



المرحلة الأولى ٢٠٢٣-٢٠٢٤

Anatomy of the eye

12th Lecture : **Lens -Definition of lens -Part of lens**

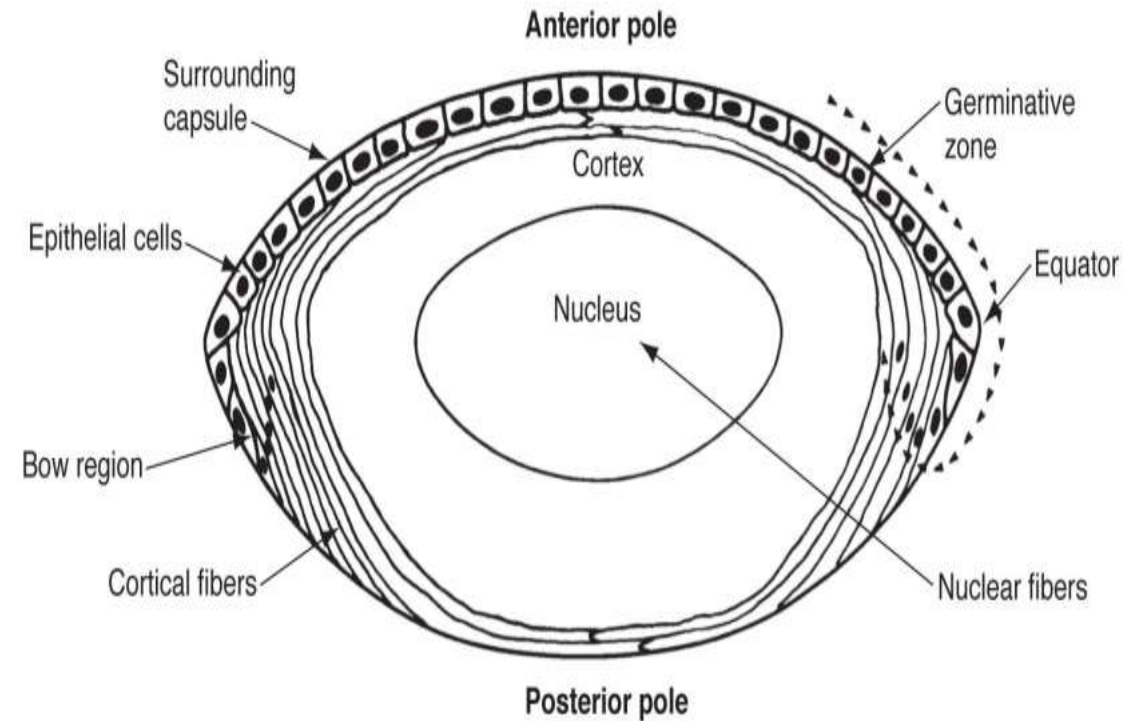
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Definition of the Lens:

The lens is a transparent, biconvex structure located behind the iris and the pupil. It is a crucial component of the eye's optical system, responsible for refracting (bending) light and focusing it onto the retina.

In the eye, the lens is a clear, curved structure at the front of the eye behind the pupil. It focuses light rays that enter the eye through the pupil, making an image on the retina (light-sensitive layers of nerve tissue at the back of the eye).

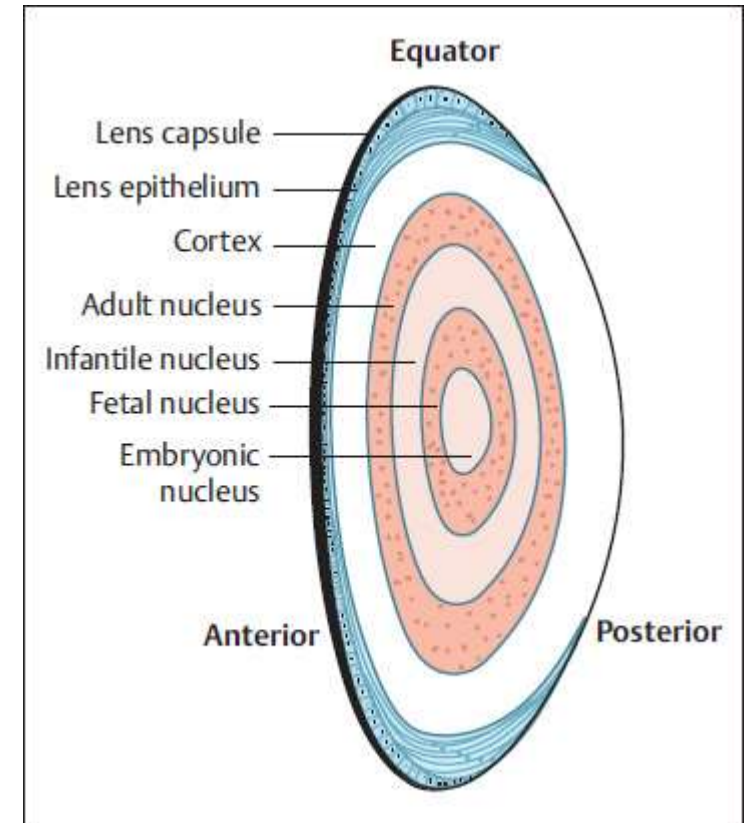


let's break down the lens into its key parts and understand their functions:

1-Lens Capsule:

- The lens capsule is a thin, elastic, and transparent membrane that surrounds the entire lens.
- It provides structural support and maintains the shape of the lens.

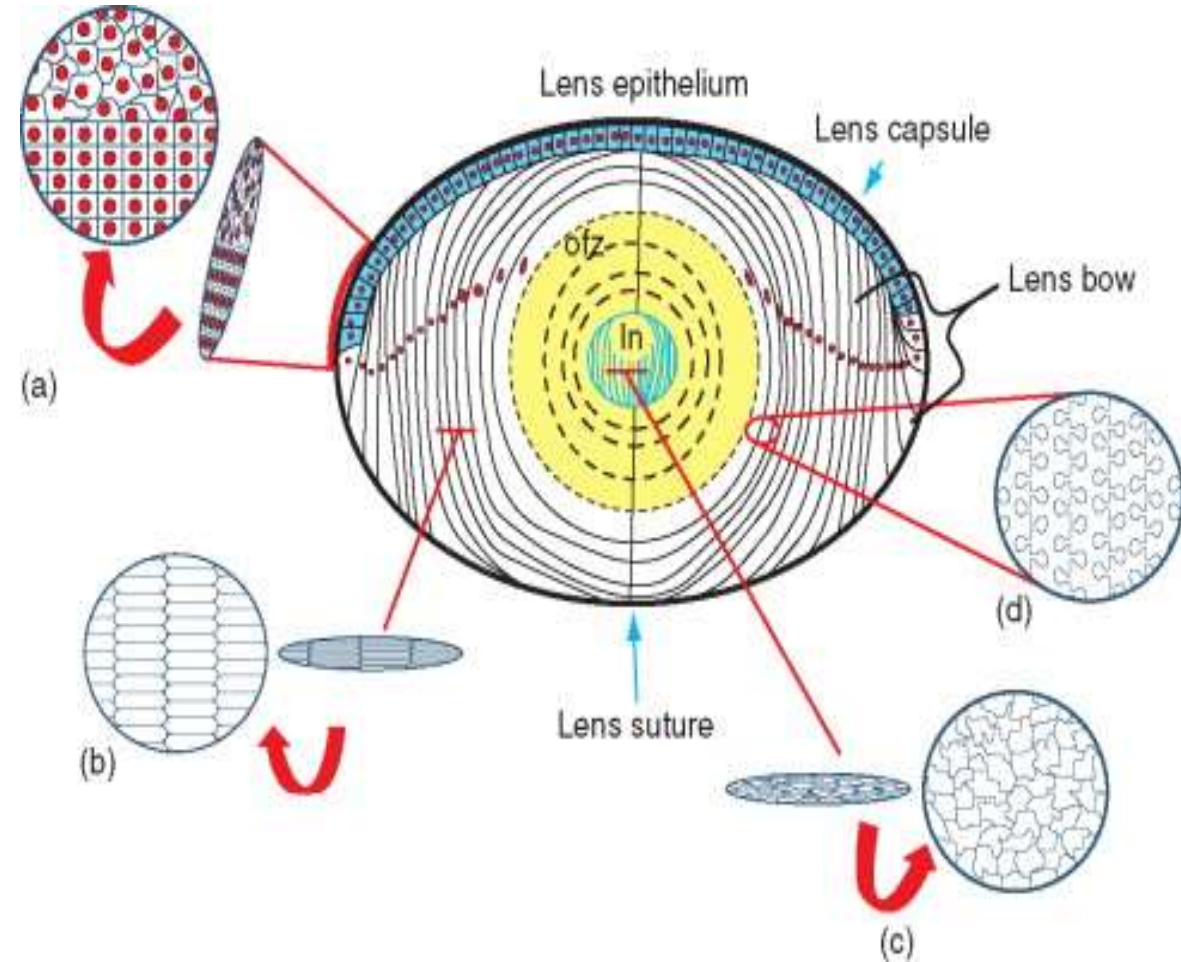
•The lens capsule provides structural support and maintains the shape of the lens, ensuring its proper positioning within the eye.



2-Lens Epithelium:

- The lens epithelium is a single layer of cells located on the anterior (front) surface of the lens.
- It is responsible for the growth and maintenance of lens fibers.

- The lens epithelium is responsible for the growth and maintenance of lens fibers, ensuring the continuous production and arrangement of new lens cells.



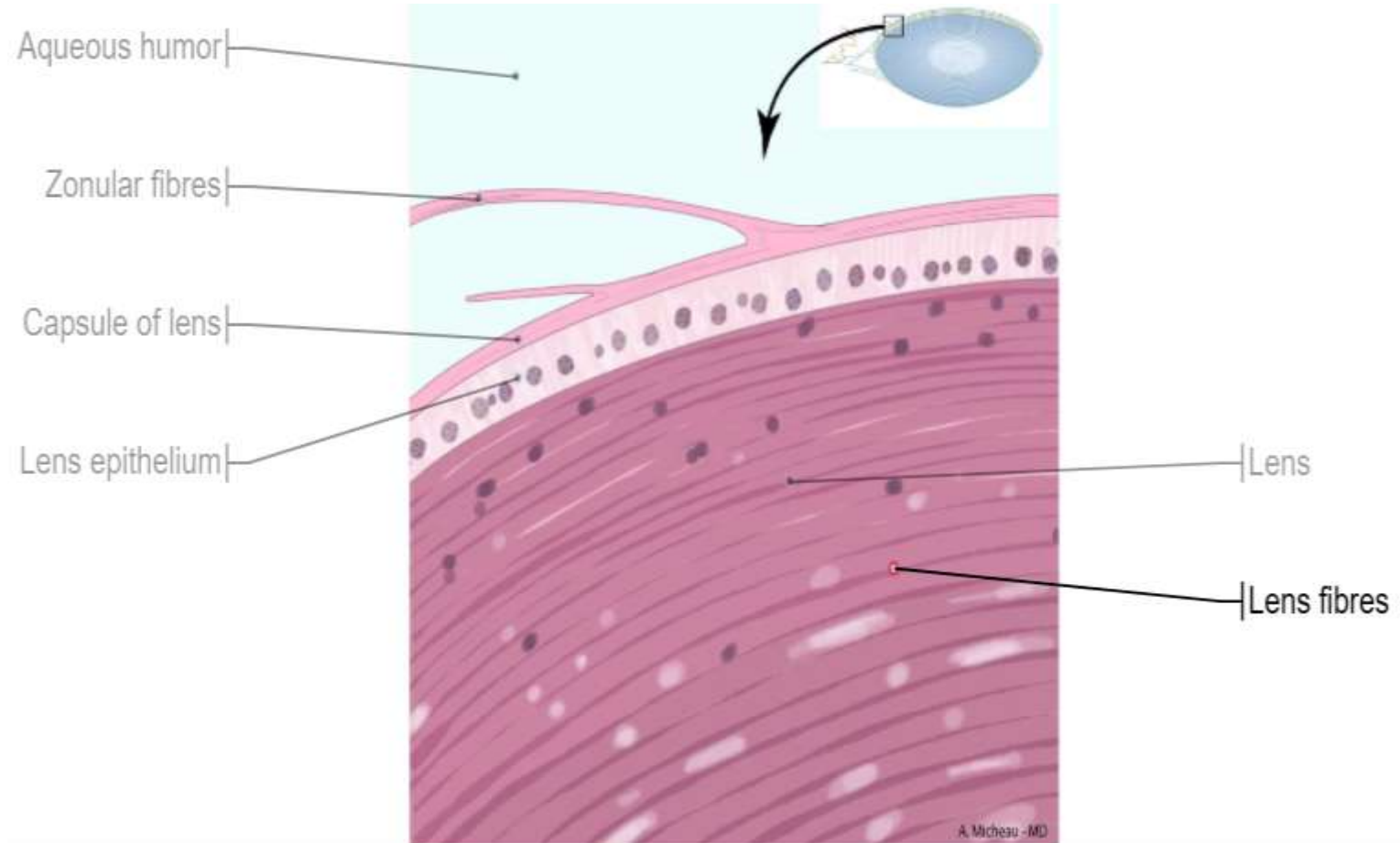
3-Lens Fibers:

The lens fibers form the bulk of the lens.

They are long, thin, transparent cells, firmly packed, with diameters typically between 4-7 micrometres and lengths of up to 12 mm long.

- Lens fibers are elongated, transparent cells that make up the bulk of the lens.
- They are tightly packed and arranged in concentric layers.
- These fibers lack organelles, allowing them to be optically clear.

• Lens fibers play a crucial role in focusing light onto the retina. Their unique arrangement and optical clarity allow them to bend and refract light, contributing to clear vision.

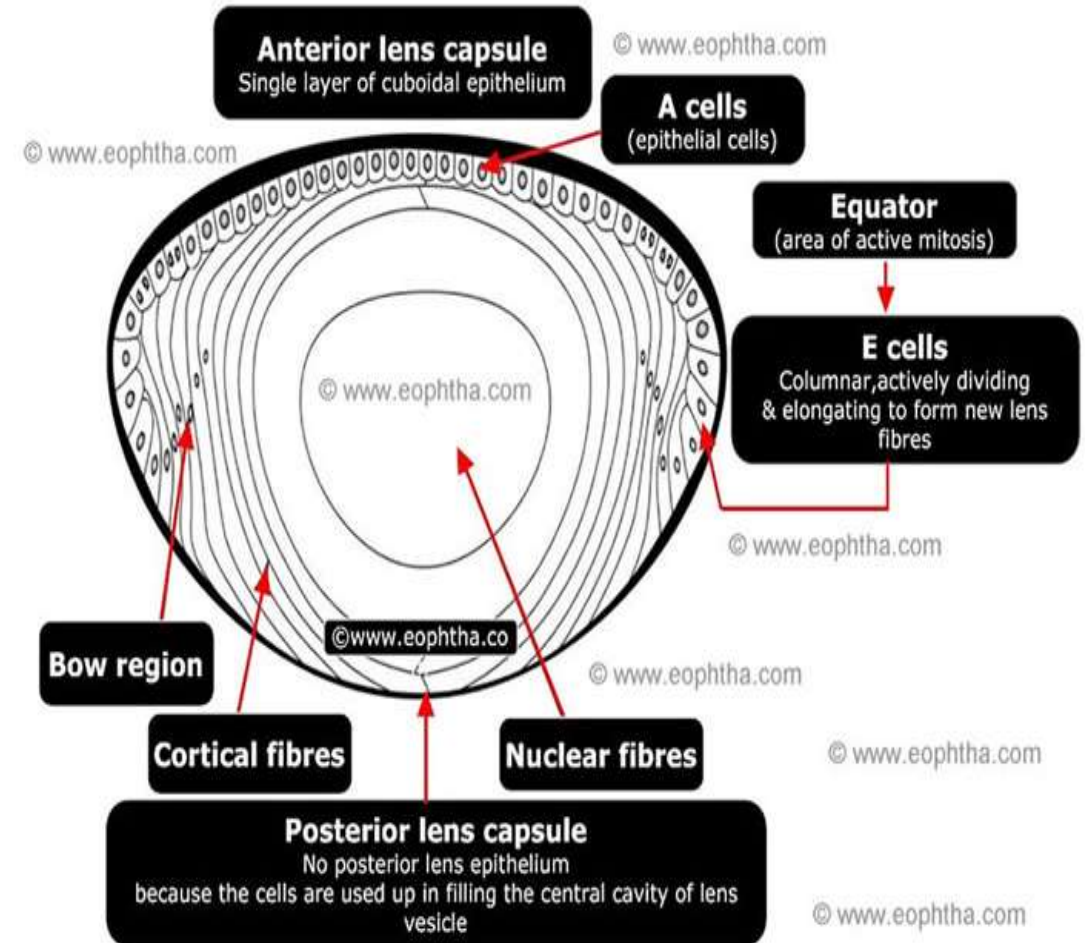


4-Lens Nucleus:

The lens nucleus is the central region of the lens, composed of older lens fibers.

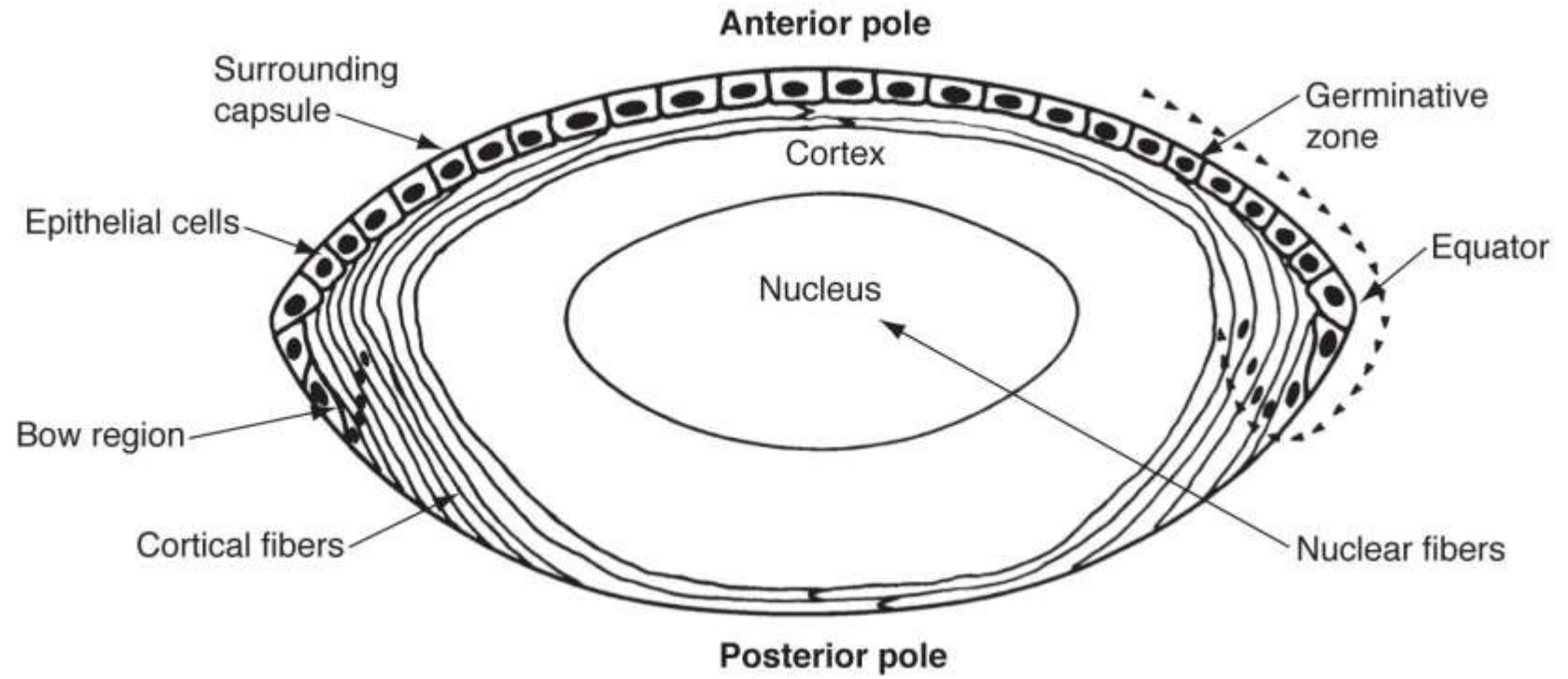
It becomes denser and more compact with age.

- The lens nucleus and cortex together contribute to the overall shape and refractive power of the lens. The nucleus, being denser, helps to refract light more effectively.



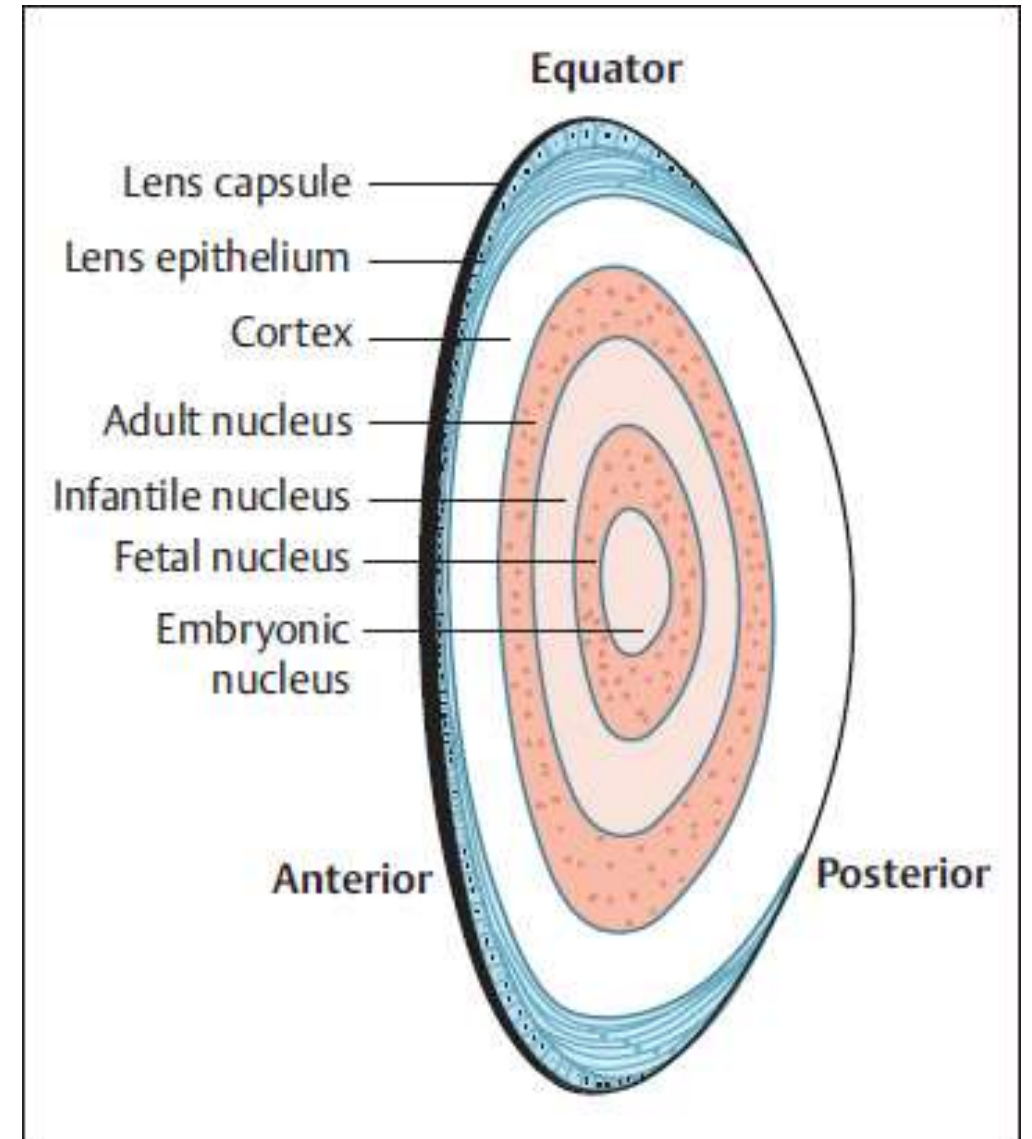
5-Lens Cortex:

- The lens cortex surrounds the nucleus and consists of younger lens fibers.
- These fibers are actively growing and adding to the overall size of the lens.



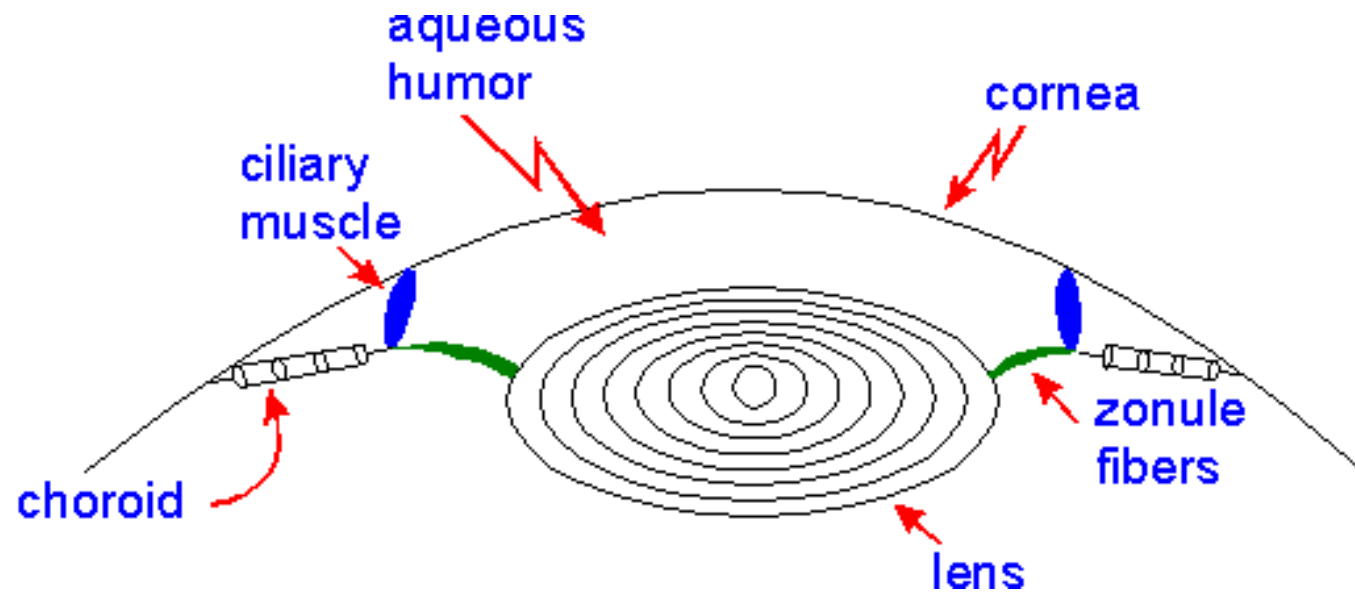
6-Lens Equator:

- The lens equator refers to the region where the anterior and posterior surfaces of the lens meet.
 - It marks the boundary between the lens cortex and nucleus.
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- The lens equator marks the transition between the growing cortex and the older nucleus. It is an important region for lens cell proliferation and fiber development.



7-Lens Zonules:

- The lens zonules, also known as suspensory ligaments, are delicate fibers that attach the lens to the ciliary body.
 - They hold the lens in place and exert tension on the lens, enabling changes in its shape during accommodation.
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- The lens zonules or suspensory ligaments connect the lens to the ciliary body, enabling the lens to change its shape during accommodation for near and distant vision.



The lens capsule, epithelium, fibers, nucleus, cortex, equator, and zonules all work together to ensure clear vision and the ability to adjust focus. Understanding the anatomy and functions of the lens is crucial for comprehending the mechanisms involved in vision and eye health.

**THANKS SEE YOU IN NEXT
LECTURE**