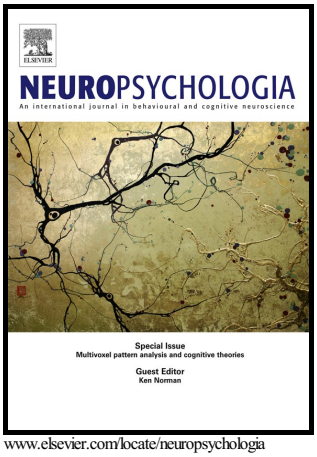

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Aging and Working Memory Performance: Electrophysiological Correlates of High and Low Performing Elderly

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Abstract

In this study we investigated age-related changes in WM capacity and their respective ERP correlates. We explicitly addressed the differentiation between high and low performing elderly to identify electrophysiological correlates of successful aging. Therefore, ERP and behavioral data was obtained from 45 young (mean = 22.73 years) and 35 older participants (mean = 68.49 years). Both groups performed a visual-spatial *n*-back task with two levels of difficulty. Additionally, related neuropsychological tests were administered. Older subjects performed less accurately in both conditions of the *n*-back task. Older age was additionally associated with a reduced fronto-central positivity (labeled as P200) in the 2-back task and an overall reduced amplitude of the parietal positivity (labeled as P300). The latter shifted to frontal leads in older subjects. Additionally, only in the group of the older participants, increased P200 and decreased parietal P300 amplitudes correlated with performance. Regarding older high and low performers, we observed a clear shift of frontal activity of both

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