London Ophthalmology Forum

Undergraduate Teaching Day

Summer 2012

Gibran Butt

Day Overview

- **Lectures- 9.30 – 12.00**

Visual system: Basic Anatomy
The Red Eye
Acute loss of vision
Progressive loss of vision
Neuro-ophthalmology

- **OSCE practice- 1.15 – 3.00**

Ophth. Hx
Fundoscopy
Ophthalmic Cranial nerve examination
Visual Acuity examination

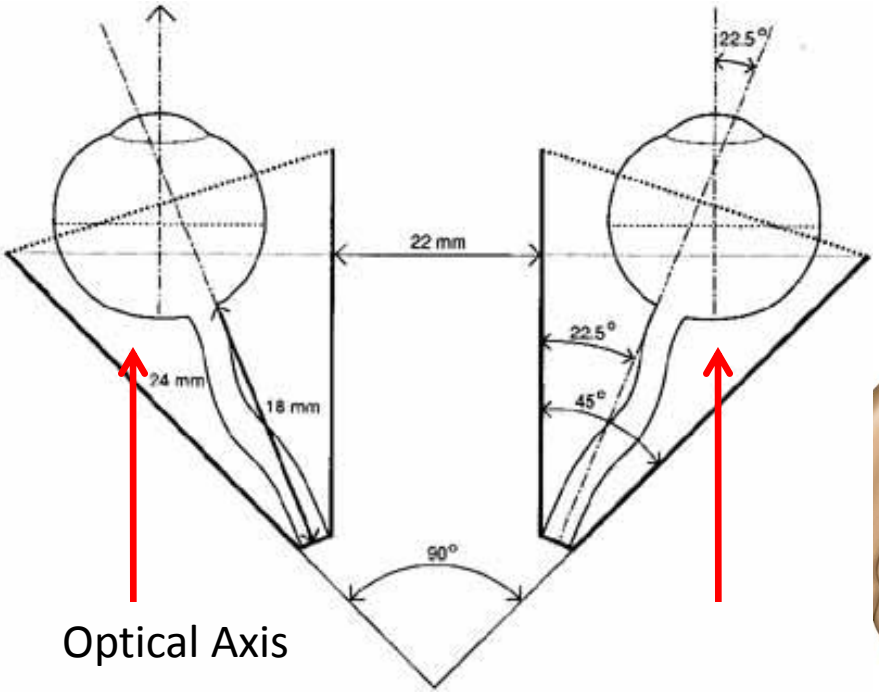
- **Short Q/A session- 3.00 – 3.15**

Visual System: Basic Anatomy

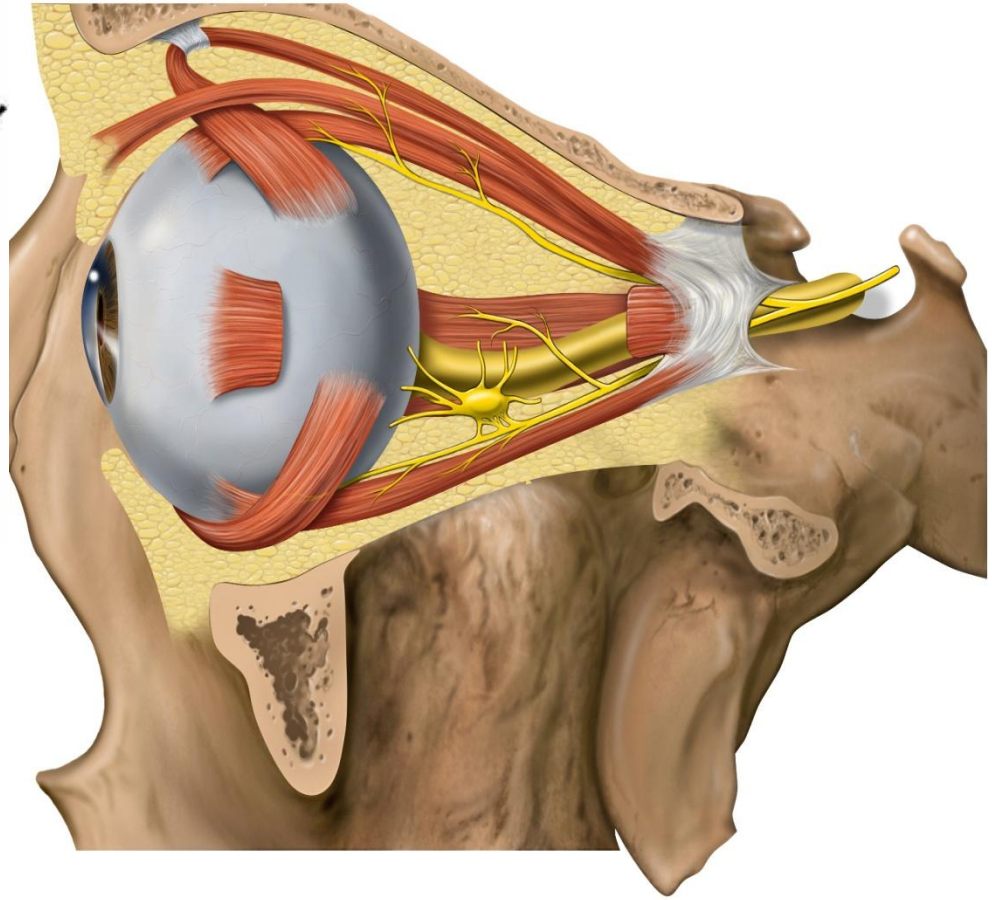
Overview

- Orbit
- Eyelids and adnexa
- Globe – anterior segment, posterior segment
- Extraocular Muscles
- Visual Pathway

Orbit



Optical Axis

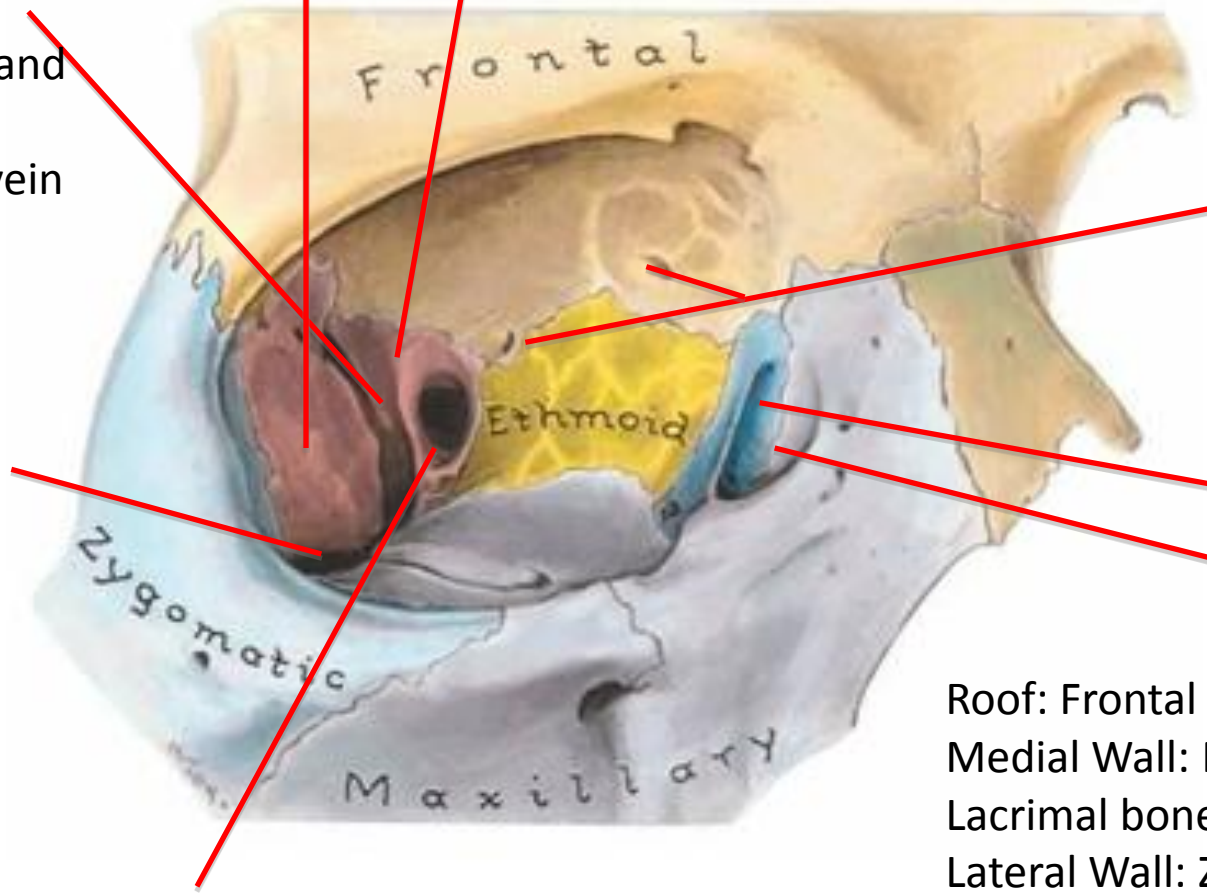


The Orbit

Greater and Lesser wings of the sphenoid

Superior Orbital Fissure

- CN 3, 4, V_1 and superior ophthalmic vein



Anterior and Posterior Ethimoidal foramina

Inferior orbital fissure

- V_2

Lacrimal Bone

Lacrimal Fossa

Optic Canal

Roof: Frontal bone
Medial Wall: Frontal bone and Lacrimal bone
Lateral Wall: Zygomatic bone
Floor: Maxillary

Eyelids

Function

Evenly spread tears

Provide nutrition to cornea

Provide Protection

Components:

1. Skin, connective tissue, and glands

2. Conjunctiva

a. bulbar

b. palpebral

3. Muscles

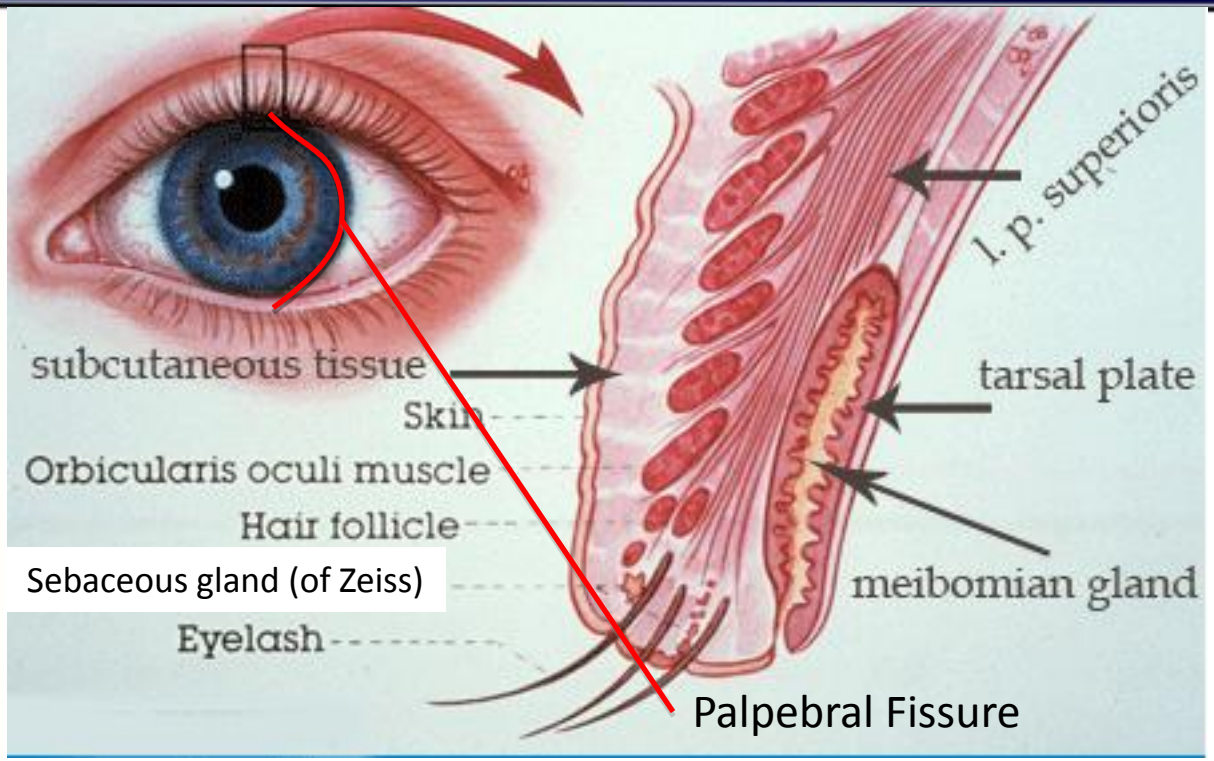
a. Levator palpebrae superioris

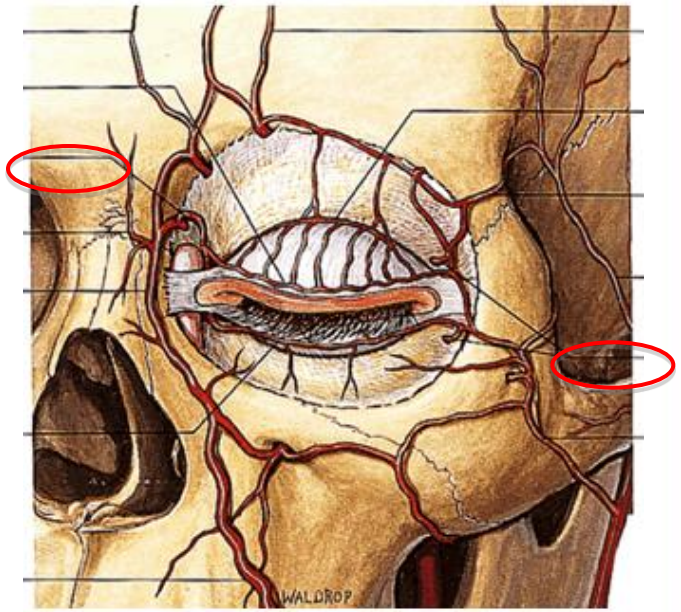
b. Orbicularis occuli

4. Tarsal plate and glands (meibum, Zeiss)

5. Cilia

Eyelids





Innervation:

MOTOR:

- CN3: Levator Palpebral Superioris
- CN7: Orbicularis Oculi

SENSORY: CN3

- V1: upper eyelid, cornea
- V2: lower eyelid

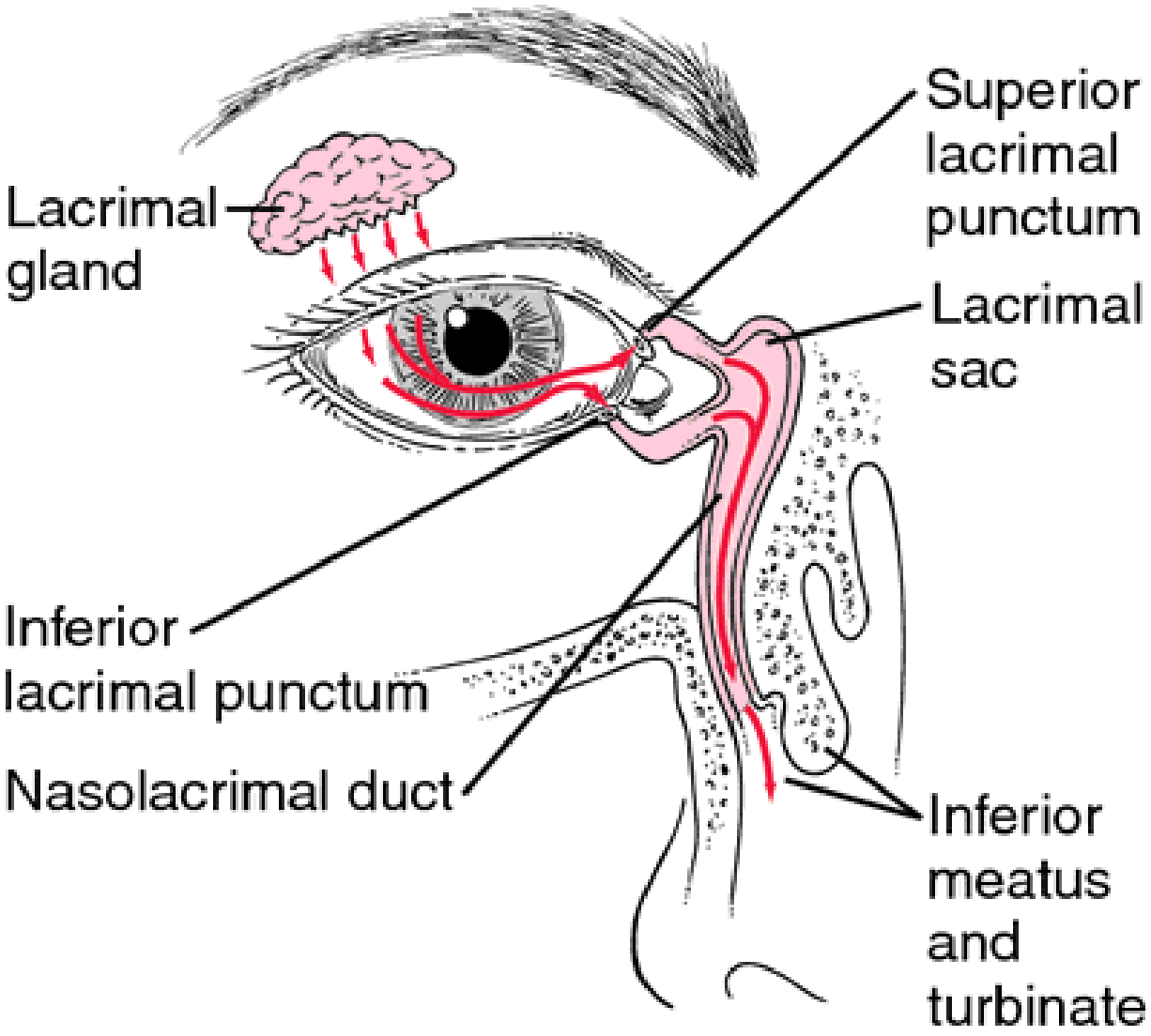
Blood supply

Medial and **Lateral Palpebral arteries**

Superficial: facial artery and transverse facial artery

Deep: Ophthalmic artery

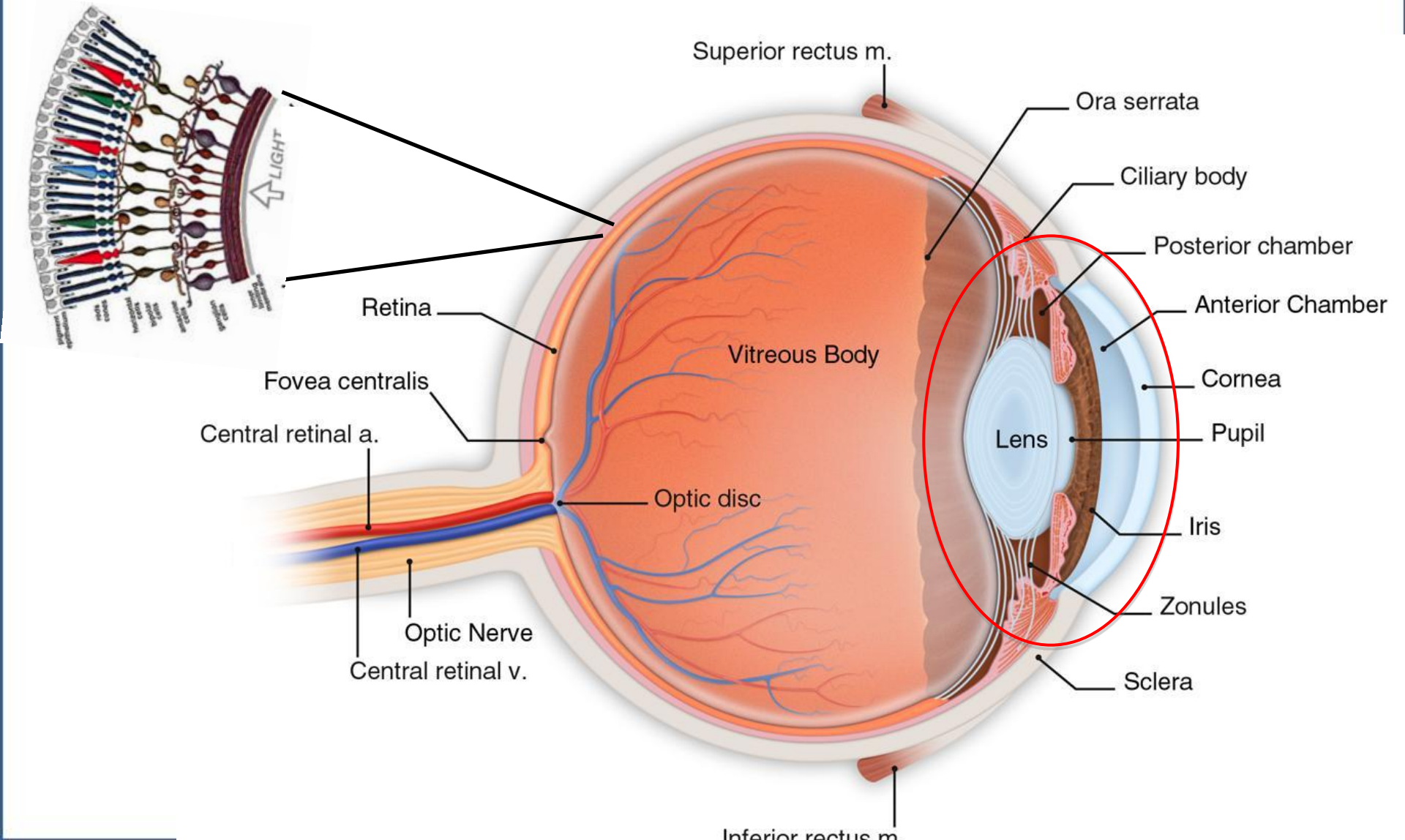
Lacrimal system



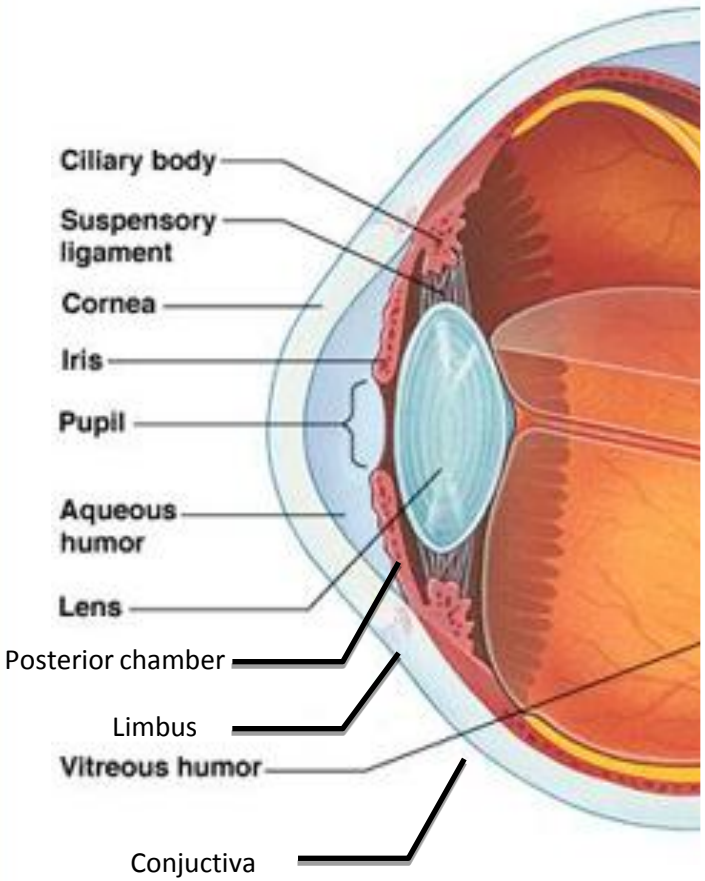
Function:
Tear production and drainage
-Tear film created by lacrimal apparatus and meibomian glands
-Lubrication
-Diffusion of oxygen and nutrition to cornea
-Antibacterial properties
-Aids debris removal

Innervation:
Lacrimal gland: **Lacrimal nerve** which is a branch of the **ophthalmic nerve**

The Globe


LIGHT
Superior rectus m.
Ora serrata
Ciliary body
Posterior chamber
Anterior Chamber
Cornea
Pupil
Iris
Zonules
Sclera
Retina
Vitreous Body
Fovea centralis
Central retinal a.
Optic disc
Optic Nerve
Central retinal v.
Lens

Anterior segment

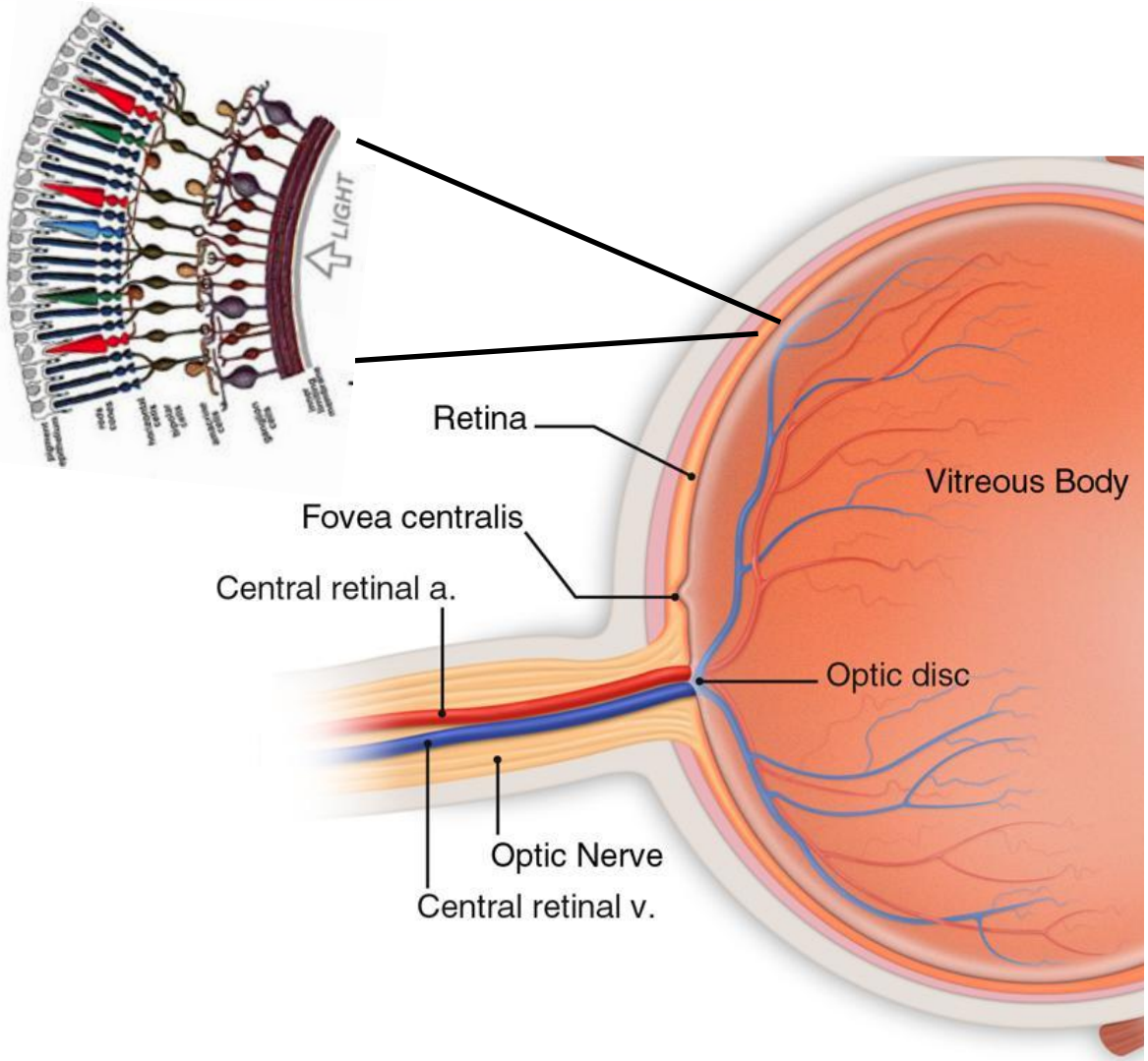


Cornea – made of multiple layers. Responsible for 60% of the refractive power of the eye. Heavily innervated.

Iris- controls light entry

Ciliary body produces **Aqueous Humour** - Has a structural role, Nourishes cornea and lens. drains from through **trabecular meshwork** to **canal of schlem.**

Posterior Segment

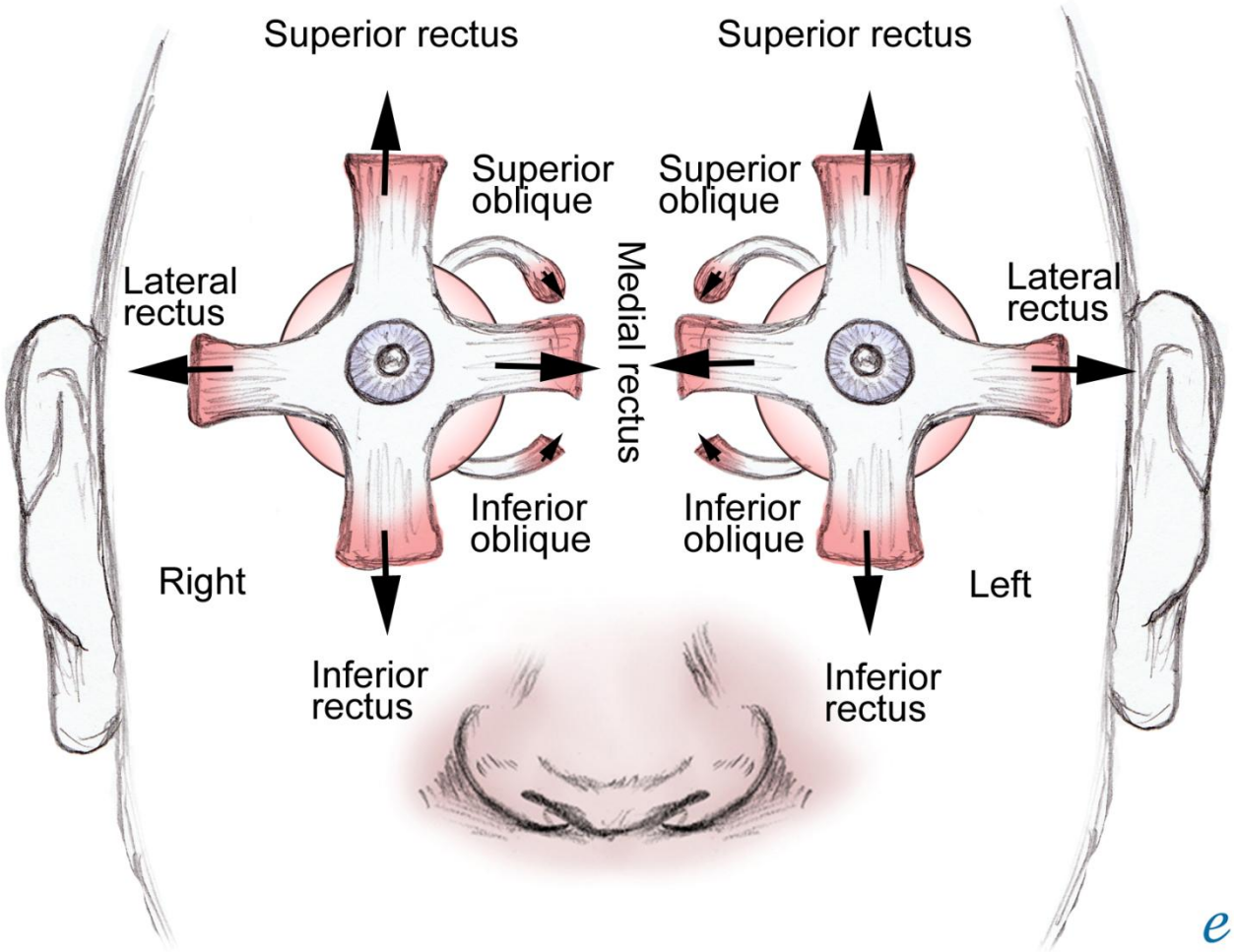


Vitreous- transparent gel providing structural support to the globe.

Retina – Captures light and transduces it into electrical activity. Sharpest image formed at the **macula.**

Photoreceptors ->Bipolar cells -> **Retinal Ganglion cells,** these cells project neurons which form the optic nerve.

Extraocular muscles



Innervation:

CN4: Superior Oblique

CN6: Lateral rectus

CN3: All the rest

Visual Pathway