The Colorimeter

Factsheet

Cerium Precision Tinted lenses, Their Use in Dyslexia, Migraine and Photosensitive Epilepsy.

Many Sufferers with Dyslexia, migraine and photosensitive epilepsy are affected by striped patterns, including the striped lines of text. Scientific research has shown that for many of these people, a colour specific to the individual can relive the symptoms of perceptual distortion, eye strain and headaches in dyslexia (1) and may significantly reduce episodes of migraine (6and7) and photosensitive epilepsy in certain cases. The colour can be provided by Precision Tinted Spectacles.

The Colorimeter and associated trial lenses provide a system that enables patients to choose an ophthalmic tint according to their subjective assessment of its affects on percepiion and visual comfort. A precise tint can be selected rapidly and efficiently.

To mix lights to match a particular shade. Hue, saturation and brightness all change when one of the lights is varied. The way lights interact to produce a given colour is not obvious (for example yellow is produced by mixing red and green light). The Intuitive Colorimeter overcomes these problems and enables colour and saturation to be varied without a change in luminance.

Colour in the Classroom
More and more schools throughout the country are realising that children with specific learning difficulties can be helped by the use of colour either in the form of coloured overlays or coloured lenses.

Coloured Lenses and Reading Difficuty
Some children and adults who have difficulty with reading, experience visual distortion when reading a page of print: the letters may appear to move, or to blur. The white paper may glare and cause eyestrain and headaches. The resulting visual discomfort and perceptual distortion may interfere with reading.

In order to determine this tint, assessment is carried out on the Intuitive Colorimeter, an instrument developed for this purpose by the Medical Research Council and now manufactured exclusively and under license by Cerium Visual Technologies Ltd.

With this new instrument it is possible to examine the benefit of colour on

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reading in fine detail and with controlled variables.

The result of this test can be produced both reliably and accurately in the form of precision tinted lenses by utilising a new and unique system specially developed to complement the Intuitive Colorimeter. With this new method of tinting there are over 110,000 different hues available so any colour determined through the Colorimeter can be matched.

Remember, each patients colour requirement is unique and their precision lenses are individually made.

This is the only system prescribing tinted lenses for the treatment of dyslexia and visual distortion associated with reading that has been researched and trialled by the Applied Psychology unit of the Medical Research Council.

The Intuitive Colorimeter and Cerium Precision tinted lenses are now available at various Optometrists throughout the country, and many countries through out the world. A list is available on request and we will be pleased to answer any further questions regarding this technology.

Very recently a double masked placebo controlled trial, following a protocol similar to the earlier study (1), has been conducted to investigate the effect of colour on headaches.

The results of this trial indicate that there is an increase in the relief of symptoms with the optimum tint as opposed to the control lenses. Although pratictioners have been using the Colorimeter to prescribe the precision tints for the relief of migraine for soime time, it is only following this trial that the use of lenses for this use can be regarded as evidence based.

Extract from Investigative Clinical Techniques Optician November 10 2000 No 5776 Vol 220 26/33 By Anita Lightstone.

Guidance for practitioners assessing migraine sufferers

1. The most promising candidates will probably be those who report the visual precipitation of headaches.

2. During Colorimeter assessment discomfort may be more important than

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distortions (distortions may not even be perceived). The optimal tint is one that maximises comfort.

3. A grating with a square wave luminance contrast profile of 0.7 or more spatial frequency 3 cycles per degree subtending 3 degree's, 6 degree's or 12 degree's depending on patients sensitivity may be presented instead of text once an optimal colour has been selected. There are anecdotal reports, and a very limited amount of circumstantial evidence that if the most comfortable colour minimses pattern glare this is a good (but not necessary) sign.

4. There may be little effect of the colour on the rate of reading.

5. Careful consideration should be given to ultraviolet protection because the tint is likely to be worn outdoors.

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