

When Children Can't See Far:

A Discussion About Myopia in Children



DEFINING MYOPIA:

Myopia – a primary symptom of which is nearsightedness – a common eye health condition in which the eyeball elongates, causing light rays to focus incorrectly in the eye, thus making distance vision blurry.

THE INCREASING PREVALENCE AND SEVERITY OF MYOPIA IN CHILDREN:

More than 40 percent of Americans have myopia and that number is increasing at an alarming rate, especially among school-age children.¹

One in four parents have a child with myopia and about three-quarters of children with myopia were diagnosed between the ages of 3 and 12.²

Two-thirds of Eye Care Practitioners (ECPs) say the presence of myopia among children in their practice has increased over the past 5-10 years, and 81% of ECPs recognize it as one of the biggest problems impacting children's eyesight today.³

CAUSES OF MYOPIA:

Myopia typically occurs during childhood when the eyeball develops a longer shape, meaning the distance between the front of the eye and the retina at the back of the eye is longer than an eye without myopia. Blurry vision due to myopia is the result of light rays focusing at a point in front of the retina rather than directly on its surface.⁶

However, the upward incidence of myopia can be attributed to different factors, and is occasionally the result of a combination of these factors:

- **Genetics** – Family history plays a role in a child's risk of myopia. If neither parent has myopia, the chance the child will develop myopia is relatively low. But if one parent has myopia, it increases the child's chance of developing myopia by 3x – doubling to 6x if both parents have myopia.⁷
- **Environment** – Environment – Exposure to sunlight, vitamin D levels, dopamine levels and the amount of time a child spends outdoors may have an impact on the likelihood of myopia development. Research shows spending more time outdoors lowers the risk of developing childhood myopia.⁸

MYOPIA LEVELS:

Myopia usually starts in childhood at mild levels and often progresses.⁴ It may increase in severity to moderate and high levels without any interventions. Each level of myopia is defined by a specific diopter (D) range. A diopter is the unit used to measure the correction, or focusing power, of the lens the eye requires to see clearly.

Mild Myopia:
-0.50 to
-2.75 D⁵

Moderate Myopia:
-3.00 to
-4.75 D⁵

High Myopia:
-5.00 or
higher⁵

1 Cooper, Y. (2019, May 1). With Childhood Myopia Rates on the Rise, the American Optometric Association Highlights the Importance of Early Intervention through Annual Eye Exams. Retrieved from <https://www.aoa.org/newsroom/myopia-rates-on-the-rise-syvm>

2 Myopia: 2018 American Eye-Q Research. (2018, December 20). Retrieved October 2, 2019, from <https://www.aoa.org/patients-and-public/eye-and-vision-problems/glossary-of-eye-and-vision-conditions/myopia/myopia-research>.

3 CVI data on file 2019. Myopia Awareness, The Harris Poll online survey of n= 1,005 parents (with child age 8-15) and n=313 ECPs (who see at least 1 child age 8-15 with myopia each month) in U.S.

4 Donovan L, Sankaridurg P, Ho A, Naduvilath T, Smith EL 3rd, Holden BA. Myopia progression rates in urban children wearing single-vision spectacles. *Optom Vis Sci*. 2012 Jan;89(1):27-32.

5 Filcroff DJ. The complex interactions of retinal, optical and environmental factors in myopia aetiology. *Prog Retin Eye Res*. 2012 Nov;31(6):622-60. doi: 10.1016/j.preteyeres.2012.06.004. Epub 2012 Jul 4. PMID: 22772022.

6 Mayo Clinic. Nearsightedness. Retrieved October 30, 2019 from: <https://www.mayoclinic.org/diseases-conditions/nearsightedness/symptoms-causes/syc-20375556>.

7 Gifford, P., & Gifford, K. L. (2016). The Future of Myopia Control Contact Lenses. *Optom Vis Sci* 93(4): 336-343.

8 Xiong S, Sankaridurg P, Naduvilath T, et al. Time spent in outdoor activities in relation to myopia prevention and control: a meta-analysis and systematic review. *Acta Ophthalmol*. 2017;95(6):551-566. doi:10.1111/aos.13403.

LONG-TERM OCULAR HEALTH IMPACTS:

As the eye continues to grow and the amount of myopia increases, ocular tissues change in response to the eye growth, resulting in eye health risks that are not as evident in a non-myopic eye. The more nearsighted a child is, the greater these risks become⁵, and these risks increase exponentially as myopia progresses.⁵

Leaving myopia untreated may contribute to more severe eye health complications later in life,⁵ including:

- **Cataracts** – a clouding of the lens of the eye that can cause changes in vision. Though cataracts can affect everyone as they age, they often develop sooner in those who have myopia.⁵
- **Glaucoma** – a condition, usually linked to high pressure inside the eye, that causes damage to the eye's optic nerve, potentially causing irreversible vision loss and blindness. Studies show myopic people have a 2–3x greater risk of developing glaucoma.⁵
- **Retinal detachment** – occurs when the retina, a thin layer of tissue that surrounds the entire inside of the eye, pulls away from supportive layers of blood vessels that provide its necessary oxygen and nourishment.⁵
- **Myopic Maculopathy** – caused by the deterioration of the central portion of the retina, and is a leading cause of severe, irreversible vision loss.⁵

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MANAGING MYOPIA:

The earlier myopia management starts, the better the outcomes for the child's near- and long-term eye health. In the U.S., 71% of ECPs say it is absolutely essential to slow the progression of myopia among children ages 8 – 15 years old.³

Managing myopia progression by even 1 diopter¹⁰:

- Reduces risk of myopic maculopathy by 40%
- Reduces risk of open-angle glaucoma by 20%
- Reduces risk of visual impairment by 20%
- Saves between 0.5 and 0.9 years of visual impairment

Managing myopia starts with regular comprehensive eye exams so ECPs can determine progression and treatment.

CooperVision's MiSight™ 1 day is the first and only contact lens approved by the FDA* to slow the progression of myopia in children (8–12 years of age at the initiation of treatment).¹⁰ The FDA-approved* lens is available as part of a comprehensive myopia management approach offered by CooperVision and participating eye care practitioners.

To learn more about the MiSight® 1 day myopia management approach please visit www.coopervision.com.



⁹ Bullimore MA. The Safety of Soft Contact Lenses in Children. *Optom Vis Sci.* 2017;94:638–46
¹⁰ Chamberlain P, et al. A 3-year randomized clinical trial of MiSight® lenses for myopia control. *Optom Vis Sci.* 2019; 96(8):556–567.

***Indications for use:** MiSight® 1 day (omafilcon A) soft (hydrophilic) contact lenses for daily wear are indicated for the correction of myopic ametropia and for slowing the progression of myopia in children with non-diseased eyes, who at the initiation of treatment are 8–12 years of age and have a refraction of -0.75 to -4.00 diopters (spherical equivalent) with ≤ 0.75 diopters of astigmatism. The lens is to be discarded after each removal.