

P6.13.

The electrophysiological correlates of control processes in directed forgetting

Tóth, B.^{1*}; Boha, R.¹; Gaál, Z. A.¹; Molnár, M.¹

1: Institute of Psychology, Hungarian Academy of Sciences, Budapest, Hungary

Forgetting is crucial for the efficient use of memory. It allows for updating goal relevant information, and thereby is effective in reducing interference between the irrelevant and relevant information. This interference reduction can occur intentionally by using explicit cues. In the directed-forgetting paradigm each encoded items are followed by a cue either to “remember” or to “forget”. These cues typically lead to reduced recognition memory for to-be-forgotten information, which is called directed forgetting. The aim of this study was to investigate forgetting on both the behavioral and electrophysiological (linear and nonlinear EEG properties) level. In order to test the hypothetical involvement of control processes in forgetting, we compared the performance of young (N=15) and elderly adults (N=17) in an intentional forgetting task. The EEG was recorded during the encoding phase. We expected age related differences based on the impaired inhibitory mechanisms in older adults. It was found that older subjects were less able to suppress the processing of items designated to be forgotten than younger adults. The anterior theta rhythm increased due to the forget cue compared to remember cue. This cue specific theta increase was lower in the elderly compared to young adults. The findings indicate that the frontal theta rhythm is a reliable correlate of the mechanism of efficient control processes during encoding.

Key words: directed forgetting, word method, aging and memory, linear and nonlinear EEG analysis