



المرحلة الاولى ٢٠٢٣-٢٠٢٤

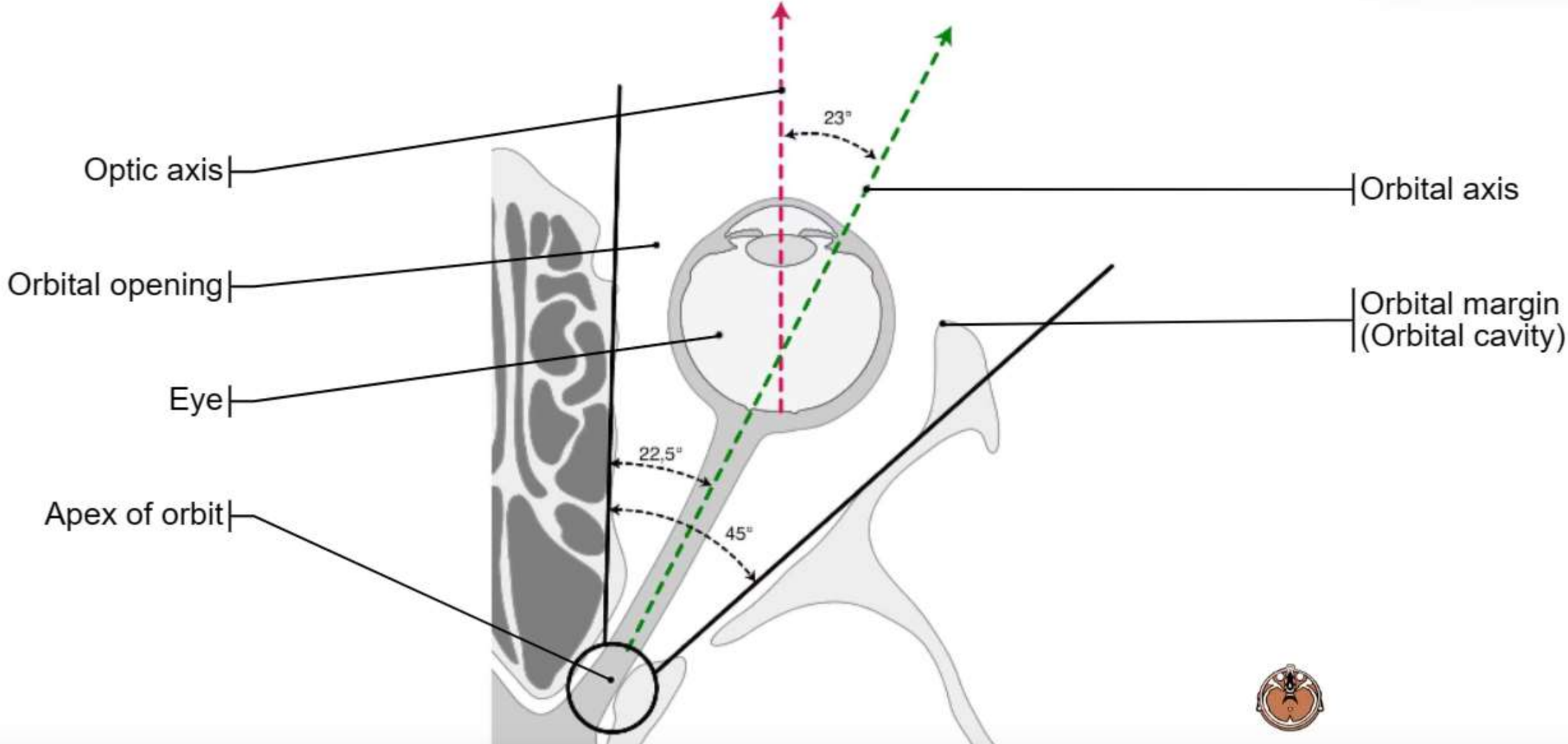
Anatomy of the eye

1st Lecture : Define of eye-Anatomical structures of the eye Structures of orbit

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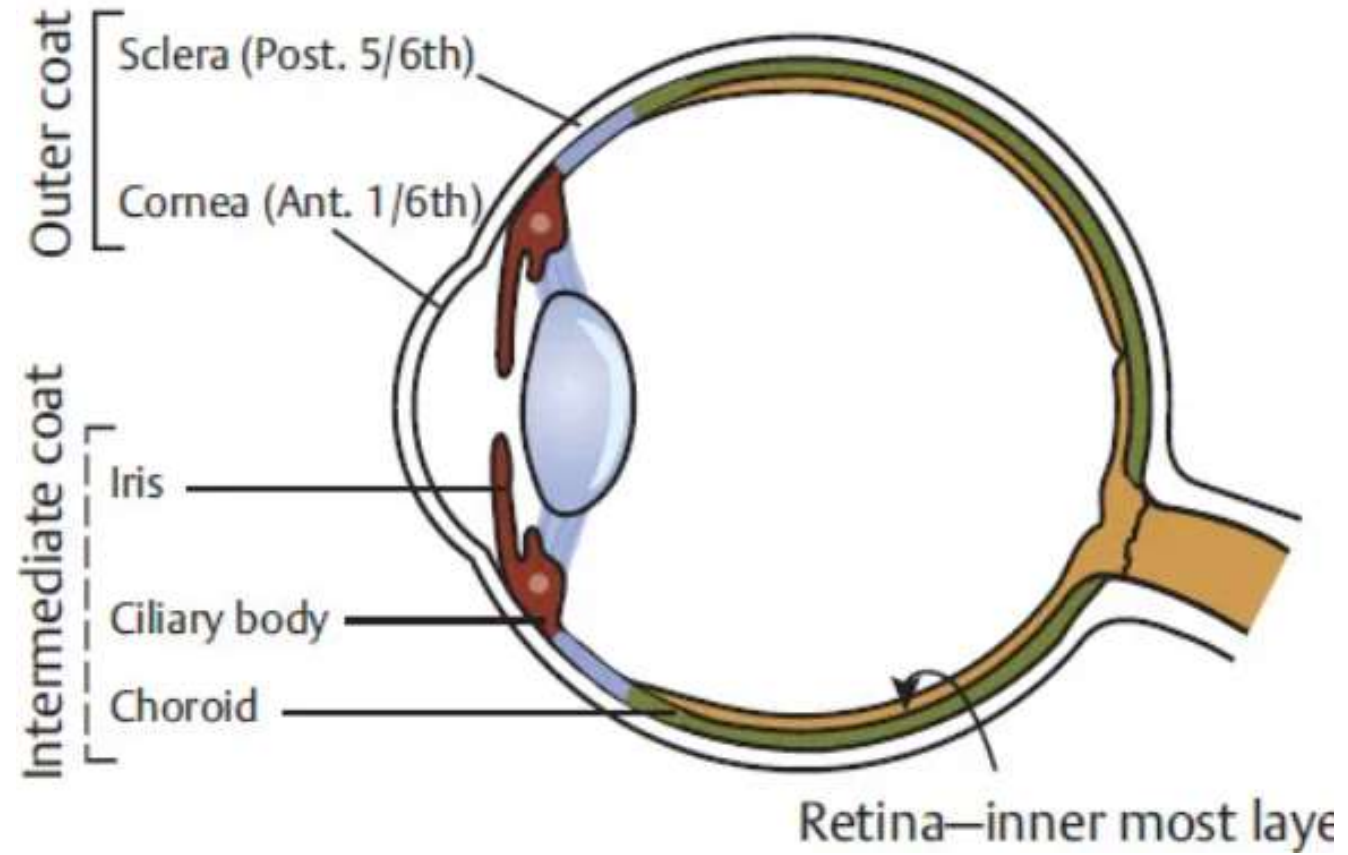
Orbital cavity - Optic axis (Axial cross section)



**1. ** Organ

The eye is a sensory organ in the visual system responsible for **perceiving** light and **converting** it into electrical signals that the brain **interprets** as sight. It is mainly responsible for vision, differentiation of colour (the human eye can differentiate approximately **10 – 12 million colours**) and maintaining the biological clock of the human body.

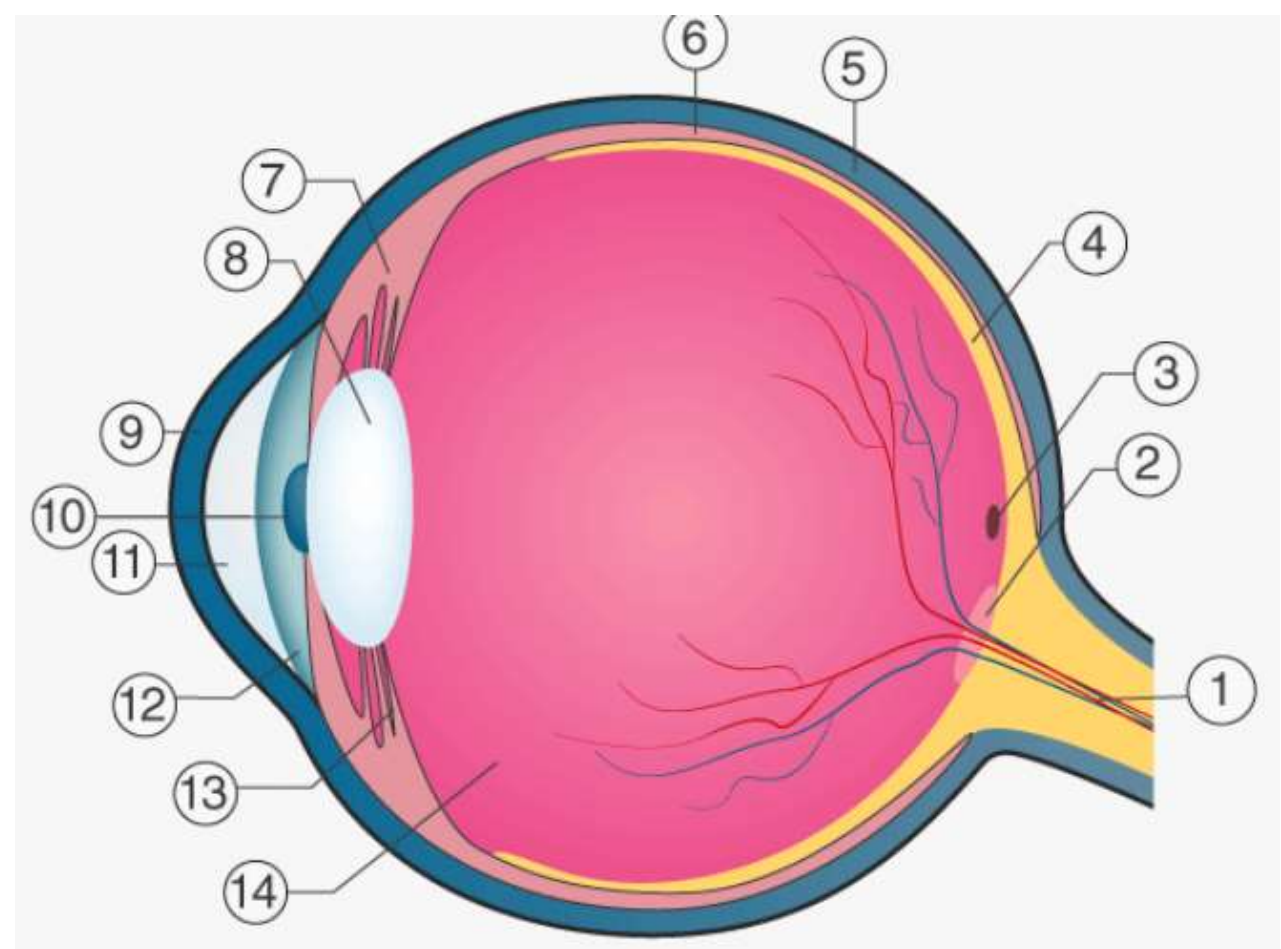
It's part of a complex system that includes the optic nerve, brain, and other structures that process visual information.



The structure of the eye is an important topic to understand as it one of the important sensory organs in the human body.

It is mainly responsible for **vision**, differentiation of **colour** (the human eye can differentiate approximately 10 – 12 million colours) and maintaining the

biological clock of the human body. The human eye can be compared to a camera as both works by gathering, focusing and transmitting the light through the lens for creating an image of an object.



- | | | | |
|------------------------|------------------|-------------------|----------|
| 1 Optic nerve | 2 Optic disc | 3 Fovea centralis | 4 Retina |
| 5 Sclera | 6 Choroid | 7 Ciliary body | 8 Lens |
| 9 Cornea | 10 Pupil | 11 Aqueous body | 12 Iris |
| 13 Suspensory ligament | 14 Vitreous body | | |

Structure:

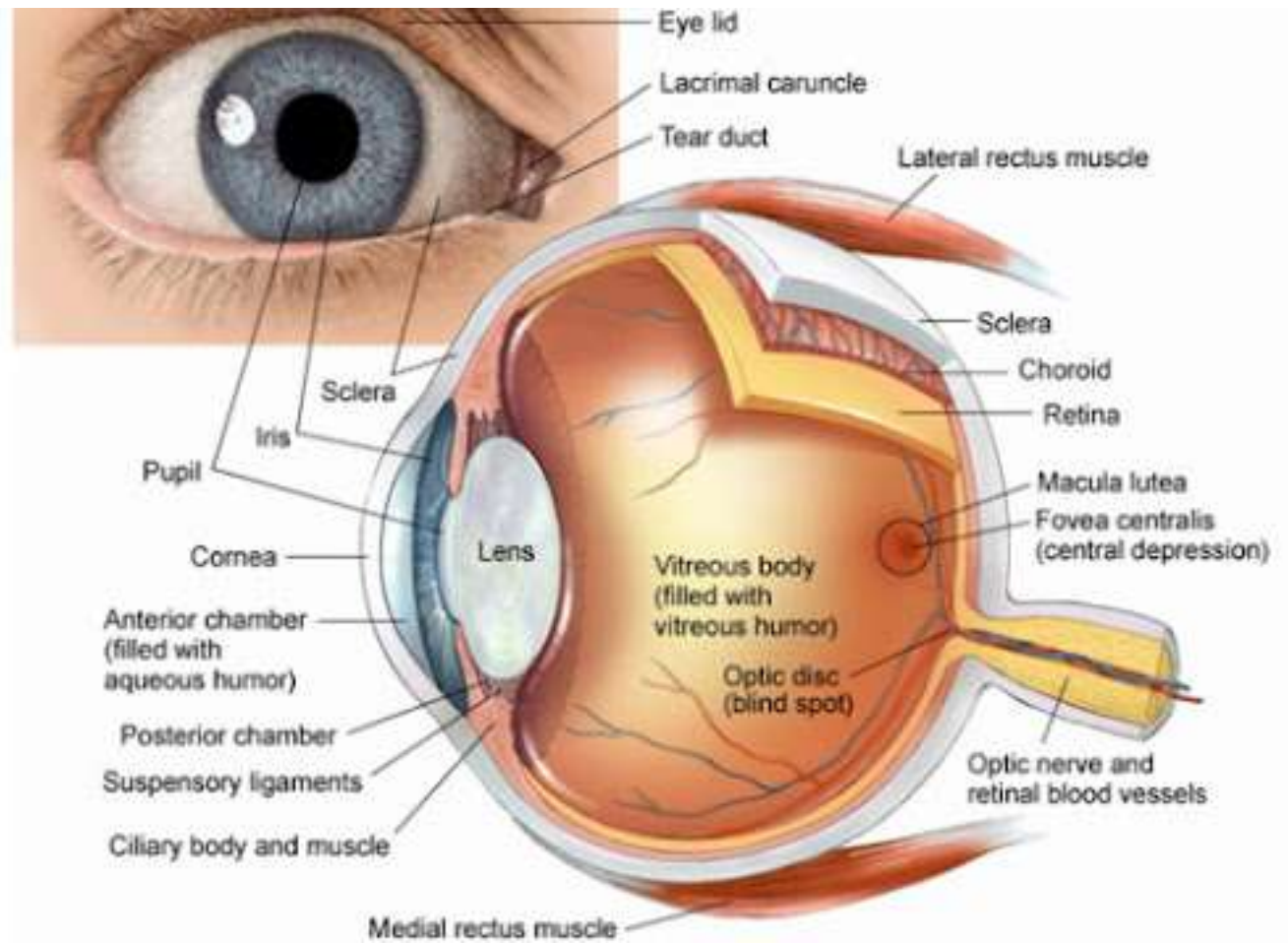
The eye itself is a **roughly spherical** structure within the orbit of the skull. It consists of several layers and components, including:

1-Cornea: The cornea is the **transparent, dome-shaped outermost** layer of the eye. It acts as a **protective** barrier and helps to **focus** incoming light.

2-Sclera: The sclera, commonly known as the **white** of the eye, is the **tough, fibrous outer layer** that covers most of the eye's surface. It provides structural **support** and **protection** for the internal components.

3-Iris: The iris is the **colored** part of the eye. It **controls** the size of the pupil and regulates the **amount of light** entering the eye.

4-Pupil: The pupil is the **black circular opening** in the center of the iris. It adjusts in size to control the amount of **light** that reaches the retina..

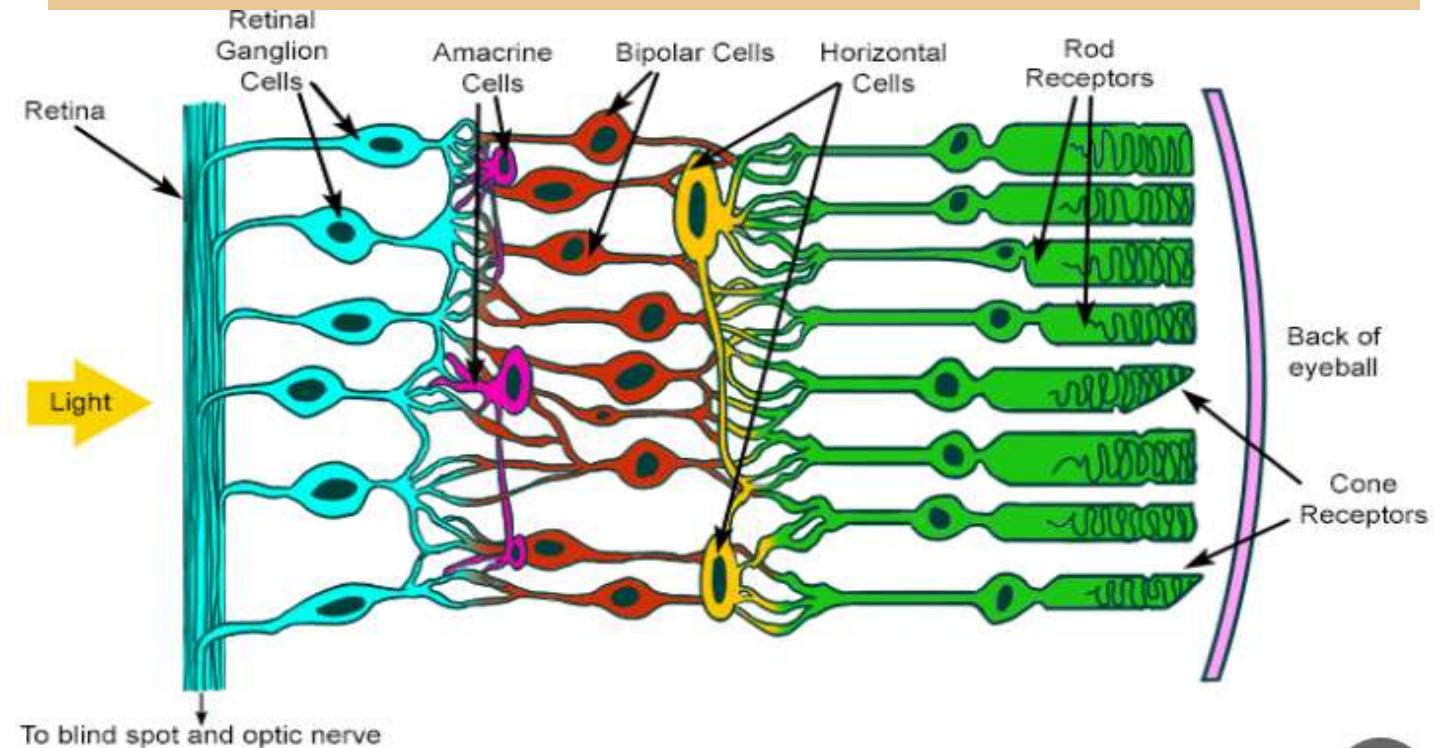
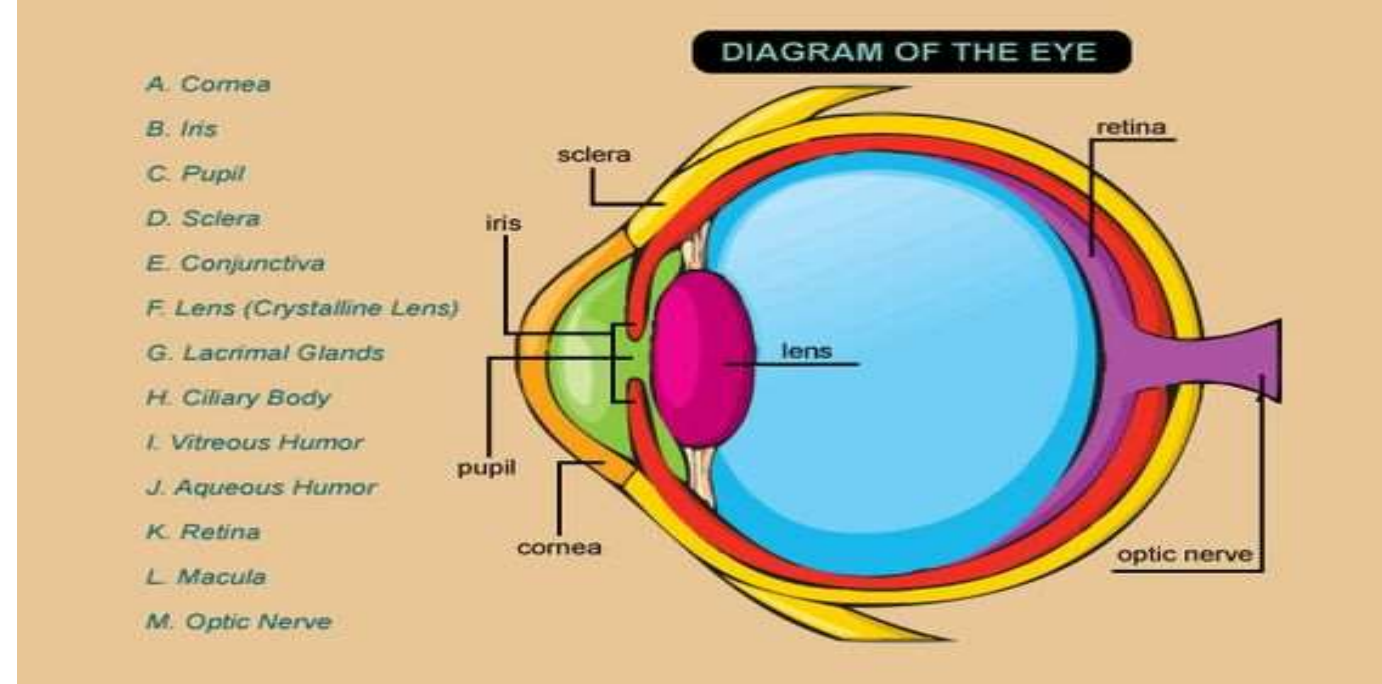


5-Lens: The lens is a **clear, flexible** structure located **behind the iris**. It helps to **focus** light onto the retina by changing its shape through a process called **accommodation**.

6-Retina: The retina is a **thin layer** of tissue that lines the **back of the eye**. It contains specialized cells called **photoreceptors** (rods and cones) that convert light into electrical signals.

7-Optic Nerve: The optic nerve is a **bundle of nerve fibers** that carries visual information from the **retina to the brain**. It is responsible for transmitting the electrical signals generated by the photoreceptors.

8-Vitreous Humor: The vitreous humor is a **gel-like substance** that fills the space between the lens and the retina. It helps to **maintain the shape** of the eye and **transmit light** to the retina.



Structures of the Orbit:

Title: Structures of the Orbit

The orbit, also known as the eye socket, is the bony cavity that houses and protects the eyeball and its associated structures.

The eye is housed within a bony socket called the orbit. These bones provide structural support and help protect the eye and its surrounding structures.

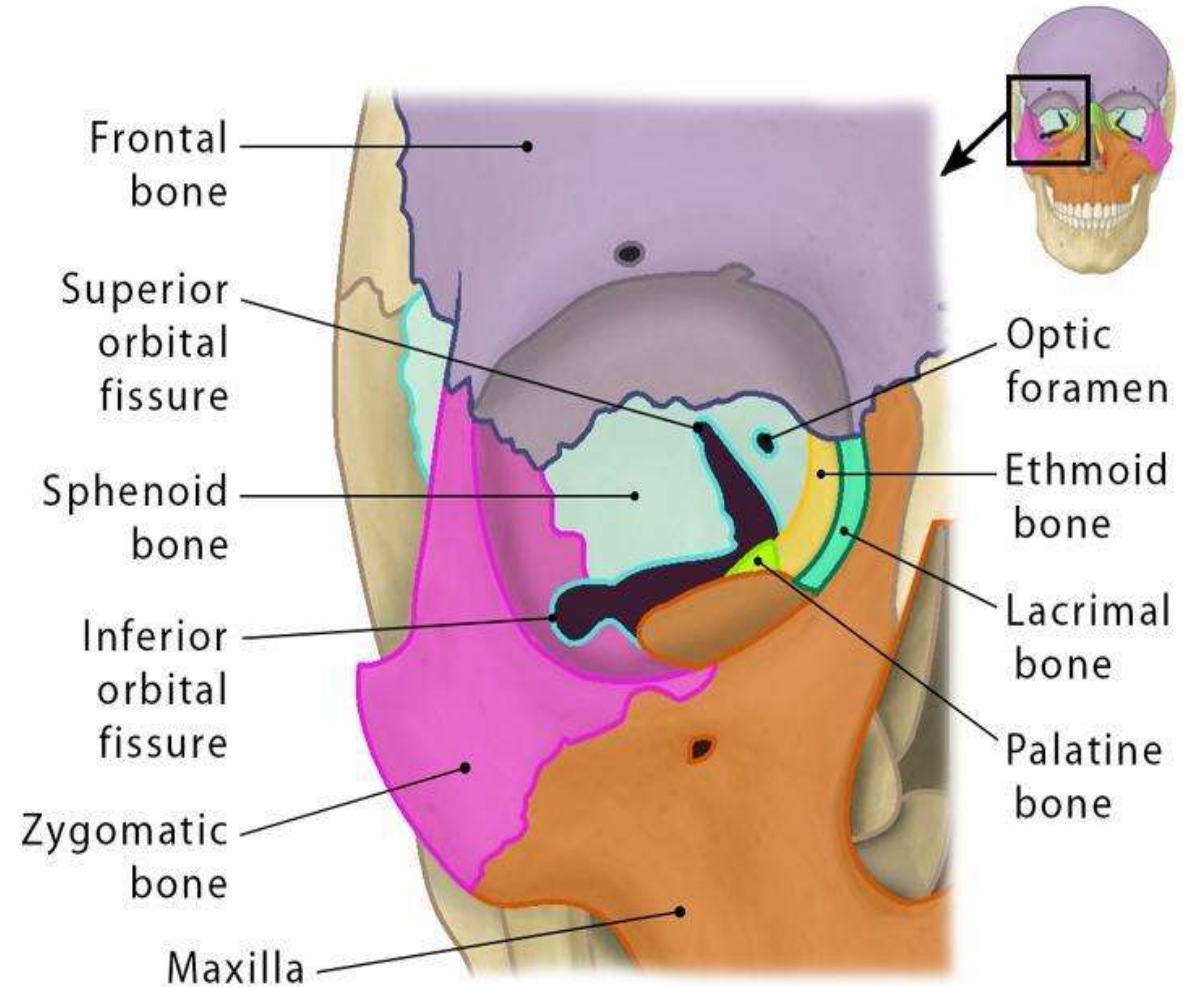
The structures of the orbit include:

1-Orbit Bones:

The orbit is composed of several bones, including the frontal bone, maxillary bone, zygomatic bone, ethmoid bone, lacrimal bone, sphenoid bone, and palatine bone.

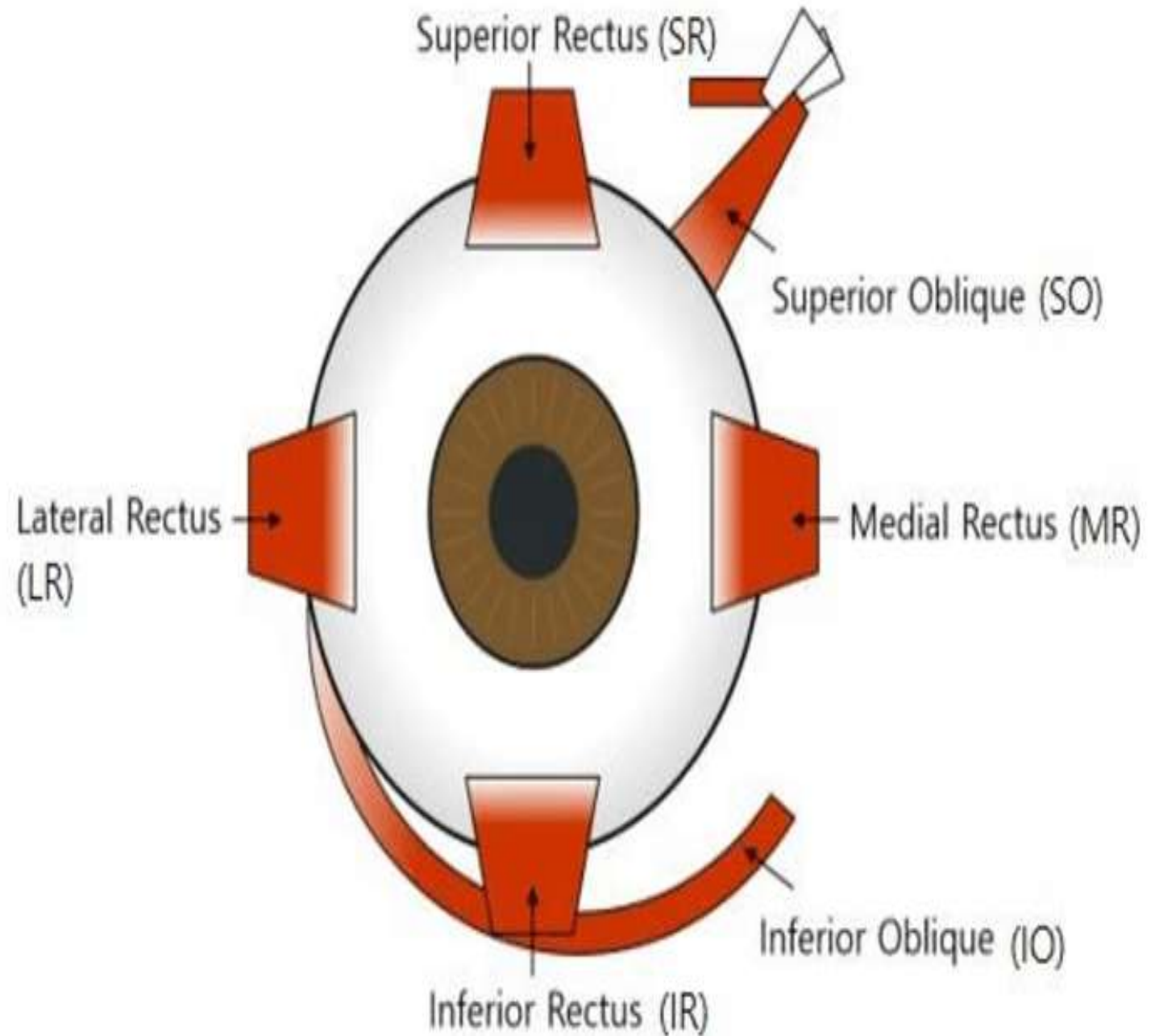
These bones form the protective cavity that surrounds the eye.

Bones of the Orbit

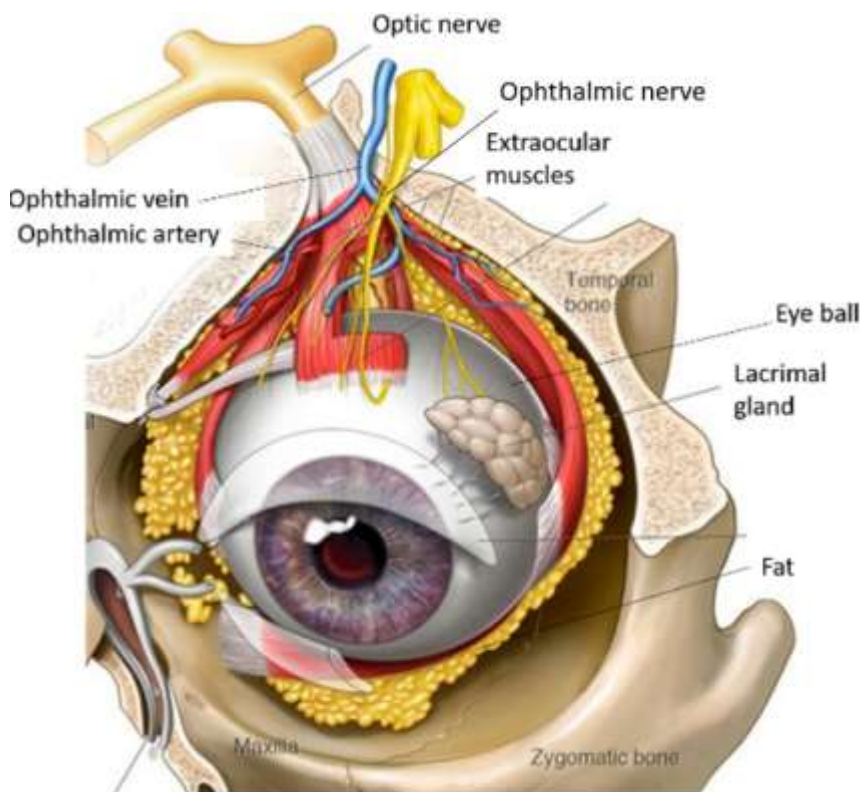


2-Extraocular Muscles: The orbit contains six muscles responsible for moving the eye in different directions.

These muscles include the superior rectus, inferior rectus, medial rectus, lateral rectus, superior oblique, and inferior oblique muscles.



3-Lacrimal Gland: The lacrimal gland is located within the orbit and produces tears that help keep the eye lubricated and remove foreign particles.



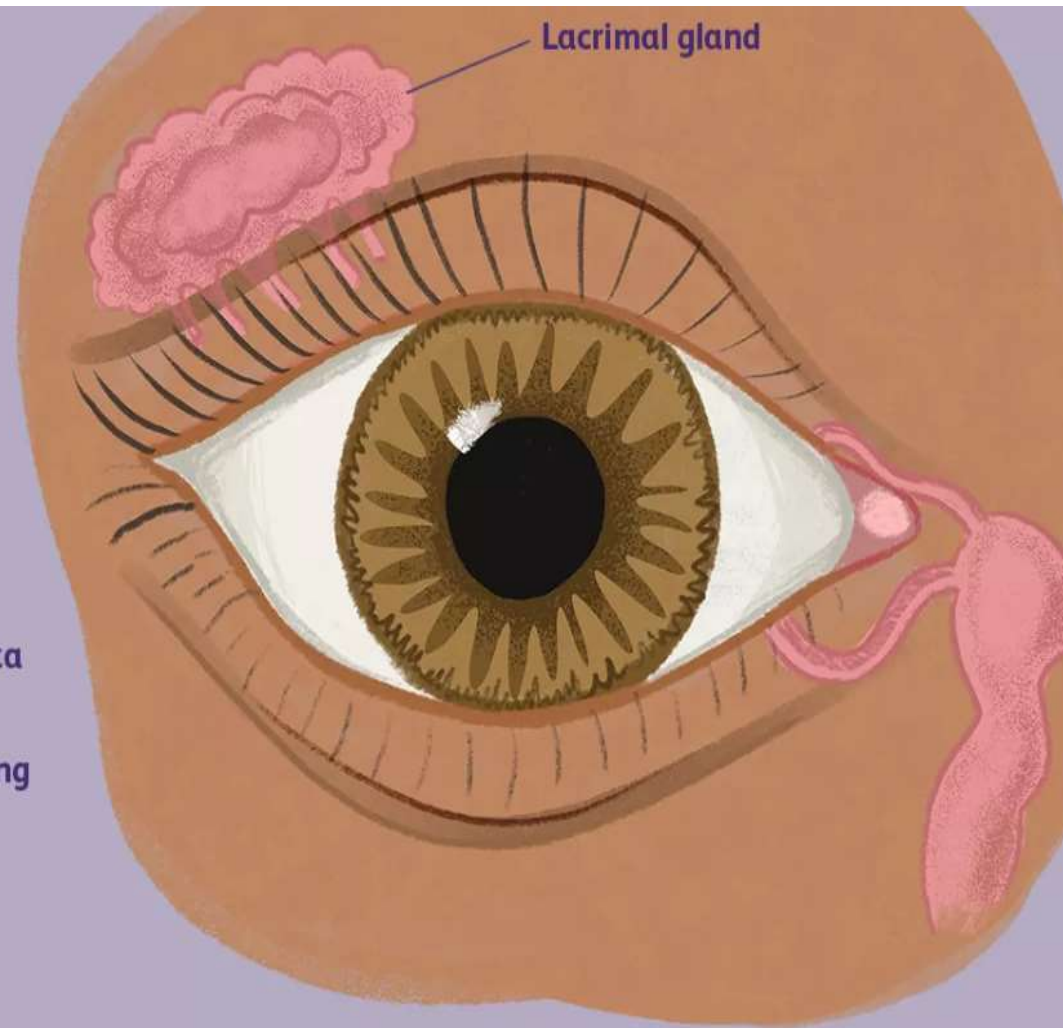
Produces the aqueous layer of the eye's tear film

Aqueous layer of tears is made up of water, proteins, vitamins, electrolytes, and other substances

These substances help lubricate the eye, wash away debris, and promote overall eye health

Tears get to the eye through the puncta

Can trigger reflex tears when something gets in your eye like a hair

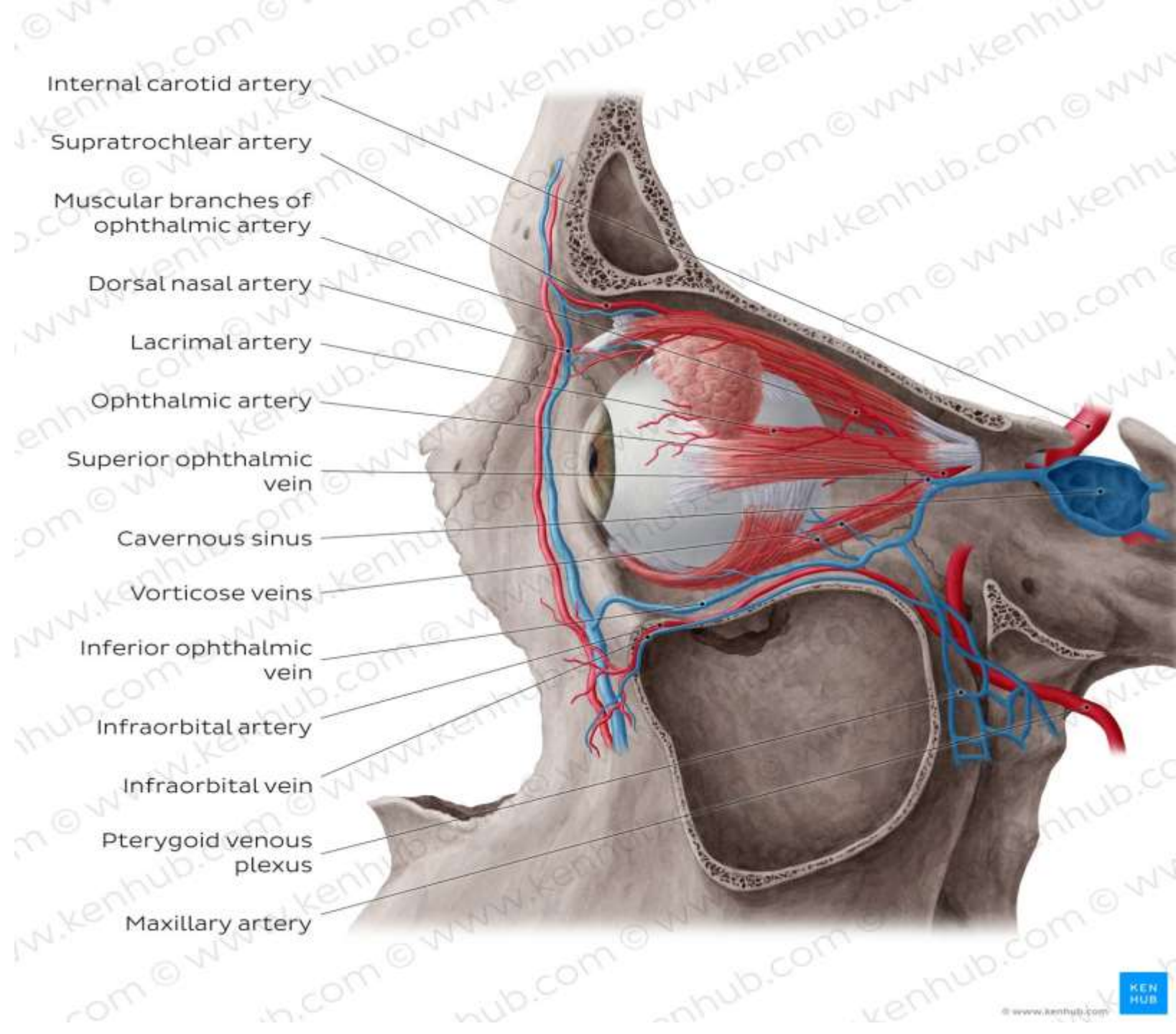


4-Blood Vessels and Nerves:

The orbit also contains blood vessels and nerves that supply oxygen, nutrients, and sensory information to the eye and its surrounding structures.

Blood Vessels and Nerves of the Orbit:

- 1.Ophthalmic Artery:
- 2.Central Retinal Artery:
- 3.Lacrimal Artery:
- 4.Ethmoidal Arteries:
- 5.Supraorbital Artery:
- 6.Infraorbital Artery:
- 7.Superior Ophthalmic Vein:
- 8.Inferior Ophthalmic Vein:
- 9.Optic Nerve (CN II):
- 10.Oculomotor Nerve (CN III), Trochlear Nerve (CN IV), Abducens Nerve (CN VI):



Summary

- The eye is a complex sensory organ that allows us to see and interpret visual information.
- It consists of various anatomical structures, including the cornea, sclera, iris, lens, retina, and optic nerve, each contributing to the process of vision.
- The orbit houses and protects the eye, containing bones, extraocular muscles, the lacrimal gland, blood vessels, and nerves.

thank
you