The Beneficial Effects of Coloured Overlays in Children with Tourette Syndrome

Background

Many children experience symptoms of 'visual stress' when reading. This includes distortions in text and eye strain. Placing a coloured overlay on top of a page whilst reading has proven beneficial in reducing these symptoms and increasing reading speed. Non-verbal visual search skills have also been found to improve when a coloured overlay is used. 20% of the general population are thought to benefit from these coloured overlays, showing a 5% increase in reading speed when one is used (Wilkins, 1994). The benefits of such overlays, however, have been found to be greater in individuals who suffer from migraines, photosensitive epilepsy, those with dyslexia and those with autism. It is not clear how syndromes linked to Autism Spectrum Disorders may also benefit from colour as a therapeutic intervention. Autism, ADHD & Tourettes syndrome have been consistently shown to overlap clinically (Baron-Cohen et al., 1999; Kadesjo & Gillberg (2000; Jankovic, 2001) and a large proportion of both individuals with ADHD and Autism have shown symptoms similar to that observed in those suffering from visual stress (Stone, 2002; Ludlow et al., 2006; 2008; 2009). This study aims to test whether children with Tourette Syndrome will also benefit from the use of an overlay.

Participants

Seven children with a formal diagnosis of Tourettes Syndrome (aged 7 years -12years 2months) were compared to Seven typically developing control children with no clinical diagnosis, matched on age, verbal and non-verbal IQ.

Materials & Method

The Intuitive Overlays (Wilkins, 1994) are supplied by I00 Sales Ltd. The pack contains 2 A5 size overlays of each of the following colours; Rose, Pink, Purple, Orange, Yellow, Lime Green, Mint Green, Blue and Aqua. Participants can choose a single or double overlay. Children were tested to see if any of the colours improved the clarity of the text. Only those who found an overlay to make the text clear were tested on the Rate of Reading Test.

The 'Rate of Reading Test' (Wilkins et al., 1996) is a passage of text which is read out loud as quickly as possible for one minute. The passage consists of 20 lines. Each line contains the same 15 common words in a random order. None of the words can be guessed from context due their random order. The total number of words accurately identified in the correct order in one minute will be calculated both with and without an overlay. All children were asked to

read the text out loud for minute with and without an overlay the order in which the children received an overlay was randomised.

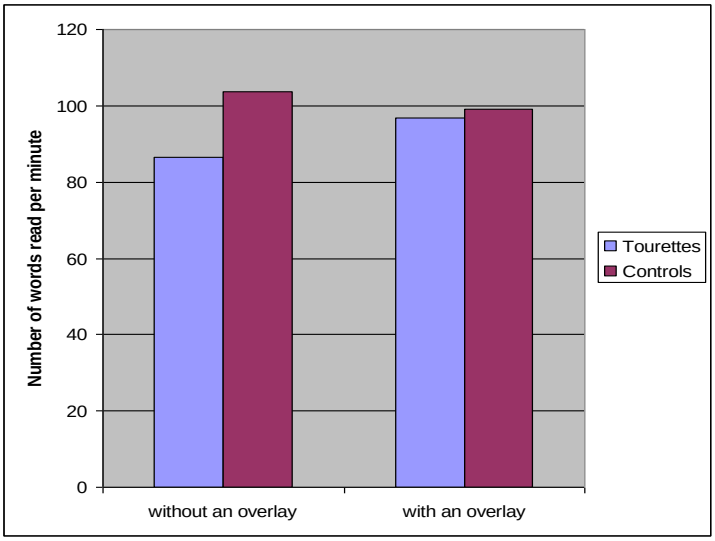
Visual Stress

Children were also tested for visual stress. The children were asked to read the text out loud without an overlay and asked a series of questions: e.g. Is the text clear or blurred? Do the word move or stay still? Is the page too bright? Does the page hurt your eyes to look out?

Results

All the children selected an overlay as improving the clarity of text. Six out of the Seven children with Tourettes syndrome were found to read more than 5% faster with an overlay (mean improvement 13%) compared to two of the control children. Importantly there was found to be a significant difference between groups in the number of words read without an overlay, with the typically developing children reading more than 5% faster. However no significance difference was found when the children read with an overlay.

Table 1: The effect of a coloured overlay on the Rate of Reading



The children with Tourette syndrome were revealed to show more symptoms of visual stress than their controls.

Conclusion

It appears from this small pilot study that a substantially large proportion of children with Tourette syndrome may suffer from visual stress when reading. A colour overlay appears to help remediate these symptoms and improve reading rate.

Information

This research is being undertaken by Dr. Amanda Ludlow (Senior Lecturer Department of Psychology, Anglia Ruskin University, Cambridge, CB1 1PT) and Professor Arnold Wilkins, University of Essex.

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