A novel paradigm for exploring the neural mechanisms of visual memory suppression

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Abstract: Recent neuroimaging work using the Think/No-Think (TNT) paradigm has shown that when people suppress retrieval of unwanted memories, hippocampal activation is reduced. It remains unclear, however, whether retrieval suppression also modulates regions of neocortex supporting the representation of the memory itself. To examine this issue, we developed a modified TNT paradigm wherein people attempt to suppress the retrieval of faces and scenes. Faces and scenes are ideal stimuli in that the cortical bases for processing these types of stimuli are well documented, providing specific brain regions in which to search for evidence of neocortical suppression. Here we report a behavioral experiment using these stimuli. Results showed impaired memory for those pictures participants tried to suppress, compared to pictures from baseline pairs, extending retrieval suppression effects to memories of faces and scenes. This paradigm validates a procedure that can be used to target neocortical contributions to retrieval suppression using fMRI.