

JSR IAS ACADEMY

GENERAL SCIENCE

BIOLOGY

Physiology

முயற்சி - பயிற்சி - தேர்ச்சி

The eyes

The eyes

- the human eye can differentiate approximately **10 – 12 million colors**
- maintaining the **biological clock of the human body**.
- **Structure and Functions of Human Eye**
- The structure of a human eye can be broadly classified into **the external structure and internal structure**.

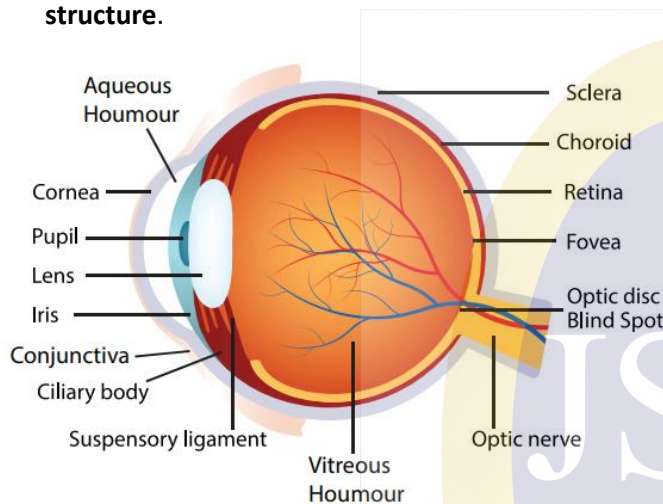


Fig.8.8 Structure of Human Eye

The External Structure of an Eye

Sclera:

- protects the inner parts of the eye.
- We know it as the '**White of the eye**'.

Conjunctiva:

- It is a **thin transparent membrane** that is spread across the sclera.
- It **keeps the eyes moist and clear by secreting small amounts of mucus and tears**.

Cornea:

- It is the **transparent layer of membrane** that is spread over the pupil and the iris.
- The **main role of the cornea is to refract the light that enters the eyes**.

Iris:

- It is a **pigmented layer of tissues** that make up the **colored portion of the eye**.
- Its **primary function is to control the size of the pupil**, depending on the amount of light entering it.

Pupil:

- It is the **small opening located at the middle of the Iris**.
- It **allows light to come in**.

The Internal Structure of an Eye

Lens:

- It is a **transparent, biconvex, and an adjustable part of an eye, made up of protein**
- The **lens with the help of the cornea refracts light focused on the retina**, therefore creating images on it.

Retina:

- It is the layer **present at the back of the eye** where all the **images are formed**.
- It is the **third and inner most coat of the eye** which is **very sensitive to light** because of the presence of **Photoreceptors (rods and cone cells)**.
- The retina functions by **converting the light rays into impulses and sending the signals to the brain** through the optic nerve.

Optic nerve:

- It is **located at the end of the eyes, behind the retina**.
- **carrying all the nerve impulses from the photoreceptors to the human brain**,
- **without which vision would not be possible**.

Aqueous Humour:

- It is a watery fluid that is **present in the area between the lens and the cornea**.
- It is **responsible for the nourishment of both the lens and the cornea**.

Vitreous Humour:

- it is a **semi-solid, transparent, jelly-like substance** that covers the interior portion of the eyes.
- It **plays an important role in maintaining the shape of the eye and also causes refraction of light before it reaches the retina**.