

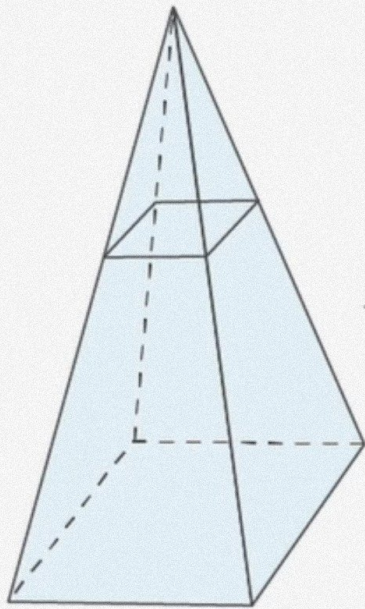
ANATOMY OF ORBIT

WALLS AND BOUNDARIES

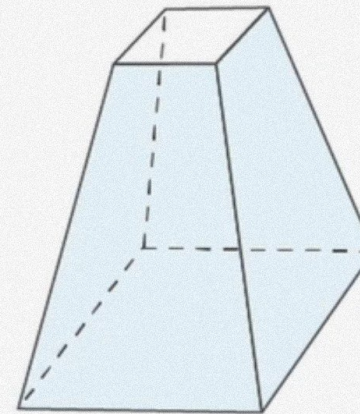
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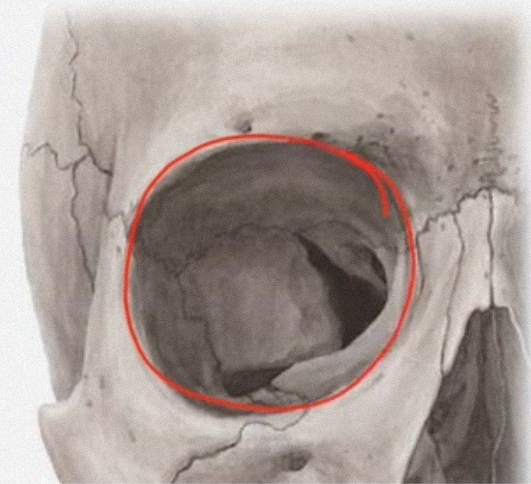
• Quadrangular truncated pyramidal spaces



Whole Pyramid



Truncated Pyramid

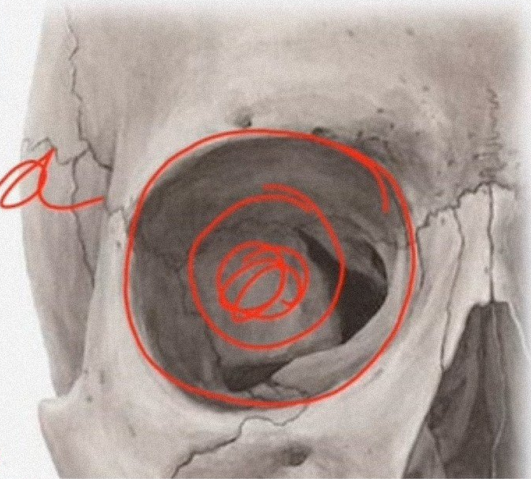
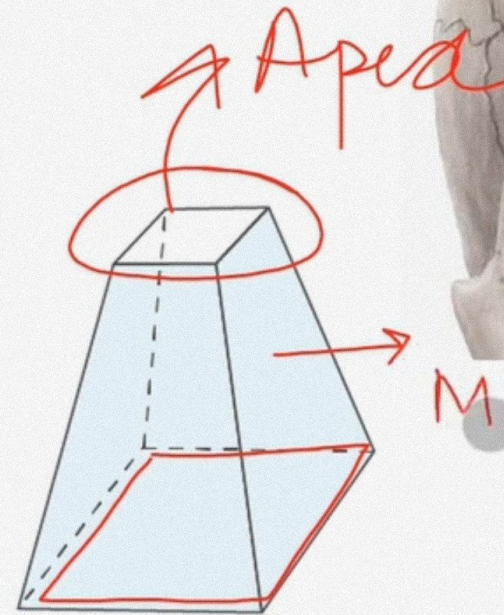
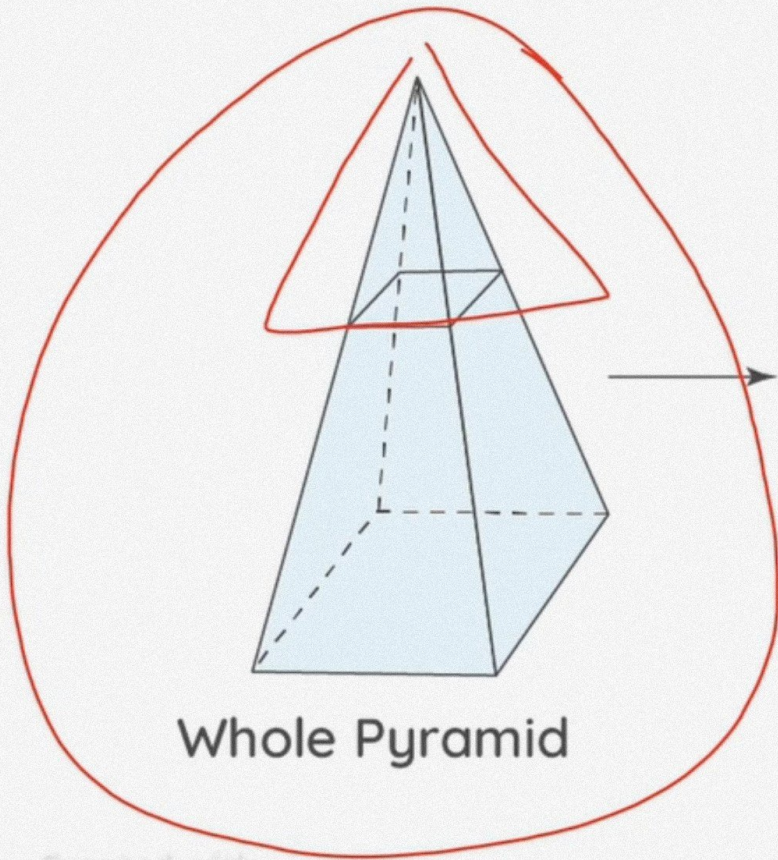


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• Quadrangular truncated pyramidal spaces



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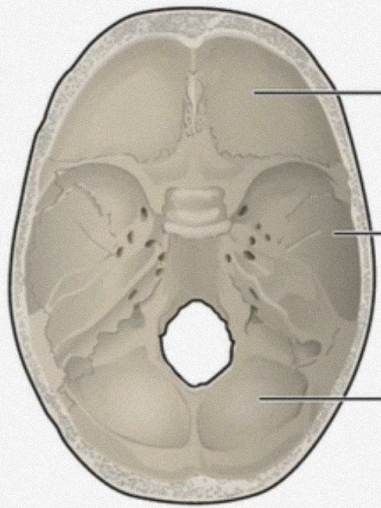


RELATIONS OF ORBIT

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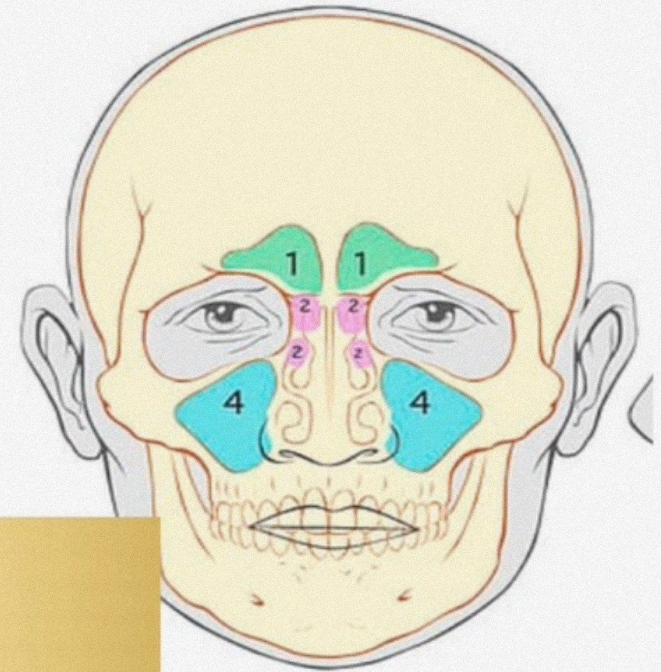




Anterior cranial fossa

Middle cranial fossa

Posterior cranial fossa



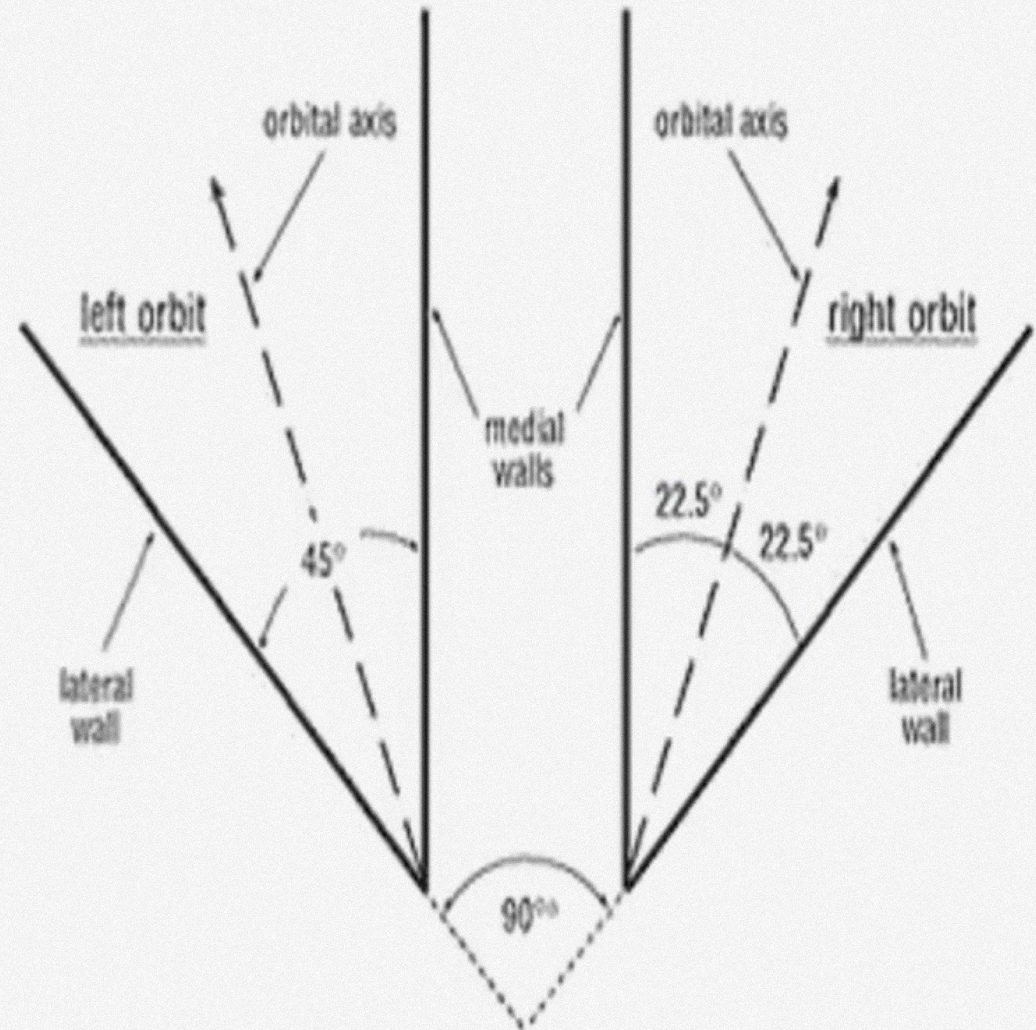
- ✦ Superiorly – Anterior cranial fossa
- ✦ Medially - Nasal cavity & Ethmoidal air sinuses
- ✦ Inferiorly - Maxillary sinus
- ✦ Laterally - Middle cranial fossa & Temporal fossa

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- The medial orbital walls are approximately parallel and are separated by 25 mm in the average adult.
- The widest dimension of the orbit is approximately 1 cm behind the anterior orbital rim

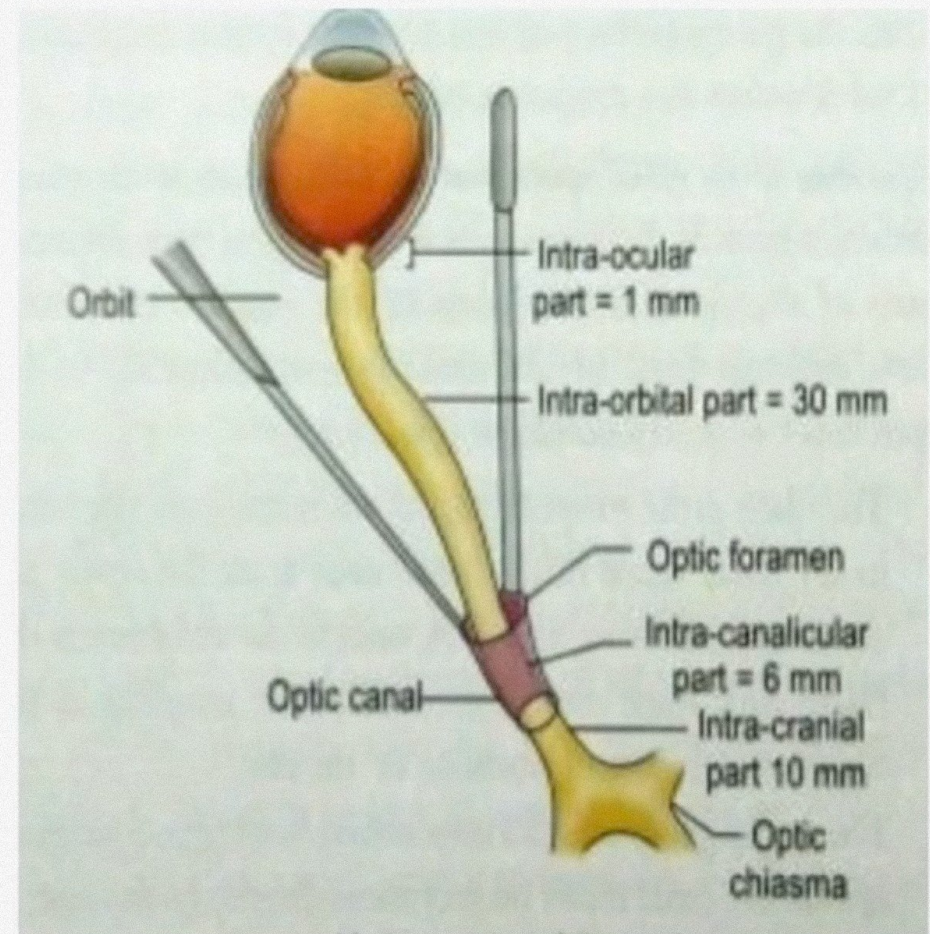


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- The intraorbital segment of the optic nerve has an **S-shaped curve**, allowing the eye to rotate and move forward with some freedom, without placing excessive tension on the posterior globe insertion (globe tenting).



IMPORTANT ORBITAL DIMENSIONS

Table 1-1 Average Dimensions of the Adult Orbit

Volume	30 cm ³
Entrance height	35 mm
Entrance width	40–45 mm
Medial wall length	40–45 mm
Distance from posterior globe to optic foramen	18 mm
Length of orbital segment of optic nerve	25–30 mm

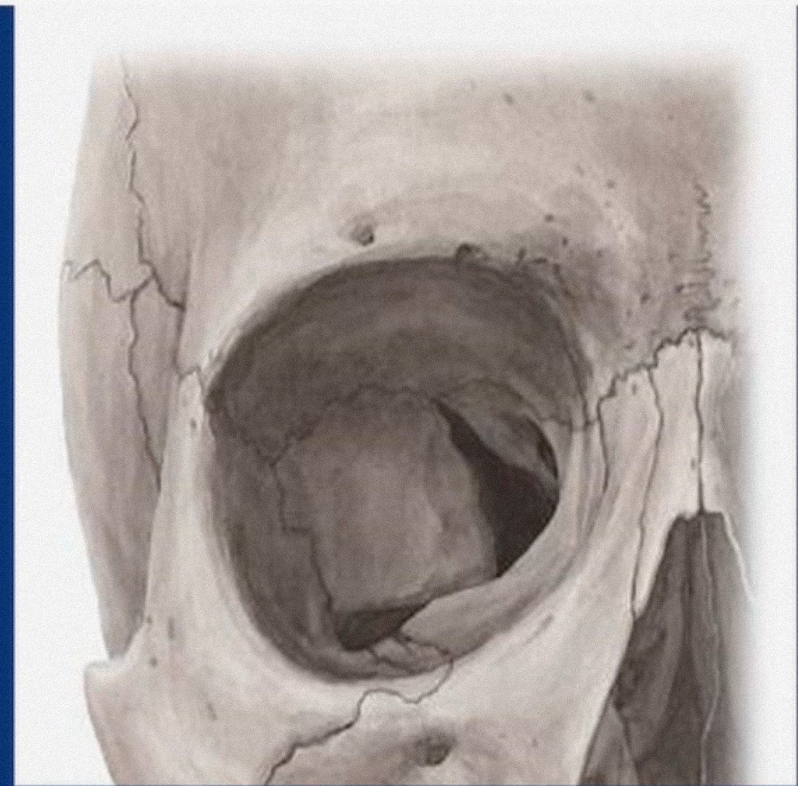
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WALLS OF BONY ORBIT

- **ROOF ORBIT**
- **FLOOR OF ORBIT**
- **MEDIAL WALL OF ORBIT**
- **LATERAL WALL OF THE ORBIT**



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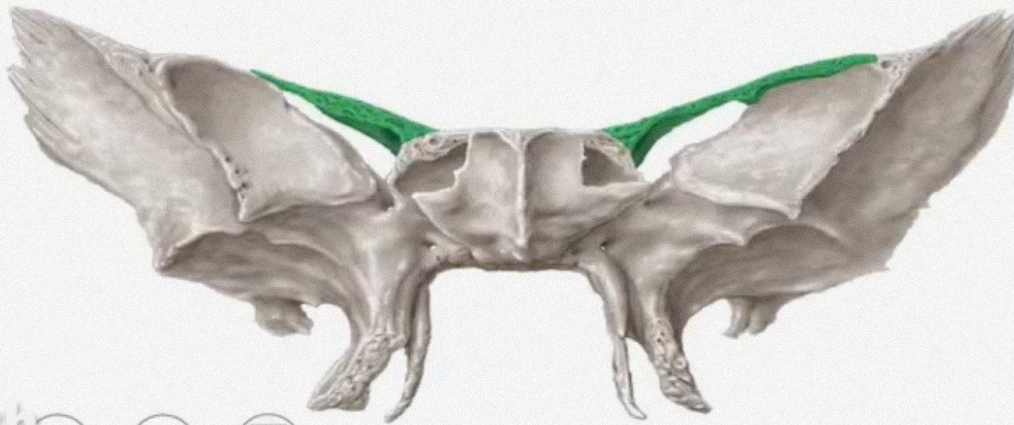
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ROOF OF THE ORBIT

Composed of :-

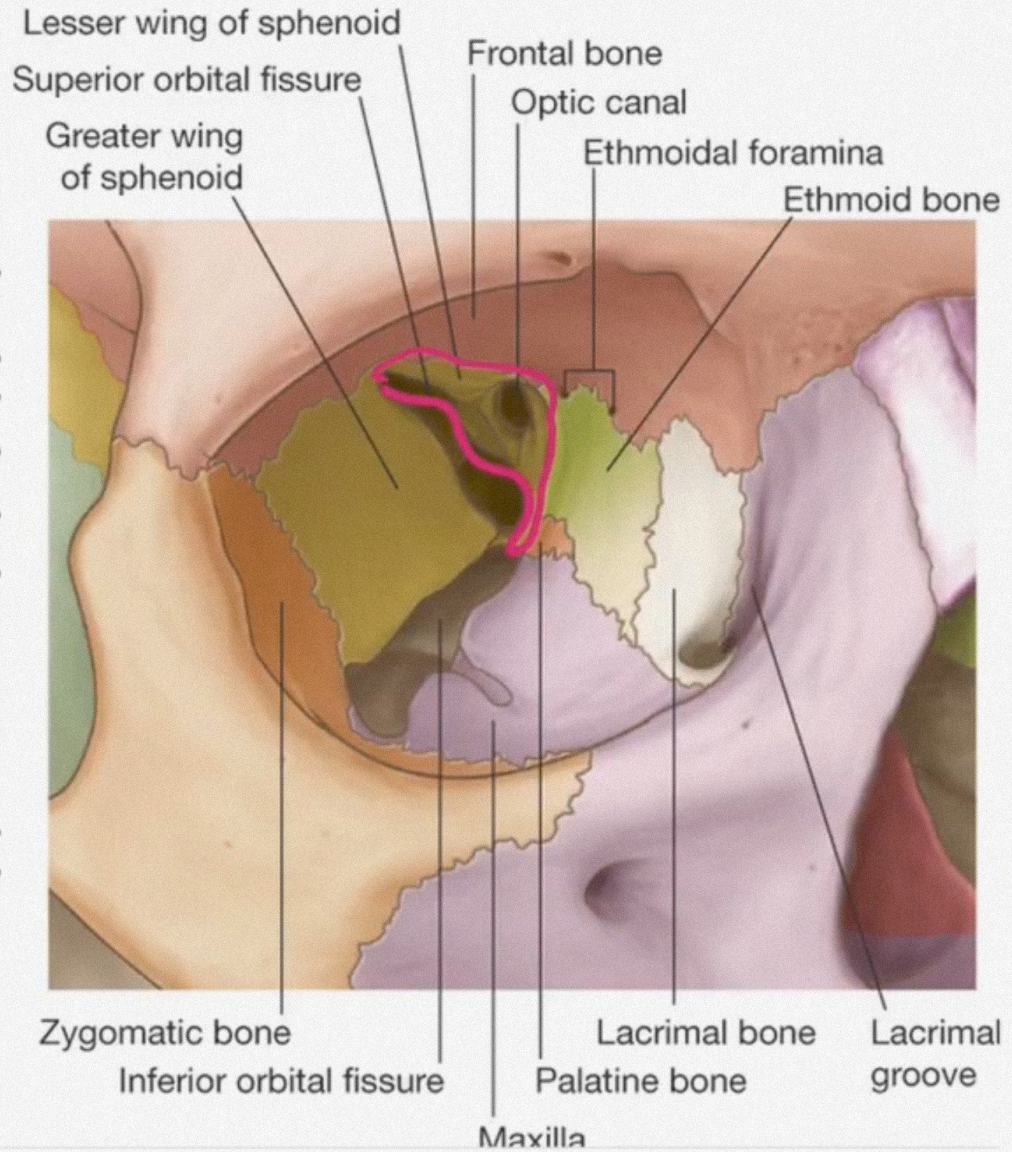
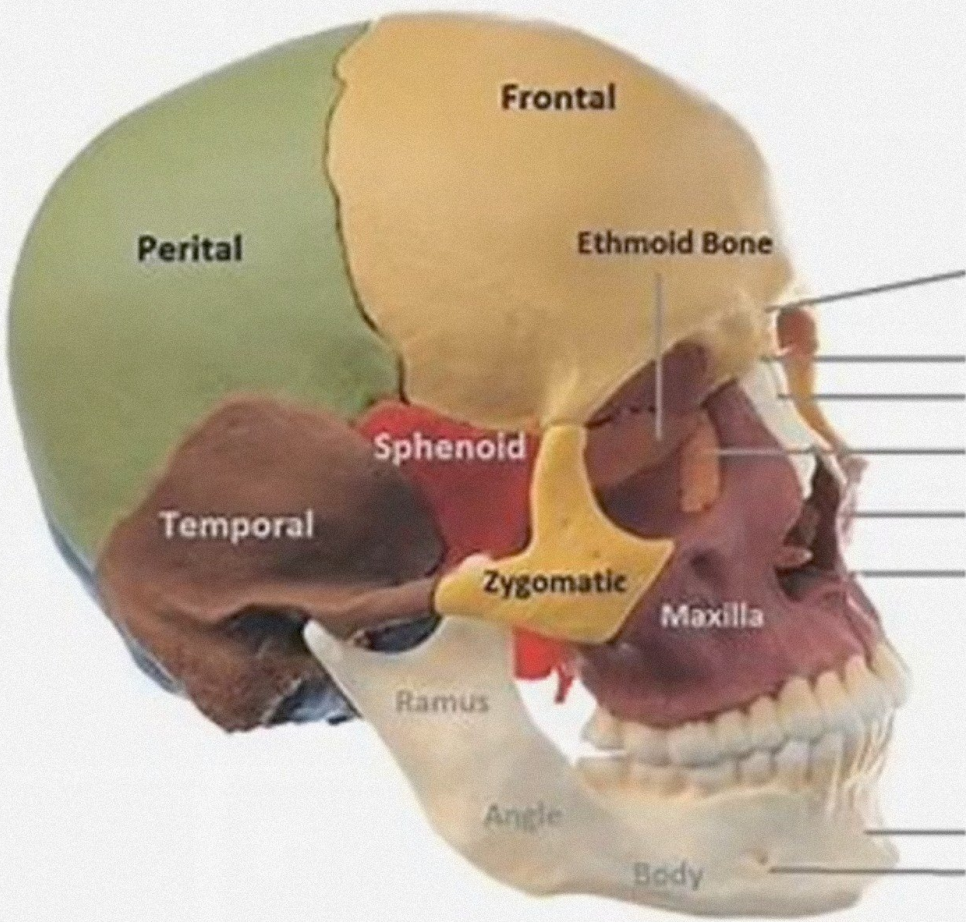
- **Orbital plate of the frontal bone**
- **The lesser wing of the sphenoid bone.**



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LANDMARKS IN ROOF

- Located adjacent to the anterior cranial fossa and frontal sinus
- The **Fossa of the lacrimal gland** which contains the orbital lobe of the lacrimal gland
- The **trochlea of the superior oblique tendon** , located 5 mm behind the super nasal orbital rim
- the **supraorbital notch** , or foramen, which transmits the supraorbital vessels and the supraorbital branch of the frontal nerve

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Frontal bone

Ethmoid bone

Lacrimal bone

Nasal bone

Infraorbital foramen

Supraorbital foramen

Fossa of the lacrimal gland

Frontozygomatic suture

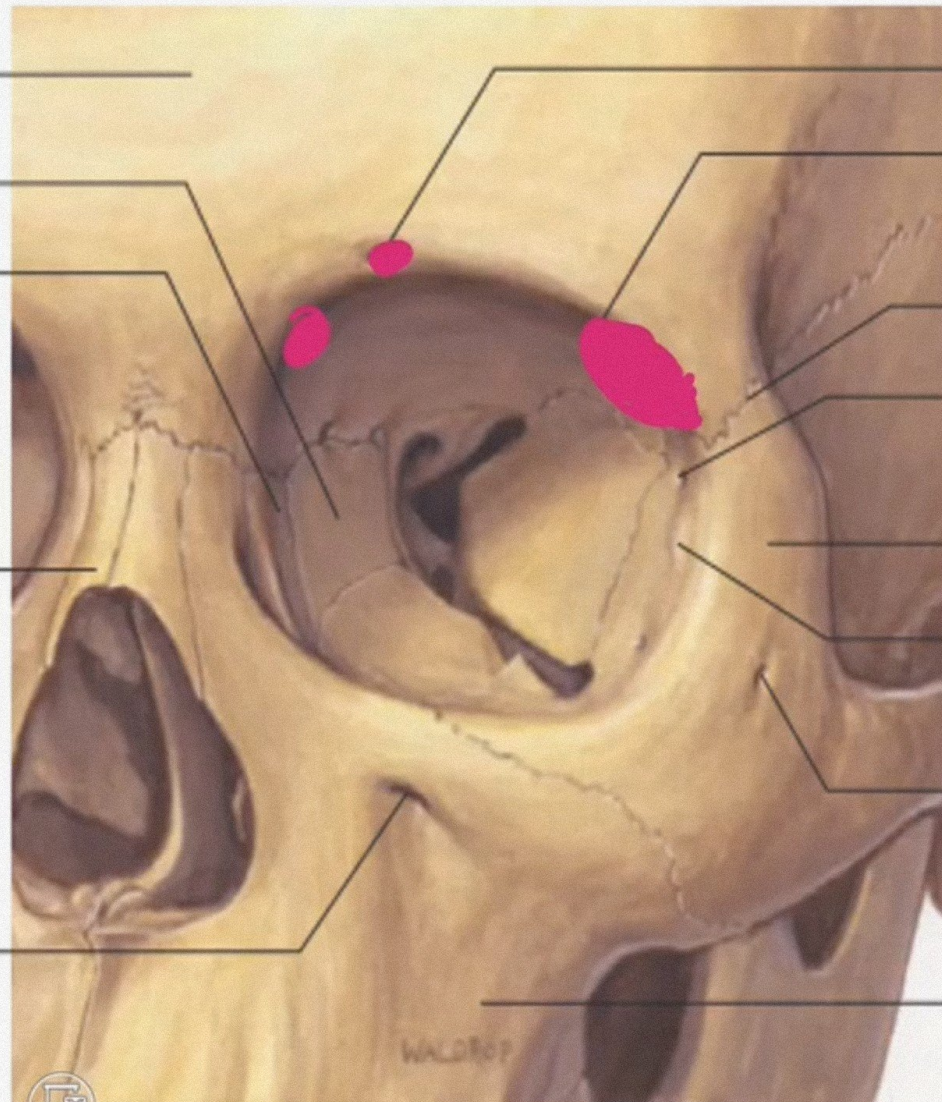
Zygomaticotemporal foramen

Zygomatic bone

Lateral orbital tubercle of Whitnall

Zygomaticofacial foramen

Maxillary bone



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Anterior cranial fossa

Frontal bone

Ethmoid bone

Lacrimal bone

Maxillary bone

Maxillary sinus

Anterior ethmoidal foramen

Posterior ethmoidal foramen

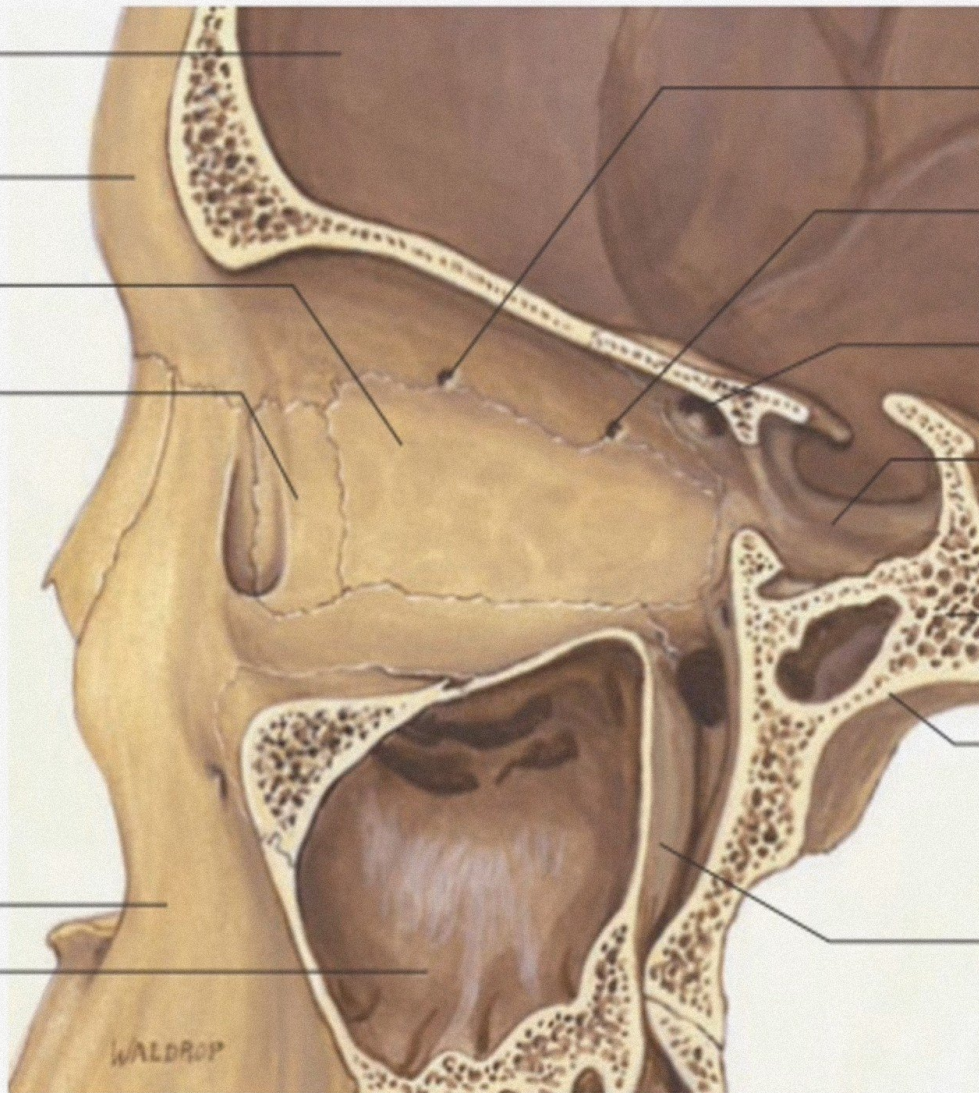
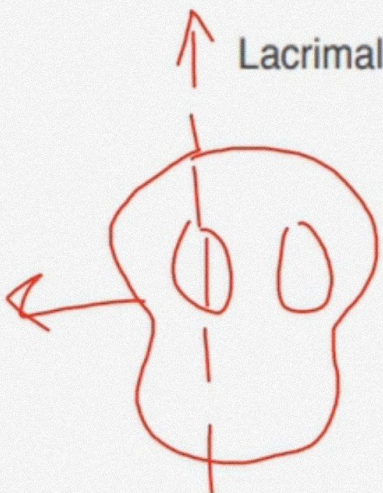
Optic canal

Pituitary fossa

Sphenoid bone

Palatine bone

Pterygopalatine fossa



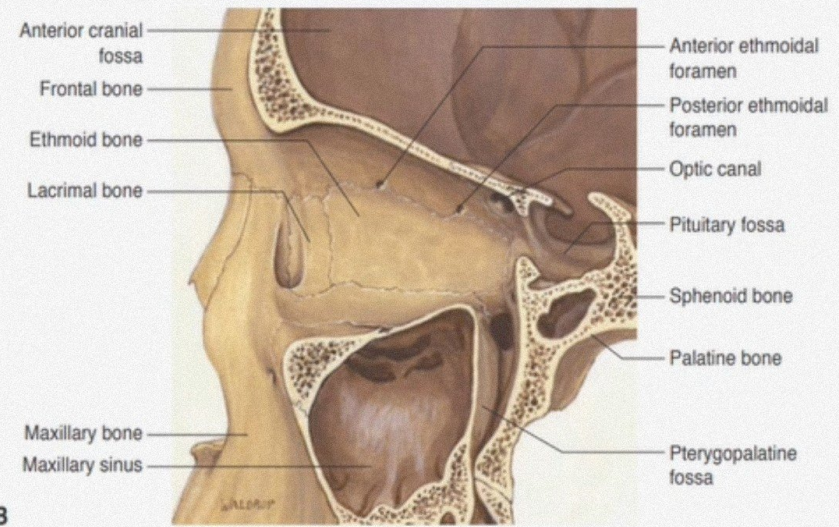
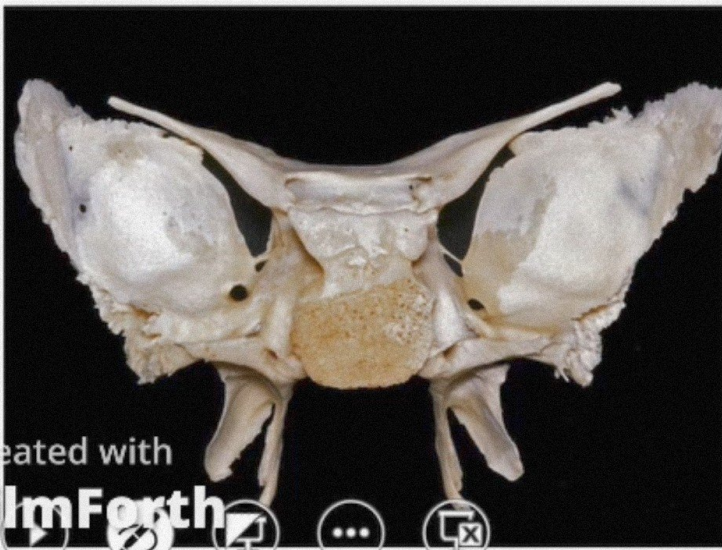
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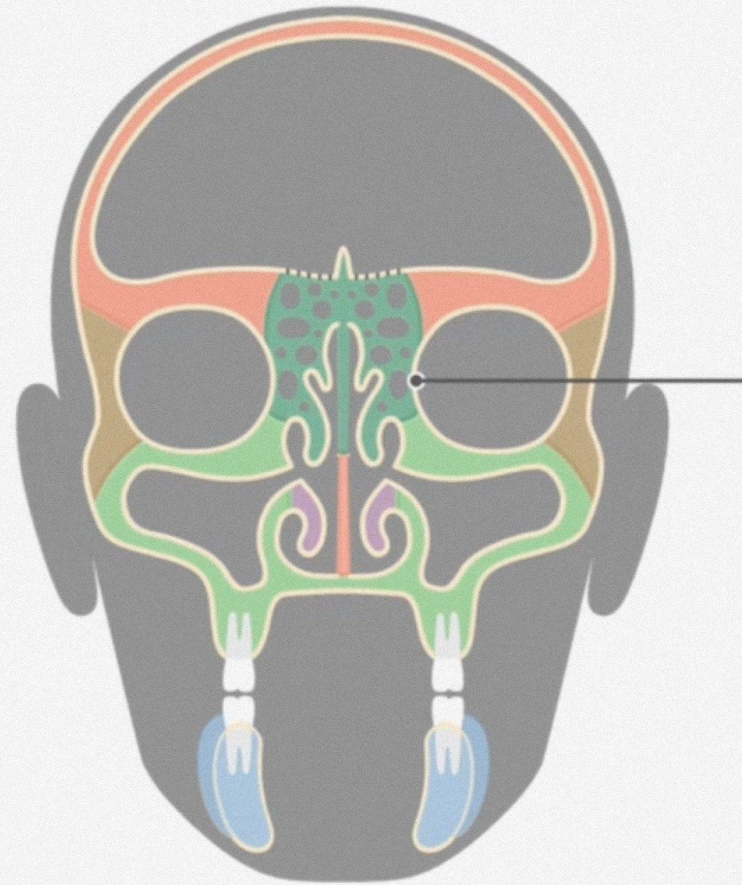
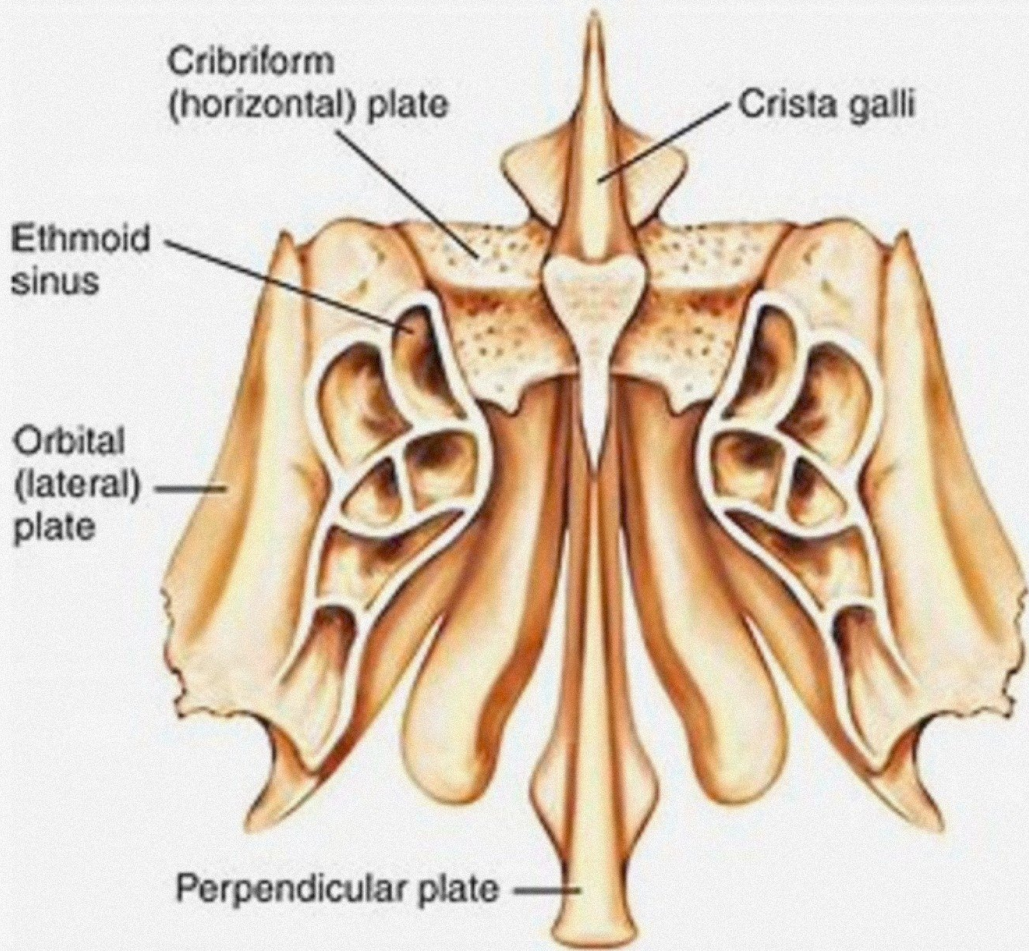
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- The medial wall of the orbit is located adjacent to the ethmoid and sphenoid sinuses and nasal cavity.
- The medial wall of the **optic canal is formed by the lesser wing of the sphenoid.**





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IMPORTANT POINTS

- The thinnest walls of the orbit are the ethmoid bone, also known as the **lamina papyracea**, between the orbit and the ethmoid sinuses along the medial wall,
- and the **maxillary bone**, particularly in its **posteromedial portion**.

POSTEROMEDIAL PORTION OF THE MAXILLARY BONE IS COMMONLY fractured as a result of indirect, or blowout, fractures

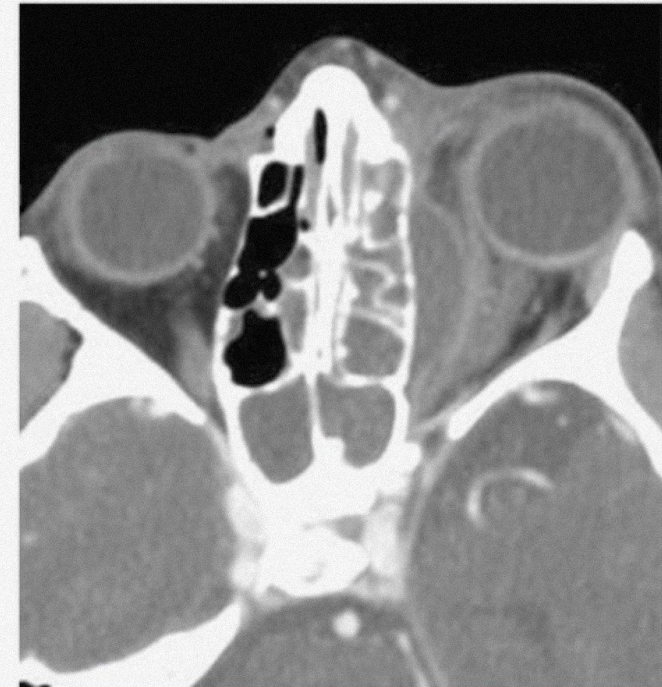
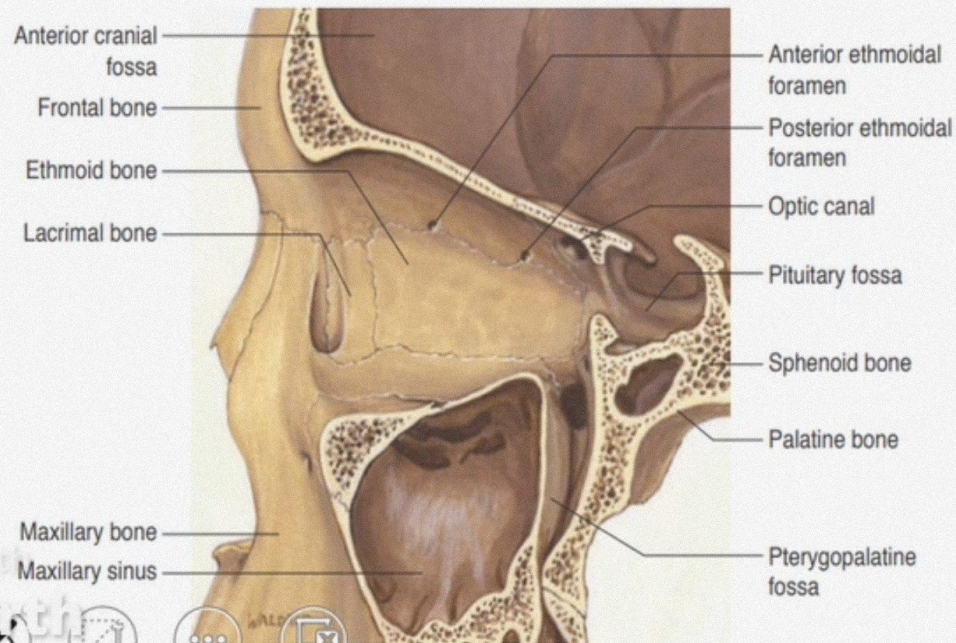
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CLINICAL NUGGET

- Acute bacterial infections of the ethmoid sinuses may extend through the ethmoid bone or neurovascular perforations to form a **subperiosteal abscess** and extend into the orbital soft tissues.



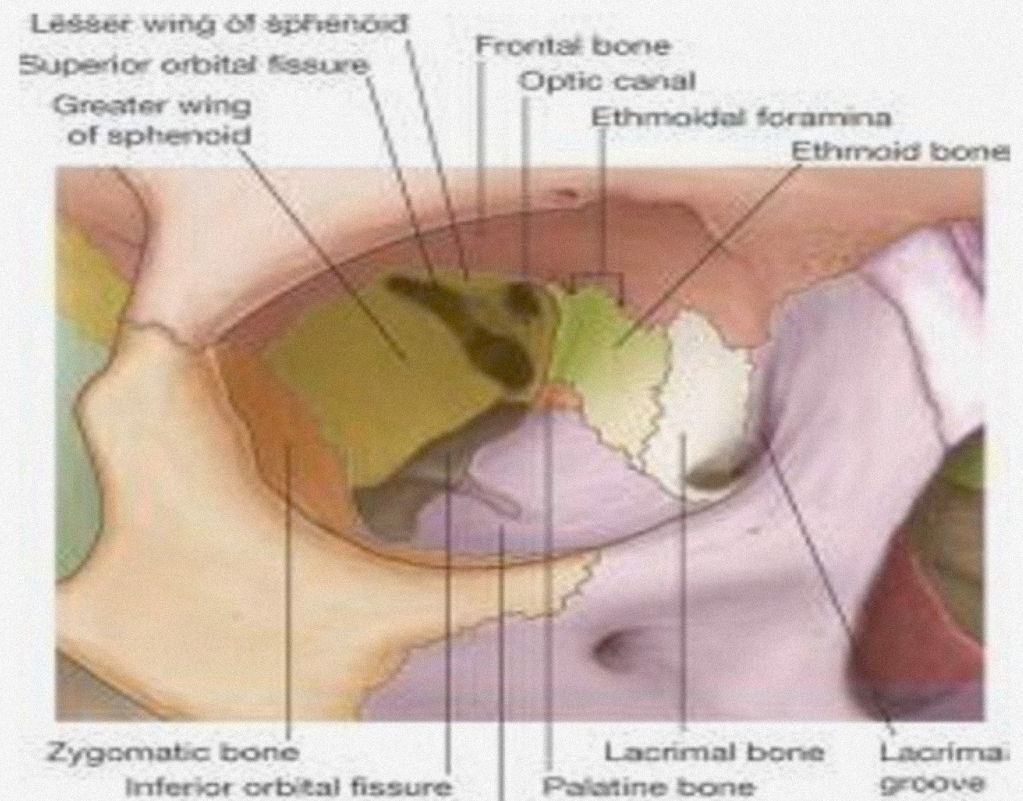
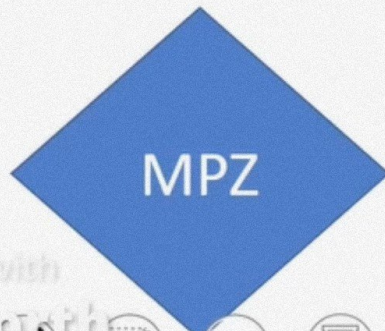
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FLOOR OF THE ORBIT

- The orbital floor is made up of:-
- **Maxillary bone,**
- **Palatine bone**
- Orbital plate of the **Zygomatic bone.**

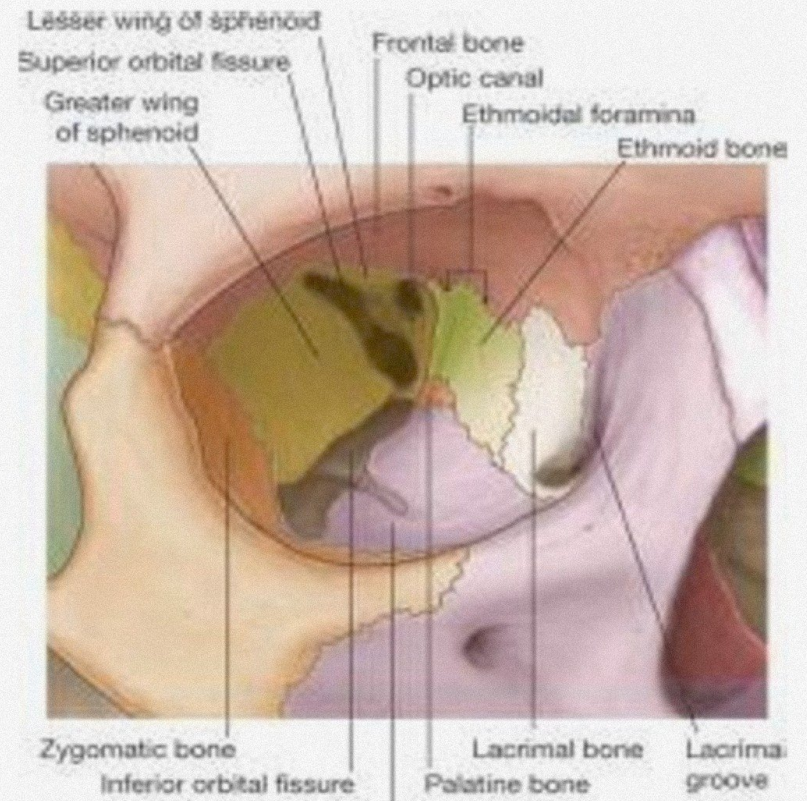
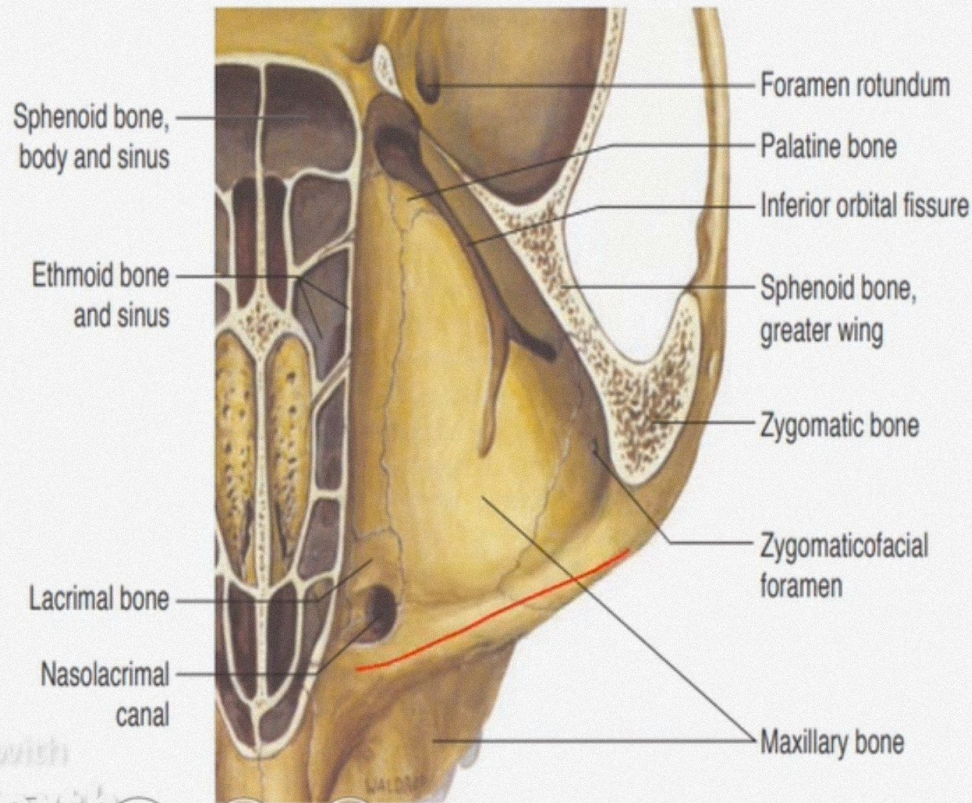


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FLOOR OF THE ORBIT



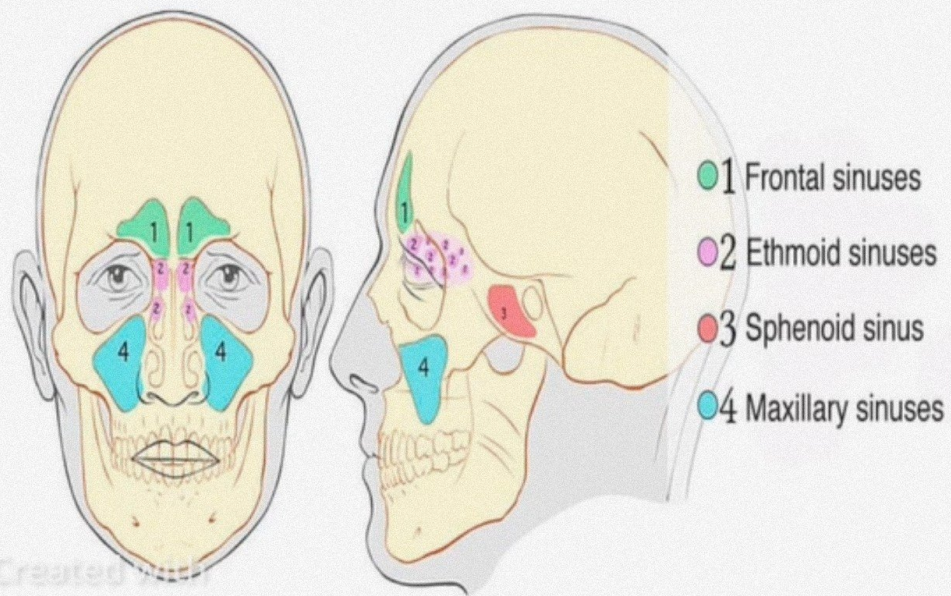
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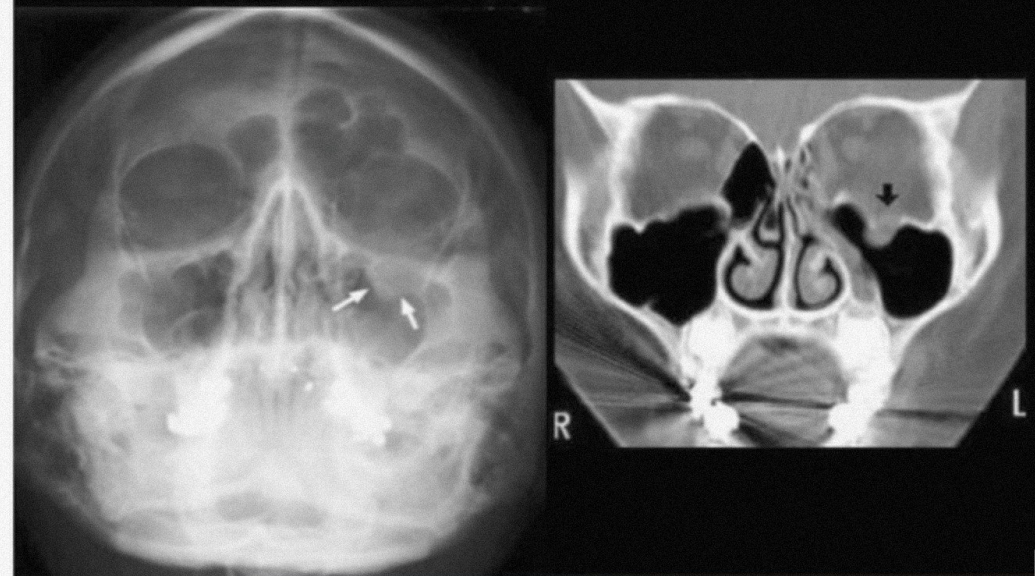


IMPORTANT NUGGET

The floor of the orbit forms the roof of the maxillary sinus.



Tear drop sign



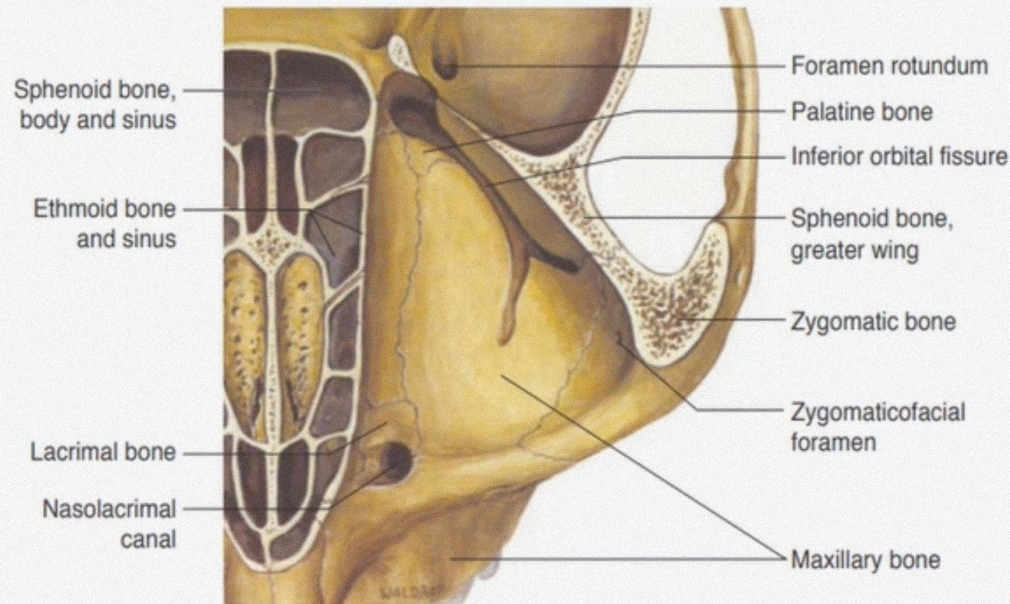
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IMPORTANT LANDMARKS

- **Infraorbital groove and Infraorbital canal**
- which transmit the infraorbital artery and the maxillary division of the trigeminal nerve



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LATERAL WALL OF ORBIT

- The lateral wall of the orbit is the **thickest and strongest** of the orbital walls.

Composed of

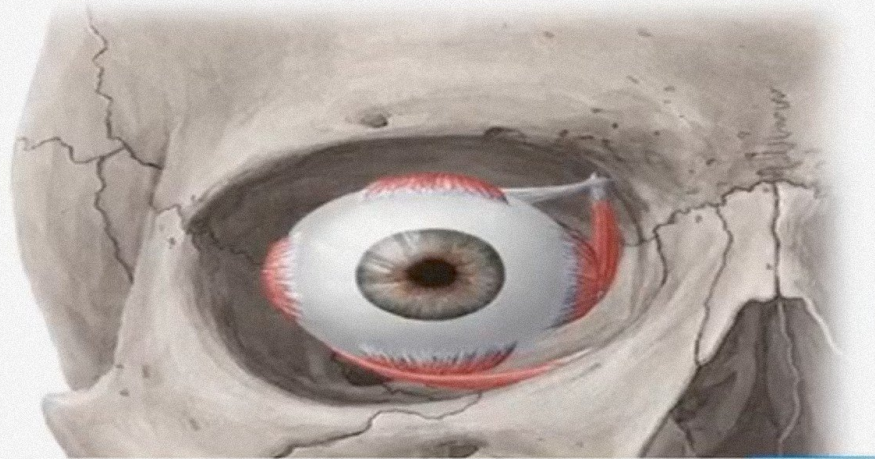
- **ZYGOMATIC BONE**
- **GREATER WING OF THE SPHENOID BONE** and is separated from the lesser wing (portion of the orbital roof) by the superior orbital fissure.

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- It is located adjacent to the middle cranial fossa and the temporal fossa
- Extends anteriorly to the equator of the globe, helping to protect the posterior half of the eye while still allowing wide peripheral vision



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IMPORTANT LANDMARKS IN LATERAL WALL

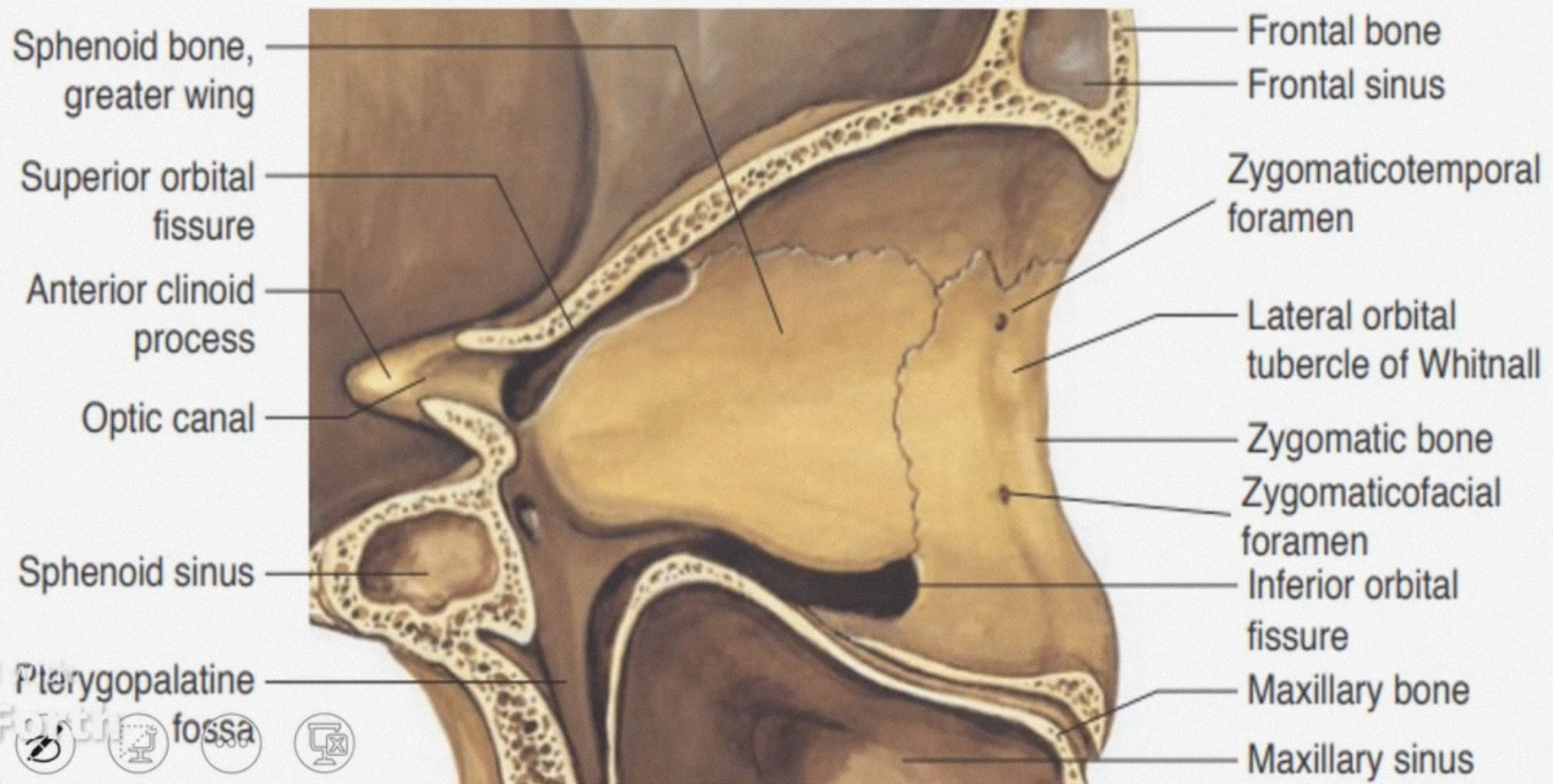
- The **lateral orbital tubercle of Whitnall**, with multiple attachments
- the **Whitnall ligament**, which inserts onto the lateral orbital wall several millimeters (mm) above the lateral orbital tubercle via attachments to the lacrimal gland fascia
- The **frontozygomatic suture**, located 1 cm above the tubercle

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LATERAL WALL OF THE ORBIT

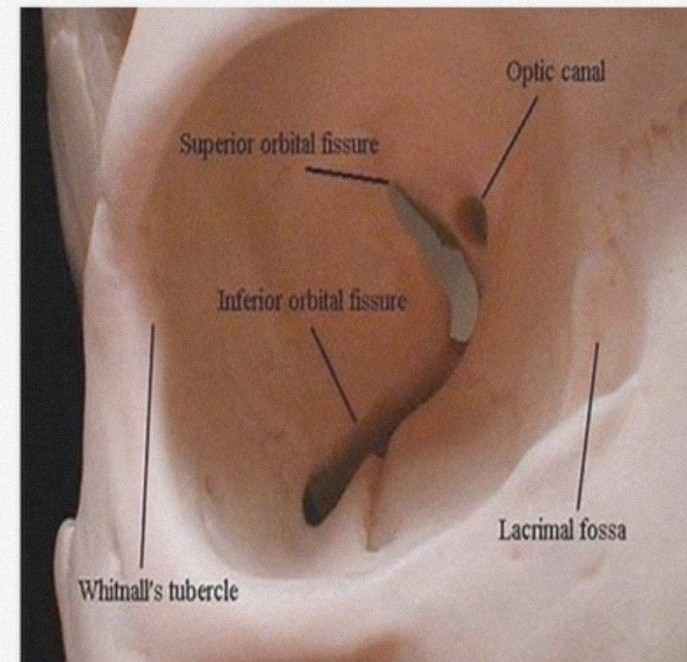


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ATTACHEMENT OF THE WHITNAL TUBERCLE

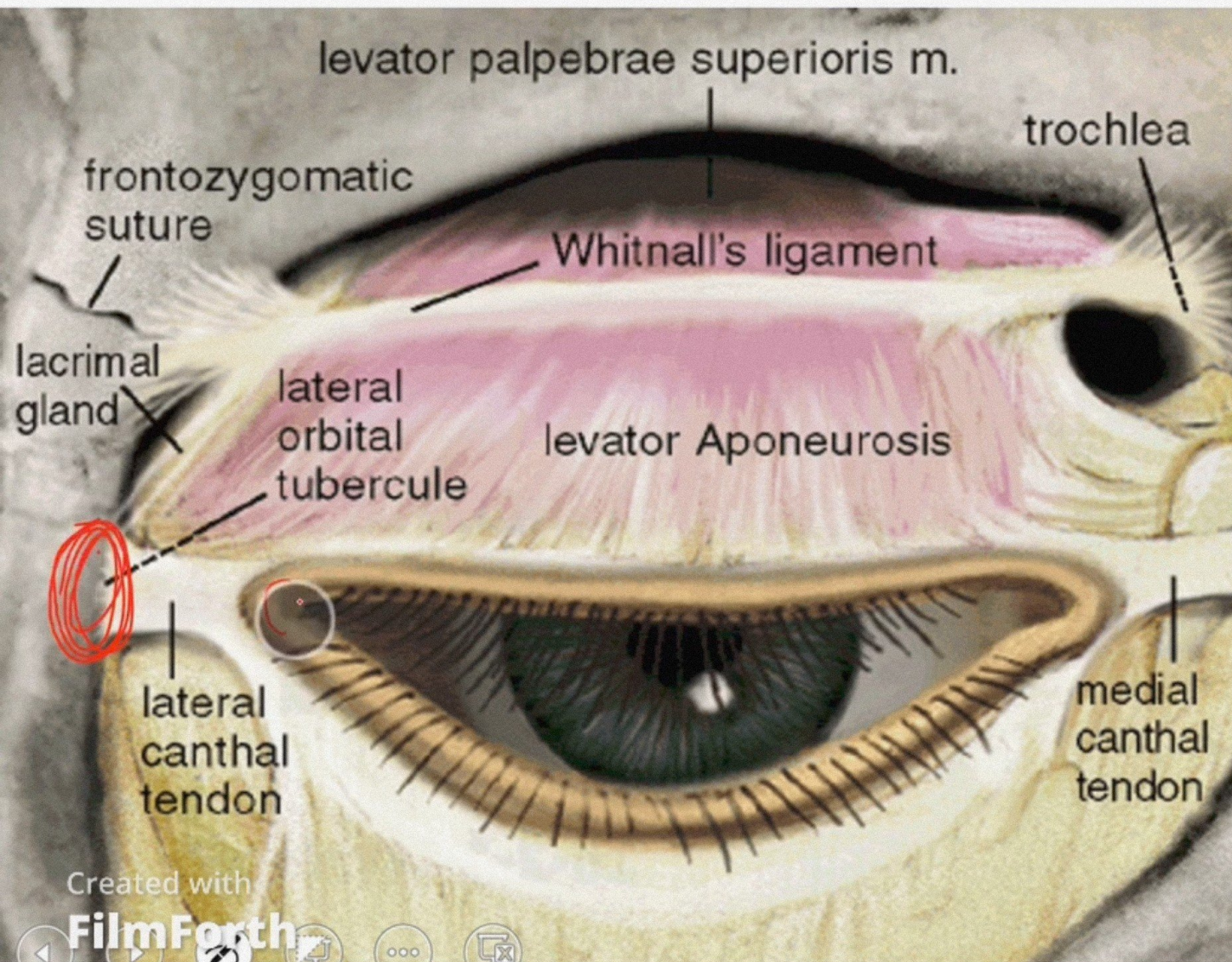
- Lateral canthal tendon
- Lateral horn of the levator aponeurosis
- The check ligament of the lateral rectus
- The Lockwood ligament (the suspensory ligament of the globe)



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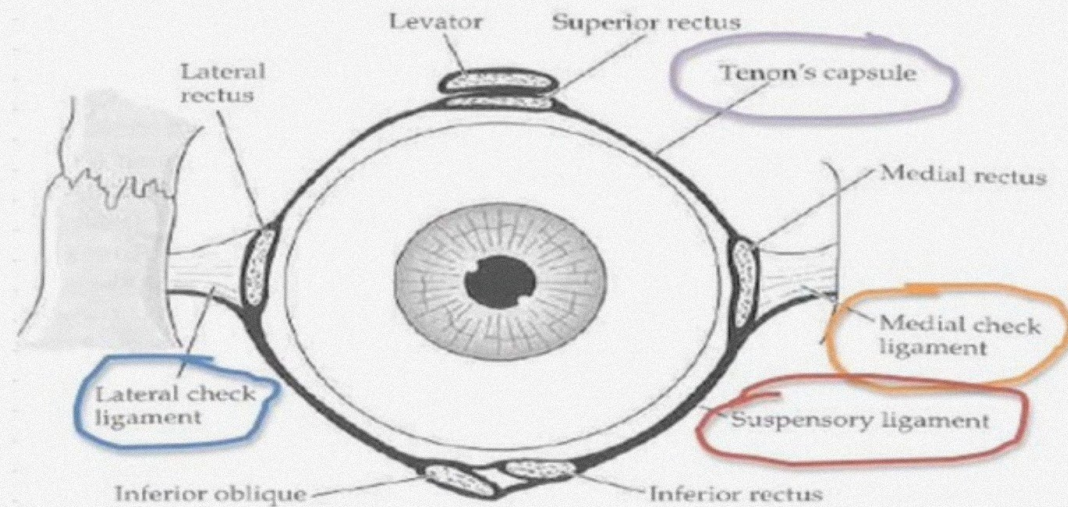
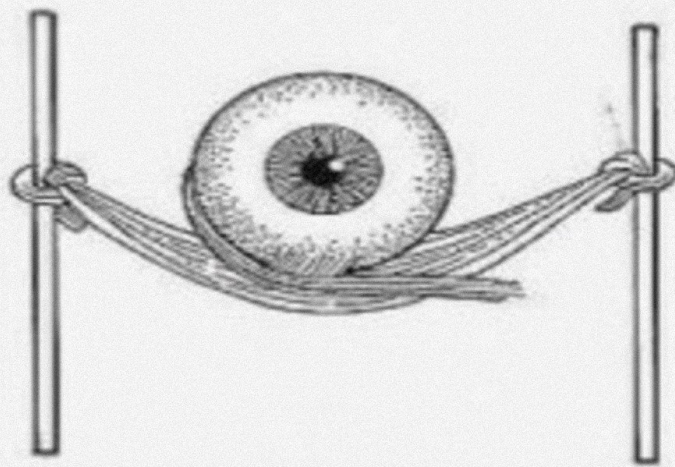
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