

Effect of treatment of symptomatic convergence insufficiency on reading in children: a pilot study

Mitchell Scheiman OD PhD, Christopher Chase PhD, Eric Borsting OD MEd, Gladys Lynn Mitchell MAS, Marjean T Kulp OD MS, Susan A Cotter OD MS

Clinical and Experimental optometry 25 March 2018. <https://doi.org/10.1111/cxo.12682>

Abstract

Background

To evaluate the impact of treatment of symptomatic convergence insufficiency using office-based vergence/accommodative therapy on reading skills in children.

Methods

Children (n = 44) ages nine to 17 years with symptomatic convergence insufficiency were administered the following four reading tests: Wechsler Individual Achievement Test II; Test of Word Reading Efficiency; Test of Silent Word Reading Fluency; and the Gray Oral Reading Test, at baseline and eight weeks after completion of a 16-week program of office-based vergence/accommodative therapy. To determine whether significant change occurred with therapy, change in performance was compared to zero. Treatment response was determined using a composite score of symptoms and signs at the conclusion of treatment and at the 24-week outcome visit. Participants were classified as early responders, late responders, or non-responders based upon whether criteria for successful treatment were met at the completion of 16 weeks of treatment, at the 24-week outcome visit, or not met at either visit, respectively.

Results

After treatment for convergence insufficiency, statistically significant improvements were found for reading comprehension (mean = 4.2, $p = 0.009$) and the reading composite score (mean = 2.4, $p = 0.016$) as measured by the Wechsler Individual Achievement Test at the 24-week visit. These improvements were related to the clinical treatment outcome measures ($p = 0.011$) with the largest improvements occurring in those who were early responders to treatment. Reading speed (words per minute) increased significantly on the Gray Oral Reading Test ($p < 0.0001$). No significant improvements were observed for single word reading or reading fluency as measured by the Test of Word Reading Efficiency, the Test of Silent Word Reading Fluency or the Gray Oral Reading Test.

Conclusion

Improvements in reading comprehension and reading composite were found after office-based vergence/accommodative therapy, with the greatest improvements in those who responded early to treatment.