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МАТЕРИАЛЫ КОНФЕРЕНЦИИ  
И ШКОЛЫ

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**NEUROPHYSIOLOGICAL CORRELATES OF VERBAL TASK PERFORMANCE  
IN COMPETITION AND INDIVIDUALLY**

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The particular interest in the study of joined/competitive activities is the study on creativity, since one of the proven ways to increase the originality of solutions is the brainstorming technique when working in a group. The study involved (20 people, 18–25 years olds, 14 men) who performed tasks together (in a pair of the same sex) and individually. EEGs were recorded monopolarly from 15 sites in the frequency band 0.53–150 Hz, SR = 500 Hz (Mitsar, Saint Petersburg). In the creative task, participants had to find out original ways of using the common objects (AUT), in the non-creative – to mention words connected with the certain category. The task was organized into trials with an exposure of stimuli – 400 ms and time to find out the answer – 4400 ms. The subject pressed the button if the answer was found and pronounced it after presenting the sign question. Additionally, subjects evaluated their responses as insightful or logical. Event-related EEG synchronization/desynchronization (ERS/ERD) on 2800 ms was analyzed

(300 ms before, 2500 ms after stimulus presentation, 1 Hz step from 2 to 30 Hz (Morlet), wavelet width – 5 cycles). For statistical analysis, RM-ANOVA was used to assess the impact of the STATE factor (insightful/logical responses) separately for individual/joined performance. In individual performance, insightful answers were accompanied by the increase in alpha frequency power: in the frontal regions (9–11 Hz, 420–1420 ms), and parietal regions (7–10 Hz, 1120–1530 ms; 9–13 Hz, 1330–1710 ms). In the context of joint/competitive performance, insightful responses were accompanied by the increase in delta and theta power in the frontal regions (2–6 Hz, 960–1400 ms; 4–9 Hz, 1890–2220 ms). The results may indicate a greater involvement of associative thinking in individual activities and a greater workload on working memory in joined activities.

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