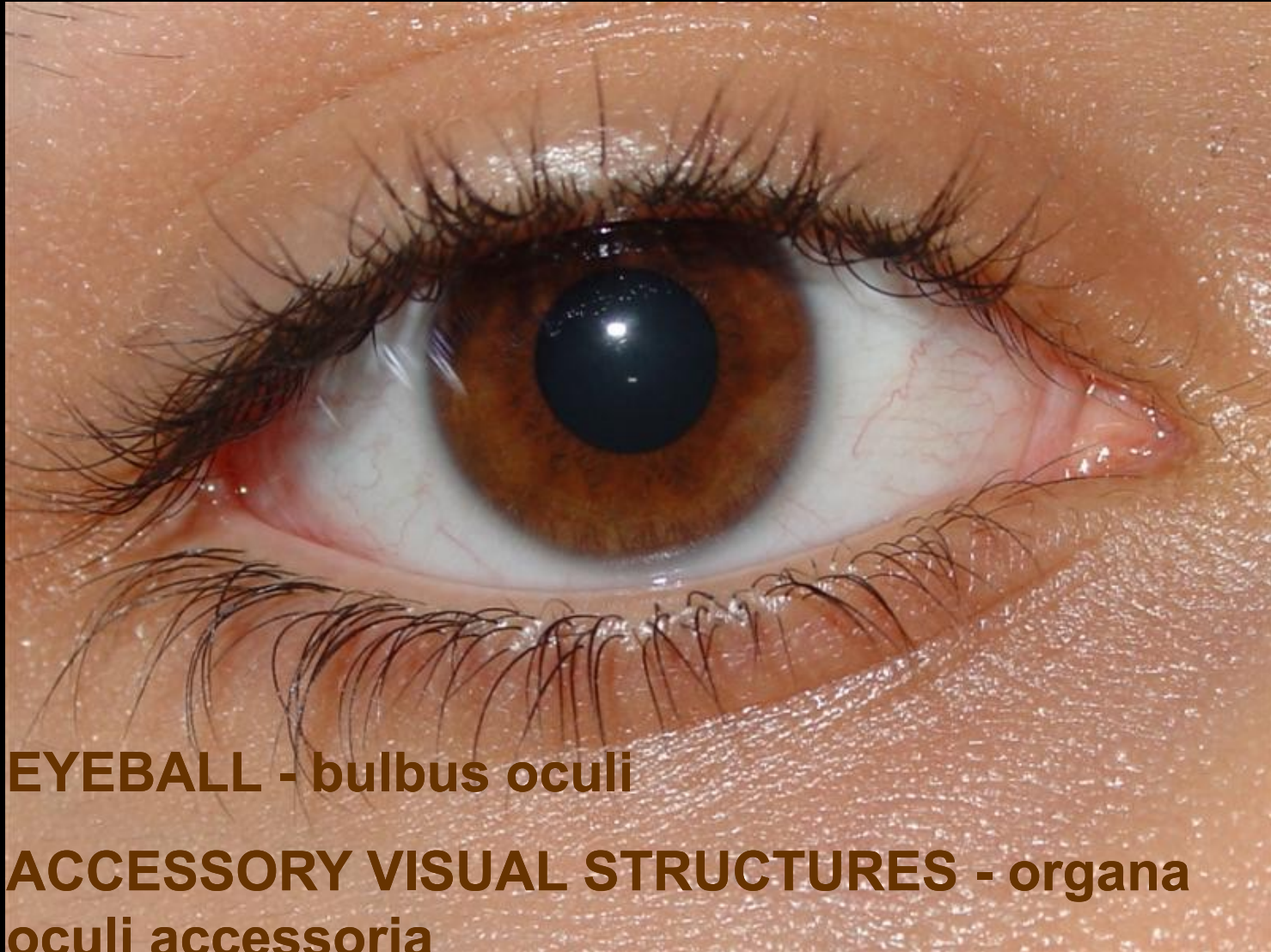


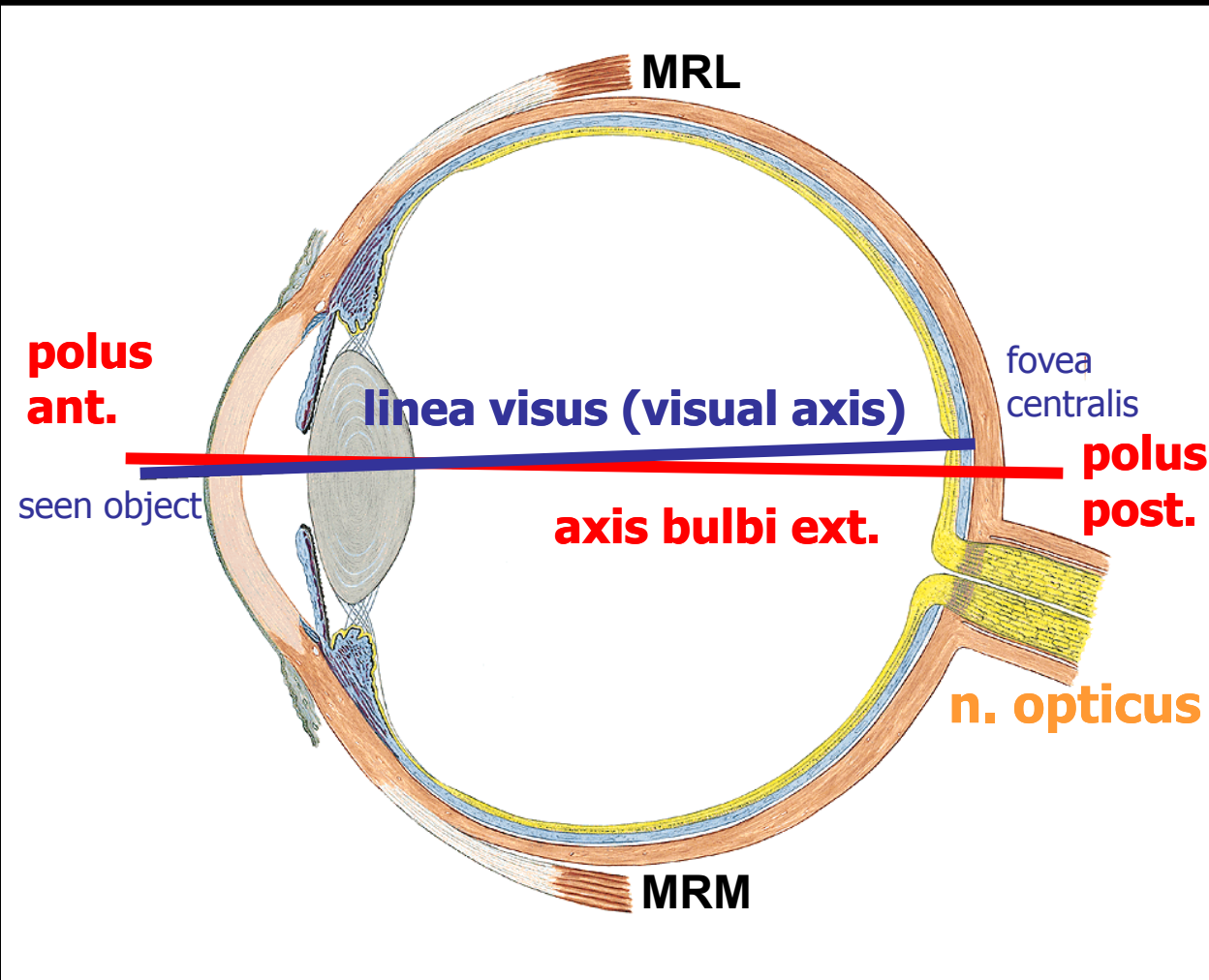
# VISUAL APPARATUS



**EYEBALL - bulbus oculi**

**ACCESSORY VISUAL STRUCTURES - organa  
oculi accessoria**

# **Eyeball** (AP diameter 24 - 26 mm)

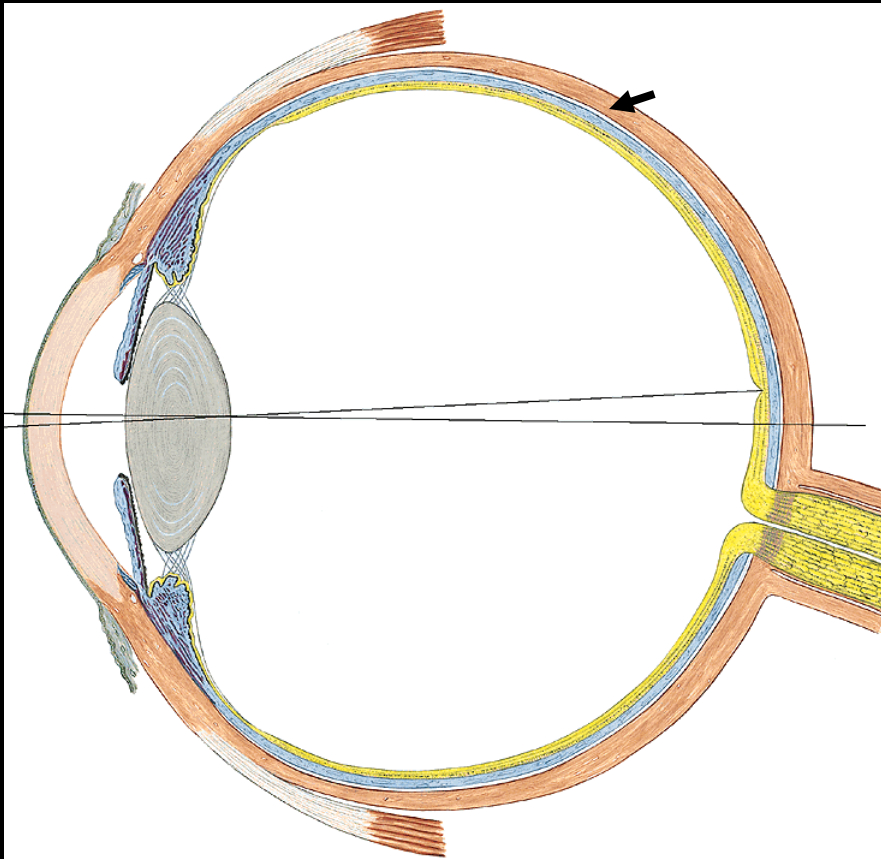


## **Layers:**

- 1. tunica fibrosa**
- 2. t. vasculosa**
- 3. t. interna**

# 1. tunica fibrosa

fibrous skeleton of the eyeball  
attachment of muscles



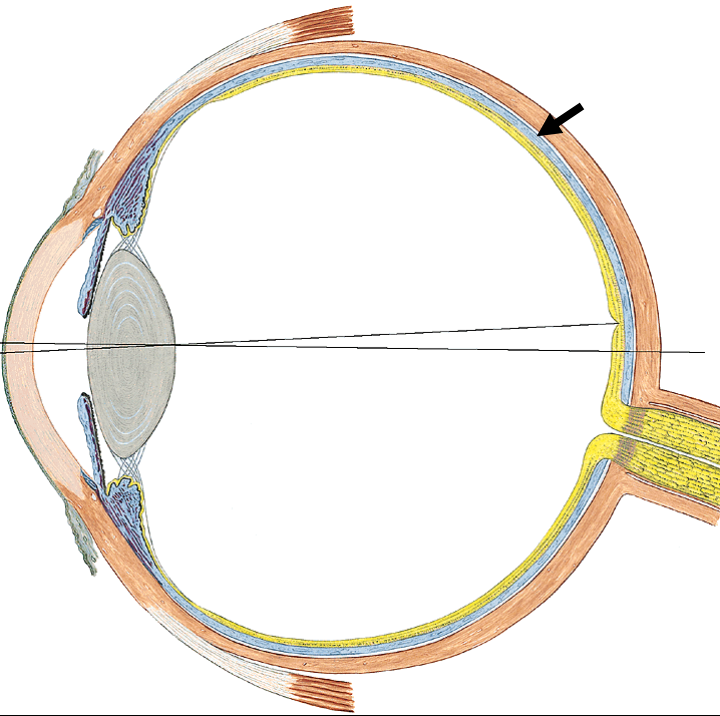
**Sclera** - post. 5/6

- limbus sclerae
- sulcus sclerae
- sinus ven. sclerae
- l. cribrosa sclerae

**Cornea** - ant. 1/6

- limbus corneae
- facies ant. et post.

## 2. tunica vasculosa



## Choroid (2/3)

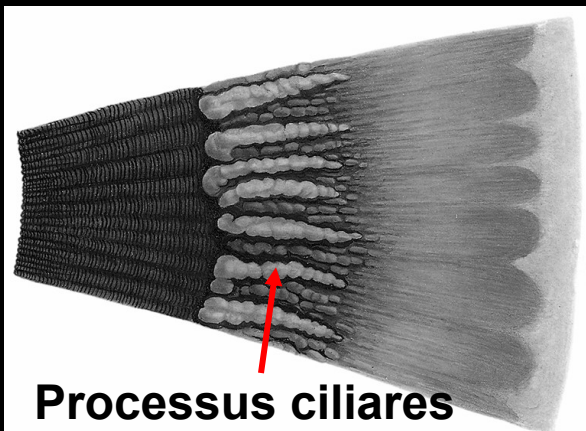
- ✓ supplies the retina
- ✓ pigmented – light-absorbing
- ✓ vascular

## Corpus ciliare

- ✓ attachment for the lens
- ✓ controls thickness of the lens
- ✓ secretion of aqueous humor

## Iris

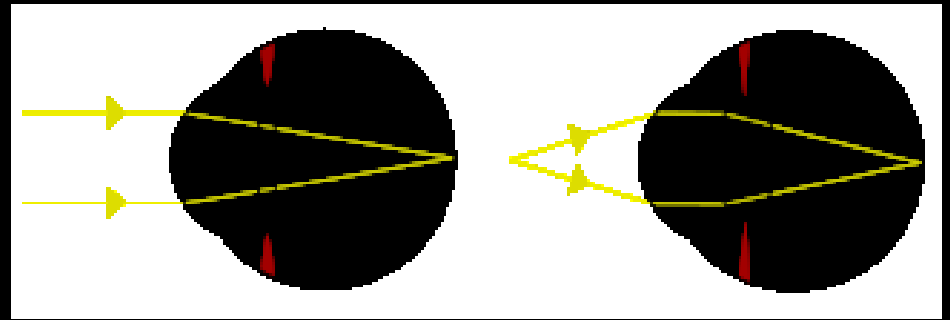
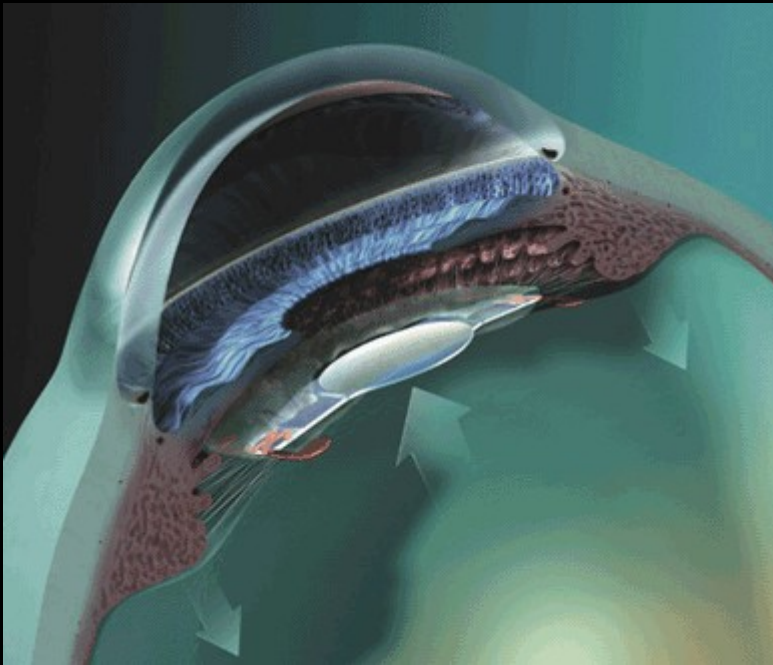
- ✓ contractile diaphragm with a central aperture – pupil
  - facies ant. et post.
  - sphincter, dilator



Processus ciliares

# M. ciliaris

## Accommodation of the lens

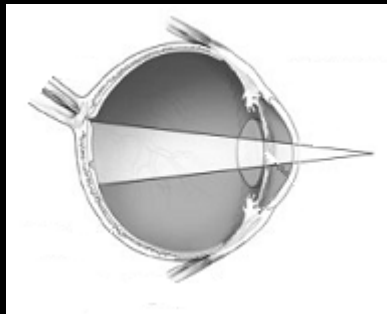


increased convexity of the  
lens – refraction suitable  
for near vision

Innervation: **E-W ncl. CN III**

**M. sphincter pupillae**

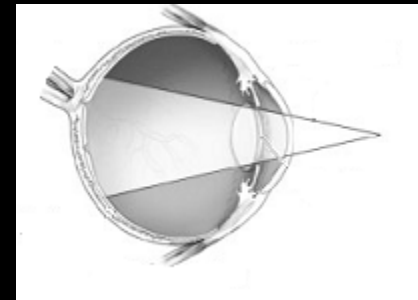
**Miosis**



**E-W ncl. CN III**

**M. dilatator pupillae**

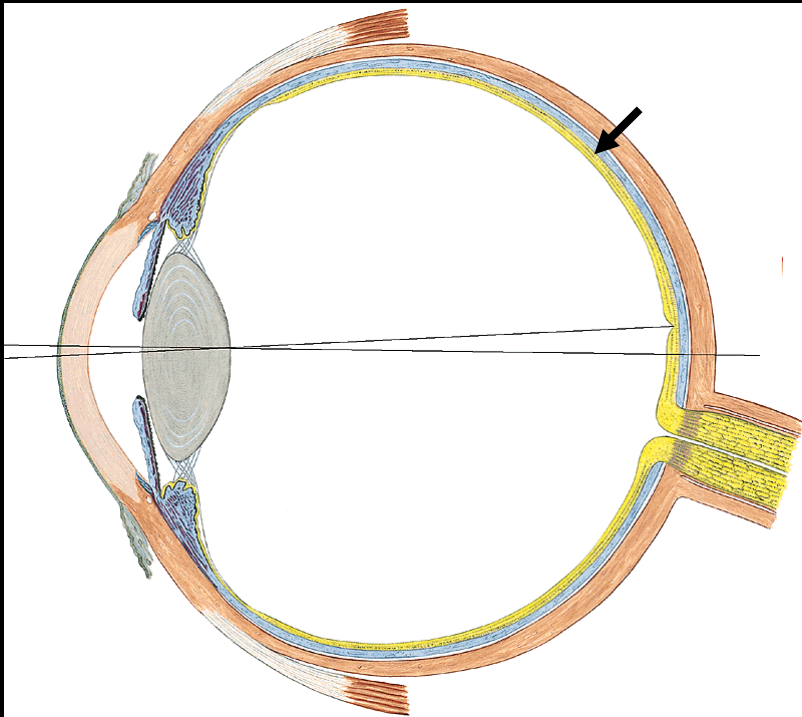
**Mydriasis**



**Symp.ncl.**

# 3. tunica interna

## Retina



- pars optica (rods, cones)

ora serrata

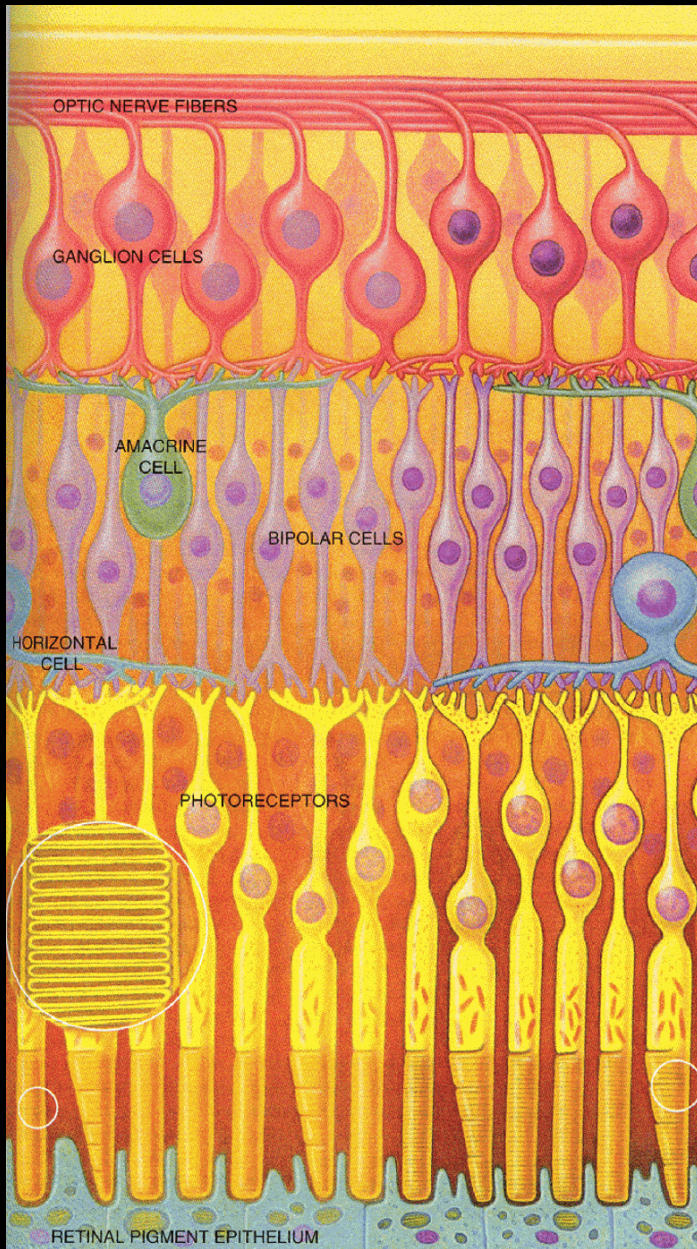
- pars caeca:

p. iridica

p. ciliaris



# Layers of the retina



**N. opticus**

**str. ganglionare n. optici**

**str. ganglionare retinae**

**str. neuroepitheliale**

**str. pigmentosum**



## **Photoreceptors:**

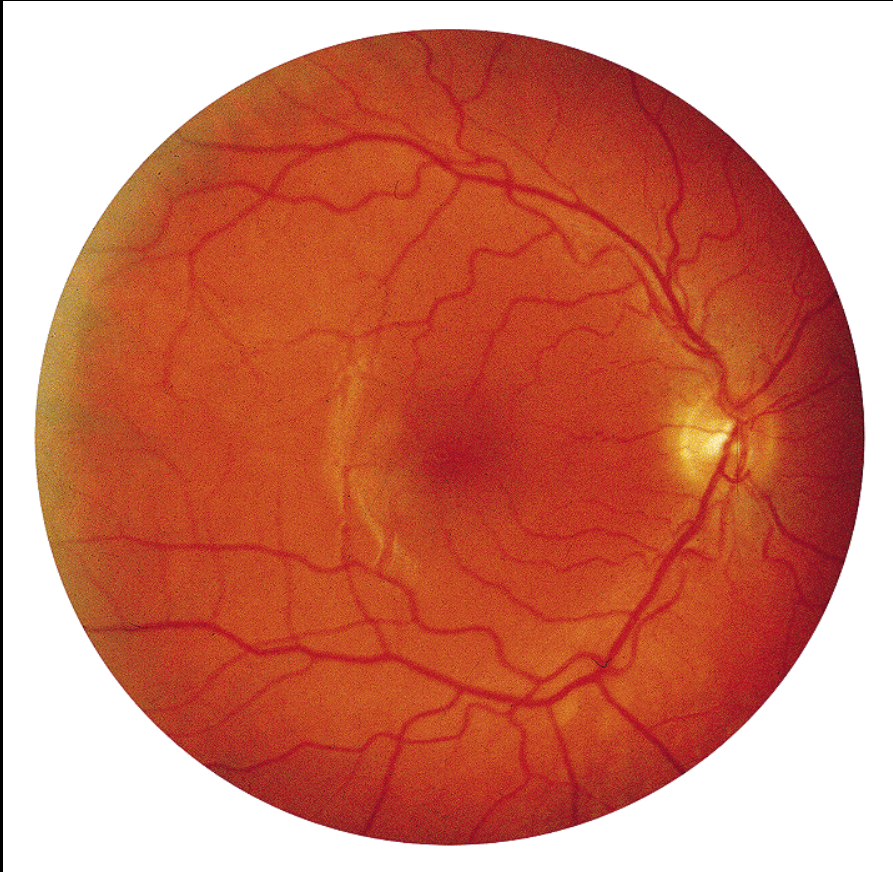
### **Rods**

- ✓ 120 million
- ✓ primary source of visual information at night
- ✓ used in peripheral vision

### **Cones**

- ✓ 7 million
- ✓ detection of color
- ✓ central fovea – responsible for central vision

# Ophthalmoscopy



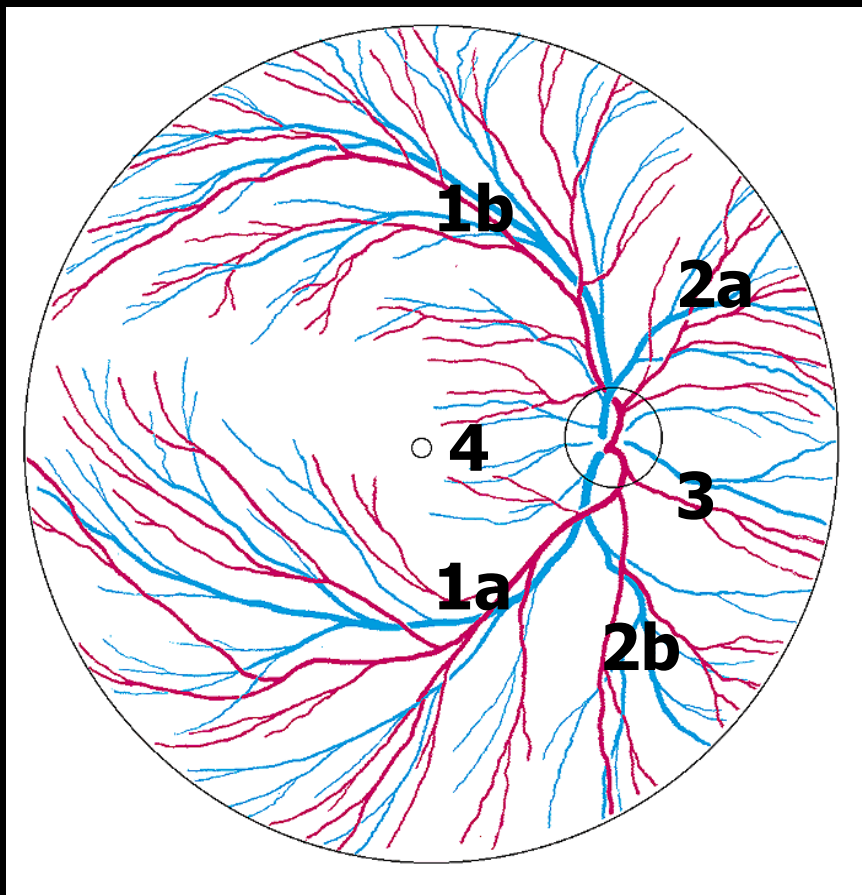
OCULA DEXTRA (OD)

**Fundus**

**optic disc - vessels**

**Macula lutea + fovea centralis**

- the area of most acute vision



## **A. et v. centralis retinae**

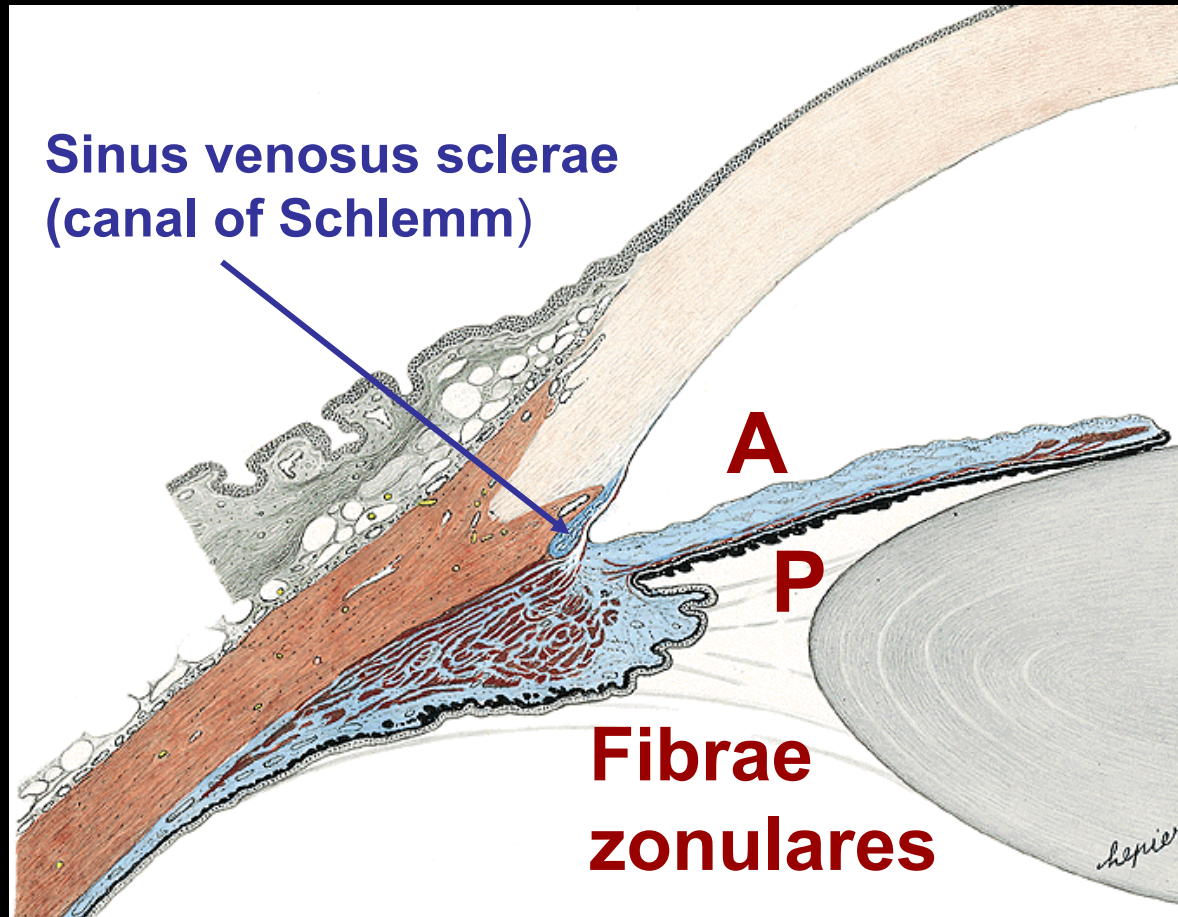
**1a,b** a. et v. temporales

**2a,b** a. et v. nasales

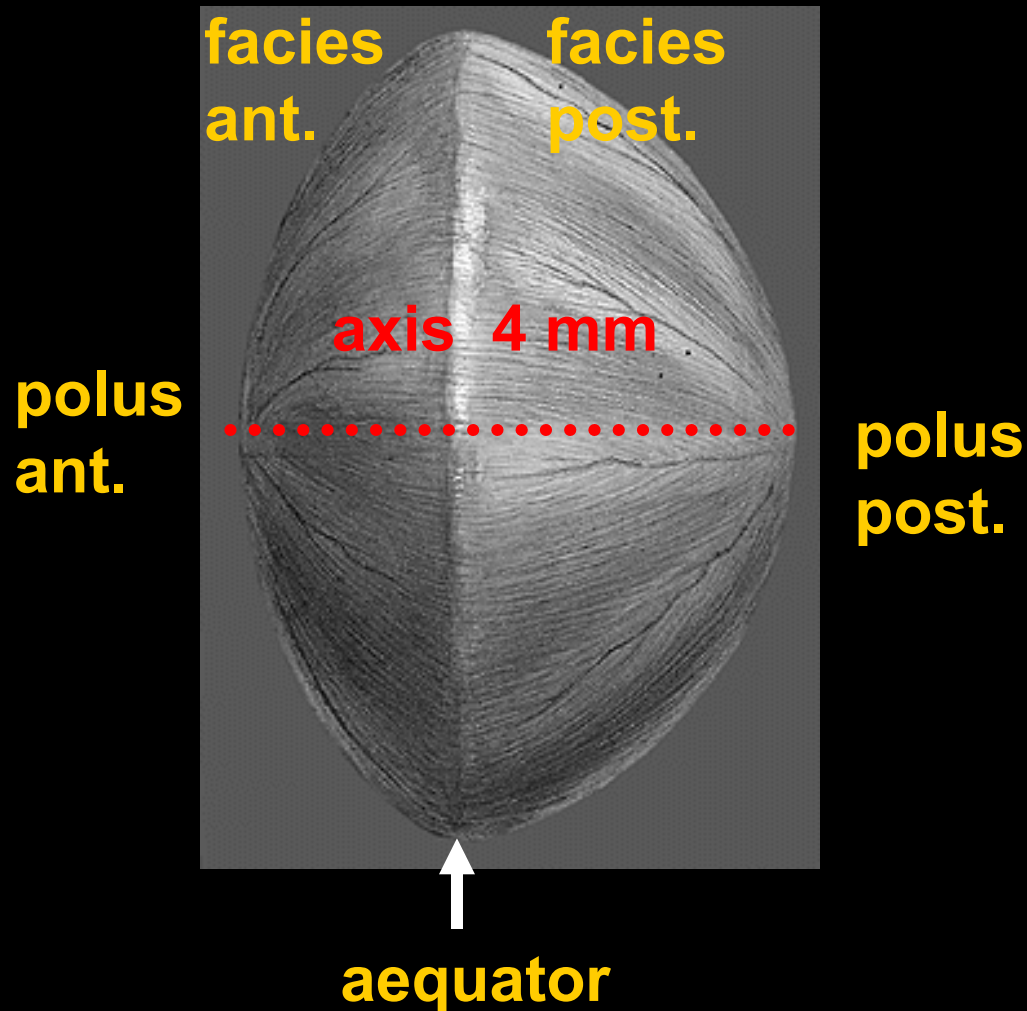
**3** a. et v. med. retinae

**4** a. et v. macularis

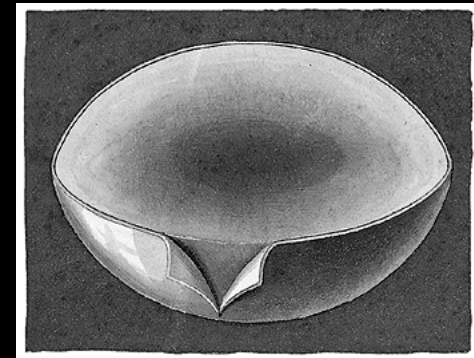
**Chambers - camera bulbi ant. et post.**  
**Aqueous humor - humor aquosus**



# Lens



Optical power  
+ 10 - 17 dioptries



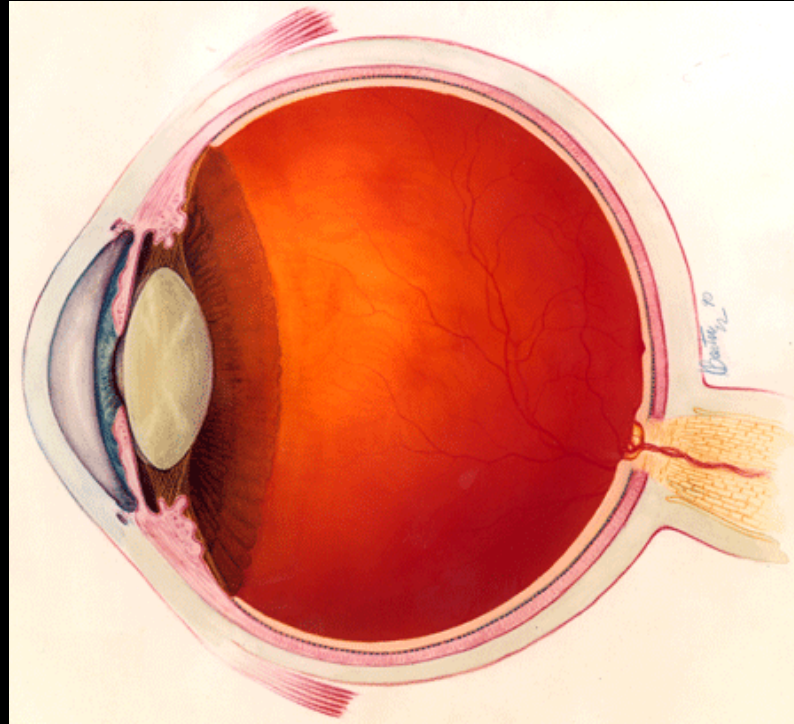
- capsula lentis
- cortex lentis
- nucleus lentis

# Cataracts



- ✓ loss of transparency
- ✓ cloudiness
- ✓ ageing process

# Vitreous chamber: **vitreous humor, vitreous body**

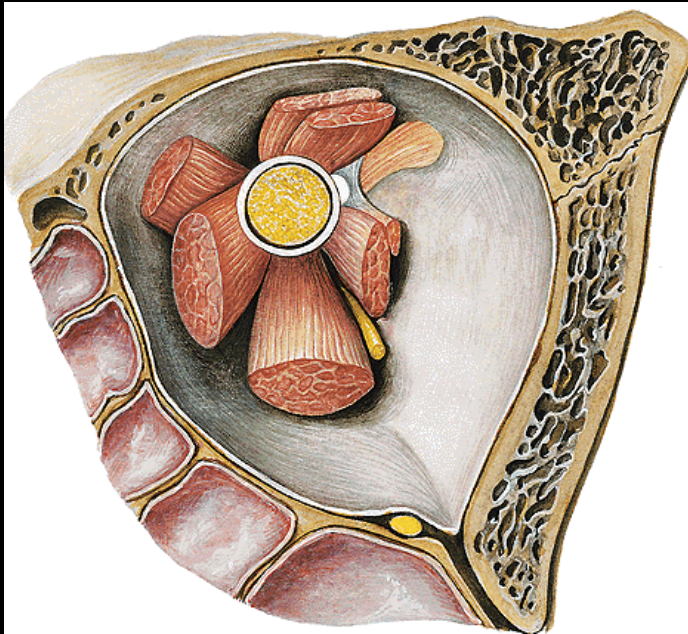


- ✓ **jelly-like substance with watery fluid**
- ✓ **holds the retina in place**
- ✓ **supports the lens**

# Extraocular muscles

## Smooth

- m. orbitalis (**symp.**) Palsy = **Enophthalmus**
- mm. tarsales (**symp.**) = **Ptosis**

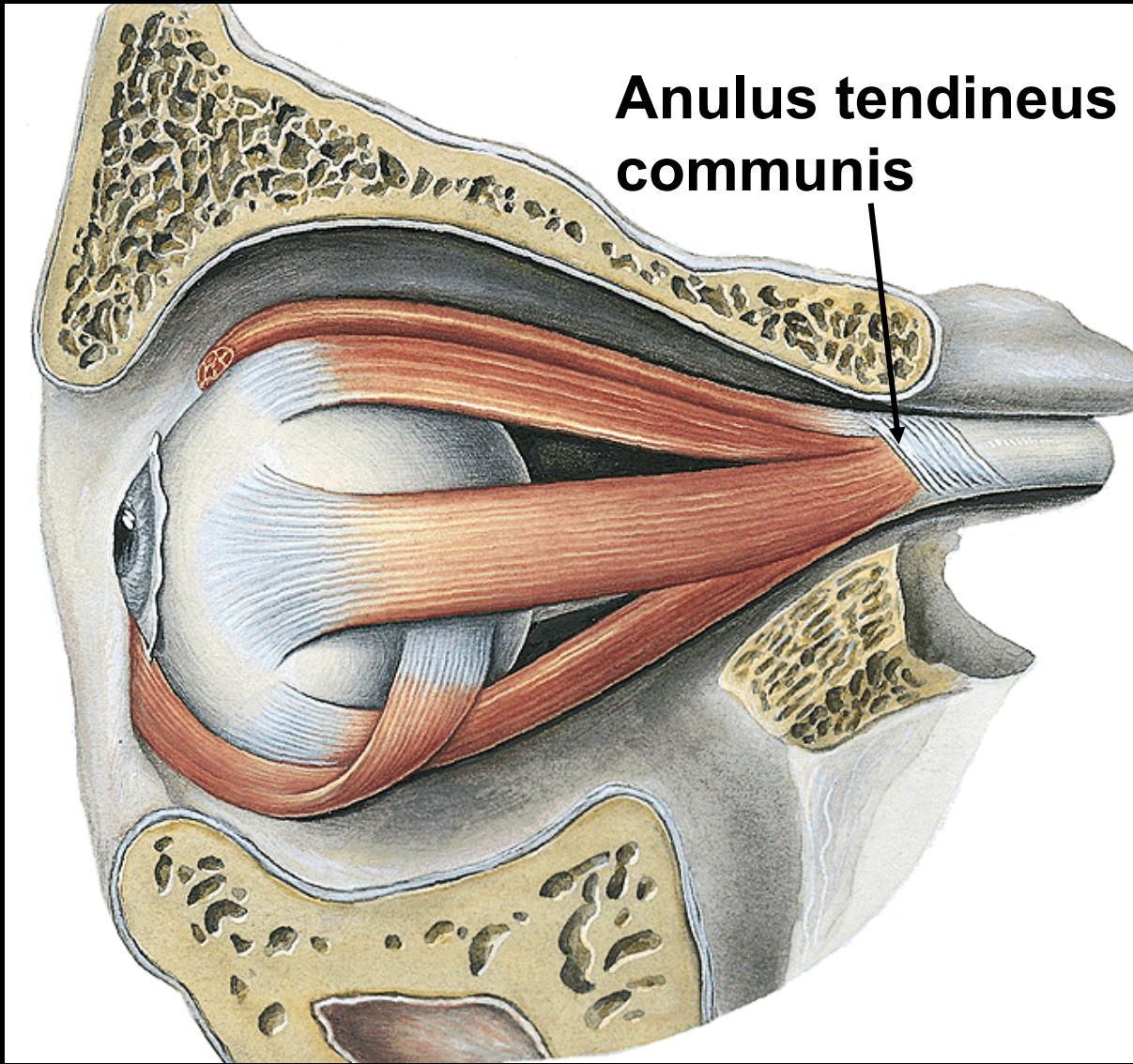


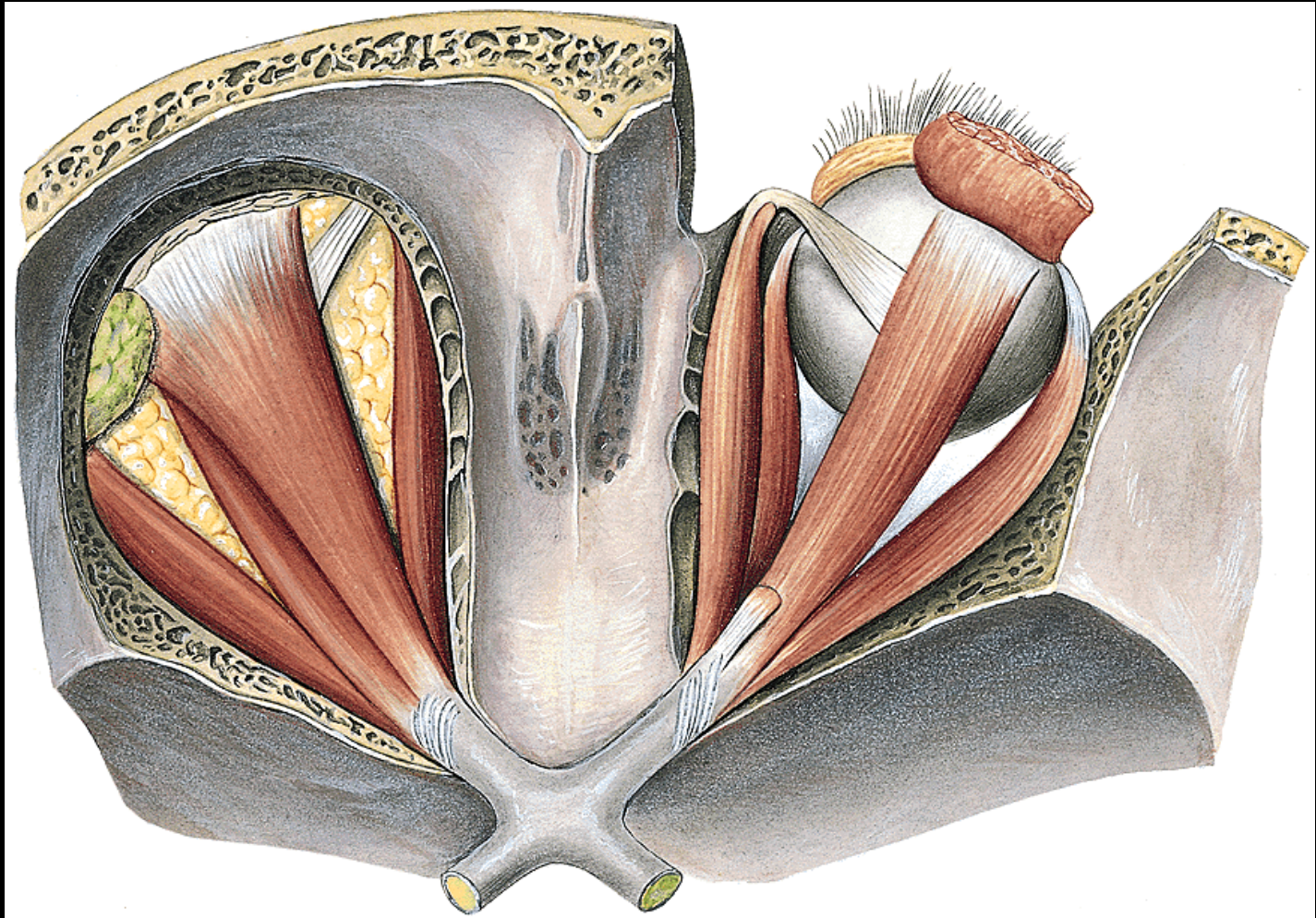
## Skeletal

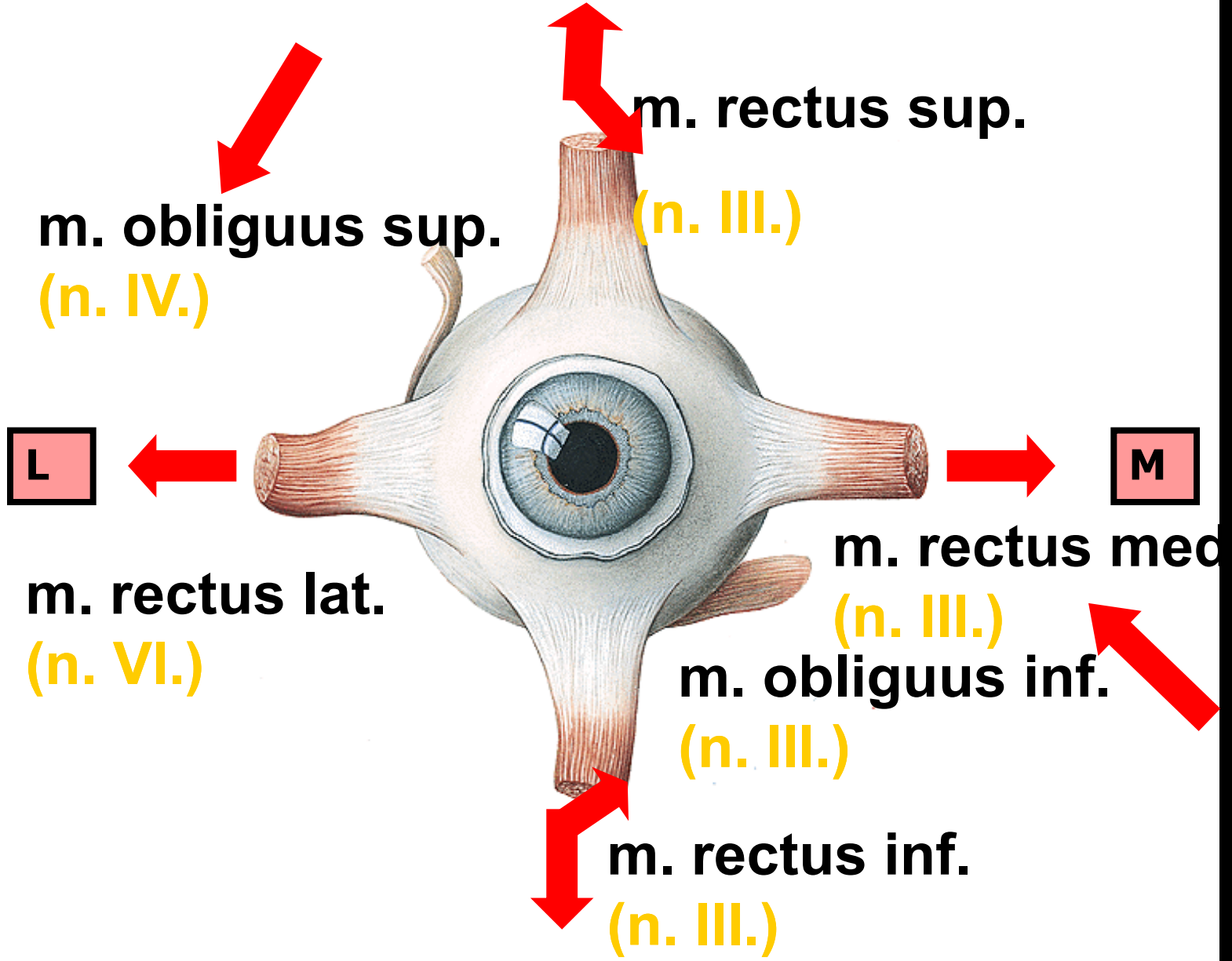
- m. rectus bulbi sup., inf., med., lat.
- m. obliquus sup., inf.
- m. levator palp. sup.



**Anulus tendineus  
communis**







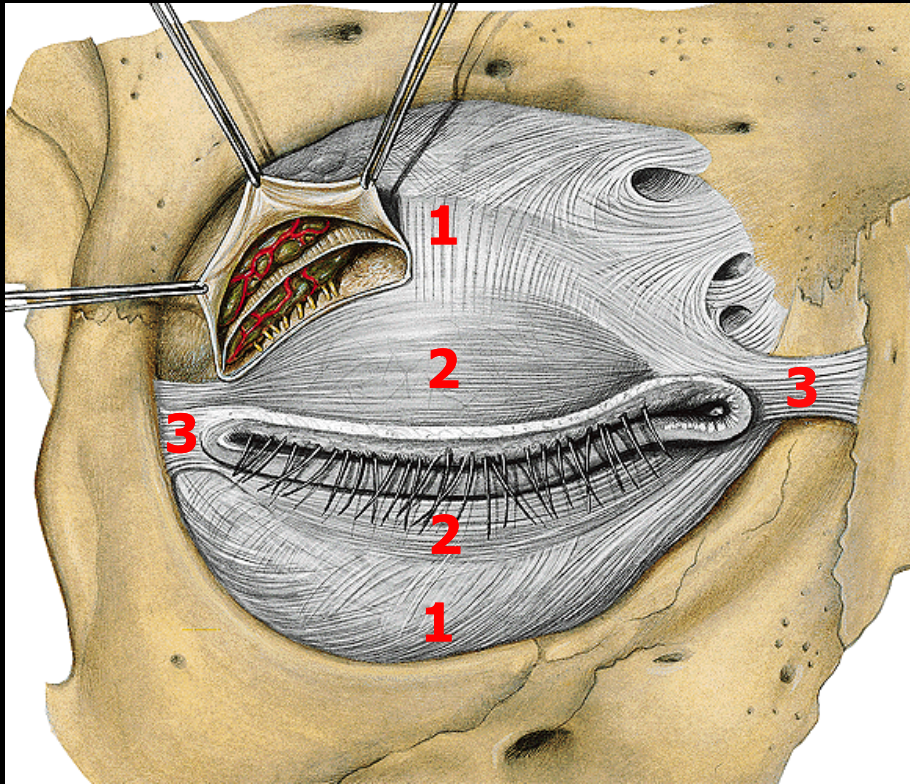
# **Eyelids - palpebrae**

## **Conjunctiva**

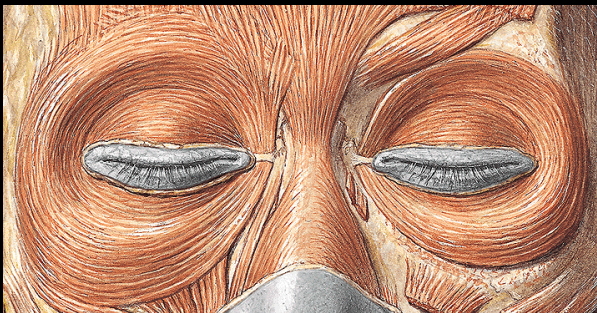


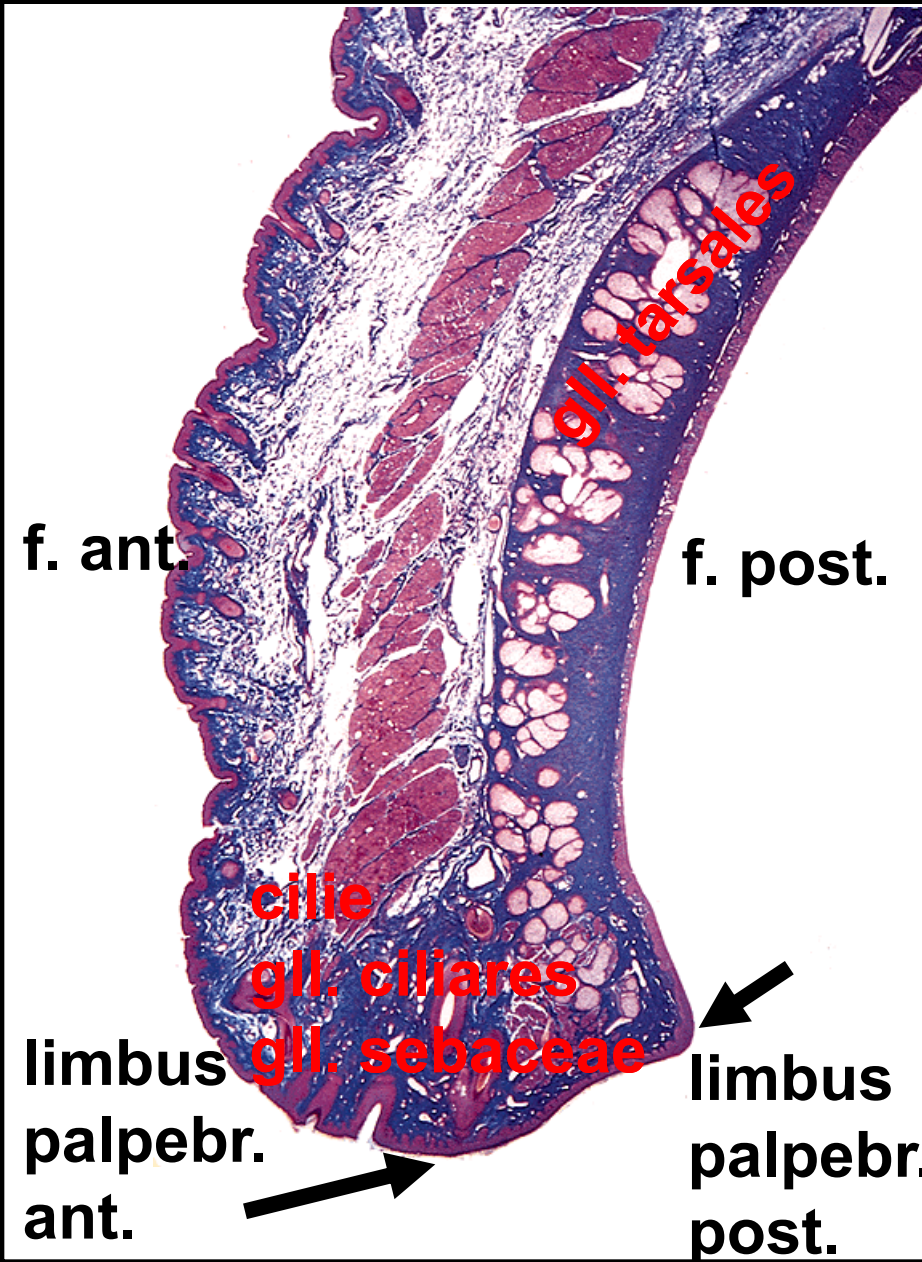
- palpebra sup. et inf.
- commisurae palpebr.
- rima palpebrarum
- angulus oculi med. et lat.
- facies ant. et post.

# Structure of the eyelid



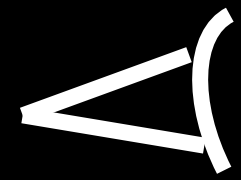
- 1 septum orbitale
- 2 tarsus sup. et inf.
- 3 lig. palp. med. et lat.





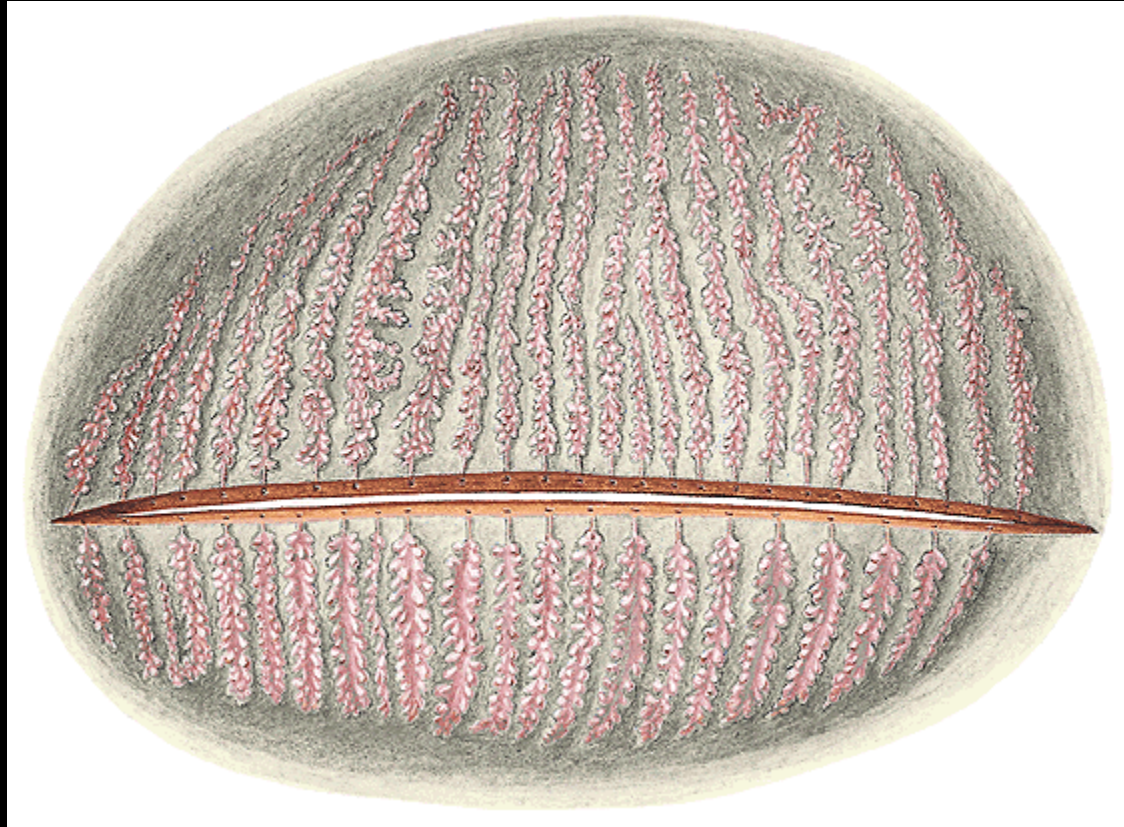
skin

- m. orbicularis oculi
- septum orbitale + tarsi
- conjunctiva

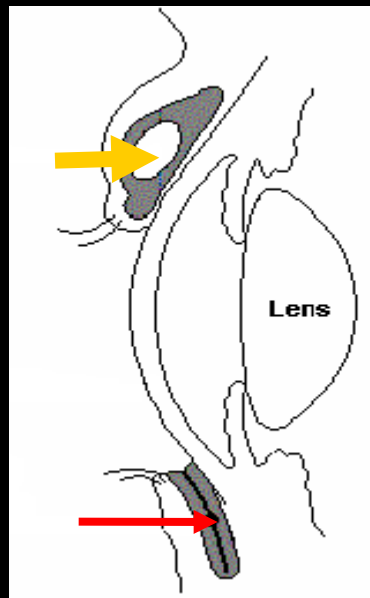


**Rivus lacrimalis**

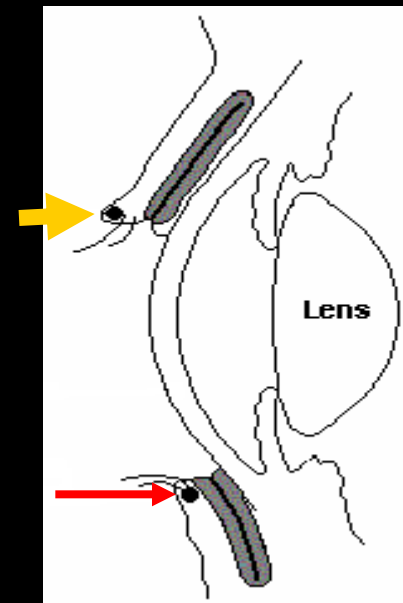
# GII. tarsales



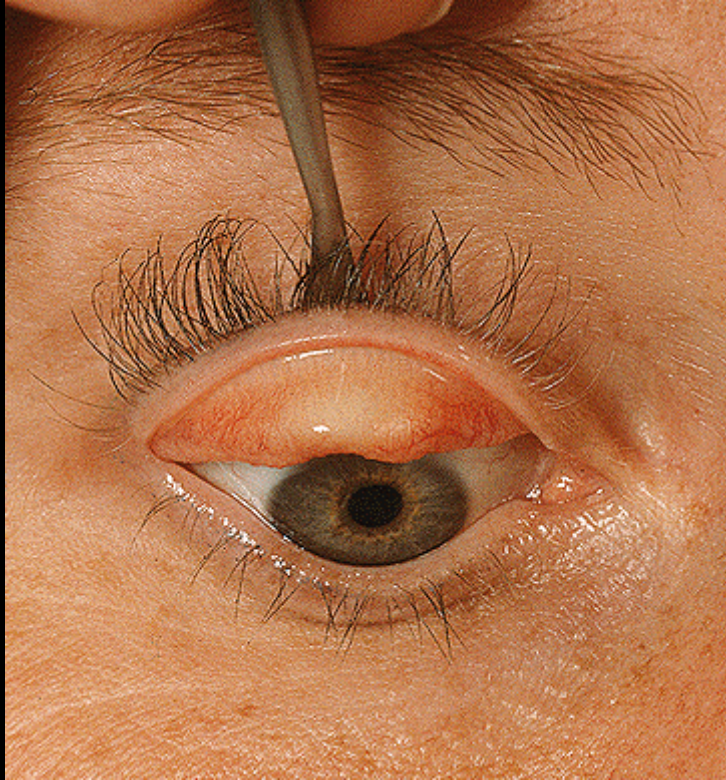
## Chalazion (tarsal chalazion)



## Hordeolum (sty)





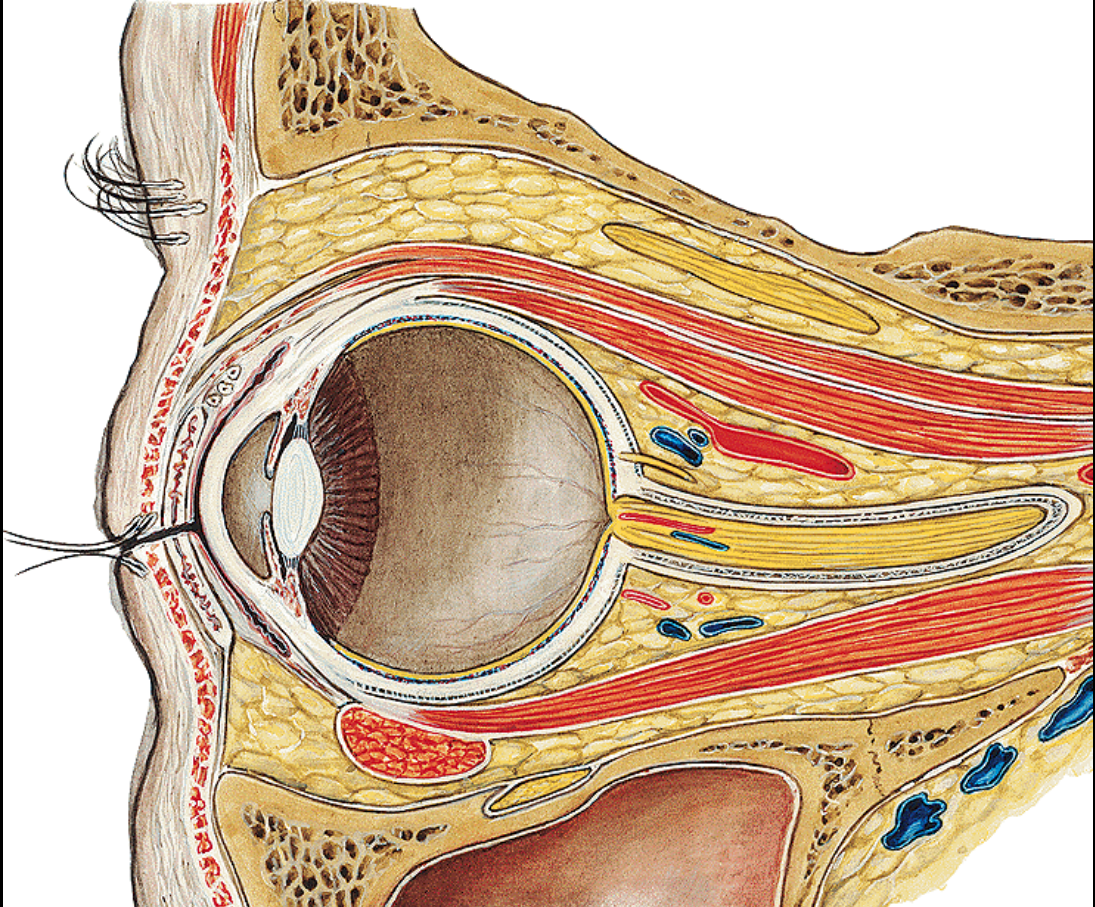


## **Tunica conjunctiva**

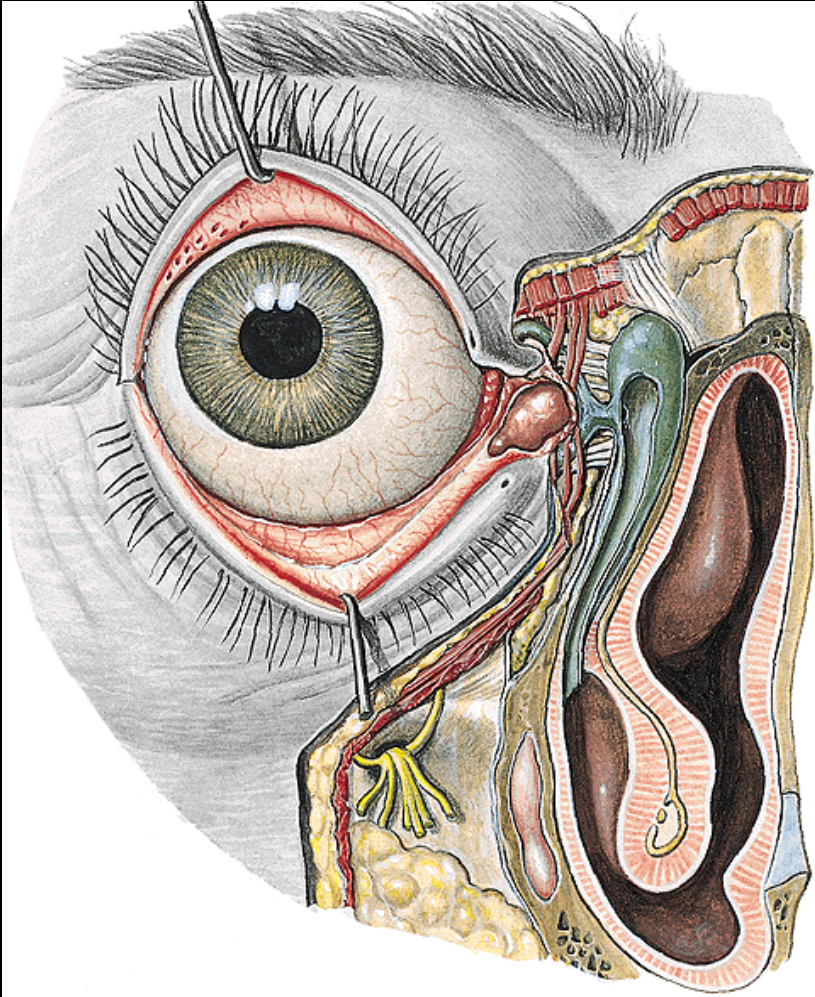
**tun. conj. palpebrarum**

**fornix conjunct. sup. et inf.**

■ **tun. conj. bulbi**



# Apparatus lacrimalis



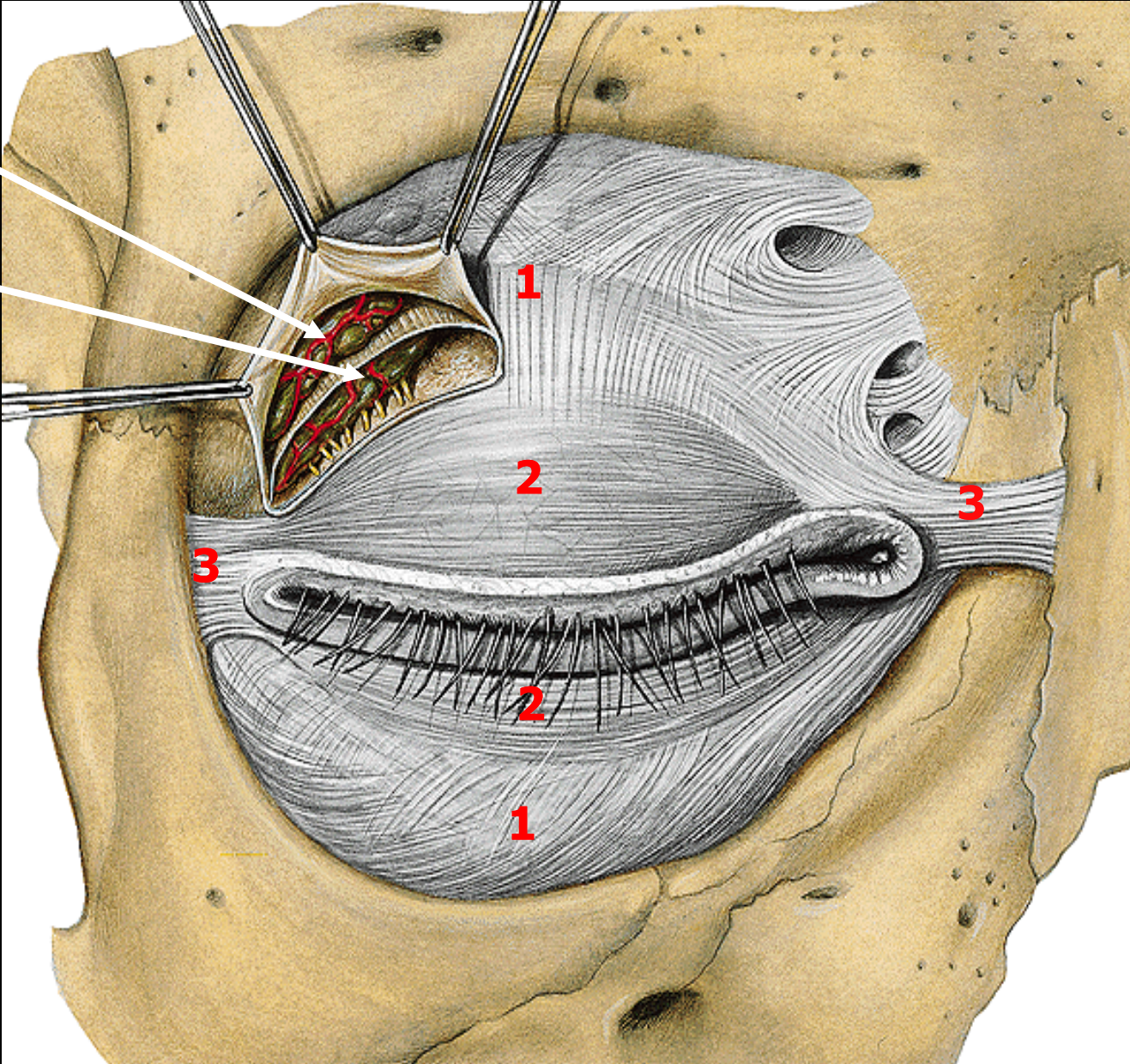
## Glandula lacrimalis

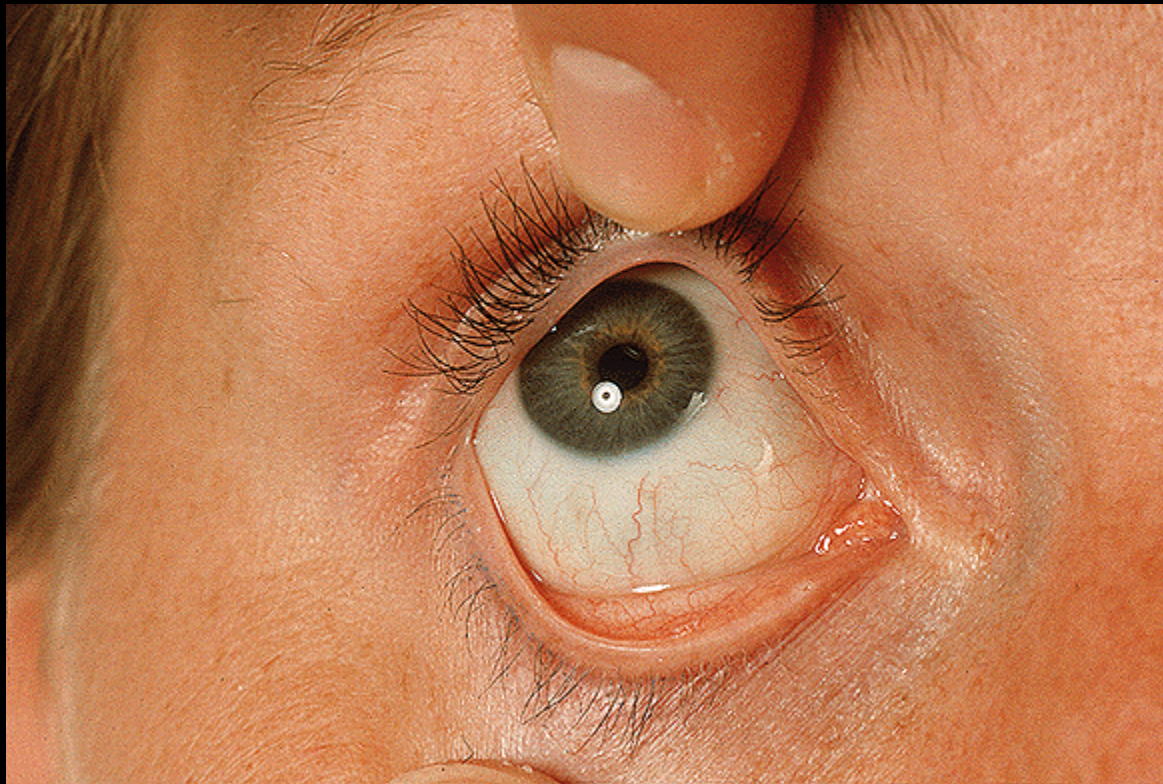
- > ductuli excretorii
- > lacus lacrimalis

- papillae lacrimales
- puncta lacrimalia
- canaliculi lacrimales
- saccus lacrimalis
- ductus nasolacrimalis

**Pars orbitalis**

**Pars palpebralis**



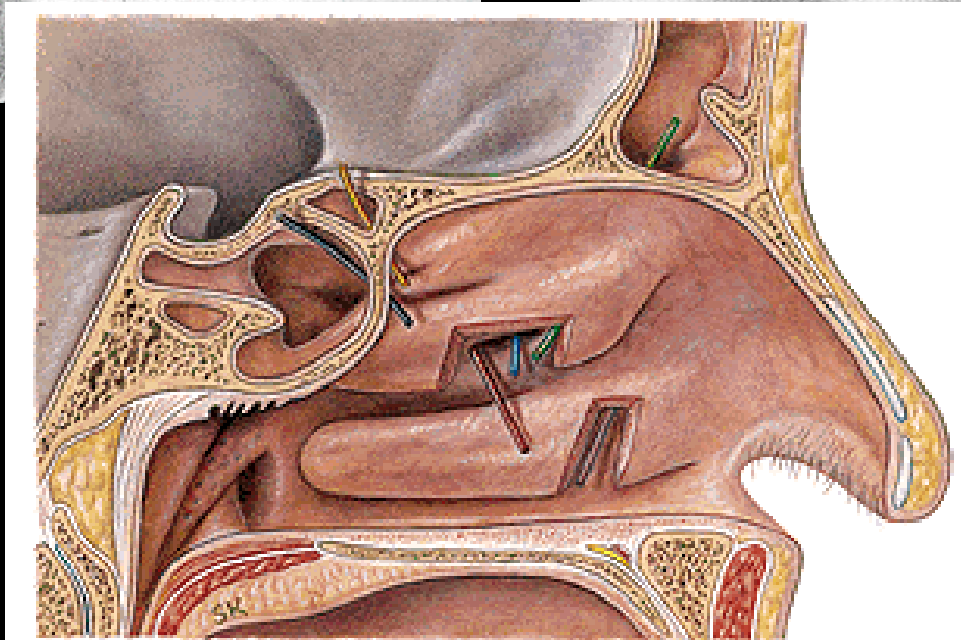
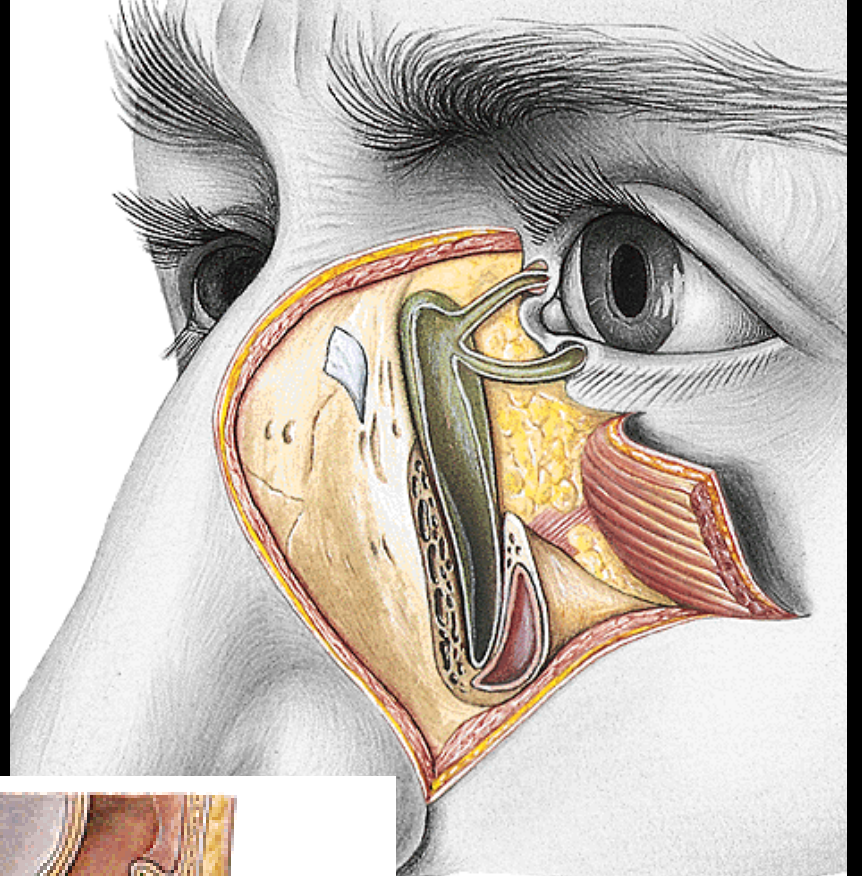
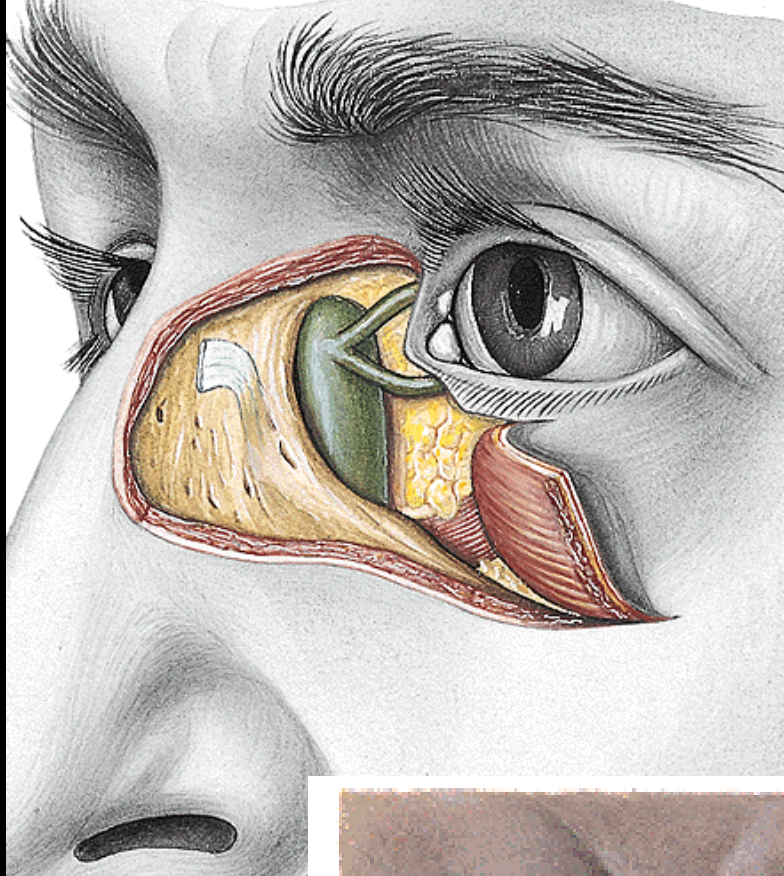


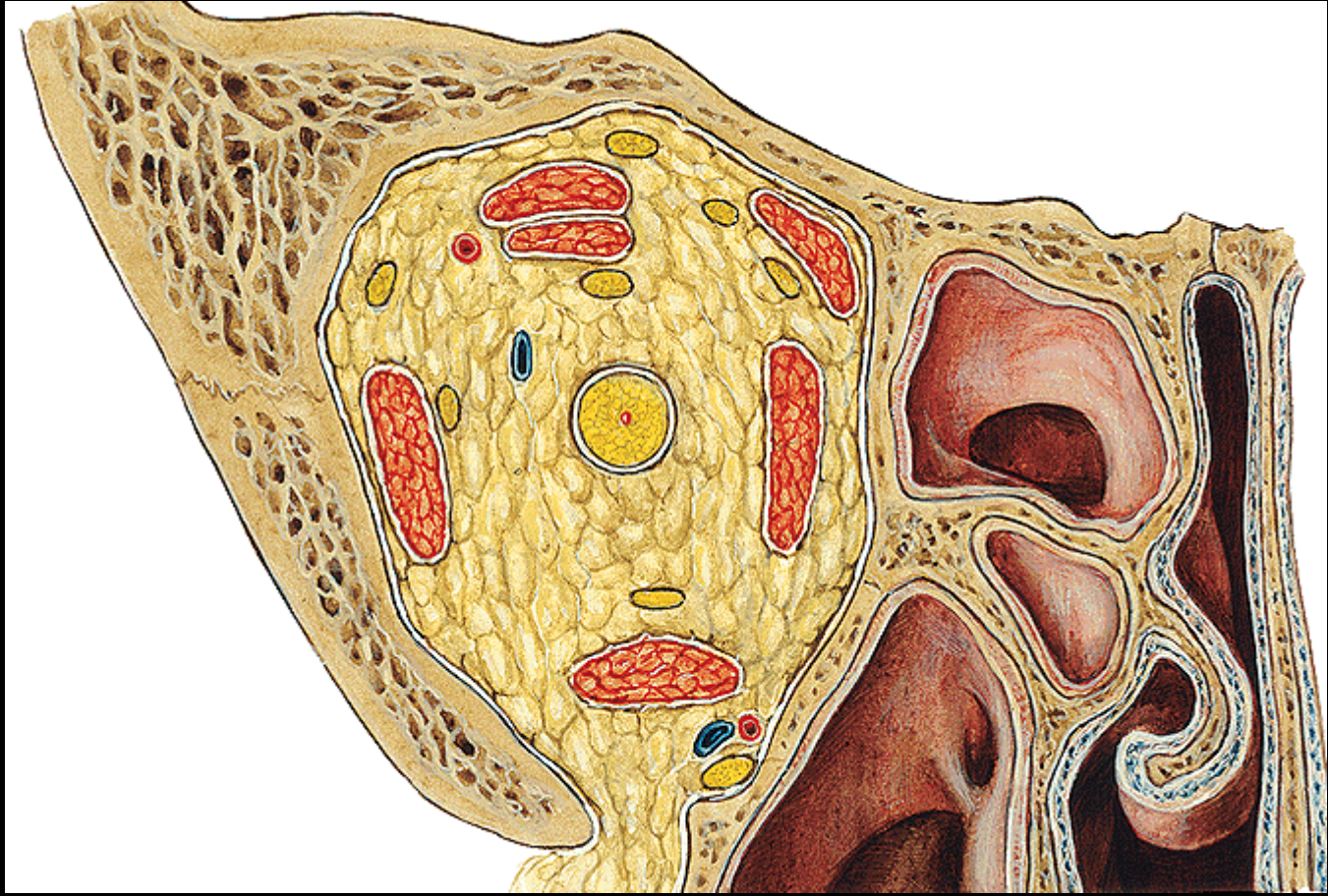
**Angulus medialis:**

**lacus lacrimalis**

■ **caruncula lacrimalis**

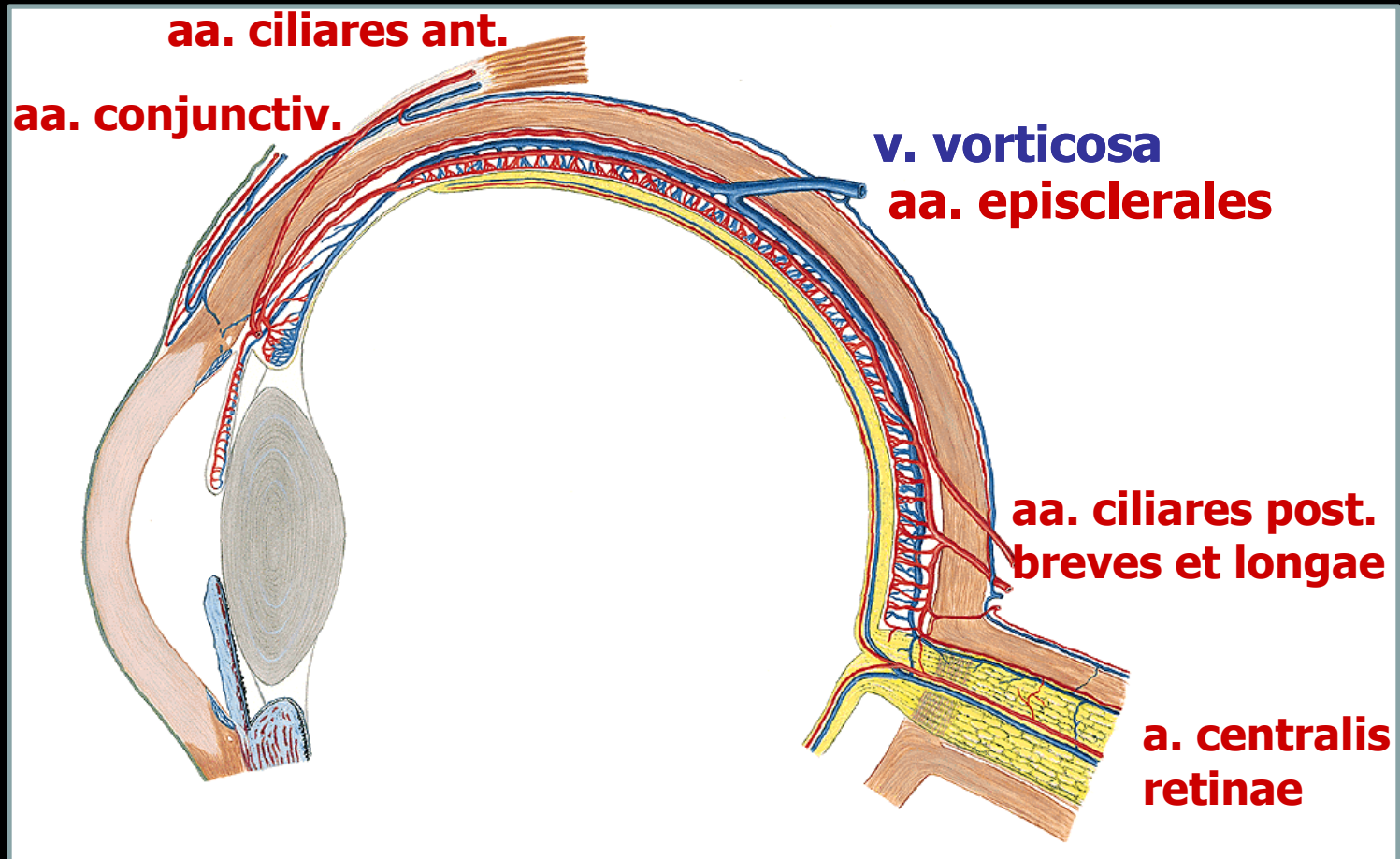
■ **plica semilun. conjunctivae**



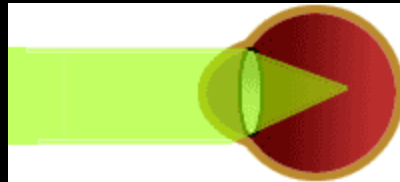


# Blood supply

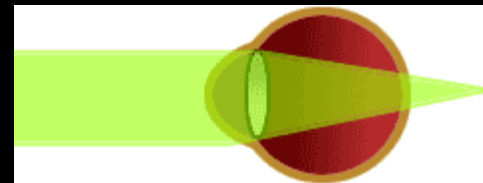
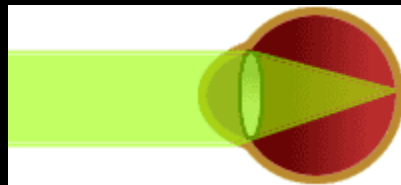
**A. ophthalmica**  
**V ophthalmica sup.**  
**V. ophthalmica inf.**







myopia - shortsightedness



hyperopia - hypermetropia -  
longsightedness