

**THE DEVELOPING MYOPIA DISEASE AMONG PEOPLE, ITS ORIGIN,
PATHOGENESIS, SYMPTOMS, MODERN TREATMENT METHODS, AND
CURRENT COST OF PREVENTIVE WORK ON THE DISEASE.**

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Abstract: In modern times, as the environment is very polluted and various household technologies are developing, modern methods of treatment of these diseases are increasing. In this article, myopia disease, its types, origin, pathogenesis, symptoms and treatment through modern, natural methods are covered.

Key words: Myopia, causes, development, pathogenesis, symptoms, methods of treatment and prevention

Main part: Myopia, visual abnormality in which the resting eye focuses the image of a distant object at a point in front of the [retina](#) (the light-sensitive layer of tissue that lines the back and sides of the eye), resulting in a blurred image. [Myopic](#) eyes, which are usually longer than normal from front to rear, are somewhat more susceptible to [retinal detachment](#) than are normal or farsighted eyes. Severe myopia can be associated with other eye problems as well, most of which affect the retina or the choroid (i.e., pathologic [blood vessel](#) growth from the choroid). Myopia can be corrected by concave [lenses](#). Today, however, the use of [LASIK](#) (laser-assisted in situ keratomileusis) [surgery](#) has become common. In this procedure a hinged flap is made in the outer [corneal](#) tissue and lifted out of the way to allow an excimer laser (an ultraviolet chemical laser; also called an exciplex laser) to reshape the underlying tissue. The natural [adherence](#) properties of the replaced corneal flap negate the need for stitches. LASIK surgery is often preferred to [photorefractive keratectomy](#) (PRK), another type of laser-based surgery used to reshape the [cornea](#).

Causes of myopia: Nearsightedness is caused by a [refractive error](#). A refractive error occurs when your eye doesn't focus light correctly. If you're nearsighted, it means that the eye focuses light in front of your retina instead of onto it. The retina is the surface at the back of your eye that collects light. It changes the light into electrical impulses that your brain reads as images. When the eye focuses light in front of the retina, it can result in blurred vision. This happens because the shape of the eye is slightly abnormal. If you have myopia, it is likely that your eyeball is a little too long or your cornea is too rounded. The cornea is the clear covering on the front of your eye. These structural changes can cause your eye to focus incorrectly.

Pathogenesis: In newborns, [the eyelid](#) is small, and when the child is 9-12 years old, it takes a normal shape (see [Eye](#)). Sometimes the eyelid becomes elongated, and the distance [from the pupil to the retina](#) increases. In this case, the parallel rays coming from distant shapes do not reach the retina of the eye, they are refracted in the middle of the path and converge to the focus.

Symptoms: Having blurry vision when looking at objects in the distance is the main symptom of myopia. Others can include:

- tired eyes
- headaches
- squinting

If a person starts to experience these symptoms, they should speak to an optometrist, who can help determine whether or not they have myopia. The optometrist may recommend glasses or contact lenses to correct the issue. If a person's myopia is more advanced, an optometrist might recommend surgery.

Progression: Although myopia will not usually lead to other eye issues, it can get worse as a person ages. This is known as high myopia. A person with high myopia has an increased risk of developing additional eye conditions. These may include:

- cataracts
- glaucoma
- retinal detachment

Should vision loss or other eye-related issues occur, the condition becomes known as pathological myopia. This means that the level of myopia is so advanced that it has caused the back of the eye to begin breaking down. Refractive errors, including myopia, cause [3% Trusted Source](#) of blindness cases globally. One of the best things a person can do to slow the progression of myopia is to visit an eye doctor regularly. People with risk factors for myopia, such as diabetes or parents with myopia, may also benefit from visiting their eye doctor more often.

Diagnosis: An optometrist can perform a number of tests to check whether or not a person is nearsighted. One part of the eye examination will involve the person reading letters of different sizes from a chart at the other side of the room. The smaller the numbers, the harder they will be for someone with myopia to make out. The optometrist may also use a tool called a phoropter, which is made up of different lenses that they can position in front of the eye. When the phoropter is in place, the optometrist will shine light into it to measure how the eye focuses it. This will help them determine the right prescription for the glasses needed to correct the person's vision.

Management and Treatment

How is myopia treated? Glasses or contact lenses can correct myopia in children and adults. For adults only (with rare exceptions for children), there are several types of refractive surgeries that can also correct myopia. With myopia, your prescription for glasses or contact lenses is a negative number, such as -3.00. The higher the number, the stronger your lenses will be. The prescription helps your eye focus light on your retina, clearing up your distance vision.

Eyeglasses: The most popular way for most people to correct myopia is with eyeglasses. Depending on the degree of vision correction needed, you'll wear eyeglasses either daily or only when you need distance vision. You may only need glasses for driving. Some kids with myopia

may only need glasses to play ball, watch a movie or view the chalkboard. Some people may need to wear glasses constantly to see clearly. A single-vision lens will make distance vision clearer. But people over 40 who have myopia may require a bifocal or progressive lens to see clearly both near and far.

Contact lenses: Some people find that their distance vision is sharper and wider with contact lenses. A potential downside is they require more care to keep clean. Ask your provider which type might be right for your myopia level and other refractive errors.

Ortho-k or CRT: Some people with mild myopia may be candidates for temporary corneal refractive contact lenses that you wear to bed to reshape your cornea temporarily, long enough to see for your daily activities.

LASIK is a laser-assisted in situ keratomileus procedure, the most common surgery to correct nearsightedness. In a LASIK procedure, your ophthalmologist uses a laser to cut a flap through the top of your cornea, reshape the inner corneal tissue and then drop the flap back into place.

LASEK is a laser-assisted subepithelial keratectomy procedure. In a LASEK procedure, your ophthalmologist uses a laser to cut a flap through only the top layer (epithelium) of your cornea, reshape the outer layers, and then close the flap.

PRK is short for “photorefractive keratectomy,” which is a type of laser eye surgery used to correct mild or moderate nearsightedness. It may also correct farsightedness and/or astigmatism. In a PRK procedure, your ophthalmologist cuts off the front surface of your cornea and uses a laser to reshape the surface, which flattens it and allows light rays to focus on your retina. Unlike LASIK, the ophthalmologist doesn’t cut a flap, and your cornea will regrow its top layer in one to two weeks. PRK is better for people with corneas that are thinner or have a rough surface because it disrupts less corneal tissue than a comparable LASIK surgery.

Phakic intraocular lenses: These are an option for people who have high myopia or whose corneas are too thin for PRK or LASIK. Your provider places phakic intraocular lenses inside of your eye just in front of your natural lens.

Intraocular lens implant: This allows your ophthalmologist to surgically insert a new lens in your eye, replacing your natural one. This procedure happens before a cataract develops.

Vision therapy: This is an option if spasms of your focusing muscles cause myopia. You can strengthen the muscles through eye exercises and improve your focus. This treatment isn’t appropriate for everyone with myopia. After an eye exam, your ophthalmologist will let you know if it’s an option for you.

Conclusion: Myopia is a major public health concern, for which the advent of potential treatments methods for adequate correction of refractive error and decrease in disease progression is essential. Understanding the role of environmental and genetic factors in myopia onset and progression will allow for the development of more successful treatments and lifestyle

modifications. Although numerous studies remain unconventional in the treatment of pediatric myopia, atropine has been widely accepted worldwide in reducing myopia progression and axial elongation. Alternative myopia treatments, including other pharmacological, optical and surgical modalities, have shown promise, but require additional studies to validate its significance. Further research will be necessary to derive a conventional treatment modality capable of reducing personal and societal burden and arresting the progression of myopic disease including worsening refraction, axial elongation and retinal degeneration.

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