



## Vision: Retina

Sarah Mae Sincero12.3K reads

The retina is a layered structure located in the inner surface of the eye. It is a light-sensitive structure where an image of the visual world is created through the optics of the eye. The retina has ten distinct layers, each with an important purpose in the sensation of physical stimuli.

**EXPLORABLE**  
*Quiz Time!*

Quiz: Psychology 101 Part 2

Quiz: Psychology 101 Part 2

Quiz: Flags in Europe

[See all quizzes](#) ⇒

## Function

In vertebrates, the retina functions as the main location for image formation in the eye. The light stimulus that strikes the retina kicks off a series of biochemical as well as electrical changes that eventually lead to the development of nerve impulses. These nerve impulses or signals travel to the different visual cortices of the brain via the optic nerve. The retina <sup>[1]</sup> is also considered one of the parts of the central nervous system simply because it originated as an outgrowth of the embryonic brain, together with the optic nerve.

## Layers

There are 10 different layers that make up the retina. The inner limiting membrane is a basement membrane where Muller cells are found. Muller cells serve as mediators of crucial neurotransmitters such as GABA and acetylcholine. After this comes the nerve fiber layer, which is comprised of axons of the nuclei of ganglion cells.

Next is the ganglion cell layer where the nuclei of the ganglion cells are found. Above it (with respect to the vitreous body) is the inner plexiform layer, where the synapse between axons of bipolar cells and dendrites of amacrine and ganglion cells linger. The inner nuclear layer comes next, where the nuclei and "perikarya" or bipolar cell bodies are found.

After this, the outer plexiform layer comes, where rods and cones' projections are found. Then, the outer nuclear layer follows, where rods and cones' cell bodies can be found. Next is the external limiting membrane, a layer that serves as a separator of inner segments of photoreceptors from their respective cell nuclei.

Then, the photoreceptor layer follows, lined by the rods and cones. Finally, the retinal pigment epithelium serves as the protective layer of cuboidal cells. To help you memorize the 10 layers of the retina, use the following mnemonic:

**"My nerves get in knots outside our easy practice review."**

- **My** - Müller cells
- **Nerves** - Nerve fibers
- **Get** - Ganglions
- **In** - Inner plexiform
- **Knots** - Inner nuclear
- **Outside** - Outer plexiform
- **Our** - Outer nuclear
- **Easy** - External limiting membrane
- **Practice** - Photoreceptors
- **Review** - Retinal pigment epithelium

## Photoreceptors

A photoreceptor is a neuron that serves as a transformer of light into neural signals, a process called phototransduction. These neurons of the retina are interconnected by bridges called synapses. The three types of photoreceptors are rods (black and white vision), cones (color vision) and ganglion cells (reflexive response to bright light).

---

**Source URL:** <https://explorable.com/vision-retina?gid=23090>

### Links

[1] <http://www.nlm.nih.gov/medlineplus/ency/article/002291.htm>