EFFECT OF COLORED OVERLAYS ON READING EFFICIENCY OF A NORMAL COHORT

Bret Williams, B.S, Philip Pelton, B.S, Vandana Rajaram O.D, Ph.D, FAAO

FERRIS STATE UNIVERSITY

MICHIGAN COLLEGE OF OPTOMETRY

Introduction

- Meares-Irlen Syndrome (MIS), or Scotopic Sensitivity Syndrome (SSS) is thought to be caused by faulty visual perception and processing due to interference within the visual cortex, leading to symptoms of visual stress.[1]
- Use of Colored Overlays is hypothesized to reduce symptoms of visual stress through the putative reduction in cortical hypersensitivity, preventing optimal functioning of normal cortical inhibitory mechanisms.[3]
- Although controversial, there is evidence in the literature which suggests that colored overlays alleviate symptoms associated with MIS and enhance reading efficiency in certain conditions such as dyslexia.[5,7]
- The purpose of our study is to determine if colored overlays exert a similar influence on reading efficiency in a normal sample, with no known issues related to reading.

Methods

- A sample of Optometry students (N = 12) without a history of a reading disability, ocular disease, or binocular vision anomalies were included.
- The Visagraph III Eye Movement Recording System was used to measure the following reading parameters: words read per minute, regressions, fixations, and reading comprehension score.
- Each subject was required to read six passages from the Visagraph sample text booklet in a randomized fashion. All passages were selected from the same reading level to maintain uniformity and fairness. Two passages were read without a colored overlay (baseline-condition), two passages were read with a red overlay, and two passages were read with a yellow overlay.
- Following each passage, subjects would take a brief 10-question quiz consisting of only “yes” or “no” questions to generate a reading comprehension score.
- All data collected was entered into a spreadsheet organized by subject number to be interpreted.

Results

Reading Parameter	Baseline	Yellow	Red	*F*	*p*
Speed (WPM)	267 ± 8.6	260.9 ± 8.2	264.9 ± 8.2	0.04	0.95
Regressions/100 words	8.6 ± 2.7	8.5 ± 2.4	8.6 ± 2.6	0.01	0.99
Fixations/100 words	98.7 ± 5.1	100.4 ± 4.6	101.2 ± 5.3	0.012	0.88
Reading Comprehension (%)	78.3 ± 3.6	77.9 ± 3.4	81.3 ± 3.2	0.59	0.55

Figure 1. Means, SEM, F-statistic & probability values for each reading parameter. There was no significant benefit in using overlays for a normal population.

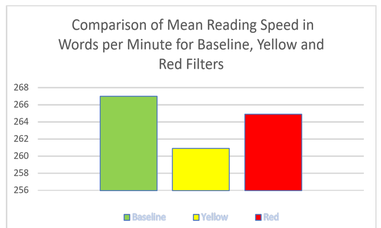

Figure 2. Comparison of mean reading speed

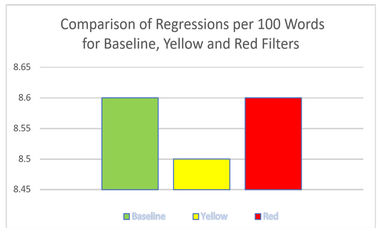

Figure 3. Comparison of mean regressions

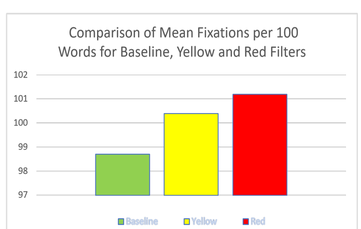

Figure 4. Comparison of mean fixations

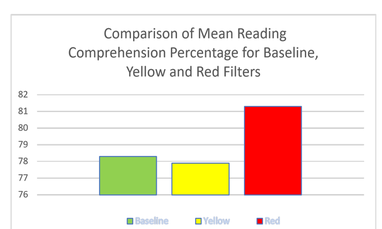

Figure 5. Comparison of mean reading comprehension score

Conclusions

- Under the conditions tested, our study results show no significant benefit of using colored overlays in enhancing reading efficiency in a normal cohort..
- The authors acknowledge that methodological limitations and confounding variables could have influenced the results. These include possible familiarity with the reading passages, variation in the type of visual correction (glasses or contacts), and variation of time of day during testing.
- Additionally we speculate that even if there was a small effect of the overlays, our statistical test lacked the power to detect it, due in part to the very small sample size.
- Future studies could consider better control of these methodological limitations and repeat the study on a much larger sample of subjects.

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