

An attentional orienting deficit in adults with dyslexia

Submitted by

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Abstract

Evidence suggests that a key characteristic of dyslexia is a deficit in the magnocellular (M) pathway of the visual system. These impairments have been disputed because they are often slight, and not always found in all individuals with dyslexia. One alternative proposal is that the visual deficits shown in dyslexia arise from a dysfunction in higher visual areas that receive predominantly magnocellular input, such as the parietal cortex. Since visual attention is not only a major function of the parietal cortex, but is also necessary for the development of the reading system (and subsequent competence in reading), the present study employed a variety of spatial cueing tasks to examine covert visual attention in dyslexia. Attentional performance of five adults with dyslexia was compared against a control group on both a group and individual case basis. The adults with dyslexia demonstrated normal attentional facilitation of performance when targets were validly cued. However, difficulties related to visual orienting in both visual fields were evident, specifically when adjusting and maintaining attentional focus. Although increasing cue size improved orienting performance, increasing stimulus onset asynchrony had a negative effect on this improvement. The results suggest that in adults with dyslexia, the attentional system is both diffusely distributed and at the same time sluggish. Reading ability of these adults with dyslexia may be compromised since a difficulty in automatic orienting may affect the planning of eye movements, while a difficulty in maintaining attention may hinder decoding due to increased distraction from nearby text.