Eye ball 1+2 | Summary -

1- Coats of the Eye ball → outer Fibrous, middle vascular, inner Neural

2- outer Fibrous coat contains → Cornea + sclera

↳ start with sclera → Composed of :- dense Fibrous + white

→ posteriorly pierced by :- optic Nerve

→ continous posteriorly with :- dura matar

→ Continuous with cornea at junction called → Limbus

3- Function of sclera → support Eye shape, prevent delicate internal structure

For Externic ms. Attachment

→ Now with cornea → transperant, contact post. with Aqueous humor

→ Blood supply → Avascular, Avoid lymphatic Drainage

→ Nerve supply → long ciliary N. From Nasociliary N. From ophthalmic

4- Function of the cornea → Refractive medium of the Eye

5- Middle vascular pigmented coat → Iris, ciliary processes, Choroid

6- Uvea → Iris, choroid, ciliary processess

→ start with Choroid :- pigmented, Brown vascular mem. deep to sclera

↳ componant :- AReolar CT, highly vascularized, pigmental & contain melanocytes

↳ Function :- Nourishment to outer part of Retina + Absorbed light

- Ciliary body :- shape → Ring, continous post. with → Choroid

and Anteriorly it lies behind the peripheral margin of → Iris

↳ contain which ms? → ciliary ms.

↳ connected to the lens by → suspensory ligaments "Zonular Fibrous"

↳ Again contain → ciliary ms + ciliary processes (secretory)

↳ Function → Epi. secrets Aqueous humor + Change lens shape by supensory ligamant

- iris :- contrictile + pigmented smooth ms. + central pupil

↳ suspended in the Aqueous humor btw → Cornea and lens

↳ Attached peripheraly to → ciliary body

↳ divided the space btw lens + cornea to post. + Ant. chamber.

↳ Chambers are filled with Aqueous humor

↳ its componant :- 2 smooth ms (sphinctre + dilator) + CT stroma (pigmented) + pupil

↳ Function :- Controls diameter of the pupil.

7- ciliary muscle → Nerve supply :- para sympathatic From Occulomotor (in ciliary ganglia) ← After synapse → leave as short ciliary Nerve

→ Action :- ① contraction to relieves tension → lens become more convex

+ ② increase refractive power of lens

8- muscles of the iris are → involuntary, consist of circular + Radiating Fibers.

9- A clear Fluid that filled Ant. + post. chambers → Aqueous humor

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10- Radiating ms - Radial Fibers - of dilator pupillae → sympathetic → long + short ciliary Nerves
↳ Action :- dilates the pupil in present of low light, Fright

11- circular ms - circular Fibers - of sphincter pupillae → parasympathetic → oculomotor → short ciliary
↳ Action :- constricts the pupil in Bright light

12 pathway of Aqueous humor production :-
produced from ciliary processes, Flow to post. chamber, Go to Ant. chamber
Reabsorbs by Canal of schlemm ← through lens

13- obstruction to the Drainage of Aqueous humor Result in ↑ IOP
(optic Neuropathy) "Glucoma" الزرق

14. The post. 5/6 of the outer Fibrous coat called → white → sclera

15. The Ant. 1/6 of the outer fibrous coat called → transparent → Cornea

16- A transparent biconvex structure situated behind the iris and in Front of the vitreous body
↳ Note: it's Focuses the light on the Retina

17- when lens become denser, less Elastic and Result in lessened the Ability to Accommodate → this Clinical condition called → presbyopia
↳ corrected by → wearing Glasses

crystallin = protein of lens

18- Denaturation of crystallins, that make the lens less transparent + impaired vision. So, the Area become opaque or cloudy → cataract

19- Nervous coat : the Retina :-

outer layer (pigmented)
- contact with Choroid
- component pigmented Epi. cells
- Function :- 1- Absorbs Externous Light
2- provides vitamine A For Photoreceptor

inner layer (Nervous)
- component :- 1- photoreceptor
2- bipolar neurons
3- Ganglion cells
4- supporting Müller cells
- Function → detecting incoming light + transmit it to Brain

20- Fundus seen by ophthalmascopic Examination.

21- Macula Lutea → For sharpest vision, Avascular, Laterally + inferior

22- optic disc → Blind spot, Vascular, medially + superior

23- Componant of the Eye ball → vetrous body, lens, Aqueous humor

24- large Gelatinous mass of transparent CT → vetrous body
↳ Fills the Eye ball
↳ Function of vetrous body → Support Post. surface of the lens

25- Narrow Channel that runs through the vetrous body → hyaloid canal

⇒ Note ① long ciliary Arteries → 2 in number / Short ciliary Arteries → (6-12) in Number
↳ ② venous Blood Flow → i by vorter vein + central vein of Retina then to superior + inferior ophthalmic vein. which Drainge into cavernous sinus.

Eye ball 1+2

26- structure piercing the sclera → posteriorly
① Long ciliary Arteries + N. ② short ciliary A + N ③ vorticose vein
④ Optic Nerve ⑤ Central Retinal A + V.

27- Choriocapillaris → is an Extensive anastomosing capillary system derived from the → Choroidal vessels

28- Choroidal Arteries Arise from Long and short → posterior ciliary A.

29- two layers of epithelium with organized CT in btw → Cornea

30- layers of the cornea → 1- External Stratified squamous Epi. non Keratinized
2- Anti Limiting mem "Bowman's" 3- thick stroma "substantia propria"
4- post. Limiting mem "Descemet's". 5- inner monolayer of Epi "endothelium"

31- thick basment mem. btw cornea and substantia propria → Bowman's mem

32- Thick basment mem. btw substantia propria and Endothelium → Descemet.

33- The bulk tissue, Multiple Lamellae of Regularly Arranged fine collagen Fibrils + in btw Are fibrocytes → Substantia propria
"Keratocyte"

34- which layers absorbs nutrients from tears + contains Free Nerve Ending and prevent Foriegn matter From Entering the Eye →
External stratified squamous non. keratinized Epi

35- Which layer Regulate fluid + solute transport btw Aqueous humor + stroma
(inner mono-layer) Endothelium

36- sclera contain which type of collagen? → Collagen type I

* Layers of Retina *

1- pigmented layer → Cuboidal OR low columnar cell surround Neural layer
2- Rod + cone layer → Contains outer segment of cone + Rod
3- outer Limiting layer → ♡
4- outer nuclear layer → contains cell body of Rod + cone cells
5- outer plexiform layer → contains cone cells + Axon of Rod + Bipolar cell dendrites
6- inner nuclear layer → contains muller cell, horizontal cell, Amacrine, Nuclei of Bipolar
7- inner plexiform layer → contains Axon of Bipolar + dendrites of ganglion cells.
8- Ganglionic layer → contains cell body of Ganglion cells.
9- Nerve fiber layer → contains Ganglionic Axon that covers the optic Nerve + optic disc.
10- inner Limiting layer → ♡

NEURAL Layer

37- Note → photosensitive Region ⇝ Generation of the Receptor potential

38- plexiform → Contains mainly Axons + dendrites

39- outer 5 layers of Retina supply by → Choroido capillaries "simple diffusion"

40- inner 5 layers of Retina supply by → Branches of Central Artery of Retina.

Peripheral Retina
41- Rod → white + Black vision / At Night / Deficiency in vit. A → Night Blindness.

42- cone → color vision / at Light / 3 types → color Blindness
central Retina
↳ Densly packed in the Fovea centralis.