جامعة المستقبل
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Anatomy of the eye

6th Lecture : Layers of eye Cornea-Sclera -Ciliary body

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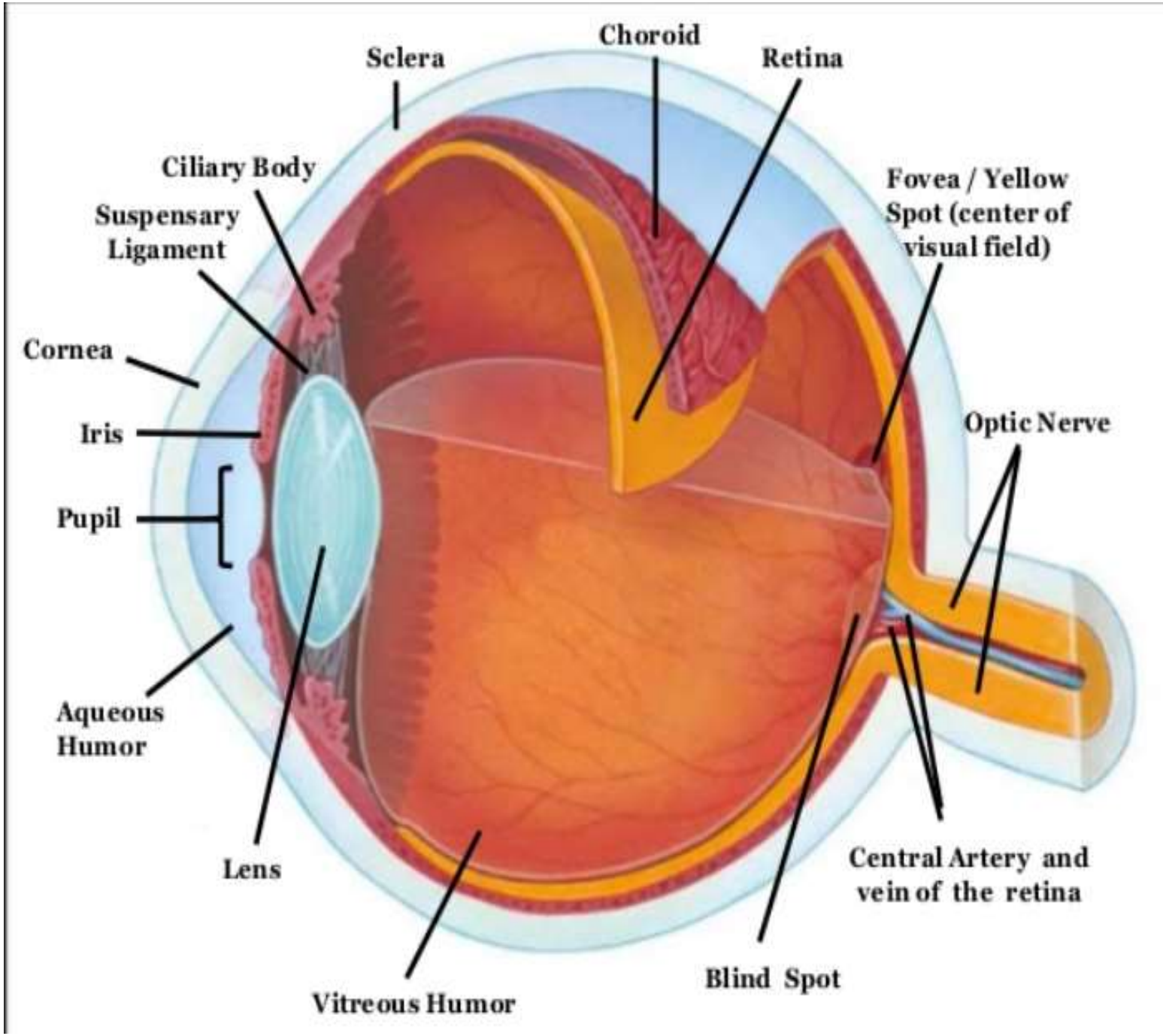
Layers of the Eye - Cornea, Sclera, and Ciliary Body which are responsible for its structure, protection, and visual function.

•The eye is a complex organ composed of several layers that work together to focus light and transmit visual information to the brain.



Cornea

•The cornea is the transparent, dome-shaped structure located at the front of the eye.

•It is the outermost layer of the eye and acts as a protective covering for the underlying structures.

•The cornea plays a vital role in focusing light onto the retina, contributing to clear vision.

1.Structure:

•The cornea consists of five distinct layers:

a. Epithelium: The outermost layer of the cornea, composed of stratified squamous epithelial cells that protect the cornea from damage and infection.

b. Bowman's Layer: A thin, acellular layer that provides structural support to the cornea.

c. Stroma: The thickest layer of the cornea, composed of collagen fibers arranged in a highly organized pattern. The stroma gives the cornea its strength and transparency.

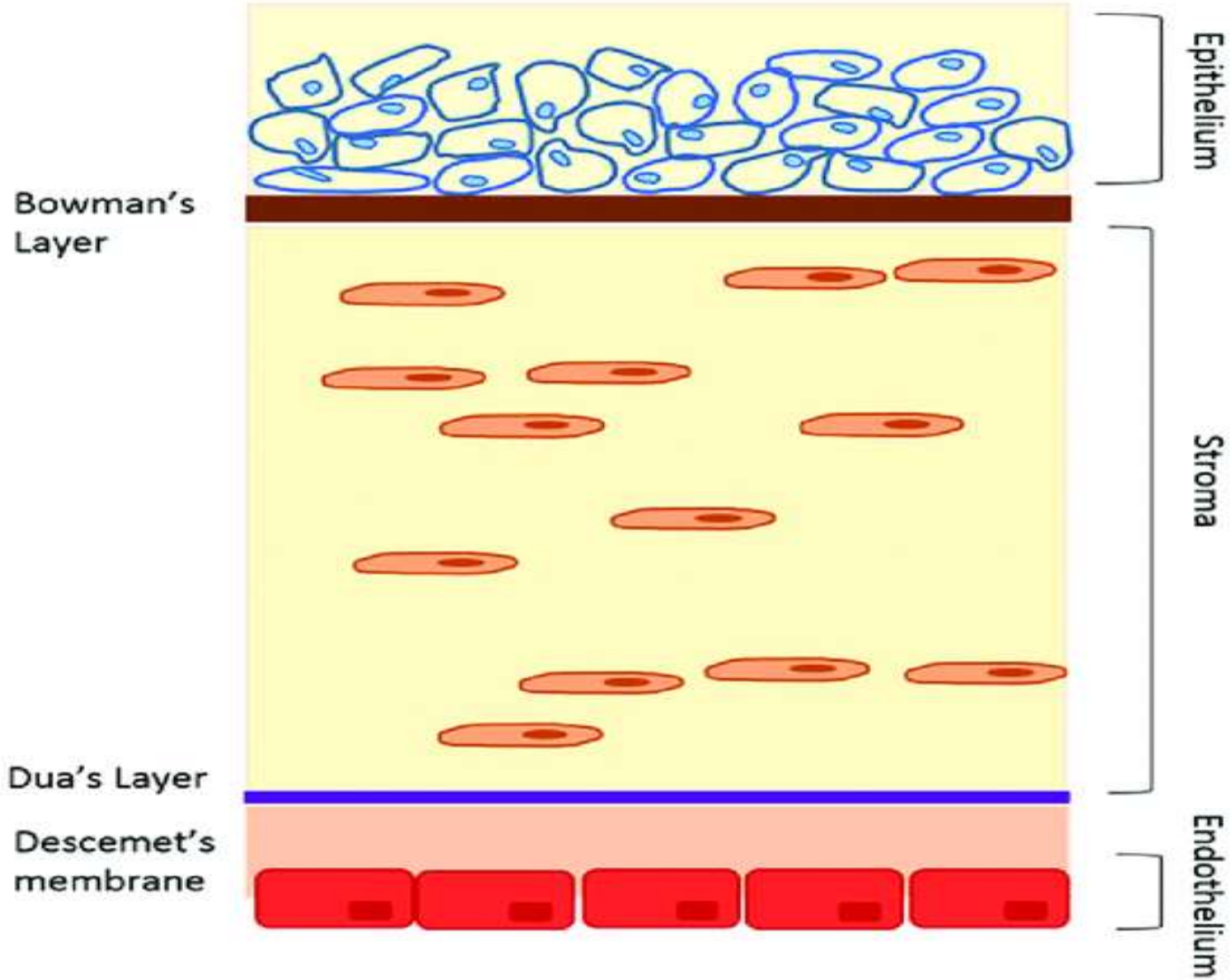
d. Descemet's Membrane: A thin layer located between the stroma and the endothelium, providing structural integrity to the cornea.

e. Endothelium: The innermost layer of the cornea, consisting of a single layer of cells that maintain the cornea's clarity by regulating fluid balance.

2.Function:

•The cornea plays a crucial role in refracting (bending) light as it enters the eye, focusing it onto the lens and ultimately onto the retina.

•It also acts as a protective barrier, shielding the delicate structures of the eye from external damage and infection.


Epithelium
Bowman's Layer
Stroma
Dua's Layer
Descemet's membrane
Endothelium

Sclera

•The sclera is the tough, white, outer layer that forms the majority of the eye's posterior segment.

•It provides structural support and protection to the internal components of the eye.

1.Structure:

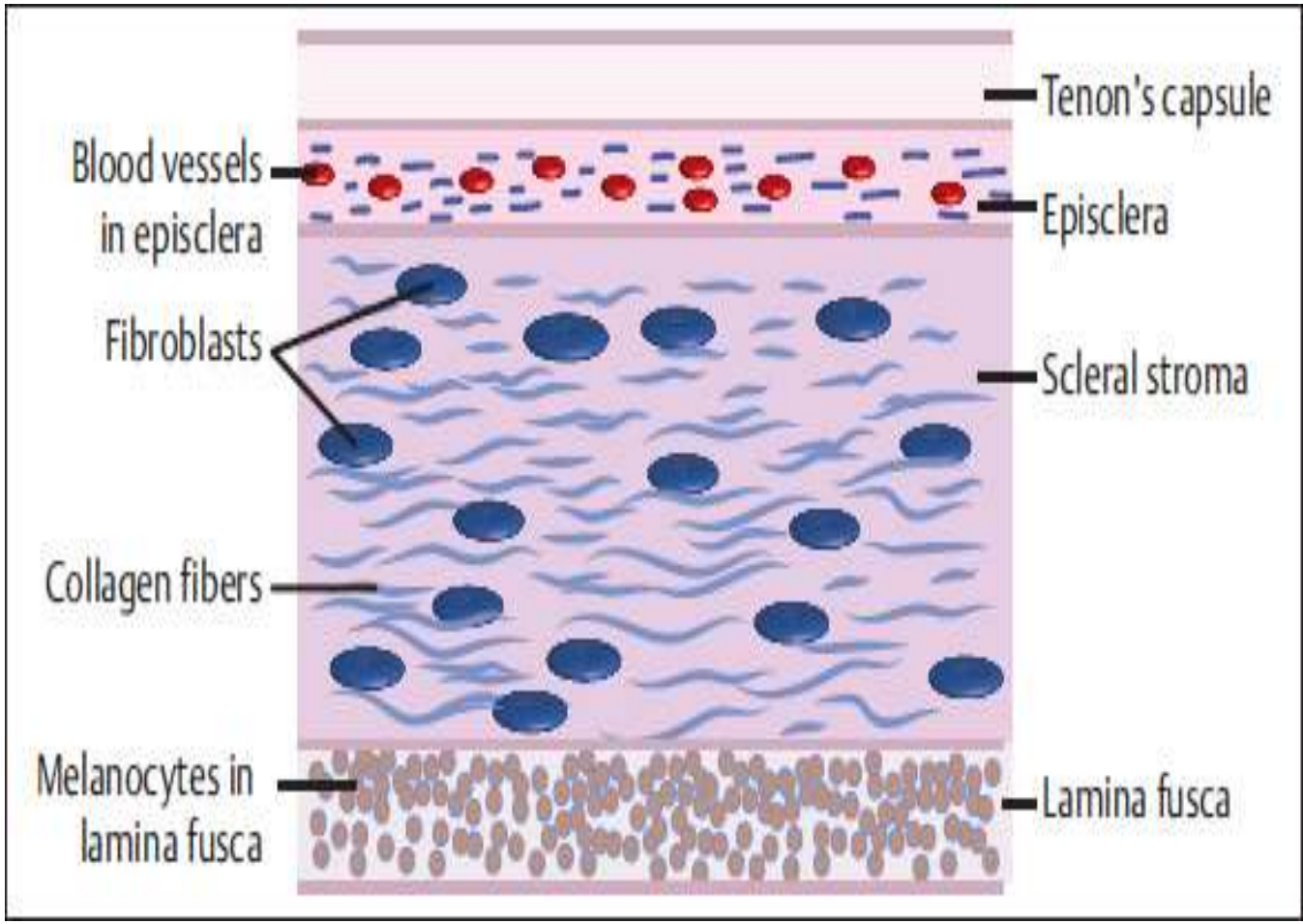
•The sclera is composed of dense connective tissue, primarily collagen fibers.

•It extends from the cornea at the front of the eye and covers the entire posterior segment, terminating at the optic nerve.

2.Function:

•The primary function of the sclera is to maintain the shape and structural integrity of the eye.

•It protects the internal structures, including the retina, choroid, and vitreous humor, from injury and external forces.



Ciliary Body

•The ciliary body is a muscular and vascular structure located behind the iris, between the cornea and the choroid.

•It plays a crucial role in accommodating the lens and regulating the production of aqueous humor.

1.Structure:

•The ciliary body consists of several components:

a. Ciliary Muscles: These smooth muscles are responsible for changing the shape of the lens during accommodation, allowing for near and far vision.

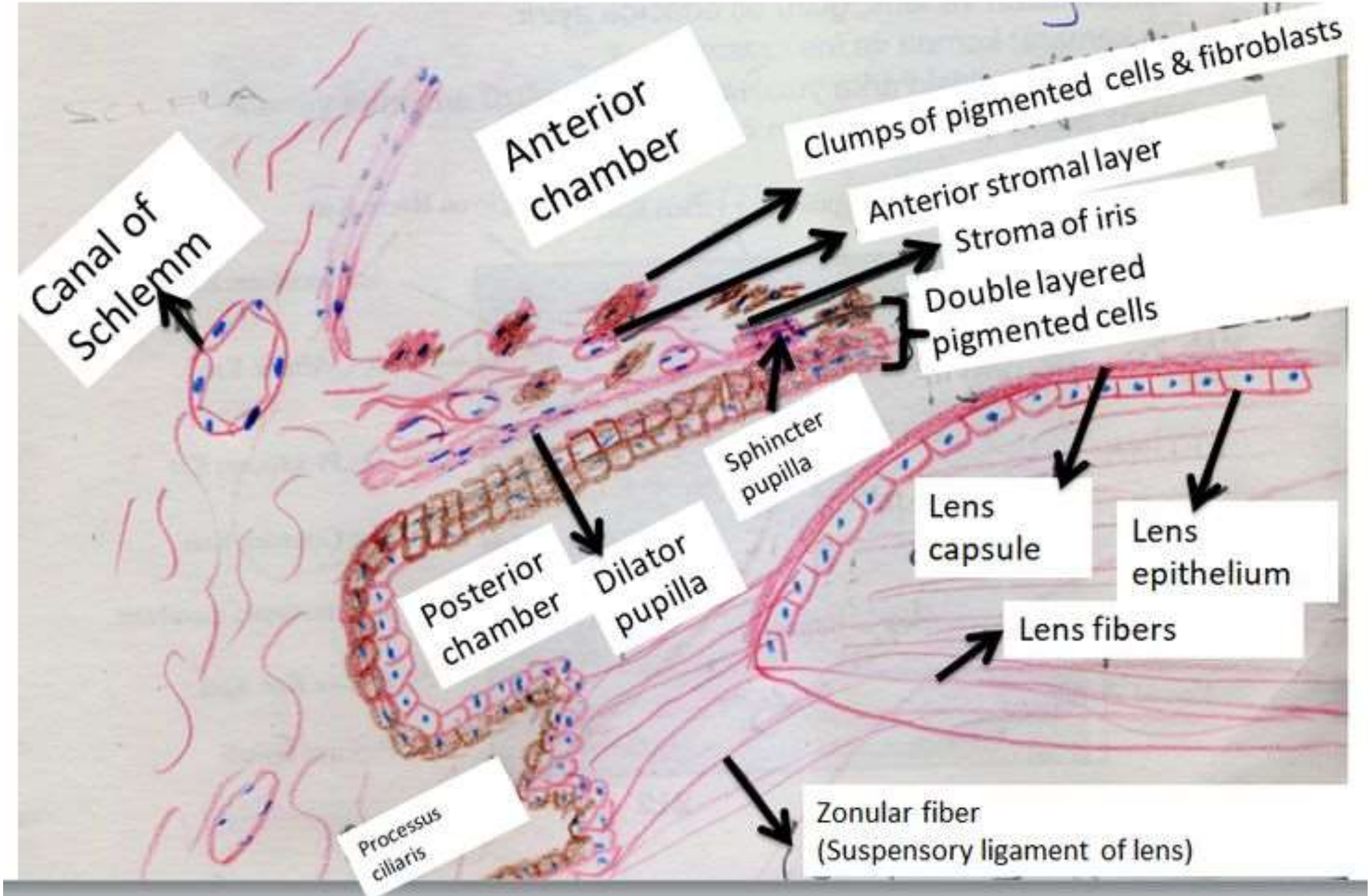
b. Ciliary Processes: These are small, finger-like projections on the inner surface of the ciliary body. They secrete aqueous humor.

c. Ciliary Epithelium: The ciliary epithelium is a double-layered structure that produces aqueous humor and helps regulate its composition.

2.Function:

•The ciliary body controls the shape of the lens, enabling the eye to focus on objects at different distances.

•It also produces aqueous humor, a clear fluid that nourishes the cornea and lens, maintaining the intraocular pressure and providing nutrients to other structures within the eye.


Canal of Schlemm
Anterior chamber
Clumps of pigmented cells & fibroblasts
Anterior stromal layer
Stroma of iris
Double layered pigmented cells
Sphincter pupilla
Posterior chamber
Dilator pupilla
Lens capsule
Lens epithelium
Lens fibers
Processus ciliaris
Zonular fiber
(Suspensory ligament of lens)

Summary

- The eye consists of several layers that work together to provide structure, protection, and visual function.
- The cornea is the transparent outer layer that focuses light onto the retina.
- The sclera is the tough, white outer layer that maintains the shape and integrity of the eye.
- The ciliary body is a muscular and vascular structure that accommodates the lens and regulates the production of aqueous humor.

THANKS SEE YOU IN NEXT LECTURE