

Welcome to this lesson today on disorders of the eye.

Today we will be discussing characteristics and causes of various common disorders of the eye. These disorders can be caused from anything from illness to injury, diseases, genetics or aging.

The first disorder we're going to take a look at today is color blindness. Color blindness is a type of disorder that is actually more common in men than women. People with this disorder cannot distinguish between the colors red and green. So red-green color blindness is the most common type of color blindness. This disorder is actually an inherited disorder. This occurs when the cone cells, which are sensitive to light in color in your eye. They're a type of cell that are sensitive to light in color, and they're the reason why we can see colors. So the cone cells that respond to red and green are missing in a person's eyes.

This example that you're looking at right here is actually a common test. An example of a common test that would be given to someone to test if they were color blind. So you'll notice that all of the colors in this example are either red or green, and as I mentioned, somebody who is colorblind cannot distinguish between the colors red and green. So if they were colorblind, they actually wouldn't be able to see the number 74 written in green dots, because they're unable to distinguish between red and green. So this would just all look the same color to them. So it's a common test given to someone to see if they're red-green colorblind or not.

Moving on to our next type of disorder, astigmatism. Astigmatism is a type of disorder that's characterized by blurred vision. This is an inherited disorder caused by the misshapen parts of the eye, generally the lens or the cornea, affecting the eye's ability to properly focus light. And if a light cannot be properly focused, it can result in blurred vision.

Two other types of disorders that you might be familiar with, also associated with blurred vision, are myopia and hyperopia. Myopia, also known as nearsightedness, is a disorder that occurs when distant objects appear blurred. This happens because the eyeball is wider than it is tall. Images actually focus in front of the retina, rather than on it. I'm going to draw a little diagram here to illustrate this a little bit better. We mentioned that the eyeball is wider than it is tall. So obviously this is very drastic, but it's just an example. So within the eye here, we have our lens. You'll notice that our eyeball is very, very wide, but not very tall. So distant objects, like an object out here, actually ends up focusing in front of the retina. So if our retina is back here, we have our focal point in front of the retina, because of the way that the eyeball is shaped. So distant objects will appear blurred. We refer to this as nearsightedness. So you can see things that are near, but you cannot see things that are far very clear.

Hyperopia, then, is just the opposite. Rather than distant objects appearing blurred, near objects will appear

blurred. And this happens because the eyeball is taller than it is wide. So images will focus behind the retina rather than on it. So here's an example of what this might look like. Our eyeball is much taller than it is wide. So a close object will actually end up focusing behind the retina. So if this here is our retina, the object is being focused behind it. Hyperopia, also called farsightedness, the person can see things that are far away, but they can't see things that are very near. Near objects will be blurred.

These are two very common types of eye disorders. Most people who wear glasses for whatever reason, it's generally because of one of these two disorders.

And then our last couple disorders here, Conjunctivitis is a type of disorder characterized by redness, discharge and discomfort of the eye, and it's generally caused by a bacteria or sometimes by allergies. So a membrane of the eye will become inflamed and then cause these different characteristics.

Retinoblastoma is a deterioration of vision, and it results in the surgical removal of the eye. It's a type of cancer of the retina. This cancer of the retina could then spread to the optic nerve and to the brain. So because of the fear of this cancer spreading, generally the eye is just surgically removed.

Cataracts is a clouding of the lens of the eye, affecting how light can enter. So this clouding of the lens, when light enters it's then kind of scattered in a funky way, because of the clouding of the lens. So it can affect how a person can actually see, and then you can actually kind of see their eye looks a little bit cloudy, if you actually look from the outside. And this can be caused by aging, injury, and oftentimes people who have diabetes are more prone to cataracts, as well.

Glaucoma is a deterioration of vision when the aqueous humor builds up in the eyeball and it causes too much pressure within the eye. And so that starts to press on different nerves within the eye, and causes vision eventually to start to deteriorate. This is most often associated with aging.

And then our last one we're going to discuss today is retinal detachment. Retinal detachment is when a person has blurred vision, loss of peripheral vision, or blindness because the retina has detached. So its name kind of tells you what's happening in this disorder. This can happen because of an injury, or a blow to the head. So it's causing a tear in the retina. If this is caught very quickly, the different characteristics here can usually be reversed. But if it's something that's allowed to go on its own, it could heal on its own, but generally will have more long-term negative effects.

This lesson has been an overview on various disorders of the eye, their characteristics and causes.