



Myopia in Children

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Myopia commonly known as nearsightedness, is the inability to see objects at a distance clearly. It is caused when the eyeball is longer than normal anteroposteriorly or the cornea is too steep. Myopia is no longer a simple refractive error, but an eyesight-threatening disease. There is a high prevalence of myopia, 80% to 90%, in young adults in East Asia and approximately one fifth of this myopic population has high myopia (>-6 diopters). Higher degrees of myopia results in irreversible vision loss such as retinal detachment, cataracts, glaucoma, and macular atrophy. Myopia has become the leading cause of blindness in the affected population. As the myopic population increases globally, the severity of its impact is becoming a serious problem.

Myopia is corrected with glasses, contact lenses or surgery in some cases. Most common form of myopia is that occurring in school going children (also known as school myopia). While there is no proven direct link, it has been suggested that children who spend more time indoors doing near-focused activities (such as computer work, video games, and reading) are more at risk of myopia development and progression than those who spend more time outdoors.

While myopia cannot be reversed, doctors are looking at ways to slow the progression of myopia in children. The goal of treatment is to keep it from getting worse. This can protect the eye from developing severe eye problems in the future, despite still needing to wear glasses or contact lenses.

Low-dose atropine eye drops

When given to children in small amounts for 2 to 3 years, the drops may slow the progression of myopia. Exact mechanism of

action of atropine is not known and its not related to accommodation as scientists thought initially but research suggests that these drops may keep the eye from lengthening too much. As myopia worsens with elongation of eyeball, using these drops slows down its progression.

Low-dose atropine for myopia is used for children between 5 and 18 years old. The drops are placed in the eye each night at bedtime. The data so far does not suggest any significant side effects with these eye drops.

Peripheral defocus contact lenses

These special contact lenses are worn by children 6-12 years of age with myopia. This "multifocal" contact lens has different areas of focus and works on principle of peripheral defocus. The center of the lens, or "bull's-eye," corrects blurry distance vision, while the outer portions of the lens "defocus" or blur the child's peripheral (side) vision. Blurring side vision is thought to slow eye growth and limit myopia.

Orthokeratology (Ortho-K)

Orthokeratology (also referred to as Ortho-K, OK, Overnight Vision Correction, Corneal Refractive Therapy, CRT, and Gentle Vision Shaping System, GVSS) refers to the use of gas-permeable contact lenses that temporarily reshape the cornea to reduce refractive errors such as myopia, hyperopia and astigmatism.

The child wears the rigid gas permeable contact lens overnight to correct blurry distance vision during the day. These lenses flatten the cornea while you sleep giving the clear vision the next day.

Wearing Ortho-K lenses only improves vision for a short time. Once you stop wearing the lenses, the cornea slowly goes back to its normal shape and myopia comes back. Still, ortho-K may provide some permanent reduction in myopia progression.

Problems with use of ortho K lenses are risk of infection and difficulty to fit compared to regular contacts.

Steps that may help slow myopia

Encourage your child to spend more time outdoors. Screen time should be reduced by limiting use of computer and other digital devices by children. By balancing screen time with outdoor time, you may help limit your child's myopia and protect their vision as they grow older.