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# LETTERS

## TREATING READING DIFFICULTIES WITH COLOUR

### Authors' reply to Evans and Allen

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We thank Professors Evans and Allen for their interest in our article.<sup>1 2</sup>

The charity websites we reviewed refer to colour as though it offers a scientific, evidence based treatment; none referred to feedback from the membership. For example, one charity website makes the claim that "Research in the UK and in Australia shows that people who need coloured filters, who are said to have visual stress, need to have exactly the right colour." This is incorrect. The research overwhelmingly shows little advantage, or at best conflicting results.<sup>3-5</sup>

We stated in our editorial that colour does not directly deal with the causes of reading difficulty. Nonetheless, we note that the dependent measure in most of the trials of overlays is reading; either of naturalistic text or of unrelated words. Indeed, elsewhere in their letter the authors refer to "20 studies of the effects of overlays on reading rate."

Systematic reviews select trials according to predefined statistical criteria that minimise the risk of bias. Some of the studies referred to by the authors were likely to have been excluded because of methodological shortcomings. It is widely accepted that systematic reviews are less vulnerable to bias than narrative reviews. According to the code of conduct of the Society for Coloured Lens Prescribers ([www.s4clp.org](http://www.s4clp.org)), members should adopt an evidence based approach "using evidence from systematic peer-reviewed research," and "In particular, double-masked randomized placebo-controlled trials."

The Medical Research Council patent solely refers to the colorimeter as a device for obtaining a desired tint, not as a therapeutic device. The only double masked randomised controlled trial of lenses selected with this device showed no improvement in reading speed, accuracy, or comprehension using optimum tint compared with placebo tint.<sup>3</sup>

We caution against asking children with reading difficulties if text appears to move as leading questions often elicit positive answers.

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Full response at: [www.bmj.com/content/349/bmj.g5160/rr/763556](http://www.bmj.com/content/349/bmj.g5160/rr/763556).

- 1 Evans BJW, Allen PM. Coloured filters may reduce symptoms of dyslexia in those with visual stress. *BMJ* 2014;349:g5882.
- 2 Henderson LM, Taylor RH, Barrett B, Griffiths PG. Treating reading difficulties with colour. *BMJ* 2014;349:g5160. (19 August.)
- 3 Wilkins AJ, Evans BJ, Brown JA, Busby AE, Wingfield AE, Jeanes RJ, et al. Double-masked placebo-controlled trial of precision spectral filters in children who use coloured overlays. *Ophthalmic Physiol Opt* 1994;14:365-70.
- 4 Robinson GL, Foreman PJ. Scotopic sensitivity/Irlen syndrome and the use of coloured filters: a long-term placebo controlled and masked study of reading achievement and perception of ability. *Percept Mot Skills* 1999;89:83-113.
- 5 Hall R, Ray N, Harries P, Stein J. A comparison of two-coloured filter systems for treating visual reading difficulties. *Disabil Rehabil* 2013;35:2221-6.

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