

A Randomized Clinical Trial of Treatments for Convergence Insufficiency in Children

Mitchell Scheiman, OD; G. Lynn Mitchell, MAS; Susan Cotter, OD; Jeffrey Cooper, OD, MS; Marjean Kulp, OD, MS; Michael Rouse, OD, MS; Eric Borsting, OD, MS; Richard London, MS, OD; Janice Wensveen, OD, PhD; Convergence Insufficiency Treatment Trial (CITT) Study Group
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Objective To compare vision therapy/orthoptics, pencil push-ups, and placebo vision therapy/orthoptics as treatments for symptomatic convergence insufficiency in children 9 to 18 years of age.

Methods In a randomized, multicenter clinical trial, 47 children 9 to 18 years of age with symptomatic convergence insufficiency were randomly assigned to receive 12 weeks of office-based vision therapy/orthoptics, office-based placebo vision therapy/orthoptics, or home-based pencil push-ups therapy.

Main Outcome Measures The primary outcome measure was the symptom score on the Convergence Insufficiency Symptom Survey. Secondary outcome measures were the near point of convergence and positive fusional vergence at near.

Results Symptoms, which were similar in all groups at baseline, were significantly reduced in the vision therapy/orthoptics group (mean symptom score decreased from 32.1 to 9.5) but not in the pencil push-ups (mean symptom score decreased from 29.3 to 25.9) or placebo vision therapy/orthoptics groups (mean symptom score decreased from 30.7 to 24.2). Only patients in the vision therapy/orthoptics group demonstrated both statistically and clinically significant changes in the clinical measures of near point of convergence (from 13.7 cm to 4.5 cm; $P < .001$) and positive fusional vergence at near (from 12.5 prism diopters to 31.8 prism diopters; $P < .001$).

Conclusions In this pilot study, vision therapy/orthoptics was more effective than pencil push-ups or placebo vision therapy/orthoptics in reducing symptoms and improving signs of convergence insufficiency in children 9 to 18 years of age. Neither pencil push-ups nor placebo vision therapy/orthoptics was effective in improving either symptoms or signs associated with convergence insufficiency.