Vision Rehabilitation

Identification of Evidence Supporting the Use of Colored Filters While Reading for Patients with Blast-related Visual Problems

Approximately half of TBI patients report developing difficulties while reading such as blurring words, eye fatigue, and difficulty tracking words as one moves along a sentence. To address this issue, investigators at the University of Minnesota, Twin Cities (Minneapolis, MN) examined the effect of colored film overlays on reading speed in veterans with TBI. The study involved Veterans with TBI performing a reading speed test with and without colored films laid over the text. They looked at text with each of 10 different colored overlays and performed the reading speed test with whichever color they preferred most.

Reading speed improved significantly when colored overlays were used by Veterans with TBI compared to healthy individuals. The ratio of reading speed while using the overlays compared to reading without the overlays was significantly related to a person's convergence insufficiency (the inability of a person's eyes to work together when looking at close objects, like words on a page). People who reported more problems with convergence insufficiency tended to be helped more by the colored overlays (Figure 1).

Convergence insufficiency can often be treated with significant, long-term physical therapy, but these results suggest that a simple, inexpensive treatment in the short-term using colored overlays or colored lenses while reading can be effective. Because convergence insufficiency often develops after a TBI, this could be particularly helpful for people who have suffered a blast-related head injury, and research suggests that TBI patients have a larger improvement in reading speed thanks to overlays than do healthy controls.

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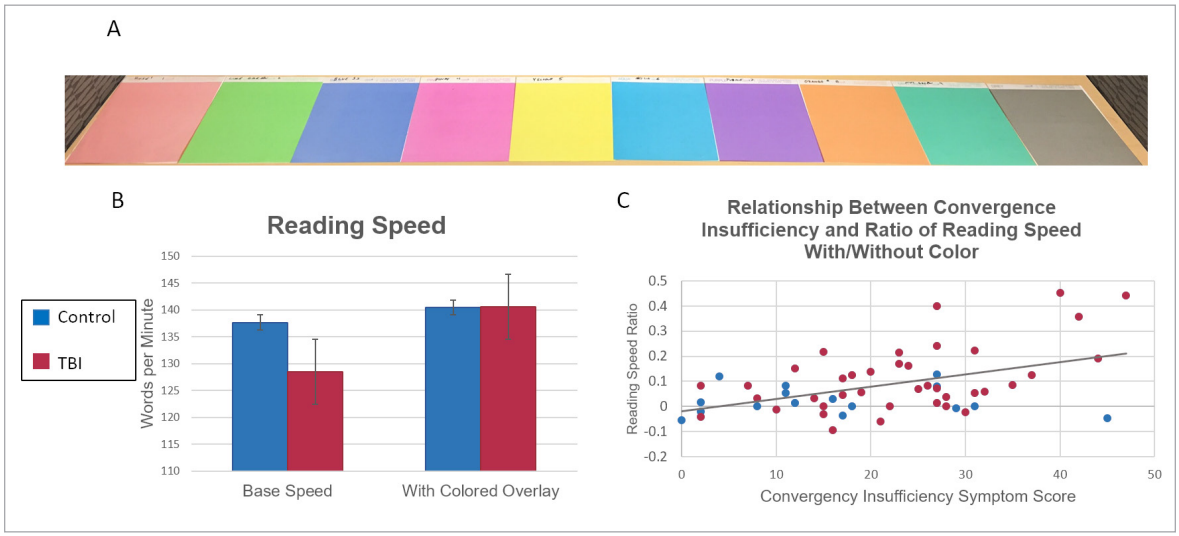

FIGURE 1: A) The range of colored film overlays used in this study. B) There was a significant interaction between the difference in reading speed with and without using a colored overlay and whether a Veteran had been previously diagnosed with a TBI. The TBI group showed greater improvement in reading speed when using the overlay than did healthy controls. C) The ratio of reading speed improvement with the colored overlay (difference in with and without overlay speed divided by the without speed) was significantly correlated with score on a measure of convergence insufficiency. (Figure used with permission from the authors).