(p < 0.01). The reaction time after the filter sessions of the subgroup with pronounced visual-spatial deficits was also improved but was not statistically significant.

Conclusion

The main conclusion of this study is that dyslexic children were less sensitive than control subjects in detecting visual coherent motion. The dyslexic children needed a higher percentage of dots to be moving coherently in order to perceive motion direction. Together all these findings indicate that integration of the signal dots over time in the global motion task relies on the observer's capacity to extract sufficient signal dots from noise. Therefore, the dyslexics with visual-spatial deficits may be restricted to the domain of dynamic stimulus detection of which coherent motion detection measures provide a good index. They had difficulties detecting both gratings with high-temporal frequency and low-spatial frequency, and gratings with low-temporal frequency and high-spatial frequency when the gratings were embedded in external noise (Sperling et al., 2005). The dyslexic children had problems in relation to orienting and focusing attention, and significant constraints on cognitive and neurobiological models of the temporary storage of visual information.

The use of colour filters in training was an important factor to improve the results, both in learning visual discriminatory tasks and in the reading process. It was found that after the training of the subject with contrast discrimination in the magnocellular and parvocellular task, the number of errors decreased significantly in the dyslexic group and the reaction time was shorter, especially in the low-contrast magnocellular task with a specified filter. The results were most clearly reflected in the performance of the dyslexics for M- and P-stimuli with low contrast because they are generally more difficult for discrimination than those with high contrast. The reaction time was also significantly faster after training using filters during the horizontal coherent task.

The dyslexic subgroups assigned by psychometric tests have greatly improved their word reading process after the learning period with visual tasks and filters, both in terms of shortening reading times and in terms of correctly read words. The result was predominant for the dyslexic subgroup with more pronounced phonological deficit compared to the subgroup with the more pronounced visual-spatial deficit. Some children actually benefited more from the use of the blue filters than from the yellow filters.

It is believed that improvement in outcome in children with developmental dyslexia is due to a reduction in the so-called "Meares-Irlen syndrome", i.e. in the literature "eye stress" and/or visual distortion for colour and shape or illusion for movement during reading. It is assumed that the use of yellow or blue filters enhances the activity of the magnocellular pathway (Hall et al., 2013, Stein 2014).

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