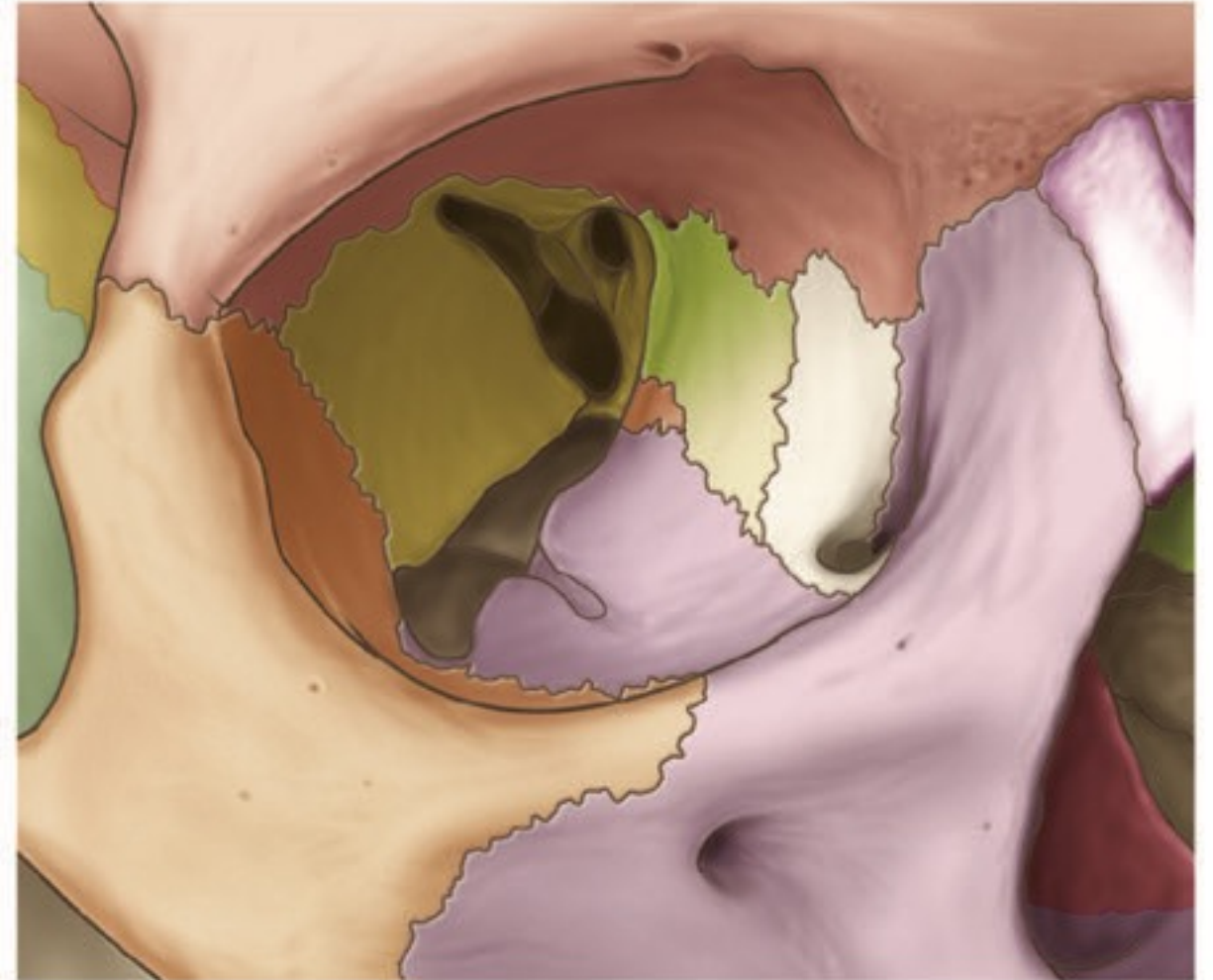


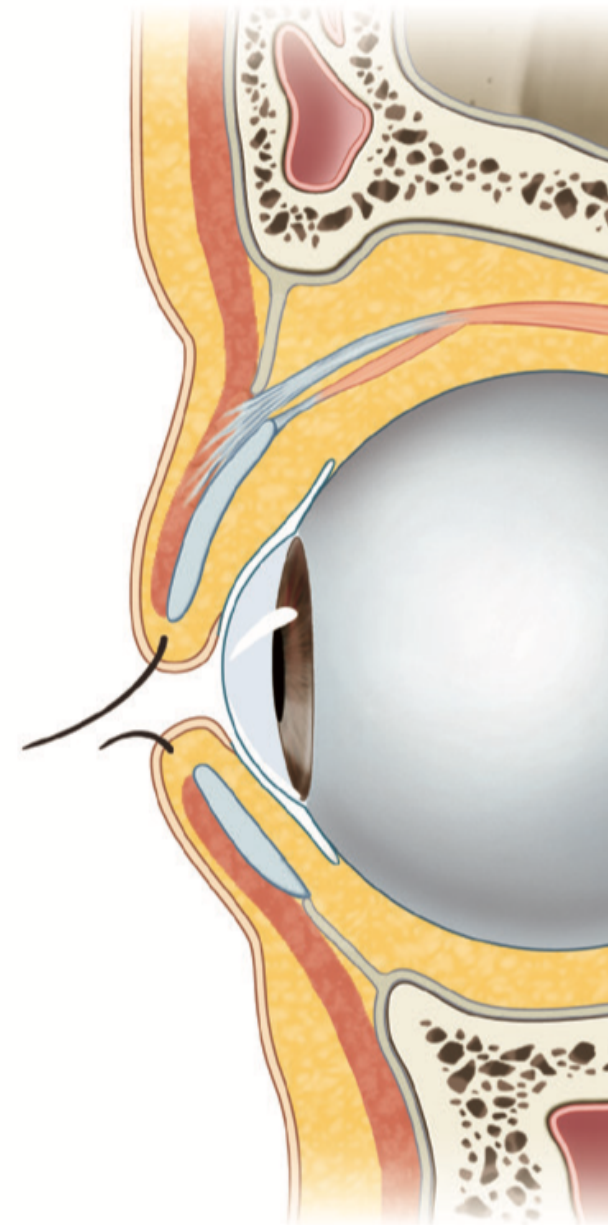
Orbita

- ♦ **Os frontale**
- ♦ **Os sphenoidale**
 - ♦ Canalis opticus
 - ♦ Fissura orbitalis superior
- ♦ **Os zygomaticum**
- ♦ **Maxilla**
 - ♦ Fissura orbitalis inferior
 - ♦ Canalis infraorbitalis
 - ♦ Sulcus lacrimalis
- ♦ **Os lacrimale**
- ♦ **Os ethmoidale**
- ♦ **Os palatinum**



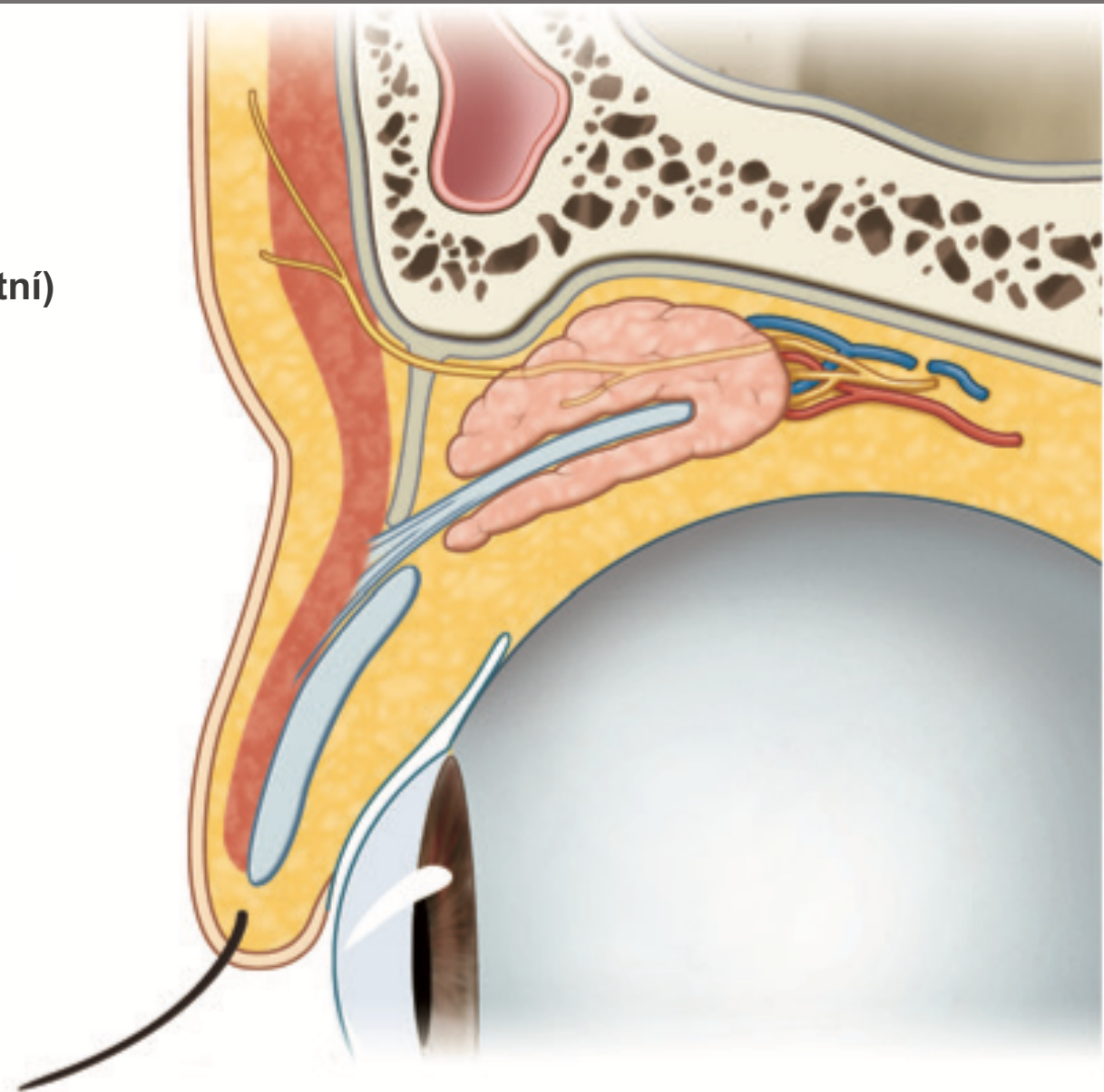
Palpebrae - eyelids

- ♦ Rima palpebrarum
- ♦ **Palpebra superior et inferior**
 - ♦ Commissura palpebrarum medialis et lateralis
- ♦ Cutis – facies anterior
- ♦ Tela subcutanea
 - ♦ Loose connective tissue – edema of eyelids
- ♦ M. orbicularis oculi
 - ♦ Pars orbitalis
 - ♦ Pars palpebralis
 - ♦ Medially inserted into cristac lacrimalis
 - ♦ N. facialis (VII) – closes eyelids
 - ♦ Lig. palpebrale mediale et laterale
- ♦ Tarsus superior et inferior
 - ♦ M. levator palpebrae
 - ♦ M. tarsalis superior
- ♦ Tunica conjunctiva – facies posterior
 - ♦ Tunica conjunctiva palpebrarum
 - ♦ Tunica conjunctiva bulbi
 - ♦ Fornix superior
 - ♦ Fornix inferior



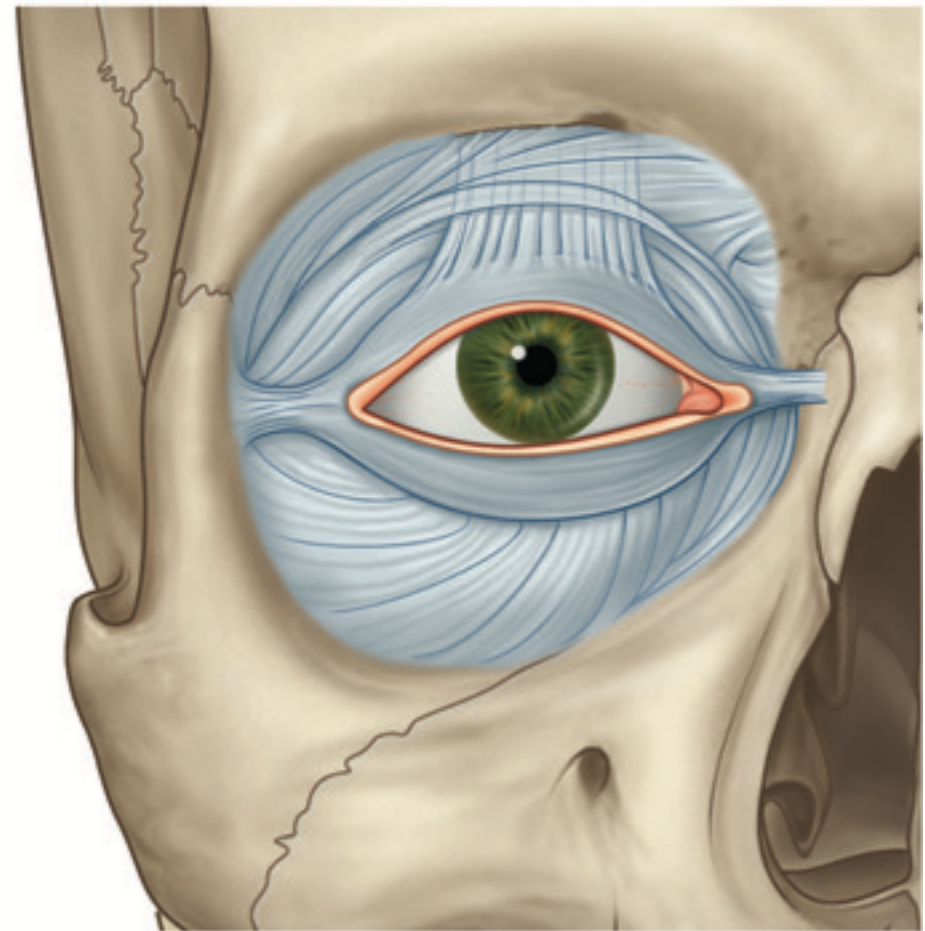
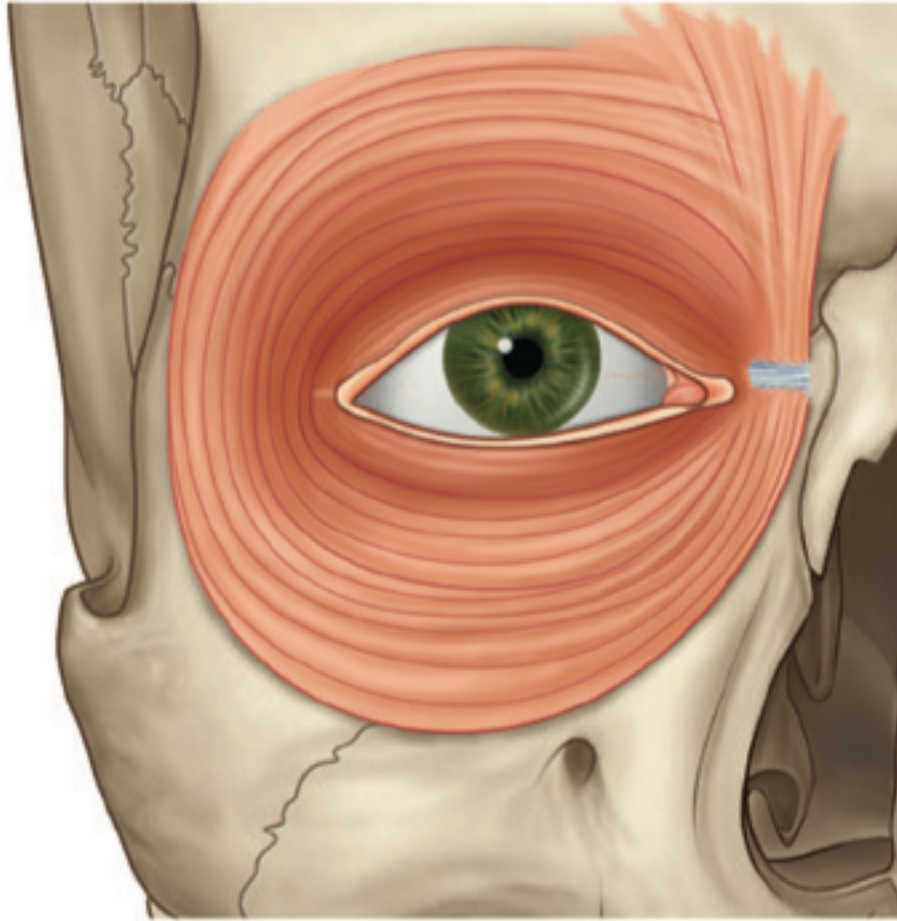
Palpebra - eyelid

- ♦ Supercilia
- ♦ Limbus anterior
- ♦ Cilia
 - ♦ Glandula sebacea ciliai (Zeis), glandula ciliaris (Moll) (potní)
 - ♦ Obstruction and inflammation – sty,
- ♦ Tarsus superior - fibrous plate
 - ♦ Glandula tarsalis (Meibom) - chalazion
- ♦ Septum orbitale – navazuje na periorbitu
- ♦ M. levator palpebrae superioris
 - ♦ *stripped*
 - ♦ *N. oculomotorius (III) - ptosis*
- ♦ M. tarsalis superior
 - ♦ *smooth*
 - ♦ *Sympatheticus – cervical symp. Impairment - ptosis*
- ♦ Limbus posterior
- ♦ Conjunctiva



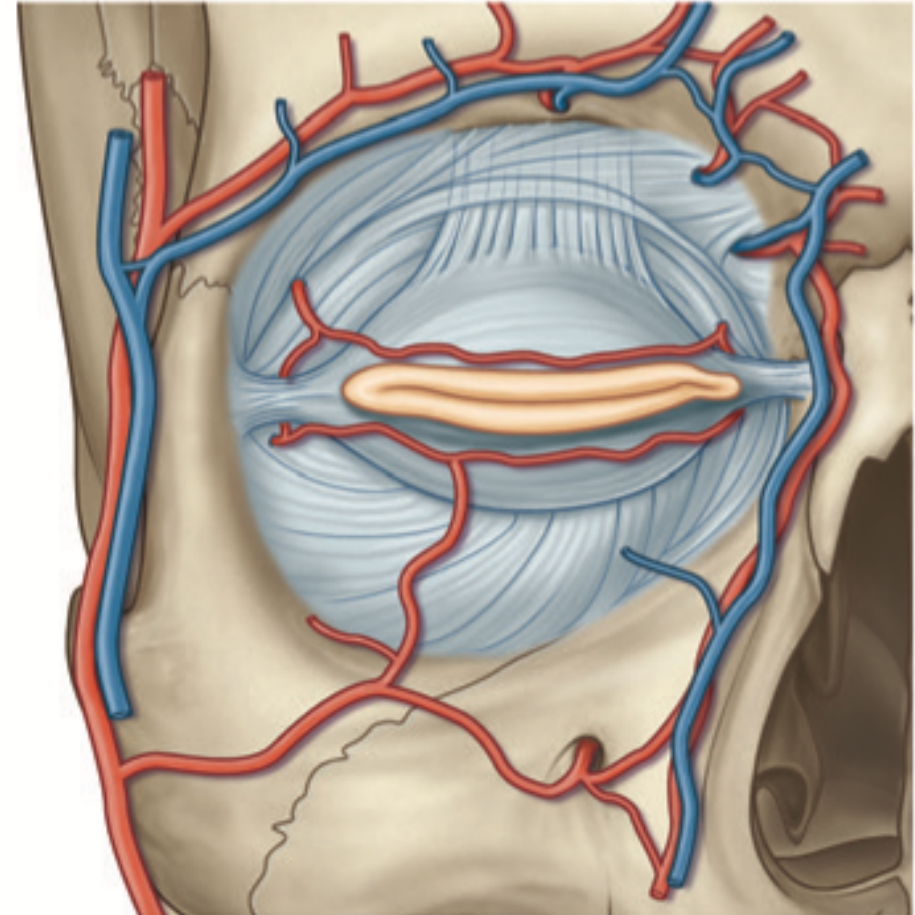
Palpebrae

- m. orbicularis oculi, septum orbitale, tendo m. levator palpebrae sup., ligg. palpebralia



Vasa palpebrarum

- ♦ **A. ophtalmica**
- ♦ A. supratrochlearis
- ♦ A. supraorbitalis
- ♦ A. lacrimalis
- ♦ **A. temporalis superficialis**
- ♦ A. transversa faciei
- ♦ A. infraorbitalis
- ♦ **A. facialis**
- ♦ A. angularis
- ♦ **veins**
 - ♦ Accompanied to arteries
 - ♦ Connection tov. retromandibularis
 - ♦ Sinus cavernosus
 - ♦ Infection spread



Nervi palpebrarum

♦ **Sensoric innervation**

♦ **Upper eyelid – n. ophtalmicus (V1)**

- ♦ Rami supraorbitales
- ♦ Rami supratrochleares
- ♦ Rami infratrochleares
- ♦ Rami lacrimales

♦ **Lower eyelid – n. maxillaris (V2)**

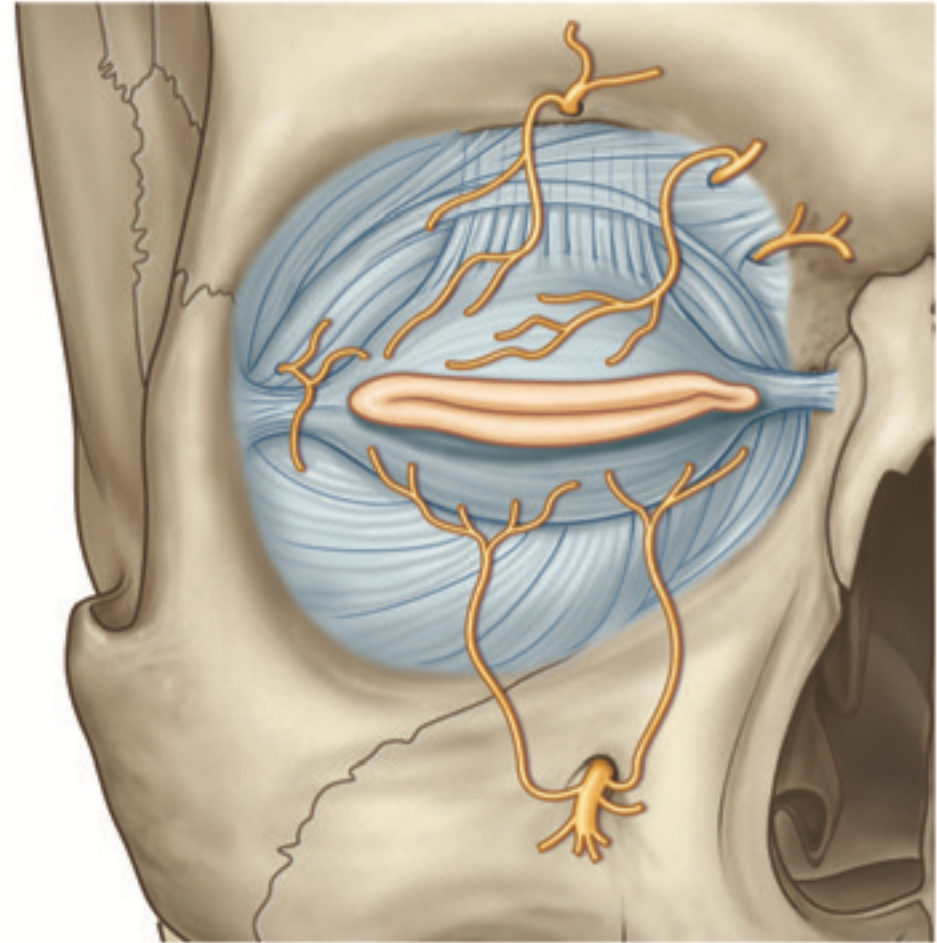
- ♦ Ramus infraorbitalis

♦ **Motor innervation**

- ♦ N. facialis (VII) – m. orbicularis oculi
- ♦ N. oculomotorius (III) – m. levator palpebrae
- ♦ Rami sympatici – m. tarsalis superior

♦ **Horner syndrome**

- ♦ *Cervical sympatheticus impairment*
- ♦ *Pupillary constriction - miosis – paresis m. dilatator pupillae*
- ♦ *Upperlid ptosis*
- ♦ *Lack of sweating on ipsilateral half of face and neck*



Apparatus lacrimalis

- ♦ **Glandula lacrimalis**

- ♦ Pars orbitalis
- ♦ Pars palpebralis – splitted by tendon of m. levator palpebrae superioris
 - ♦ Glandulae lacrimales accesorii

- ♦ **Rivus lacrimalis, lacum lacrimale**

- ♦ Papilla lacrimalis

- ♦ Punctum lacrimale

- ♦ Canaliculi lacrimales

- ♦ Saccus lacrimalis

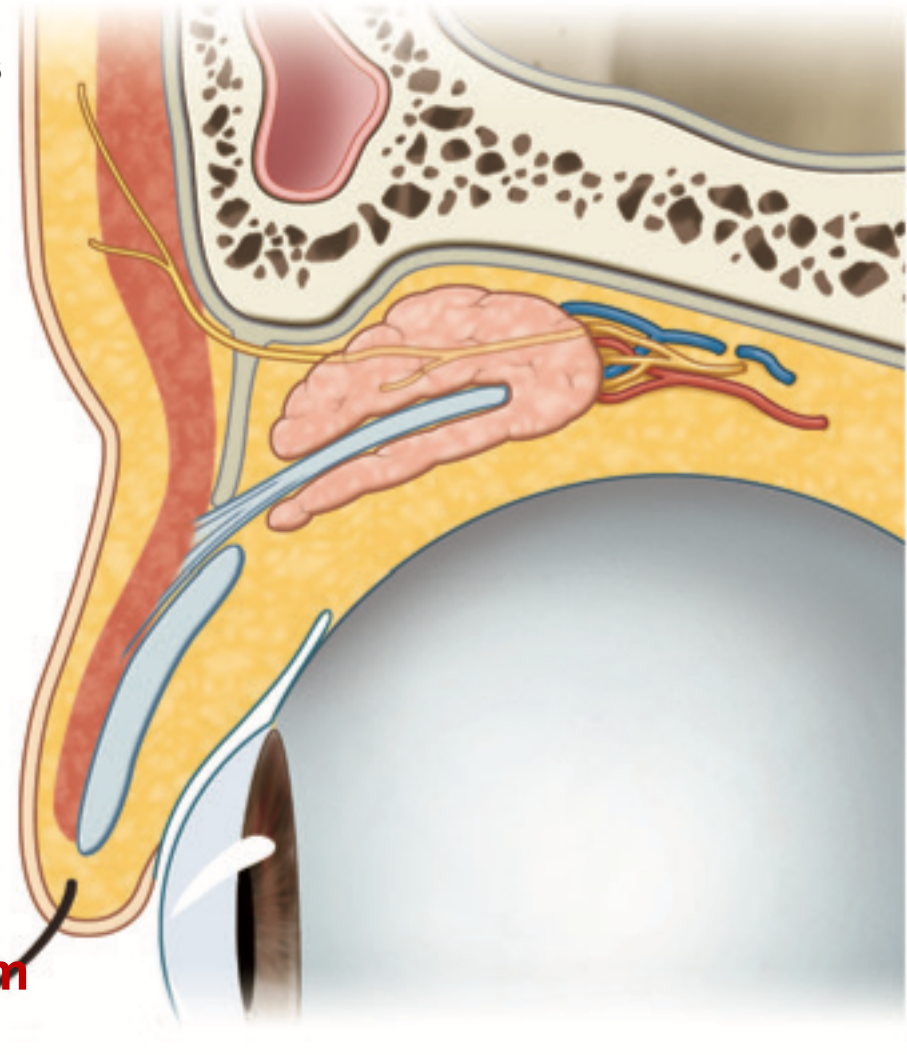
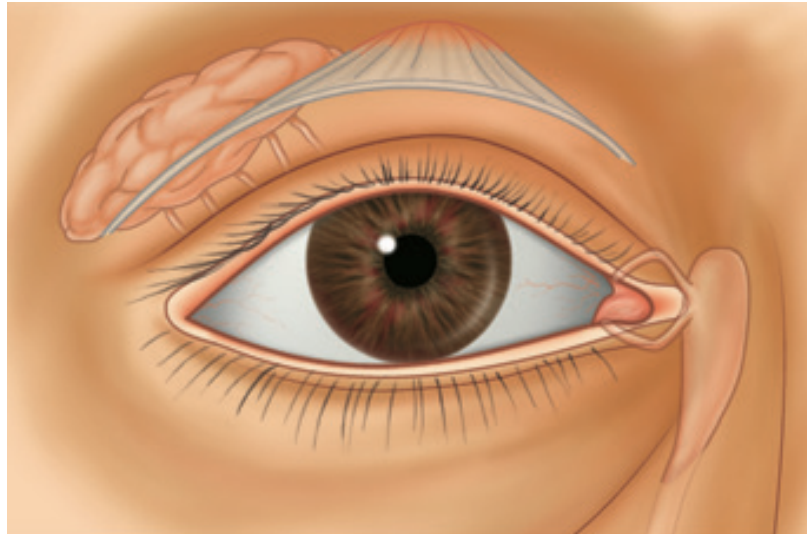
- ♦ Fornix
- ♦ In-growing to priosteum

- ♦ Ductus nasolacrimalis

- ♦ Plica lacrimalis

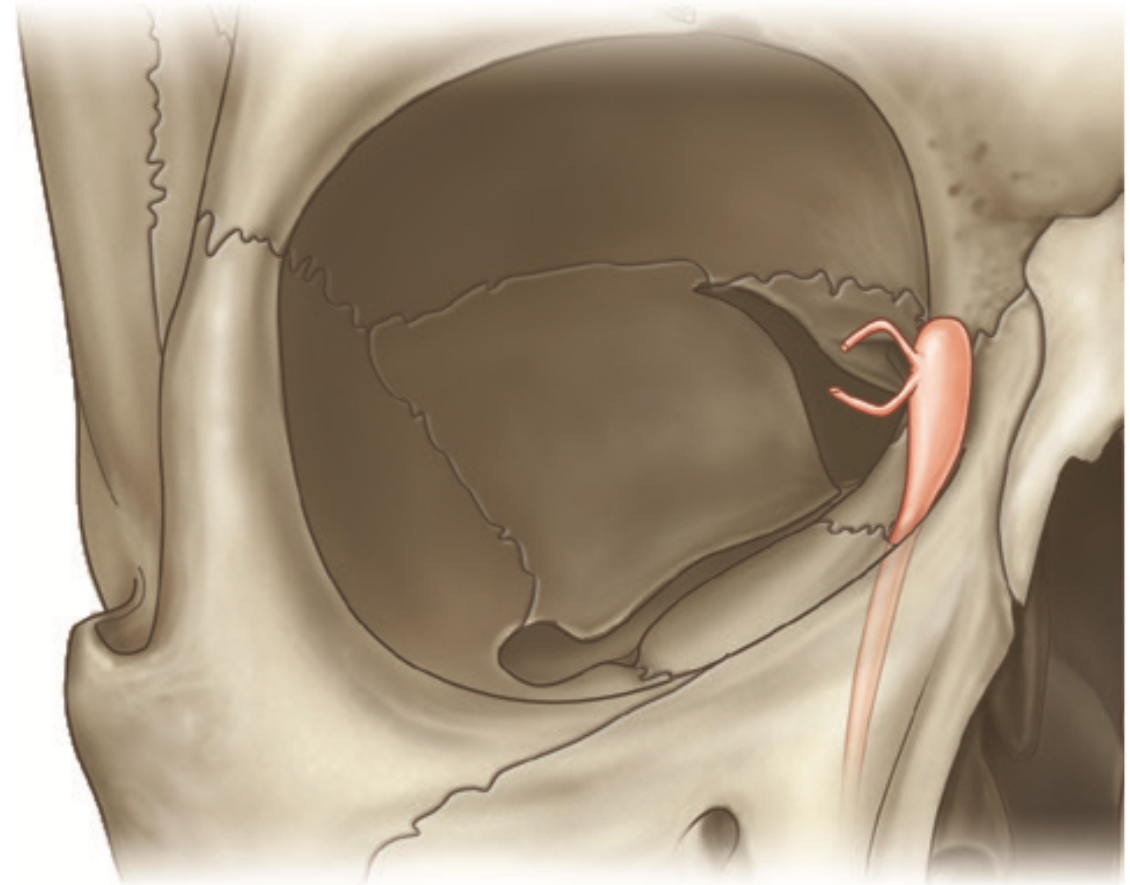
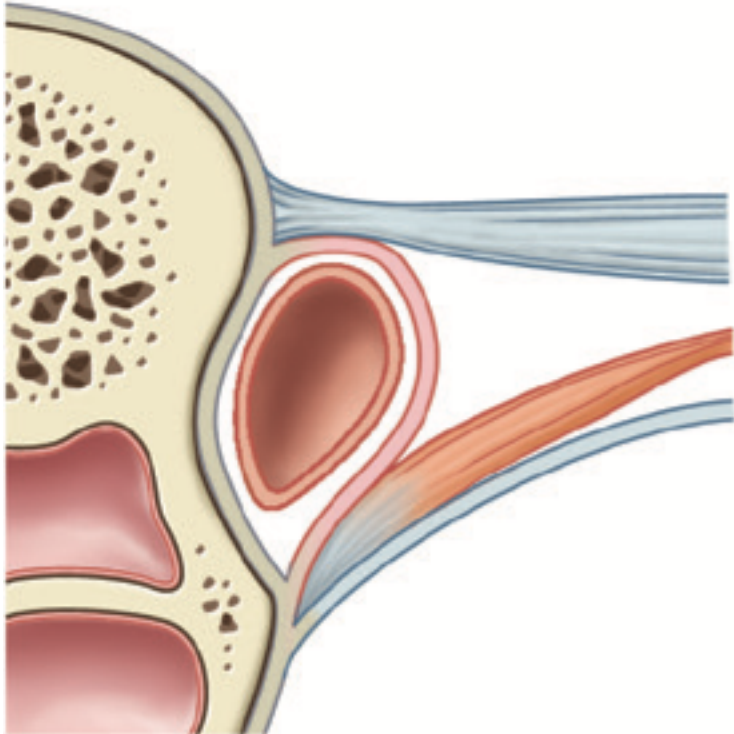
- ♦ Below lower concha

- ♦ **innervation – n. VII, n. petrosus maior – ggl. pterygopalatinum**



Apparatus lacrimalis

- ♦ **Saccus lacrimalis**
- ♦ **Fundus sacci lacrimalis**
- ♦ **Pars lacrimalis m. orbicularis oculi**
- ♦ **Septum orbitale**



Fissurae et foramina orbitae

♦ **Canalis opticus**

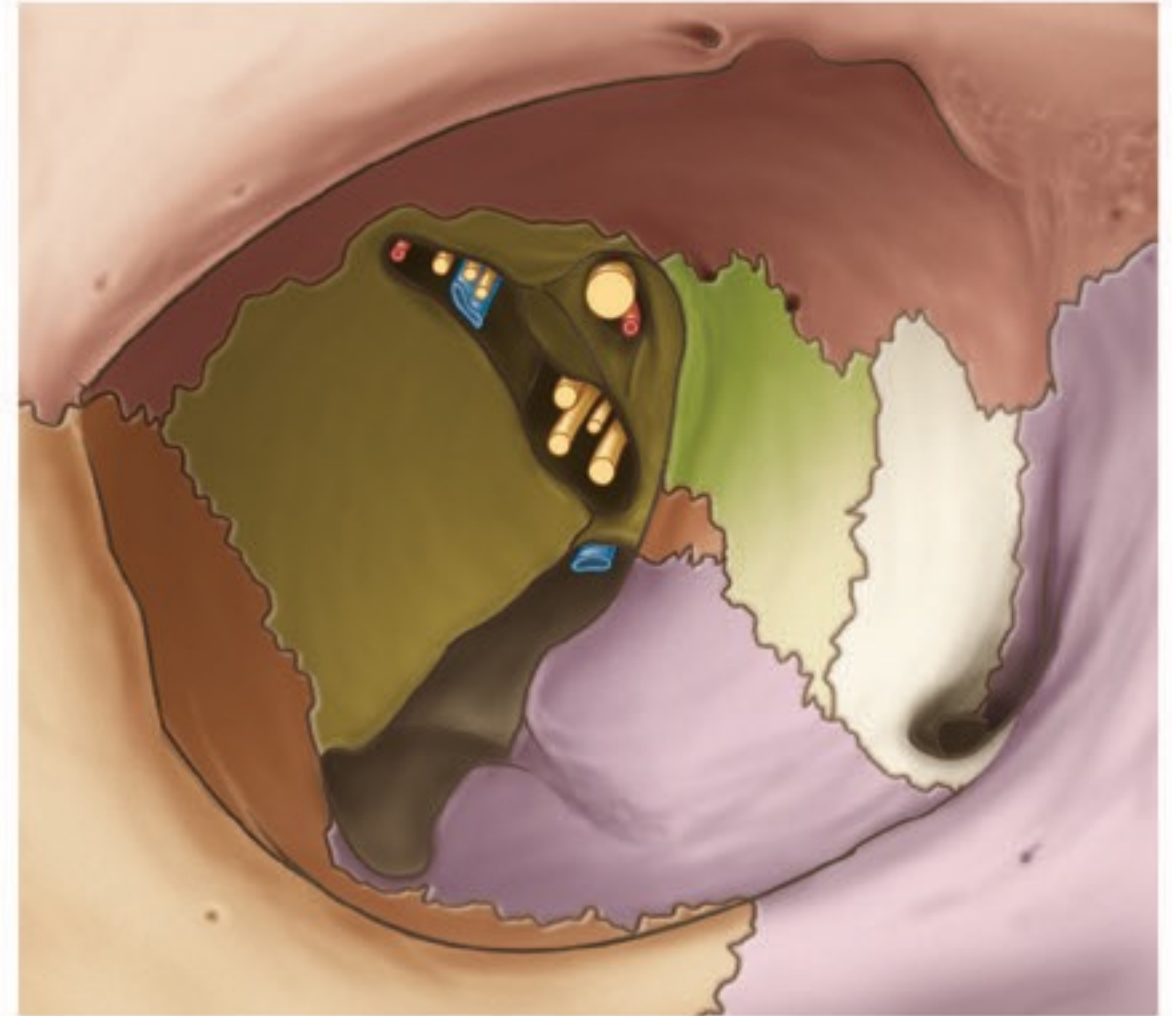
- ♦ N. opticus (II)
- ♦ A. ophtalmica

♦ **Fissura orbitalis superior**

- ♦ A. orbitalis superior
- ♦ N. lacrimalis (V1)
- ♦ N. frontalis (V1)
- ♦ N. trochlearis (IV)
- ♦ V. ophtalmica superior
- ♦ N. oculomotorius (III) ramus superior
- ♦ N. nasociliaris (V1)
- ♦ N. abducens (VI)
- ♦ N. oculomotorius (III) ramus inferior

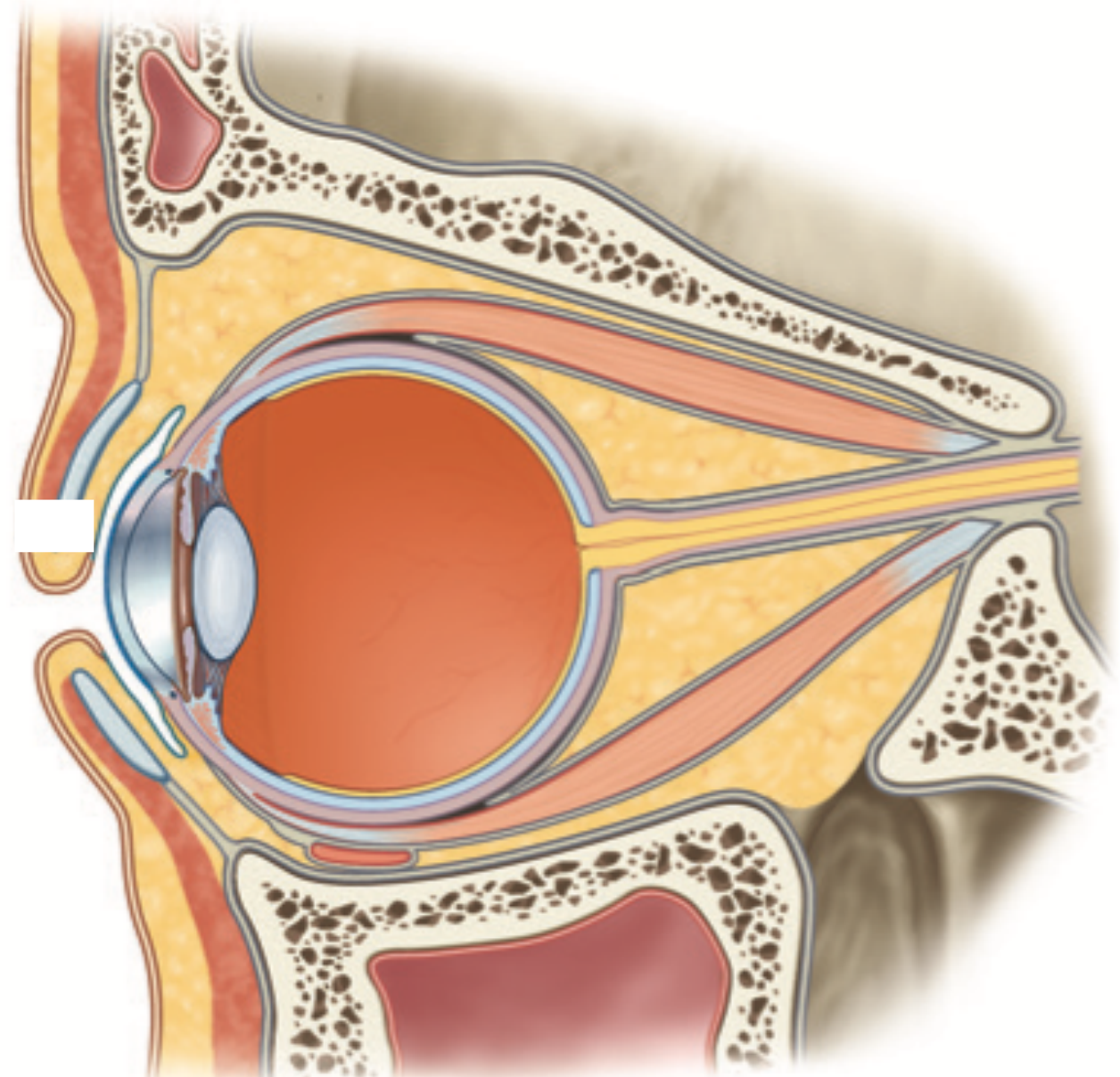
♦ **Fissura orbitalis inferior**

- ♦ V. ophtalmica inferior



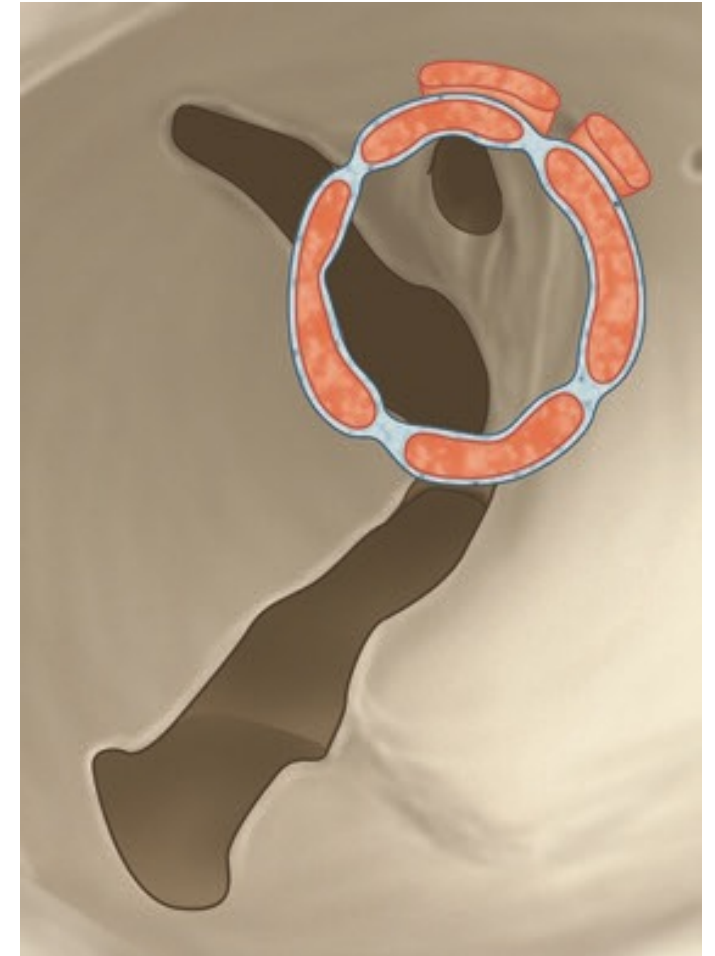
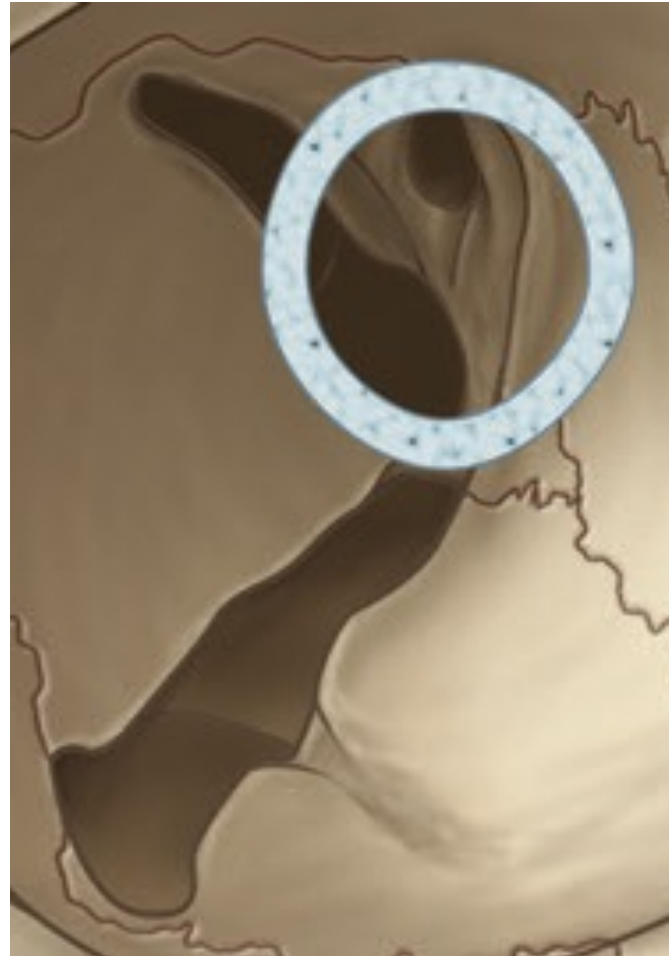
Orbita

- ♦ **Periorbita – periosteum orbitae**
 - ♦ Anulus tendineus oculi – apikální zesílení
 - ♦ M. orbitalis
 - ♦ Smooth muscle in fiss. orbitalis inf.
 - ♦ sympatheticus
- ♦ **Dura mater**
- ♦ **Septum orbitale**
- ♦ **Corpus adiposum**
- ♦ **Musculi orbitae**
- ♦ **Nervus opticus**
- ♦ **Bulbus oculi**
- ♦ **Fascia bulbi – vagina bulbi (Tenoni)**
 - ♦ Fasciae propriae musculorum
 - ♦ Ligamenta suspensoria



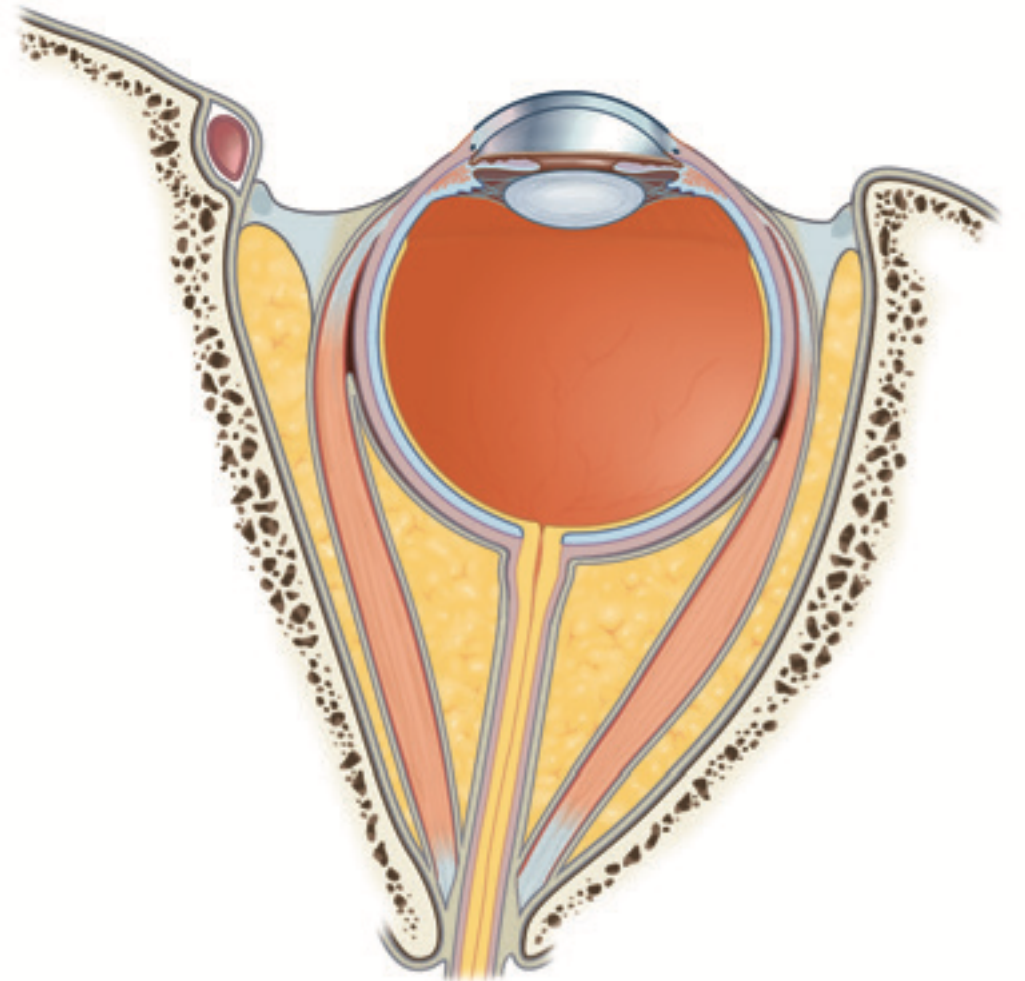
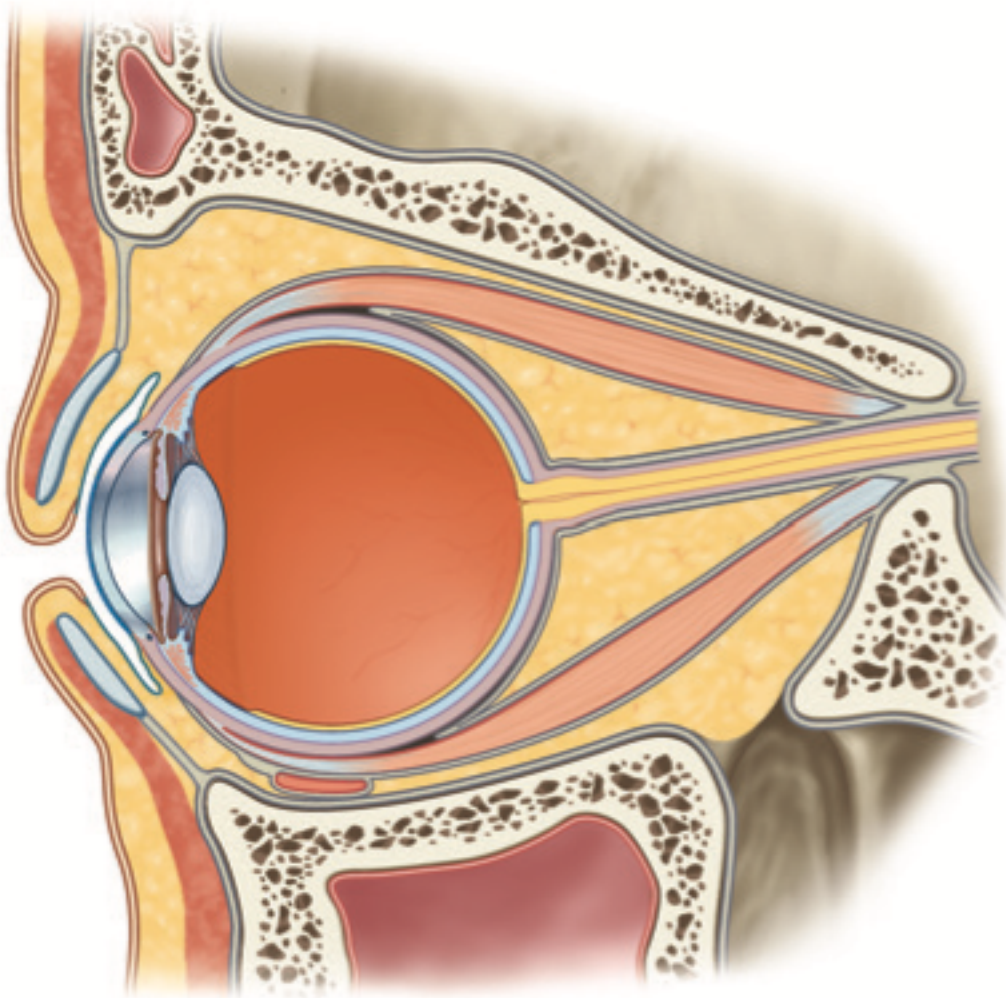
Annulus tendineus communis Zinni

- ♦ Orogen on anulus tendineus
- ♦ M. rectus superior
- ♦ M. rectus medius
- ♦ M. rectus inferior
- ♦ M. rectus latralis
- ♦ **Mimo anulus tendineus**
- ♦ M. levator palpebrae
- ♦ M. obliquus superior
- ♦ M. obliquus inferior



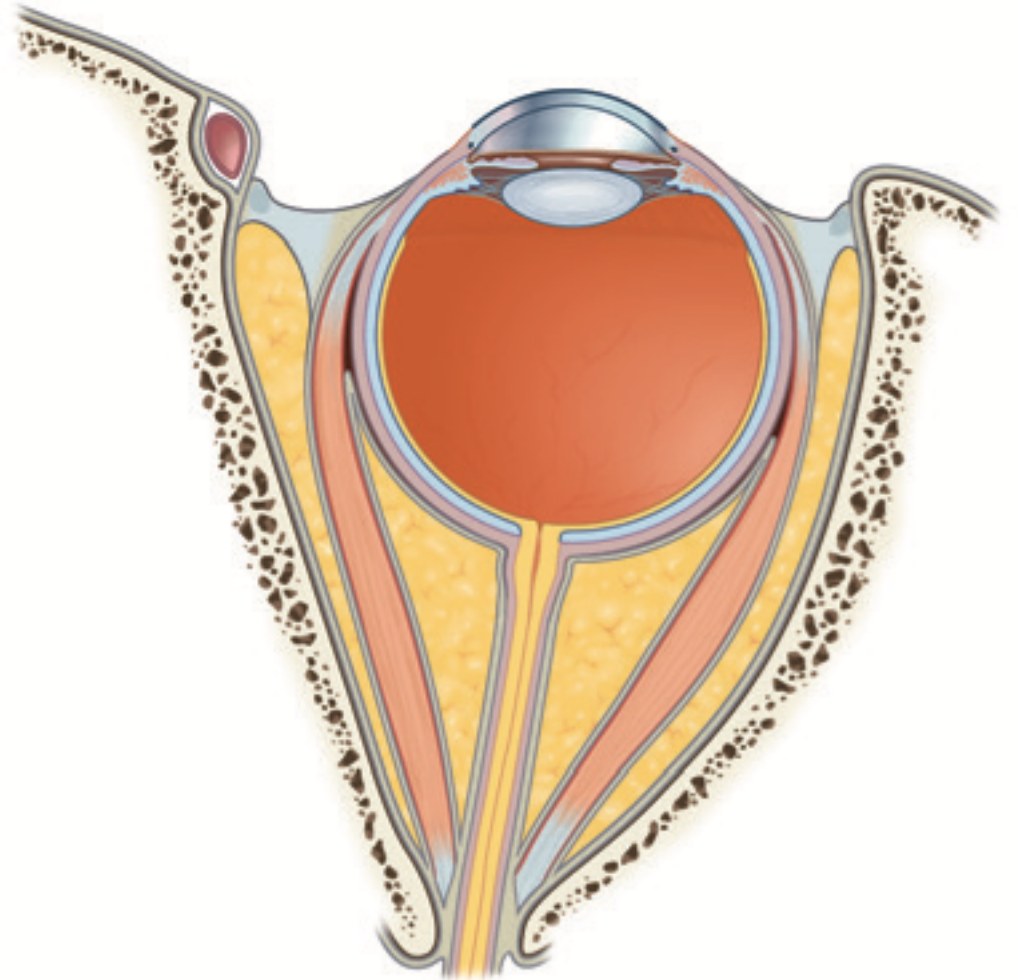
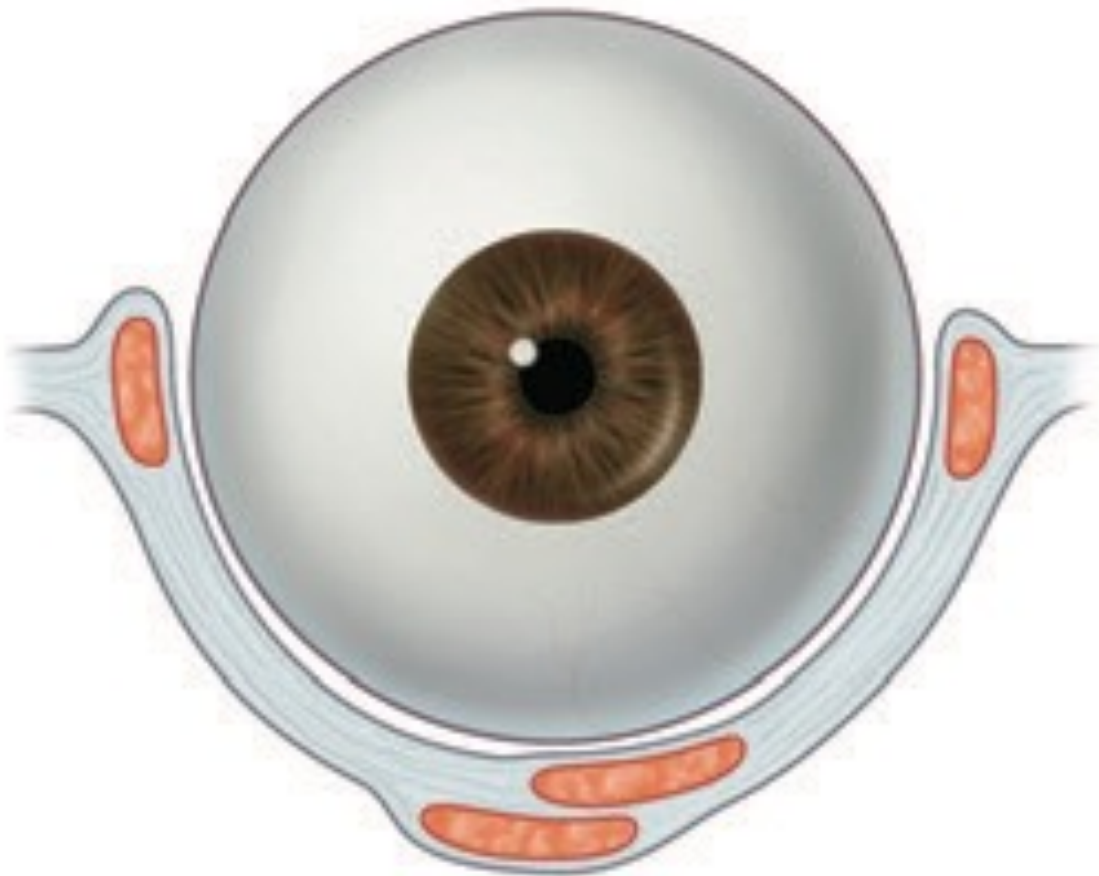
Orbital spaces

- Extraconal and intraconal spaces



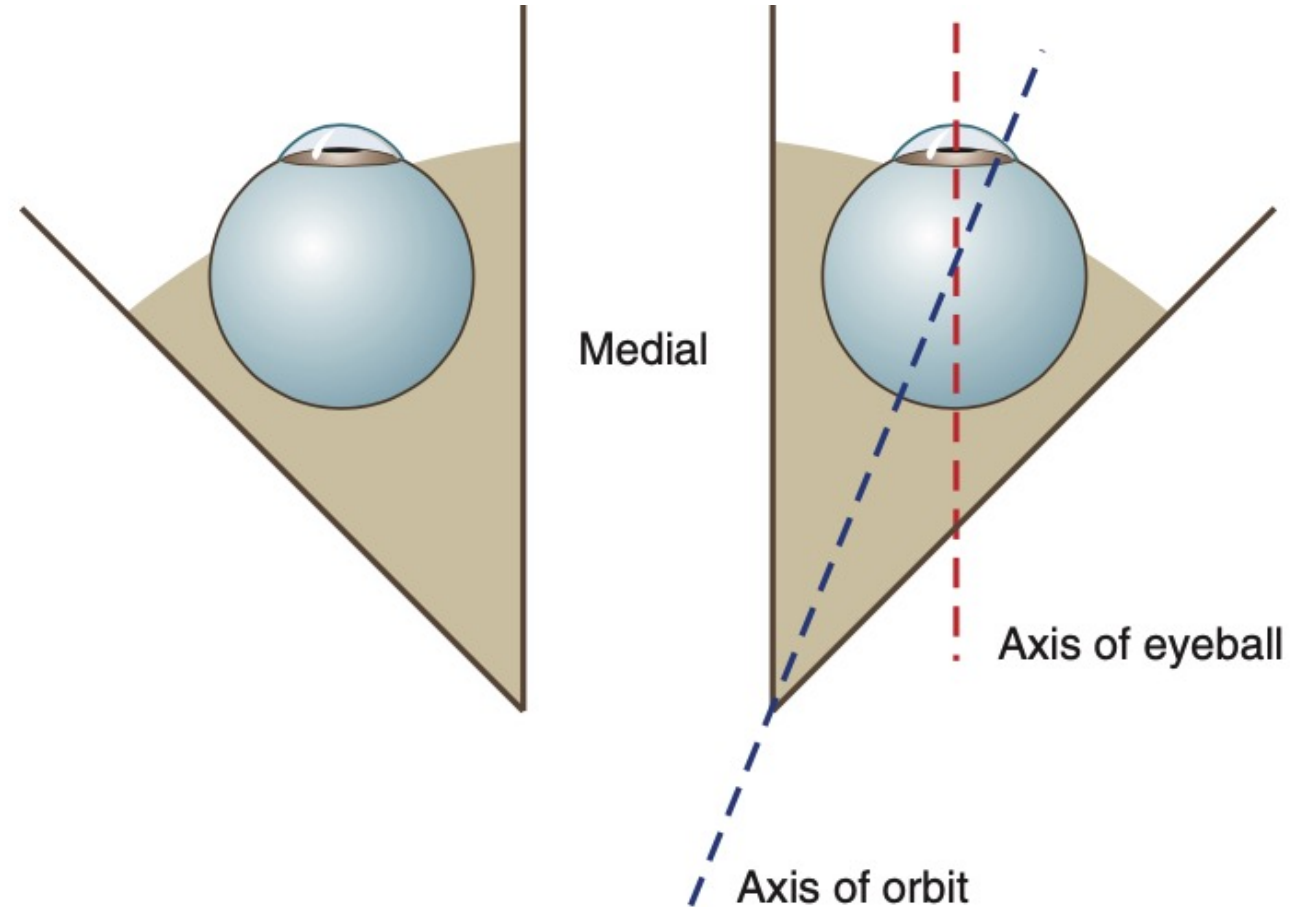
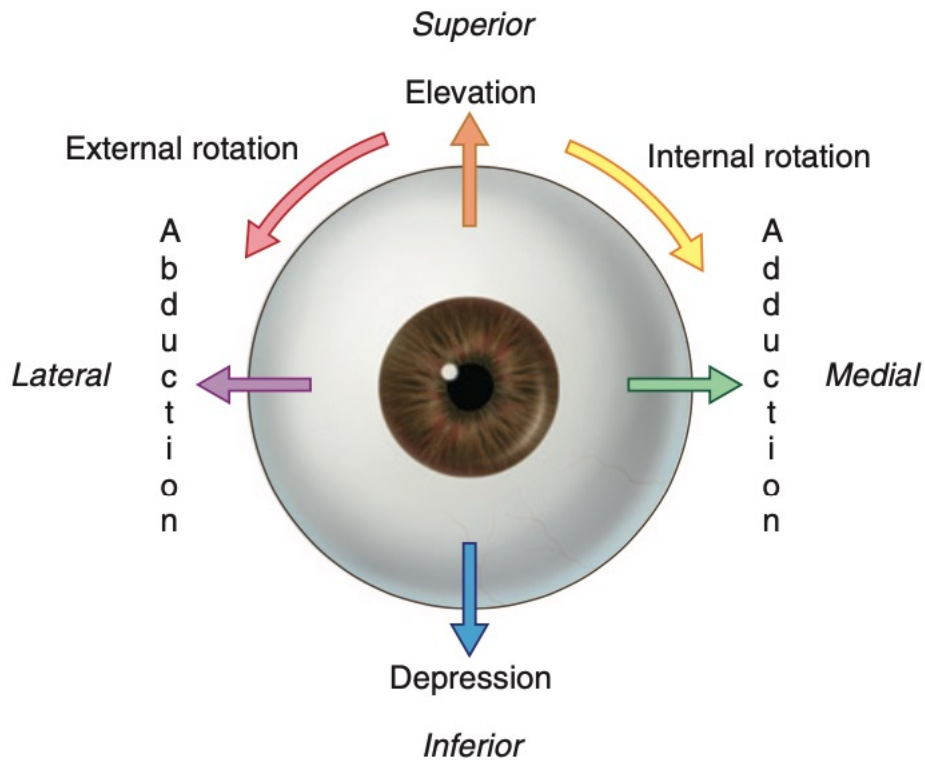
Ligamenta bulbi

- ♦ hanging ligamenta „suspensoria“
- ♦ „braking“ ligamenta
- ♦ Spatium episclerale



Pohled – visus - gaze

- Bulbar motions
- Axis bulbi
- Axis orbitae



Musculi bulbi

- ♦ **Recti** – inserted in the front of equator moving towards themselves

- ♦ *Upper and lower have also medial part*

- ♦ **Obliques** – insertion dorsally to equator – contralateral motion of bulb – not so strong

- ♦ ***M. rectus superior (III)***

- ♦ ***M. rectus medialis (III)***

- ♦ ***M. rectus inferior (III)***

- ♦ ***M. rectus lateralis (VI)***

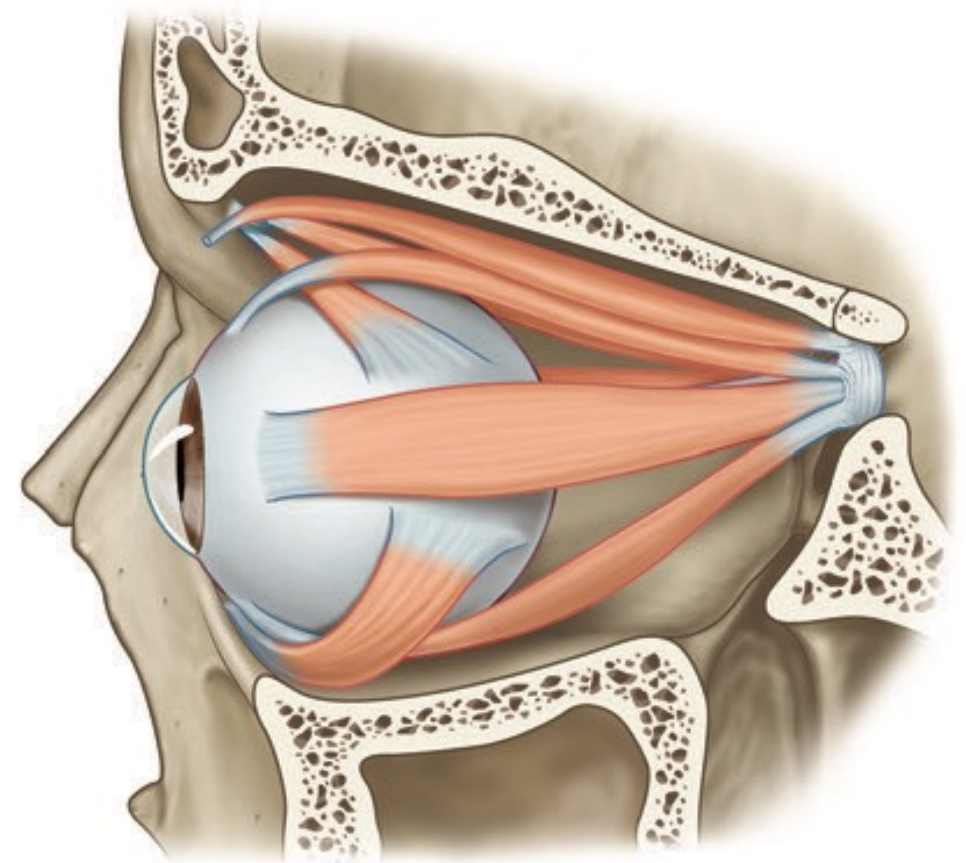
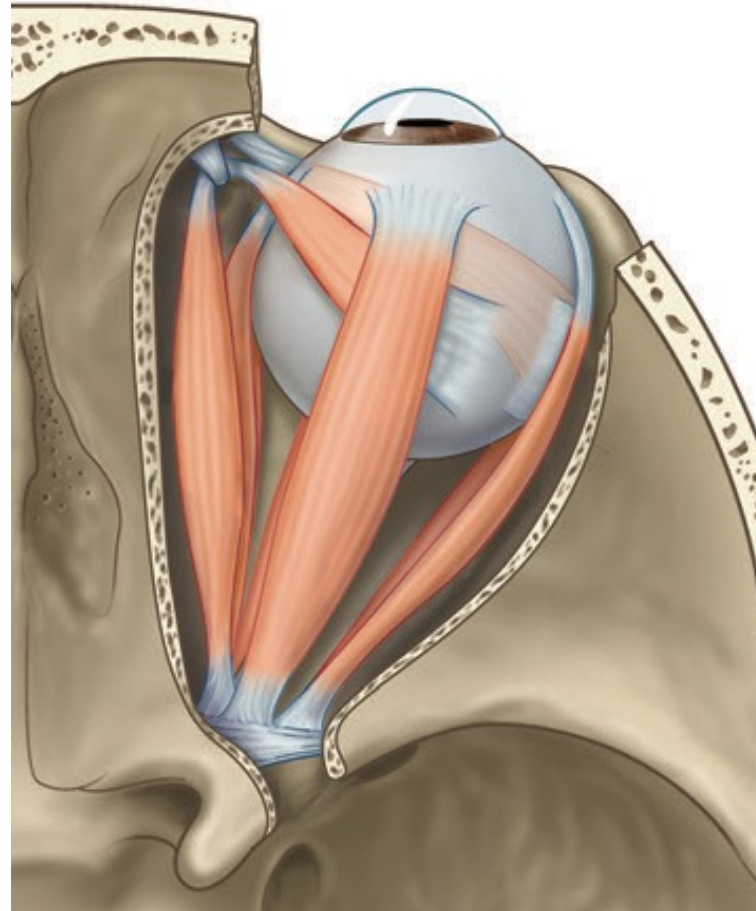
- ♦ ***M. obliquus superior (IV)***

- ♦ *trochlea*

- ♦ ***M. obliquus inferior (III)***

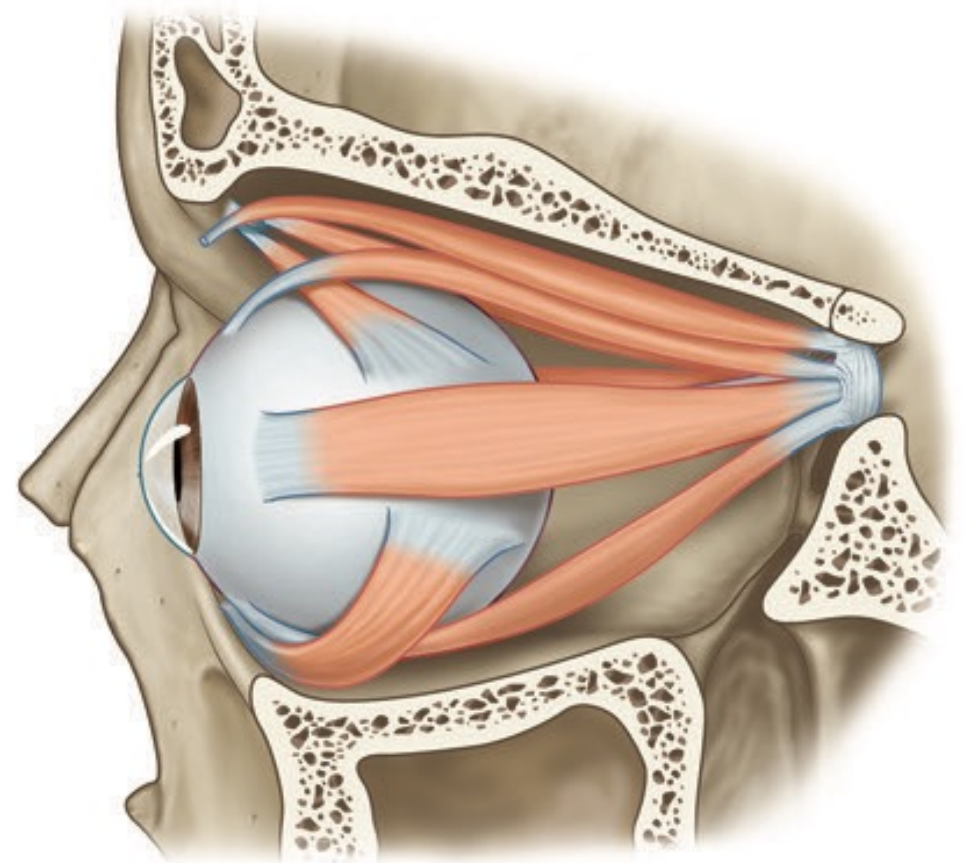
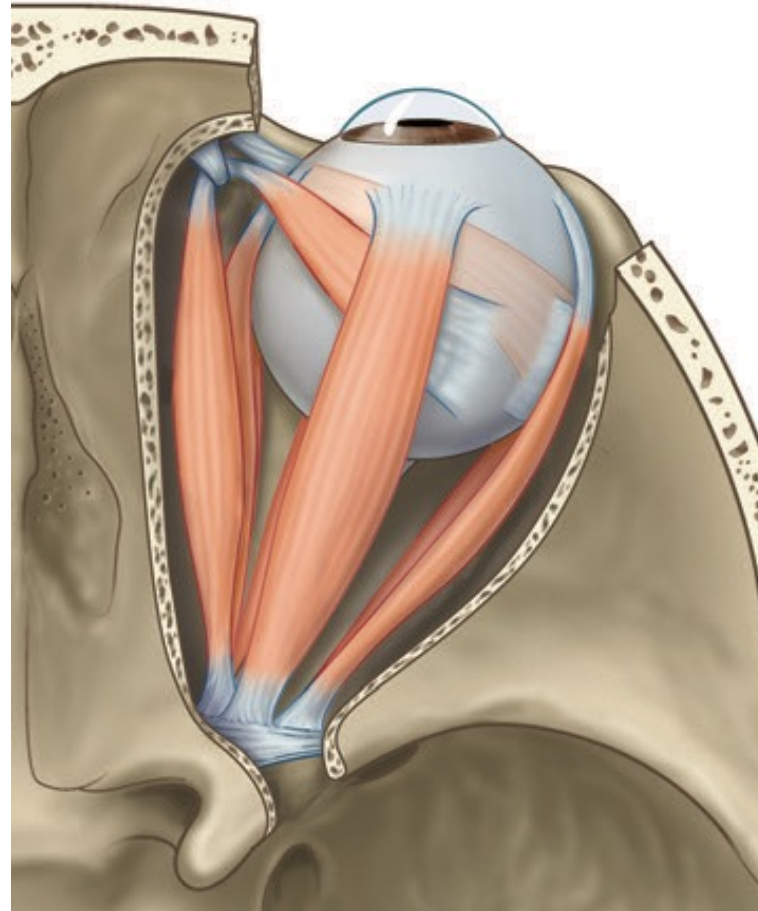
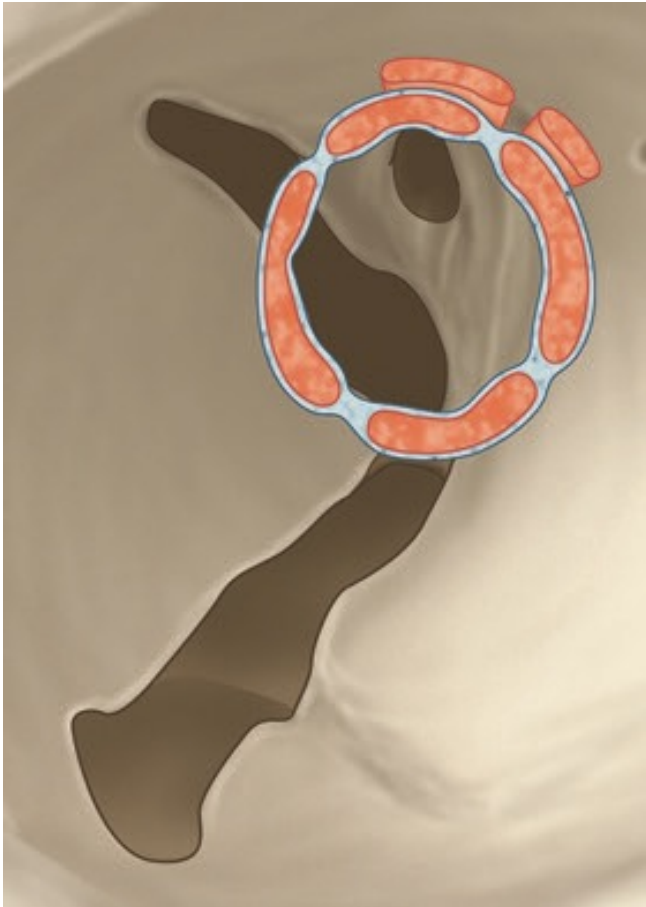
- ♦ *origin maxilla*

- ♦ *Dorsaly to sulcus lacrim.*



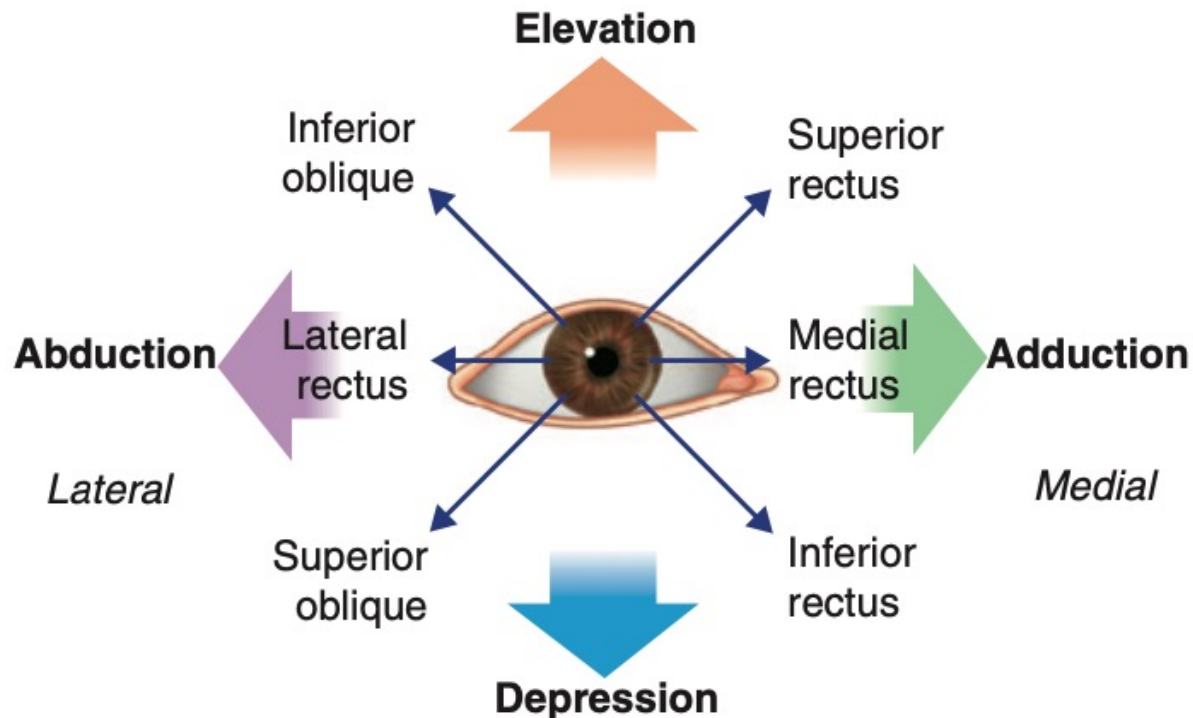
Musculi bulbi

- ♦ **Recti** – inserted in the front of equator moving towards themselves
 - ♦ *Upper and lower have also medial part*
- ♦ **Obliques** – insertion dorsally to equator – contralateral motion of bulb – not so strong



Musculi bulbi

- ♦ **Muscular coordination**
- ♦ **Rotation motion – slow, gaze direction**
- ♦ **Sakkadic motion – fast searching**
- ♦ **Muscular test**



Muscle tested		Direction to move eye when testing muscle
Superior rectus		Look laterally and upward
Inferior rectus		Look laterally and downward
Lateral rectus		Look laterally
Medial rectus		Look medially
Inferior oblique		Look medially and upward
Superior oblique		Look medially and downward

Vasa orbitales

♦ A. ophtalmica

- ♦ A. lacrimalis
- ♦ A. centralis retinae
- ♦ Aa. ciliares breves
- ♦ Aa. ciliares longes
- ♦ „scleral piercing“
- ♦ A. supraorbitalis
- ♦ A. supratrochlearis
 - ♦ Aa. ethmoidalis post. et ant.
 - ♦ A. nasalis dorsalis

♦ Vv. ciliares

♦ V. ophtalmica superior

- ♦ Sinus cavernosus

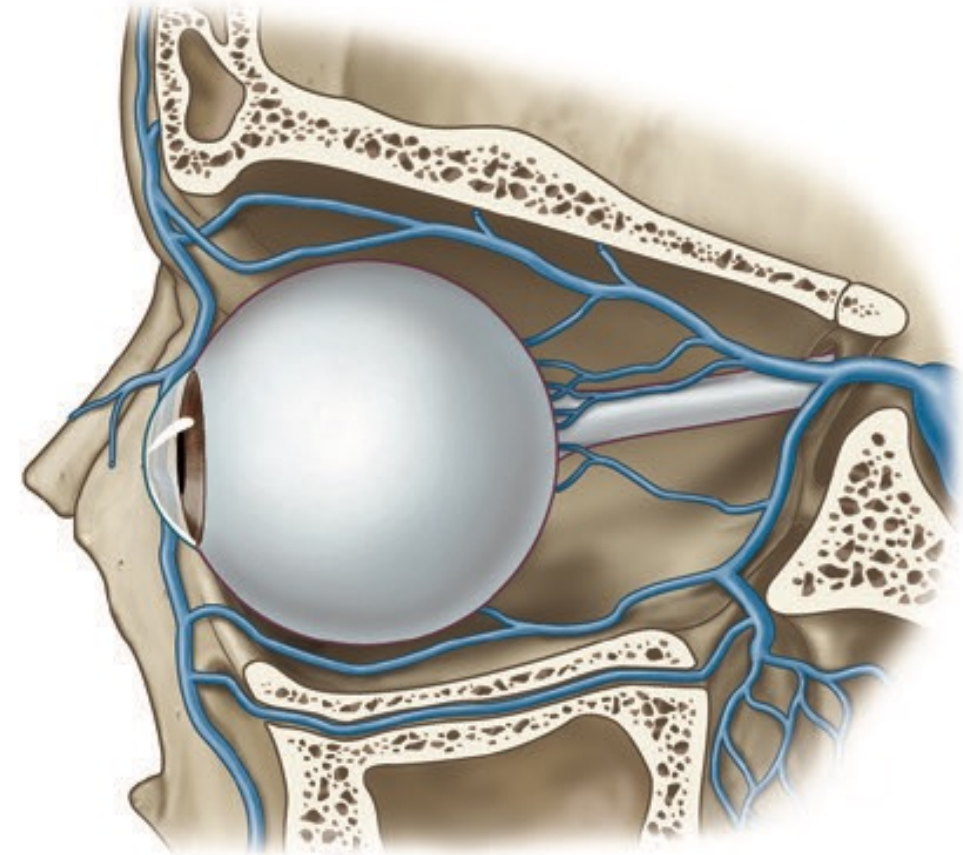
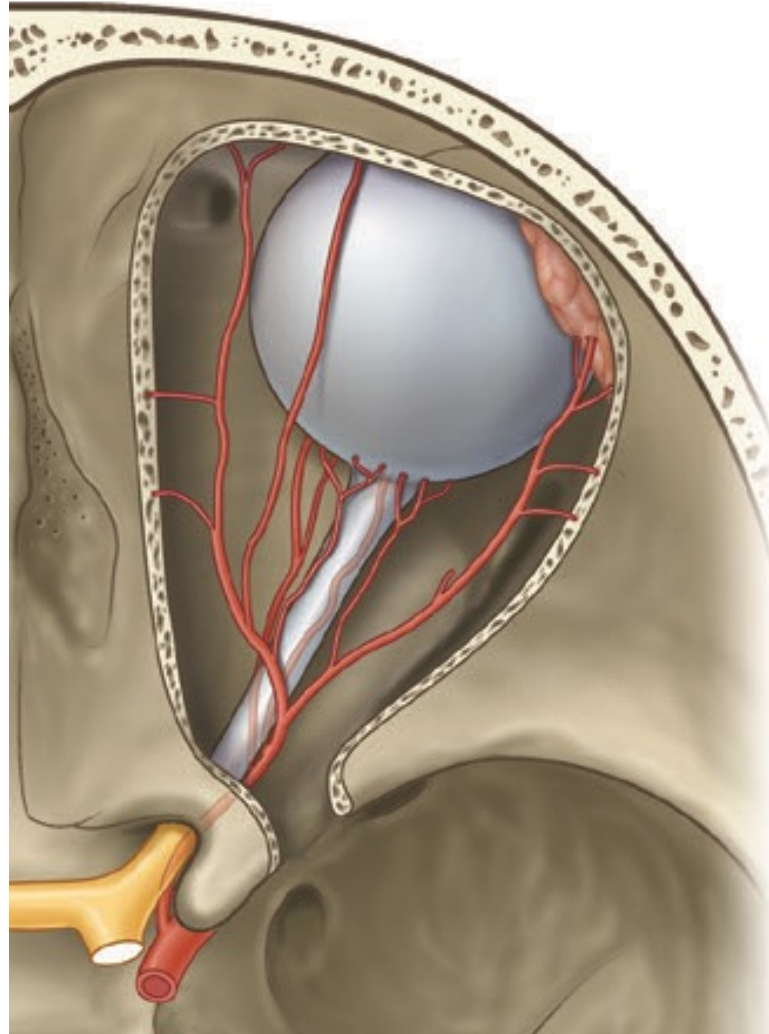
♦ V. ophtalmica inferior

- ♦ Plexus pterygoideus

♦ V. supraorbitalis

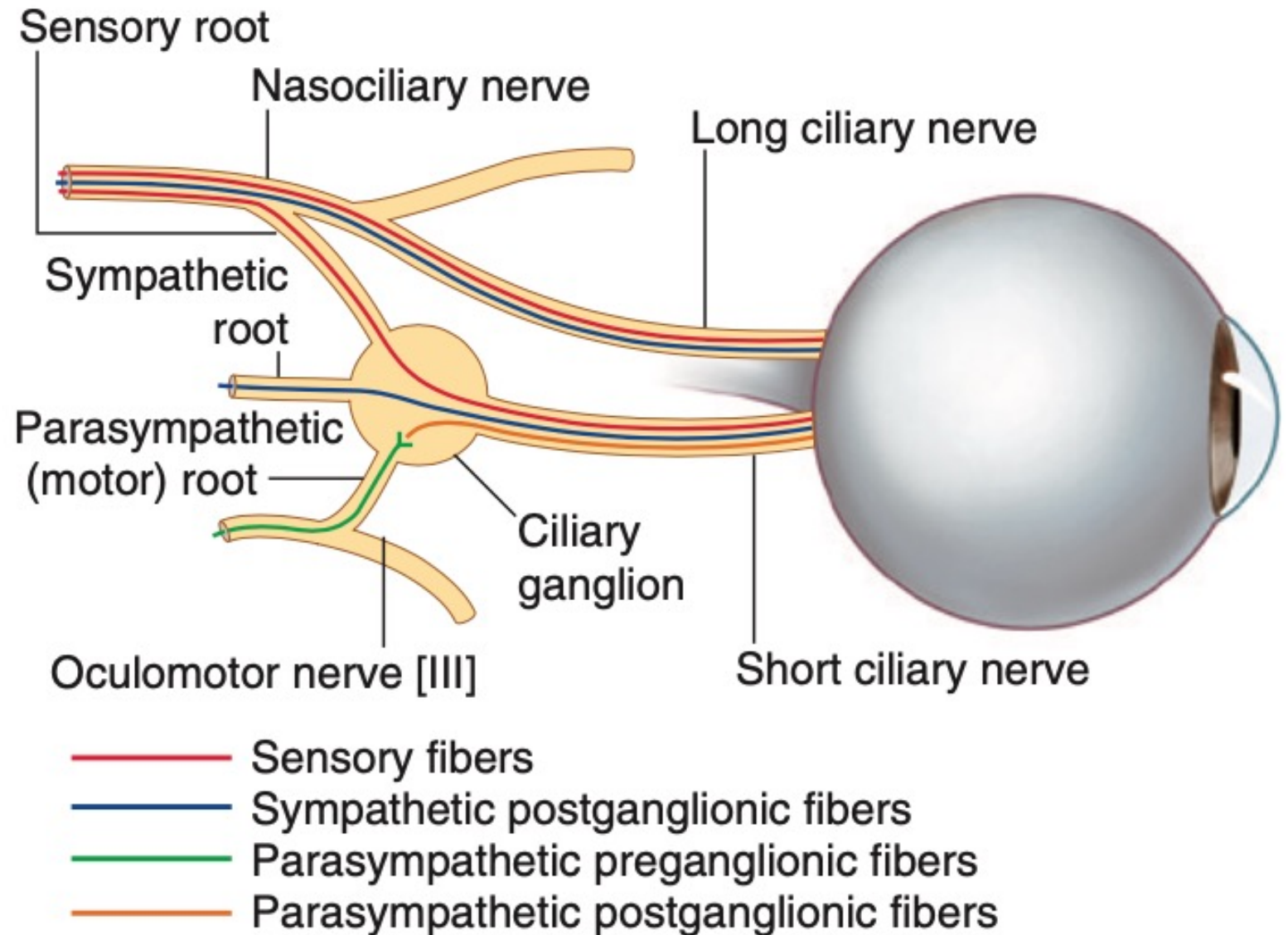
♦ V. angularis

♦ V. infraorbitalis



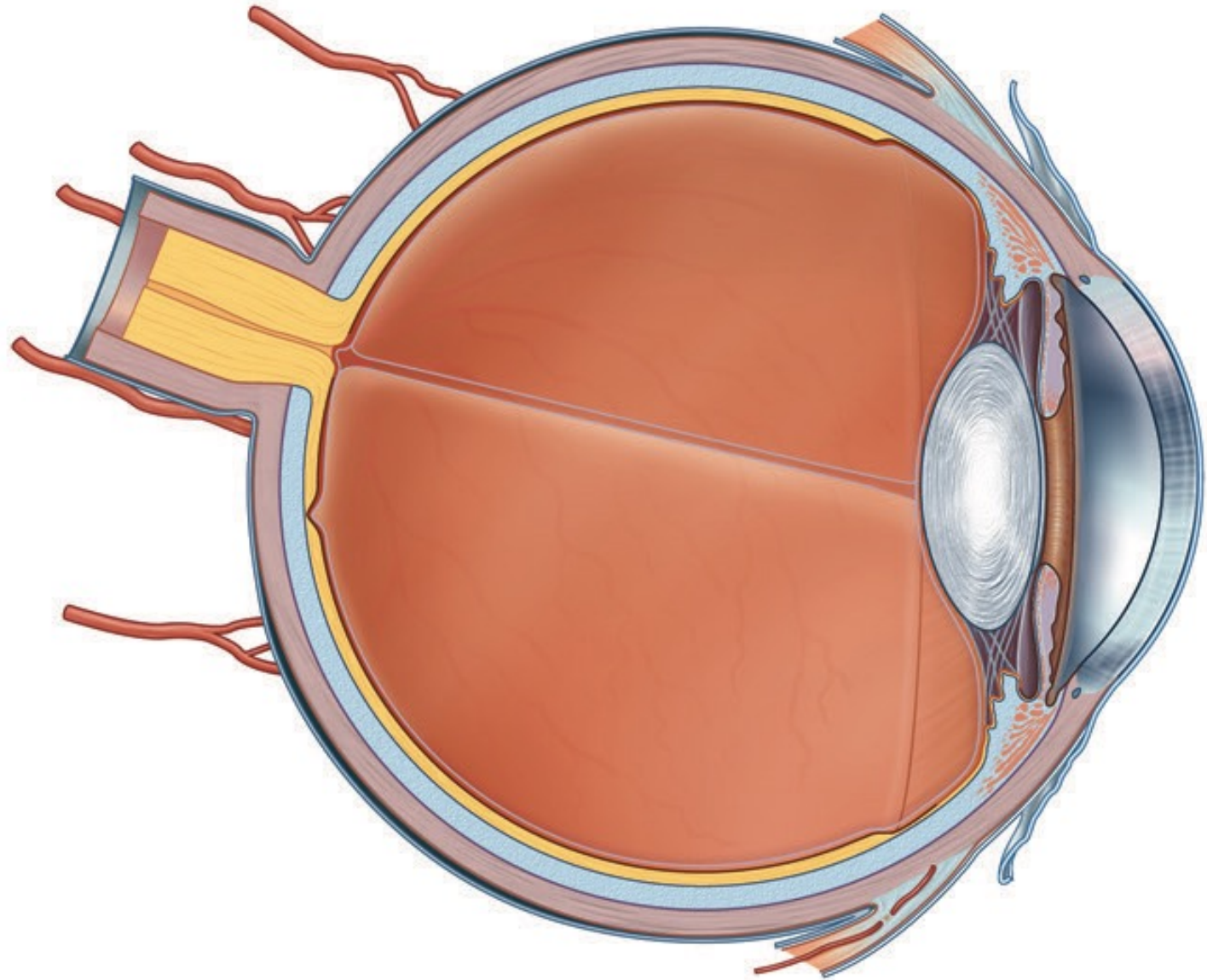
Nervi bulbi

- ♦ **Parasympathicus**
- ♦ **N. oculomotorius**
- ♦ **Ganglion ciliare**
 - ♦ N. ciliaris brevis
- ♦ **Sympathicus**
- ♦ **Plexus carotideus**
 - ♦ Sinus cavernosus
- ♦ **N. nasociliaris**
 - ♦ N. ciliaris brevis
 - ♦ N. ciliaris longus
- ♦ **sensoric**
- ♦ **N. nasociliaris (V1)**
 - ♦ N. ciliaris longus
 - ♦ N. ciliaris brevis



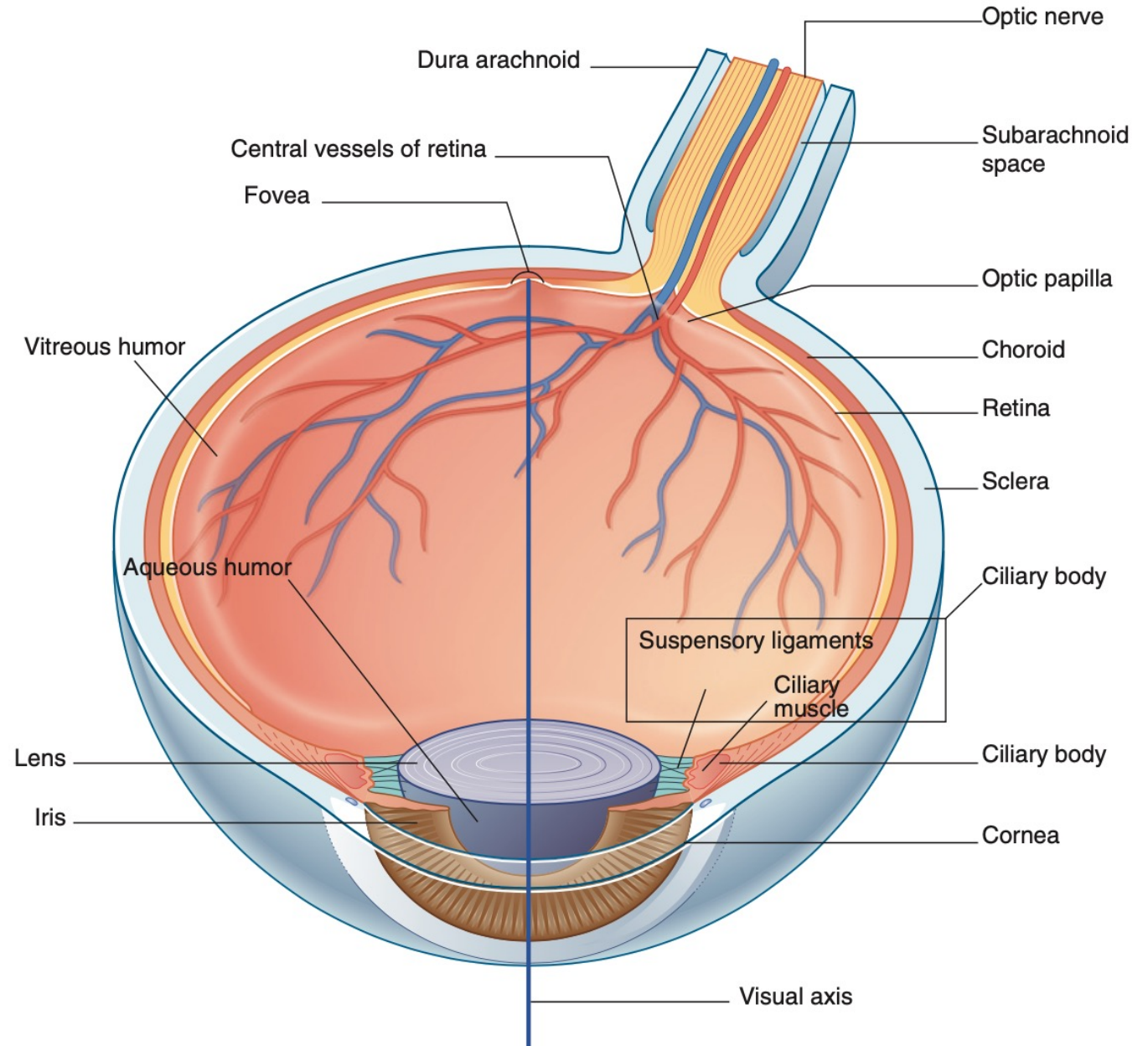
Bulbus oculi - eyeball – oční koule

- ♦ Two spheres with different diameters
- ♦ Sclera – 11 – 12 mm
- ♦ Cornea - 7 – 8 mm
- ♦ Polus anterior = vertex corneae
- ♦ Polus posterior
 - ♦ Laterally to exit of n. opticus
- ♦ Axis bulbi internus
- ♦ Axis bulbi externus
- ♦ Linea visus
- ♦ Meridiani bulbi
- ♦ Aequator bulbi
- ♦ *Canalis hyaloideus*



Bulbus oculi

- ♦ **Tunica fibrosa bulbi**
 - ♦ **Cornea**
 - ♦ **Sclera**
- ♦ **Tunica vasculosa bulbi - uvea**
 - ♦ **Choridea**
 - ♦ **Corpus ciliare**
 - ♦ **Iris**
 - ♦ **pupila**
- ♦ **Tunica interna bulbi**
 - ♦ **Retina**
 - ♦ *Pars optica retinae*
 - ♦ *Pars caeca*
 - ♦ *Pars ciliaris*
 - ♦ *Pars iridica*
- ♦ **Corpus vitreum – canalis hyaloideus**
- ♦ **Lens**
- ♦ **Humor acquosus**
 - ♦ Camera oculi anterior
 - ♦ Camera oculi posterior



Camerae oculi

♦ Cornea

- ♦ Limbus corenae

♦ Camera anterior

♦ Iris

- ♦ Dilatator pupillae – sympatikus – plexus caroticus
- ♦ Sphincter pupillae – parasympatikus – n. III

♦ Camera posterior

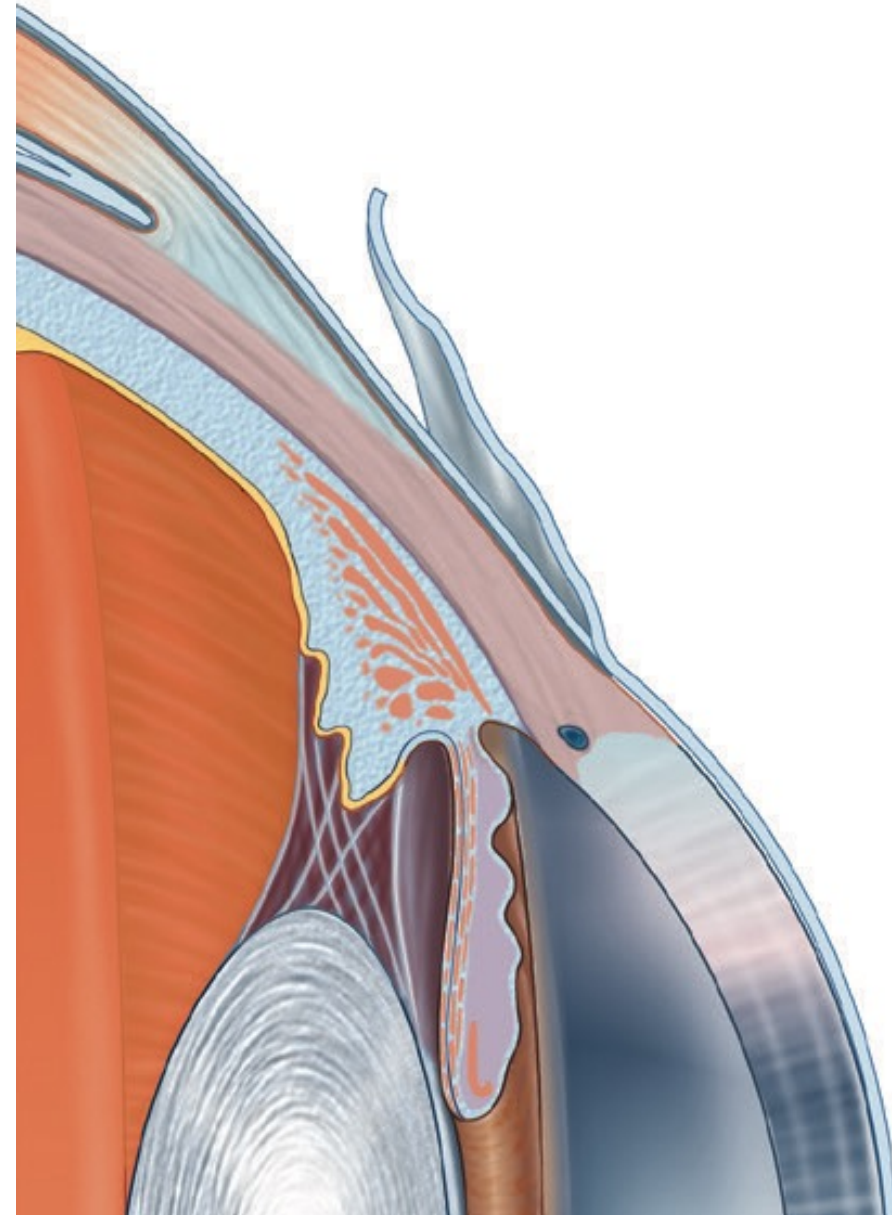
- ♦ Ligamenta suspensoria

♦ Corpus ciliare

- ♦ Parasympaticus – n. III
- ♦ Sympaticus – plexus caroticus, plexus ophtalmicus

♦ Lens oculi

- ♦ Nucleus - fibrae
- ♦ Pars embryonica
 - ♦ Pars fetalis
 - ♦ Pars infantilis
 - ♦ Pars adulta
- ♦ Cortex



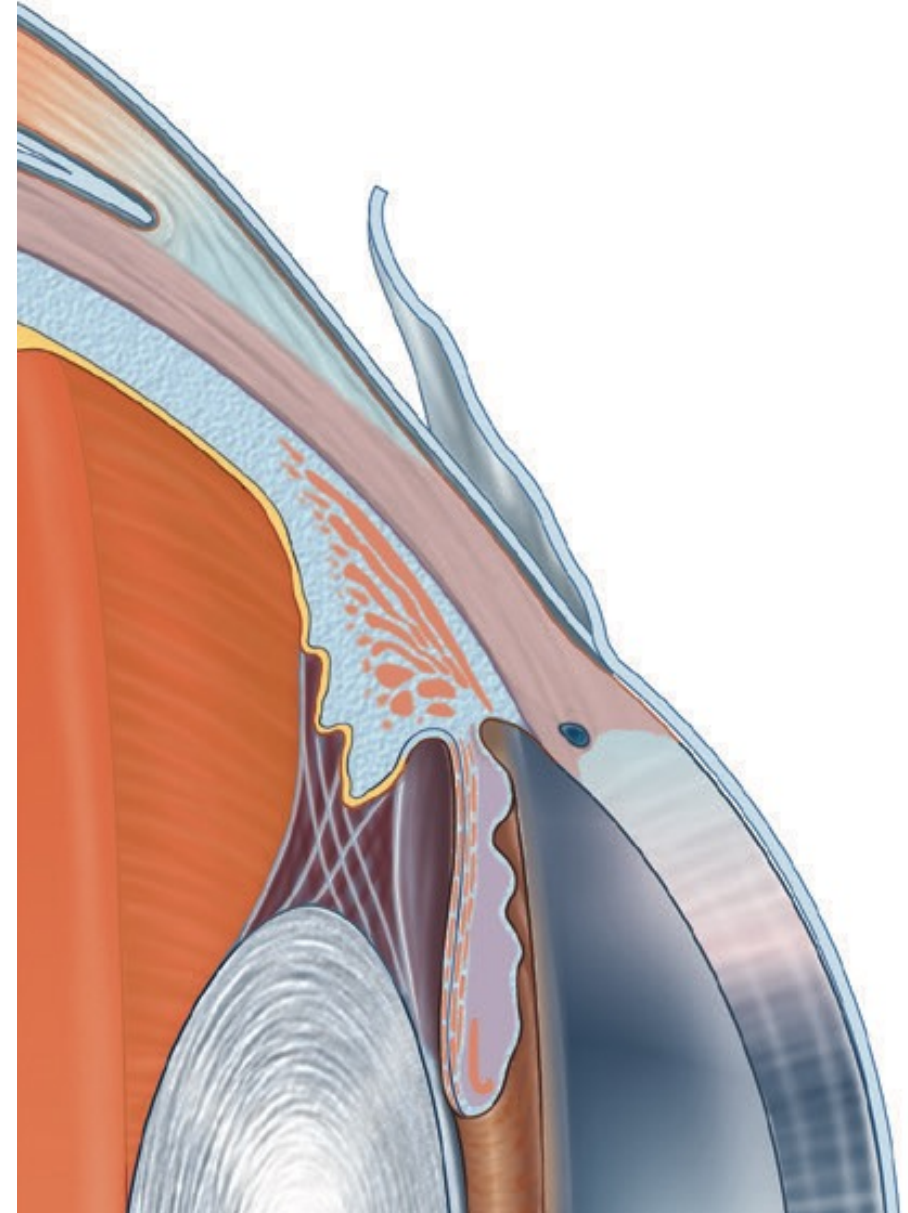
Sclera et cornea

♦ Sclera

- ♦ 80% surface , dense fibrillary connective tissue, no vessels
- ♦ Inervace nn. ciliares
- ♦ Lamina cribrosa – fibers of n. II
- ♦ Vagina fibrosa oculi
- ♦ Spatium episclerale
- ♦ Spatium perichorioideum
- ♦ Tunica conjunctiva (bulbi)

♦ Cornea - rohovka

- ♦ Limbus corneae - outer rim
 - ♦ Sklera covering rim of sclera
 - ♦ Cornea in groove
- ♦ Bowing horizontal 12 mm, vertical 11 mm
 - ♦ Physiological astigmatismus 0.5 dpt
- ♦ Angulus sclerocornealis
- ♦ Sinus venosus sclerae – canalis Schlemmi
- ♦ Angulus iridocornealis
- ♦ Reticulum trabeculare – spongium anguli iridocornealis
 - ♦ Resorption of aqueous humor to sinus iridocornealis



Uvea

♦ Choroidea

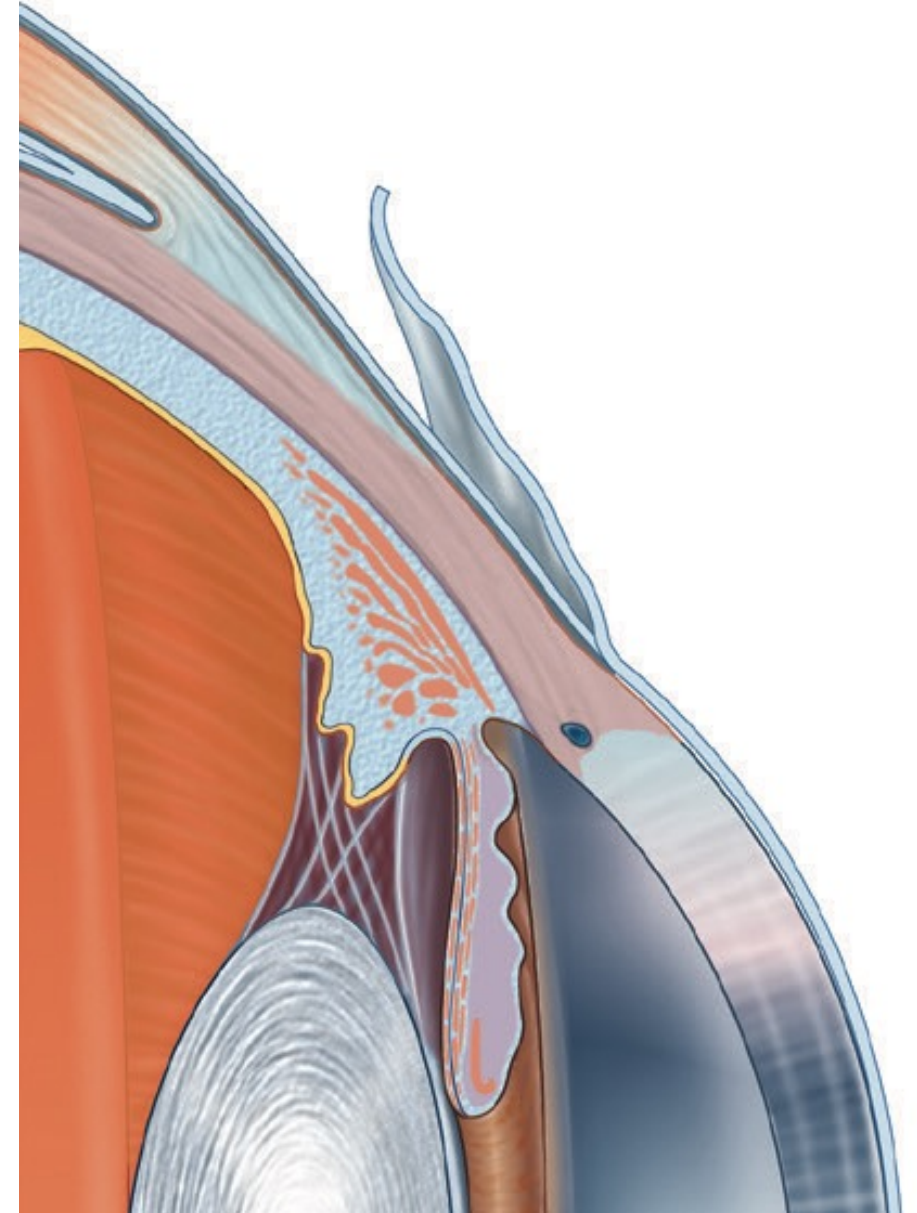
- ♦ 0,2 - 0,4 mm
- ♦ Lamina suprachoroidea
- ♦ Spatium perichoroideum
 - ♦ For veins chorioideae
- ♦ Vyživuje hlubší vrstvy retiny, napíná závěsný aparát čočky

♦ Corpus ciliare

- ♦ Processus ciliares – 70 – 80 , 2 – 3 mm
 - ♦ From rugae arisin
- ♦ Fibrae zonulares
- ♦ Plicae ciliares
 - ♦ Corona ciliaris
 - ♦ Orbiculus ciliaris
 - ♦ Continuing topars caeca retinae, ora serrata – interface to pars optica
- ♦ M. ciliaris
 - ♦ Fibrae meridionales (musculus Brücke), circulares (musculus Mülleri), radiales

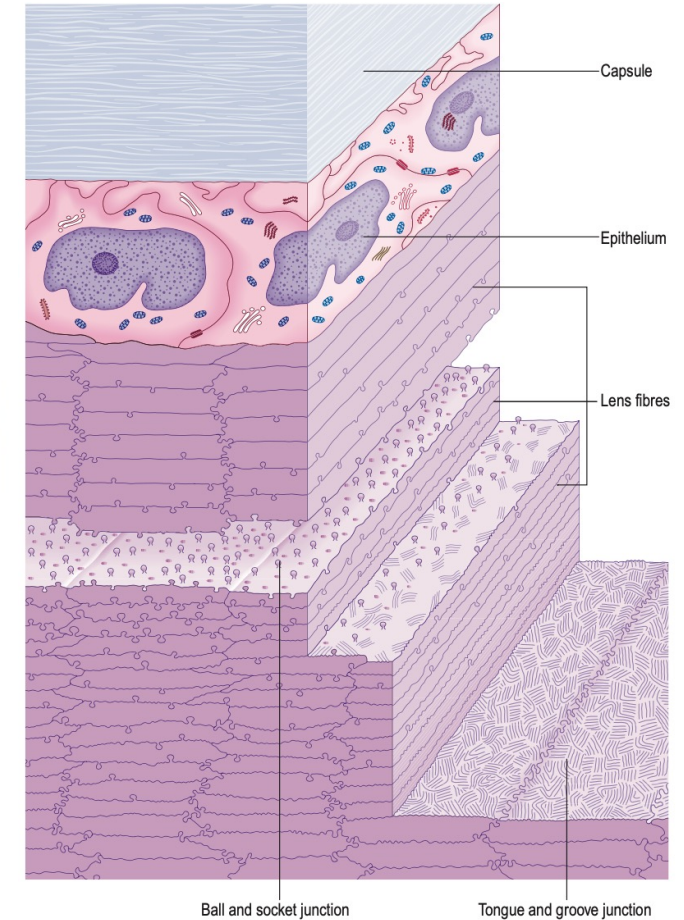
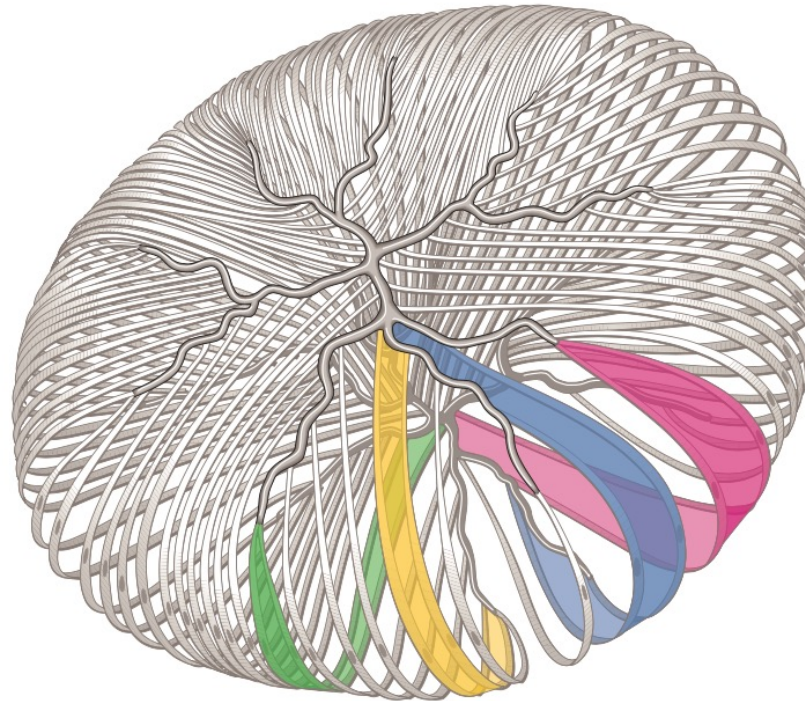
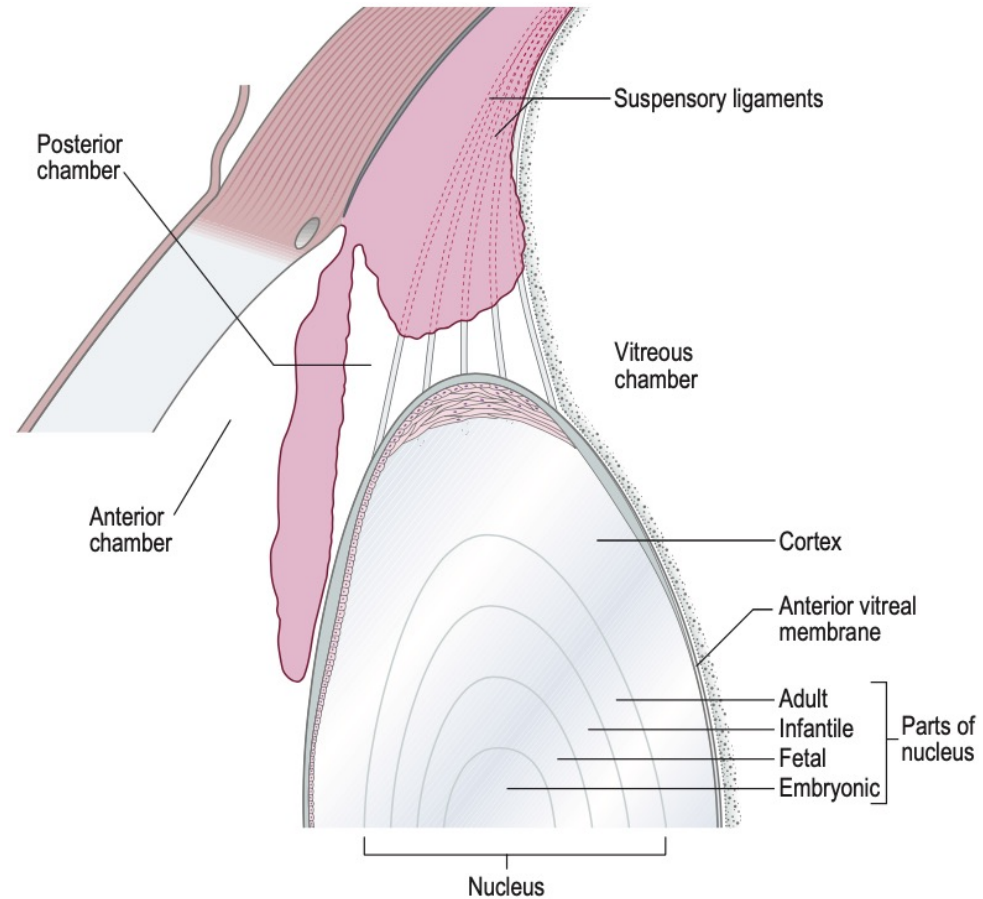
♦ Iris

- ♦ Margo pupillaris, margo ciliaris
- ♦ M. sphincter pupillae, m. dilatator pupillae
- ♦ Annulus iridis minor, annulus iridis major



Lens oculi

- 🔥 Nucleus
- 🔥 Epithelium
- 🔥 cortex



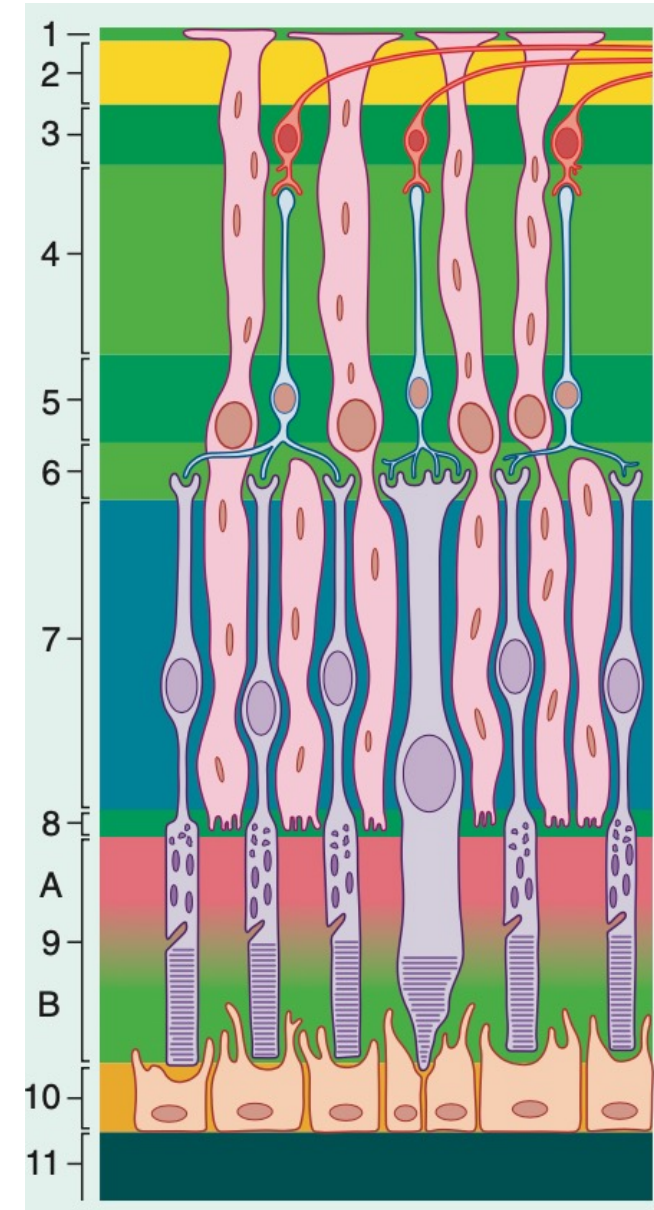
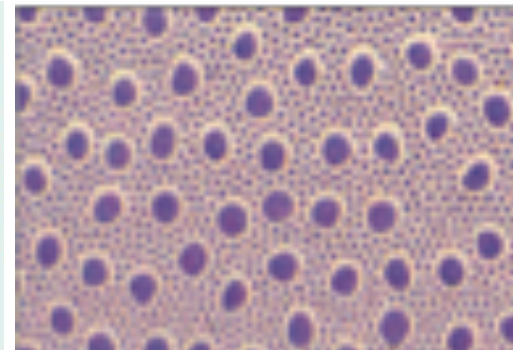
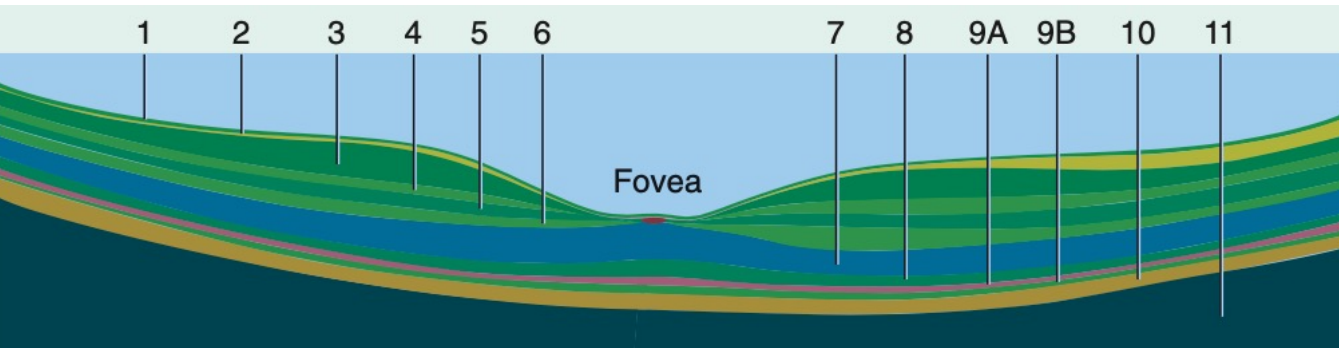
Retina

🔥 Cones

- 🔥 6 – 7 millions
- 🔥 Iodopsin
- 🔥 Three variants
- 🔥 more detail

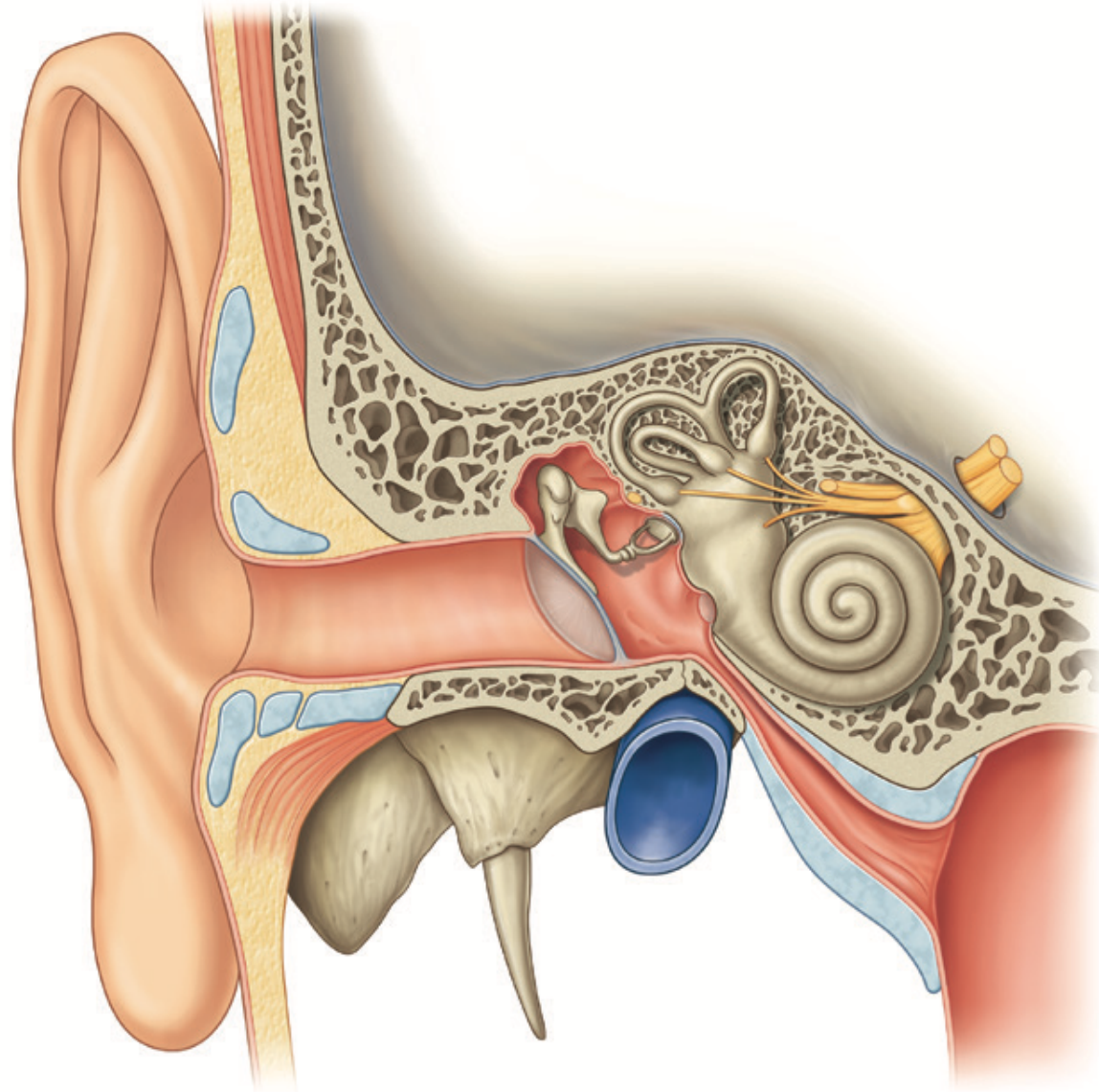
🔥 rods

- 🔥 120 millones
- 🔥 Rodopsin
- 🔥 More sensitive, darkness
- 🔥 Lower details



Organum vestibulocochleare

- ♦ Auricula
- ♦ Meatus eacusticus externus
- ♦ Cavum tympani
- ♦ Labyrinth
- ♦ Cochlea
- ♦ N. statoacusticus
- ♦ Ncc. cochleares
- ♦ Ncc. vestibulares



Auricula

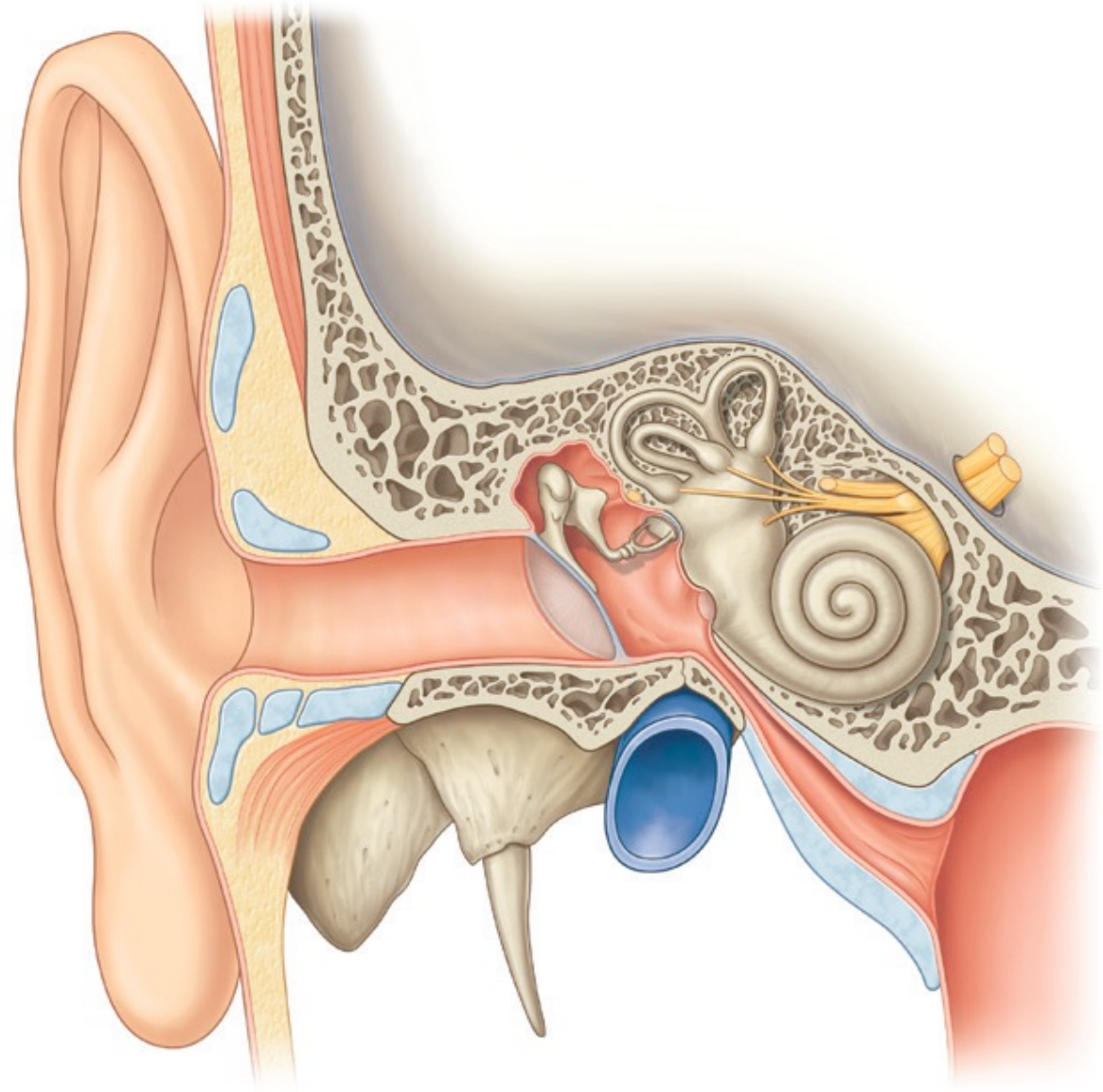
- **Helix**
- **Antihelix**
- **Tragus**
- **Antitragus**
- **Concha**
- **Meatus acusticus externus**



- **N. auriculotemporalis (V3)**
- **N. occipitalis minor (C2)**
- **N. auricularis major (C2,3)**
- **N. facialis (VII)**
- **N. vagus (X)**

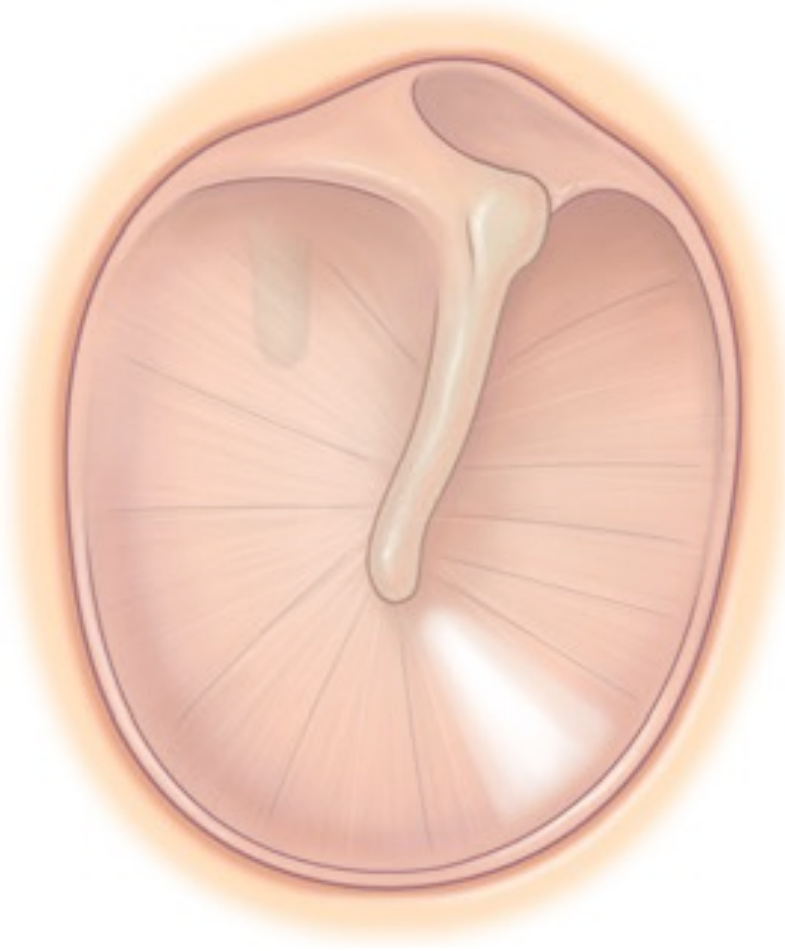
Meatus acusticus externus

- length 2,5 cm
- Cartilaginous part
- Osseous – inner 2/3
- Membrana tympani
- Glandulae ceruminales



Membrana tympani

- Fibrocartilagineous ring
- Obliquely medially to cavum tympani
- Pars flaccida
- Pars tensa
- Processus lateralis mallei
- Manubrium mallei
- Umbo
- Plica malleolaris anterior
- Plica malleolaris posterior



Cavum tympani osseum

♦ **Paries membranaceus – lateralis**

- ♦ Membrana tympani
- ♦ Recessus epitympanicus - caput mallei, corpus incudis

♦ **Paries tegmentalis - superior**

- ♦ Tegmen tympani

♦ **Paries jugularis - inferior**

- ♦ Canaliculus tympanicus
- ♦ a. tympanica inferior (a. phar.asc.), n. tympanicus (IX)

♦ **Paries caroticus – anterior**

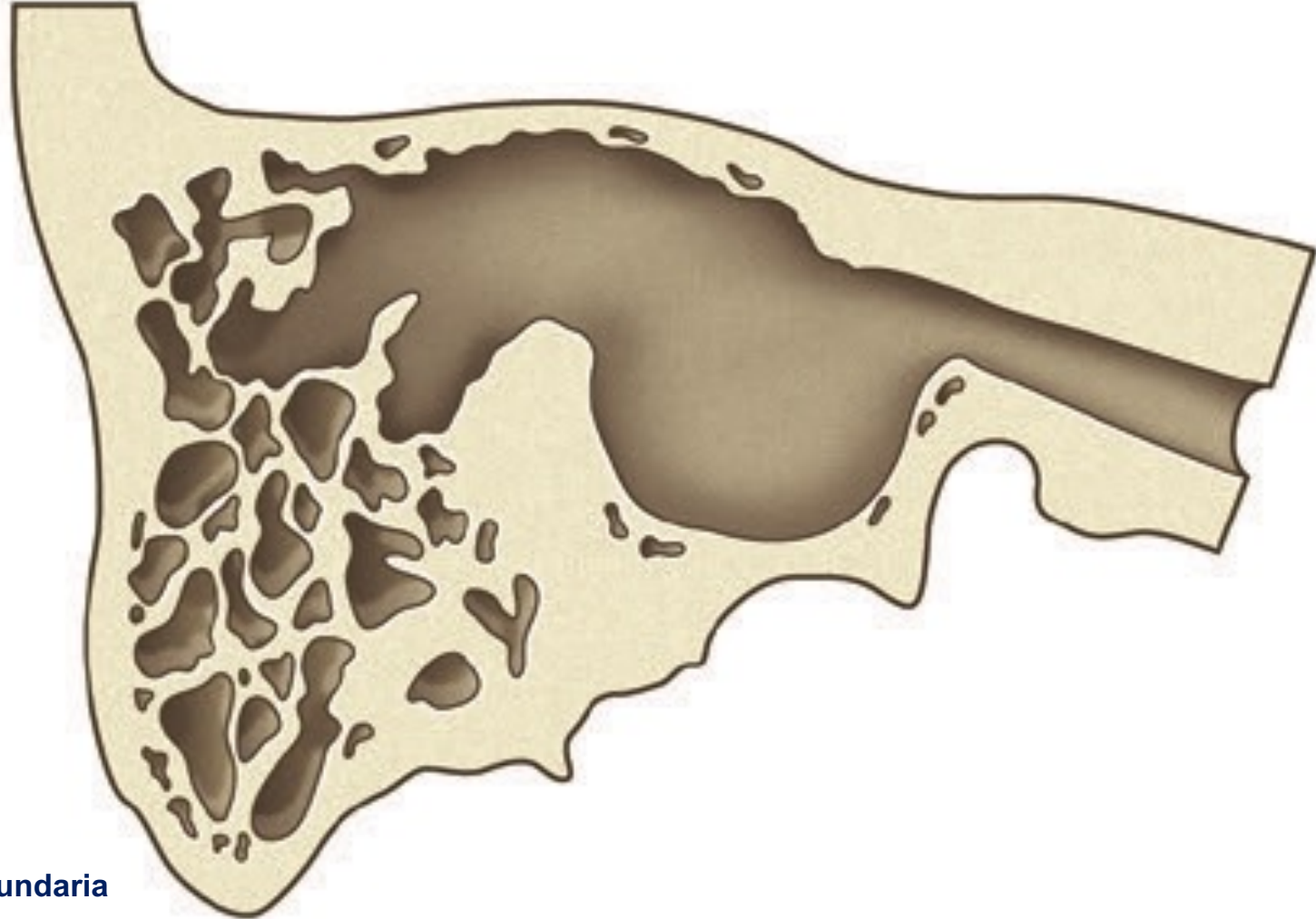
- ♦ Nn. caroticotympanici (sympaticus)
- ♦ Canalis musculotubalis
- ♦ Processus cochleariformis

♦ **Paries mastoideus - posterior**

- ♦ Aditus ad antrum mastoideum
- ♦ Antrum mastoideum
- ♦ Cellulae mastoideae

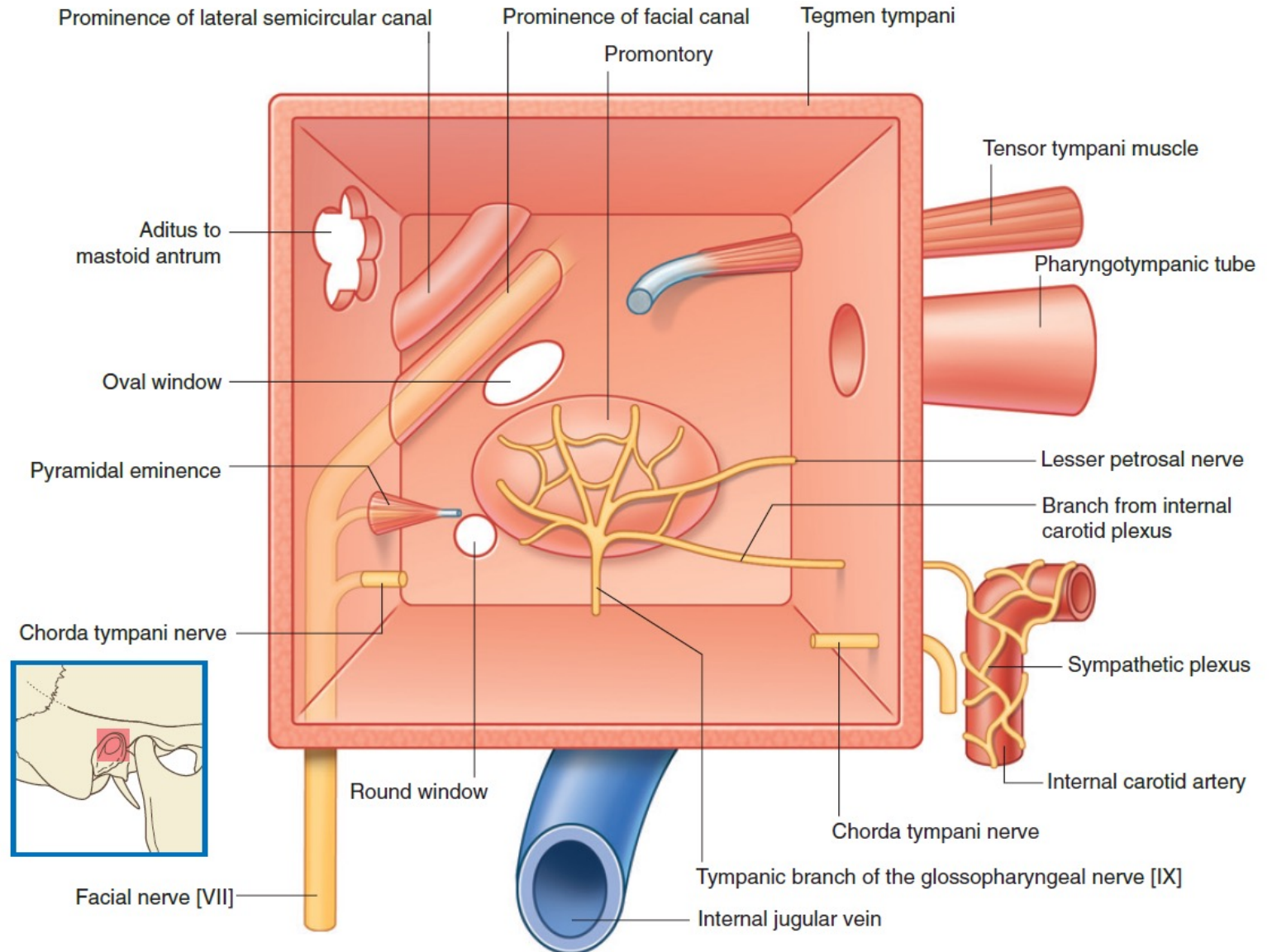
♦ **Paries labytrinthicus - medialis**

- ♦ Promontorium – basal round of cochlea
- ♦ Fenestra vestibuli (ovalis)
- ♦ Fenestra cochleae (rotunda) – membrana tympani secundaria
- ♦ Prominentia nervi facialis



Cavum tympani

- Membrana tympani
- M. tensor tympani
- Malleolus, incus, stapes
- M. stapedius
- Fenestra ovalis
- Fenestra rotunda
- Tuba pharyngotympanica
- Antrum mastoideum
- Chorda tympani
- Plexus tympanicus



Tela mucosa cavi tympani

♦ Plica mallearis posterior

- ♦ Recessus membranae tympani posterior
- ♦ Recessus membranae tympani superior (Prussak)

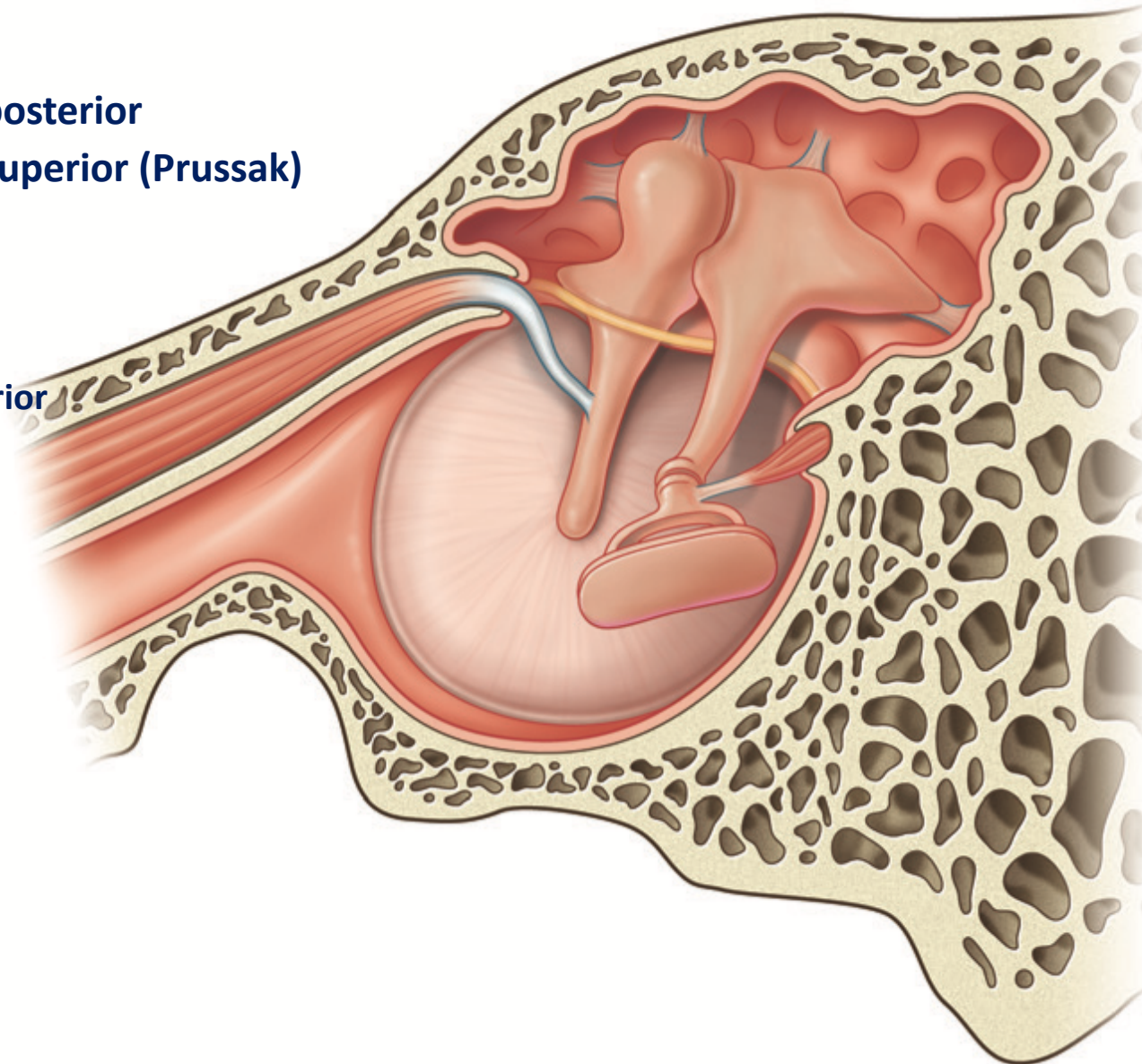
♦ Plica chordae tympani

♦ Plica mallearis anterior

- ♦ Recessus membranae tympani anterior

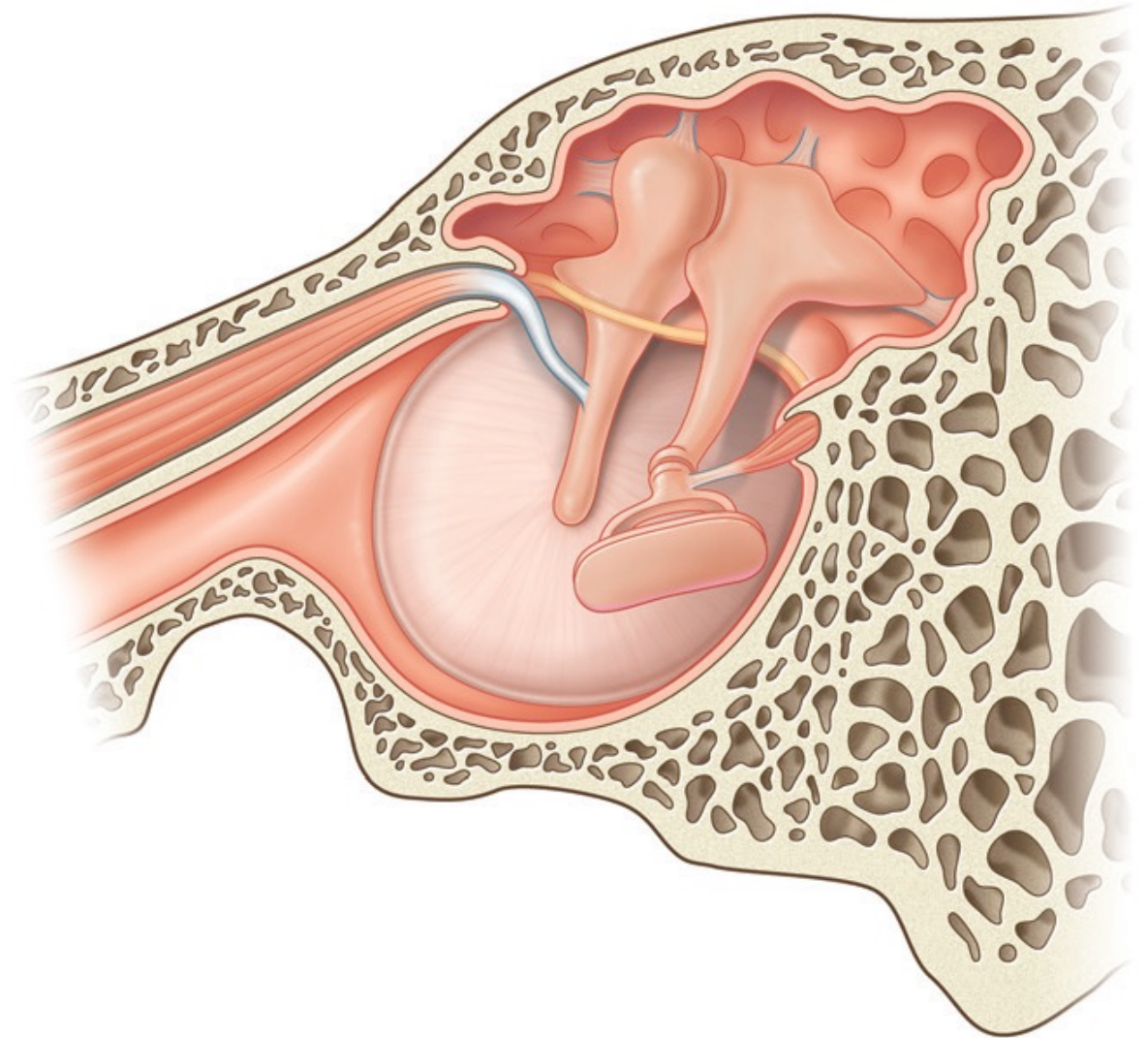
♦ Plica stapedis

- ♦ Přes krček a šlachu m. stapedius



Cavum tympani

- ♦ **M. tensor tympani (V3) – own channel**
 - ♦ **tuba pharyngotympanica + os sphenoidale**
 - ♦ *Tension of tympanon*
- ♦ **Processus anterior malleoli**
 - ♦ Anterior wall - lig. mallei anteriorus
- ♦ **Caput malleoli - facies articularis - incus**
 - ♦ Crus breve – dorsal wall - lig. posterius
- ♦ **Crus longum incudis - stapes**
- ♦ **M. stapedius (VII)**
 - ♦ **emmetia pyramidalis**
 - ♦ *Tension of stapedial neck*
- ♦ **Basis stapedis - foramen ovale**



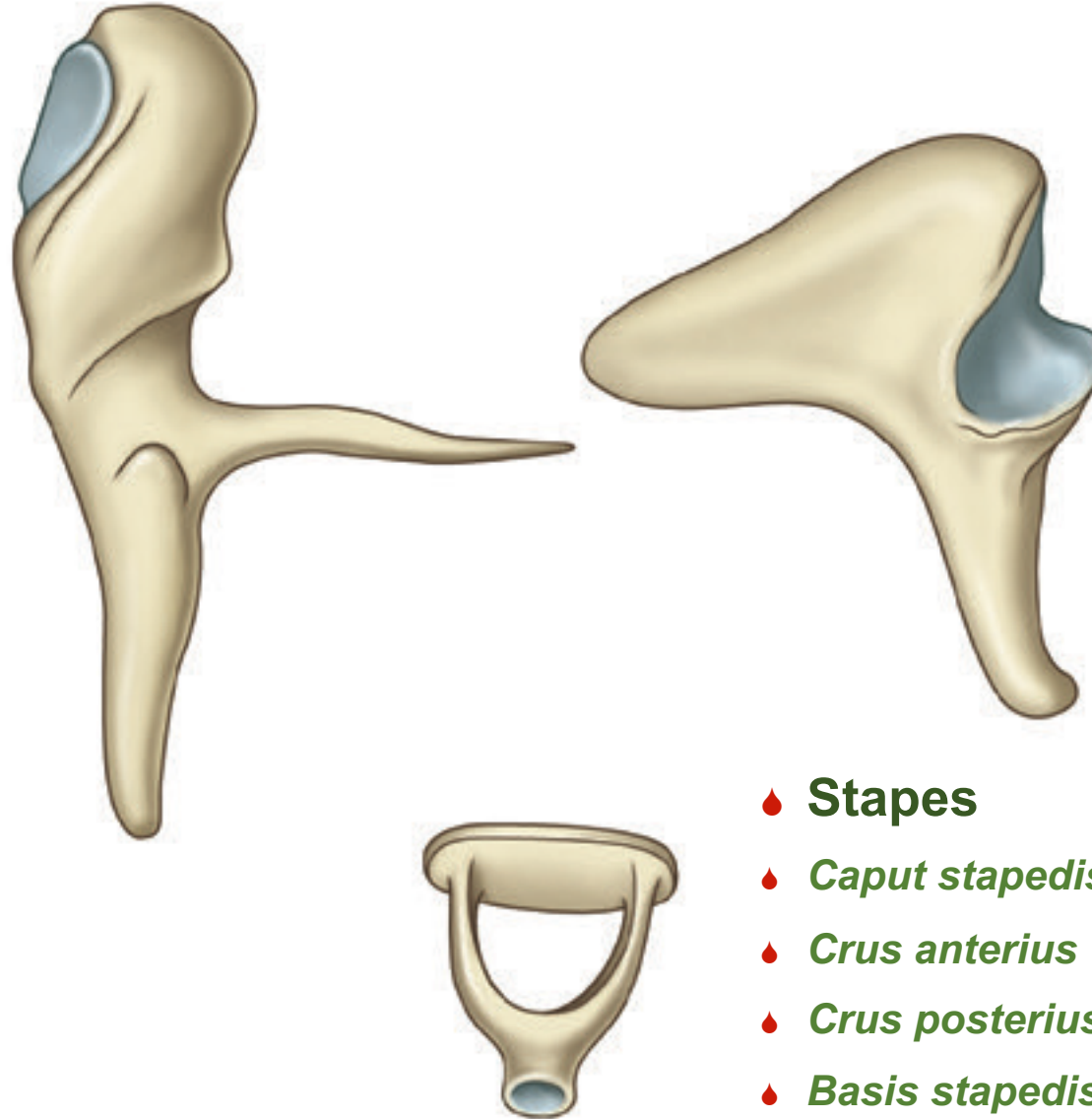
Ossicula

♦ Malleus

- ♦ *Caput mallei*
- ♦ *Facies articularis*
- ♦ *Collum mallei*
- ♦ *Processus anterior*
- ♦ *Processus lateralis*
- ♦ *Manubrium mallei*

♦ Ligamenta

- ♦ *Mallei anterior*
- ♦ *Mallei superius*
- ♦ *Incudis superius*
- ♦ *Incudis posterius*
- ♦ *Membrana stapedia*
- ♦ *Anulare stapedis*



♦ Incus

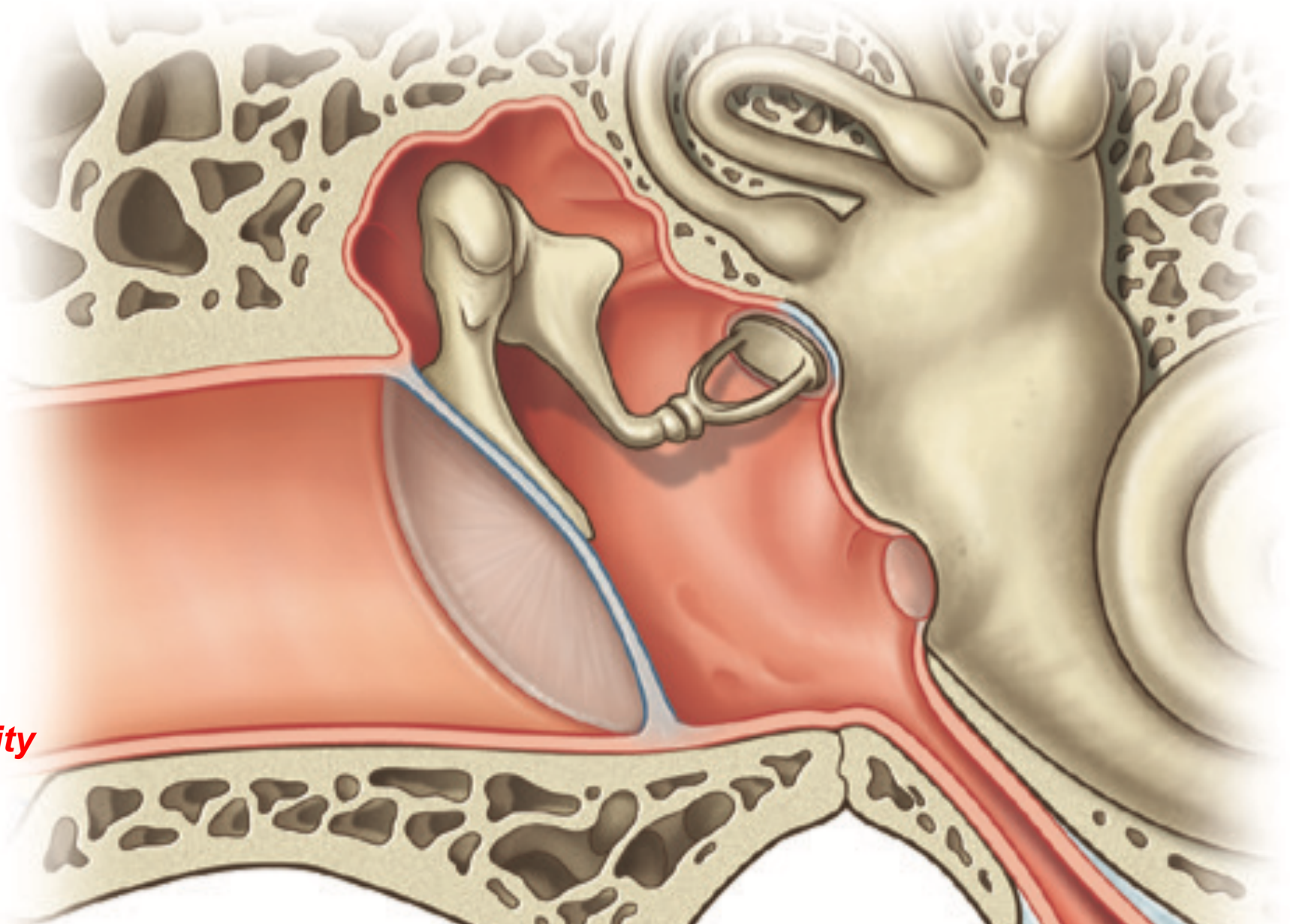
- ♦ *Corpus incudis*
- ♦ *Facies articularis*
- ♦ *Crus breve incudis*
- ♦ *Crus longum incudis*
- ♦ *Processus lenticularis*
 - ♦ *Cartilago*

♦ Stapes

- ♦ *Caput stapedis*
- ♦ *Crus anterior*
- ♦ *Crus posterior*
- ♦ *Basis stapedis*

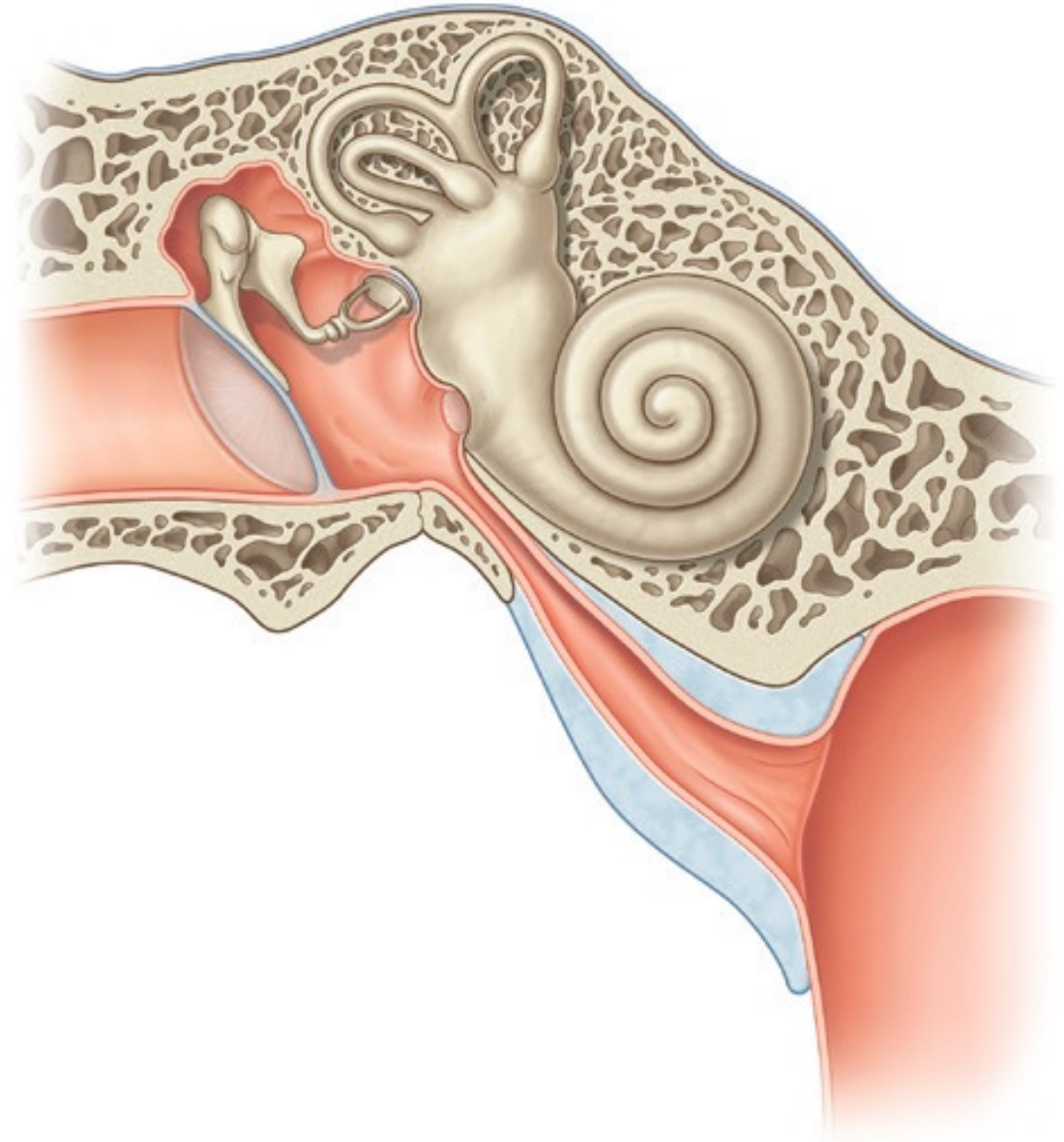
Ossicula

- ♦ Meatus acusticus externus
 - ♦ Membrana tympani
 - ♦ Malleus
 - ♦ Incus
 - ♦ Stapes
 - ♦ Foramen ovale
 - ♦ Labyrinth osseum
-
- ♦ Assymetric lever
 - ♦ *Big amplitude, low intensity*
 - ♦ *small amplitude, grande intensity*



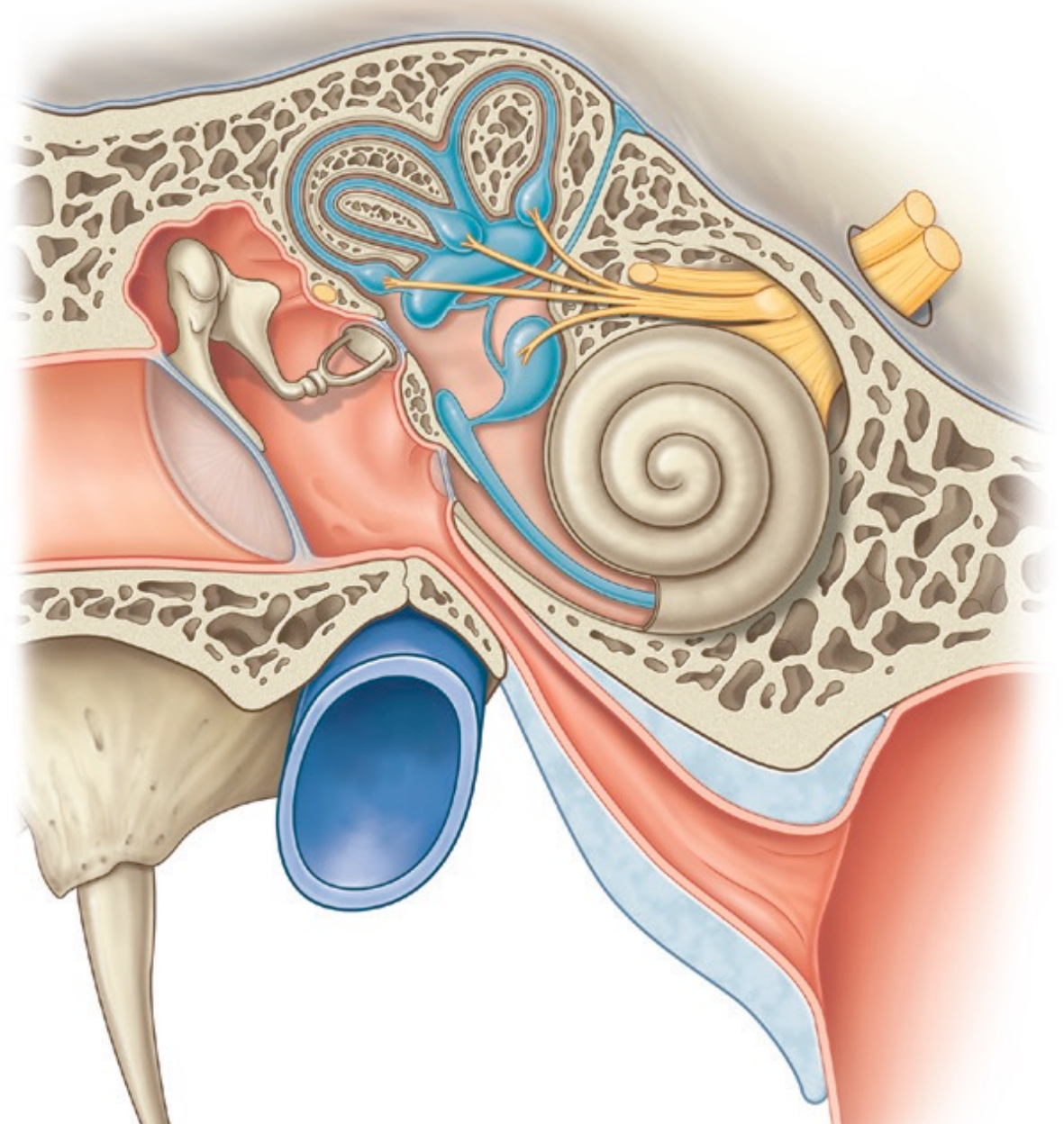
Tuba pharyngotympanica

- ♦ Bottom end canalis musculotubalis
- ♦ Connection
- ♦ Nasopharynx
- ♦ Cavum tympani
 - ♦ Pars ossea - 1/3 – 1 cm
 - ♦ Pars cartilaginea - 2/3 – 2.5 cm
- ♦ opening
 - ♦ outside the foramen ovale et spinosum
- ♦ Junction of squamous and petrosal part
- ♦ Pressure balancing
- ♦



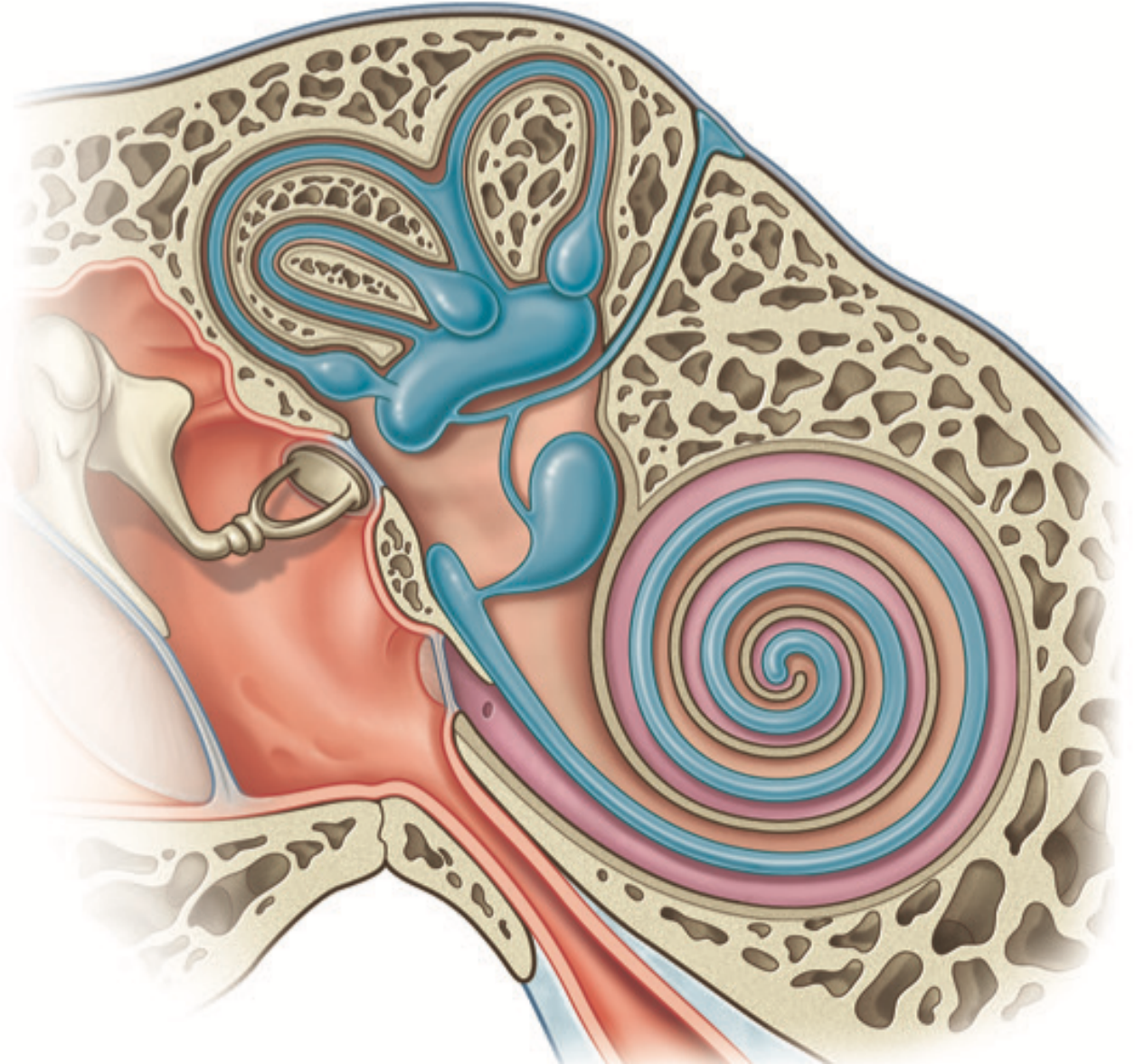
Labyrinthus osseus

- ♦ **Perilympa**
- ♦ **Fenestra ovalis (vestibuli)**
- ♦ **Vestibulum**
 - ♦ **Crista vestibuli**
 - ♦ **Recessus ellipticus – utriculus**
 - ♦ **Recessus sphaericus – sacculus**
 - ♦ **Recessus cochlearis - cochlea**
- ♦ **Canales semicirculares (3)**
 - ♦ *Anterior, lateralis, posterior*
- ♦ **Crura ossea**
 - ♦ *communum – canalis anterior et posterior*
 - ♦ *simplex - canalis lateralis*
- ♦ **Cochlea**
 - ♦ **Modiolus – conic osseous axis**
 - ♦ **Lamina spiralis ossea – incomplete**
 - ♦ *lamina/membrana basalis - membrana vestibularis*
 - ♦ **Scala vestibuli – ductus cochlearis – scala tympani**



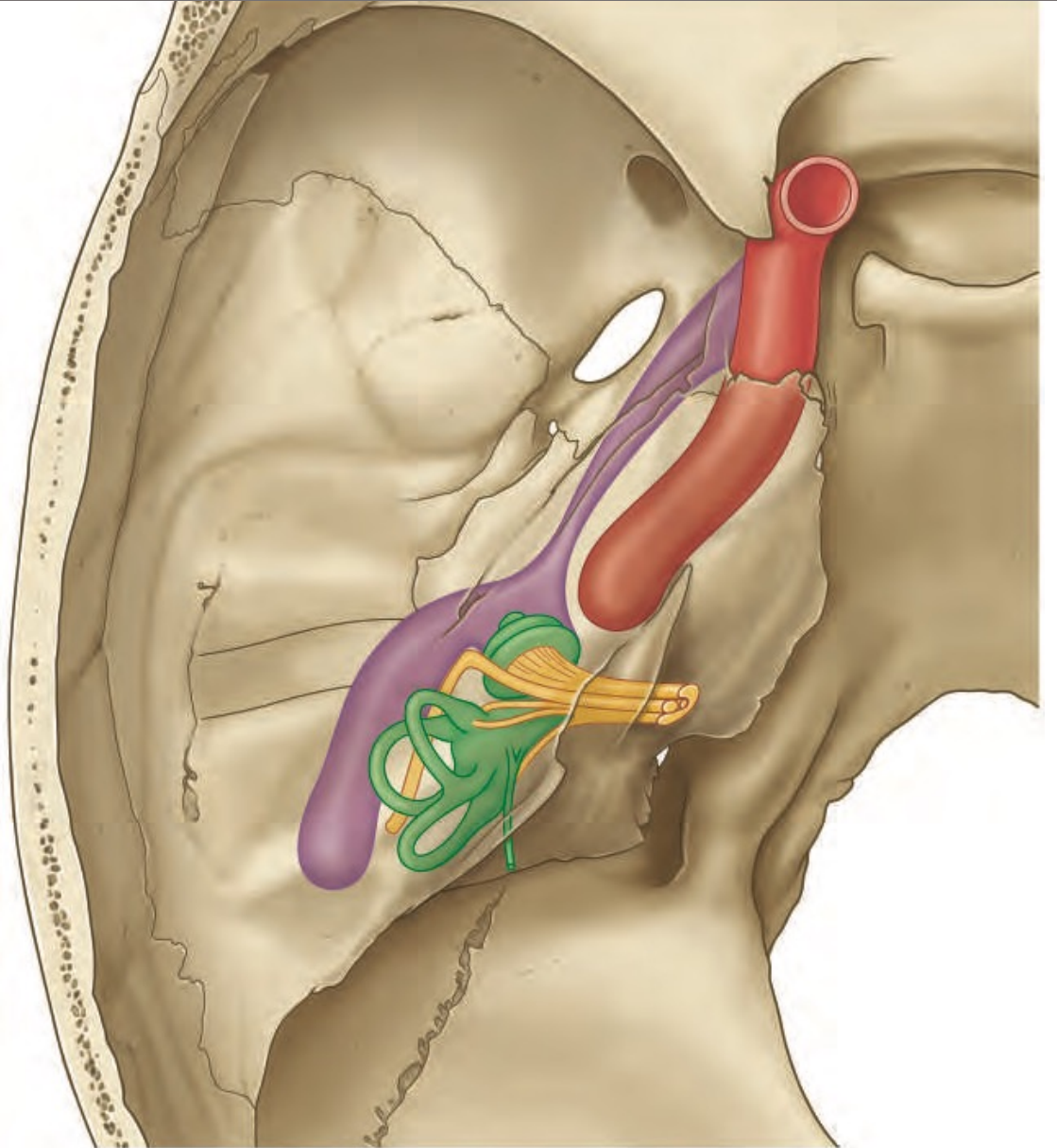
Labyrinthus membranaceus

- ♦ **Ductus semicirculares**
 - ♦ *Anterior, lateralis, posterior*
 - ♦ **Ampulae**
 - ♦ **Crura**
- ♦ **Ductus cochlearis**
- ♦ **Utriculus – protracted 2,5 . 3,5 mm**
- ♦ **Ductus utriculosaccularis**
- ♦ **Sacculus – spheric – 2 – 3 mm**
- ♦ **Ductus reuniens**
- ♦ **Ductus endolymphaticus**
 - ♦ *Aqueductus vestibuli*
- ♦ **Saccus endolymphaticus**
 - ♦ *Blind end between two leaves of dura mater*
- ♦ **Endolympha**



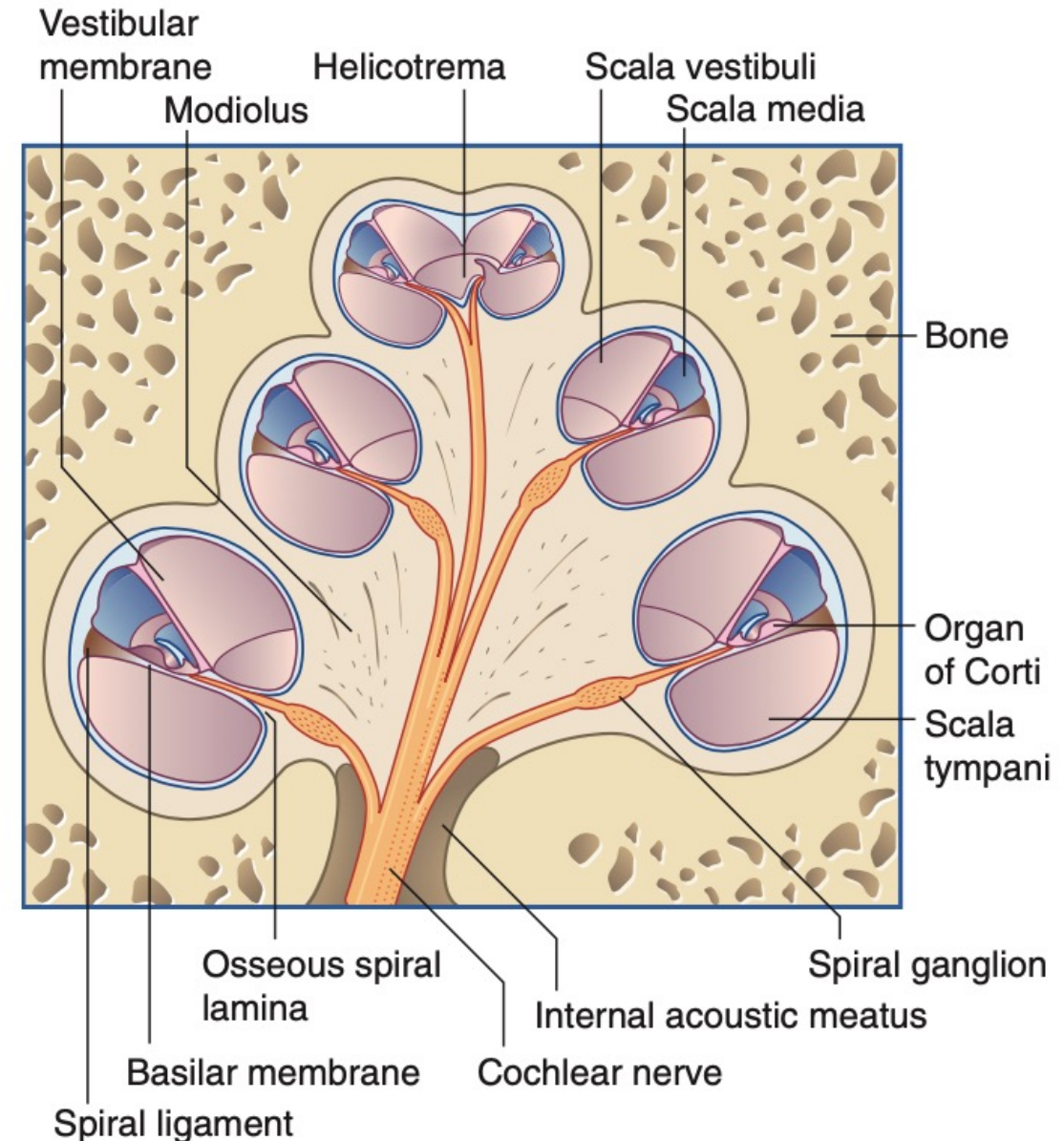
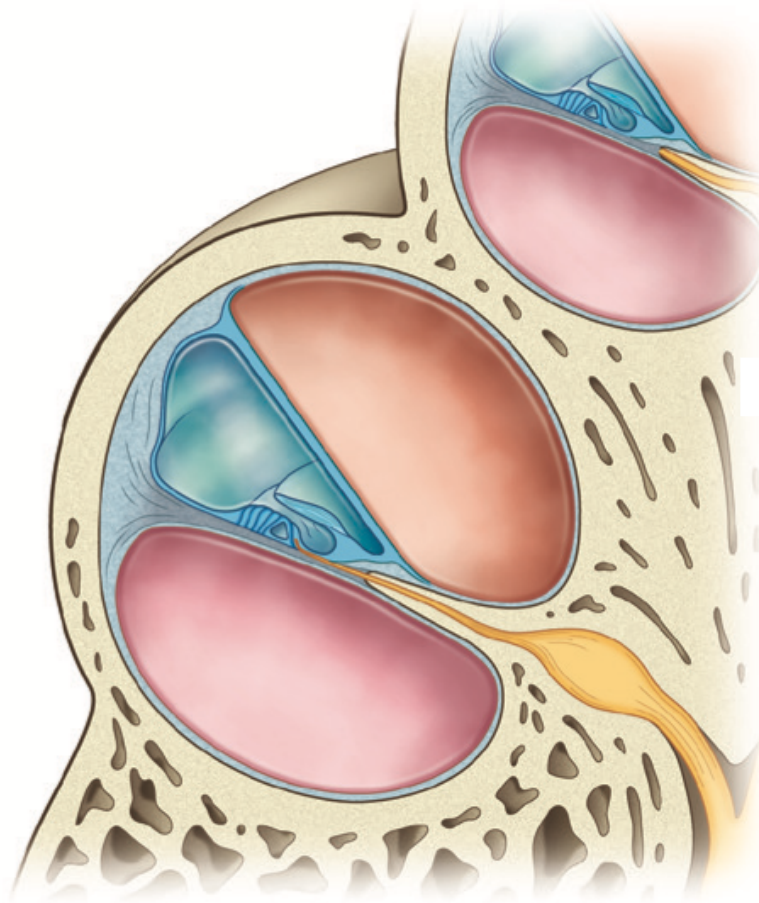
Labyrinthus membranaceus

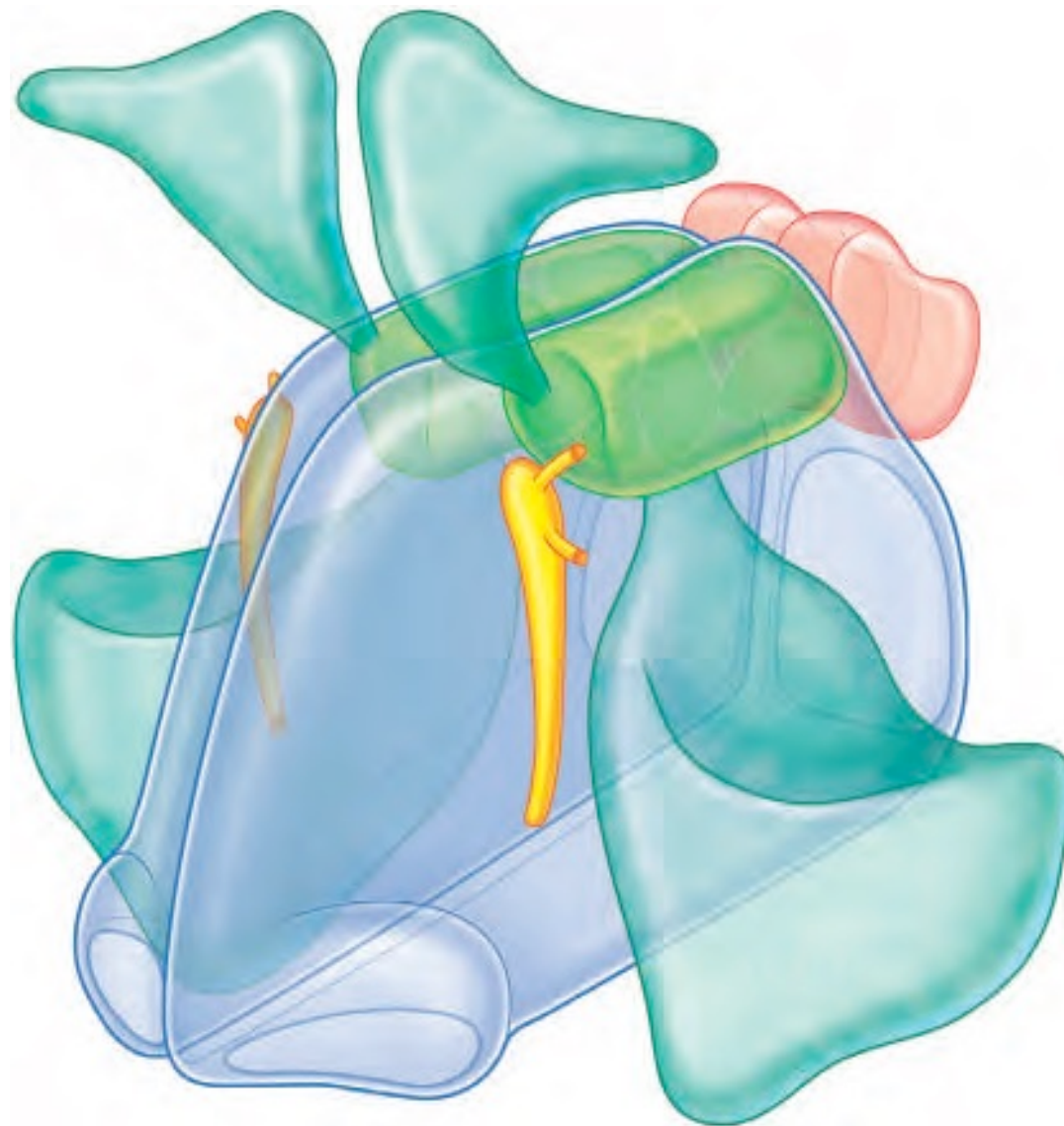
- ♦ **Ductus semicirculares**
 - ♦ *Anterior, lateralis, posterior*
 - ♦ **Ampulae**
 - ♦ **Crura**
- ♦ **Ductus cochlearis**
- ♦ **Utriculus – protracted 2,5 . 3,5 mm**
- ♦ **Ductus utriculosaccularis**
- ♦ **Sacculus – spheric – 2 – 3 mm**
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 - ♦ *Aqueductus vestibuli*
- ♦ **Saccus endolymphaticus**
 - ♦ *Blind end between two leaves of dura mater*
- ♦ **Endolympha**



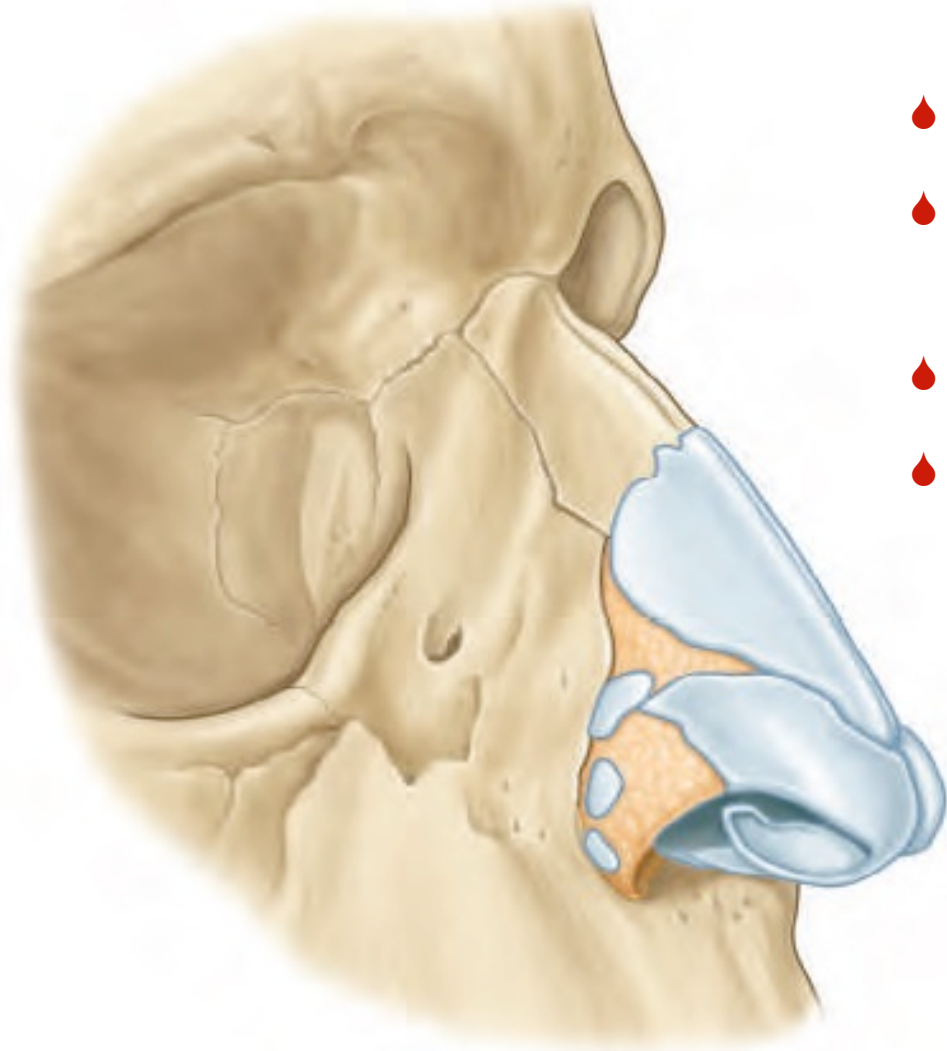
Cochlea

- **Scala vestibuli**
- **Scala media – ductus cochlearis**
- **Scala tympani**
- **Helicotrema**

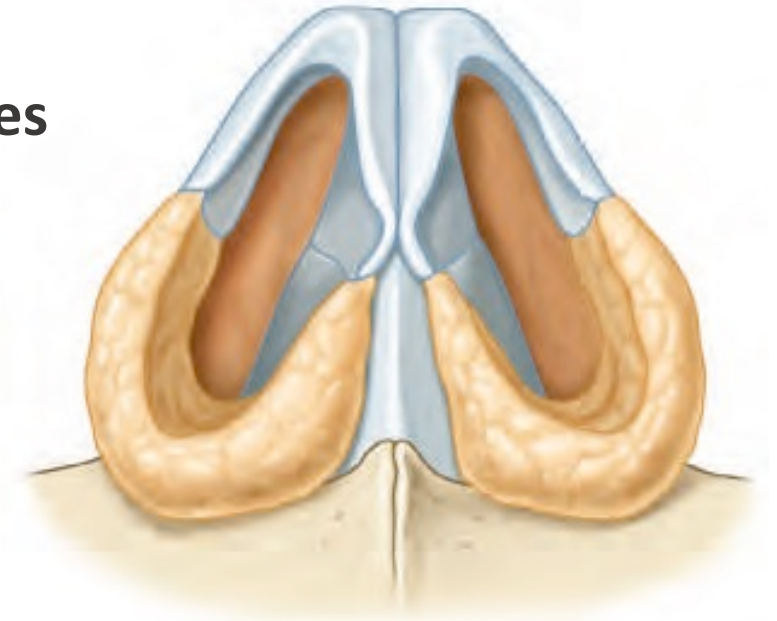




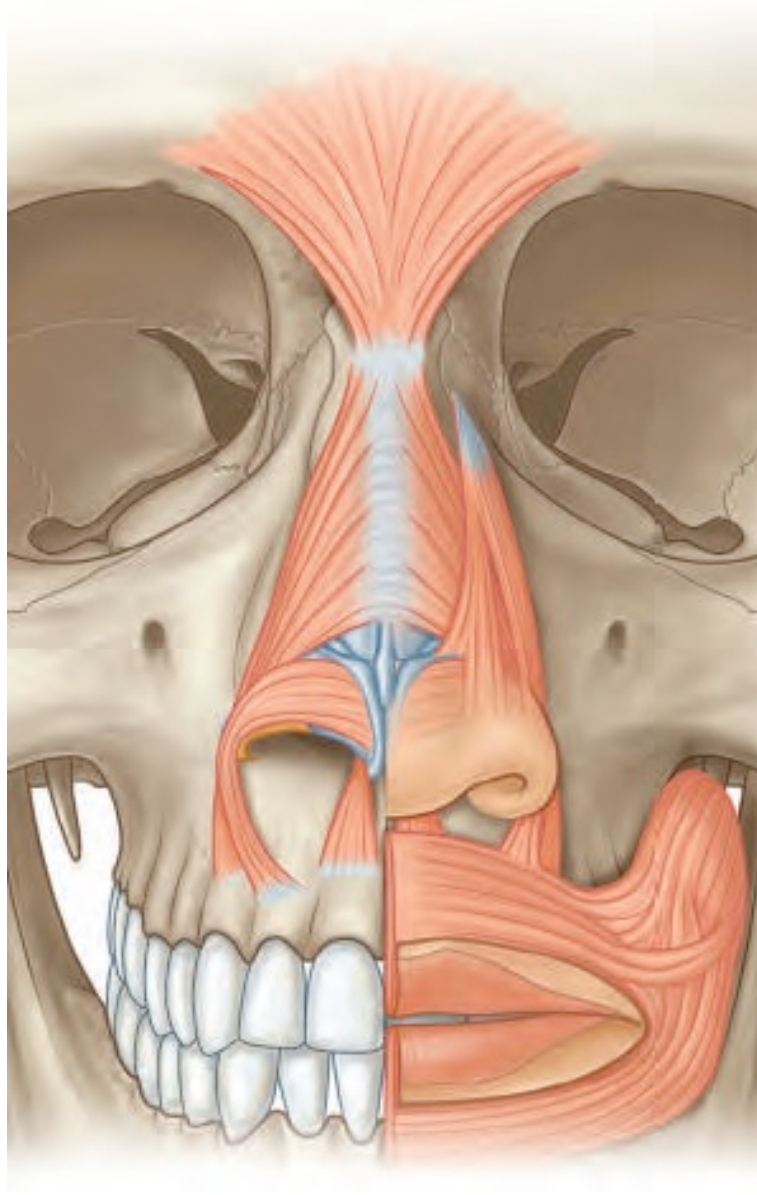
DUTINA NOSNÍ, PARANASÁLNÍ DUTINY



- **Os nasale**
- **Cartilago septalis**
 - **Processus lateralis**
- **Cartilago alare major**
- **Cartilagiens alae minores**

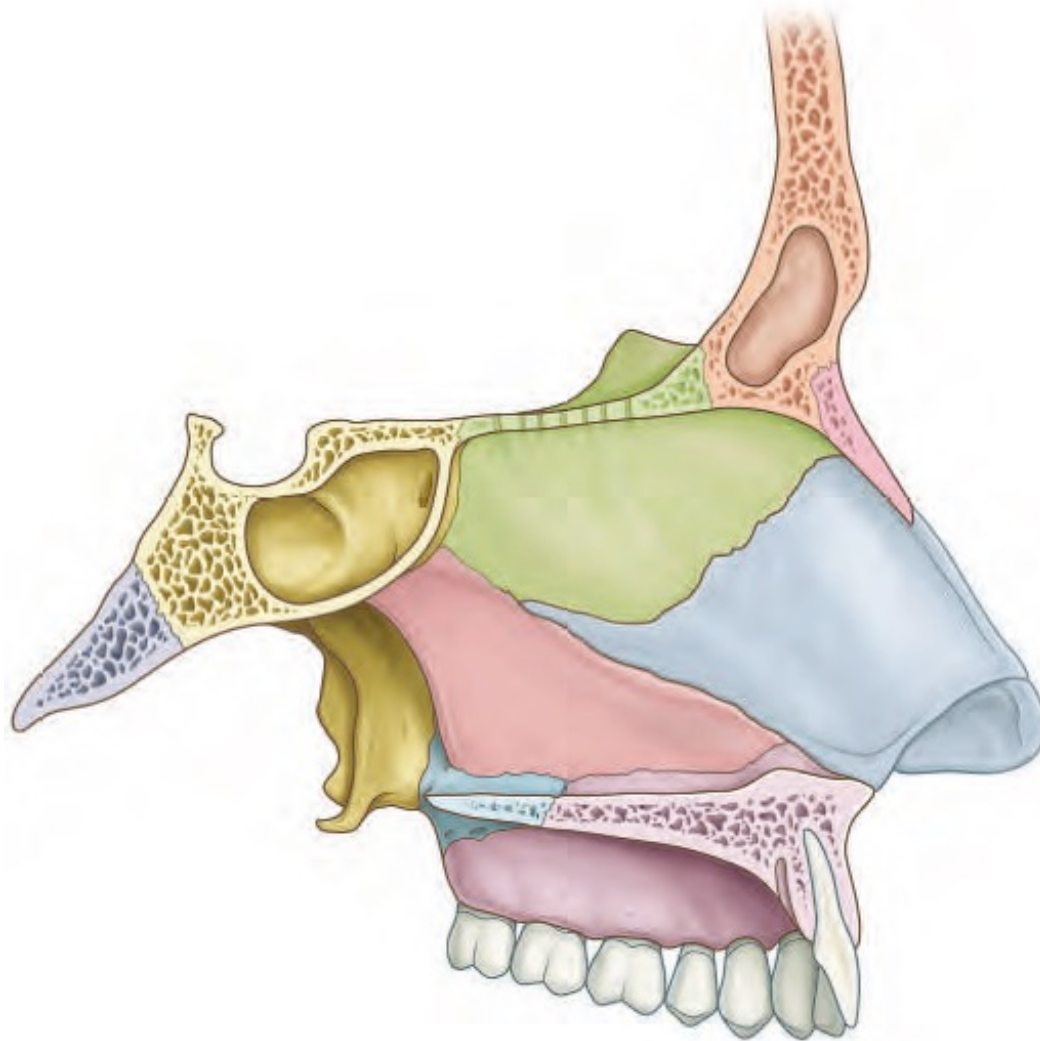


NOSE



- ♦ **Naris**
- ♦ **M. nasalis**
 - ♦ Pars transversa
 - ♦ Pars alaris
- ♦ **M. depressor septi nasi**
- ♦ **M. levator labii superioris alaeque nasi**
- ♦ **M. orbicularis oris**
- ♦ **M. procerus**

MUSCLES OF THE NOSE



- **Cartilago septalis**
- **Lamina perpendicularis ossis ethmoidalis**
- **Vomer**
- **Os palatinum - lamina horizontalis**
- **Macila processus palatinus**
- **Crista incisiva**

SEPTUM NASI

CAVITAS NASI

- ♦ **Regio olfactoria - n. I.**

- ♦ Yellowed - ol of smell cells

- ♦ **Regio respiratoria - N. V1, V2**

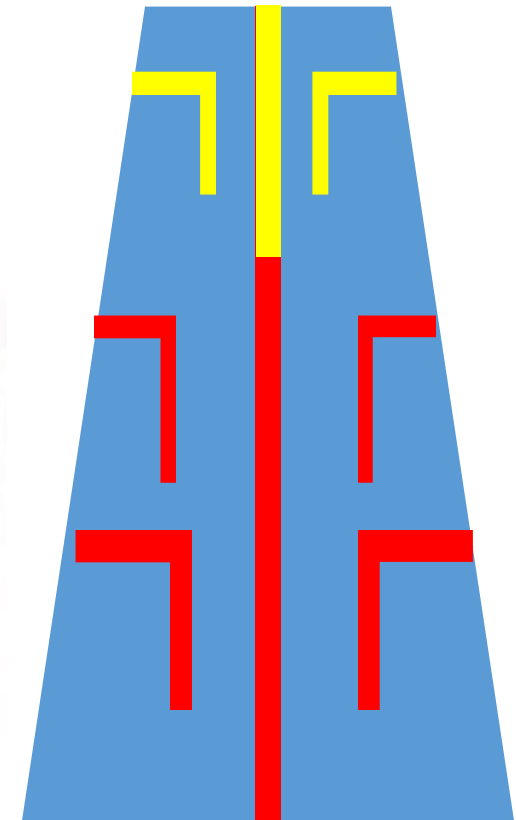
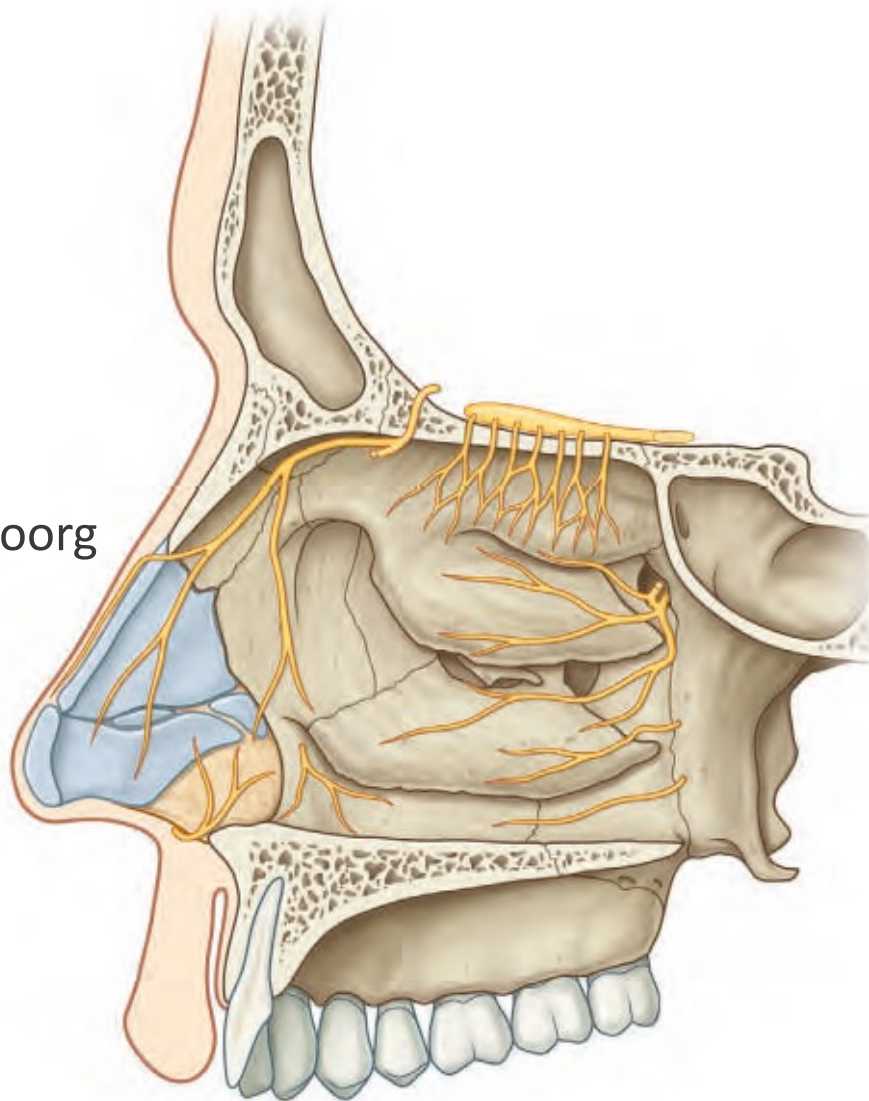
- ♦ Red-purple
- ♦ Venous plexus
- ♦ Preheating and humidification of air
- ♦ mucus - removal of impurities, also mikroorg
- ♦ Immunoglobulins

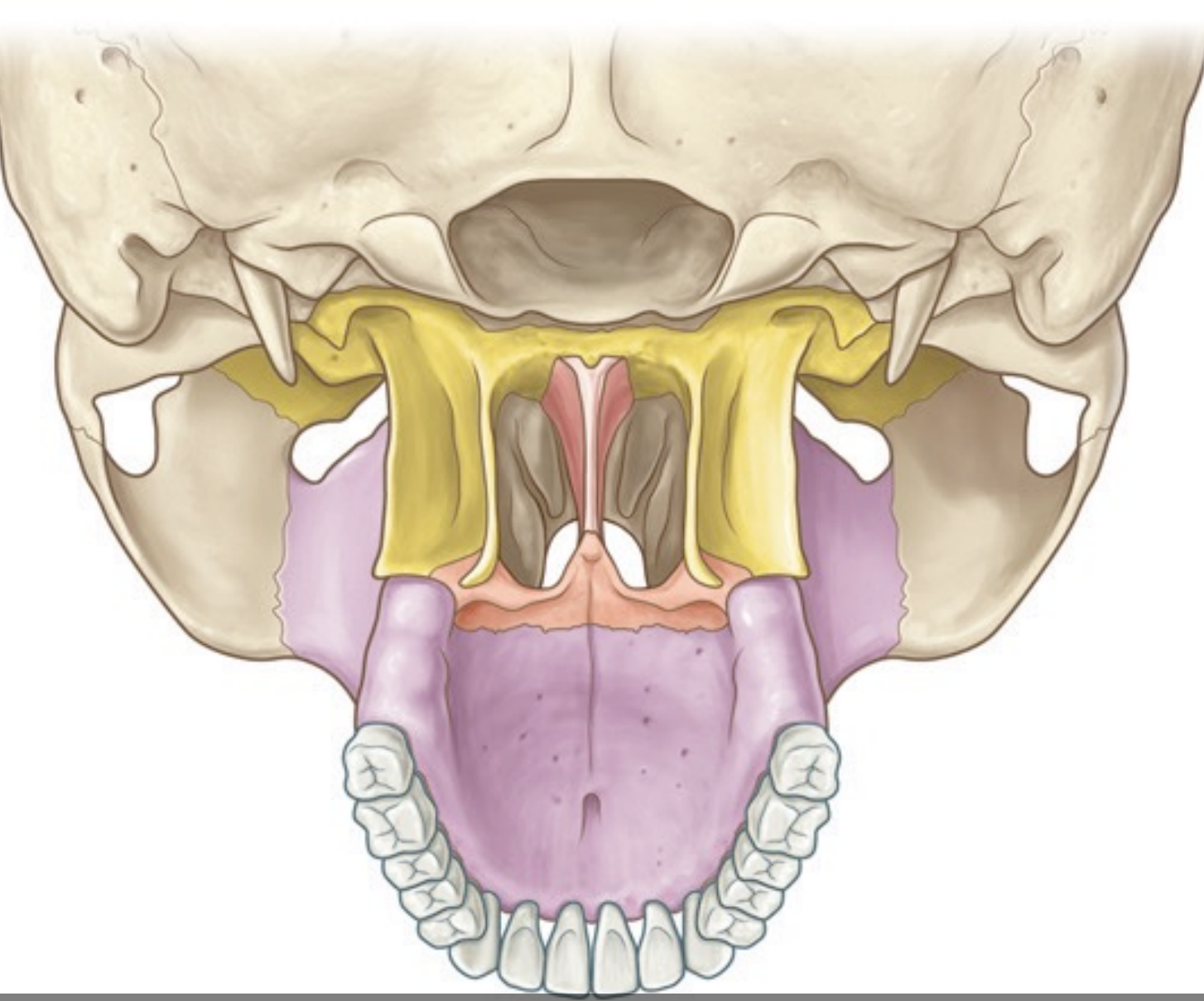
- ♦ **Meatus nasi communis**

- ♦ **Meatus nasi superior**

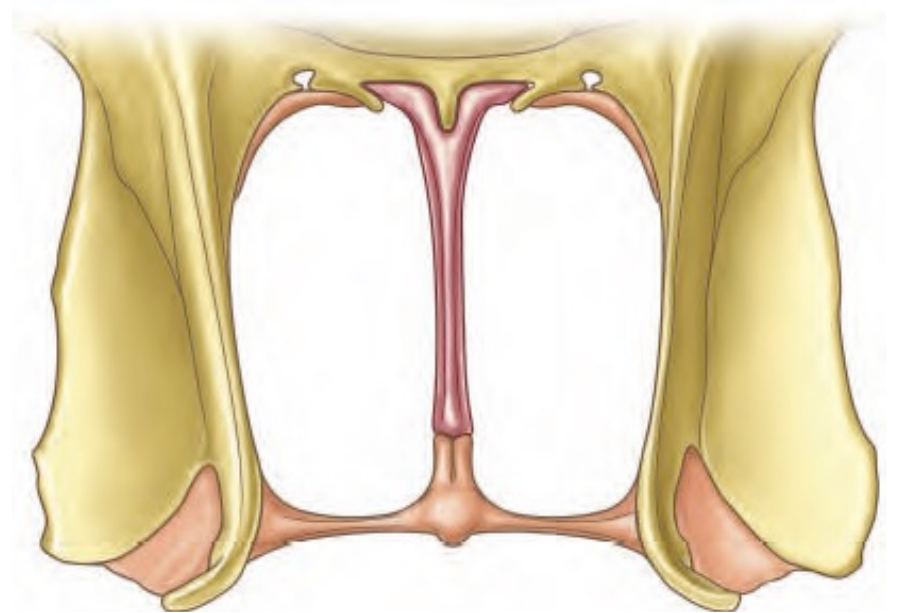
- ♦ **Meatus nasi medius**

- ♦ **Meatus nasi inferior**





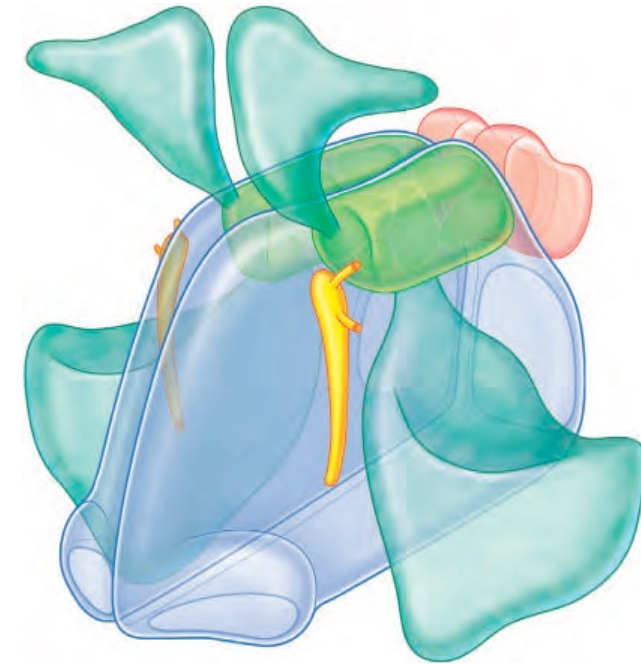
- ♦ Lamina medialis processus pterygoidei
- ♦ Processus sphenoidalis ossis palatini
- ♦ Vomer
- ♦ Lamina horizontalis ossi palatini
- ♦ *Hamulus pterygoideus*



CHOANAE



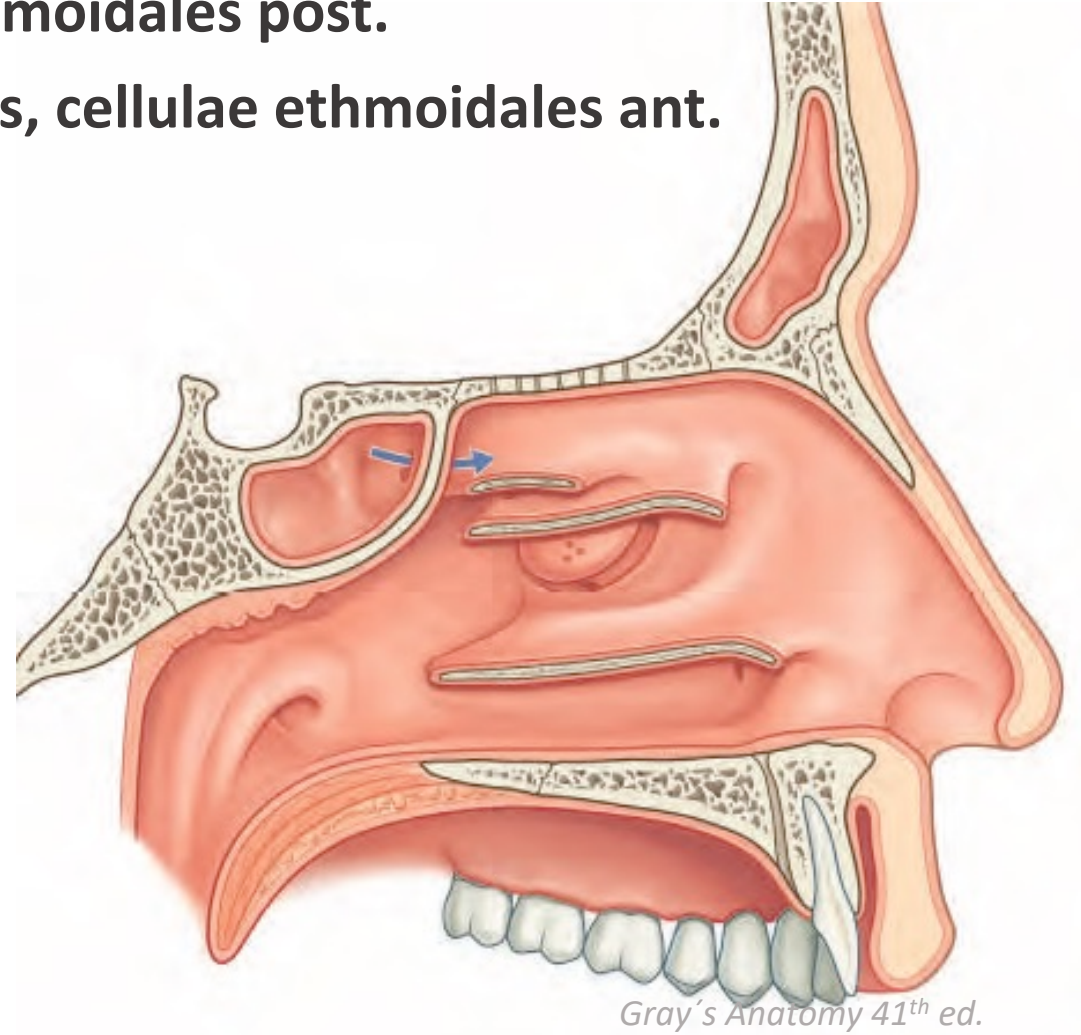
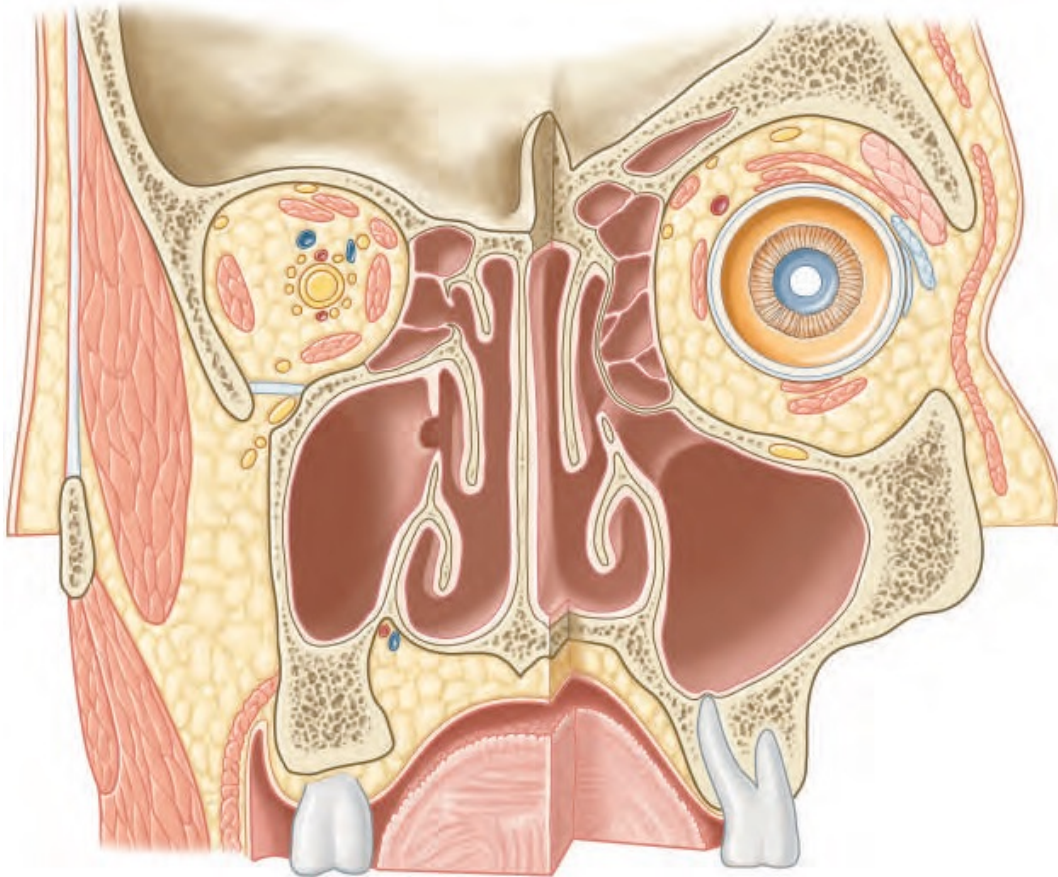
- 🔴 Sinus sphenoidalis
- 🔴 Cellulae ethmoidales
- 🔴 Sinus frontalis
- 🔴 Sinus maxillaris

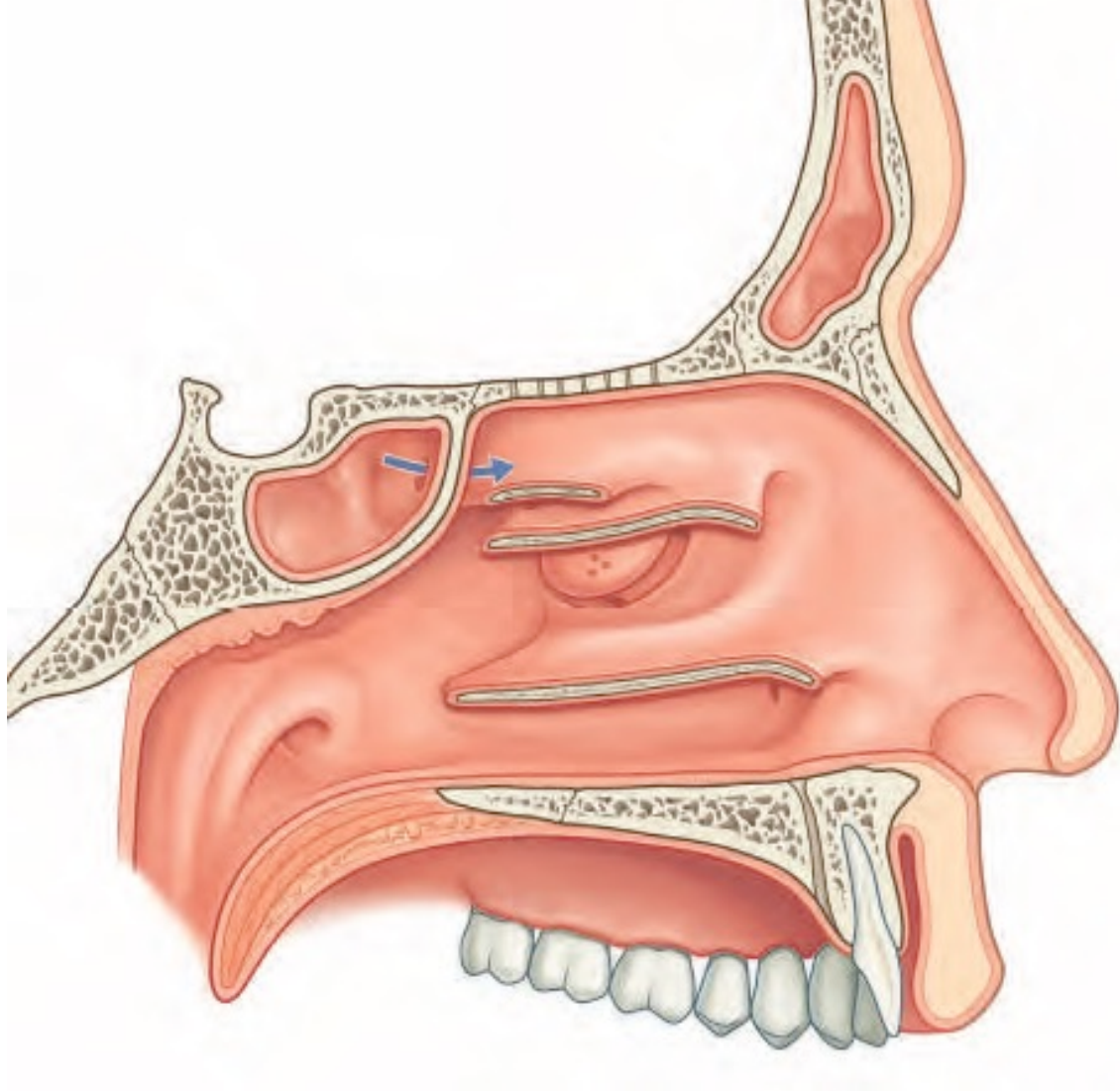


SINUS PARANASALES

SINUS PARANASALES

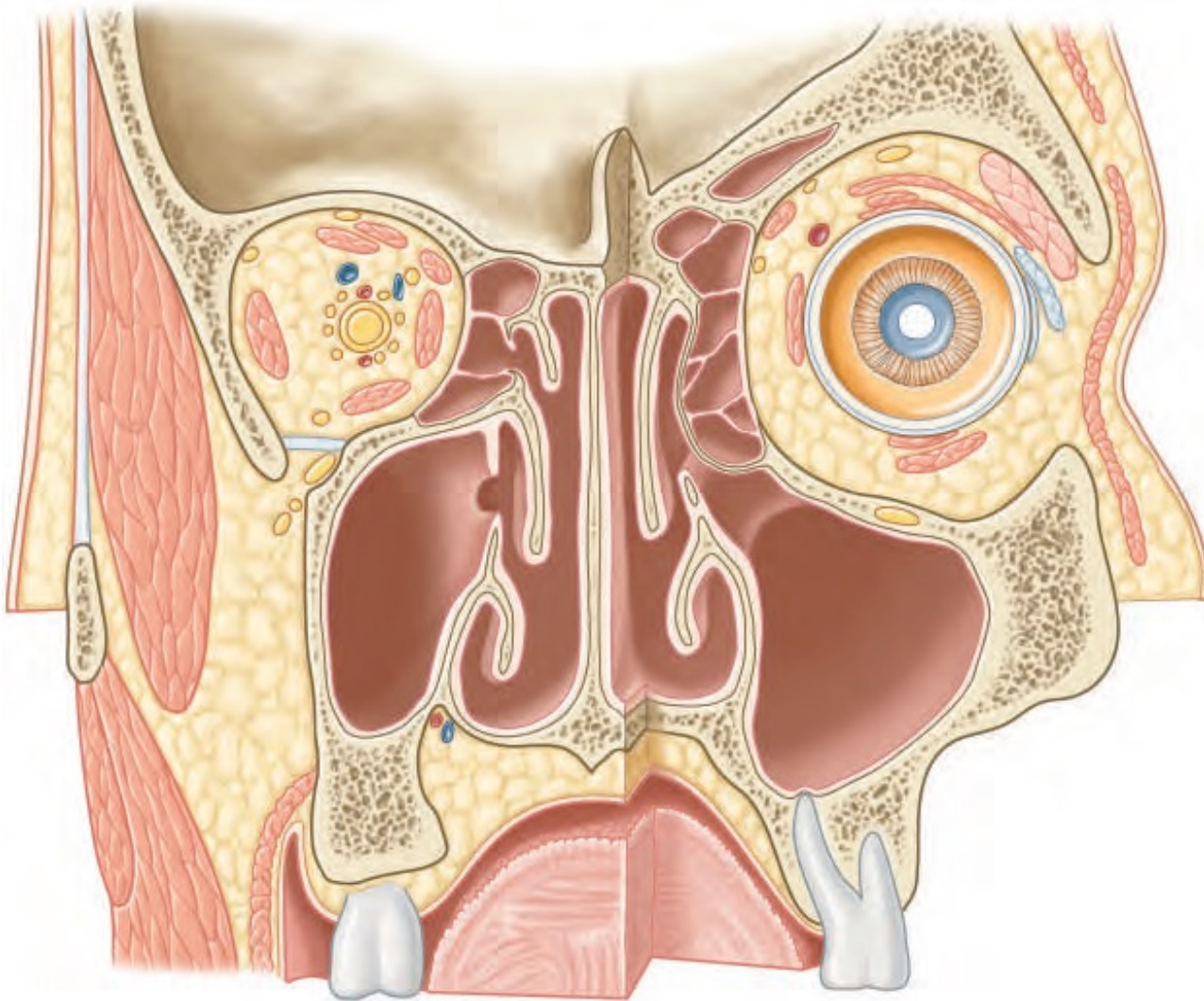
- ♦ Meatus n. sup. - sinus sphenoidalis, cellulae ethmoidales post.
- ♦ Meatus n. med. - sinus frontalis, sinus maxillaris, cellulae ethmoidales ant.



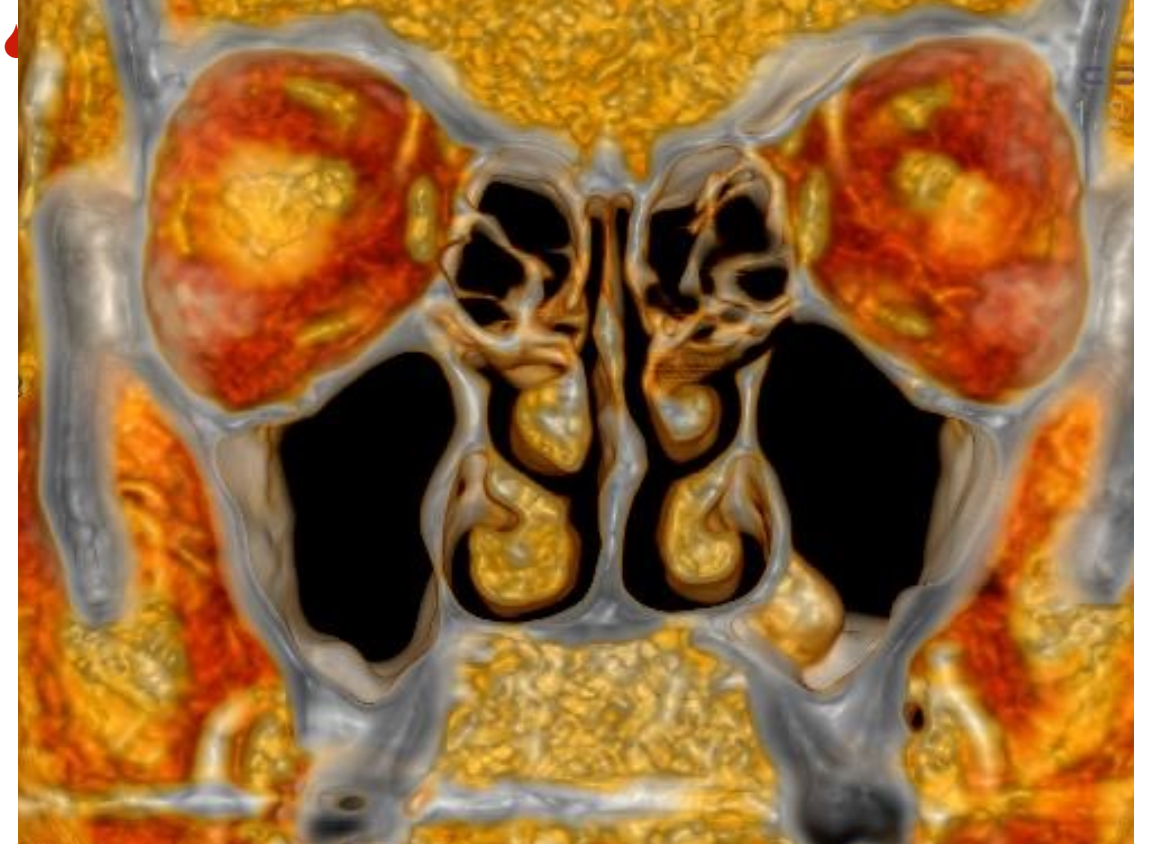


- ♦ **Sinus sphenoidalis**
 - ♦ Recessus sphenothmoidalis – upper opening
- ♦ **Cellulae ethmoidales posteriores**
 - ♦ Below upper concha
- ♦ **Cellulae ethmoidales anteriores**
 - ♦ Bula ethmoidalis – below middle concha
- ♦ **Sinus frontalis**
 - ♦ Ductus frontonasalis – fore hiathus semilun.
- ♦ **Sinus maxillaris**
 - ♦ Hiathus semilunaris under middle concha
- ♦ *Ductus nasolacrimalis*
 - ♦ Below lowe concha
- ♦ *Tuba pharyngotympanica*

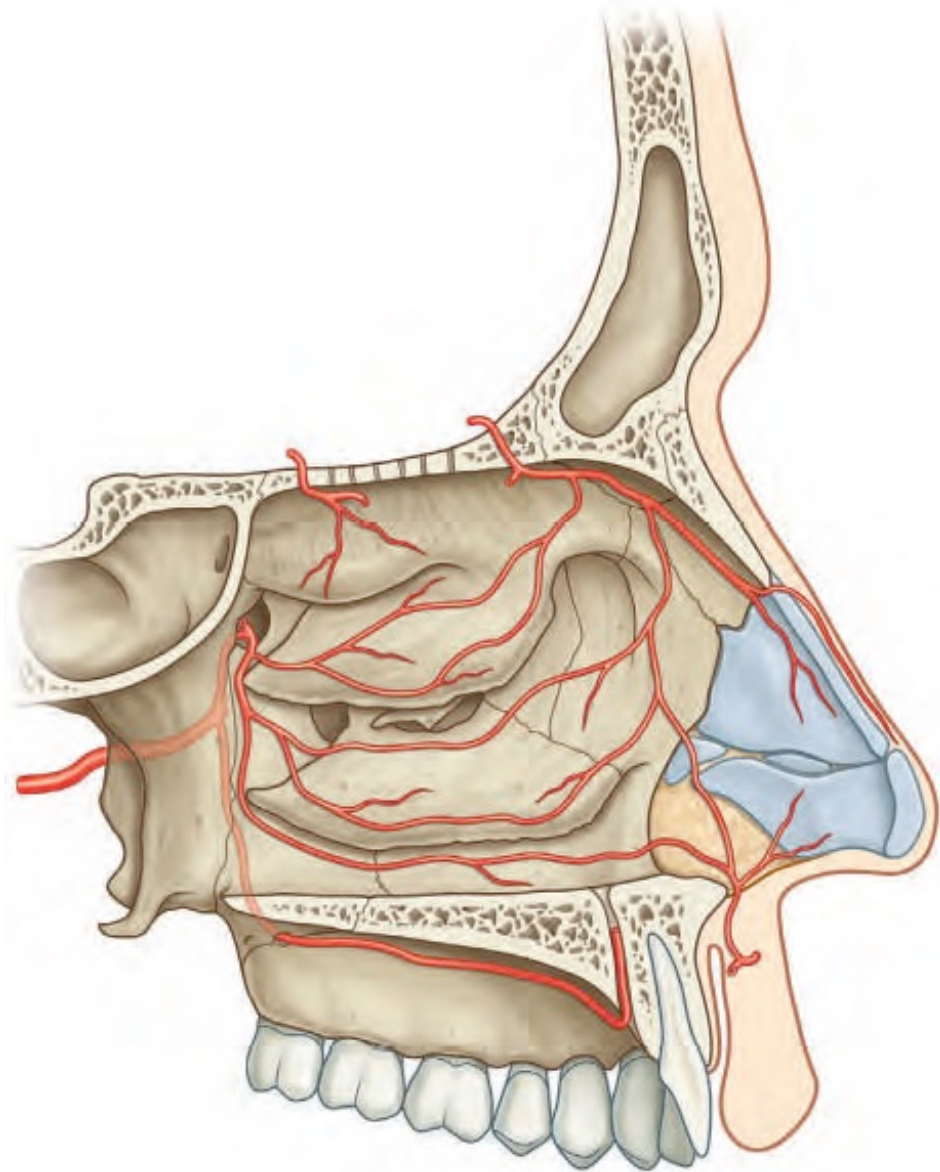
SINUS PARANASALES



- Communication between
- Maxillary sinu
- Nasal cavity



OSTEOMEATAL COMPLEX



♦ **A. sphenopalatina**

♦ *A. maxillaris*

♦ **A. ethmoidalis anterior**

♦ *A. ophtalmica*

♦ **A. ethmoidalis posterior**

♦ *A. ophtalmica*

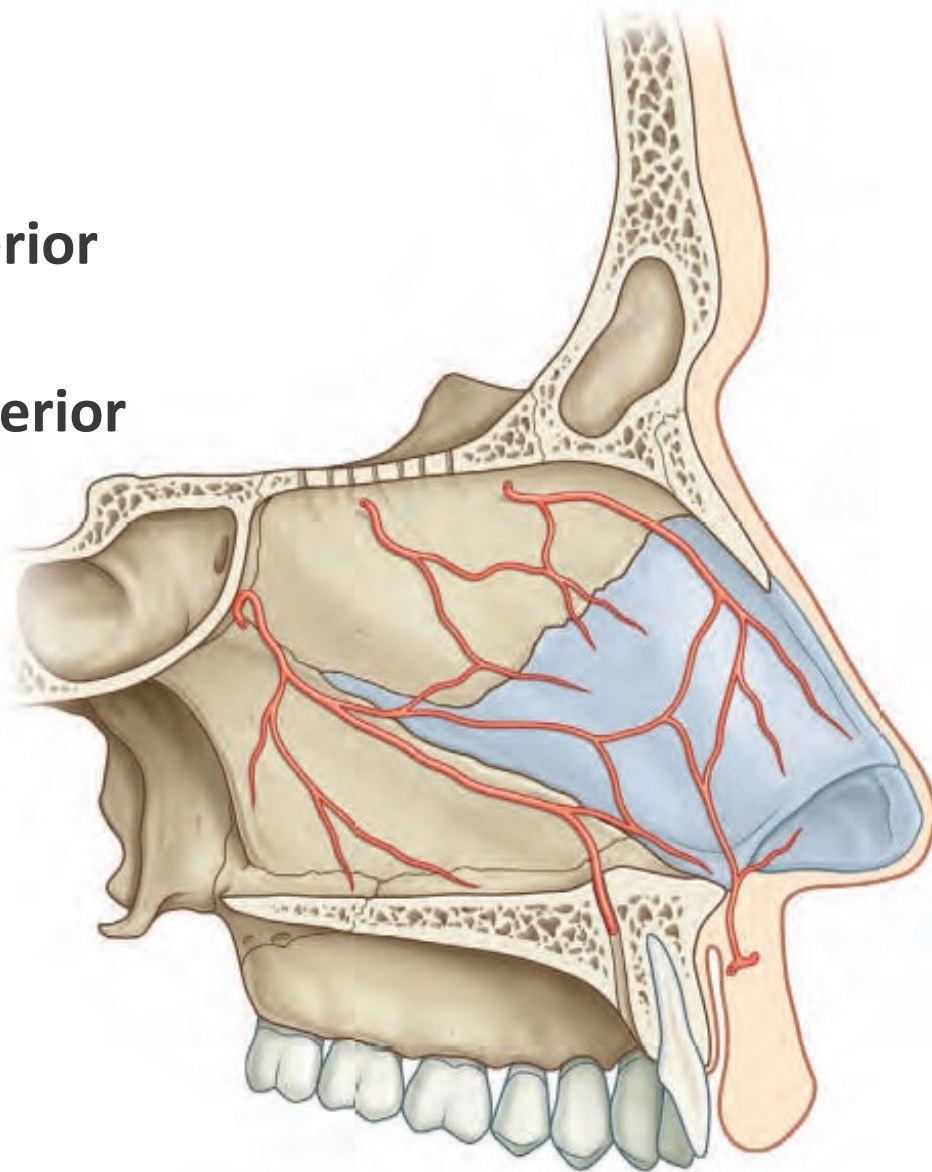
♦ **A. nasalis lateralis**

♦ *A. labii superioris*

♦ *A. facialis*

♦ *Rami laterales*

♦ *Rami septales*



ARTERIAE NASI