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Authors' reply

We thank Dr Aleci for consideration of issues discussed in our paper¹ in which we reported that more than half of our sample of 21 adults and children with symptoms of visual stress chose different coloured overlays on two different occasions. We concluded that repeatability of colour for the relief of visual stress symptoms is poor.

We categorised consistency of coloured overlay choice as the Same (identical overlay colour chosen on two occasions), Similar (one of two overlay colours is identical on both occasions) or Different (different overlay colour chosen). Dr Aleci notes that almost all of the subjects in the Same or Similar categories chose overlays with maximum transmission on the left side of the wavelength spectrum (blue, aqua, purple or green), while most of those in the Different category chose overlays with transmission on the right side of the spectrum (yellow, orange, pink or rose). We will refer to these colour ranges here as short and long wavelength colours respectively.

Based on this observation and on the theories that visual stress symptoms are related to cortical hyperexcitation or a magnocellular deficit, Dr Aleci proposes that high repeatability may be found in people with visual stress who find short wavelength filters beneficial, because these may help to balance cortical excitation by modifying magnocellular and parvocellular responses.

It is not yet well established that coloured filters reduce cortical hyperexcitation in people with symptoms of visual stress. For example, reduced visual cortical activation has been found using functional magnetic resonance imaging (fMRI) in a small group of patients with migraine,² a condition in which visual stress symptoms often occur. However, in another small fMRI study³ cortical activation was *increased* in people with visual stress viewing through their chosen colour. Similarly, clear evidence for a magnocellular deficit in people with visual stress is lacking.⁴ Larger studies demonstrating clearly that coloured filters correct a neurophysiological imbalance in uncomplicated cases of visual stress (without dyslexia or migraine) would be needed to suggest that short wavelength colours alleviate symptoms in those people by addressing that imbalance.

A further consideration is that of colour preference. Previous work has shown a general preference for short wavelength colours among young Caucasian adults⁵ so the choice of blue, aqua and green coloured overlay choice by most of the participants in our study may have been influenced to some extent by preference.

References

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