim stress one day after learning enhanced memory recall. One-day post-learning amnesic treatments were ineffective unless administered soon after the swim, indicating that a stressful experience itself can reactivate unrelated consolidated memories. The swim also triggered inter-hemispheric transfer of a lateralized memory, confirming stress reactivates stable memories. These novel effects of stress on memory required the hippocampus although the memories themselves did not, indicating hippocampus-dependent modulation of extra-hippocampal memories. These findings that a stressful experience itself can activate memory suggest the novel hypothesis that traumatic stress reactivates pre-trauma memories, linking them to memory for the trauma and pathological facilitation of post-traumatic recall.

## Comment in

- [Stress brings memories to the fore.](#) [PLoS Biol. 2010]

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