

From Drs. Fine, Hoffman, & Packer

NEARSIGHTEDNESS

When you are nearsighted (myopic), your vision is clear for objects close to your eyes, but blurred for everything in the distance. If a child cannot see the blackboard clearly from the back of the classroom, chances are that he or she is nearsighted. Myopia comes in all degrees, from minimal to extreme. The more myopic you are, the more blurred your distance vision, but the closer up you can see clearly. In other words, your range of clear vision is much closer to your eyes than if you weren't nearsighted.

Approximately 40% of the population has some myopia or will develop it at some time in their lives. Most commonly, myopia begins to appear gradually between the ages of 8 and 12, though it can exist at birth or start to develop as late as age 80. Myopia may be a nuisance but it is certainly not a disease; most nearsighted people have perfectly healthy eyes. Many "myopes" are happy to be able to see things clearly up close without glasses. In fact, this ability can be a real advantage, especially after middle age.

Symptoms

The only symptom of myopia is blurred vision for distant objects. Eye fatigue, burning eyes, headache, and limited tolerance for reading occasionally accompany the myopia, but they are not symptoms of the myopia itself. When young children hold everything close to their face or sit very close to the television, this does not necessarily mean they are nearsighted. It may only mean that they like the way things look up close.

Understanding Myopia

Sharp vision - like the picture from a properly focused camera - depends on light rays coming to a focus on the retina (at the back of the eye), just as light focuses on the film (at the back of a camera). When light rays do not come to a focus on the retina, vision will be blurred, and we say that a refractive (optical) error exists. Myopia is just one type of refractive error. The others are hyperopia (farsightedness), astigmatism (uneven focusing), and presbyopia (the inability to focus up close, which affects most people around middle age).

In myopia, the rays from distant objects focus in front of, rather than on, the retina. Myopia is like a camera that is in focus only for near objects; anything in the distance is out of focus.

What Causes Myopia?

In most cases, myopia is the result of a size variable, like foot size or tallness. The myopic eye is larger or elongated - too long for its optical power - which means its optical power too strong for the eye. (You shouldn't think of nearsightedness as "weak eyes.")

Research suggests that ordinary myopia and how fast it progresses during adolescence are determined by heredity - it tends to run in families. It is not caused by using your eyes "too much" (you never hurt your eyes by using them). Some populations (the Inuit eskimos, for example) have shown a statistical shift toward myopia when, over many years, some members of their society changed from outdoor activity to working inside, doing much closer work. This fact, however, does not mean that if an individual does a lot of close work, he or she will become myopic.

Aside from heredity, there are a few, less common causes. Myopia that appears (or increases) in middle age may be a sign of a beginning cataract. In uncontrolled diabetes, myopia may occur suddenly and then change erratically from day to day. And rarely, a teenager may develop myopia from keratoconus, an unusual condition in which the cornea becomes cone-shaped.

Why Does Myopia Get "Worse" as the Child Gets Older?

As children's bodies grow, so do the eyes, which may cause a gradual increase in myopia. And just as bodily growth can be in uneven spurts, the changes in myopia may be similarly uneven. During adolescence, the change can be rather rapid and require a new, thicker eyeglass correction more than once a year, but when body growth slows or stops (usually by age 18), the myopia tends to stabilize. There is normally no reason to worry about the frequent changes in lens correction that occur during adolescence. Almost never is there any real danger to eyesight, and vision can almost always be corrected to 20/20 or better with eyeglasses or contact lenses.

Note: There is an extremely rare type of myopia, called malignant progressive myopia, which is a serious condition and leads to gradual structural damage to the eye. This type needs regular clinical evaluation. It is not related to ordinary myopia and does not develop from ordinary myopia.

Lens Correction for Myopia

Fortunately, eyeglasses or contact lenses provide a simple, effective way to provide clear vision - by optically reducing the excess power of the myopic eye. Wearing your correction will make your distance vision clear. The more nearsighted you are, the more you will want to wear your correction. Not wearing it, however, will not harm your eyes in any way.

Nearsighted children should be checked for glasses every year or so, and nearsighted adults every 2 to 3 years - more frequently, of course, if you start having any symptoms that seem to be related to your eyes. For eye safety, law for all eyeglasses requires impact resistant lenses, but the safest ones for active people are made of polycarbonate plastic. These offer the best possible protection against eye injuries.

Other Methods of Correction

There is some evidence that special contact lenses (in a procedure called orthokeratology), bifocal eyeglasses, or dilating eyedrops can be used to slow the progression of myopia, but the effects are very minimal and temporary, and rarely worth the extra effort and cost. Treated or not, myopia almost always advances to a certain point and then stops changing.

Refractive surgery is being well publicized as the modern way to reduce your dependence on glasses or contacts. This type of surgery includes several procedures for permanently lessening or possibly even eliminating myopia. Some involve using an excimer laser to reshape the cornea (PRK, LASIK); one uses a surgically implanted plastic corneal ring (the effect is reversible if the ring is removed). All are intended to reduce the cornea's optical power to achieve normal or near-normal focus. These procedures are not appropriate for everyone, and are not done on a young eye that is still growing. Before making a decision to have refractive surgery, you should learn all you can about it and the different procedures that are available.