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How reactivation strength affects memory updating

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Abstract: Memory reactivation induces plasticity, rendering reactivated memories susceptible to interference. The current study examined whether the method and strength of reactivation modulates retroactive interference effects. Two days after learning AB word pairs, memory for these pairs was either not reactivated, moderately reactivated (presentation of A cues in an unrelated task), or strongly reactivated (restudy of AB pairs or cued recall of B targets). Immediately afterwards, participants either learned AC word pairs, DE word pairs, or performed an unrelated distractor task. Cued recall of target words was tested two days later. Strong reactivation before learning new material protected memory from retroactive interference and intrusions, whereas moderate reactivation resulted in both. This finding suggests that strong reactivation enhances event-based distinctiveness, counteracting memory modification. Results are discussed in reference to the testing effect literature and the reconsolidation account, and implications for educational practice are outlined.