

# EYE

## I. Eye

### A. Associated Structures

1. Eyebrows - protection
2. Palpebrae (eyelids) – moisten and protect
  - a. Levator palpebrae superioris – elevates upper eye lid
  - b. Eyelashes – protection
3. Conjunctiva - Stratified Squamous, secretes mucus, two parts:
  - a. Palpebral: on back of eyelid
  - b. Bulbar (ocular): on surface of eye

Conjunctivitis: inflammation of conjunctiva = “pink eye”

### 4. Lacrimal Apparatus

a. Lacrimal gland - makes tears. Tears contain mucus, antibodies, and lysozyme.

b. Tears leave gland through Lacrimal ducts

c. Tears flow across eye into 2 small openings, Lacrimal puncta.

d. Tears go into Lacrimal canals (canaliculi)

e. Then into the Lacrimal sac

f. And finally, into Nasolacrimal duct

### 5. Extrinsic eye muscles

a. Superior Rectus – moves eye superiorly & medially

b. Lateral Rectus – moves eye laterally

c. Medial Rectus – moves eye medially

d. Inferior Rectus – moves eye inferiorly and medially

e. Superior oblique – moves eye inferiorly & laterally (“down & out”)

f. Inferior oblique – moves eye superiorly & laterally (“up & out”)

### B. Structure: 3 tunics

1. Fibrous tunic: outermost, avascular

a. Sclera – posterior 5/6 of eye, nontransparent, the “White” of the eye

b. Cornea – anterior 1/6, transparent.

2. Vascular tunic = Uvea, middle layer; 3 parts

a. Choroid – posterior 2/3 of eye, vascular and pigmented.

a. Nourishes retina & sclera by diffusion

b. Ciliary body

i. Ciliary muscle. (an intrinsic muscle) which is attached to the lens by Suspensory ligaments. The muscle changes the shape of lens (= focus).

\*Lens is a biconvex, transparent, flexible structure that can change shape to allow for the focusing of light on the retina.

ii. Ciliary processes – contain capillaries that secrete aqueous

humo

c. Iris - ant., "colored donut of muscle" (intrinsic muscle), opening =

pupil

- Sphincter pupillae (pupillary constrictor) – constricts pupil

- Dilator pupillae (pupillary dilator) – dilates pupil

Iris regulates amount of light entering eye

3. Internal (Sensory) tunic: composed of the retina. The retina consists of;

a. Pigmented layer – outer layer, no photoreceptors, stores vitamin A

b. Neural layer: inner layer; composed of photoreceptors

- Rods: black & white vision, respond to low intensity light

(night)

- Cones: color vision, respond to high intensity light (daylight)

Where the optic nerve exits the eye = "Blind Spot" = Optic Disc, no rods or cones

Lateral to the blind spot is an oval region called the macula lutea with a minute pit in

its center called the fovea centralis.

The fovea contains only cones, so this is where critical (detailed) viewing takes place

### C. Internal spaces

1. Posterior Cavity – from lens to retina; contains the vitreous humor (A gel-like mass)

2. Anterior cavity – from lens to cornea; filled with aqueous humor (watery fluid)

(Those two are separated by the lens)

a. Posterior chamber – from lens to iris

b. Anterior chamber – from iris to cornea

(Those two are separated by the iris)

### HOW VISUAL INFO IS PROCESSED

For looking at distant objects:

1. Light rays enter eye through the cornea and are refracted (bent) by the lens
2. Light rays are focused on retina

For looking at close objects (less than 20 feet):

1. Light rays are bent at a greater angle by changing the shape of the lens (bulging; ciliary muscle)
2. Light rays are focused on the fovea centralis
3. Light ray information is converted to nerve impulses by photoreceptors
4. Nerve impulses transmitted to the brain (occipital lobe) via CN II (Optic nerve)

Which of the following is **NOT** found in the vascular tunic?

- a. Ciliary body
- b. Choroid
- c. Sclera
- d. Iris
- e. Ciliary muscle