

# Wearing glasses improves reading fluency for kids with 'high' astigmatism

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For children with severe astigmatism, wearing glasses to correct blurred vision can significantly improve accurate reading speed, reports a study in the February issue of *Optometry and Vision Science*, official journal of the American Academy of Optometry.

For students with severe or "high" astigmatism, getting and wearing glasses may bring an improvement in reading fluency equivalent to one-half grade level, according to the report by Erin M. Harvey, PhD, and colleagues of The University of Arizona, Tucson. They write, "These data support the recommendation for full-time spectacle wear in astigmatic students, particularly those with high astigmatism."

## High Astigmatism Linked to Decreased Reading Fluency

The study included 273 third- to eighth-grade students in schools on the Tohono O'odham reservation—a population with a high prevalence of astigmatism. [Astigmatism](#) is a common condition causing blurred vision due to the irregular shape of the cornea or the lens inside the eye, which are responsible for focusing light entering the eyes.

Vision testing identified 76 children with severe or "high" astigmatism in both eyes. Another 67 children had moderate astigmatism, while the rest had no or mild ("low") astigmatism. The two groups of children with astigmatism received prescription glasses to correct their [blurred vision](#).

All three groups underwent a test of oral reading fluency, which evaluated their speed and accuracy in reading aloud a brief paragraph. For the children with astigmatism, reading fluency was assessed before and after they got their glasses.

The students with high astigmatism had significantly decreased oral reading fluency, compared to the other two groups. In contrast, reading fluency for children with moderate astigmatism was similar to that in the group with no/low astigmatism.

After getting their glasses, the children with high astigmatism showed significant improvement in accurate reading speed: by nearly seven words per minute. This increase was about equal to the gain expected from one-half school year, Dr. Harvey and colleagues estimate. For children with moderate astigmatism, glasses had little or no effect on oral reading fluency.

In the high astigmatism group, the effects of glasses on reading were most apparent among older children reading smaller text. With glasses to correct their astigmatism, reading fluency was not significantly different from that in children with no/low astigmatism.

Focusing problems such as nearsightedness and farsightedness (myopia and hyperopia) can cause impaired reading ability in school-aged children, and correcting these refractive errors can improve reading. Less is known about how astigmatism affects reading ability.

The new results confirm that children with severe/high astigmatism have decreased reading fluency, which improves after prescribing glasses to correct the astigmatism. The results support current recommendations that students with high astigmatism should wear their corrective lenses full-time, the researchers add.

Especially for older children reading smaller type, reading difficulties related to astigmatism could potentially have a major impact on school performance. Anthony Adams, OD, PhD, Associate Editor of Optometry and Vision Science, comments, "The study highlights the importance of correcting significant [astigmatism](#) for [children](#), especially if it is present in both eyes."

**More information:** Erin M. Harvey et al. Reading Fluency in School-Aged Children with Bilateral Astigmatism, *Optometry and Vision Science* (2016). [DOI: 10.1097/OPX.0000000000000779](https://doi.org/10.1097/OPX.0000000000000779)

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