AMERICAN ACADEMY OF OPHTHALMOLOGY
The Eye M.D. Association

Eye M.D. Fact Sheet

What Everyone Should Know About

REFRACTIVE ERRORS

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For our eyes to be able to see, light rays must be bent or "refracted" so they can focus on the retina, the nerve layer that lines the back of the eye. The cornea and the lens refract light rays.The retina receives the picture formed by these light rays and sends the image to the brain through the optic nerve. A refractive error means that the shape of your eye doesn't refract the light properly, so that the image you see is blurred. While refractive errors are called eye disorders, they are not diseases. In a normal eye, the cornea and lens focus light rays on the retina.

The most common refractive errors are:

Nearsightedness (myopia) — in a myopic eye, distant objects are blurry because the eye is too long, and images focus in front of the retina instead of on it. Myopia is inherited and is often discovered in children when they are eight to twelve years old. During the teenage years, when the body grows rapidly, myopia gets worse. Between the ages of 20 and 40, there is usually little change. Nearly one-third of the population in the United States is nearsighted.

Farsightedness (hyperopia) — a hyperopic eye is too short for images to focus properly on the retina. A farsighted person can see objects clearly at a distance, but images close-up will appear blurry. Like nearsightedness, farsightedness is usually inherited. Babies and young children tend to be slightly hyperopic. As the eye grows and becomes longer, hyperopia lessens.

Astigmatism (distorted vision) — a normal cornea is round and smooth, like a baseball. When you have astigmatism, the cornea curves more in one direction than in the other, like a football. Astigmatism distorts or blurs vision for both near and far objects. You can have astigmatism in combination with myopia or hyperopia.

Presbyopia (aging eye) — when you are young, the lens of the eye changes its shape easily, allowing you to focus on objects both close and far away. After the age of 40, the lens becomes more rigid. Because the lens can't change shape as easily as it once did, it is more difficult to read at close range.

For more information, visit the Web site of the American Academy of Ophthalmology - The Eye M.D. Association -www.eyenet.org. An Eye M.D. is an ophthalmologist-a medical doctor specially trained to provide the full spectrum of eye care - medical, surgical and optical.