

Treatment for Progressive Myopia

See [‘Progressive \(High\) Myopia’](#) for the definition.

During childhood, myopia is typically treated with glasses or contact lenses. Refractive surgery, such as LASIK, is typically used in adults once the refractive error has stabilized. In progressive myopia, the near-sightedness often begins in early childhood, and worsens through adolescence. Many patients and families inquire about why progressive myopia occurs and want to know ways to slow down progression of high myopia.

There is definitely a genetic component to myopia, so if there is a family history of nearsightedness, it is more likely to occur. Also, some large studies have noted that children who spend more time outdoors are less likely to develop myopia. The exact reason is unclear, but it has been theorized that exposure to sunlight may have an effect. Excessive near work at a young age may also play a role, but again, this has not been definitively proven.

Treatment for progressive myopia is aimed at slowing the rate of progression since prevention of myopia is not possible at this time. Multiple treatment options have been attempted and researched, but a general consensus on the best approach is lacking since (1) definitive evidence is unavailable; (2) progression can recur after stopping the treatment; and (3) there can be significant side effects and risks as with any treatment.

Recent studies using 0.01% atropine eye drops have been shown to slow myopic progression, with fewer side effects compared to higher doses of atropine (e.g., light sensitivity or blurred near vision). Additionally, a rebound effect was not observed after stopping atropine treatment. This treatment requires daily use of eye drops and does require a compounding pharmacy at this time to formulate the appropriate dosage. The underlying mechanism of atropine is also not clearly understood.

Another method of slowing myopia progression has been orthokeratology, which involves using rigid gas permeable contact lenses every night to reshape the cornea (the clear, front part of the eye). The exact mechanism by which this works is not understood, but it is thought that the corneal reshaping changes the peripheral focus of the eye to reduce myopia progression. Rebound myopia progression has been noted when stopping the treatment. Risks with contact



lens wear are also possible such as [corneal abrasions](#), ulcers or infections, and scarring that can lead to vision loss.

Multifocal soft contact lenses and glasses (e.g., bifocals) have also been looked at to slow myopia progression. Again, the underlying reasoning is not well understood, but it is believed that the refractive correction allows the eye to relax from accommodating too much (i.e., focusing to see at near), which may slow down the development of further nearsightedness. However, there is not enough evidence for this approach either.

Always discuss the risks and benefits of these treatment options with your pediatric ophthalmologist.

REFERENCES:

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