

## ***Important New Research***

Convergence insufficiency (CI) is a common childhood vision problem that can make reading and staying on task difficult for school-aged children. [Convergence insufficiency](#) is caused by poor eye coordination that does not allow the eyes to work together, or “team”, especially when viewing small images such as print. CI creates eyestrain, fatigue, headaches, and sometimes blurred or double vision during reading, making comprehension and attention poor. Unfortunately, the condition is often not diagnosed. School vision screening can't check for it, and it is often missed in routine eye exams. **In fact, many children with convergence insufficiency are often misdiagnosed with a learning disability, dyslexia, or ADD/ADHD.**

CI can only be diagnosed by an eye doctor trained to run specific tests, yet for years treatment for the condition has varied from doctor to doctor. Some have tried home exercises or computer software programs to try to correct the problem; other doctors have used special prism glasses. Pediatric eye doctors called [developmental optometrists](#) have prescribed office-based [vision therapy](#) to train the eyes to work together more efficiently.

The National Eye Institute, a branch of the National Institutes of Health (the medical research branch of the US Department of Health and Human Services) has been studying convergence insufficiency to determine the most effective course of treatment. Called the Convergence Insufficiency Treatment Trial (CITT), the study was conducted at medical research centers throughout the country, including the Mayo Clinic of Rochester, MN; the Bascom Palmer Eye Institute of Miami, FL; and the Ratner Children's Eye Center at the San Diego School of Medicine. The results of the study were published in the fall of 2008.

**The study concluded that office-based vision therapy in conjunction with daily exercises at home is the only effective treatment option for convergence insufficiency.** Other treatment options—including home exercises called pencil pushups and computer software programs--were significantly less effective than office-based vision therapy. Vision therapy is an advanced optometric specialty that has been in existence for over 70 years. All optometrists learn about vision therapy in optometry school, but most optometrists who provide vision therapy services receive post graduate education in the field.

This study is particularly important because it showed that office-based vision therapy can significantly reduce symptoms when a child reads. **“We found decreases in the frequency and severity of symptoms that make schoolwork more difficult. Parents reported that they saw a significant decrease in their child having difficulty completing schoolwork at school or at home, appearing inattentive or easily distracted when completing schoolwork, and avoiding schoolwork. In addition, parents reported that they worried less about their child's school performance,”** reported Dr. Mitchell Scheiman, principal investigator of the study.

For an abstract on the CITT study from the National Eye Institute, [click here](#).

***Below is the press release issued by the Mayo Clinic after the results of the clinical trial were released:***



Mayo Clinic researchers, as part of a nine-site study, helped discover the best of three currently-used treatments for convergence insufficiency in children. Convergence refers to the natural ability of the eyes to focus and align while viewing objects up close. Children with convergence insufficiency tend to have blurred or double vision or headaches and corresponding issues in reading and concentrating, which ultimately impact learning.

Mayo Clinic researchers, as part of a nine-site study, helped discover the best of three currently-used treatments for convergence insufficiency in children. Convergence refers to the natural ability of the eyes to focus and align while viewing objects up close. Children with convergence insufficiency tend to have blurred or double vision or headaches and corresponding issues in reading and concentrating, which ultimately impact learning. The findings, published today in the journal ***Archives of Ophthalmology***, show children improve faster with structured therapy sessions in a doctor's office, with reinforcement eye exercises at home.

"This is good news for children and parents experiencing this fairly common condition," says Brian Mohny, M.D., Mayo Clinic ophthalmologist and lead investigator for Mayo in the study. "Three different approaches were being used across the country and no one knew for certain which worked best. Now that's settled. And only 12 weeks of treatment were necessary to demonstrate improvement."

### ***How they did it***

The researchers followed 221 children nationally, ages 9 to 17, divided into four study groups, two of which received only home-based therapies. One group did simple daily exercises for 15 minutes, trying to focus on a moving pencil. A second home-based group performed a shorter version of the pencil exercise and a series of computer-based exercises using special software. A third group did an hour of supervised therapy in a clinical office each week along with 15 minutes of prescribed exercises at home five days a week. The fourth group, the placebo or control group, did office and home exercises designed to look like real therapy but that had no effect. Follow-up exams were held after the fourth and eighth weeks and at the end of the 12-week study.

### ***Significance of the findings***

Children in all three treatment groups experienced improvement, though it's not clear from the research whether any improvement in the home groups was due to a placebo effect. About 75 percent of the children who had weekly office-based therapy coupled with 15 minutes of at-home exercise five days a week experienced either normalization (full correction) of their vision in 12 weeks or saw marked improvements, compared to roughly 40 percent in the two home treatment groups. The high percentage of normalized vision in the office-based treatment sample after 12 weeks was the best quality outcome in the shortest period of time.

The National Eye Institute, part of the National Institutes of Health (***US Department of Health and Human Services***), sponsored the study.