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MAT NO:18\MHS02\182

DEPT:NURSING

Nearsightedness, or myopia, as it is medically termed, is a vision condition in which people can see close objects clearly, but objects farther away appear blurred. People with myopia can have difficulty clearly seeing a movie or TV screen, a whiteboard in school or while driving.

Myopia occurs if the eyeball is too long or the cornea (the clear front cover of the eye) is too curved. As a result, the light entering the eye isn't focused correctly, and distant objects look blurred.

Myopia affects nearly 30 percent of the U.S. population. While the exact cause of myopia is unknown, there is significant evidence that many people inherit myopia, or at least the tendency to develop myopia. If one or both parents are nearsighted, there is an increased chance their children will be nearsighted.

Even though the tendency to develop myopia may be inherited, its actual development may be affected by how a person uses his or her eyes. Individuals who spend considerable time reading, working at a computer, or doing other intense close visual work may be more likely to develop myopia.

Generally, myopia first occurs in school-age children. Because the eye continues to grow during childhood, it typically progresses until about age 20. However, myopia may also develop in adults due to visual stress or health conditions such as diabetes.

Myopia may also occur due to environmental factors or other health problems:

Some people may experience blurred distance vision only at night. With "night myopia," low light makes it difficult for the eyes to focus properly. Or the increased pupil size during dark conditions allows more peripheral, unfocused light rays to enter the eye.

People who do an excessive amount of near-vision work may experience a false or "pseudo" myopia. Their blurred distance vision is caused by overuse of the eyes' focusing mechanism. After long periods of near work, their eyes are unable to refocus to see clearly in the distance. Clear distance vision usually returns after resting the eyes. However, constant visual stress may lead to a permanent reduction in distance vision over time.

Symptoms of myopia may also be a sign of variations in blood sugar levels in people with diabetes or may be an early indication of a developing cataract.

A doctor of optometry can determine the cause of the vision problems through a comprehensive eye exam.

How is myopia diagnosed?

Testing for myopia may use several procedures to measure how the eyes focus light and to determine the power of any optical lenses needed to correct the reduced vision.

As part of the testing, you will identify letters on a distance chart. This test measures visual acuity, which is written as a fraction, such as 20/40. The top number of the fraction is the standard distance at which testing is performed (20 feet). The bottom number is the smallest letter size read. A person with 20/40 visual acuity would have to get within 20 feet to identify a letter that could be seen clearly at 40 feet in a "normal" eye. Normal distance visual acuity is 20/20, although many people have 20/15 (better) vision.

Using an instrument called a phoropter, a doctor of optometry places a series of lenses in front of your eyes and measures how they focus light using a handheld lighted instrument called a retinoscope. Or the doctor may choose to use an automated instrument that evaluates the focusing power of the eye. The power is then refined based on your responses to determine the lenses that allow the clearest vision.

Your doctor can conduct this testing without using eye drops to determine how the eyes respond under normal seeing conditions. In some cases, such as for patients who can't respond verbally or when some of the eye's focusing power may be hidden, a doctor may use eye drops. The eye drops temporarily keep the eyes from changing focus during testing.

Using the information from these tests, along with the results of other tests of eye focusing and eye teaming, your doctor can determine if you have myopia. He or she will also determine the power of any lens correction needed to provide clear vision. Once testing is complete, your doctor can discuss treatment options.

2. Astigmatism is a condition in which your eye isn’t completely round. Almost all of us have it to some degree.

Ideally, an eyeball is shaped like a perfectly round ball. Light comes into it and bends evenly, which gives you a clear view. But if your eye is shaped more like a football, light gets bent more in one direction than another. That means only part of an object is in focus. Things at a distance may look blurry and wavy.

It’s common to have astigmatism along with nearsightedness (myopia) or farsightedness (hyperopia). These three conditions are called refractive errors because they involve how your eyes bend (refract) light.

Astigmatism is fairly easy for an eye doctor to fix with glasses, contacts, or surgery.

Astigmatism Symptoms

Symptoms of astigmatism may include:

Blurry or distorted vision

Eyestrain

Headaches

Trouble seeing at night

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Astigmatism Causes

Most people are born with it, but experts don't know why. You can also get it after an eye injury, an eye disease, or surgery.

Rarely, a condition called keratoconus can cause astigmatism by making the clear front part of your eye (your cornea) thinner and more cone-shaped. You'll probably need contacts (but not glasses) to see clearly.

You can't get astigmatism from reading in low light or sitting too close to the TV.

Astigmatism Diagnosis

Astigmatism symptoms come on slowly. Go to an eye doctor if you notice changes in your vision. You'll need a complete eye exam. Your doctor will test the sharpness of your eyesight by asking you to read an eye chart. They'll also use tools to measure your vision, including:

Phoropter. You look through a series of lenses to find the ones that give you the clearest vision.

Keratometer/topographer. This machine uses a circle of light to measure the curve of your cornea.

Autorefractor. This device shines light into your eye and measures how it changes as it bounces off the back. This gives your doctor an idea of which lenses you need.