

Glasses and Contact Lenses

Why do some people need glasses and others don't?

Everyone's eyes are a little different — not just the color, but the way they work and how well they see. Sometimes all the parts of the eye don't work together the way they should. But eyeglasses or contact lenses, also called corrective lenses, can help most people see more clearly.

How Eyes Work

The eyeball includes the **cornea** (say: KOR-nee-uh), clear tissue that helps the eye focus; the **iris**, the colored part; the **pupil** (the black circle in the center of the iris, which is really an opening in the iris, that lets light enter the eye); the lens, which also helps the eye focus; and the **retina**, at the very back of the eye.

When all of the eyes' parts are working properly, a kid doesn't have vision problems. You can see because your eyes capture an image like a camera and send that image to your brain, where it can be interpreted. For instance, if there's an elephant in front of you, almost instantly, your brain says, "Hey, that's an elephant."

Your eyes need to bend light rays so the image can be focused sharply on your retina. The better your retina records the image, the more likely that your brain will interpret the image, and the more likely you will see the image clearly.

Refracting is a big word that means bending light rays. If a person has vision trouble, it's often a refractive problem. Glasses or contact lenses work so well because they can correct refractive problems. In other words, they bend the light rays in a way that lets you see more clearly.

Laser surgery also can correct some vision problems, but it's not recommended for kids because they're still growing.

Nearsighted and Farsighted — Which Is Which?

Nearsightedness and farsightedness are common refractive problems. It's easy to get the two confused:

- **Nearsighted** (also called myopia) means someone can see stuff that's near, like a book, but has trouble seeing stuff that's far away.
- **Farsighted** (also called hyperopia) means someone may be able to see stuff that's far away clearly, but has more trouble seeing up close (like reading the print in a book). Some farsightedness in kids is normal because they can focus their eyes to make up the difference. But, some kids are very farsighted and need glasses or contact lenses.

In both cases, the image is not properly focused on the retina. With nearsightedness, the image becomes focused in front of the retina. With farsightedness, the image is focused behind the retina. The shape and size of a person's eyeballs usually cause refractive problems.

Another refractive problem is called **astigmatism** (say: uh-STIG-muh-tih-zum). This means that the cornea is an uneven shape, and it bends the light in different directions. This can distort what a person sees and make things look blurry.

Glasses or contact lenses correct vision because they allow the eye to focus light in the right spot on the retina — the spot that produces the clearest image. Because everyone's eyes are different, a pair of glasses that makes one person see wonderfully may look terribly blurry to someone else. You know this if you've ever tried on somebody else's glasses!

If you need glasses or contact lenses, your doctor will write you a prescription. In this case, a prescription doesn't mean medicine you'll pick up at the drugstore. A vision prescription is a piece of paper with numbers on it. The people who will make your glasses for you need these numbers to create lenses that will correct the way your eye bends light. Remember, the target is right in the center of the retina.

Eye Exams

If you're having trouble with your vision, your mom or dad can take you for an eye exam. This might happen as part of your regular checkup with the doctor.

But you need to see a vision specialist if your parents or your doctor think you might need glasses. You might see an ophthalmologist, optometrist, or an optician.

What's the difference?

- An **ophthalmologist** is a medical doctor trained to treat vision problems including eyeglasses and contact lenses, but also do eye surgery for other eye-related problems.
- An **optometrist** is a licensed professional who specializes in eye exams and in figuring out the right prescriptions for eyeglasses and contact lenses.
- An **optician** makes or sells eyeglasses and contact lenses according to an ophthalmologist's or optometrist's prescription.

At your eye exam, you'll probably be asked to read from an eye chart. This is the chart with letters or numbers in different sizes. You also might be asked to look at some text up close, like reading from a book. These tests measure how well you see from close and from far away.

If you need glasses or contact lenses, there's a special gizmo that lets you try a few different prescriptions until you find the one that gives you the clearest vision. It's kind of like a big pair of glasses, but a bunch of different lenses can be switched in and out really quickly. The person doing your eye exam will switch between two different lenses and say, "Do you like this one or that one?" You say which one looks clearest. There is no right answer — just what is best for you. Remember, the idea is that you get the correct prescription so your vision will be top-notch!

The Fun Part

If you're going to get glasses, it's time to pick frames. It can be fun to try these on. Choose ones that are comfortable and sturdy. But also make sure you like them — you'll be wearing them a lot!

The lenses themselves can be made of different materials, such as safety glass or shatterproof plastic (polycarbonate). Because glass tends to be heavy and it may shatter, most glasses today are made of polycarbonate plastic. If you play sports, you may want to ask about special eyewear you can wear on the field.

With glasses, you'll also want to find out how to clean them properly. And it helps if you have a glasses case and put them in it when you're not wearing them. The last thing you want is to sit on your new glasses. Crunch!

If you're going to get contact lenses, you'll get some advice from the ophthalmologist or optometrist about which kind will be best for you. Some are disposable and others need to be cleaned. When you learn which type you're going to get, you can start becoming an expert in how to wear them safely and keeping them clean. The most important thing about contact lenses is good hygiene to prevent infections in your eye.

But the really fun part of new glasses or contact lenses is how well you can see. They can make your whole world look better!

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