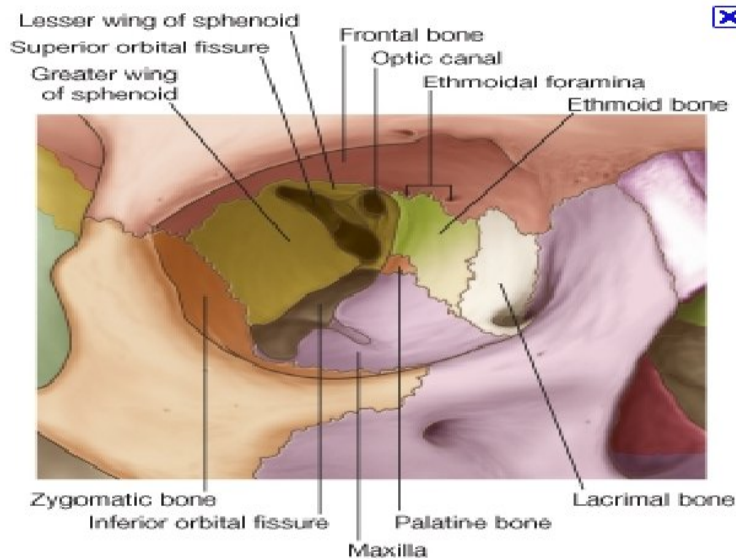
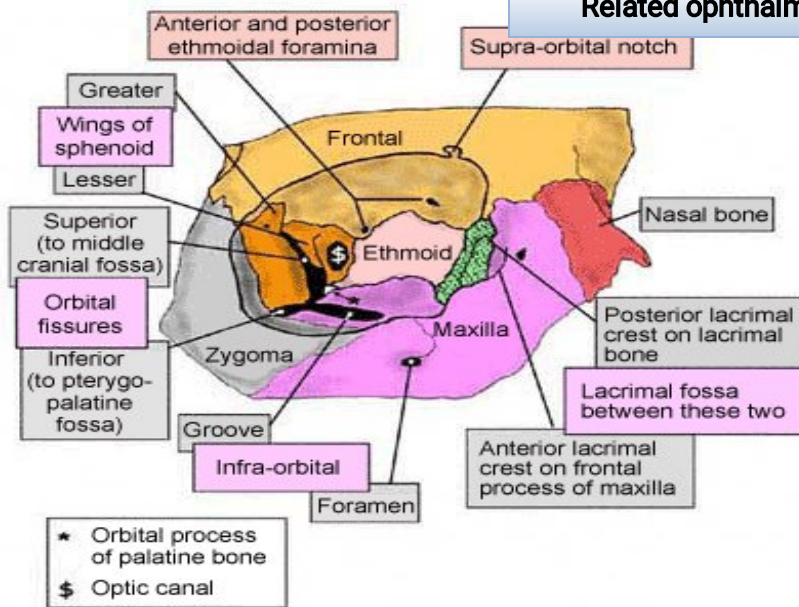


Related ophthalmology



Roof: orbital process of the frontal bone; Lesser wing of sphenoid

Medial wall: orbital process of Maxillary bone; Lacrimal bone; Lamina papyracea; Sphenoid bone to optic nerve foramen (lesser wing)

floor: orbital plate of maxillary bone (**main component**); orbital surface of zygoma; orbital process of the palatine bone



lateral wall: zygoma; **greater** wings

Communications:

Middle cranial fossa via: optic canal + superior orbital fissure
Pterygopalatine fossa & infratemporal fossa via infraorbital fissure
Nose via nasolacrimal duct

Eye movements:

Lateral rectus: lateral

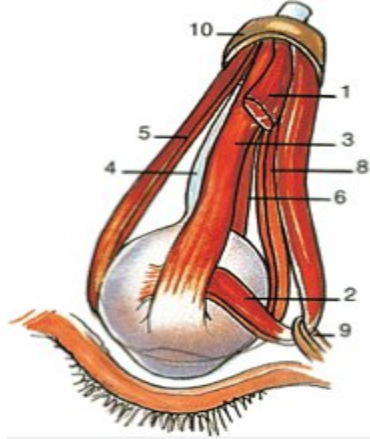
Medial rectus: medial

Superior rectus: upper medial

Inferior rectus : lower medial

Superior oblique: outer inferior

Inferior oblique: outer superior



Note:

in oblique muscles :the insertion is medial + opposite direction

All muscles are innervated by the III N (oculomotor) except

superior oblique: IV trochlear

lateral rectus: VI abducent Nerve

Superior division of the **oculomotor** nerve innervates:

superior rectus

levator palpebrae superioris muscle

Inferior division of the **oculomotor** nerve innervates:

inferior oblique muscle

inferior rectus

medial rectus

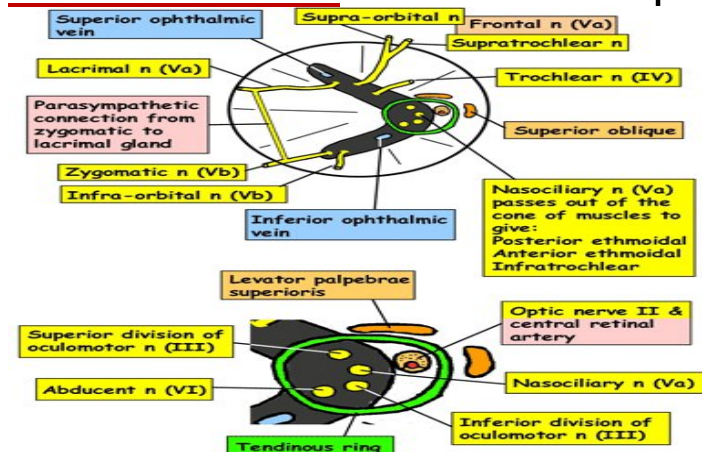
Note:

division of the **superior cervical sympathetic** nerve fibers result in **ptosis** due to paralysis of levator palpebrae superioris muscle

Optic nerve tubercle: bony protuberance on the **medial** surface of the optic foramen

Superior orbital fissure: Leads to **middle** cranial fossa

Inferior orbital fissure: Leads to the **infra-temporal** fossa, pterygopalatine fossa



The following structures lie outside the muscle core:

lacrimal nerve (V1)

frontal nerve(V1)

trochlear nerve(IV)
ophthalmic vein

see tendon of zinn

lacrimal system:

made of:

1. lacrimal gland

Located in the antero-lateral aspect of the orbit in a fossa in the zygomatic process of the frontal bone

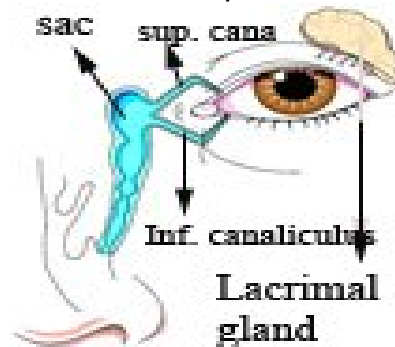
Separated into 2 parts by the lateral tendon of **levator palpebrae superioris**

Mainly **serous** secretions

1. lacrimal canaliculus (superior+inferior)

Has vertical part **2mm** long

Has horizontal part **8mm** long



Superior +inferior canaliculi join into common canaliculi

1. common canaliculus

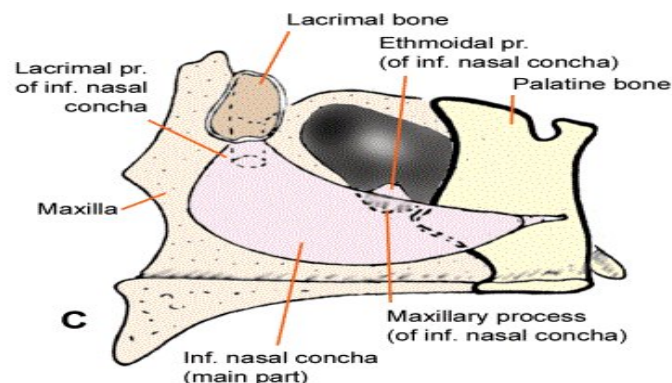
of variable length (3-5mm)

Common canaliculus angled forwards before entering the **posterior-lateral** aspect of the lacrimal sac.

1. lacrimal sac

12 mm long

- 1.



lacrimal duct

Runs within lacrimal bony canal which is made of:

Anterio-Medially : maxilla

Posterio-Laterally : Lacrimal bone, Lacrimal process of the inferior turbinate

17 mm long

continues in an inferior direction with for 12 mm before entering the nose

Empty into the **inferior** meatus just **anterior** to its **highest** point (junction of the **anterior** and **middle** third) 10-15 mm behind the anterior end of the inferior turbinate and 16 mm above the floor of the nasal cavity high in the inferior meatus.

It is guarded at this point by **Hasner's valve**.

Distance between the **nasolacrimal duct** & the **ostium of the maxillary** sinus is **3-6 mm**

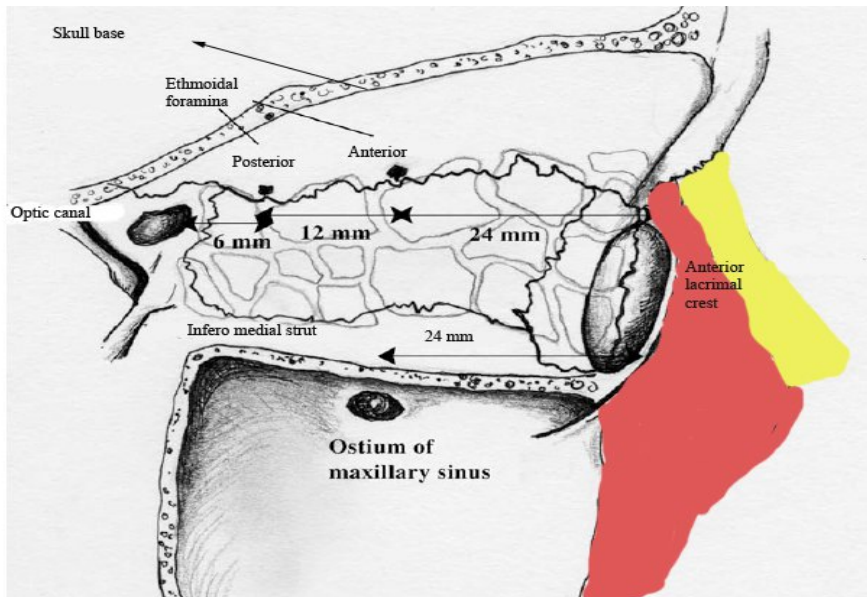
Note:

The name of the **fleshy pink mound** of tissue which is located at the **medial canthus** is called: **Lacrimal carbuncle**



Distances of important structures from anterior lacrimal

crest:



What is the average volume of the orbit? 30 cm³

What is the average depth of the orbit? 40-50 mm

What are the layers of the eyelid from superficial to deep?

Skin, subcutaneous tissue, voluntary muscle, orbital septum, tarsal plate, smooth muscle, and conjunctiva.

What is unique about the anatomy of the Asian eyelid?

Levator muscle lacks attachment to the pretarsal skin, resulting in an absent pretarsal fold.

What structure divides the lacrimal gland into two lobes? Levator aponeurosis.

What provides static support to the lower lid?

Tarsal plate and its associated medial and lateral canthal tendons.

What provides dynamic support to the lower lid?

Adhesion of the pretarsal portion of the orbicularis to the tarsal plate.

What structure in the lower lid is analogous to the levator aponeurosis of the upper lid?

Capsulopalpebral fascia.

What are the lower eyelid retractors?

Capsulopalpebral fascia and the inferior tarsal muscle.

What lines the posterior surface of the eyelid? Palpebral conjunctiva.

What creates the gray line in the lid margin?

The muscle of Riolan.

What does the gray line divide? The anterior and posterior lamella.

What structures make up the anterior lamella of the lid?

Pretarsal orbicularis oculi muscle and the eyelid skin.

What structures make up the posterior lamella of the lid?

Conjunctiva and the tarsal plate.

Periosteum and periorbital fat meet at the orbital margin and continue into the eyelids as what? Orbital septum.

○ **What is the origin of the superior tarsal muscle (of Muller)?**

Deep side of the levator palpebrae superioris.

○ **What structure forms the medial canthal tendon?**

The superficial head of the pre-tarsal fibers of the orbicularis oculi muscle.

○ **What are the three limbs of the medial canthal tendon?**

Anterior, superior, and posterior limbs.

○ **Which of these covers the lacrimal fossa?** Superior limb.

○ **What is Whitnall's tubercle?**

Insertion site of the lateral canthal tendon.

○ **Which part of the lacrimal system is most vulnerable to injury?**

The inferior canaliculus near the medial canthal tendon.

○ **Where are the anterior and posterior ethmoid arteries and optic canal in relation to the anterior lacrimal crest?**

24-12-6 rule: Anterior ethmoid artery is approximately 24 mm posterior to the lacrimal crest; the posterior ethmoid artery is 12 mm posterior to the anterior ethmoid artery; the optic canal is 6 mm posterior to the posterior ethmoid artery.

What does the medial epicanthal fold cover?

Lacrimal lake.

What is the function of the deep head of the orbicularis oculi?

Inserts on the posterior lacrimal crest and provides structural support to the lid.

○ **What happens with disruption of the deep head?**

Lateral and anterior displacement of the medial canthal angle.

○ **Where does the lateral canthal tendon insert?**

Orbital tubercle located 5 mm posterior to the lateral orbital rim.

○ **What glands are contained within the tarsal plates?** Tarsal glands (Meibomian)

What is trichiasis?

Abnormal direction of the eyelashes.

○ **What is Argyll Robertson pupil?**

Pupil reacts to accommodation but not light; often associated with syphilis.

○ **What test may elicit a Marcus Gunn pupil?**

Swinging flashlight test.

○ **What is the term for gross asymmetry of eye movement?**

Heterotropia.