

Over the bridge: Does bypassing the corpus callosum alleviate the symptoms of dyslexia?

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The corpus callosum is a bridge of tissue that connects the hemispheres in the human brain. In the course of brain development, it guides the lateralization process and is responsible for the patterns of arousal between the hemispheres. There is reason to believe that such symptoms of developmental dyslexia as motor asynchrony (Condon 1985), a logographic strategy for word recognition Habib (2000: 2375), or letters as pictures, and letter transposition may be due to an impairment in the corpus callosum and the resulting deviant interhemispheric relations. The present study sets out to investigate, whether such a claim can be supported in laboratory settings. The experiment conducted as a part of a B.A. thesis aimed at providing a pilot study and perhaps incentive for further research into this question. Three healthy and one dyslexic subjects were tested on a auditory-lexical choice task devised to measure whether circumventing the corpus callosum in language processing would improve the performance of a dyslexic subject. The experiment measured the differences between the subjects' performance in control conditions and when the dichotic listening technique was utilised. During the latter stage of the experiment music was played into the participants' left ear and lexical input into the right, thus effectively supplying both hemispheres with stimuli to be processed and preventing possible right-hemisphere overreliance. The dyslexic subject displayed shorter reaction time but increased error rate in the dichotic listening condition. This provides some evidence against the hemispheric-dominance part of the hypothesis. It can be inferred from the results that the right hemisphere may indeed play a facilitative role, or no role at all, in the processes of word recognition, as circumventing it raised the number of errors made by the dyslexic subject. Interestingly, more questions than answers arose in the course of this research. Whereas it seems to early to discard the interhemispheric transfer deficit hypothesis, the support for it does not seem substantial. What is more, there seems to be a double dissociation between the performance of healthy and reading-impaired groups during the dichotic listening task, further research into which may provide insight into the role that both the corpus callosum and the right hemisphere play in language comprehension.

Bibliography

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