



Myopia is an eye condition that blurs the distance vision but has a clear focal point somewhere within arm's reach. The greater the myopia, the closer the focal point.

Halting the progression of myopia could impact the lives of about 42 million children in the U.S. Once myopia begins in children 8 to 13 years old, it usually gets worse by 0.50 to 0.75 diopters per year. Eye glass prescriptions are made in quarters. There are four quarters in a dollar and four quarters in a diopter. If a child has onset of myopia at the age of 8 and worsens at the usual rate, he or she will be a -6.00 by the age of 15. This means without visual correction they will only be able to see clearly at a distance of six inches! We can now predict which children will develop myopia based on their age and a recent eye exam.

There is no "safe" level of myopia.

Myopia of -1.00 to -3.00 has a 2.3x greater risk for glaucoma.

Myopia of greater than -3.00 has 3.3x greater risk for glaucoma.

Myopia of -.75 to -2.75 has a 3.1 x greater risk of for retinal detachment.

Myopia of -6 to -8.75 has a 21.5x increased risk for retinal detachment.

Myopia of -1.00 to -2.99 has an increased risk of 2.2x for myopic maculopathy.

How does this compare to cardiovascular disease risk factors? (To put risk into perspective)

Systolic BP of 150-159 has a > 2.2x for stroke risk.

Systolic BP of >160 has a > 3.2x for stroke risk.

Smoking >20 cigarettes a day has a > 2.9x for stroke risk.

Systolic BP <140 on Rx has a > 2.6x for heart attack.

D.I. Flitcroft. (2012) [The complex interactions of retinal, optical and environmental factors in myopia aetiology.](#)

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Orthokeratology (ortho-k) gives athletes the competitive edge of being able to play sports such as power lifting, water polo, tennis, baseball or basketball without having to wear eyeglasses or contact lenses. Soft contact lenses are dangerous for swimming, scuba diving or snorkeling and can lead to infections or chemical burns in these environments. With ortho-k, the eyes will never get foggy or irritated from wearing glasses or contacts, and at the same time the eyes are being shielded from the progression of nearsightedness. Read more about how a child, adult, and/or athlete can improve their visual performance and keep their eyes from getting worse each year.

What causes nearsightedness? Although, several studies have shown that a child with one or both parents nearsighted increases the risk of myopia, genes cannot fully explain the great surge in myopia world-wide. Neither does extended near work, such as reading and computers. Studies on populations that have not adopted a westernized lifestyle show that only 2% are nearsighted,

while the U.S. is 41.6% as of 2004 and Asians are 60 to 80% myopic. In 1900, Eskimos had a near sighted rate of 2% and by the 1950's with the adoption of a processed, sugary, westernized diet the rate was around 50%! Genes and environment play a role in myopia, but sugar may have a critical role. A number of studies have shown that children with many cavities are more likely to have greater degrees of myopia.

What can be done at home to prevent or slow myopia?

1. Get outside at least 12 hours a week, but make sure the eyes are protected from the sun's damaging ultra violet light with sunglasses or transition lenses.

2. Minimize the amount of processed sugar in the diet. It's recommended to consume less than eight teaspoons of sugar a day, while the typical American child consumes 22 teaspoons a day. (Four grams equals one teaspoon) Added sugar on the label can be called high fructose corn syrup, refined sugar, cane sugar, dextrose, agave nectar, glucose, and sucrose to name a few.

3. The 20/20 rule does NOT work! Old belief: For every twenty minutes you read or stare at a computer/smartphone, take a 20 second break and look at the window or at something 20 feet away. Research now shows that it takes several minutes for the eyes to fully relax. For every 45 to 55 minutes of a near task, take a 5 to 10 minute break, and look or go outside. The eyes need to focus and work harder while doing near work and they relax when viewing in the distance. Another theory of myopic progression is that the eyes become nearsighted due to excessive near work. Reading glasses with a small prescription may help prevent the eyes from becoming myopic.

5. Wear up-to-date glasses. When under corrected (ie old prescription or not wearing glasses) the eyes can get worse at a faster rate of myopia.

What can be prescribed by your eye doctor to prevent or slow myopia?

1. Orthokeratology lenses also known as ortho-k, CRT, or GVSS are very small retainers custom fit for each eye, worn only during sleep and when removed in the morning, gives clear vision throughout the day! Works well for those who play sports that don't allow glasses and contact lenses can get water or dirt on them, such as water polo, volleyball, cheerleading, football, baseball, and soccer to name a few.

2. If not a candidate for ortho-k and myopic progression is a great concern, multifocal contact lenses and/or diluted atropine can be prescribed temporarily for slowing myopia.

3. In rare cases, reading, bifocal or progressive glasses can be prescribed, but are the least effective form of myopia control.

Dr. Nathan Schramm, O.D., CNS, FSLs is an optometric physician, certified nutrition specialist, and fellow of the Scleral Lens Society. He is in practice with his wife, **Dr. Julie Abraham O.D.** in Weston, Florida. Their clinic, **Natural Eyes of Weston**, is currently accepting new patients for orthokeratology and specializes in scleral lenses for treatment of keratoconus. For appointments, please call (954) 217-2992.

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