

As the ciliary body extends further away from the sclera, it becomes the iris. The iris forms a circular opening, called the pupil, that admits light into the eye. Pupil size varies with the amount of light reaching the retina but it is also influenced by the distance of the object from the eye, the age of the observer and by emotional factors such as fear, excitement and anger.

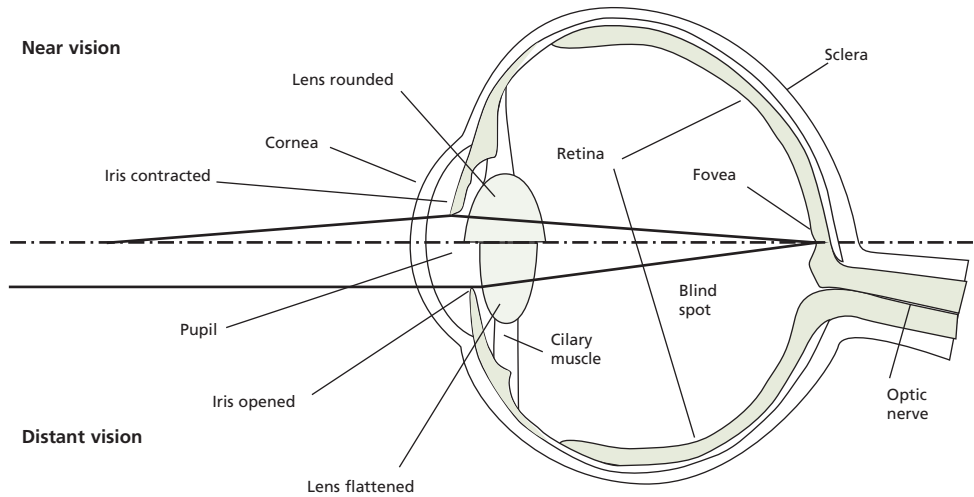


Figure 2.3 A section through the eye adjusted for near and distant vision

After passing through the pupil, light reaches the lens. The lens is fixed in position, but varies its focal length by changing its shape. The change in shape is achieved by contracting or relaxing the ciliary muscles. For objects close to the eye, the lens is fattened. For objects far away, the lens is flattened.

The space between the lens and the retina is filled with another transparent material, the jelly-like vitreous humor. After passing through the vitreous humor, light reaches the retina, the location where light is absorbed and converted to electrical signals. The retina is a complex structure, as can be seen from Figure 2.4. It can be considered as having three layers: a layer of photoreceptors, which can be divided into four types; a layer of collector cells which provide links between multiple photoreceptors, and a layer of ganglion cells. The axons of the ganglion cells form the optic nerve which produces the blind spot where it passes through the retina out of the eye. Light reaching the retina, passes through the ganglion and collector cell layers before reaching the photoreceptors, where it is absorbed. Any light that gets through the photoreceptor layer is absorbed by the pigment epithelium mounted on Bruch's membrane.