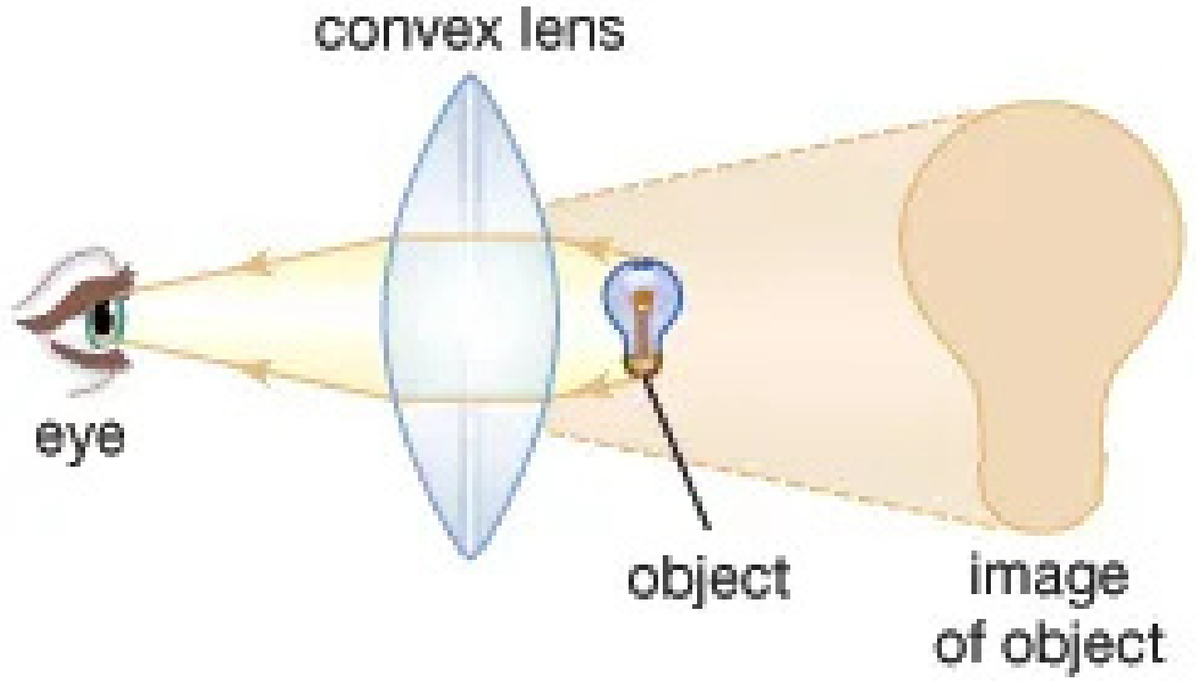
LECTURE #7 (4/11/2024)

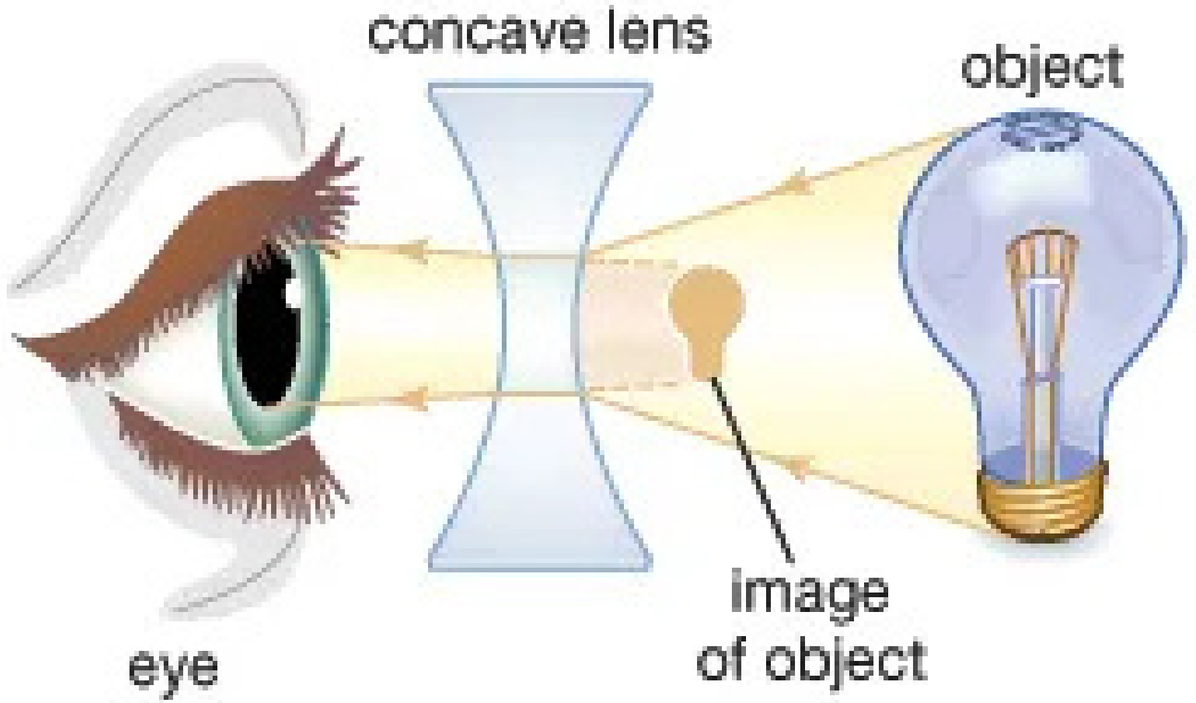
STRUCTURE AND FUNCTION OF EYE

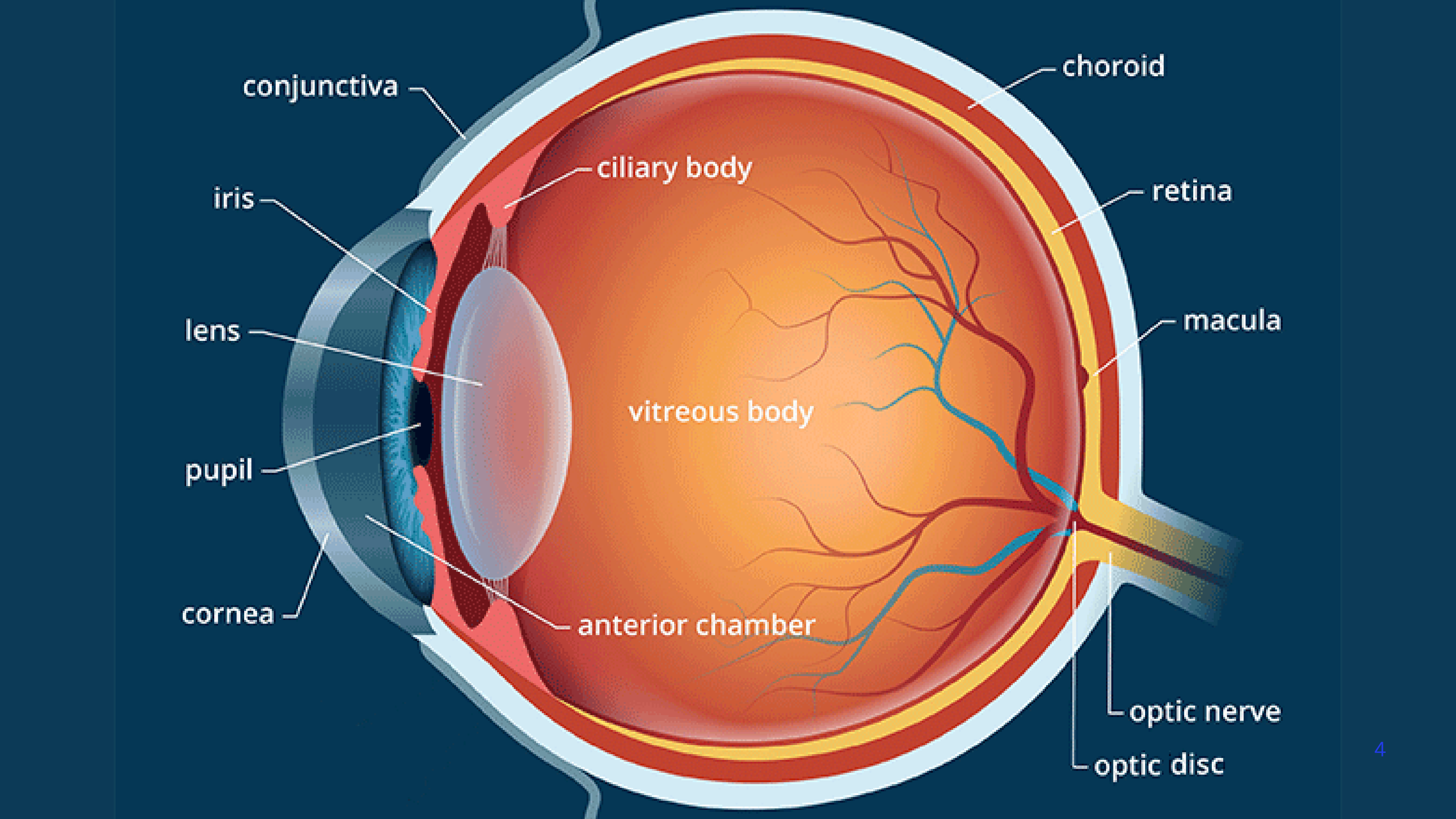
BS MLT-II

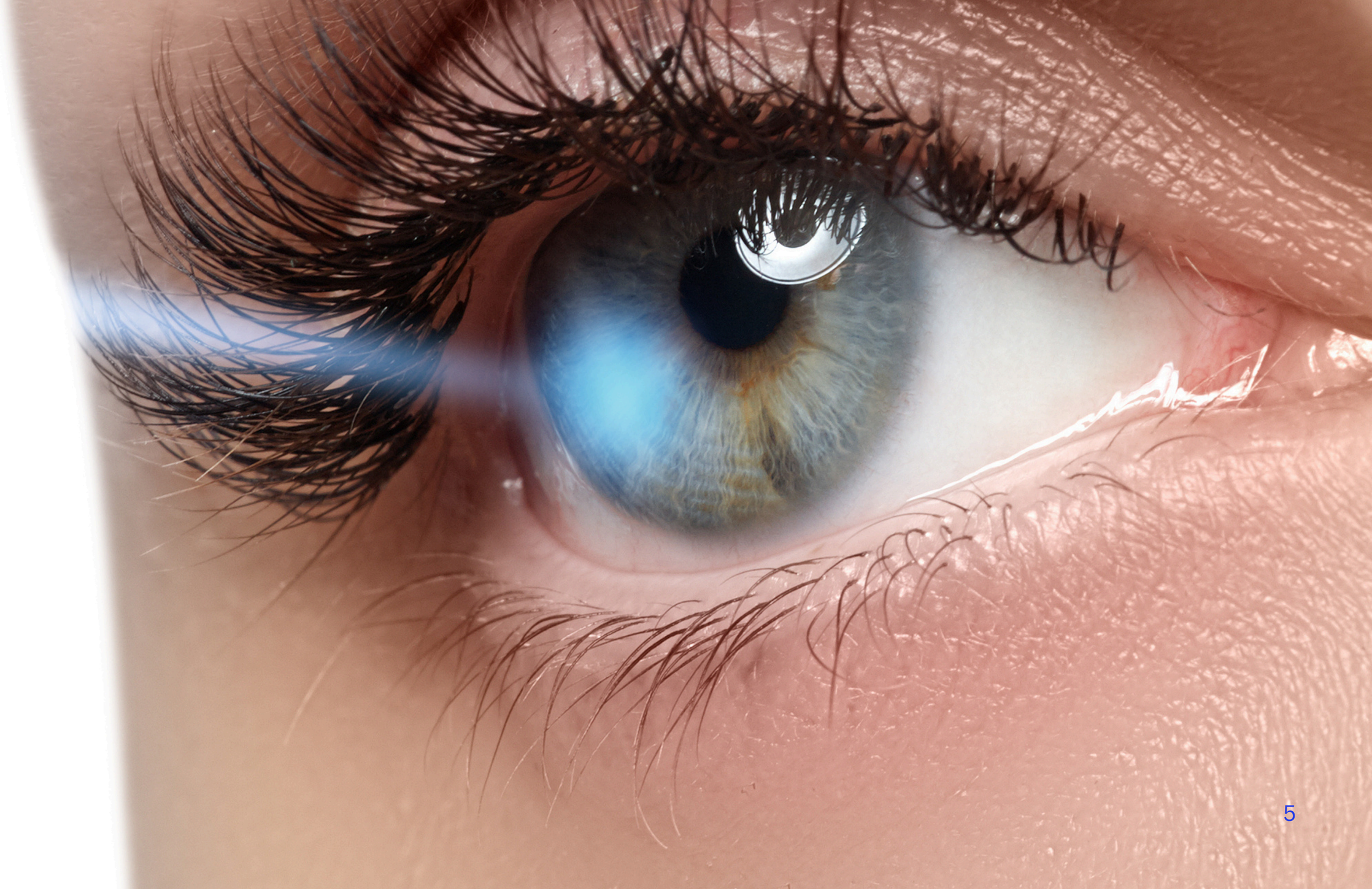
H/DR. AYESHA RAUF

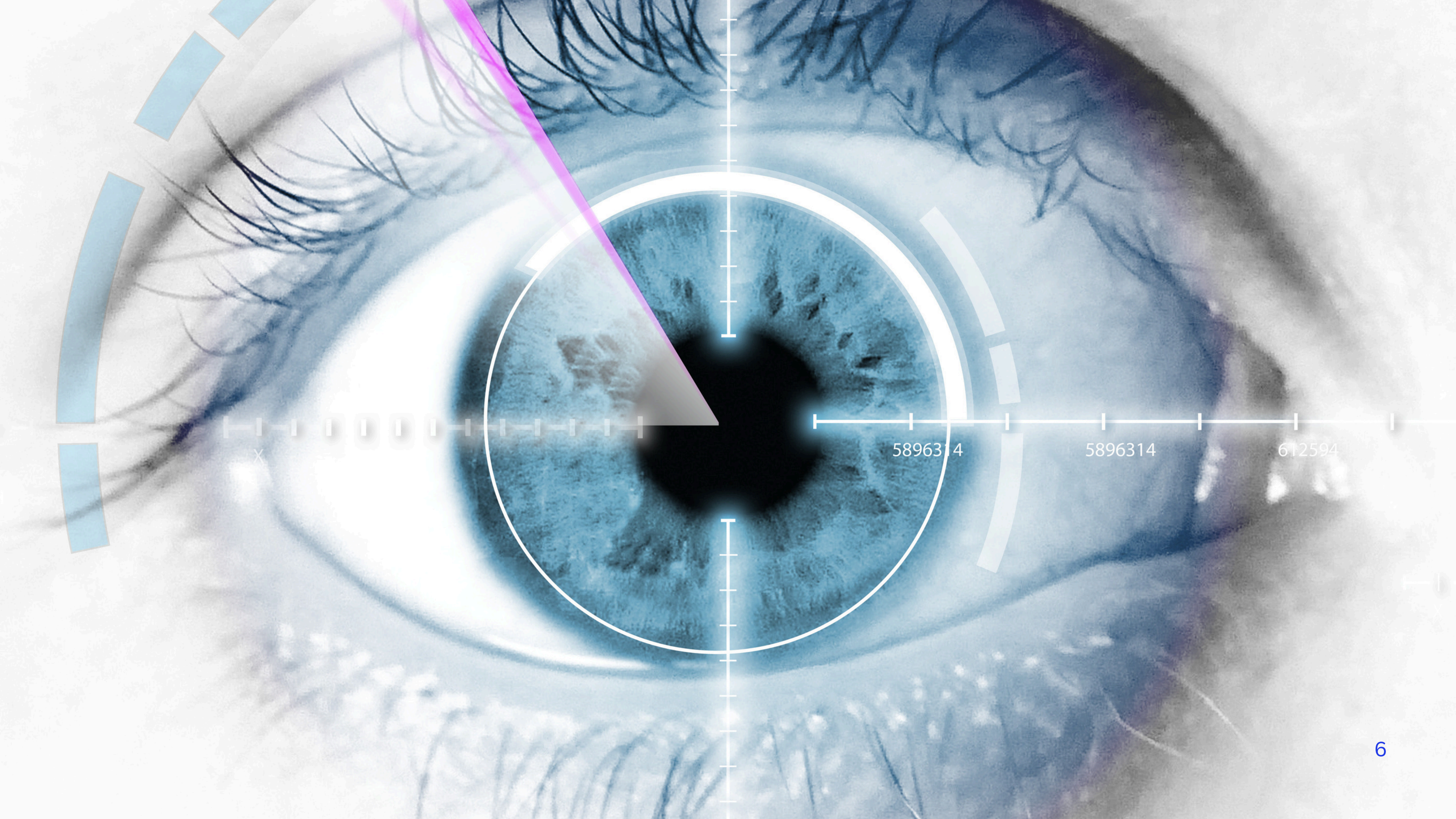
www.medmedals.com/bs-mlt-2


convex lens
eye
object
image
of object


concave lens
object
eye
image
of object


conjunctiva
iris
lens
pupil
cornea
ciliary body
vitreous body
anterior chamber
choroid
retina
macula
optic nerve
optic disc




X
5896314
5896314
612594

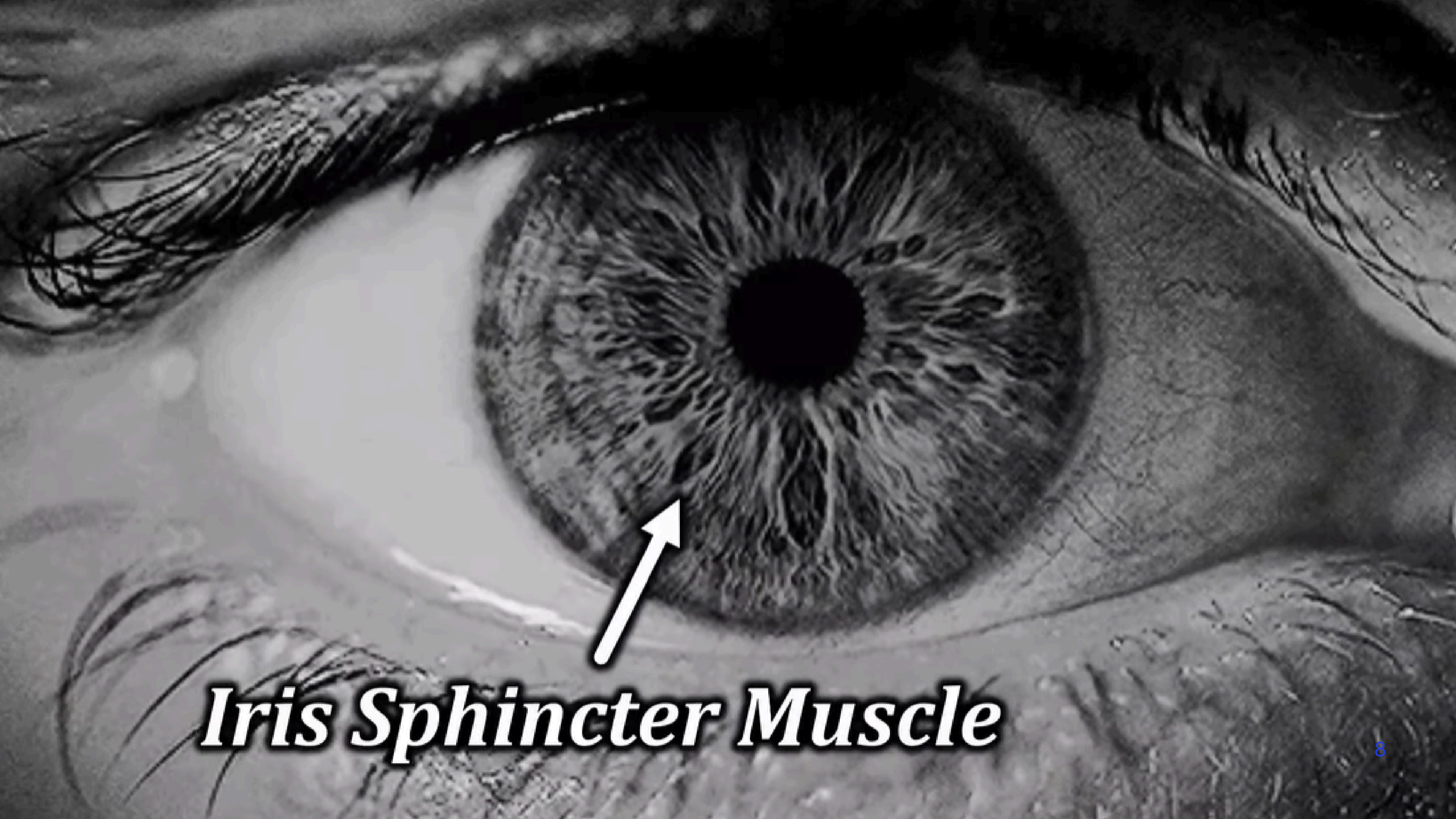
LAYERS OF EYE

The human eyes are located in the skull's bony sockets, called the orbits, in the upper face region:

The eyes are surrounded by the **eyelids, which are divided into upper and lower eyelids.** The eyebrows are located in the skin directly above the orbits.

The eye is a s**pherical organ** that contains the structures responsible for vision. The **eyeball is made up of three layers:**

- **Fibrous layer:** The sclera and cornea make up this layer. The sclera is the opaque layer that surrounds the back five-sixths of the eyeball. The cornea is the transparent layer that occupies the front one-sixth of the eyeball.
- **Vascular layer:** Also known as the uvea, this layer is made up of the choroid, ciliary body, and iris.
- **Nervous layer:** Also known as the retina, this is the innermost layer of the eyeball.


Iris Sphincter Muscle

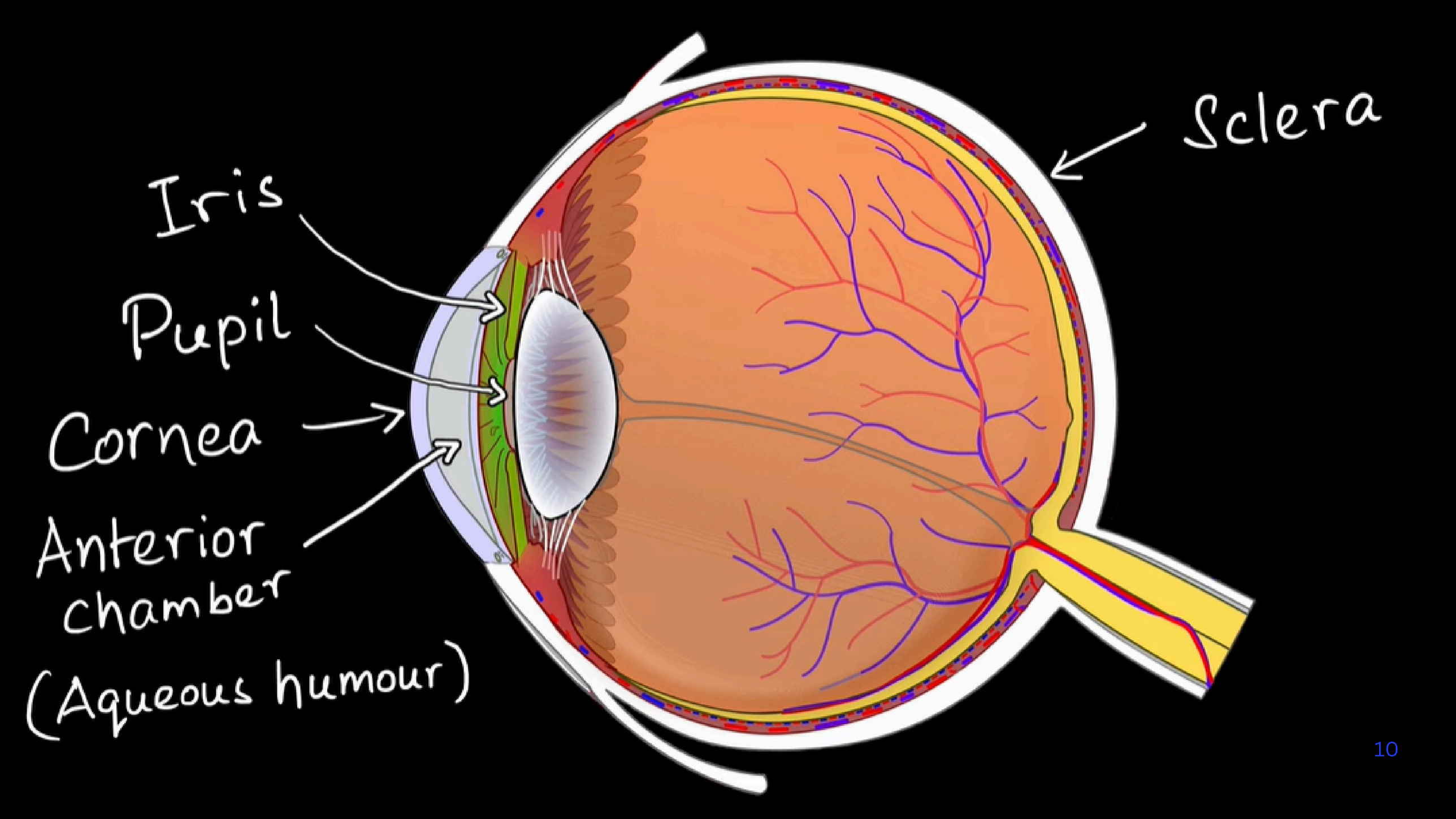
LECTURE #7 (5/11/2024)

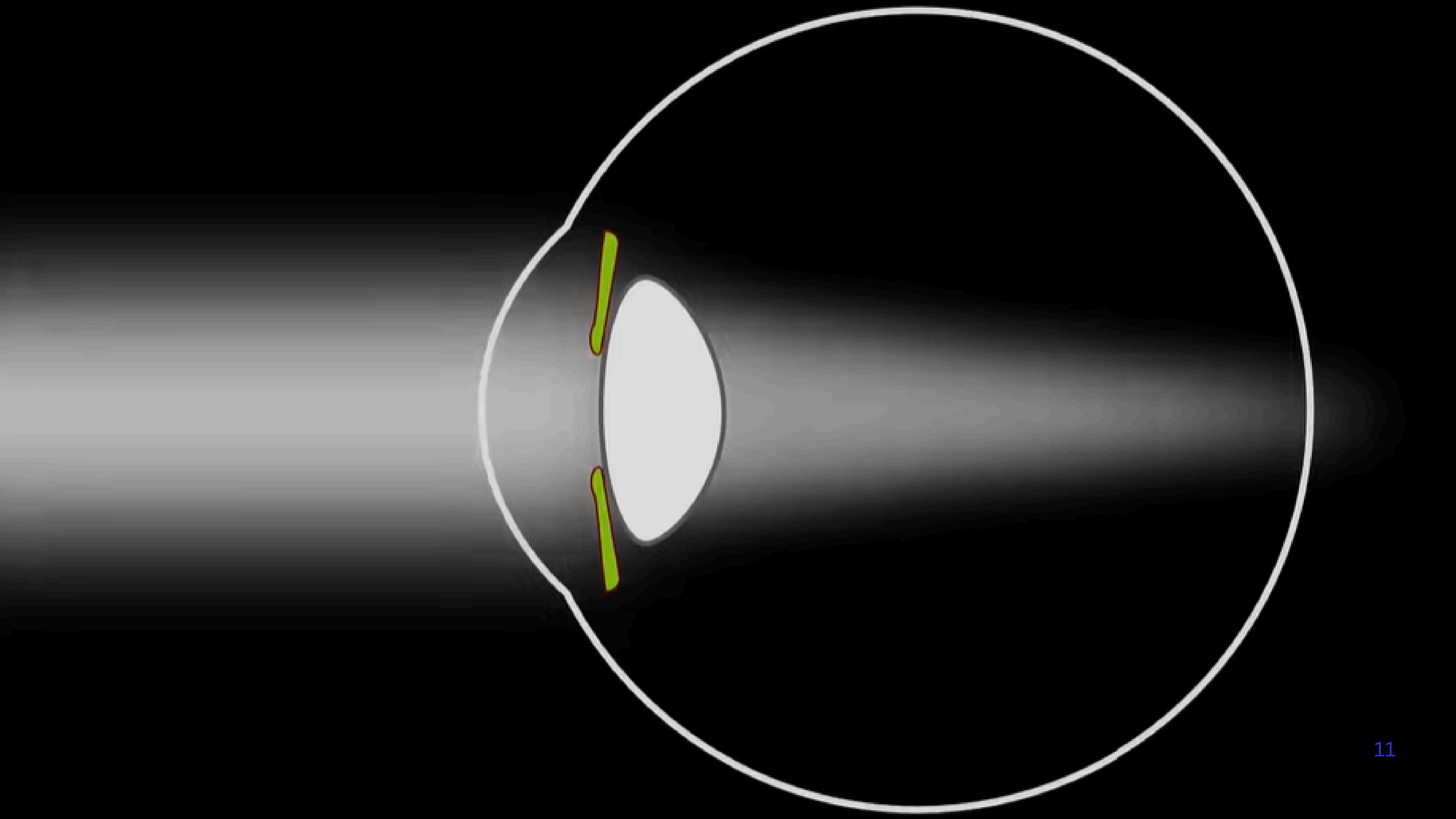
STRUCTURE AND FUNCTION OF EYE

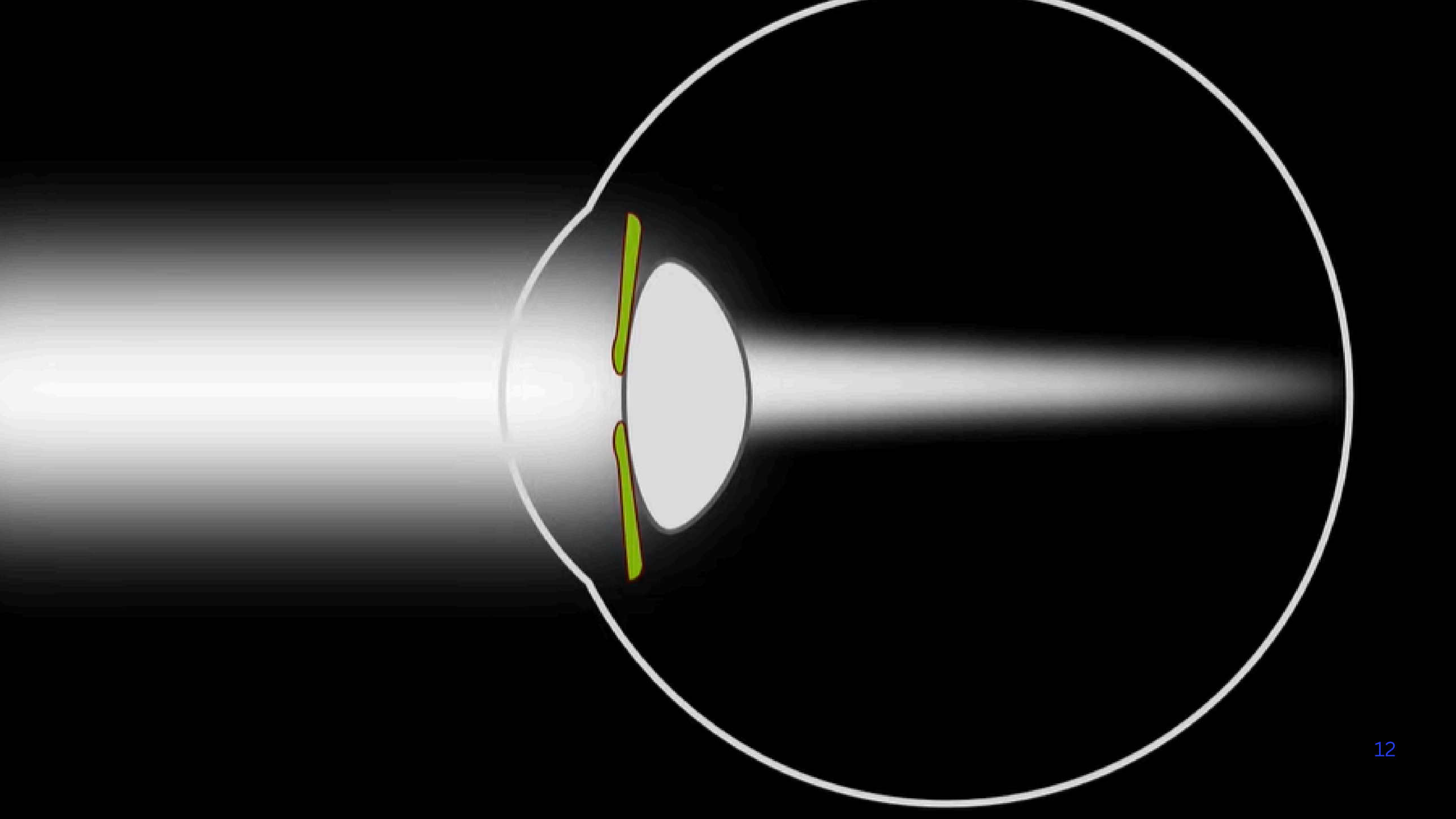
BS MLT-II

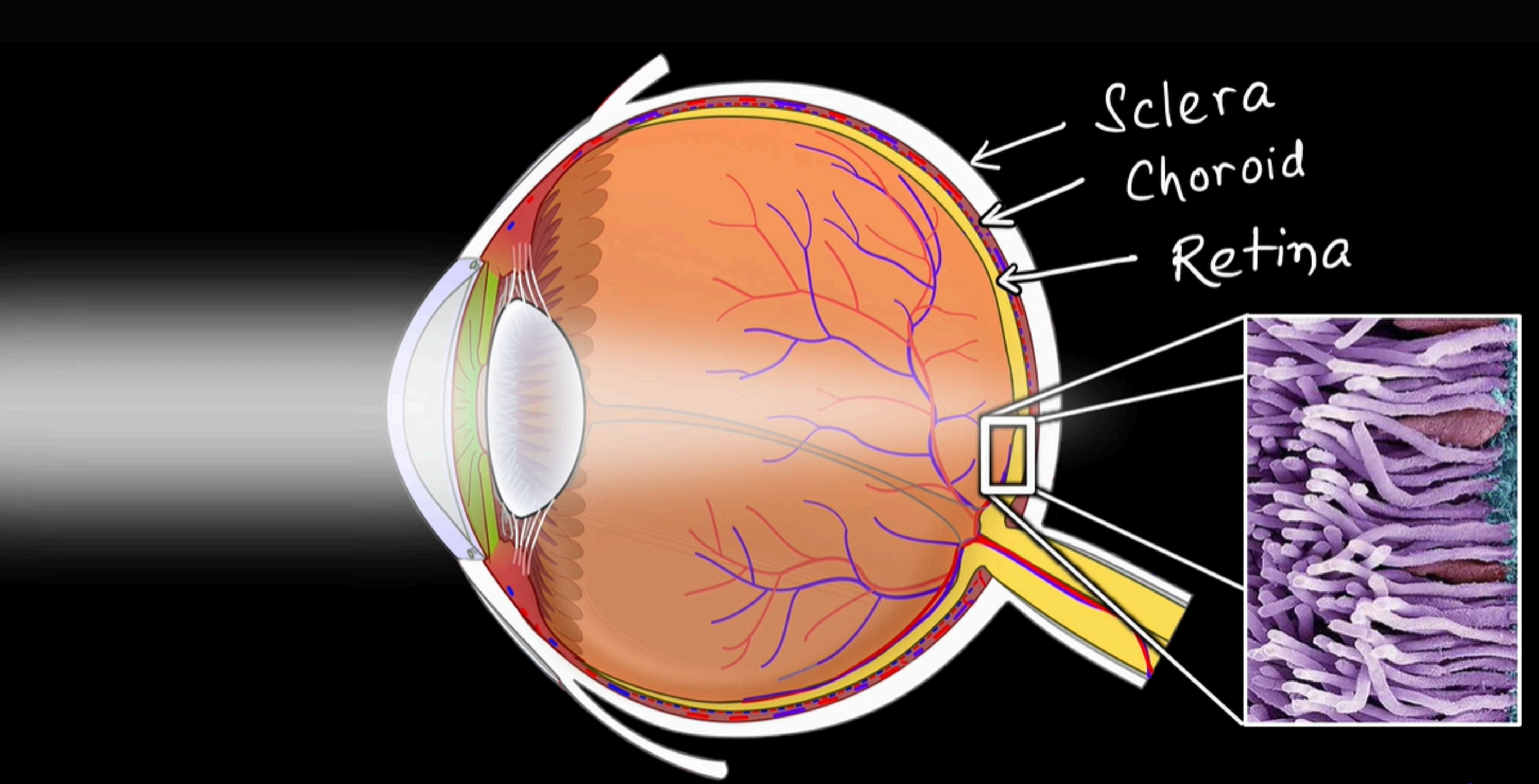
H/DR. AYESHA RAUF

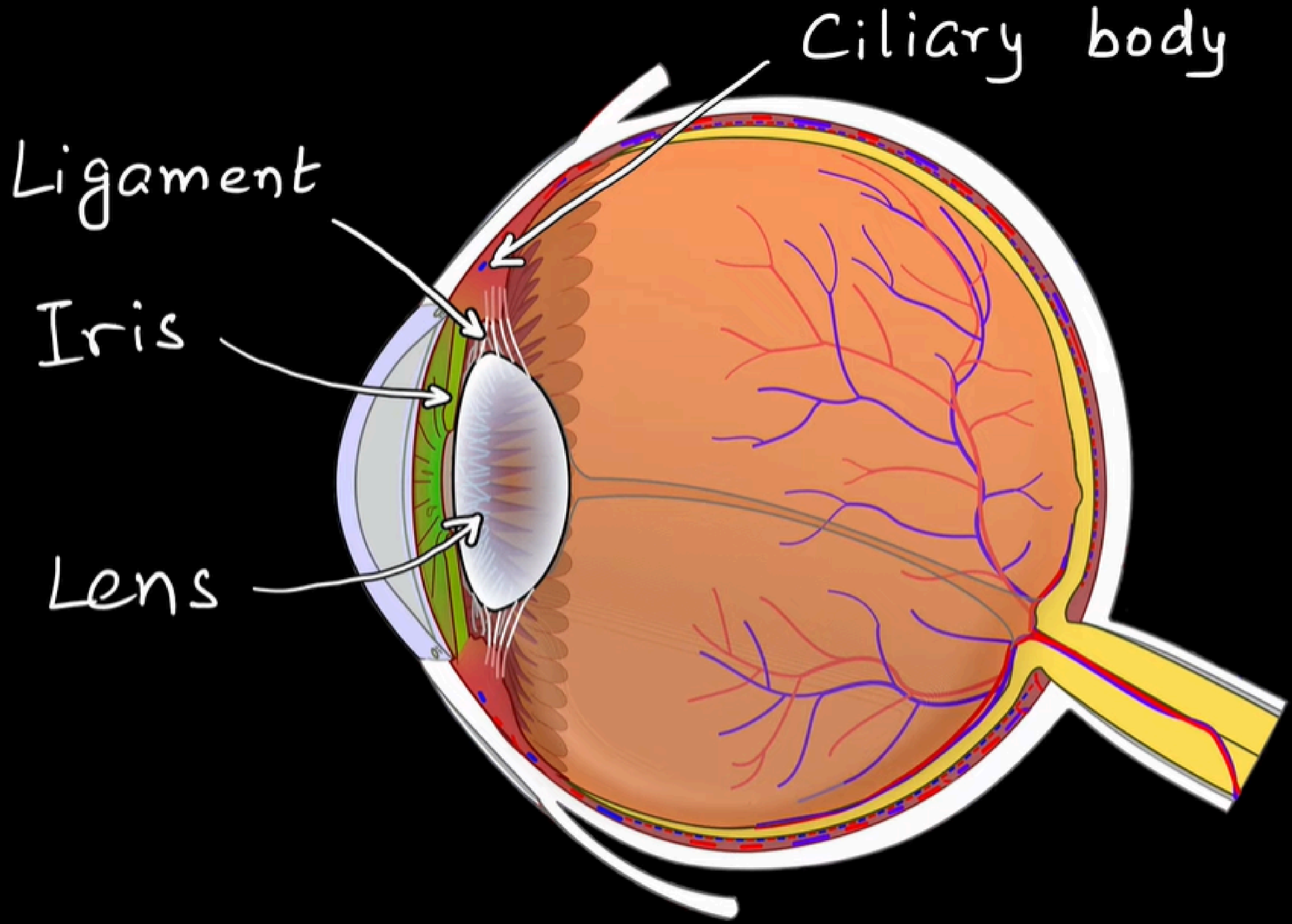
www.medmedals.com/bs-mlt-2

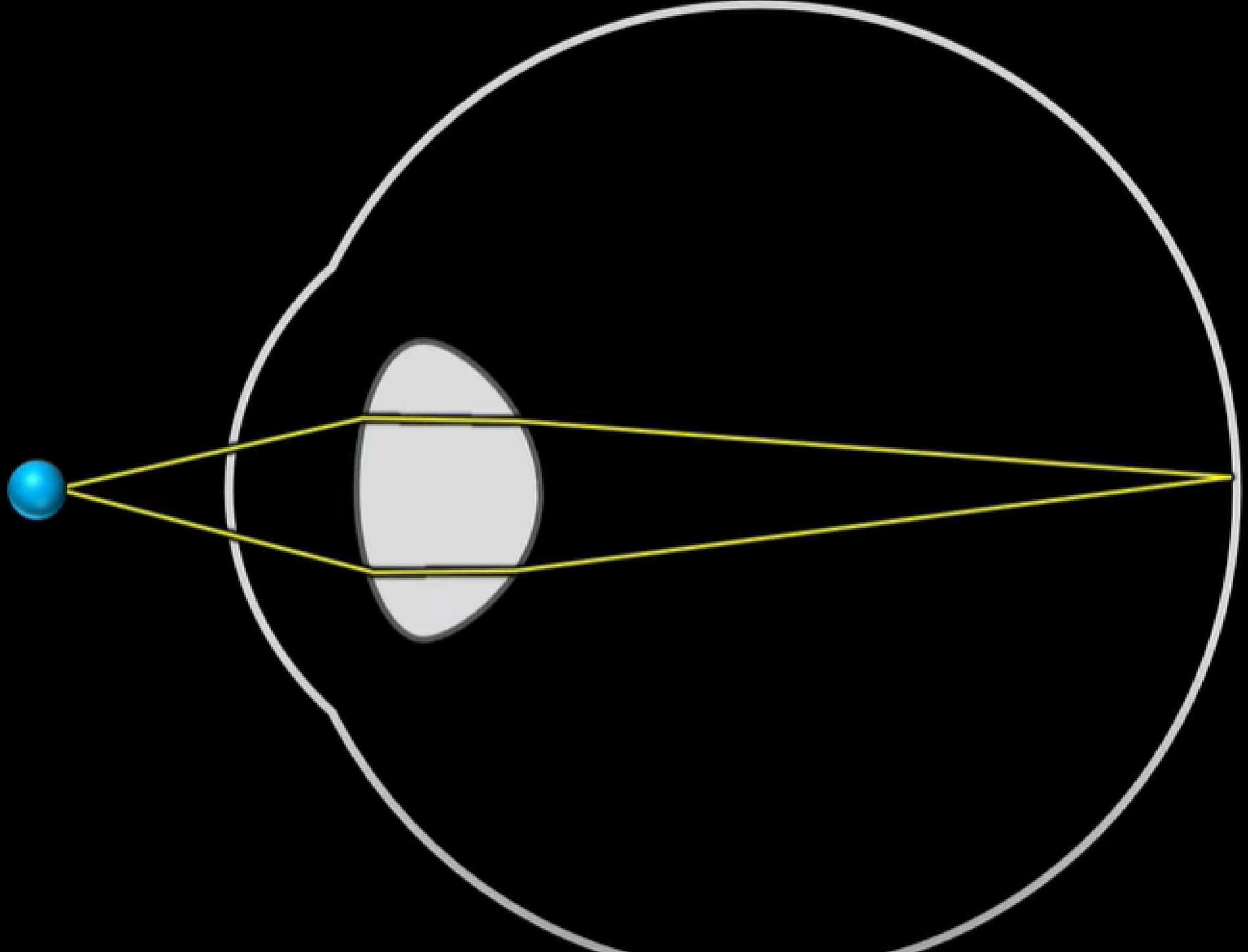

Iris
Pupil
Cornea
Anterior chamber
(Aqueous humour)
Sclera

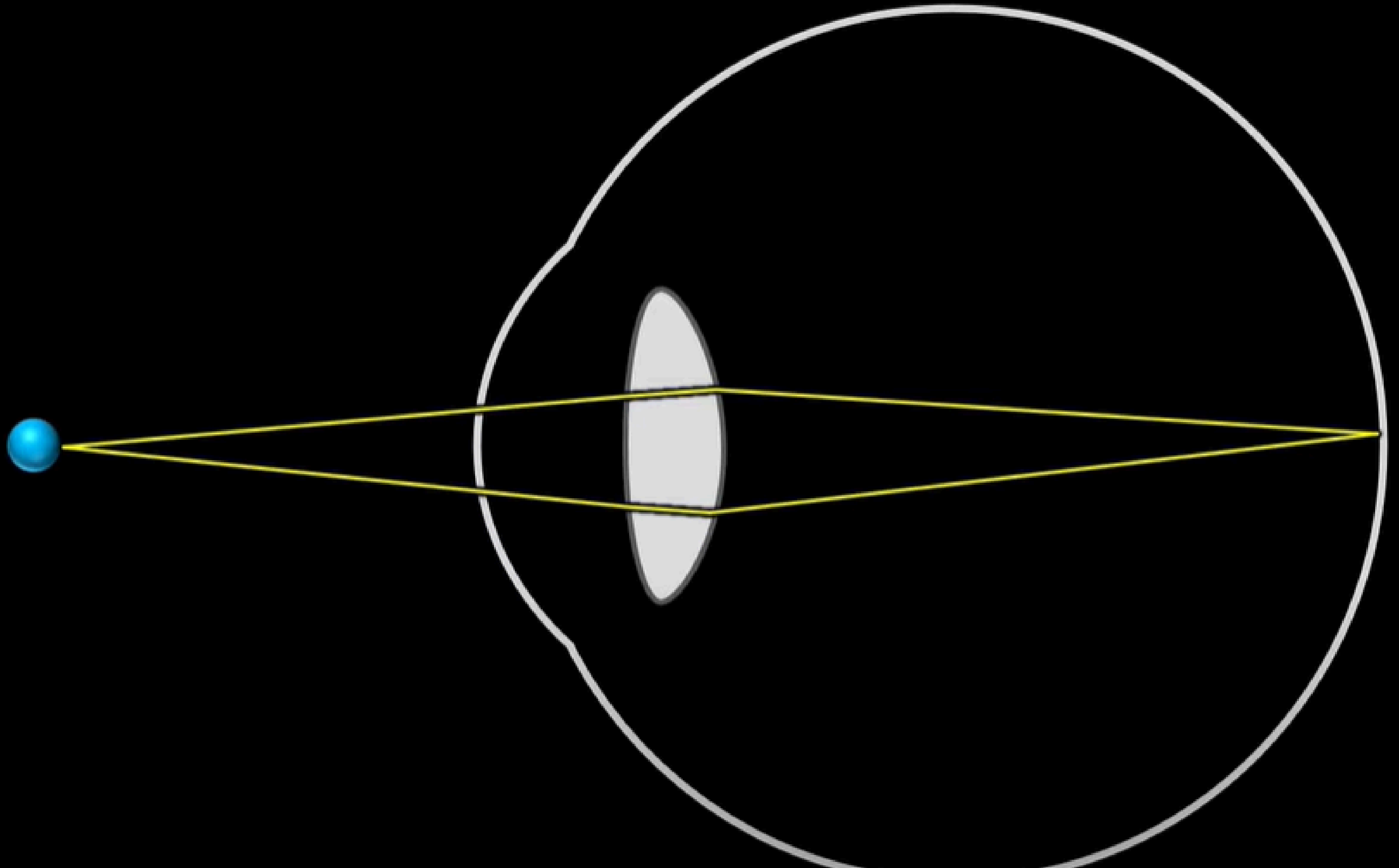


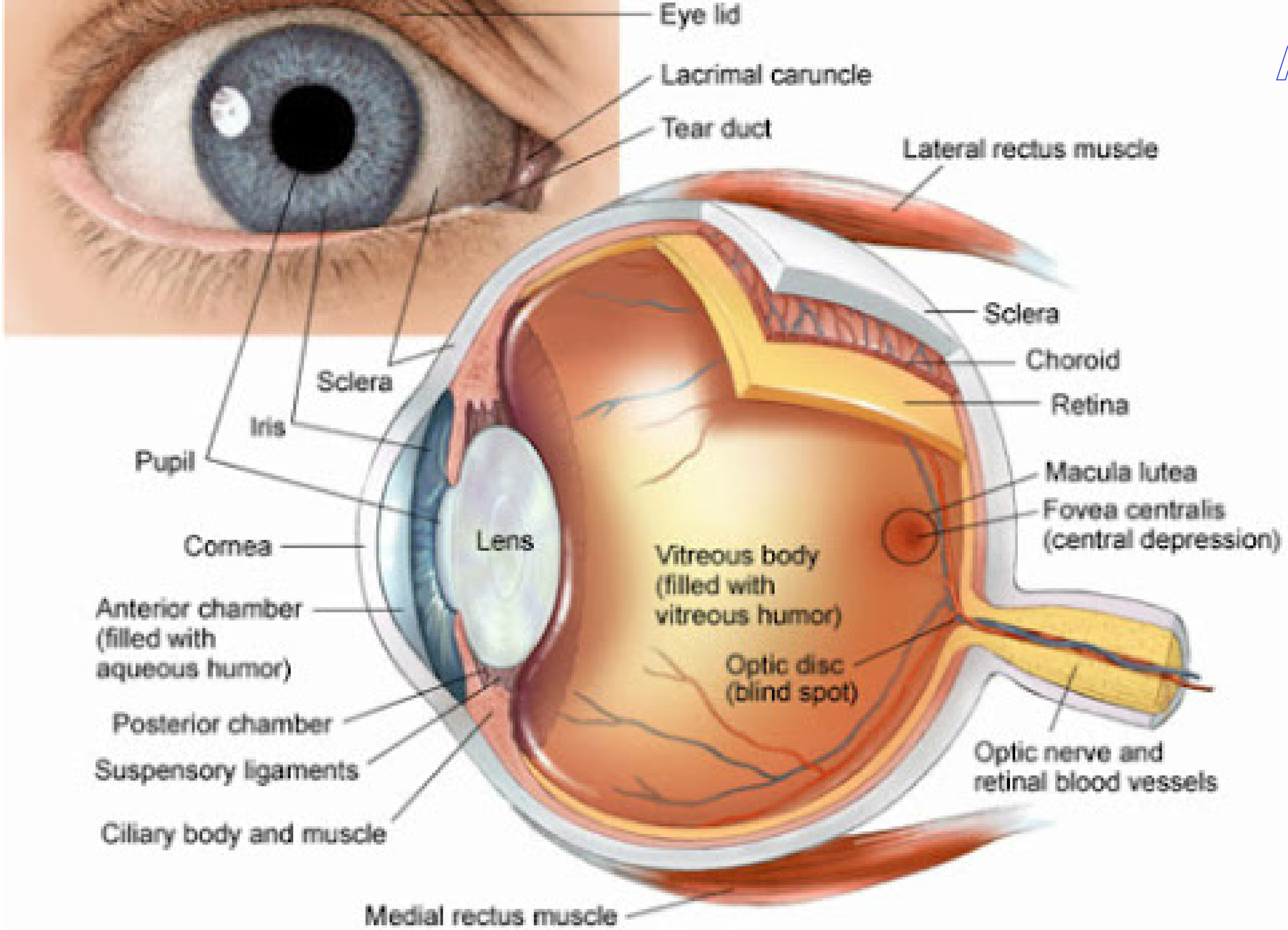


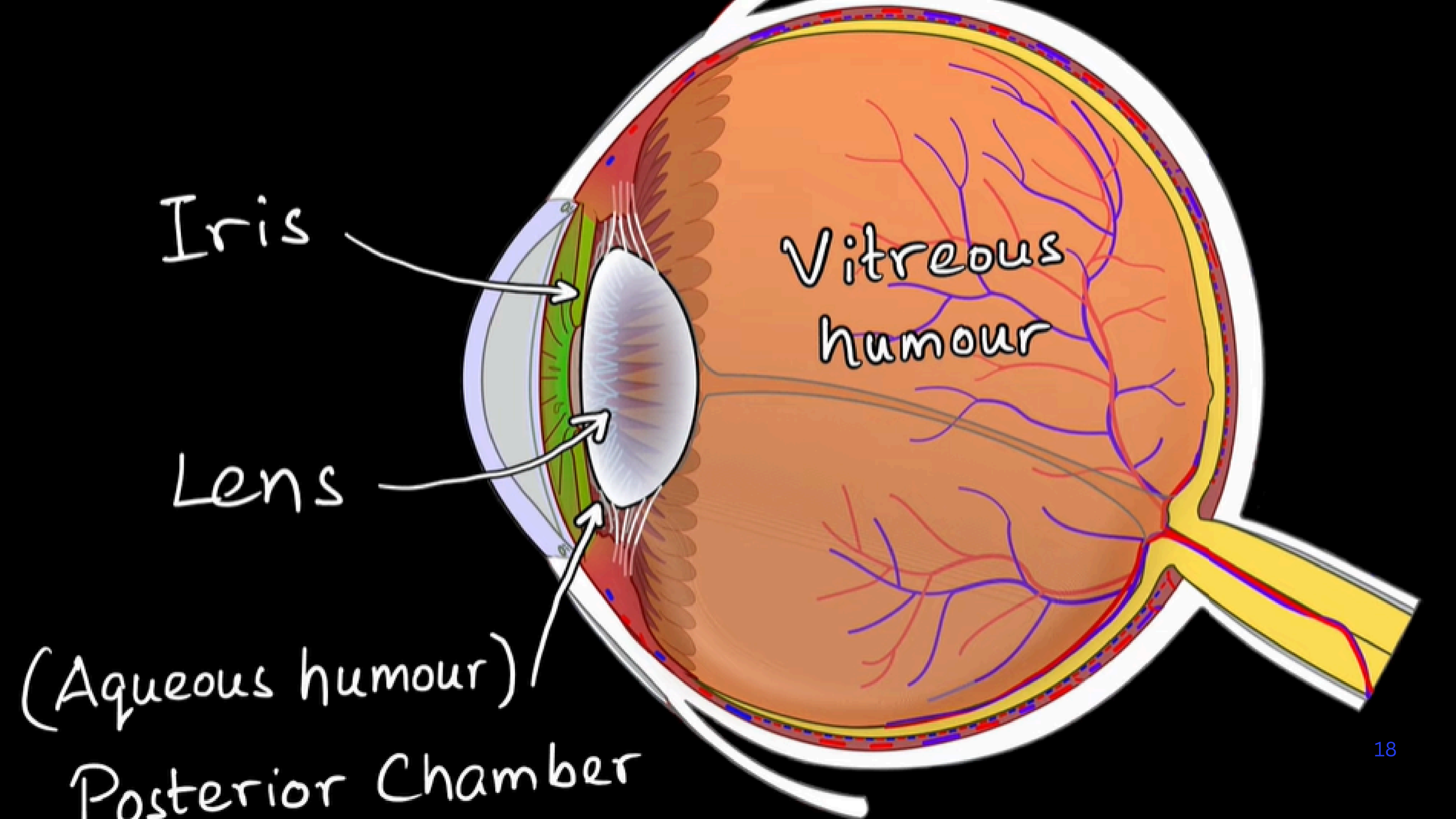

Sclera
Choroid
Retina

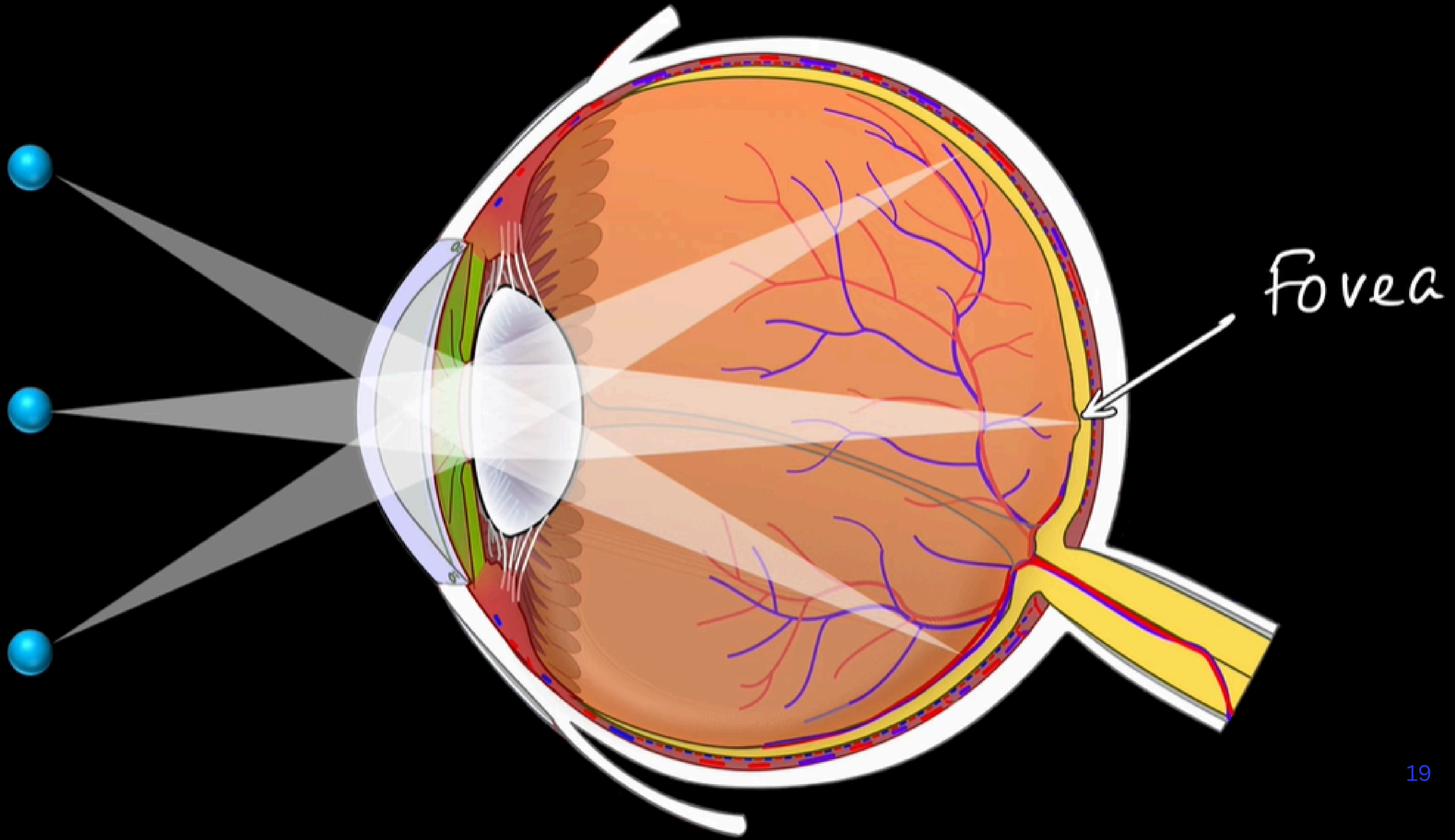

Ciliary body
Ligament
Iris
Lens





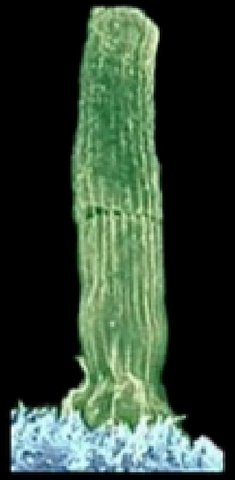

Eye lid
Lacrimal caruncle
Tear duct
Lateral rectus muscle
Sclera
Choroid
Retina
Macula lutea
Fovea centralis
(central depression)
Sclera
Iris
Pupil
Cornea
Lens
Vitreous body
(filled with
vitreous humor)
Anterior chamber
(filled with
aqueous humor)
Optic disc
(blind spot)
Posterior chamber
Suspensory ligaments
Ciliary body and muscle
Optic nerve and
retinal blood vessels
Medial rectus muscle


Iris
Lens
(Aqueous humour)
Posterior Chamber
Vitreous humour


Fovea

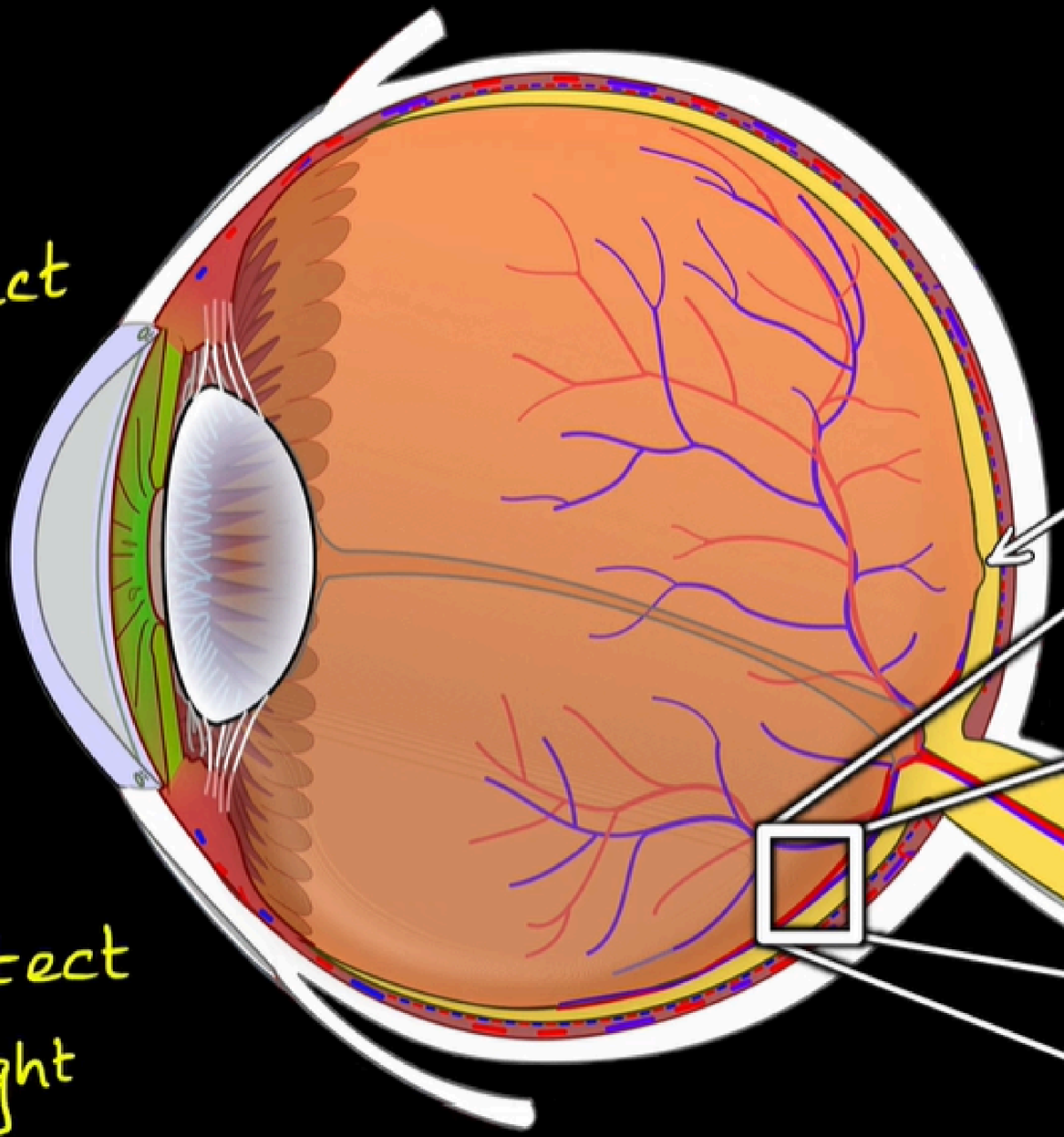
Cone Cell

Can detect colour

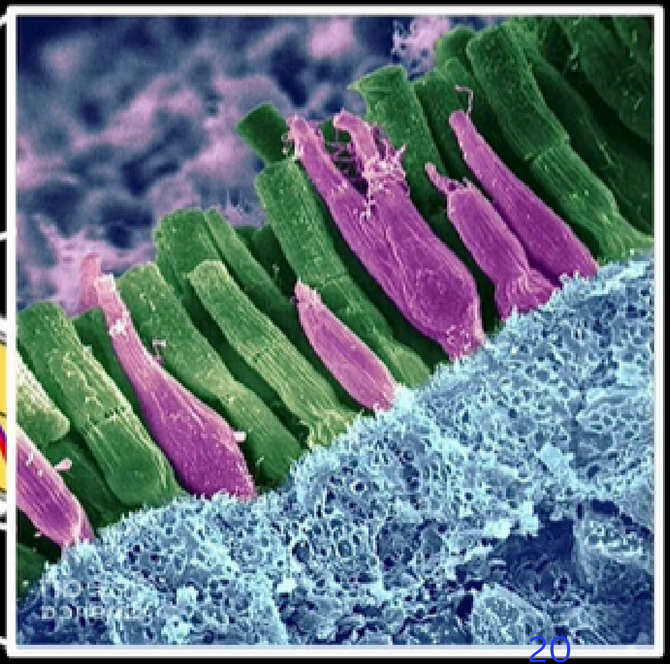


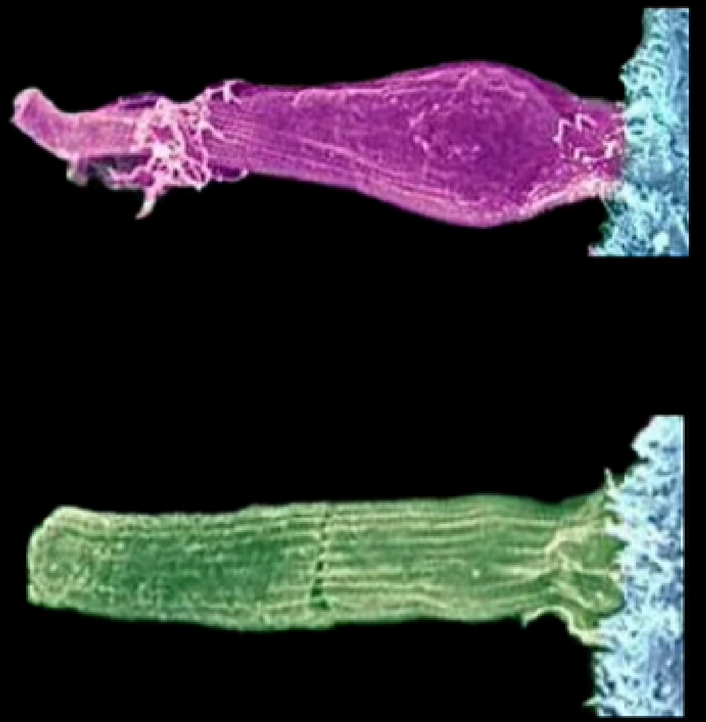
Rod cell

Can detect low light



Fovea

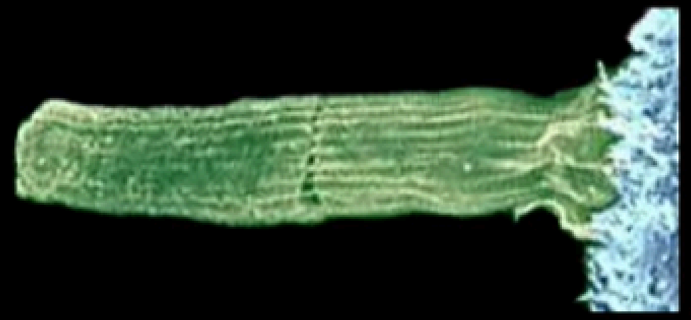


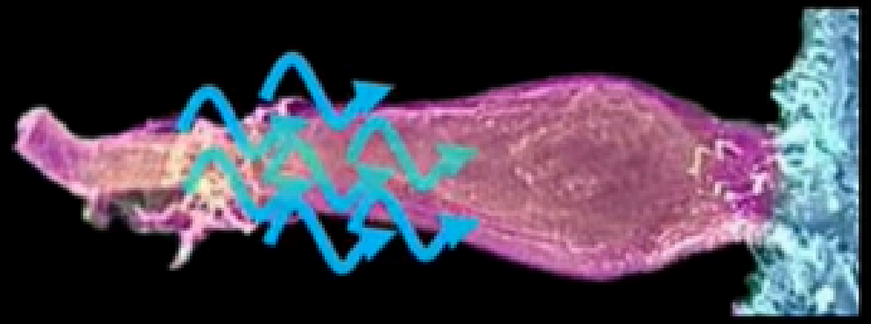


***Photon** is packet of energy for light / electromagnetic radiation*

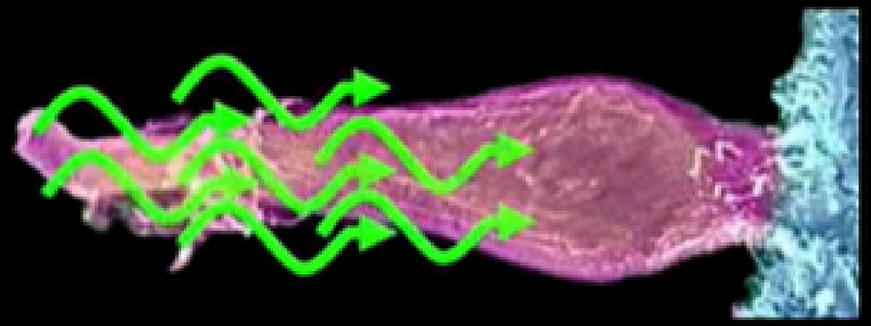
Rod cells contain ***Rhodopsin***

It contains a derivative of ***vitamin A***





OPN1SW



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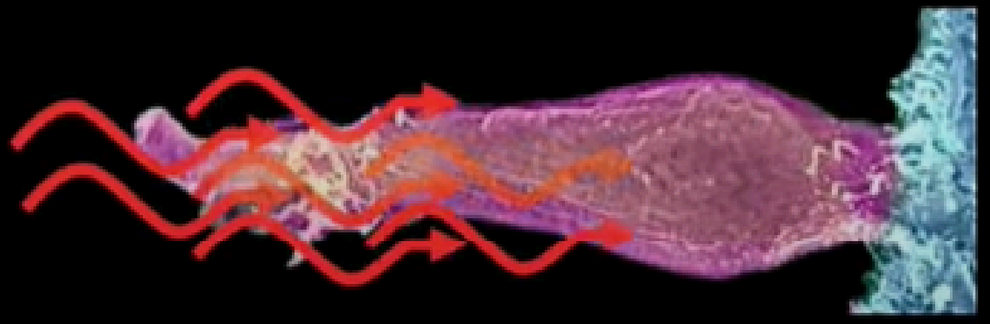
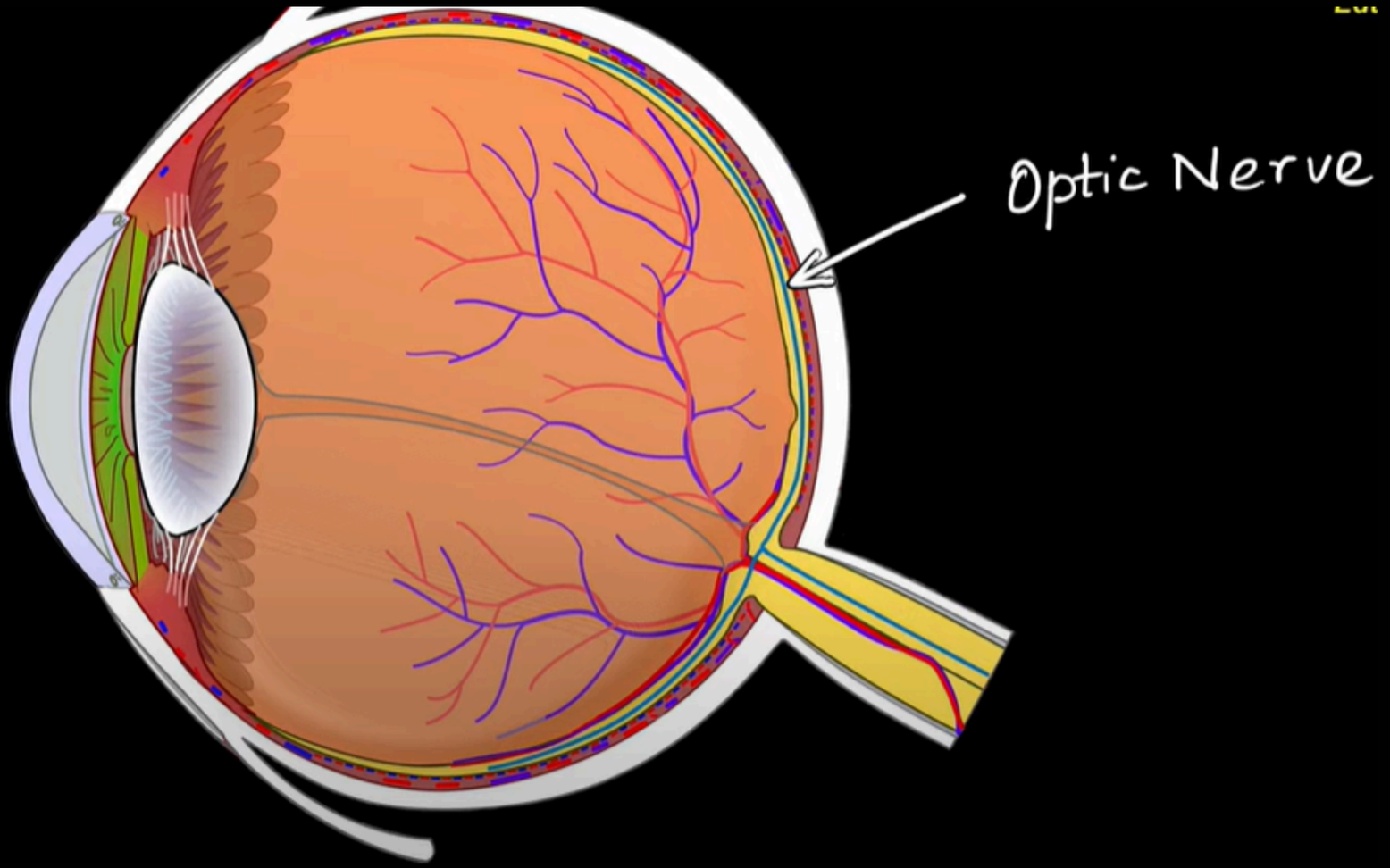
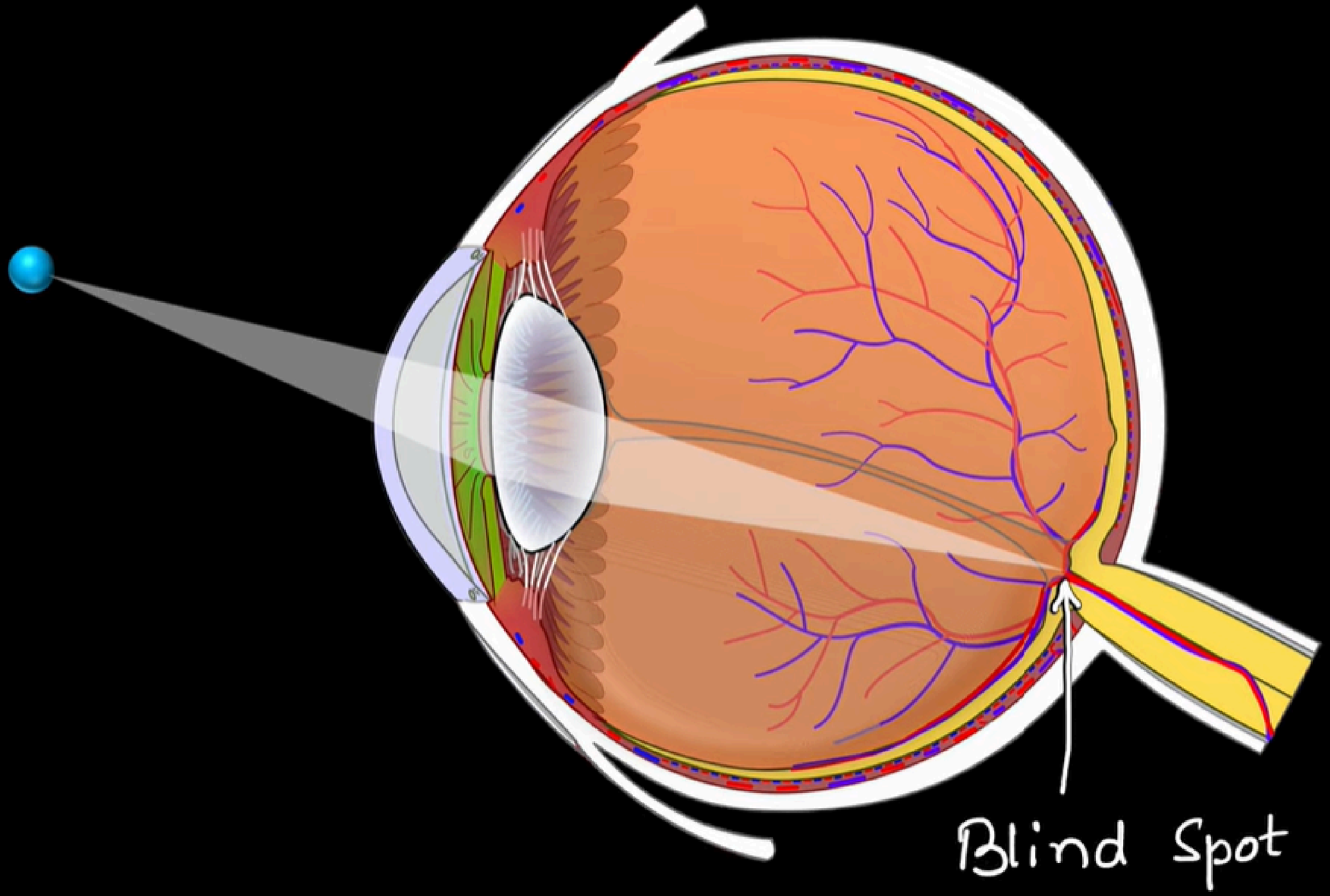


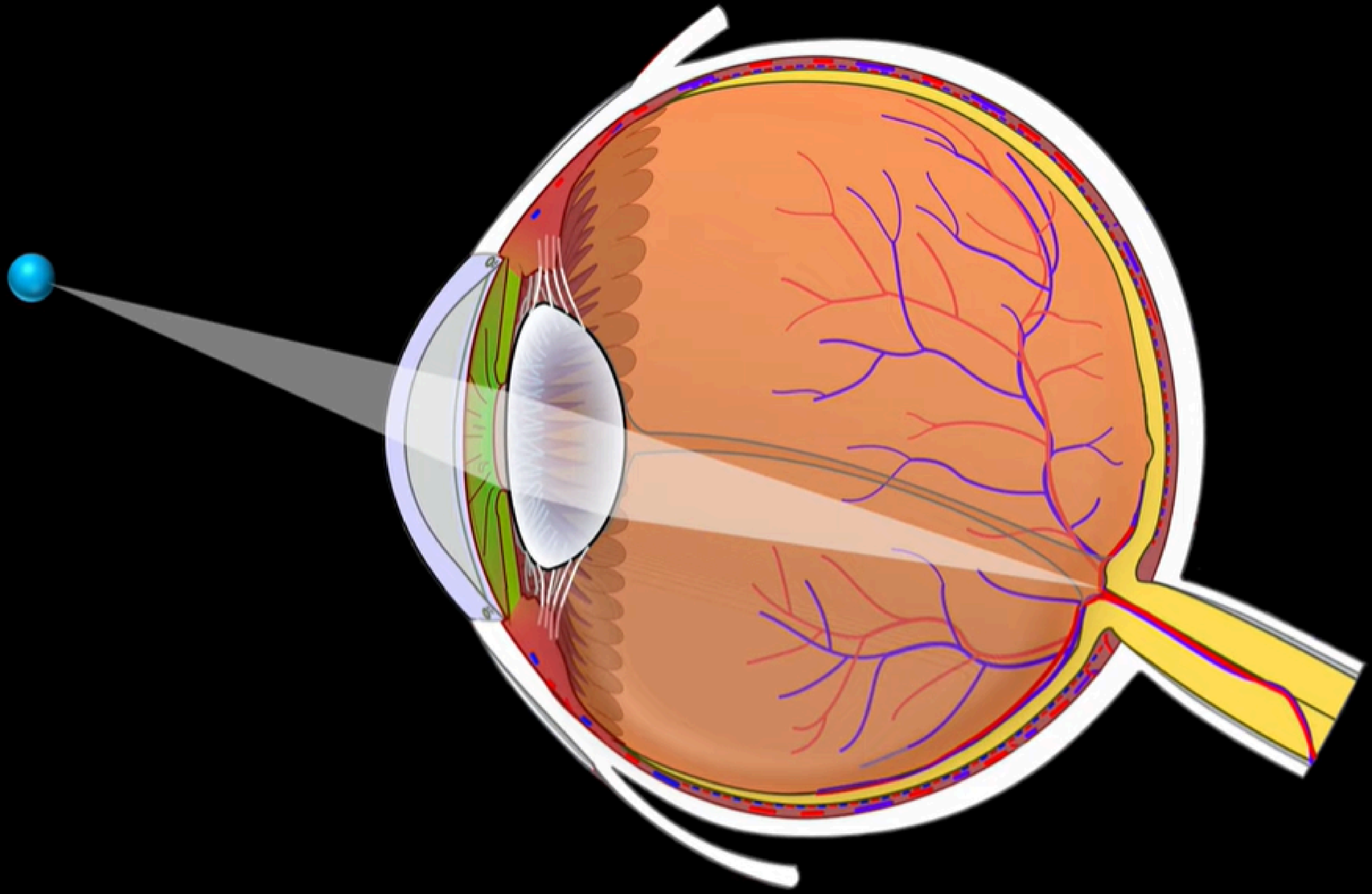
OPN1LW

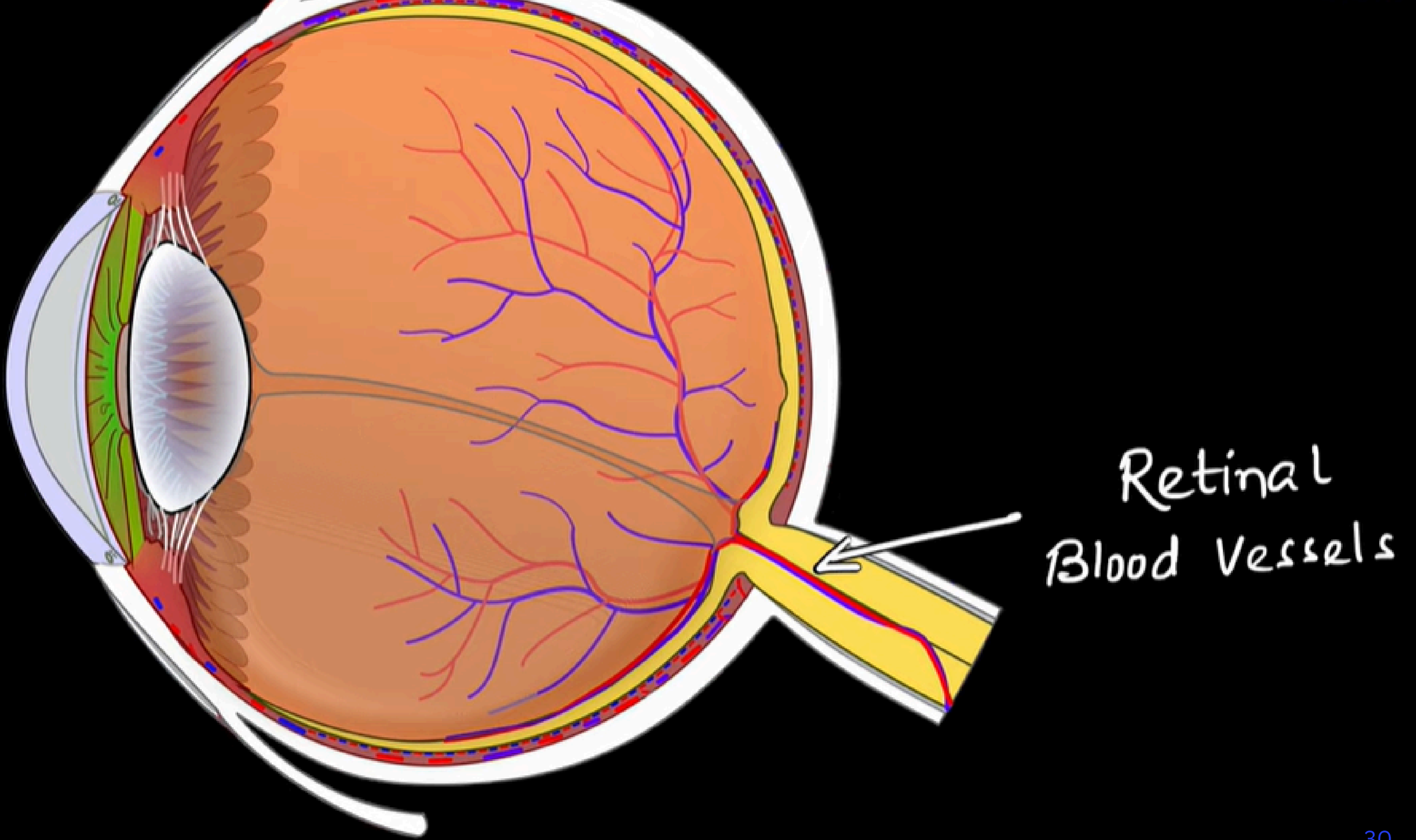

Normal Vision
Colour Blind - Vision
24

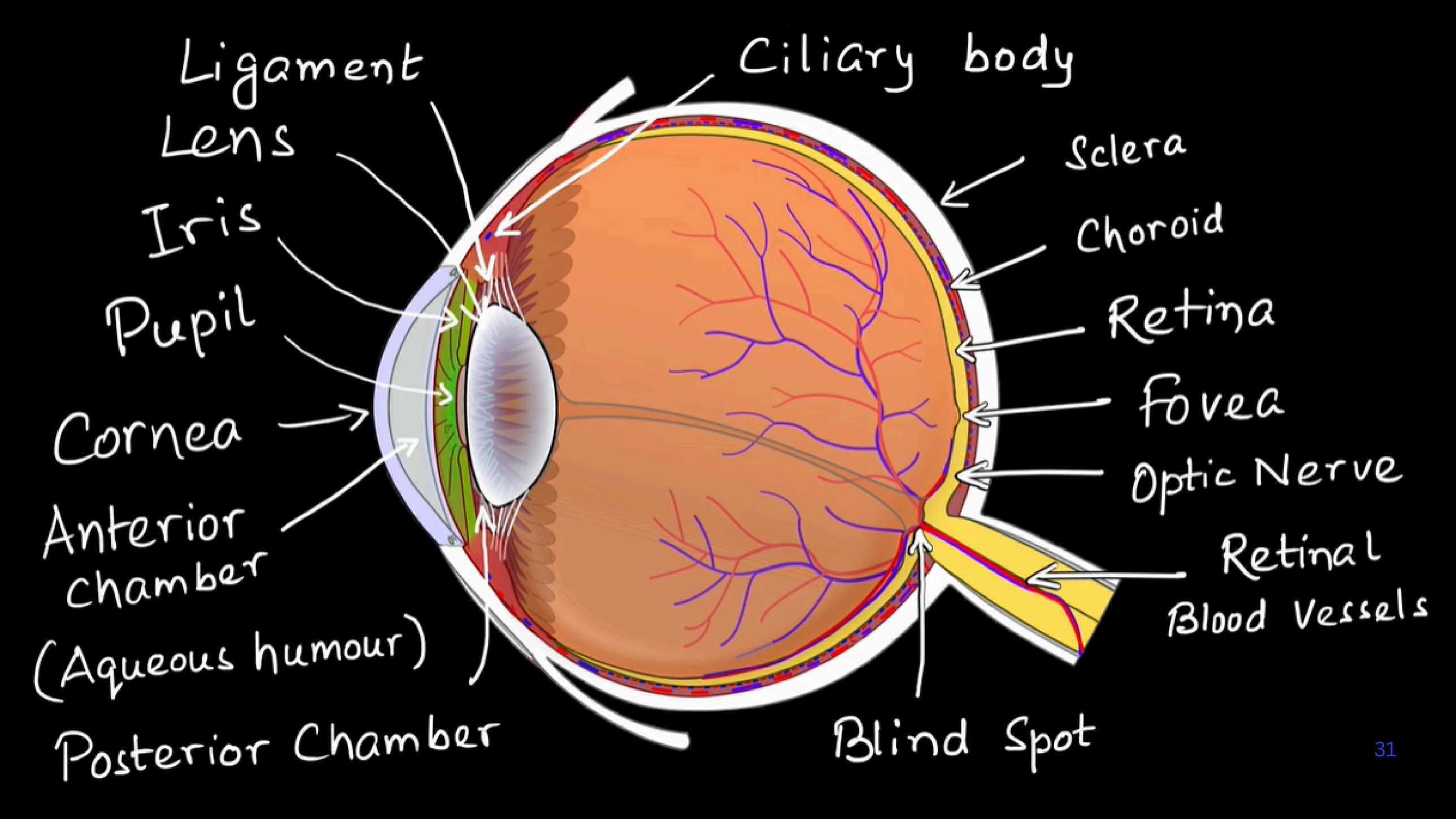

Optic Nerve

Occipital lobe


Blind Spot




Retinal
Blood Vessels


Ligament
Ciliary body
Lens
Sclera
Iris
Choroid
Pupil
Retina
Cornea
Fovea
Optic Nerve
Anterior chamber
Retinal Blood Vessels
(Aqueous humour)
Posterior Chamber
Blind Spot

LECTURE #7 (11/11/2024)

STRUCTURE AND FUNCTION OF EYE

BS MLT-II

H/DR. AYESHA RAUF

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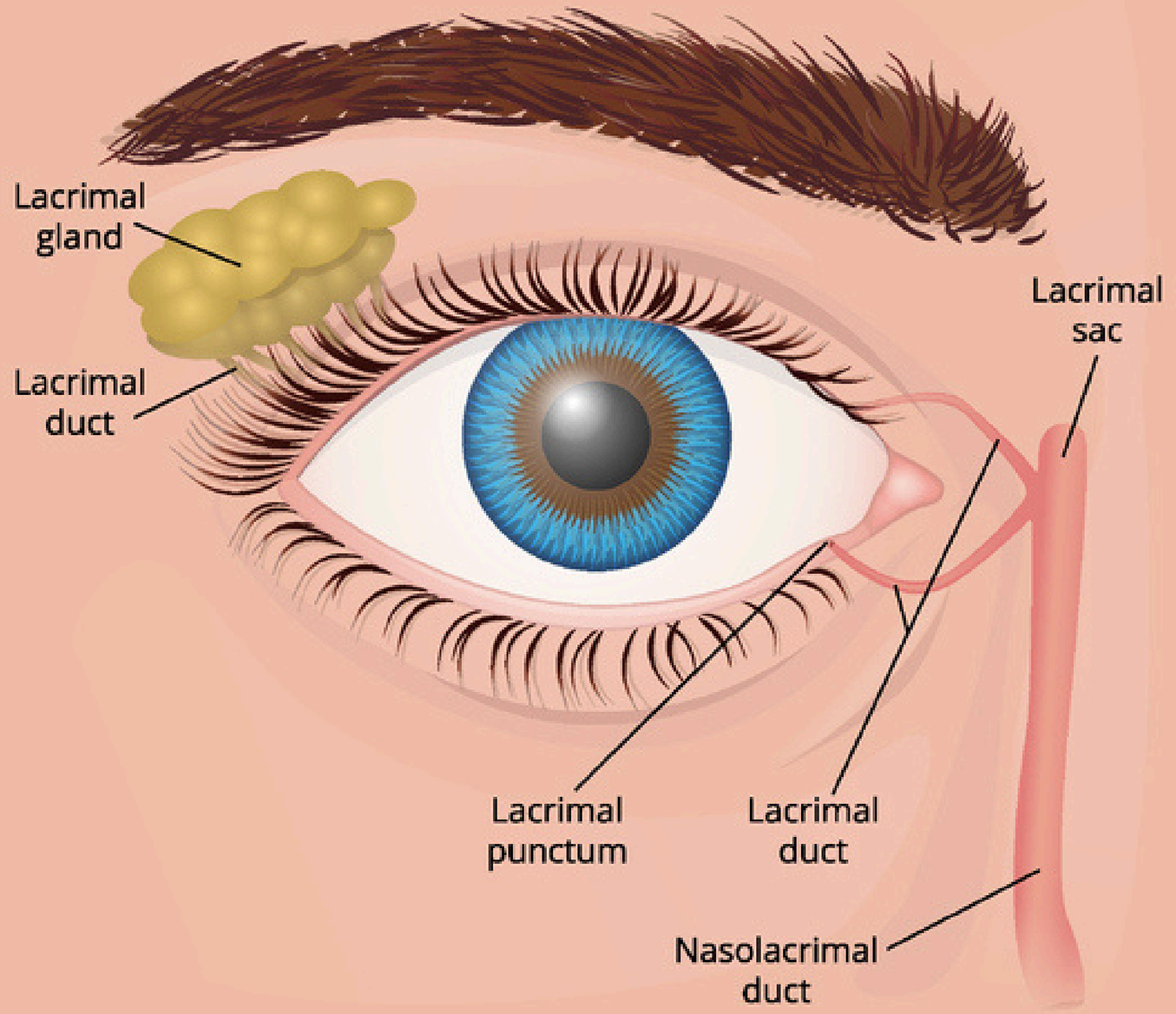
LAYERS OF EYE

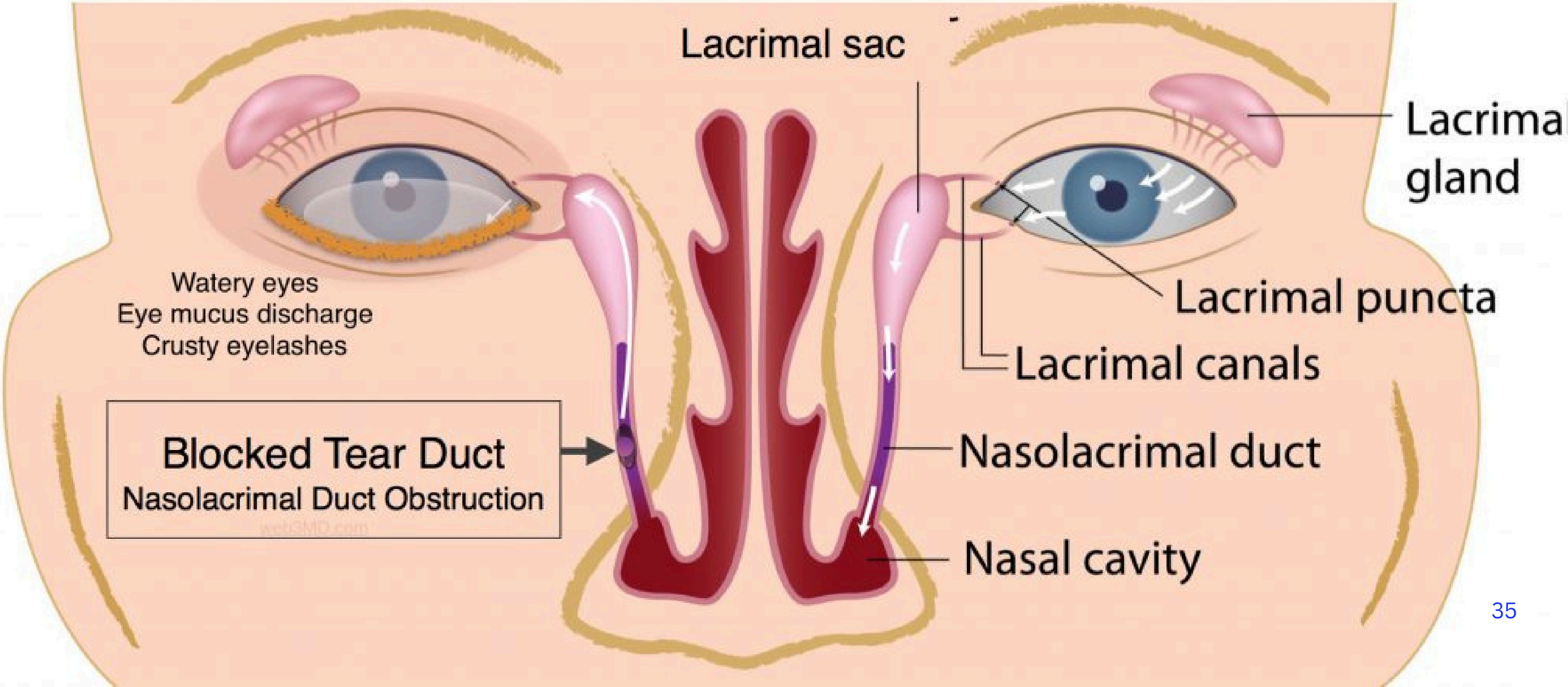
- **Lacrimal Gland**: Located above the outer corner of each eye, it produces tears that keep the eye moist, nourish the cornea, and flush away small particles.
- **Lacrimal Ducts**: These small channels drain tears from the lacrimal gland onto the surface of the eye.
- **Lacrimal Puncta, Canaliculi, and Sac**: Tears drain from the eye’s surface into the lacrimal puncta (small openings in the inner corner), pass through canaliculi, and collect in the lacrimal sac.
- **Nasolacrimal Duct**: Connects the lacrimal sac to the nasal cavity, allowing tears to drain into the nose.

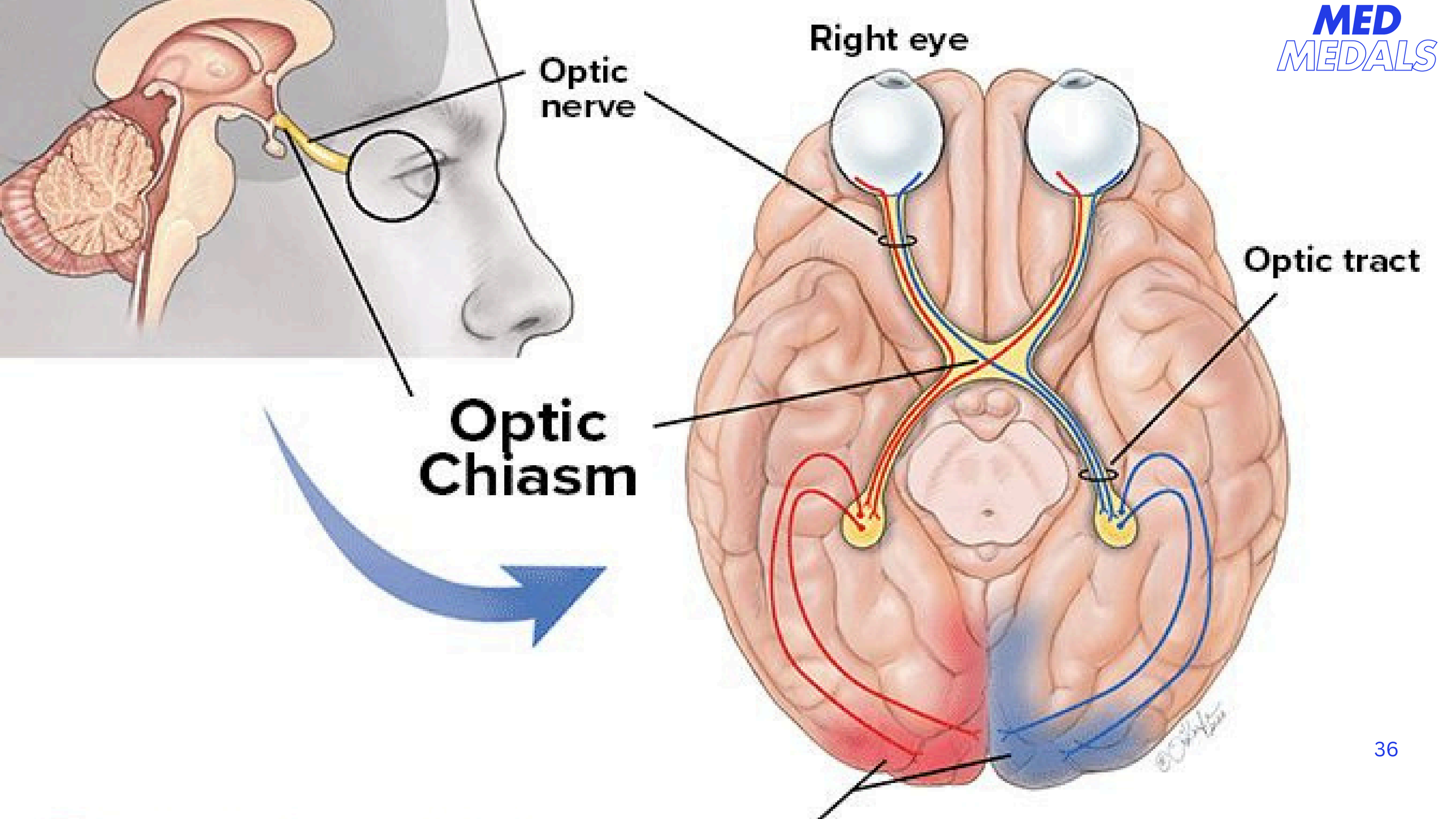
While not directly part of the eye's visual function, the lacrimal system supports the eye’s health and is essential for maintaining a clear optical surface, which indirectly aids in vision.

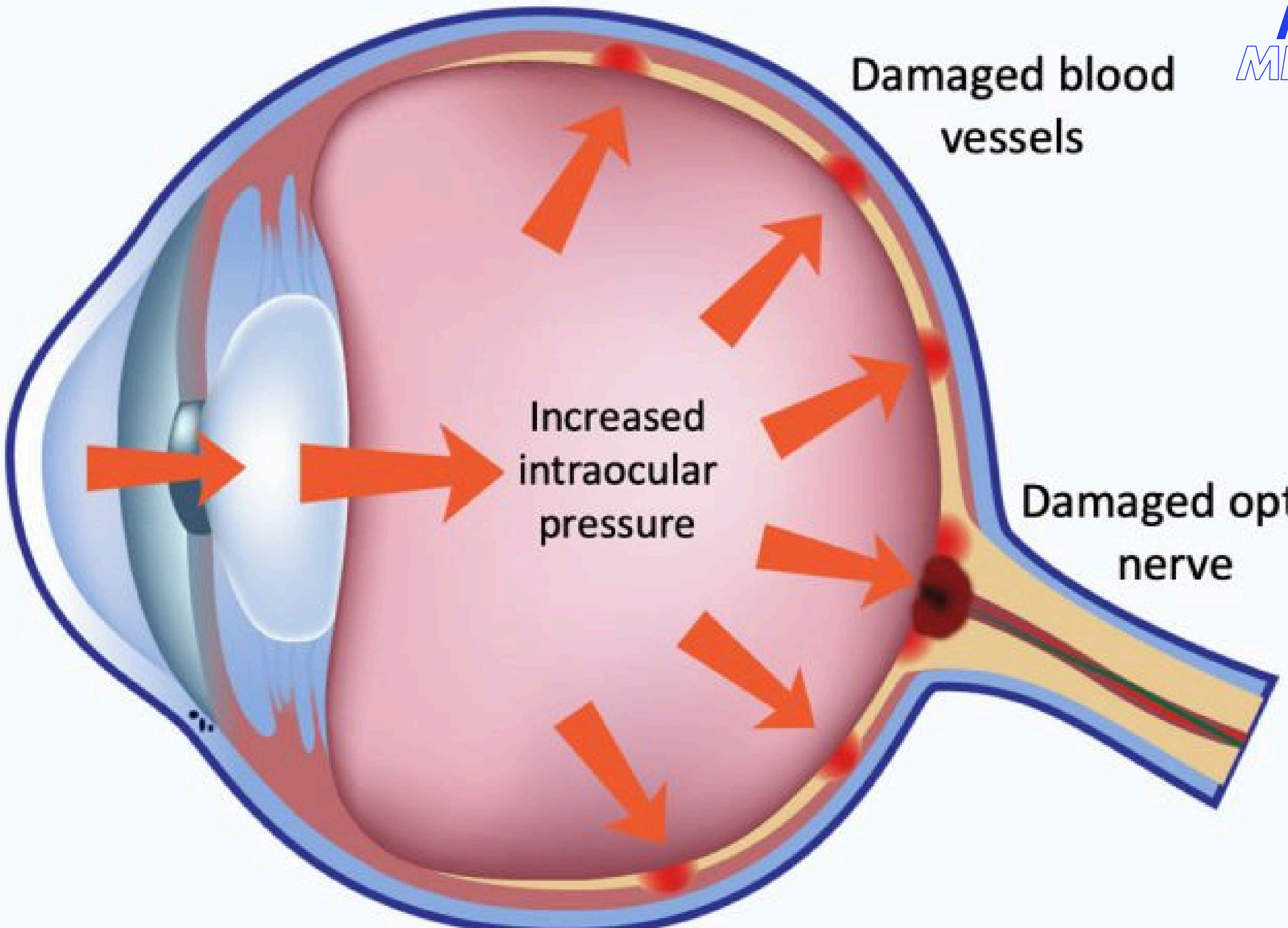
THE LACRIMAL GLANDS



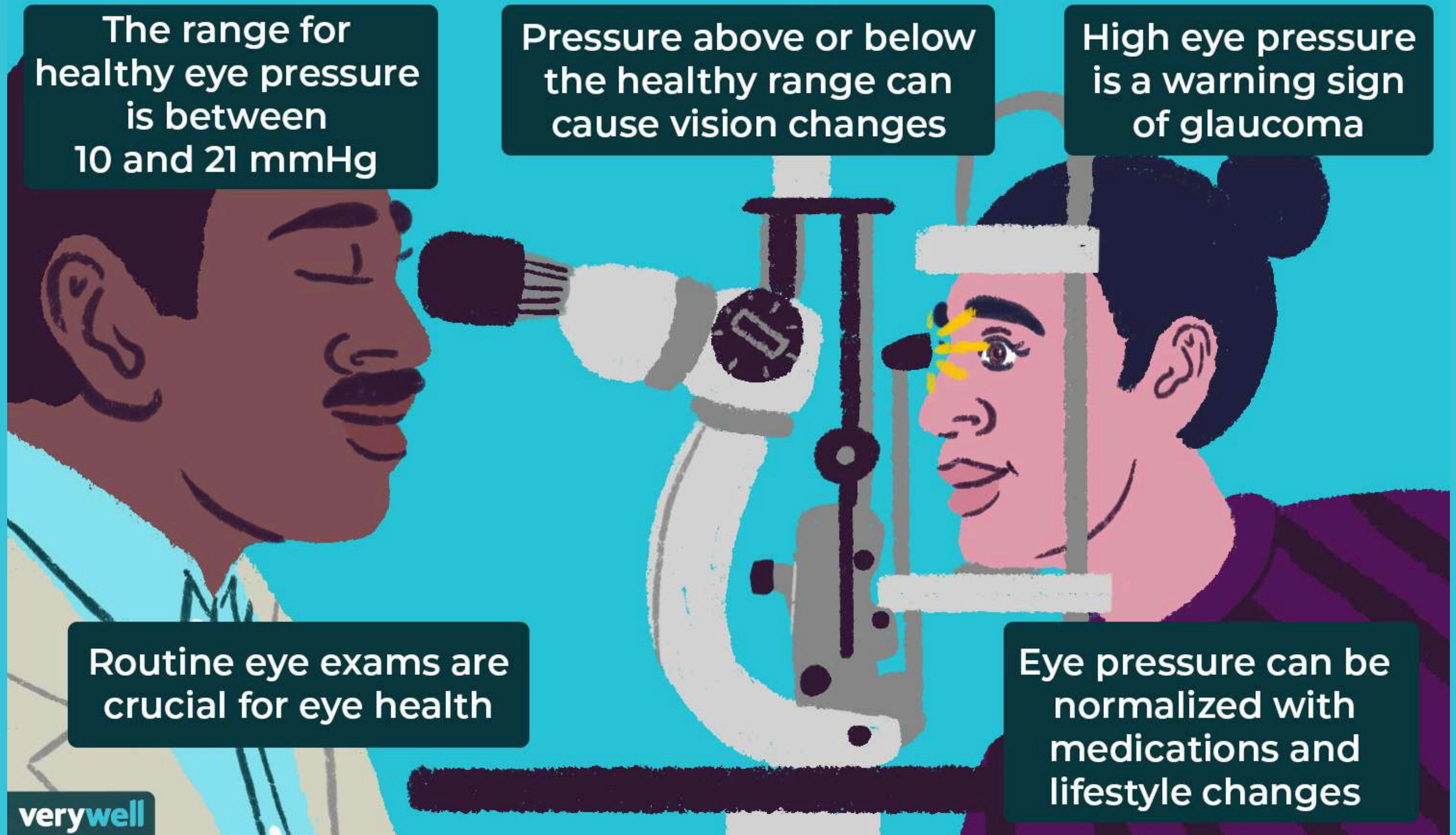
Blocked Tear Ducts - Nasolacrimal Duct Obstruction




Optic nerve
Right eye
Optic tract
Optic Chiasm

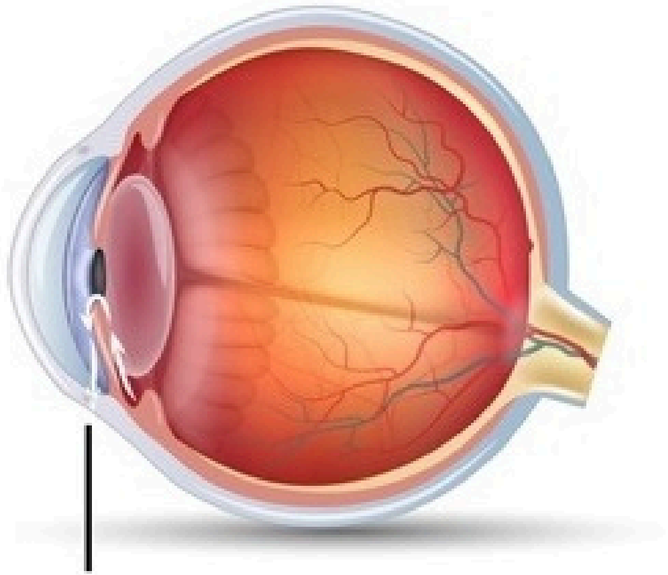

Damaged blood vessels
Increased intraocular pressure
Damaged optic nerve

The Importance of Eye Pressure



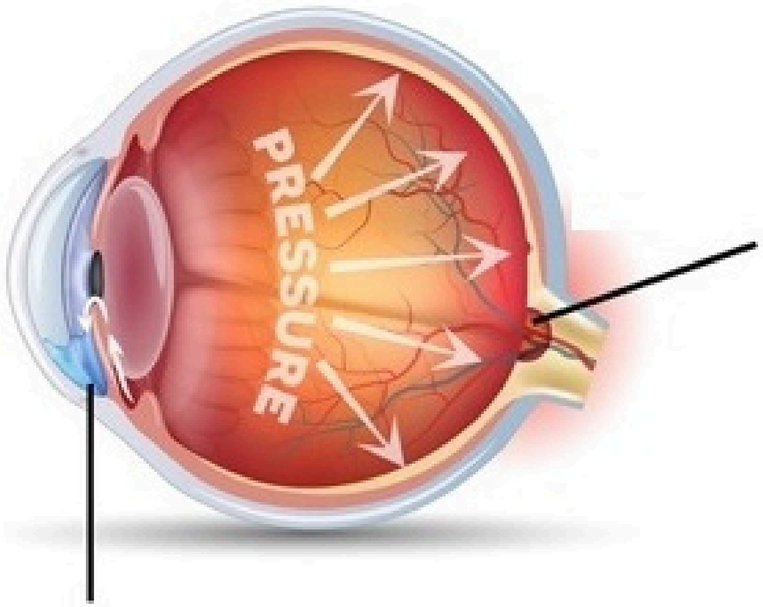
MED MEDALS

Normal Eye



Normal Eye Drainage Is Clear
Fluid Flow Controls Eye Pressure

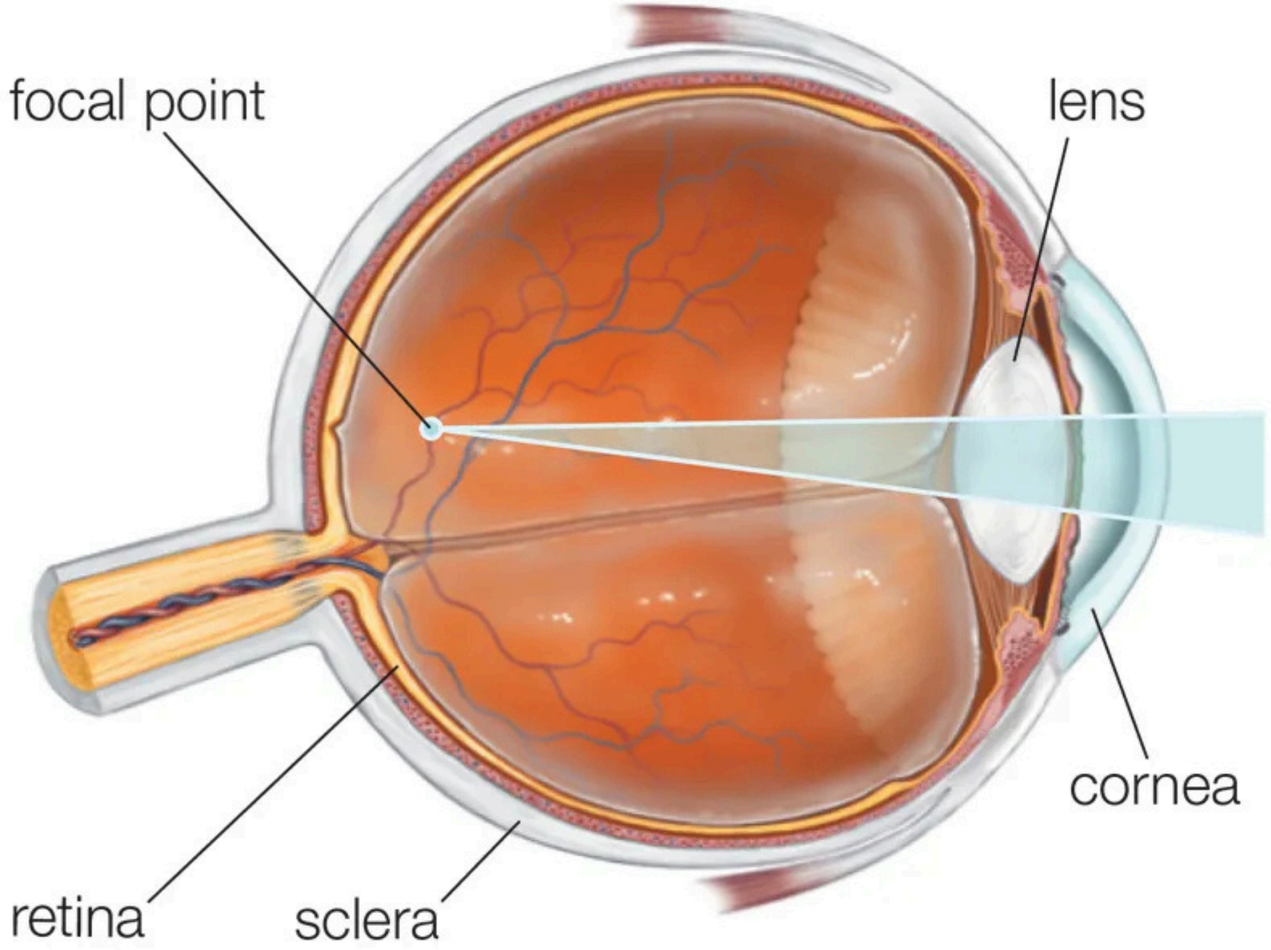
Glaucoma



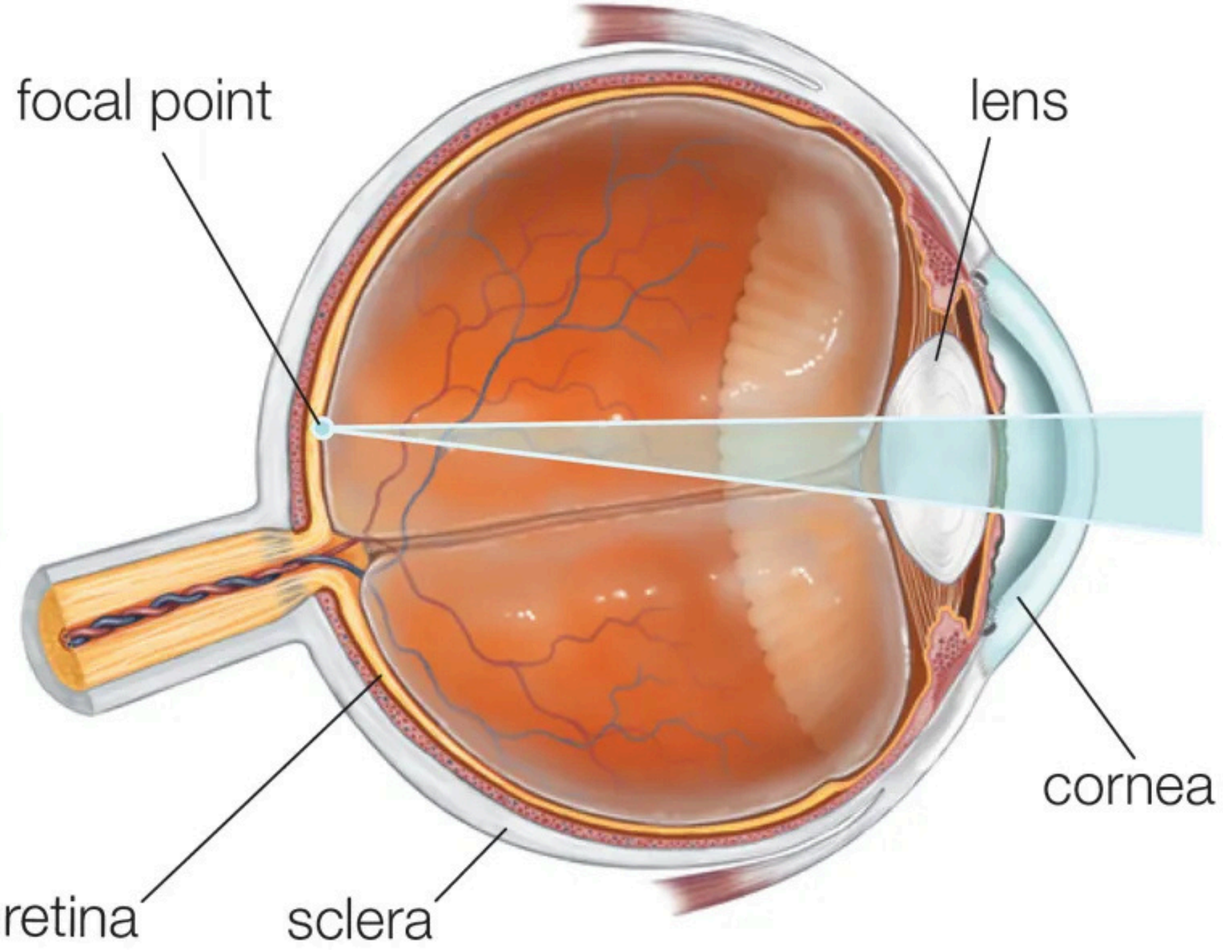
Increased
Eye Pressure
Can Damage
The Optic Nerve

Eye Drainage Canal Blocked
Fluid Builds Up The Eye Pressure

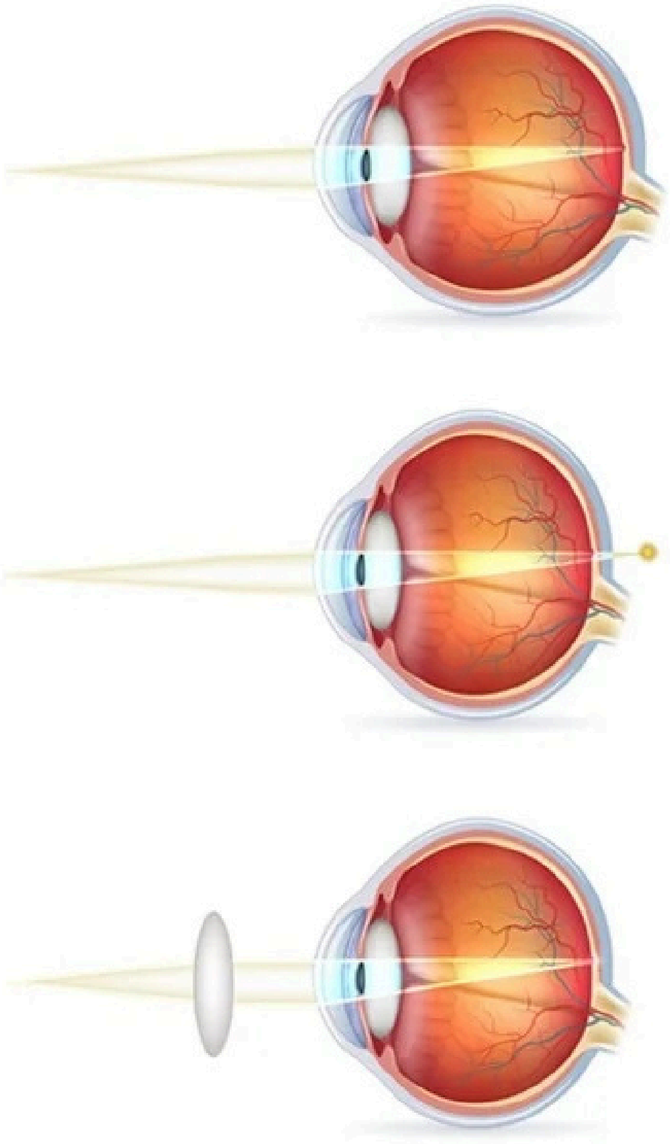
Myopia (nearsightedness)



Normal eye



NORMAL VISION AND HYPEROPIA



NORMAL VISION

NEAR OBJECT IS CLEAR

HYPEROPIA

FARSIGHTED EYE

THE EYEBALL IS TOO SHORT

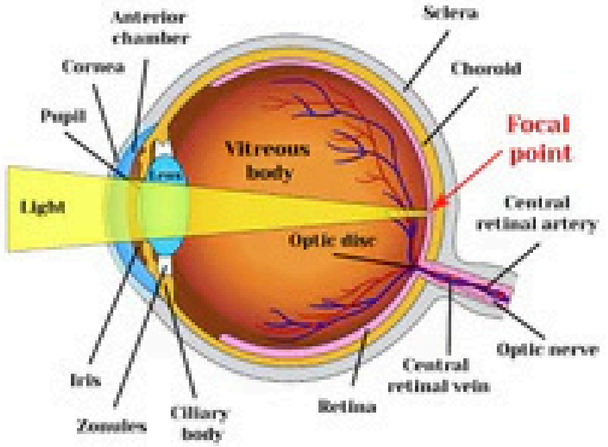
NEAR OBJECT IS BLURRY

HYPEROPIA CORRECTED

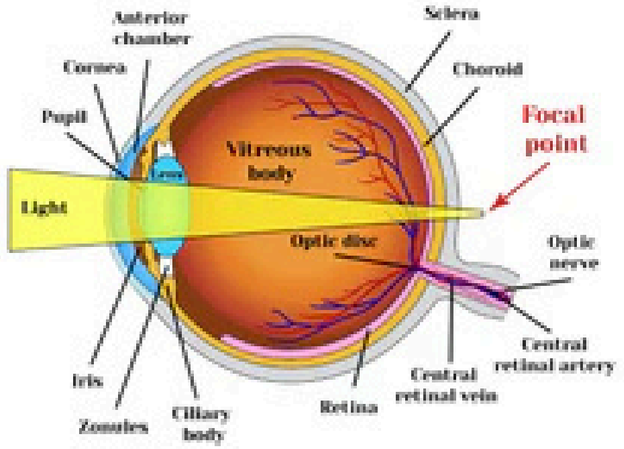
CORRECTION WITH A PLUS LENS

Refractive errors

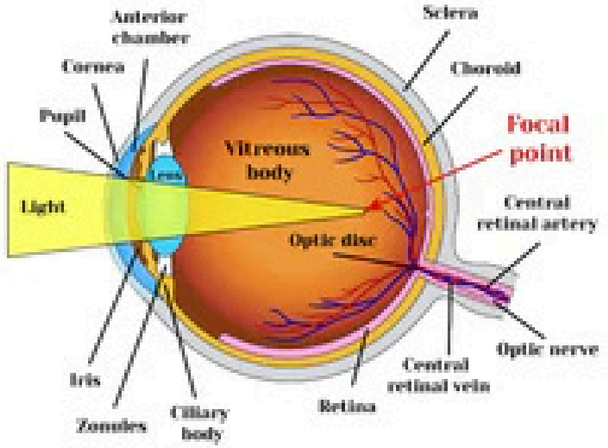
Normal vision



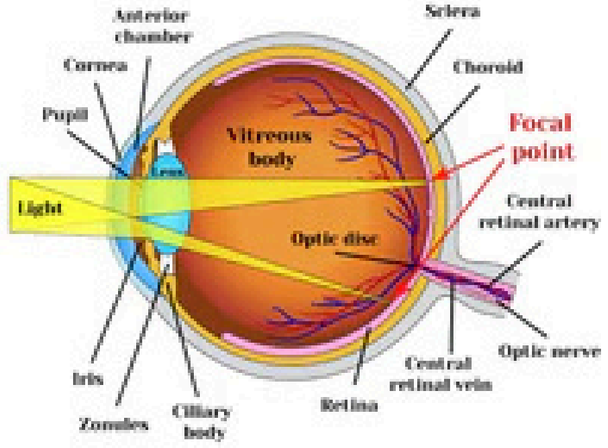
Hyperopia



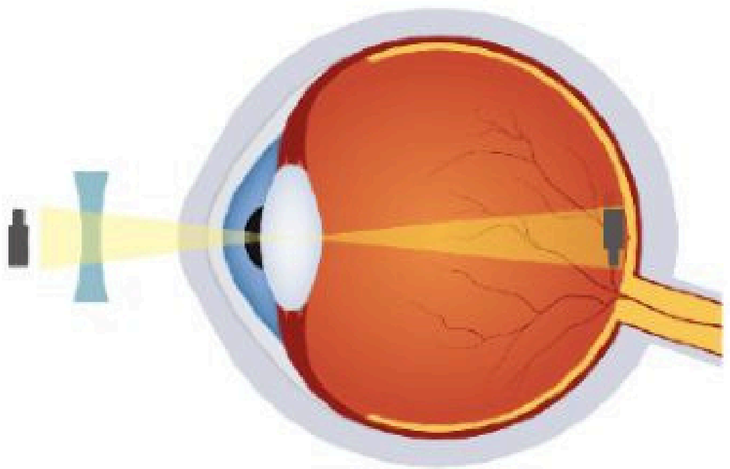
Myopia



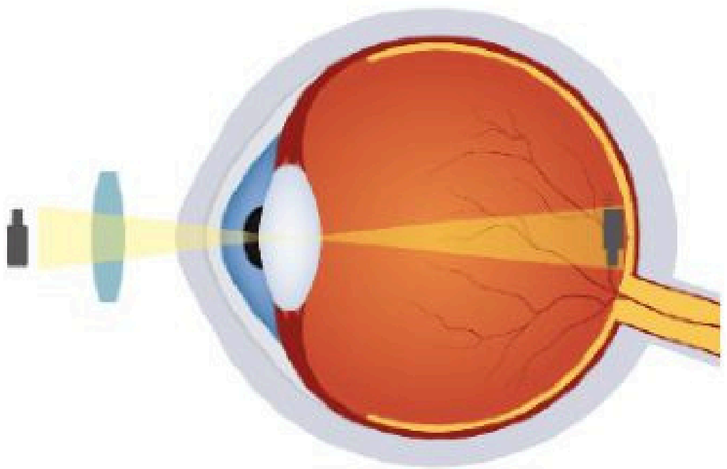
Astigmatism



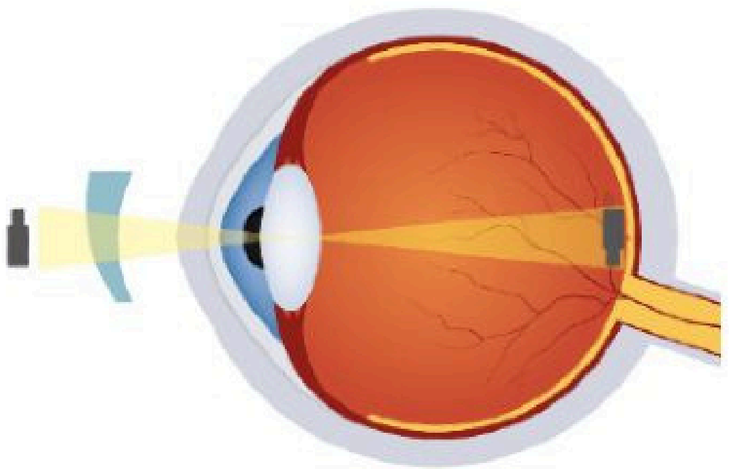
Vision correction



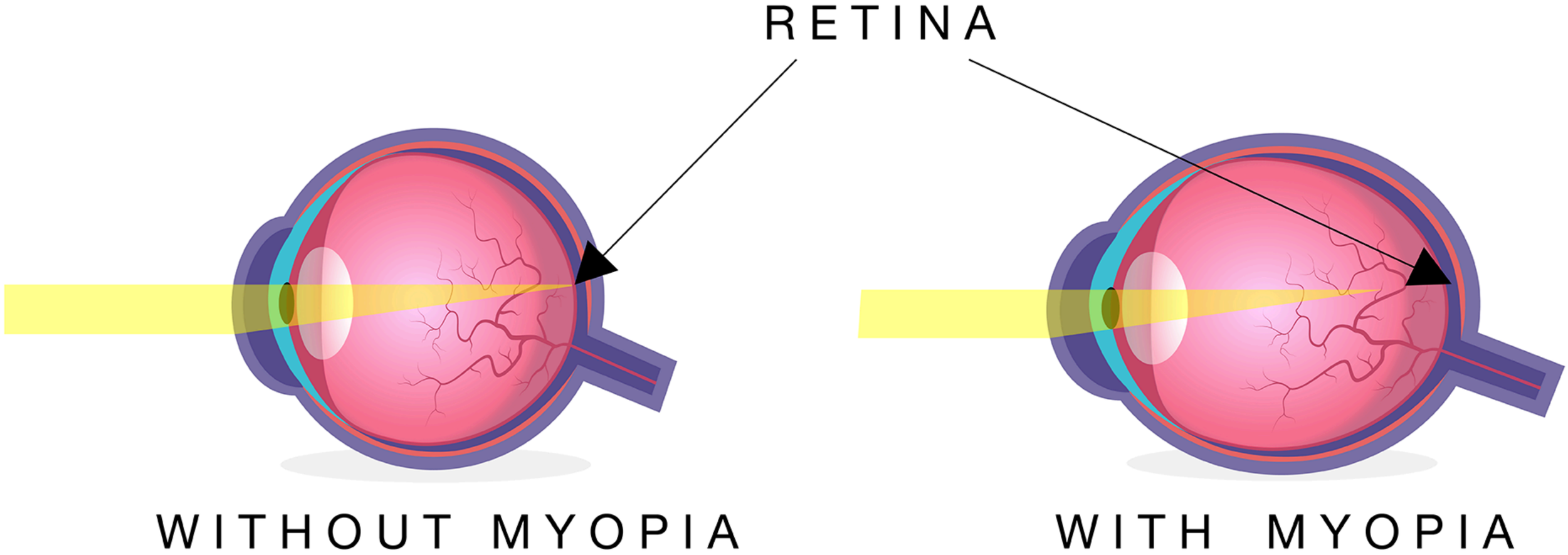
Myopia



Hyperopia



Astigmatism


RETINA
WITHOUT MYOPIA
WITH MYOPIA