



The eyeball – parts and functions

The eyes sit in cone-shaped cavities in the skull called sockets which are surrounded by 6 motion-regulating muscles and multiple layers of fatty tissue that help to protect the eye and give it flexibility. Eyebrows, eyelashes, and eyelids also contribute to this effort.

The eye itself is made of 10 general components that all work together to keep us seeing well every day.

Cornea The cornea is the outermost layer of the eye and is primarily responsible for focusing the light that comes into our eyes. There are 5 layers to the cornea. The outer layer acts as a kind of shield to the elements and can usually repair itself within a few days of suffering a minor injury. The deeper layers exist mainly to strengthen the eye.

Pupil The pupil is the black circle in the center of the eye, and its primary function is to monitor the amount of light that comes into the eye. When there is a lot of light, the pupil contracts to keep the light from overwhelming the eye. When there is very little light, the pupil expands so it can soak up as much as possible.

Iris The iris is the colored part of the eye. Although it might seem purely cosmetic, the iris actually functions to adjust the size of the pupil. It has muscles that contract or expand depending on the amount of light the pupil needs to process images.

Lens The lens exists behind the pupil and is responsible for allowing your eyes to focus on small details like words in a book. The lens is in a constant state of adjustment as it becomes thinner or thicker to accommodate the detailed input it receives. With age, the lens loses a lot of its elasticity which often results in cataracts and presbyopia because the lens cannot adjust as well to its surroundings as it used to.

Vitreous Humour The vitreous humour is a gel-like substance that helps to keep the eyeball in its proper, circular shape. This is the area in the eye where floaters develop as pieces of the vitreous humor clump together and cast shadows onto the retina. With age, the vitreous humor begins to shrink and can cause problems like posterior retinal detachment or retinal tears.

Retina The retina is the area at the back of the eye that receives the refined, visual message from the front of the eye, and it transmits that visual message to the brain using electrical signals.

Sclera The sclera is the white part of the eye, and its main function is to provide strength, structure, and protection for the eye. The sclera contains blood vessels that can tell an eye doctor a lot about the state of your overall health. To learn more about how your eyes are the windows to your overall health, read [What Do Your Eyes Say About Your Health?](#)

Source: tlcvision.com

In Depth: Eye

Eyes are approximately one inch in diameter. Pads of fat and the surrounding bones of the skull protect them.

The eye has several major components: the cornea, pupil, lens, iris, retina, and sclera. These work together to capture an image and transmit it directly to the brain's occipital lobe via the optic nerve.

When we look at an object, light reflected from it enters the eye and is **refracted**, or bent. This creates a focused, upside-down image of the object that the brain will have to interpret and turn in the correct direction.

Inside the eye are **photoreceptors**, which create nerve impulses when struck by light. There are two types: **cones** make color vision possible, and **rods** specialize in black-and-white images.

Although our eyes can only see in two dimensions, we are able to determine distances and depth in our three-dimensional world. This is because the brain interprets the two slightly different images our left and right eyes see as one. This is called stereoscopic vision. Other visual cues, such as shadows, how objects are blocking each other, and our knowledge about the sizes of different objects also help us determine depth and distance.

A series of **muscles** helps the eye move. The first set is the superior and inferior rectus muscles, which allow upward and downward motion. The medial and lateral rectus muscles allow the eye to move from side to side while staying level. The superior and inferior oblique muscles let it move up or down and to the side. Most of these muscles are controlled by **the oculomotor nerve**.

Friction from these movements would quickly damage the eye without lubrication. Tears released by the lacrimal gland are spread around by blinking, and provide lubrication for the eye. Tears also help remove foreign objects and bacteria that could cause damage.