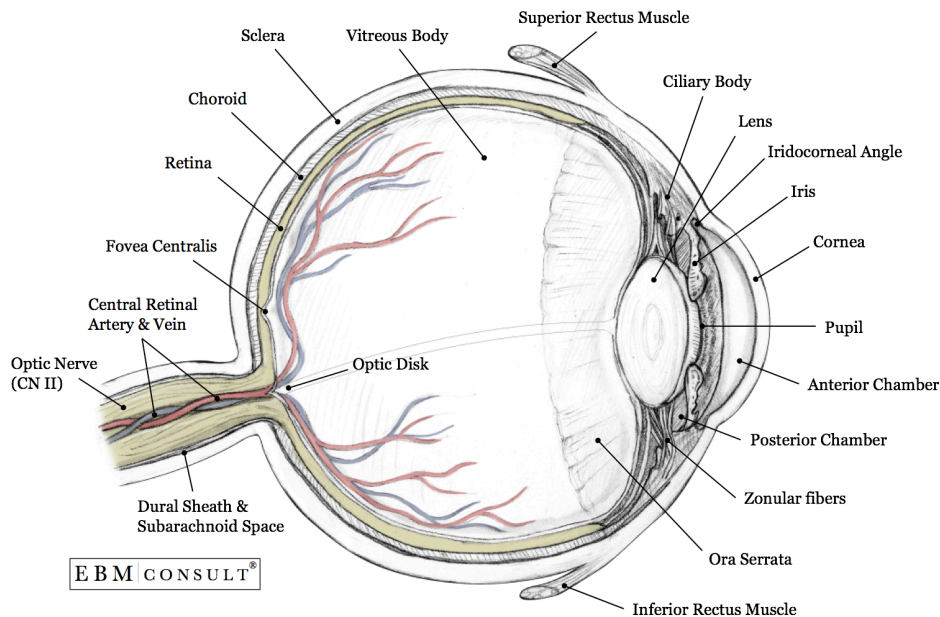


## Eyeball Anatomy (Sagittal View)



## Layers of the Eyeball

### Outer Coat or the Fibrous Layer

Cornea  
Sclera

### Middle Coat or the Vascular Layer

Choroid  
Ciliary Body  
Iris

### Inner Coat or the Inner Layer

Retina

## Central Retinal Artery & Vein

- **Anatomy:** Branch of the ophthalmic artery.
- **Function:** Blood supply to the retina.

## Choroid

- **Anatomy:** Layer between the sclera and the retina to form a large vascular network of blood vessels.
- **Function:** To provide blood flow from the ciliary arteries, nutrients, and oxygen to the retina.

## Ciliary Body

- **Anatomy:** Is both muscular and vascular and connects the choroid with the circumference of the iris.
- **Function:** Attachment of the lens and contraction or relaxation to change the shape of the lens to improve the focus of images. It also contains ciliary folds that contain ciliary processes that secrete aqueous humor that fills the anterior and posterior chambers.

**Cornea**

- **Anatomy:** Transparent, regular arrangement of collagen fibers forming a circular area on the anterior portion of the eyeball.
- **Function:** Hold aqueous humor in the anterior chamber and participate in the initial light refraction needed to focus the image on the retina.
- **Innervation:** Sensory innervation by ophthalmic branch of CN V1, making it very sensitive to touch and resulting in significant pain with injury.

**Fovea Centralis**

- **Anatomy:** Located at the center of the macula lutea.

**Iris**

- **Anatomy:** Lies on the anterior aspect of the eye and is a thin, transparent/clear contractile tissue with a central aperture known as the pupil.
- **Function:** Transmit and regulate the amount of light being directed to the retina.

**Lens**

- **Anatomy:** Located posterior to the iris, but anterior to the vitreous humor of the vitreous body and is anchored to the eyeball by zonular fibers or suspensory ligaments.
- **Function:** In conjunction with the cornea, it also participates in light refraction to focus an image on the retina.

**Optic Disk**

- **Anatomy:** a circular depressed area where the optic nerve (CN II) and central retinal artery and vein enter into the eyeball. This area does not contain photoreceptors and thus is insensitive to light (i.e., the “blind spot”).

**Ora Serrata**

- **Anatomy:** The anterior location where the optic portion of the retina ends and just posterior to the ciliary body.
- **Blood Supply:** Central retinal artery and a branch of the ophthalmic artery.

**Pupil**

- **Anatomy:** The central aperture of the iris.
- **Function:** Transmit the amount of light being directed to the retina. The size of the pupil is influenced by two involuntary muscles:
  - Sphincter pupillae which closes the pupil with parasympathetic innervation.
  - Dilator pupillae which opens the pupil with sympathetic innervation.
  - Light Reflex Test:
    - When light shines into the eye, the afferent limb of the optic nerve (CN II) sends a message to the brain that then causes a parasympathetic response back via the efferent limbs of the oculomotor nerve (CN III) to active the sphincter pupillae and constriction of both pupils. If there is compression of CN III then there would be slowing of the pupillary response.

**Retina**

- **Anatomy:** The inner layer of the eyeball and contains the optic portion and non-visual retina. The optic portion is further divided into two layers known as the neural layer and pigment cell layer.
- **Function:** The neural layer of the optic portion of the retina is light receptive and the pigment cell layer helps to reduce the scattering of light.
- **Blood Supply:** Ophthalmic artery → retinal artery and the outer neural layer is supplied by the choriocapillaris.

**Sclera**

- **Anatomy:** Tough, white colored fibrous portion of the outer layer of the eye.
- **Function:** Provides shape to the eyeball and attachment of muscles of the eye.
- **Blood Supply:** Anterior and posterior ciliary arteries.

**Vitreous Body**

- **Anatomy:** Aspect posterior to the iris and is made up of a transparent gelatinous substance and vitreous humor.
- **Function:** Helps to maintain shape of the eyeball.

**Zonular Fibers**

- **Anatomy:** Attach the lens and ciliary body.
- **Function:** Change the shape of the lens for light refraction.

**Muscles of the Eyeball**

- Inferior oblique
- Inferior rectus
- Lateral rectus
- Levator palpebrae superioris
- Medial rectus
- Superior oblique
- Superior rectus

**Vascular Supply of the Eyeball**

- Internal Carotid artery → Ophthalmic artery
- Branches of the ophthalmic artery:
  - Posterior ciliary artery
  - Central retinal artery
  - Lacrimal artery
  - Supraorbital artery
  - Ethmoidal arteries (Posterior and Anterior)
  - Dorsal nasal artery
  - Supratrochlear artery