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МАТЕРИАЛЫ КОНФЕРЕНЦИИ И ШКОЛЫ

FUNCTIONAL CONNECTIVITY DURING READING IN CHILDREN WITH DYSLEXIA AND WITHOUT READING DISABILITY

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Cognitive performance is accompanied by dynamic pattern of the connections between cortical and subcortical structures. The aim of the study was to investigate functional connectivity in children with dyslexia (15 individuals, Dys) and typically developed peers (18 individuals, TD) in reading and comprehension tasks. fMRi scanning in a block paradigm during the performance of 4 tasks – reading TEXTS, PHRASES, WORDS, NONWORDS and gaze-fixation task was carried out. The CONN software package was used to evaluate BOLD ROI-to-ROI connectivity comparing the tasks execution and gaze fixation. In the TEXT task: TD showed higher levels of connectivity between the lingual and temporooccipital gyrus of the left hemisphere (LH), and the frontal orbital and the planum temporale regions of the right hemisphere (RH). When reading PHRASES, connectivity was higher in Dys between the posterior part of the superior temporal gyrus of the LH and the posterior part of the inferior temporal gyrus of the RH. When reading WORDS, higher connectivity values were observed in TDs and covered the precentral and postcentral regions bilaterally, the supramarginal gyrus of the LH, the lateral occipital cortex and the parietal region. When reading NONWORDS, connectivity in TDs was higher between the inferior frontal gyrus (pars opercularis) and the intracalcarine cortex of the LH. In Dys connectivity was higher in the LH – between the hippocampus and the angular gyrus and between the hippocampus and the posterior part of the middle temporal gyrus, as well as between the posterior part of the inferior temporal gyrus of the LH and the anterior part of the inferior temporal gyrus of the RH. There were indicated differences in text processing between DYS and TDs – with the involvement temporal and occipital zones of the language network – in the group with impaired reading skills and frontal cortex in the group without reading disorders.

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