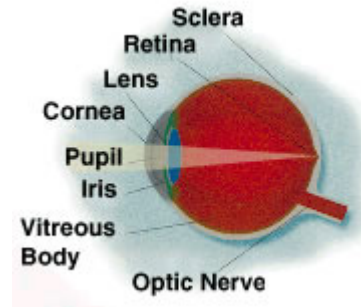


What is Refractive Error?

Emmetropia (no refractive error/"normal eye")

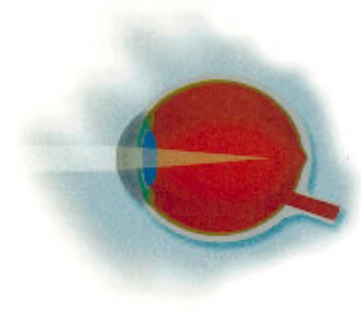
This is when all rays of light are focused by the cornea and lens perfectly on the retina. Distance and near vision are both sharp.



This is a "normal" eye. Light rays are focused perfectly onto the retina.

Myopia (Nearsightedness)

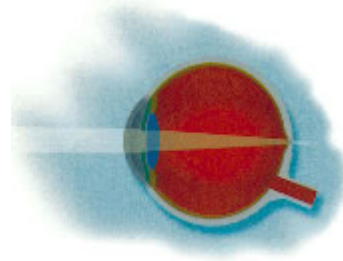
Myopia occurs when the rays of light are focused in front of the retina. This causes blurred distance vision. Near vision is clear but the range of clear near vision depends on the level of nearsightedness. Nearsightedness usually occurs when a person's eye is too long. A concave lens (either in the form of an eyeglass or contact lens) in front of the eye is needed to correct myopia. Laser vision correction can be performed to effectively flatten the cornea in order allow parallel light rays from 20 feet and beyond (infinity) to be focused sharply on the retina.



This is a Myopic (nearsighted) eye. Light rays are focused too much and fall in front of the retina.

Hyperopia (farsightedness)

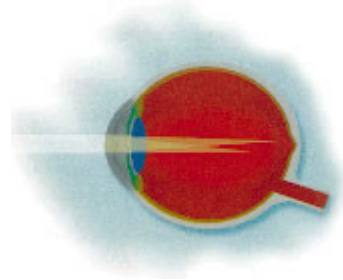
Hyperopia occurs when rays of light are focused behind the retina. This causes blurred distance vision if a person is unable to compensate by internal focusing. Near vision is blurred. Farsightedness usually occurs when a person's eye is too short. A convex lens (either in the form of an eyeglass or contact lens) in front of the eye is needed to correct hyperopia. Laser vision correction can be performed to effectively steepen the cornea in order allow parallel light rays from 20 feet and beyond (infinity) to be focused sharply on the retina.



This is an Hyperopic (farsighted) eye. Light rays are not focused enough onto the retina.

Astigmatism (“not a point”)

This occurs when a person's cornea has the shape of a football instead of being perfectly spherical like a basketball. This causes rays of light perpendicular to each other to be focused differently within the eye. Astigmatism leads to blurred, tilted vision. A cylindrical lens (either in the form of an eyeglass or contact lens) in front of the eye is needed to correct astigmatism. Laser vision correction can be performed to effectively steepen the flatter meridian (or flatten the steeper meridian) of the cornea in order allow parallel light rays from 20 feet and beyond (infinity) to be focused sharply on the retina. This essentially turns a football-shaped (astigmatic) cornea into a basketball-shaped (spherical) cornea.



This is an Astigmatic eye. Light rays are focused onto two separate points instead of one causing blurred vision.