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Department of Psychology
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and
Croatian Psychological Association



23. DANI RAMIRA I ZORANA BUJASA
23RD RAMIRO AND ZORAN BUJAS DAYS

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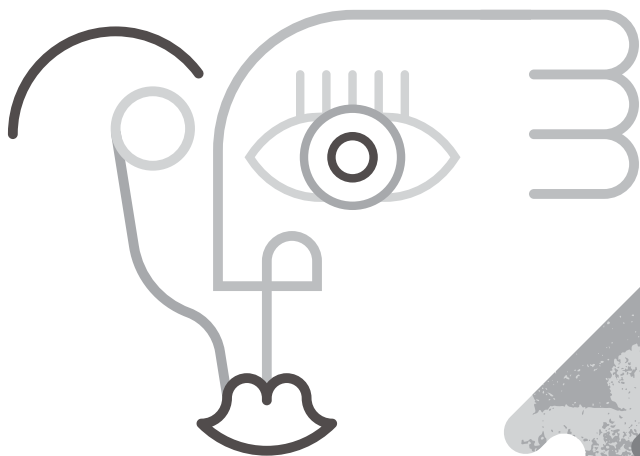
THE EFFECT OF NONINVASIVE NEUROMODULATION ON OBJECT-LOCATION ASSOCIATIVE MEMORY

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Memory enhancement is one of the most challenging issues in neurorehabilitation. Memory functions are affected by different neurological conditions as well as by normal aging. Recent data suggest that it may be possible to improve performance on some of the memory tests by physiological modulation of the activity within a neural loop, which plays crucial role in formation, and maintenance of the associative memory, the main parts of which are the hippocampus and the lateral parietal cortex. The aim of the study was to examine whether anodal transcranial direct current stimulation (tDCS) over right parietal cortex would have an effect on associative memory between objects and locations. Twenty healthy right-handed participants (9 male, age 20 – 31) were enrolled in a cross-over placebo-controlled study. We applied 20-minute anodal or sham tDCS of 1.5mA over the P4 site of 10-20 EEG system i.e. right lateral parietal cortex, and participants completed an object-location test immediately after the stimulation. The object location test consisted of two consecutive trials, each consisting of learning and recall a block of 20 object-location stimuli. Each stimuli was an everyday object presented in a four-by-four matrix, and participants task was to recall a correct location after being cued by the object. Results have shown a significant main effect of stimulation ($F(1,19) = 7.91, p = .011, \eta^2 = .29$), significant main effect of learning between the two trials ($F(1,19) = 6.36, p = .021, \eta^2 = .25$), but no interaction effect ($F(1,19) = 0.22, p = .642$). These results indicate that single tDCS session over parietal cortex has a potential to improve memory of object-location associations, and that the non-invasive stimulation, when P4-positioned, affects recall rather than learning process.



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