

Embryology of Eye

- The various ocular structure developing from
- Surface ectoderm
- Mesoderm
- Neural ectoderm

Surface Ectoderm	Mesoderm	Neural ectoderm
Conjunctival & corneal epithelium	Corneal stroma, Descemet's Membrane & endothelium.	Retina-all layer
Eye lashesh	Iris stroma	Cilliary body
Crystalline lens	Choroid	Sphinctor & dialator pupillae
Epithelium of meibomian ,Moll's,Zeis glands.	Sclera	Nerve fibre of optic nerve.
	Extra-ocular muscle	

Anatomy of eye

- Eye is important sense organ of our body.
- Ocular & extra-ocular structure.
- - It is not true sphere but consists of segment of 2 modified sphere are in front of other.
- ◆ Dimension of an adult eyeball
- Antero-posterior diameter – 24mm
- Vertical diameter- 23 mm
- Horizontal – 23.5 mm
- Volume-6.5 ml
- Weight-7gm

- Eyeball consists of-

3 Coats/Tunics

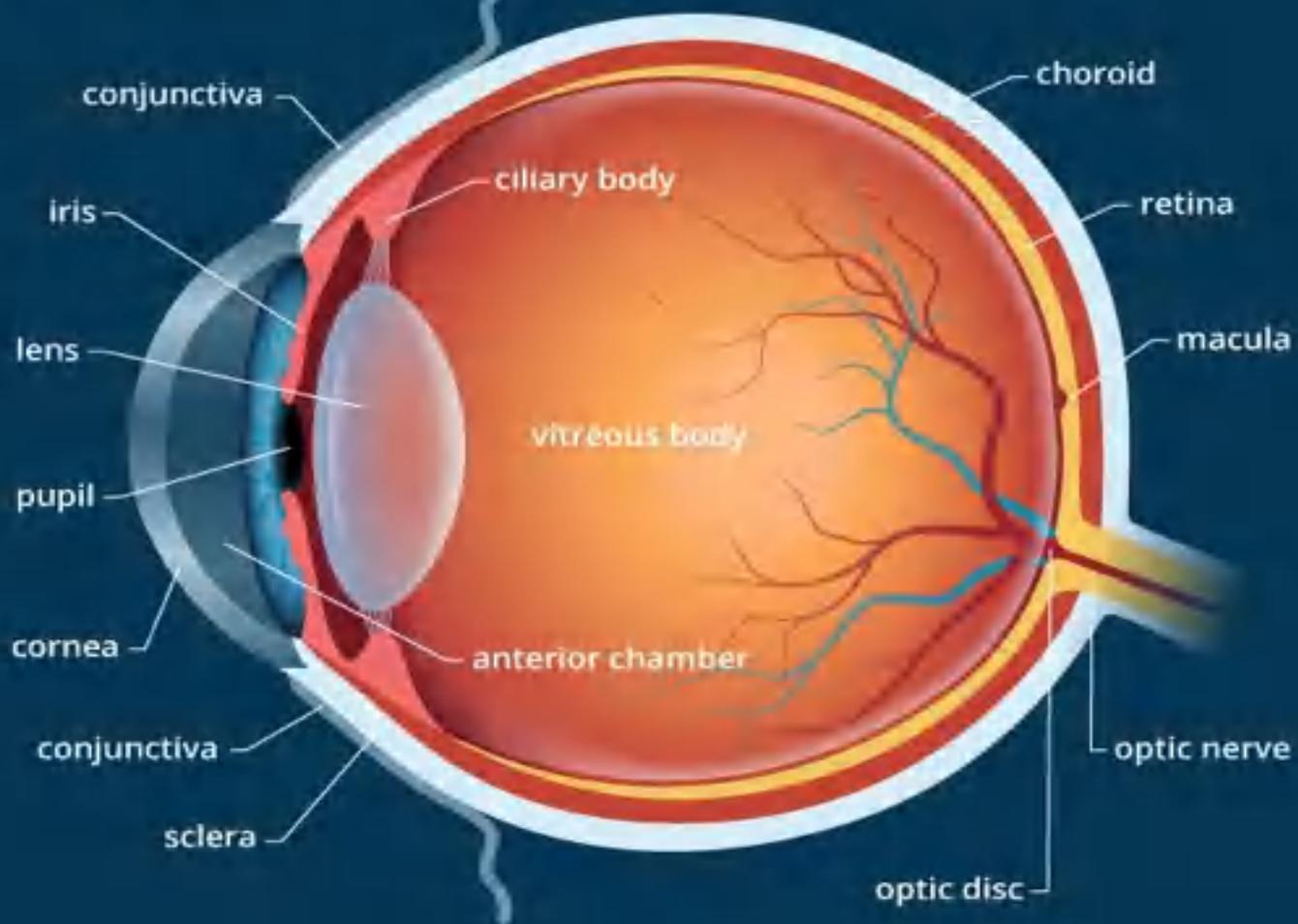
3 Chambers

Crystalline lens

Coats of Eyeball

1. Fibrous coat/ Outer-Cornea, Sclera, Limbus
2. Vascular Coat/Middle(Uvea)-
Iris, ciliary Body, Choroid
3. Neural or Nervous coat/Inner -Retina

Eye Anatomy



Cornea constitutes the anterior 1/6th of eye
Diameter -11 mm.

Thickness-0.5 mm at center ,1mm at periphery.

Refractive index-1:34

◆Layers of cornea-It consist of 5layers

1)Corneal epithelium

2)Bowman's membrane

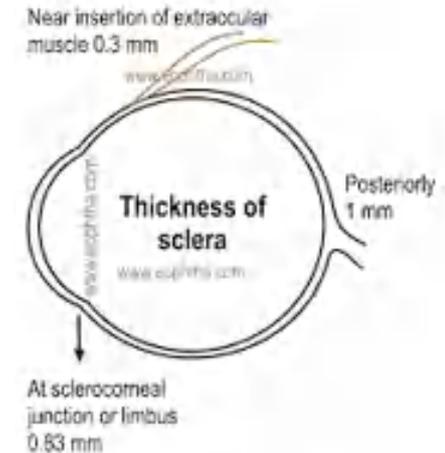
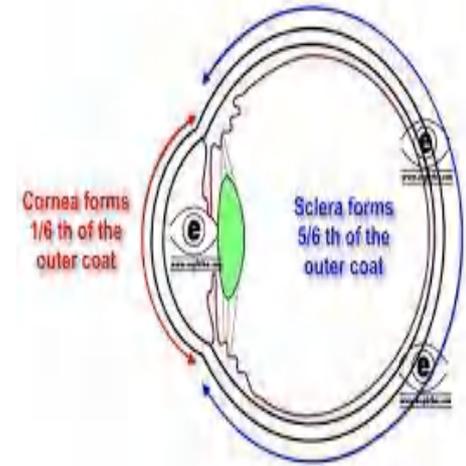
3)Substantia propria/stroma

4)Descemet's membrane

5)Corneal endothelium

Anatomy of Sclera

- Sclera forms the posterior 5/6 opaque part of
- external fibrous coat of eyeball.
- It's whole outer surface is covered by Tenon's capsule.
- In anterior part it is also covered by bulbar conjunctiva.
- Thickness-varies with age & individuals.
- It is generally thinner in children than adult and in female than males.
- At posterior pole-1mm (thickest)
- At the insertion of muscle-0.3mm (thinnest)

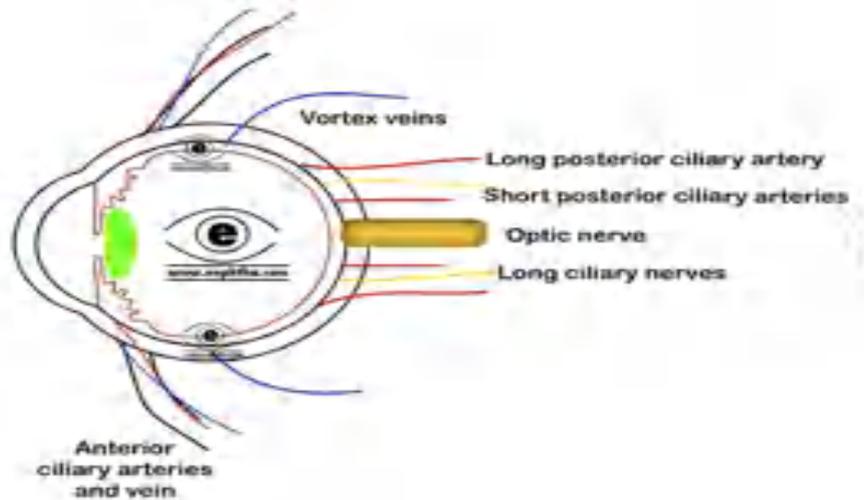


◆ Structure piercing the sclera-

I. 4 Vortex veins

II. Long & Short ciliary vessels

III. Anterior ciliary nerves & vessels



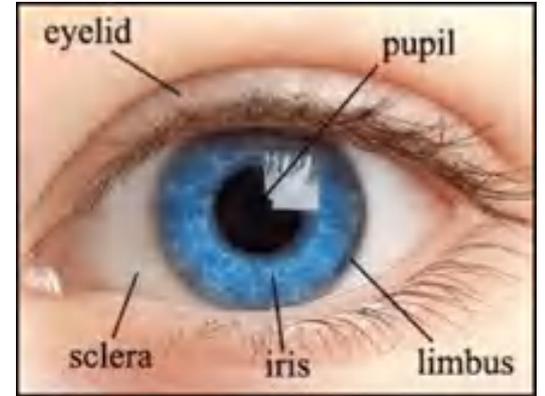
Histology-Sclera consists of following 3 layers

1. **Episcleral tissue**- It is a thin, dense, vascularised part of connective tissue which covers sclera proper.
2. **Sclera proper** -It is an avascular structure which consists of dense bundle of collagen fibres.
3. **Lamina fusca**- It is innermost part of sclera located adjacent to the choroid.

- Blood supply-
- Episcleral & choroidal vessels.
- Nerve supply-
- Branch from long ciliary nerves & short ciliary nerves.

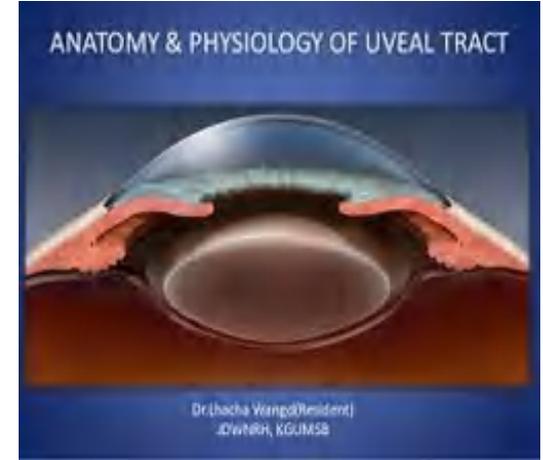
Limbus

- Transitional zone between the cornea & sclera.
- It is 1-2mm wide
- It's internal boundaries are scleral spur & schwalb's line.
- It's external boundaries are sclero-limbal junction & corneo-limbal junction.



The Uvea

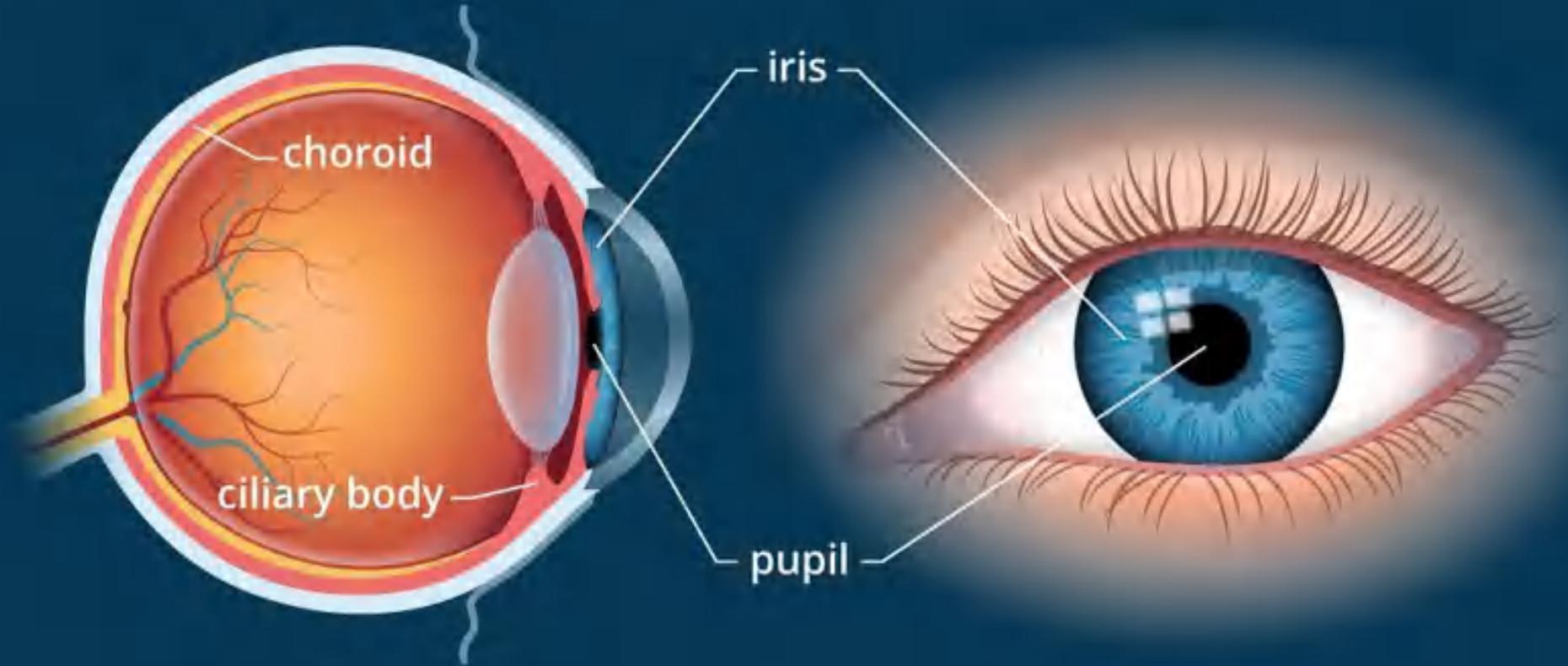
- The middle coat or uvea consists of 3 parts
 1. Anterior-Iris
 2. Intermediate- Cilliary body
 3. Posterior- Choroid.
- ◆ Function of uvea
 - Iris with it's central opening pupil,controls the ammount of light entering the eye.
 - The cilliary body secretes aq.humour, smooth muscle changes the shape of lens during accomodation.
 - Choroid provide blood supply to retina.



Iris

- Anterior most part of uveal tract.
- It is thin circular disc corresponding to the diaphragm of camera.
- In it's center is aperature of about 4mm diameter called pupil, which regulate the ammount of light reaching to retina.
- At periphery iris is attached to cilliary body.
- It divides space between the cornea & lens into A.C.& P.C.

Uvea: Iris, Ciliary Body and Choroid



Macroscopic structure

