

## ABSTRACT

The last decades brought new methods to explore the century-old question of whether we are able to avoid conscious recollection of emotionally-disturbing personal experiences through voluntary memory control. The present study took advantage of the think/no-think (TNT)-paradigm (M.C. Anderson & Green, 2001) in which participants are asked to either retrieve (“think” condition) or to suppress (“no think” condition) a previously learned paired associate. Neutral and negatively-valenced pictures (IAPS) were employed to ascertain if memory control is affected by the emotional content of the suppression-target. Magnetoencephalographic (MEG) activity of 21 healthy subjects was recorded to investigate the underlying neural correlates. Prefrontal executive control processes were expected to inhibit posterior areas generally involved in the retrieval of visual memories. The results indicate that while unwanted memories can indeed be purged from consciousness, not everyone is capable of efficient memory control. No evidence was provided for altered memory control of negative information. Successful suppression was accompanied by an increase of early (96-140ms) left frontal activity – believed to index suppression attempts – and a decrease of late (770-870ms) right parietal activity – believed to index reduced recollection – in “no think” compared to “think” trials. Unsuccessful participants exhibited the same frontal effect, whilst no condition-specific activation-differences were found at parietal sites. Avoidance of conscious recollection does not seem to be uniquely determined by prefrontal control attempts. Rather, differences in further processing appear to play a role.