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МАТЕРИАЛЫ КОНФЕРЕНЦИИ И ШКОЛЫ

HOW NEUROANATOMIC CHARACTERISTICS OF THE BRAIN MIGHT BE ASSOCIATED WITH THE PERFORMANCE OF THE MENTAL TASKS BY YOUNG ADULTS

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Nowadays the many studies consider the neuroanatomical (structural) brain features in individuals with differences in general abilities, psychological traits and intelligence (Luders et al., 2009). There is an interesting question – how does the neuroanatomical background of more and less creative persons differ? In the pilot morphometric MRI study with participation of 12 young adults (18–20 years old) having normal IQ scores were explored cortical surface area (CSA) and cortical thickness (CT). To measure creative abilities participants were involved in nonverbal creative test (Torrance, 1966). T1-weighted images from a 1.5 T tomograph (Philips Ingenia, Netherlands) were used to assess structural differences. The software package FreeSurfer (FS) (http://surfer.nmr.mgh.harvard.edu) was used to process the structural images. For each participant, the removal of non-brain tissue from the image, transformation into Talleirach space, and segmentation into gray/white matter were performed. Preliminary it was figured out, that CSA in right rostral anterior cingulate, left lingual area and CT in the left frontal pole negatively correlated with the creativity scores, while CSA in the left medial orbitofrontal area and CT in the left parahippocampal zone correlated positively. The most number of differences were obtained in the left hemisphere in spite of exploring correlation with originality in nonverbal creativity. Positive correlations were obtained with associative zones tightly bound with cognition and memory and top-down regulation. It must be clarified in the further investigations the meaning of negative and positive correlations of CSA and CT in regions associated with higher executive functions and different levels of originality in nonverbal creative task fulfillment.

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