

Evidence-Based Intervention

There is currently a body of research related to Irlen Syndrome, Coloured Overlays and Coloured Filters that spans more than 30 years. To date, more than 100 studies supporting the use of coloured overlays and lenses to treat the perceptual processing difficulties associated with Irlen Syndrome are published in peer-reviewed academic and scientific journals.

This research has established a hereditary component of the disorder¹⁻³, a number of biochemical markers for problems associated with Irlen Syndrome⁴⁻⁶, and differences between both the anatomy and functioning of brains of individuals with Irlen Syndrome⁷⁻¹¹. The research has repeatedly documented efficacy of both coloured overlays and spectral filters, as measured by improvements in a variety of reading skills¹²⁻¹⁹, reduction in physical symptoms that include headaches, migraines, eye strain, fatigue, and light sensitivity^{8, 20-23}, and improved functioning and success in both academia and the workplace²³⁻²⁸.

References

1. Loew, S.J., & Watson, K. (2012). A prospective genetic marker of the visual perception disorder Meares-Irlen syndrome. *Perceptual and Motor Skills*, 114(3), 870-882.
2. Robinson, G.L., Foreman, P.J., & Dear, K.G.B. (2000). The familial incidence of symptoms of Scotopic sensitivity/Irlen syndrome: comparison of referred and mass-screened groups. *Perceptual and Motor Skills*, 91, 707-724.
3. Robinson, G.L., Foreman, P.J., Dear, K.G.B., and Sparkes, D. (2004). The Family Incidence of a Visual-Perceptual Subtype of Dyslexia. *Nova Science Publishers*, 27-40.
4. Robinson, G.L., Roberts, T.K., McGregor, N.R., Dunstan, R.H., & Butt, H. (1999). Understanding the causal mechanisms of visual processing problems: a possible biochemical basis for Irlen Syndrome? *Australian Journal of Learning Disabilities*, 4(4), 21-29.
5. Robinson, G.L., McGregor, N.R., Roberts, T.K., Dunstan, R.H., & Butt, H. (2001). A biochemical analysis of people with chronic fatigue who have Irlen syndrome: speculation concerning immune system dysfunction. *Perceptual and Motor Skills*, 93, 486-504.
6. Sparks, D.L., Robinson, G.L., Dunstan, H., & Roberts, T.K. (2003). Plasma cholesterol levels and Irlen Syndrome: preliminary study of 10- to 17-yr., old students. *Perceptual and Motor Skills*, 97, 745-752.
7. Chouinard, B.D., Zhou, C.I., Hrybousky, S., Kim, E.S., Commine, J. (2012). A functional neuroimaging case study of Meares-Irlen syndrome/visual stress (MISViS). *Brain Topography*, 25(3):293-307.
8. Huang, J., Zong, X., Wilkins, A., Jenkins, B., Bozoki, A., Cao, Y. (2011). fMRI evidence that precision ophthalmic tints reduce cortical hyperactivation in migraine. *Cephalgia*, 31(8):925-36.
9. Lewine, J.D., Davis, J., Provencal, S., Edgar, J., Orrison, W. (1997). A magnetoencephalographic investigation of visual information processing in Irlen's Scotopic Sensitivity Syndrome. Conducted at The Center for Advanced Medical Technologies, The University of Utah School of Medicine, Salt Lake City, Utah, and Department of Psychology, The University of New Mexico, Albuquerque, New Mexico.

10. Riddell, P.M., Wilkins, A., Hainline, L. (2006). The effect of colored lenses on the visual evoked response in children with visual stress. *Optom Vis Sci*, 83(5), 299-305.
11. Yellen, A. & Schweller, T. (2009). The Yellen-Schweller Effect: Visual Evoked Responses and Irlen Syndrome. http://www.yellenandassociates.com/pdf/Yellen_Schweller_Effect.pdf
12. Bouldoukian, J., Wilkins, A.J., & Evans, B.J.W. (2002). Randomised controlled trial of the effect of coloured overlays on the rate of reading of people with specific learning difficulties. *Ophthalmological and Physiological Optics*, 22, 55-60.
13. Noble, J., Orton, M., Irlen, S., Robinson, G. (2004). A controlled field study of the use of colored overlays on reading achievement. *Australian Journal of Learning Disabilities*, 9, 14-22.
14. Park, S.H., Kim, S., Cho, Y.A., Joo, C. (2012). The Effect of Colored Filters in Patients with Meares-Irlen Syndrome. *J Korean Ophthalmol Soc.*, 53(3):452-459. Korean. Published online 2012 March 15. <http://dx.doi.org/10.3341/jkos.2012.53.3.452>
15. Robinson, G.L., & Foreman, P.J. (1999). Scotopic sensitivity/Irlen syndrome and the use of colored filters: A long-term placebo controlled study of reading strategies using analysis of miscue. *Perceptual & Motor Skills*, 88, 35-52.
16. Robinson, G. L., & Foreman, P. J. (1999). Scotopic sensitivity/Irlen syndrome and the use of colored filters: A long-term placebo controlled and masked study of reading achievement and perception of ability. *Perceptual & Motor Skills*, 89(1), 83-113.
17. Tyrrell, R., Holland, K., Dennis, D., & Wilkins, A. (1995). Coloured overlays, visual discomfort, visual search and classroom reading. *Research in Reading*, 18, 10-23.
18. Williams, M.C., LeCluyse, K., & Rock Fauchoux, A. (1992). Effective interventions for reading disability. *Journal of the American Optometric Association*, 63, 411-417.
19. Wilkins, A.J., Evans, B.J.W., Brown, J.A., Busby, A.E., Wingfield, A.E., Jeanes, R.J., & Bald, J. (1994). Double-masked placebo-controlled trial of precision spectral filters in children who use colored overlays. *Ophthalmological & Physiological Optics*, 14, 365-370.
20. Barbolini, G., Lazzerini, A., Pini, L.A., Steiner, F., Del Vecchio, G., Migaldi, M., Cavallini, G.M. (2009). Malfunctioning cones and remedial tinted filters. *Ophta*, 2(209), 101-105.
21. Chronicle, E.P., & Wilkins, A.J. (1991) Colour and visual discomfort in migraineurs. *The Lancet*, 338, 890.
22. Wilkins, A., & Wilkinson, P. (1991). A tint to reduce eye strain from fluorescent lighting: Preliminary observations. *Ophthalmological and Physiological Optics*, 11, 172-175.
23. Bulmer, J. (1994). Sensory overload and general well-being: Can adults be helped by using Irlen lenses? Unpublished honors thesis, Chester College of Higher Education, Chester, UK.

24. Irlen, H., & Robinson, G.L. (1996). The effect of Irlen coloured filters on adult perception of workplace performance: a preliminary survey. *Australian Journal of Remedial Education*, 1, 7-17.
25. Robinson, G.L., & Conway, R.N.F. (1994). Irlen filters and reading strategies: effect of coloured filters on reading achievement, specific reading strategies and perception of ability. *Perceptual and Motor Skills*, 79, 467-483.
26. Robinson, G.L., & Conway, R.N.F. (2000). Irlen lenses and adults: a small scale study of reading speed, accuracy, comprehension and self-image. *Australian Journal of Learning Disabilities*, 5, 4-13.
27. Whiting, P., & Robinson, G.L. (1988). Using Irlen coloured lenses for reading: A clinical study. *Australian Educational and Developmental Psychologist*, 5, 7-10.
28. Whiting, P., Robinson, G.L., & Parrot, C.F. (1994). Irlen colored filters for reading: a six year follow up. *Australian Journal of Remedial Education*, 26, 13-19.
29. Amen, D.G. (2004). Light and the Brain. *Brain in the News Newsletter, AmenClinics.com*, June 30
30. Boyle C. & Jindal-Snape D. 2012 Visual Perceptual difficulties and the impact on children's learning: Are teachers missing the page? *British Journal of Support for Learning*, 27 (4), 166-171. DOI :10.1111/1467-9604.12001