

Frequently Asked Questions (FAQ)

1. How do self-adjustable eyeglasses work? How can a wearer adjust them without help from an eye care professional?

The original self-adjustable eyeglasses, known as Adspecs, contain special lenses – two clear membranes filled with silicone fluid – that can be adjusted when more or less fluid is pumped between them. They are held between two protective plastic covers. The volume of fluid can be changed by using a removable syringe and dial that attach to the eyeglasses' frame. Depending on that volume of fluid, the curvature of the lenses changes, adjusting the strength. The new eyeglasses operate on a similar principle, with a single clear membrane in each lens allowing them to be lighter and smaller.

Fluid-filled lenses can correct a wide range of vision problems, including myopia (nearsightedness), hyperopia (farsightedness) and presbyopia (age-related difficulty in focusing up close).

Research shows that children as young as 12 can effectively adjust self-adjustable eyeglasses on their own, with assistance from teachers who have been instructed in supervising self-correction.

2. What are the benefits of self-adjustable eyeglasses?

Self-adjustable eyeglasses can address several of the difficulties in providing vision correction to young people, helping to increase the level of access to vision correction. Most importantly, the ability for young people to adjust self-adjustable eyeglasses on their own, with assistance from adults who have been instructed in supervising self-correction, means that accurate eyeglasses can be distributed without the requirement for expensive equipment and lengthy training of optometric or ophthalmic professionals.

3. What conditions do these glasses correct?

The glasses developed correct for myopia (nearsightedness).

4. Can these glasses help children with astigmatism?

To some extent - it depends on the severity of the astigmatism and whether there is other refractive error. The recent work of the child self-refraction study showed that the majority of children with low-to-moderate astigmatism in conjunction with myopia (nearsightedness) could still achieve a good standard of vision. Over 90 percent of children with refractive error can be corrected by self-adjustable eyeglasses.

5. How do you know self-adjustable eyeglasses work?

Several published studies have demonstrated that the process of self-refraction with the Adspecs can produce very good visual outcomes in both adults and teenagers. See in particular:

Zhang, M., Zhang, R., He, M., Liang, W., Li, X., She, L., . . . Congdon, N., "Self correction of refractive error among young people in rural china: Results of cross sectional investigation", *BMJ (Clinical Research Ed.)*, 343 (2011)

He M, Congdon N, Mackenzie G, Zeng Y, Silver JD, Ellwein L, "The Child Self-Refraction Study: Results from urban Chinese children in Guangzhou", *Ophthalmology* 118 (6) , pp. 1162-1169 (2011)

M. G. Douali and J. D. Silver, "Self-optimised vision correction with adaptive spectacle lenses in developing countries", *Ophthalmic and Physiological Optics*, Vol 24 (2004)

To date, 40,000 pairs of the original Adspecs have been produced and distributed worldwide by a number of different distribution organizations.

6. Can a young person adjust the glasses effectively?

Yes, recently published research results have shown young people can adjust them effectively.

The Centre for Vision in the Developing World was involved in a World Bank-funded research study involving 1768 Chinese and American students, aged 12 to 17 years. Researchers assessed students' ability to self-correct their vision with the assistance of their teachers, who were instructed previously how to adjust the eyeglasses. The results were then compared to students who were given a professional eye exam.

The most recent results from this work indicated that more than 96% of students were able to use the self-adjustable eyeglasses to correct nearsightedness, compared with 99% of those who received professional eye exams.

[See: Zhang, M., Zhang, R., He, M., Liang, W., Li, X., She, L., . . . Congdon, N., "Self correction of refractive error among young people in rural china: Results of cross sectional investigation", *BMJ (Clinical Research Ed.)*, 343 (2011)].

Research into the use of self-refraction eyeglasses will continue.

7. What are the ages of young people who can wear self-adjusted glasses?

Published research has found that young people aged 12 to 17 years can use the existing self-adjustable eyeglasses effectively with the assistance of teachers who are instructed in their use.

8. How will the eyeglasses be distributed?

We plan to distribute the eyeglasses through schools in developing countries, with teachers assisting their students to adjust them correctly. We will work with trained eyecare professionals to ensure that the process for fitting eyeglasses and training teachers is fully validated.

9. Where will they be distributed?

The focus of the first stages of distribution will be in Asia, where the prevalence of refractive error is highest. Long-term, we hope to establish distribution programs throughout the developing world.