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The effects of emotional valence and arousal on episodic retrieval of word stimuli

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A variety of psychological disorders – including major depression, generalized anxiety, and post-traumatic stress disorder – are accompanied by abnormal processing and memory of emotional stimuli. Individuals with these diagnoses can demonstrate a reliance on retrieving overgeneralized memories, show poor encoding for positive experiences, and exhibit enhanced processing of negative experiences. The current study was directed at investigating the latter of these effects to understand how emotional processing at the time of encoding might have lasting consequences on memory retrieval. Young adult subjects (N = 46) were asked to complete an experiment requiring the encoding and retrieval of negatively emotional and neutral words. At encoding, words from the following categories were shown: negative valence, low arousal; negative valence, high arousal; neutral valence, low arousal; and neutral valence, high arousal. Subjects then completed a memory test consisting of the words from encoding (old words) intermixed with an equal number of non-presented (new) words. The memory task required judging the confidence associated with retrieval on a four-point scale: sure old, maybe old, sure new, or maybe new. Preliminary analyses showed that, contrary to our original hypothesis that negative words would be better remembered than neutral words, there was no significant effect of valence or arousal. Our ongoing work on this topic focuses on attempting to reconcile these null findings for emotional words with the effects typically shown for emotional pictures, with the longer-term goal of using neural measures such as EEG and fMRI to understand how persistent reactivation during memory encoding might help explain the valence and arousal enhancements.