

Kids who struggle with reading are likely to have undetected vision problems



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Reading is a complex process in which vision plays an important role. The eyes must focus to make small print clear, converge to make the print single, and make accurate eye movements to the next word. **A recent study by Christian et al. [1] highlighted just how important these skills are to the reading process.**

Dr. Lisa Christian of the University of Waterloo (and Co-Chair of the COVD Academic Services Committee) and team examined 121 children with an IEP plan for reduced reading efficiency. They tested refractive error, eye health, *saccades* (horizontal reading eye movements), *accommodation* (eye focusing), *phorias* (eye position), and *vergence ranges* (eye teaming).

19% of the children tested needed glasses and had not been prescribed them prior to the study. This highlights the importance of having [a comprehensive vision exam prior to starting school](#) to ensure academic readiness.

35% of the children had an abnormal *phoria*, meaning their eyes were positioned further in or out than is normal. More children had an *exophoria* (outward pointing eyes) than *esophoria* (inward pointing eyes).

46% of children had reduced convergence ability. This means a lot of children with reduced reading ability have *convergence insufficiency*, or a reduced ability to turn the eyes inward when looking up-close. [Convergence insufficiency](#) may cause headaches, double vision, or the sensation that words are moving across the page when reading. With regards to the reading process, if a child has convergence insufficiency, **their visual systems are working much harder than their peers'** to make the print appear single and clear (rather than doubled and blurry). If a child sometimes sees double while reading, they may frequently lose their place, or see extra letters in words, which can reduce reading comprehension.

30% of children were found to have inaccurate accommodation, or eye focusing ability. 20% of children were found to have reduced *accommodative facility*, or reduced ability to adjust their focusing system. Problems with the accommodative system can lead to blurry vision up-close, headaches, and eyestrain. If words are sometimes blurry and sometimes clear while reading, this can lead to slow reading speed.

These findings show that about a third of children struggling with reading have some kind of binocular vision disorder, but the good news is that **many forms of binocular vision disorders can be treated with optometric vision therapy.** Early identification and treatment of these problems prepares children for success, and may save them years of struggling in school.

[i] Christian LW, et al. Visual and binocular status in elementary school children with a reading problem. J Optom 2017 Nov 21. pii: S1888-4296(17)30071-7. doi: 10.1016/j.optom.2017.09.003. [Epub ahead of print]

From *Mindsight*, a blog sponsored by the College of Optometrists in Vision Development. Accessed 4/3/2018 at <https://covdblog.wordpress.com/2018/04/02/kids-who-struggle-with-reading-are-likely-to-have-undetected-vision-problems/>

Note: The study acknowledges a deficiency in addressing the issue of eye movement, or “tracking”: “Due to age or level of understanding, all binocular tests could not be performed on all children and [eye movements](#) were measured by direct observation only. Thus, future studies should also include a larger cohort of children and incorporate additional tests for saccadic eye movements, such as an eye tracker.”