

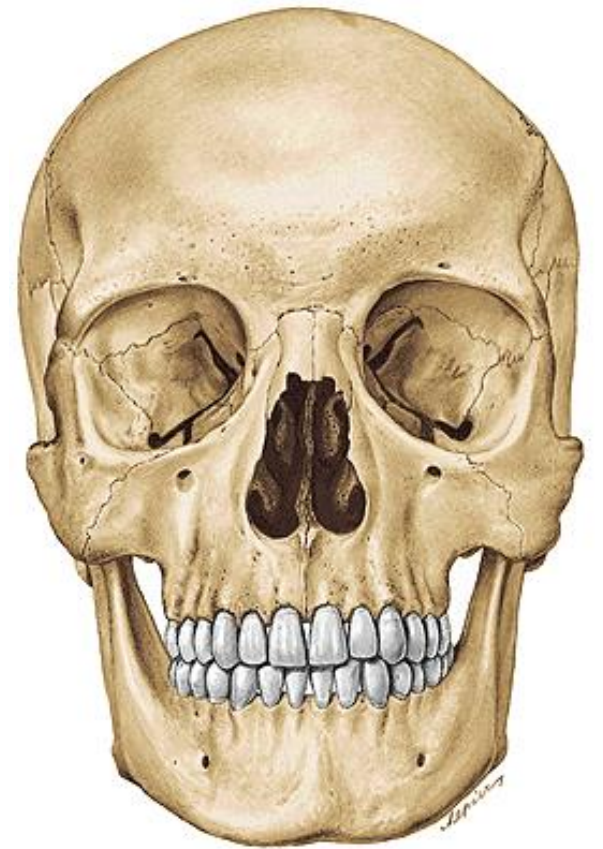
# Skull cavities

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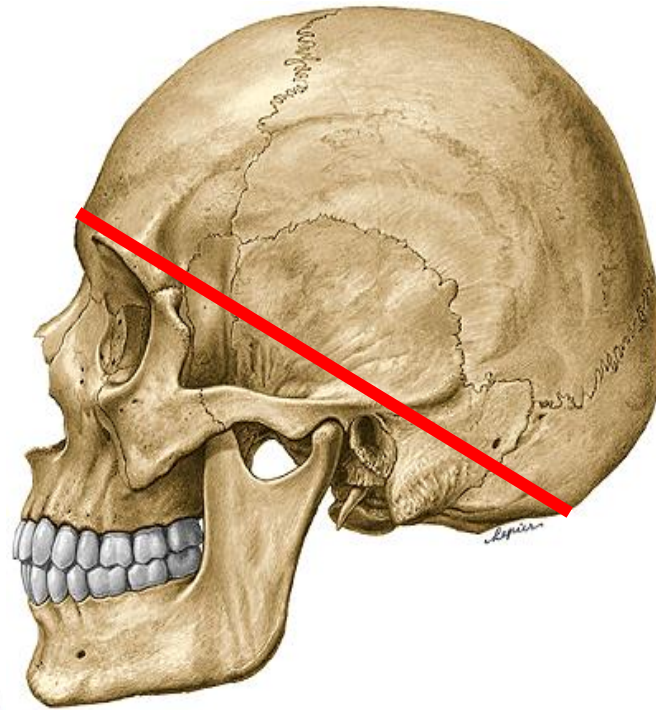
LECTURE 6

DENTISTRY AUTUMN 2016

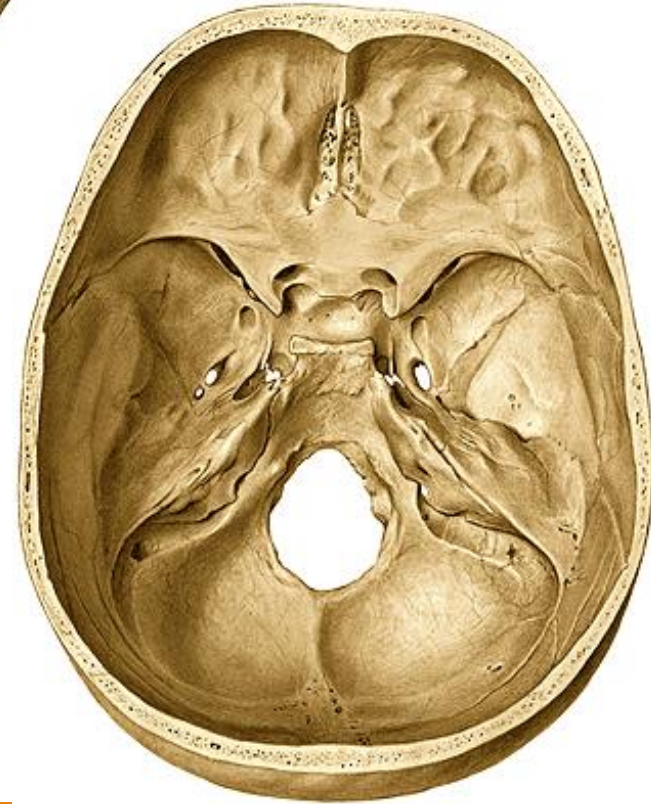
RNDr. Michaela Račanská, Ph.D.



Calvaria



Basis cranii



## Calvaria



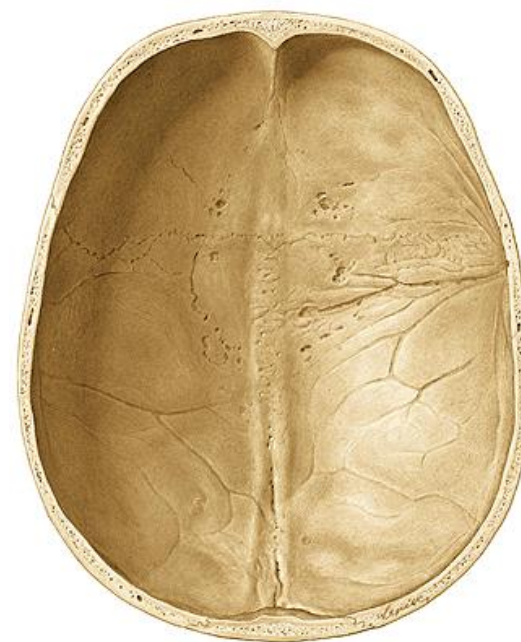
frons, vertex, occiput

sutura sagittalis, coronalis, lambdoidea,  
squamosa

tubera frontalia, parietalia

linea temporalis superior et inferior,

foramina parietalia



impressioes gyrorum

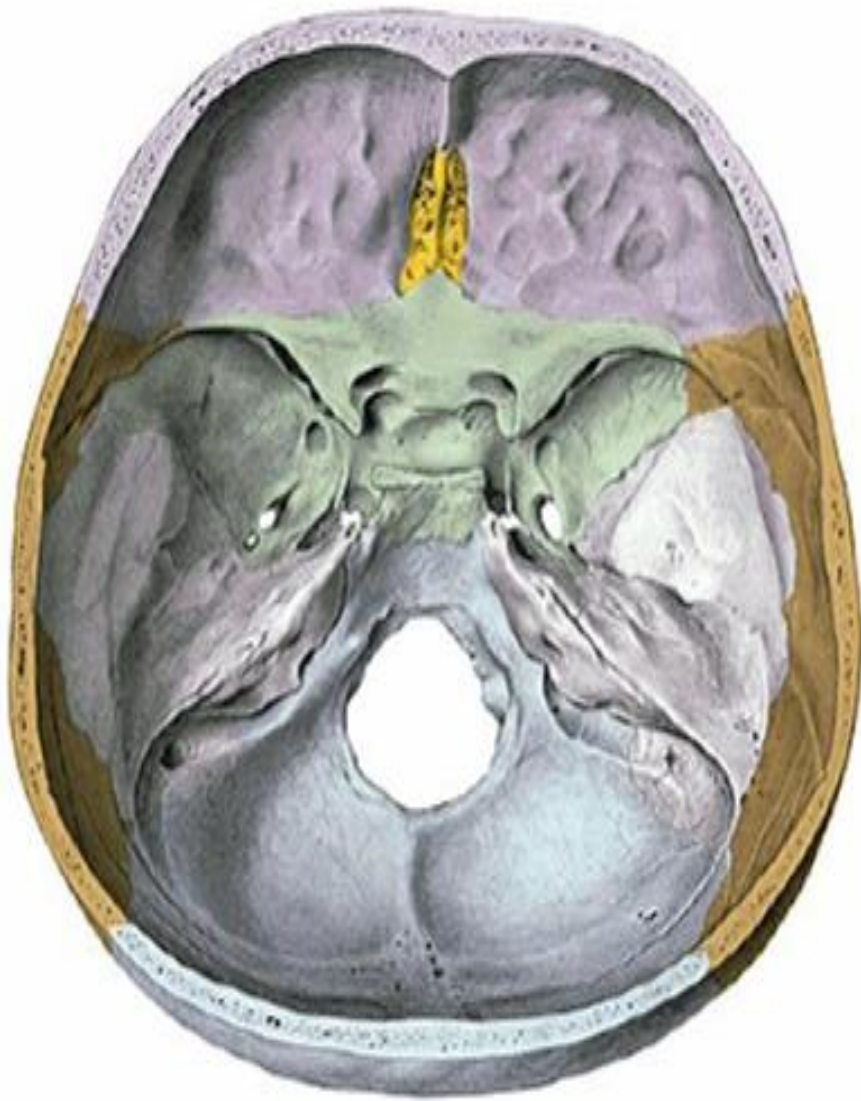
juga cerebraalia

foveolae granulares

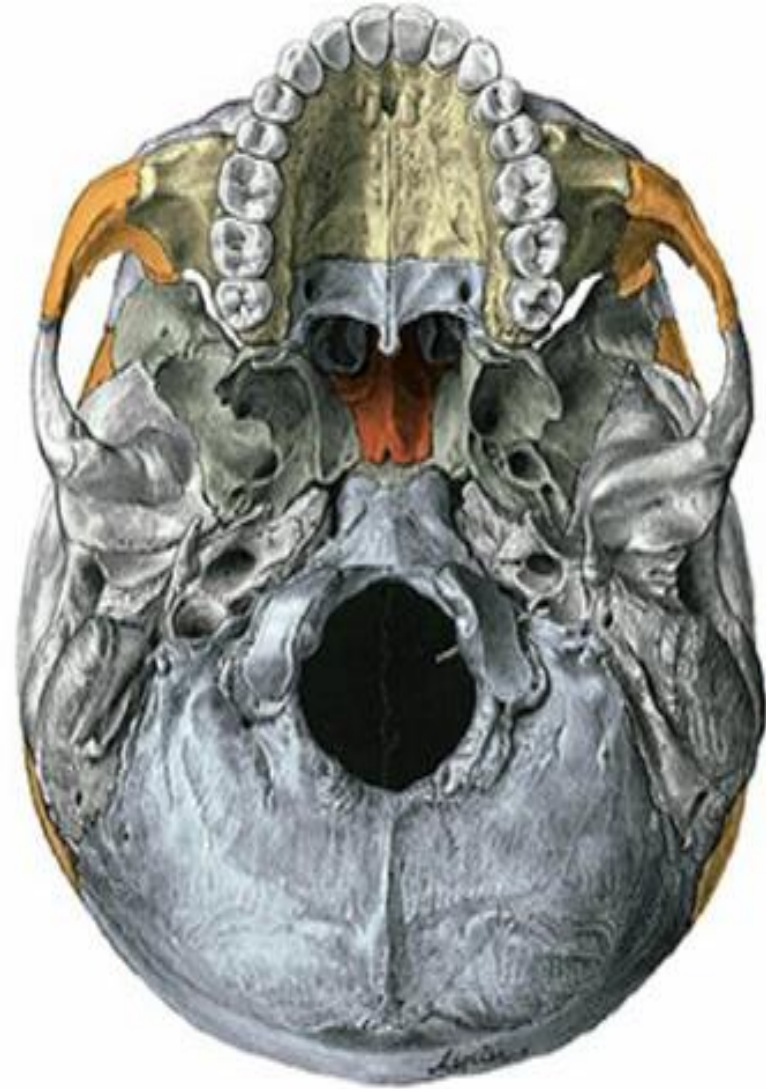
sulci arteriosi

sulcus sinus sagittalis superior

sulcus sinus transversi



Basis cranii interna



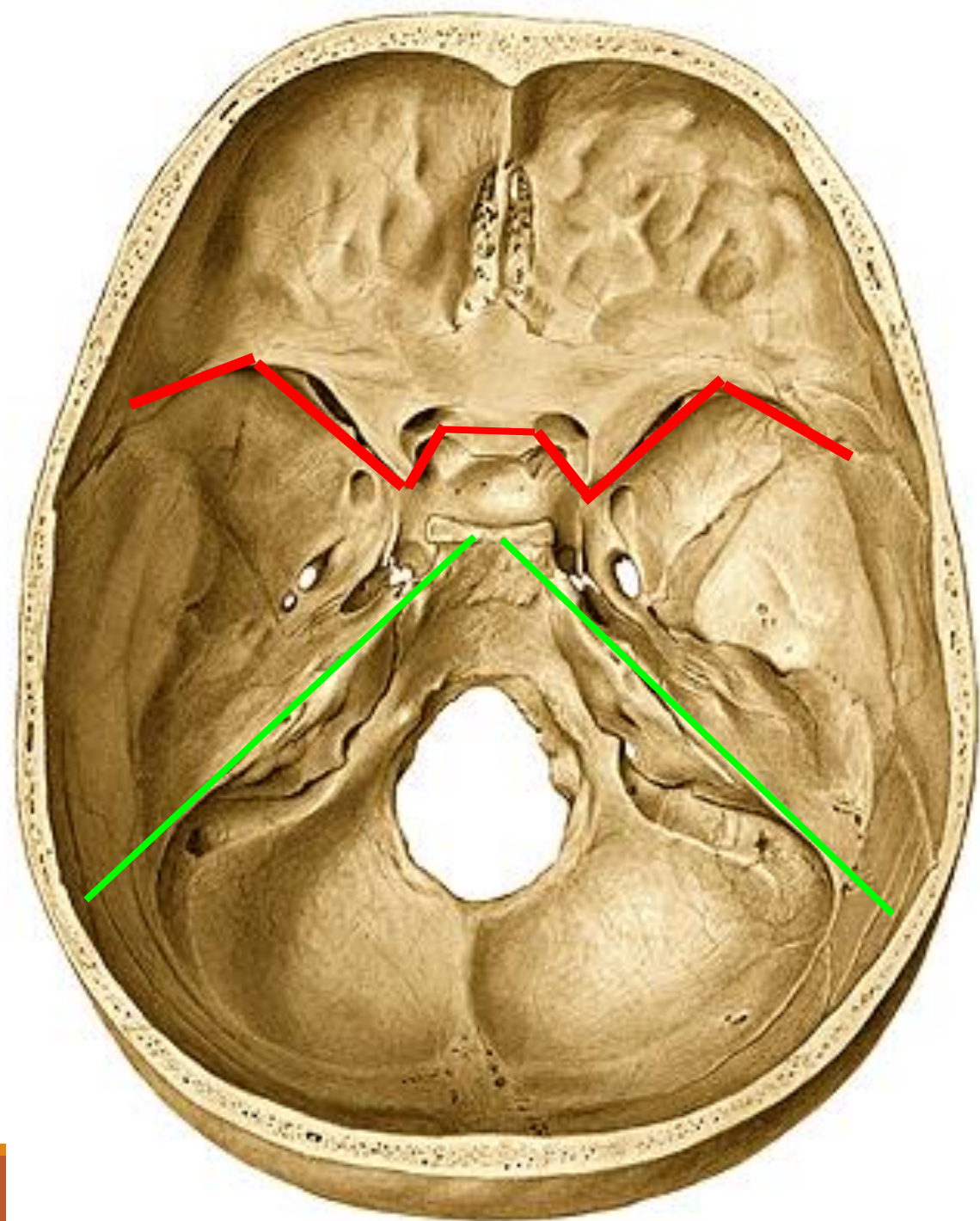
Basis cranii externa

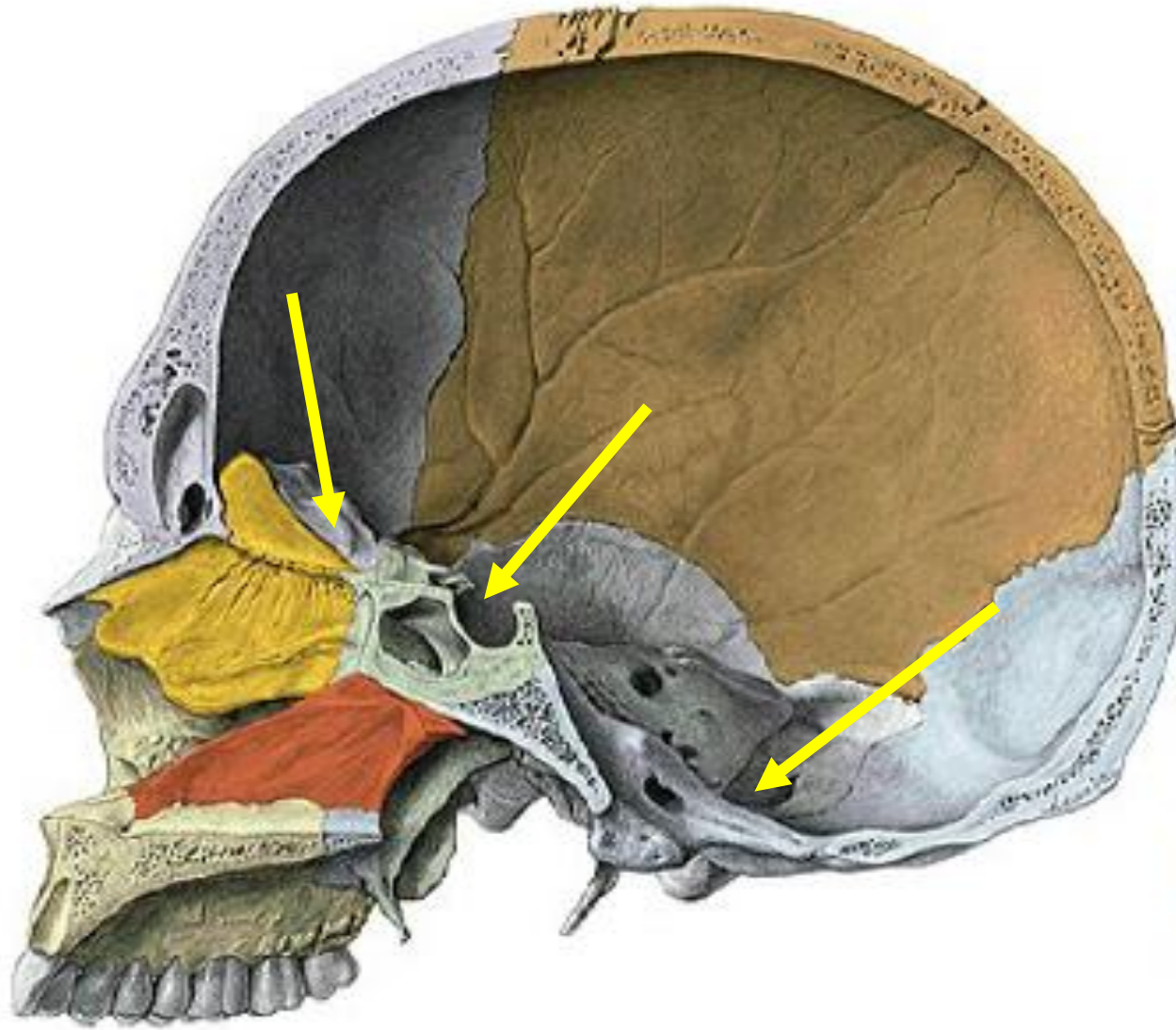
# BASIS CRANII INTERNA

Fossa cranii anterior

Fossa cranii media

Fossa cranii posterior



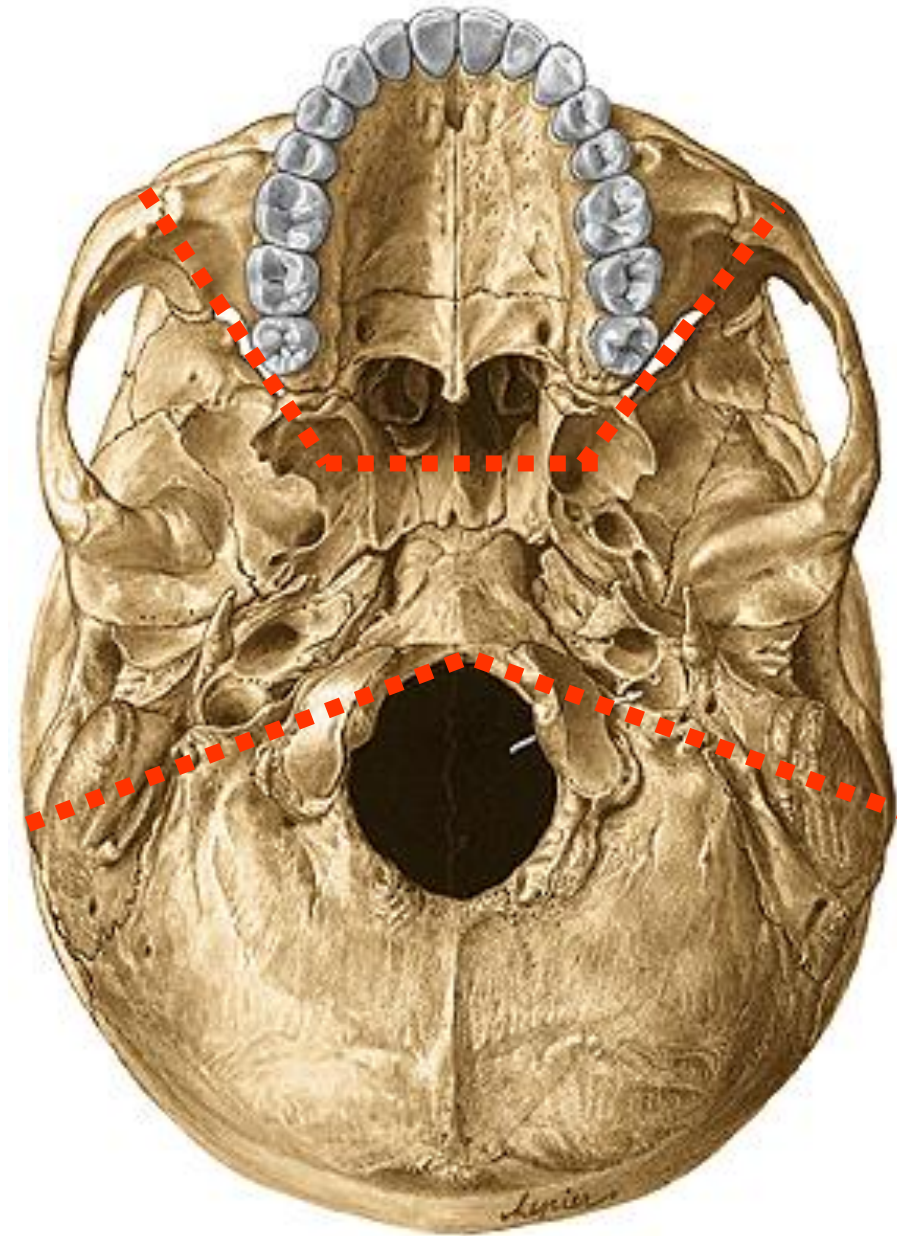


# BASIS CRANII EXTERNA

Fossa cranii anterior

Fossa cranii media

Fossa cranii posterior



# FOSSAE CRANII

FOSSA TEMPORALIS

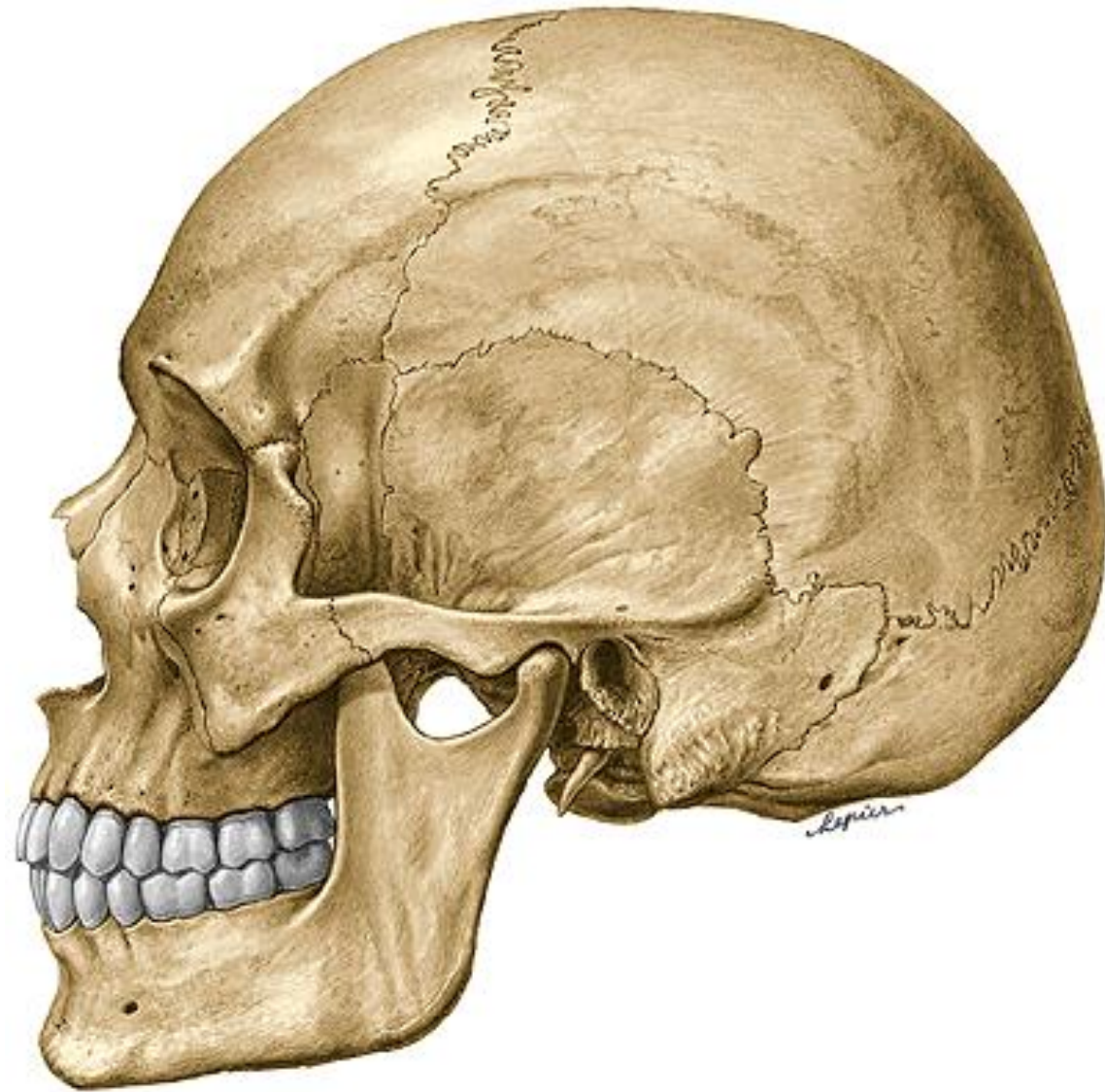
FOSSA INFRATEMPORALIS

FOSSA PTERYGOPALATINA

ORBITA

CAVITAS NASI OSSEA

CAVUM ORIS





# Fossa temporalis

## Medial wall

linea temporalis superior (os frontale, os parietale)  
facies temporalis alae majoris ossis sphenoidalis  
pars squamosa ossis temporalis

## Ventral wall

facies temporalis ossis zygomatici (processus frontalis)  
processus zygomaticus ossis frontalis

## Lateral wall

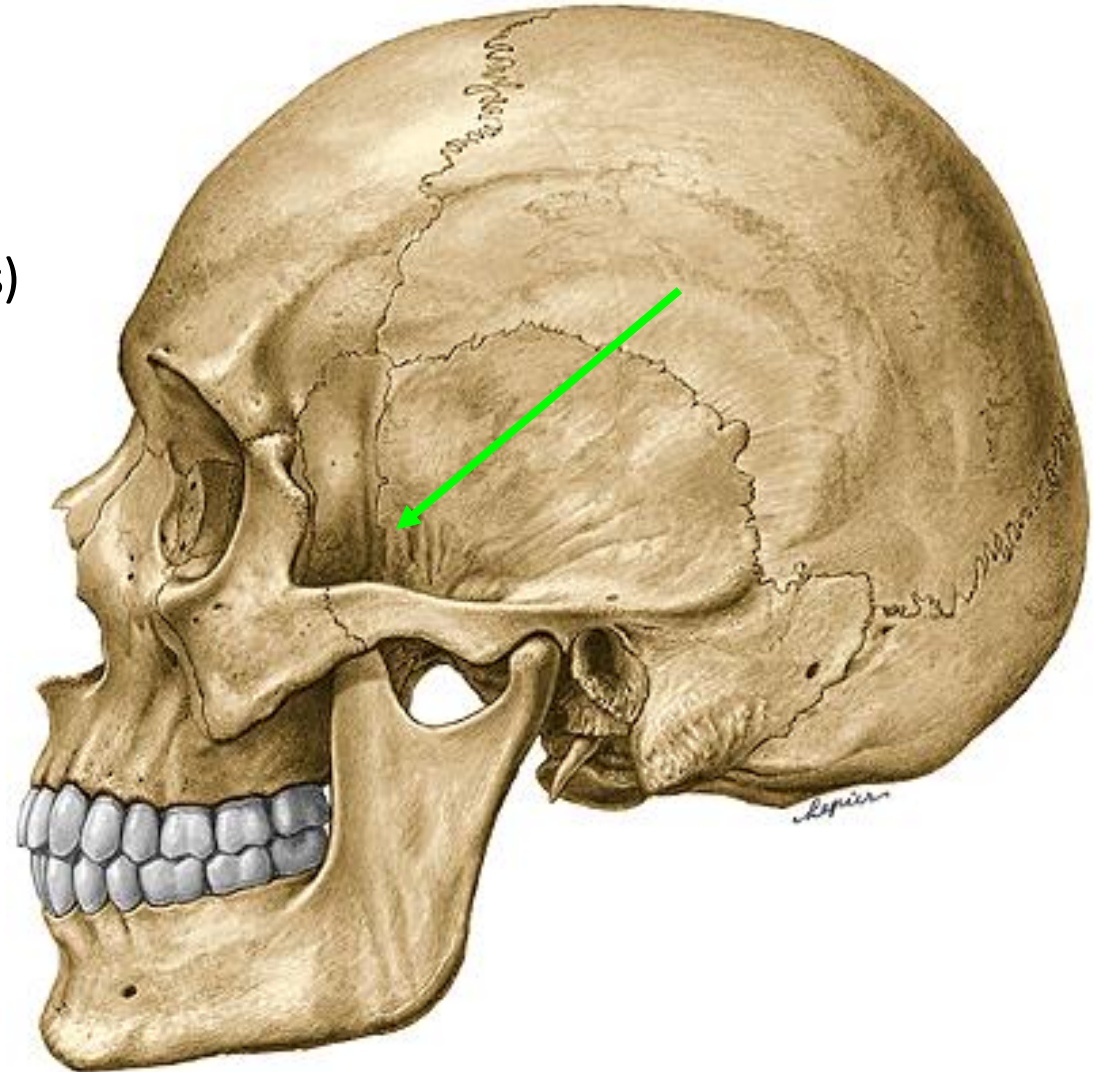
arcus zygomaticus  
crista infratemporalis

## Content

m. temporalis + nerves + vessels

## Conections

orbita fissura orbitalis inferior  
fossa infratemporalis



## Roof

Crista infratemporalis

Facies infratemporalis alae majoris ossis sphenoidalis

## Medial wall

Lamina lateralis processus pterygoidei

## Lateral wall

Ramus mandibulae

## Ventral wall

Facies infratemporalis corporis maxillae (tuber maxillae)

## Content

mm. pterygoidei + nerves + vessels

## Openings

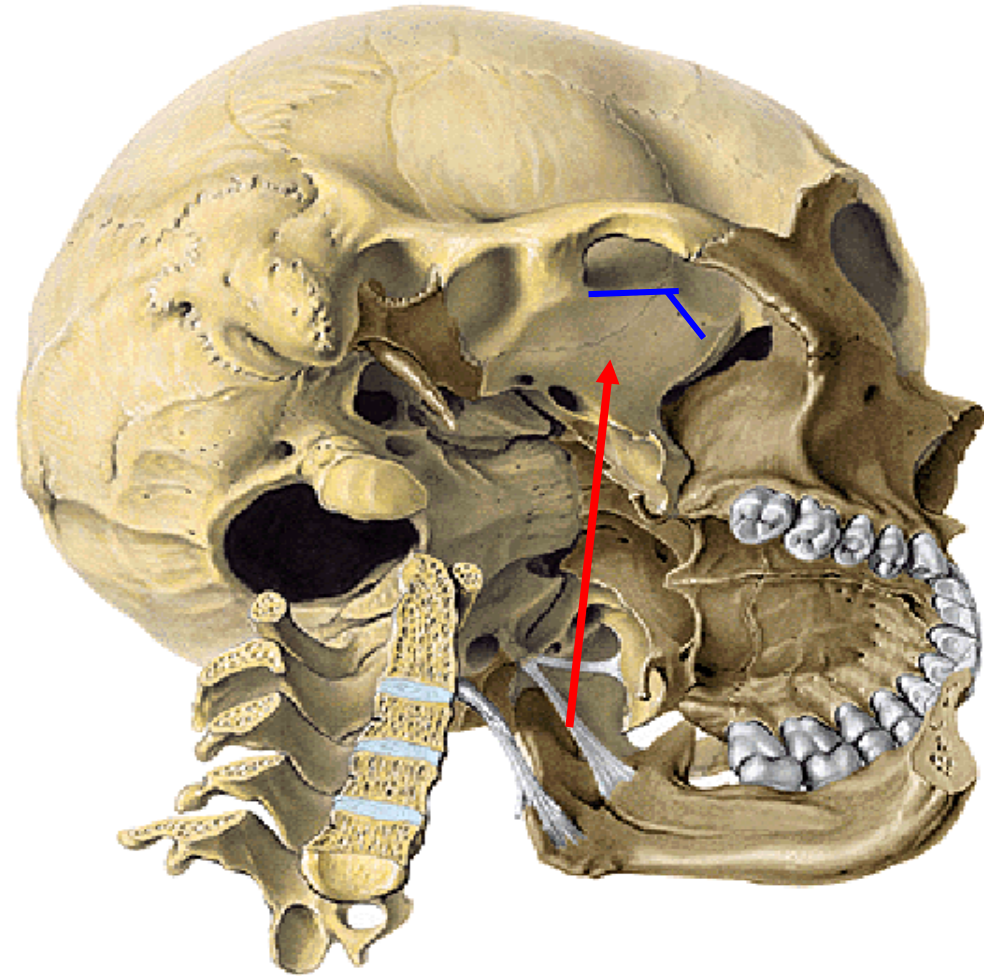
foramen ovale

foramen spinosum

foramen mandibulare

fissura orbitalis inferior

# Fossa infratemporalis



# Fossa pterygopalatina

## Roof

*Facies maxillaris alae majoris ossis sphenoidalis*

## Medial wall

*Lamina perpendicularis ossis palatini*

## Ventral wall

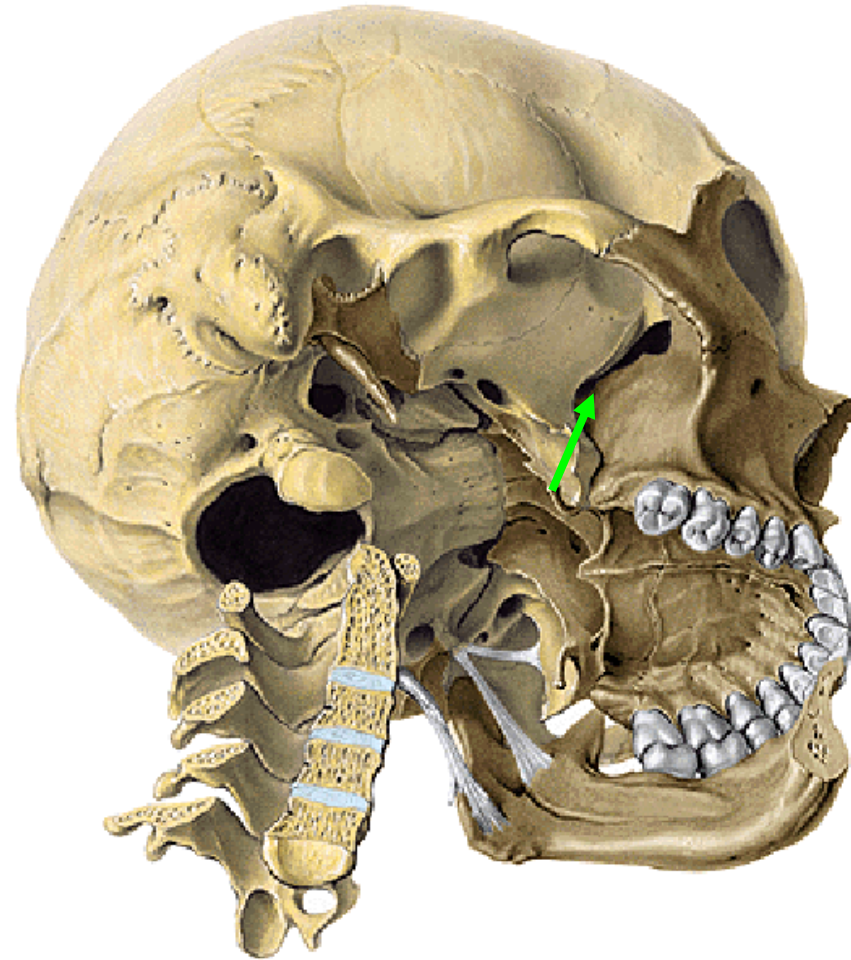
*tuber maxillae*

## Dorsal wall

*Processus pterygoideus ossis sphenoidalis*

## Content

Vessels and nerves (ganglion pterygopalatinum)



# Fossa pterygopalatina – openings and communications



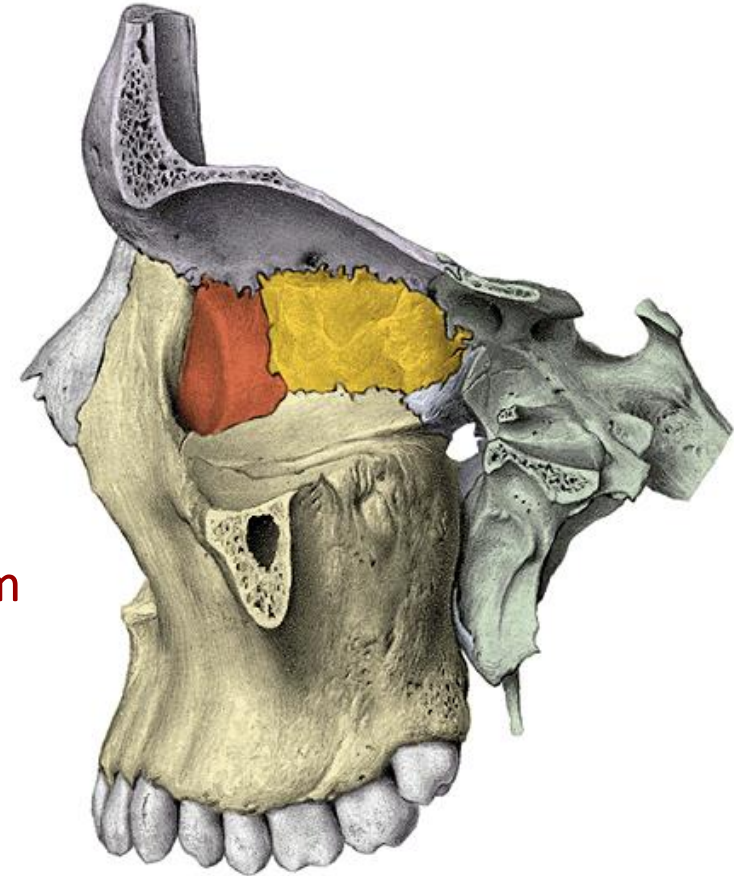
foramen rotundum  
fossa cranii media

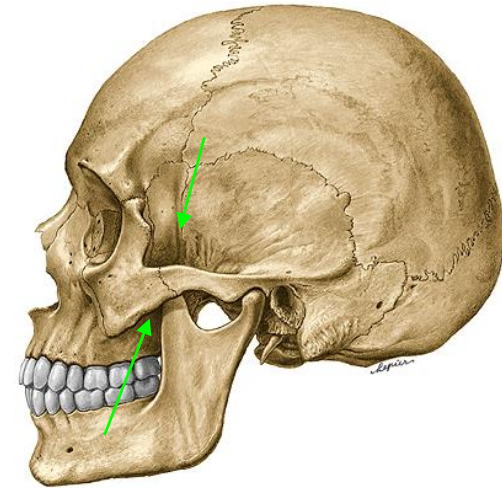
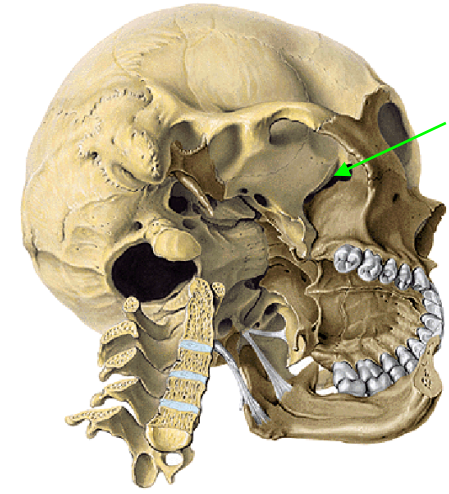
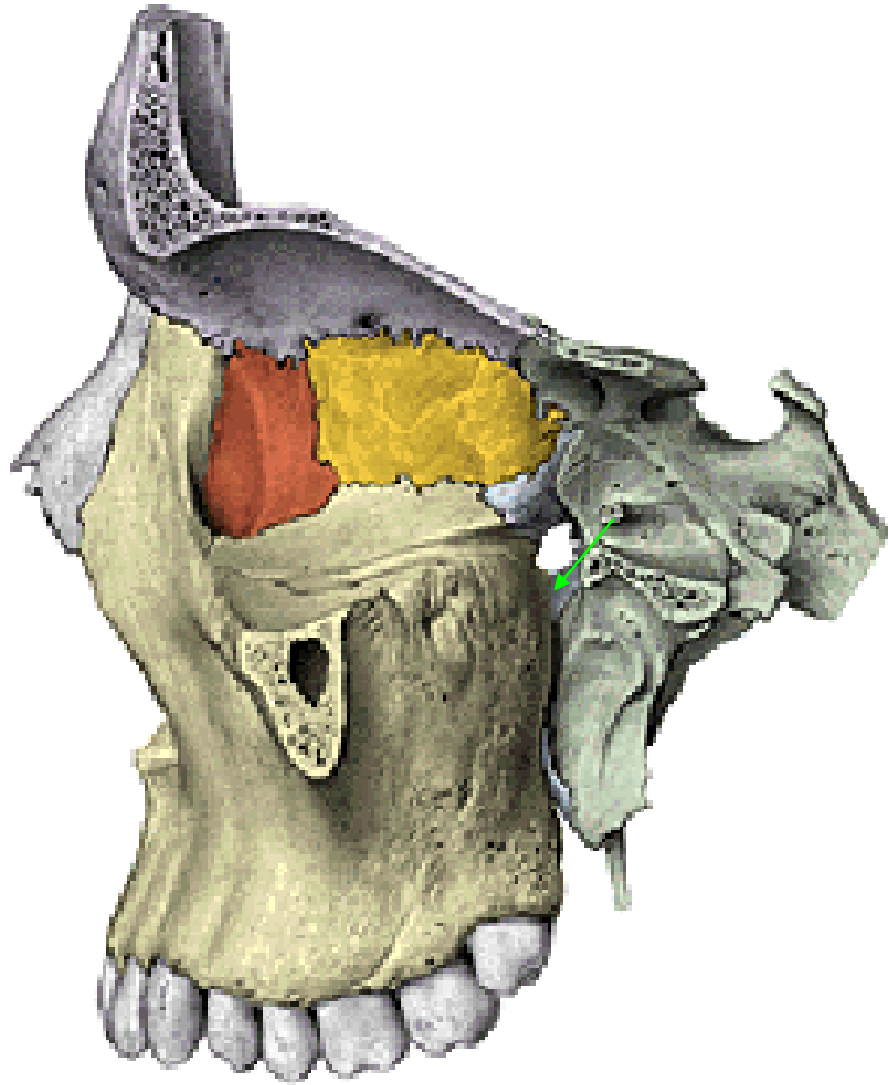
canalis palatinus major  
cavum oris

fissura orbitalis inferior  
orbita

foramen sphenopalatinum  
cavum nasi osseum

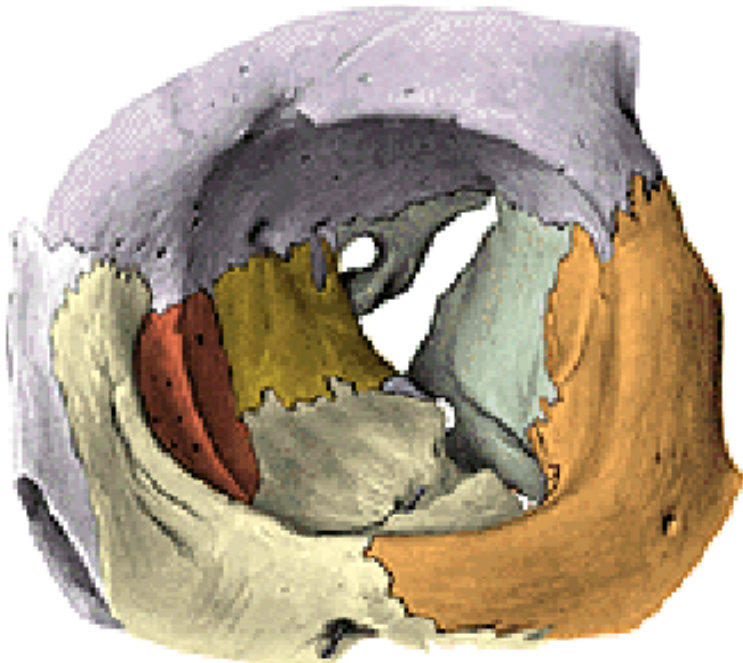
canalis pterygoideus  
basis cranii externa





**Fossa pterygopalatina**

# Orbita



## Aditus orbitae (base)

margo supraorbitalis, infraorbitalis

## Apex

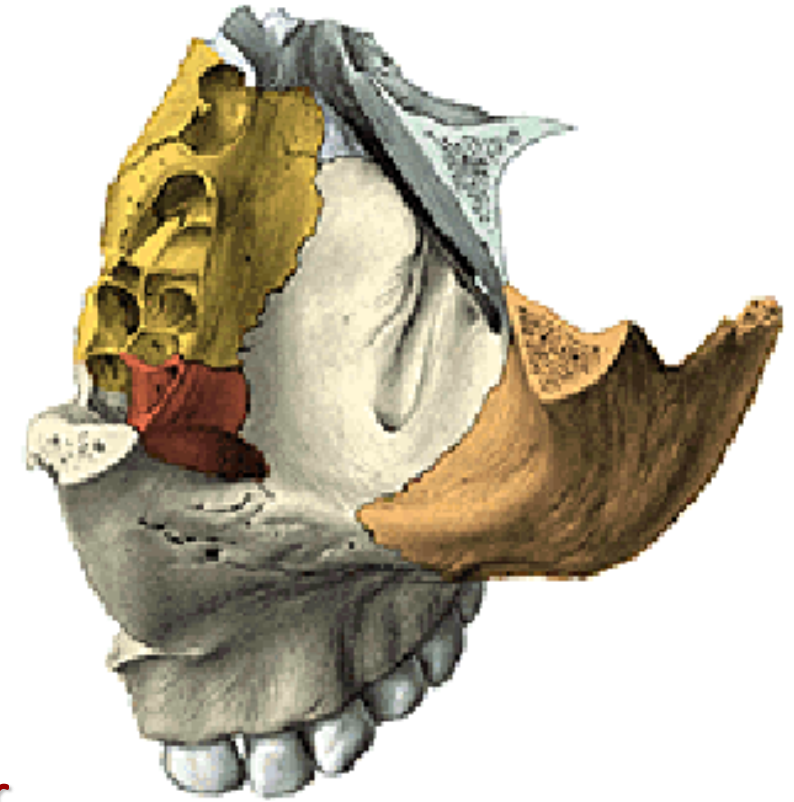
Canalis opticus

## Roof

pars orbitalis ossis frontalis

ala minor ossis sphenoidalis

(fovea trochlearis, fossa glandulae lacrimalis)



## Floor

facies orbitalis corporis maxillae

(sulcus & canalis infraorbitalis)

facies orbitalis ossis zygomatici

processus orbitalis ossis palatini

## Lateral wall

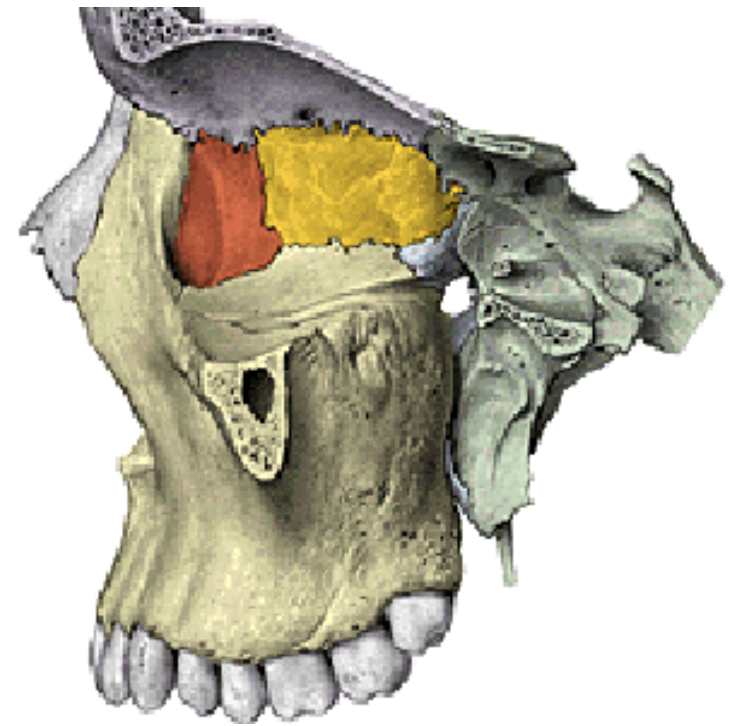
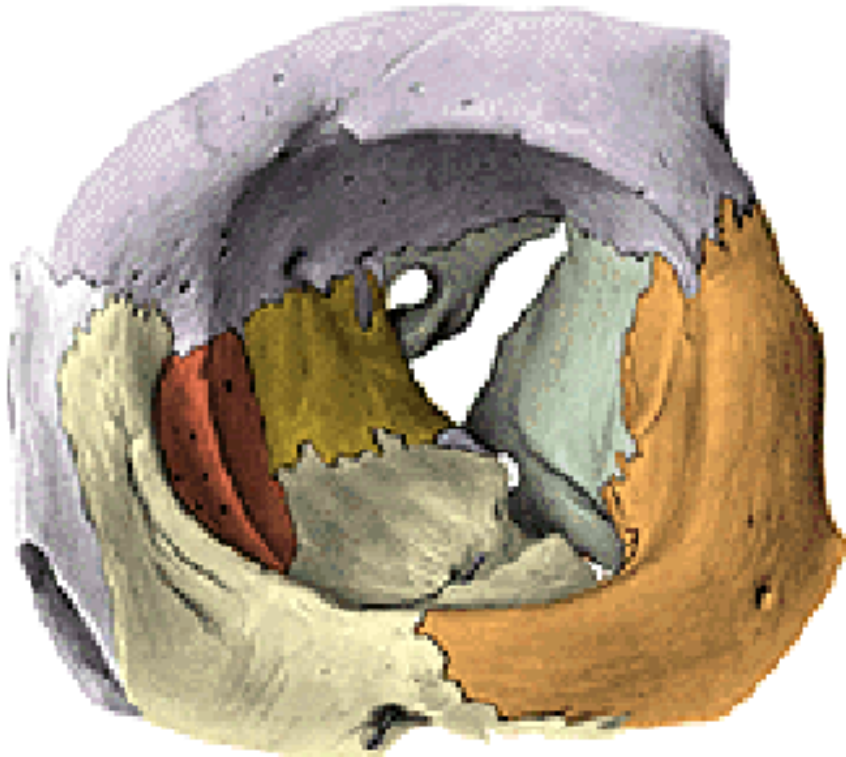
facies orbitalis ossis zygomatici

facies orbitalis alae majoris ossis sphenoidalis

**openings:** fissura orbitalis superior

fissura orbitalis inferior

foramen zygomaticoorbitale



## Medial wall

processus frontalis maxillae

os lacrimale

lamina orbitalis ossis ethmoidalis

(fossa sacci lacrimalis)

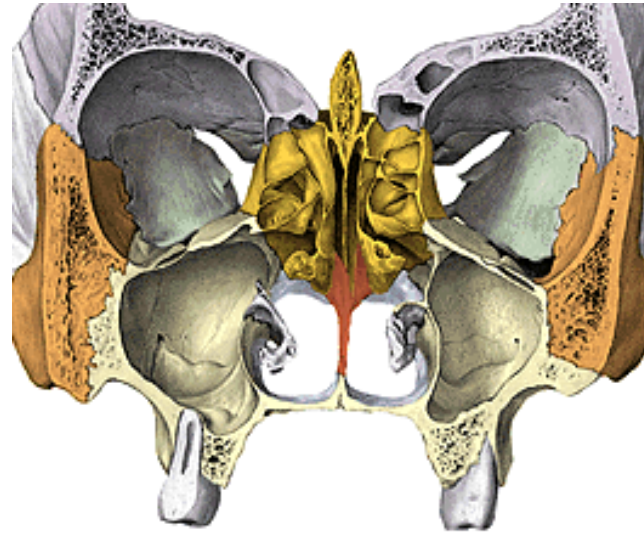
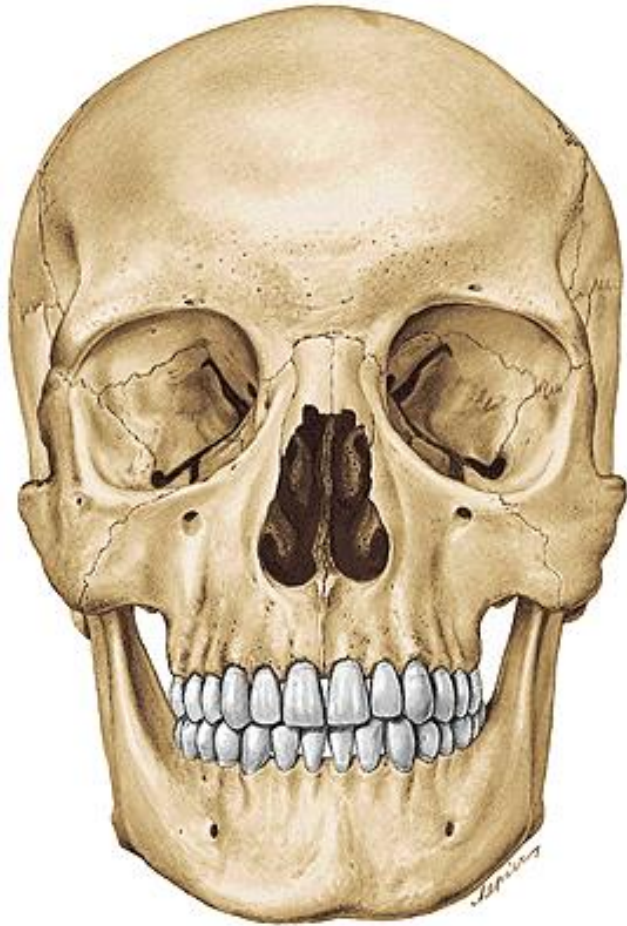
ala minor ossis sphenoidalis

**openings:** foramen ethmoidale anterius

foramen ethmoidale posterius

## **Cavitas nasi ossea**

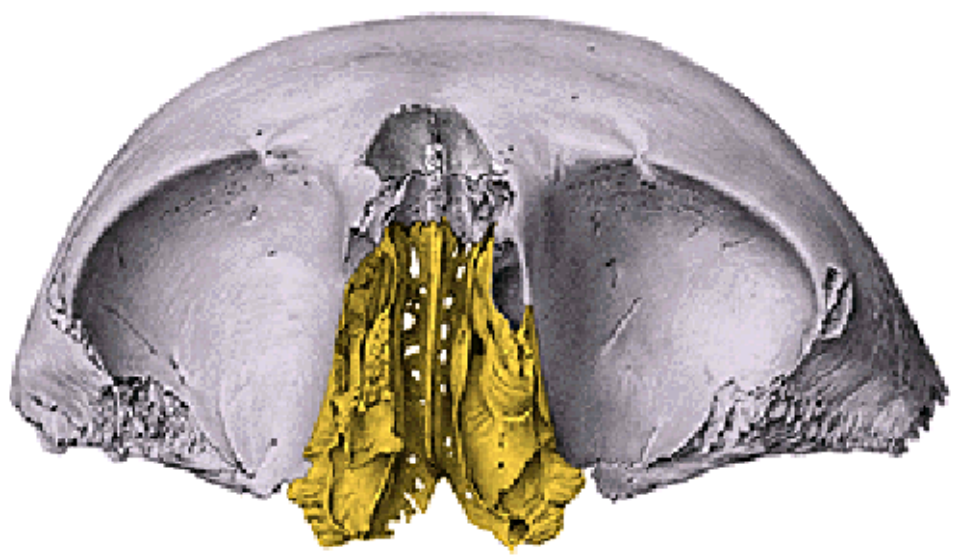
**Apertura piriformis  
Choanae**



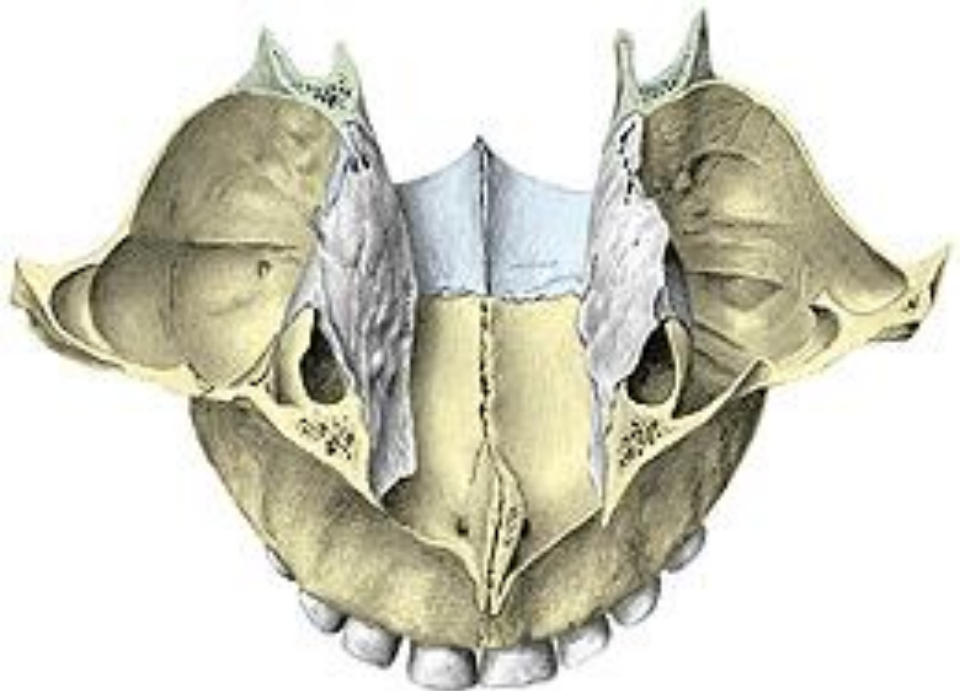
**Roof  
Floor (palatum durum)  
Medial wall (septum nasi)  
Lateral wall (3 layers)**



**Roof:** ossa nasalia,  
pars nasalis ossis frontalis,  
lamina cribrosa ossis ethmoidalis,  
corpus ossis sphenoidalis

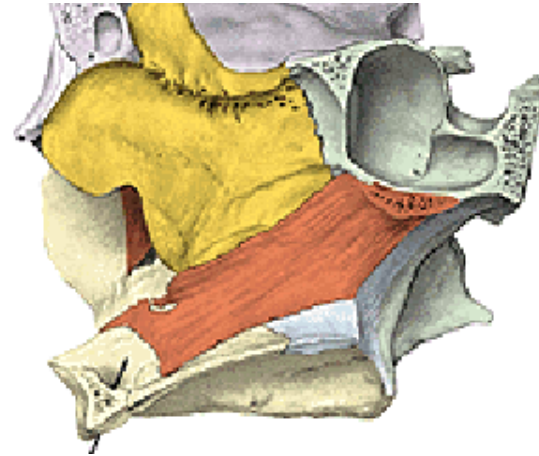
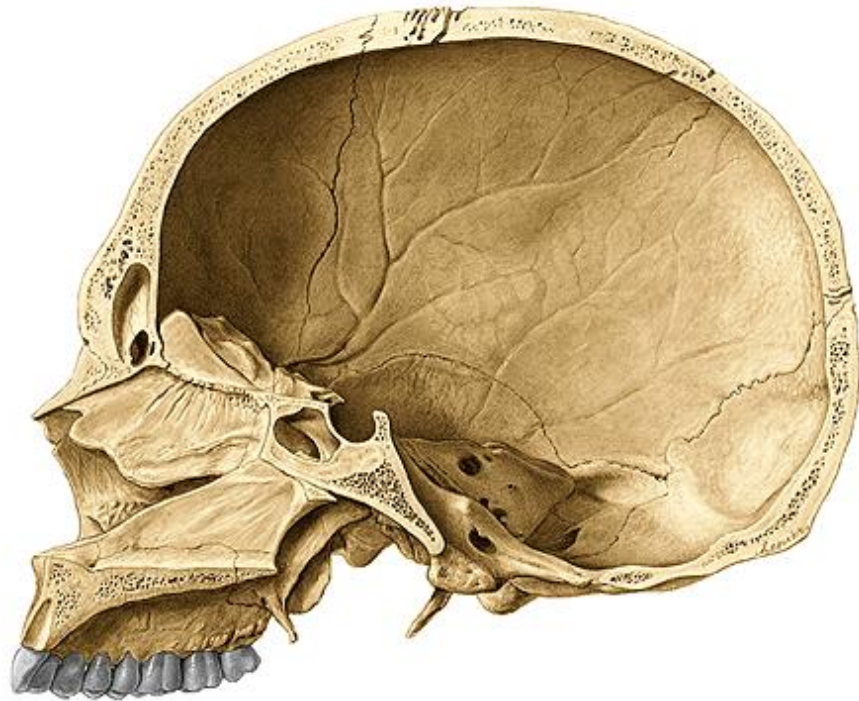


**Floor:** (palatum durum)  
processus palatini maxillae  
lamina horizontalis ossis palatini  
(os incisivum)



**Medial wall (septum nasi)**

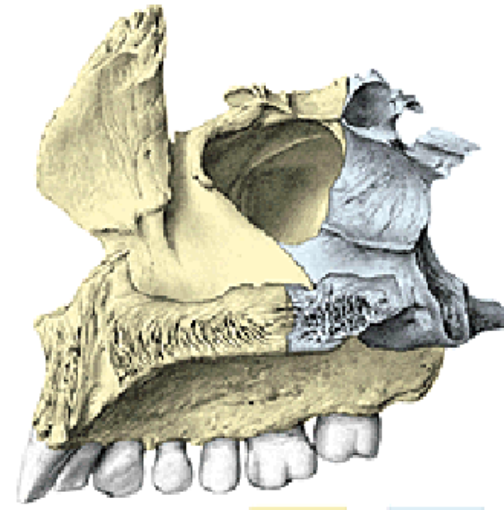
lamina perpendicularis ossis ethmoidalis  
vomer



## Lateral wall

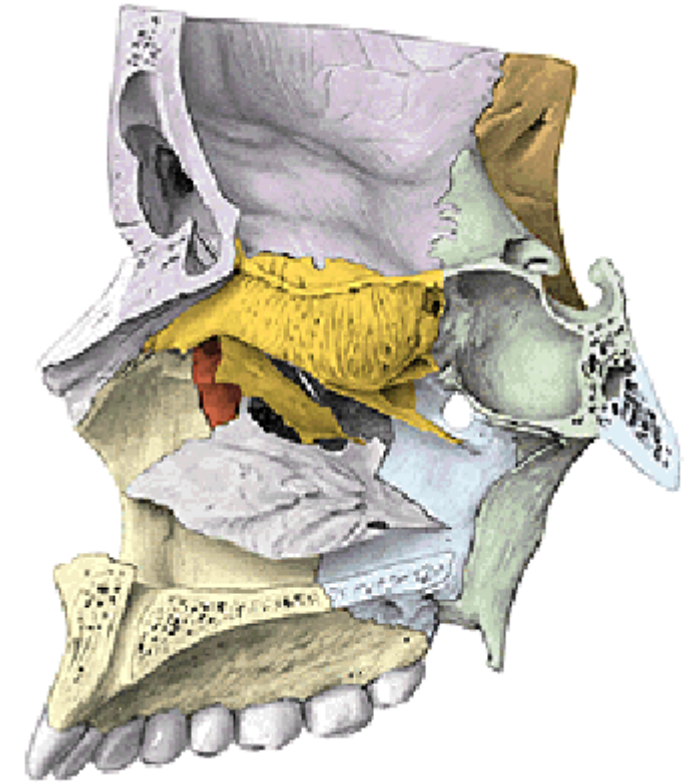
### Lateral layer

processus frontalis maxillae  
corpus maxillae  
lamina medialis processus pterygoidei



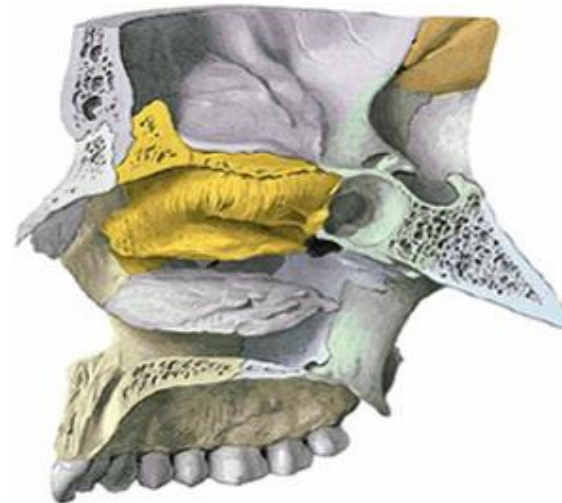
### Middle layer

os lacrimale  
lamina perpendicularis ossis palatini



### Medial layer

concha nasalis inferior  
labirintus ethmoidalis  
(concha nasalis superior et media,  
bulla ethmoidalis, processus uncinatus)



## Meatus nasi:

### Meatus nasi superior:

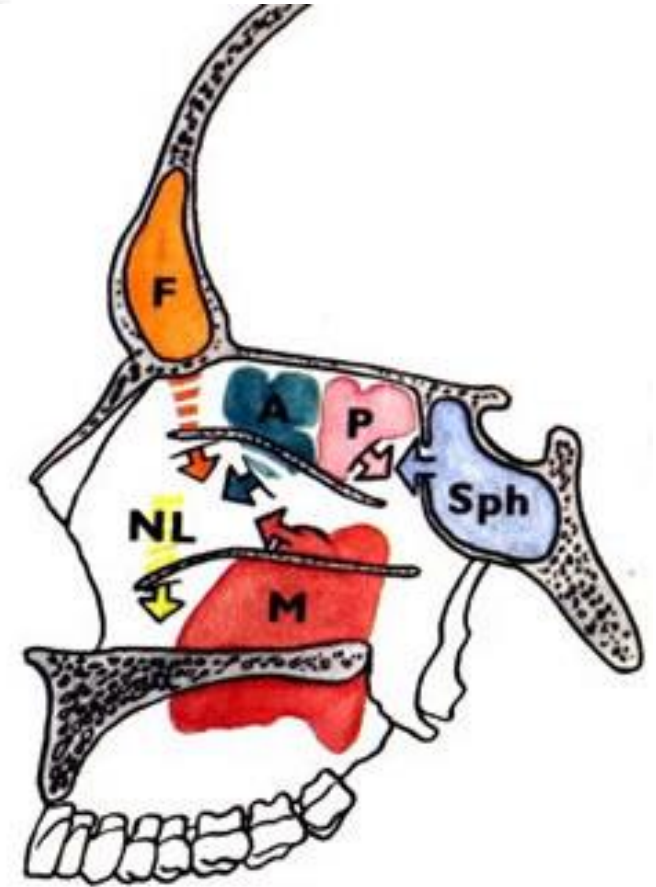
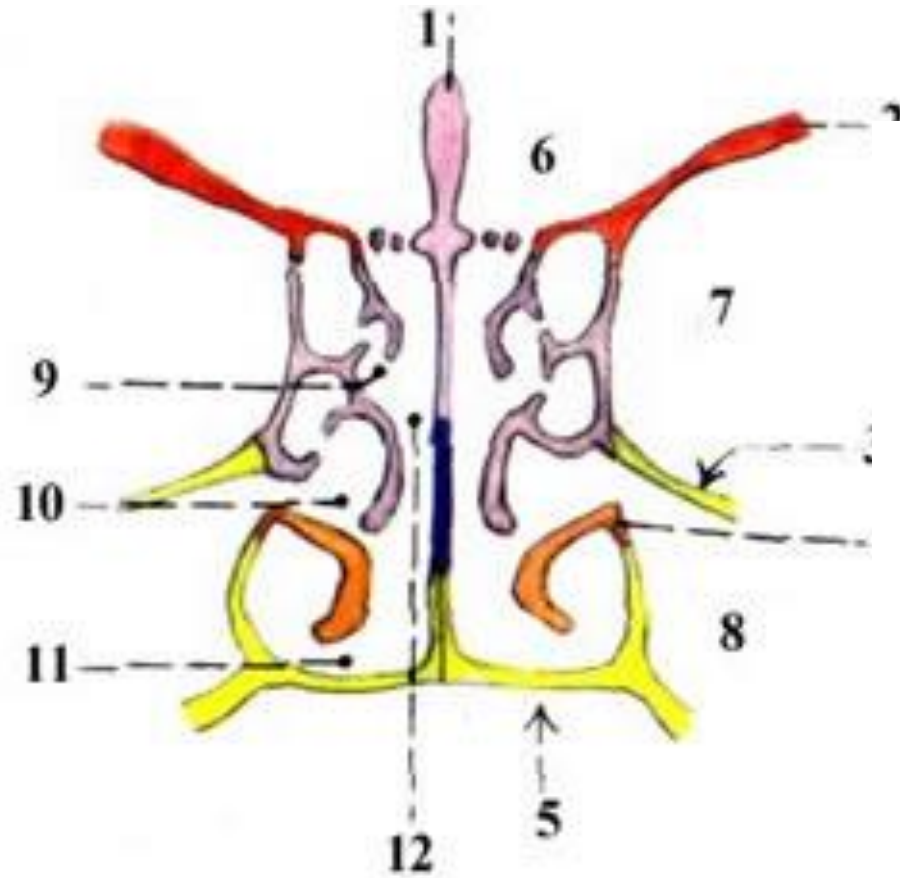
-Above concha nasalis media  
cellulae ethmoidales posteriores  
sinus sphenoidalis

### Meatus nasi medius:

-between concha nasalis media and  
concha nasalis inferior  
sinus frontalis  
sinus maxillaris  
cellulae ethmoid. ant. et med

### Meatus nasi inferior:

-below concha nasalis inferior



### Meatus nasi communis:

-Between margins of conchae  
and septal part

### Meatus nasopharyngeus

-Behind posterior margins of conchae and choanas

## Cavum oris osseum

### Roof (palatum durum)

processus palatinus maxillae

os incisivum

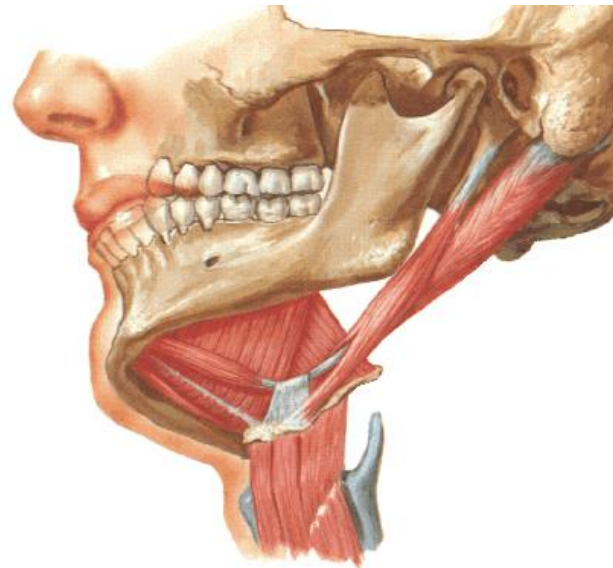
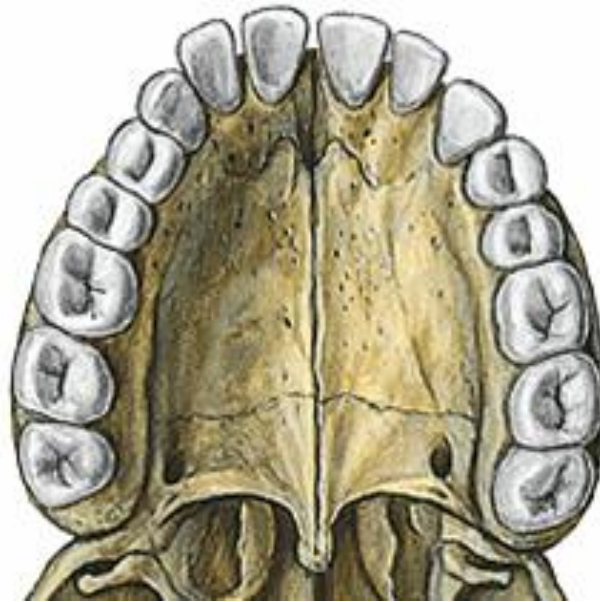
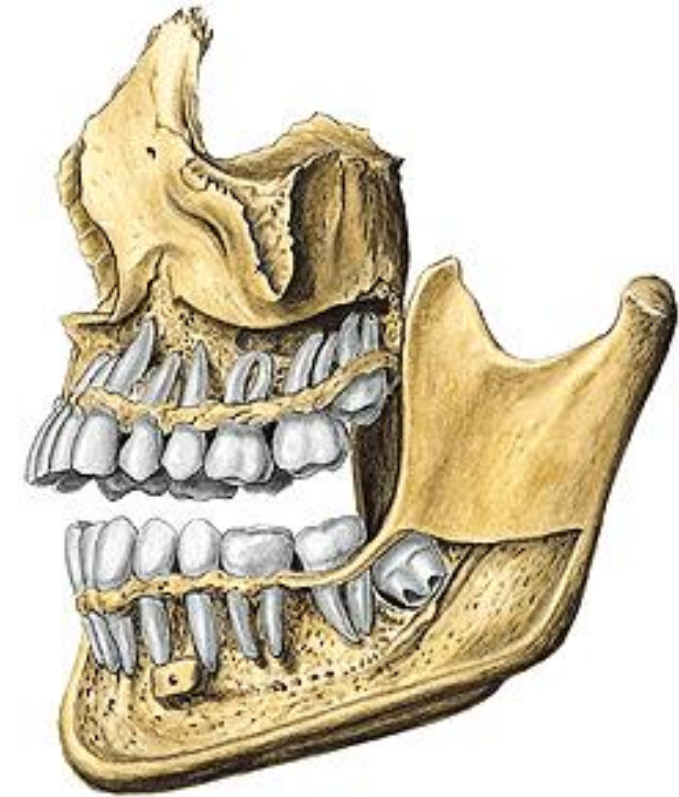
lamina horizontalis ossis palatini

### Lateral and anterior walls

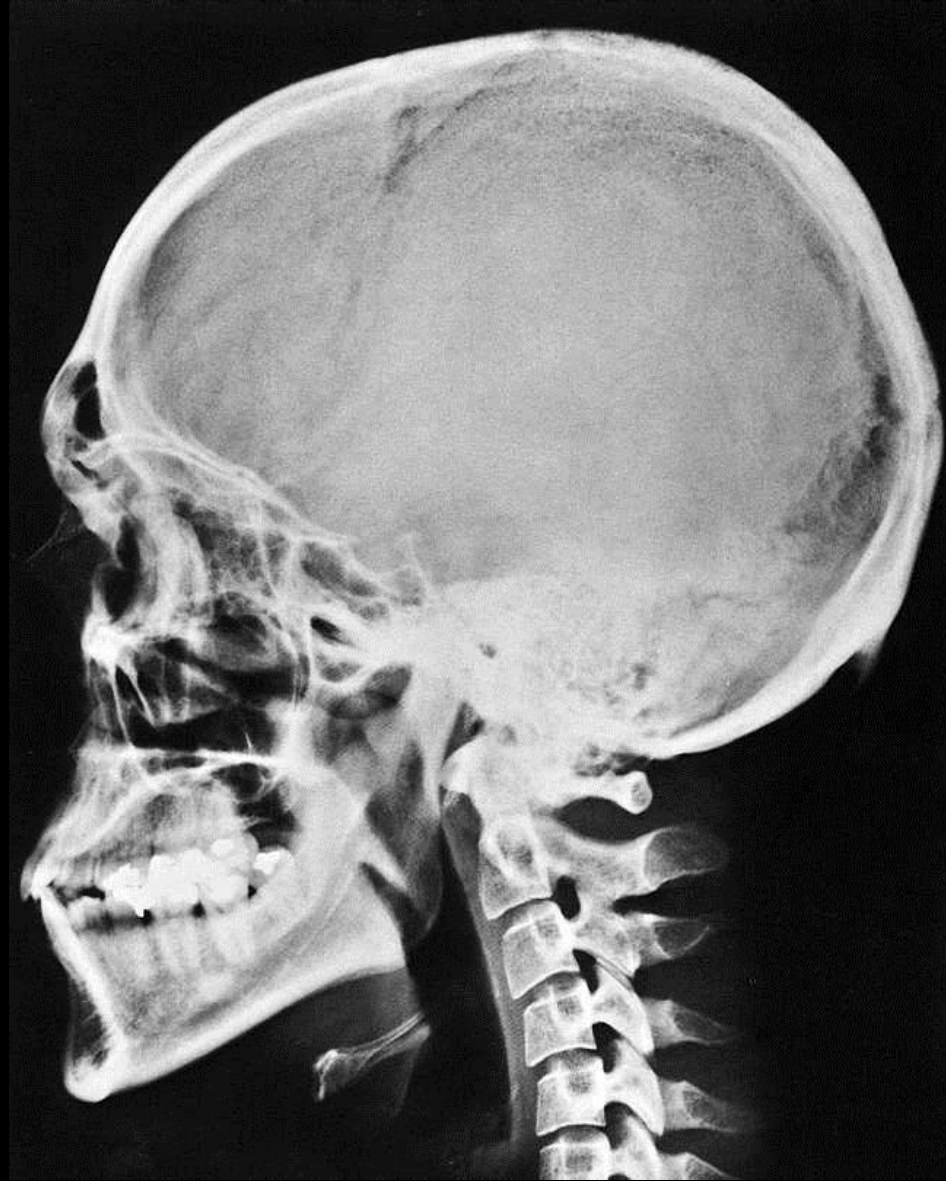
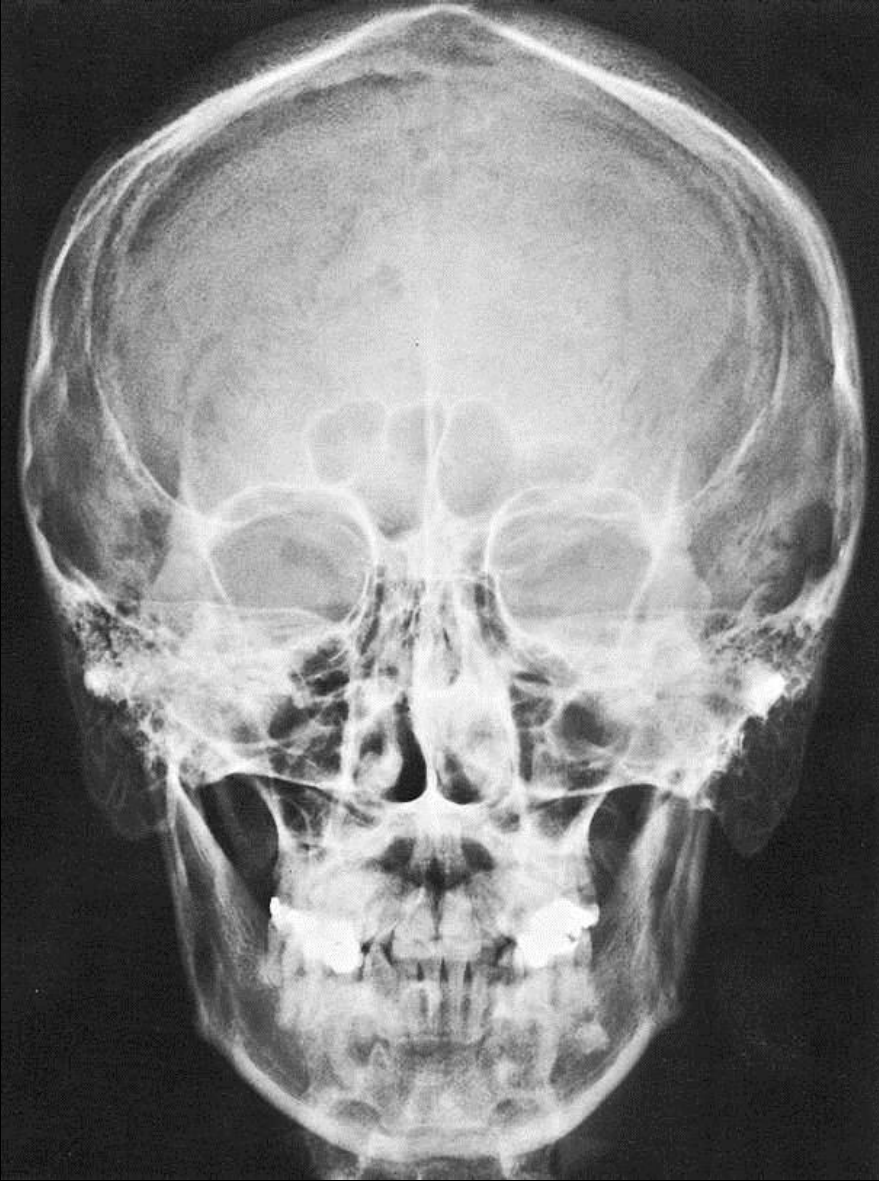
processus alveolares maxillae and  
mandibulae

### Floor

Muscles!!!!!!!



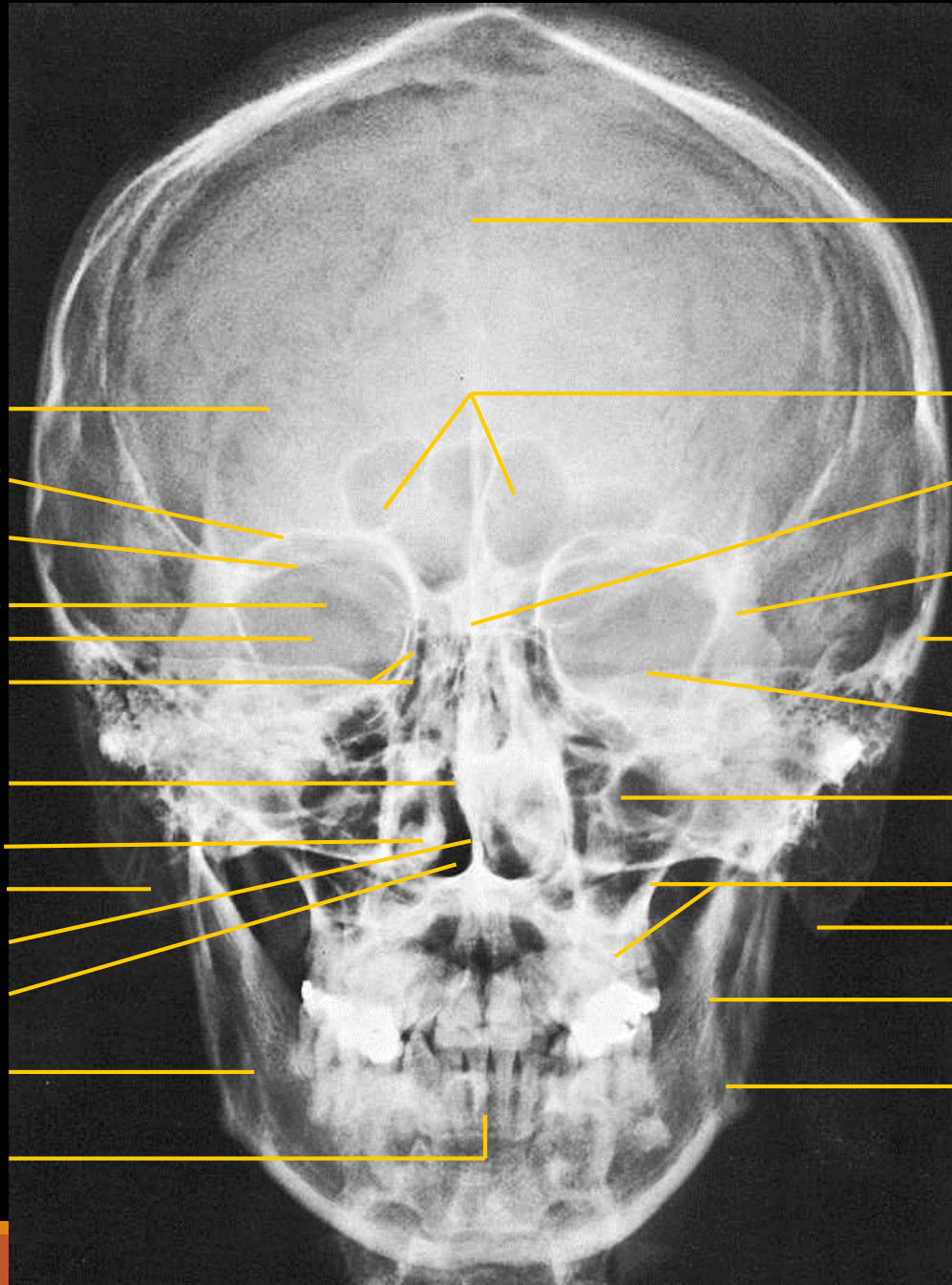
# X-ray of the head



# Head

axial projection

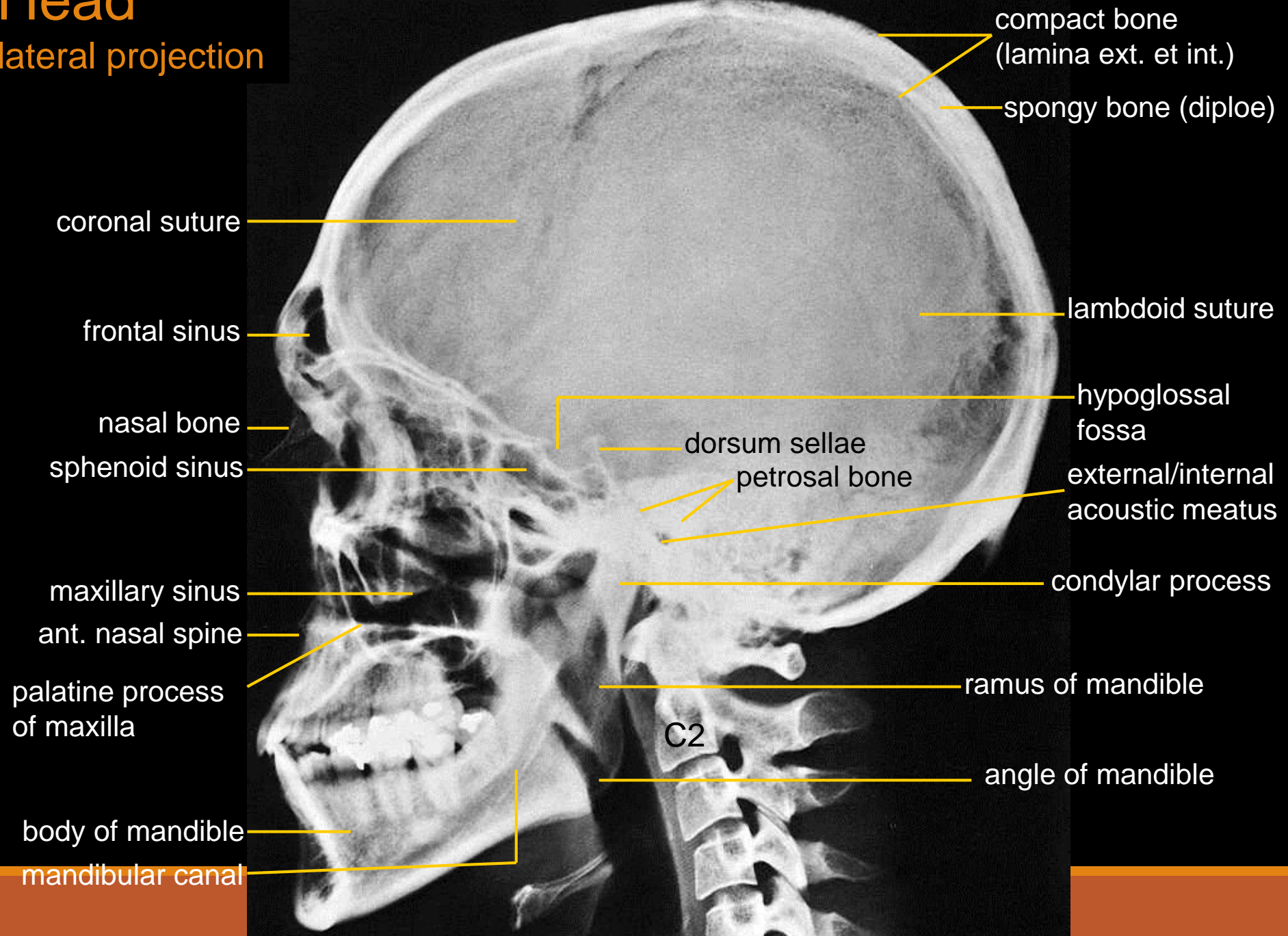
lambdoid suture  
roof of right orbit  
supraorbital margin  
superior orbital fissure  
right orbit  
ethmoidal air cells  
nasal septum  
inferior nasal concha  
mastoid air cells  
nasal septum  
nasal aperture  
mandibular canal  
tooth



sagittal suture  
frontal sinus  
cribriform plate  
fronto-zygom. suture  
zygomatic arch  
superior border of petrous bone  
maxillary sinus  
maxilla  
mastoid process  
ramus of mandible  
angle of mandible

# Head

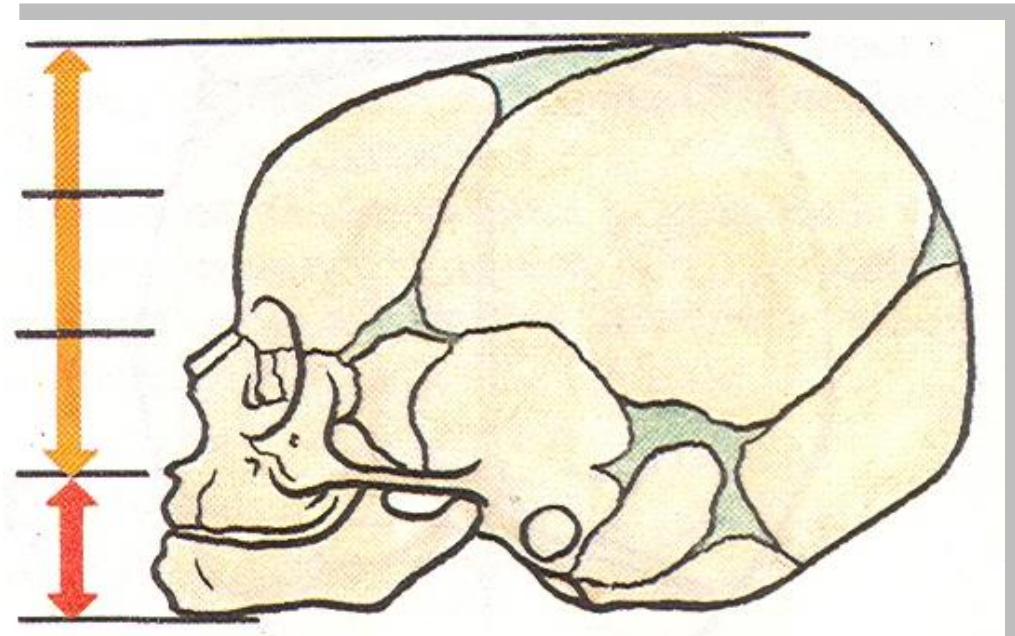
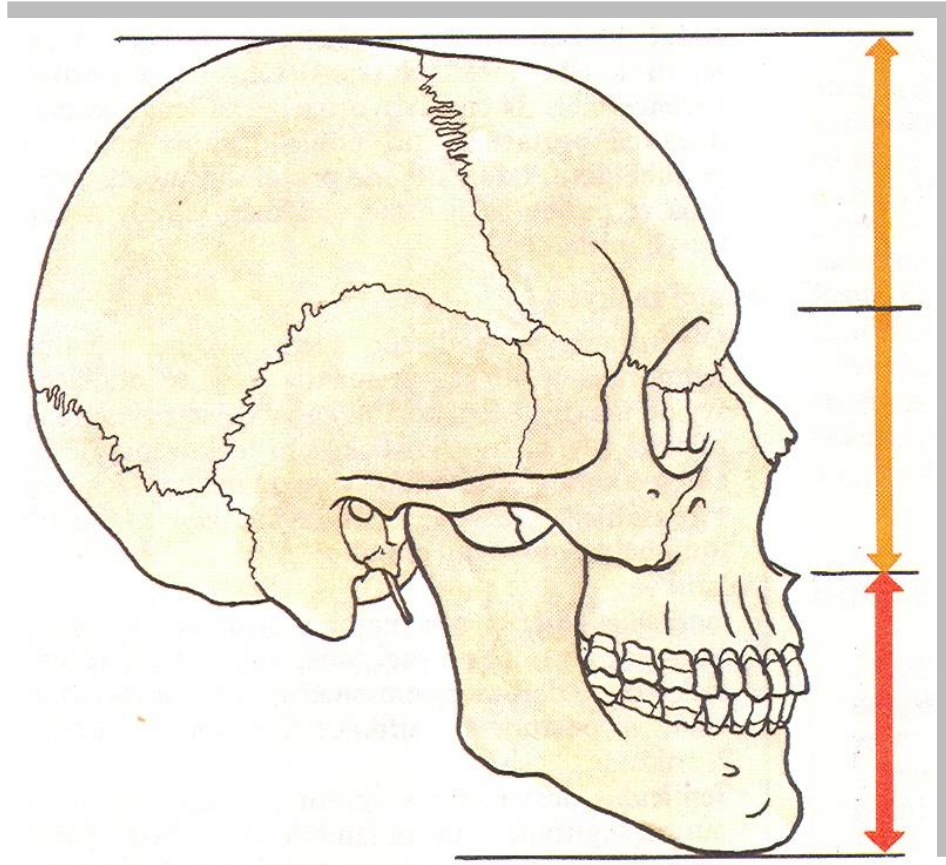
## lateral projection





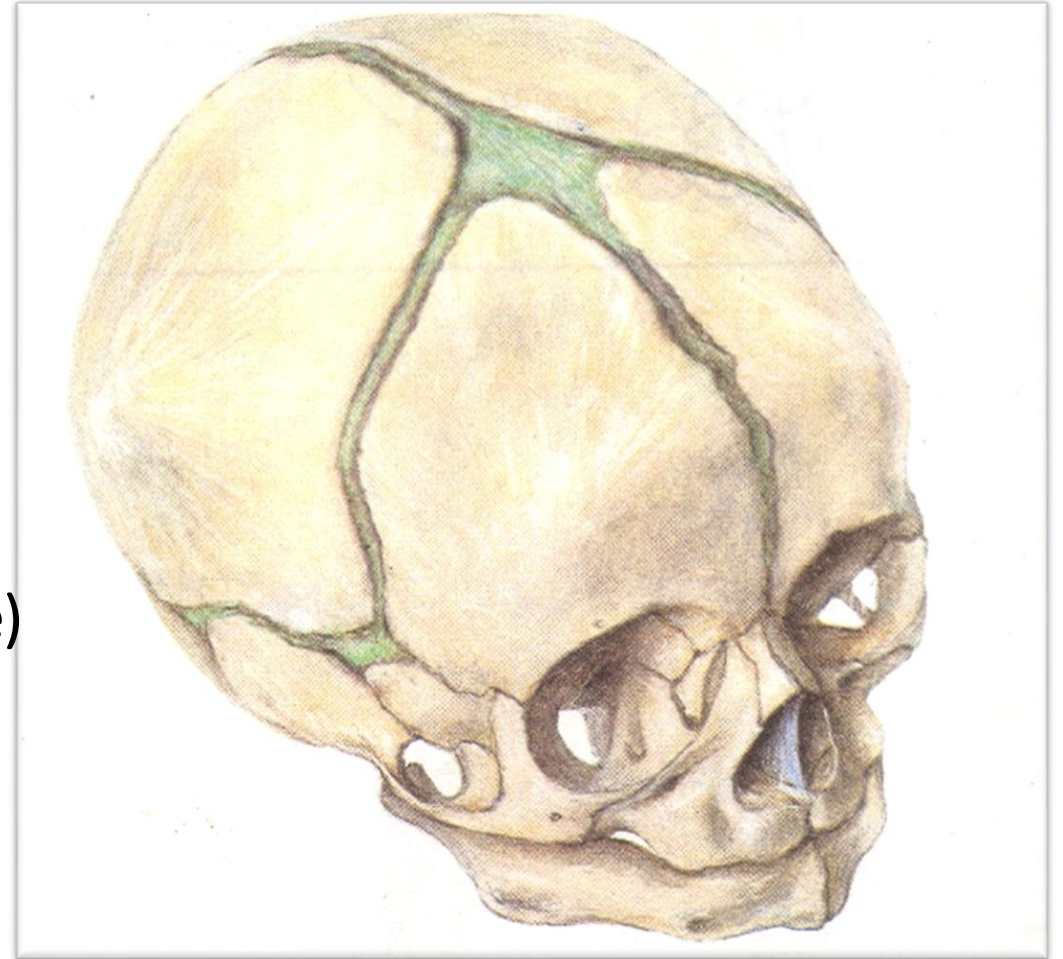
# Newborn skull

Neurocranium : Splanchnocranium  
8 : 1

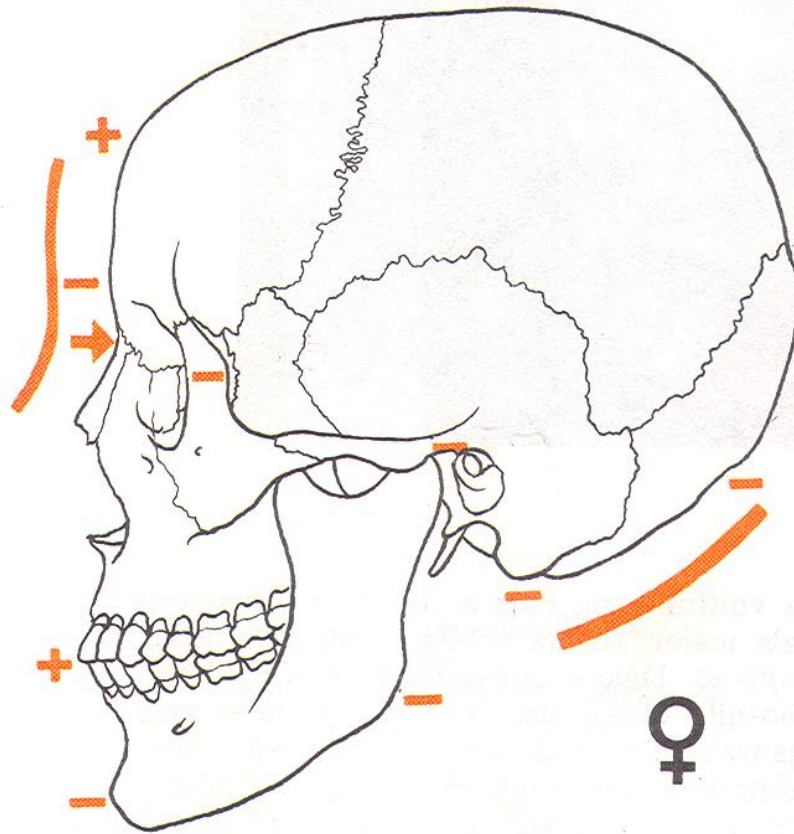


## Newborn skull

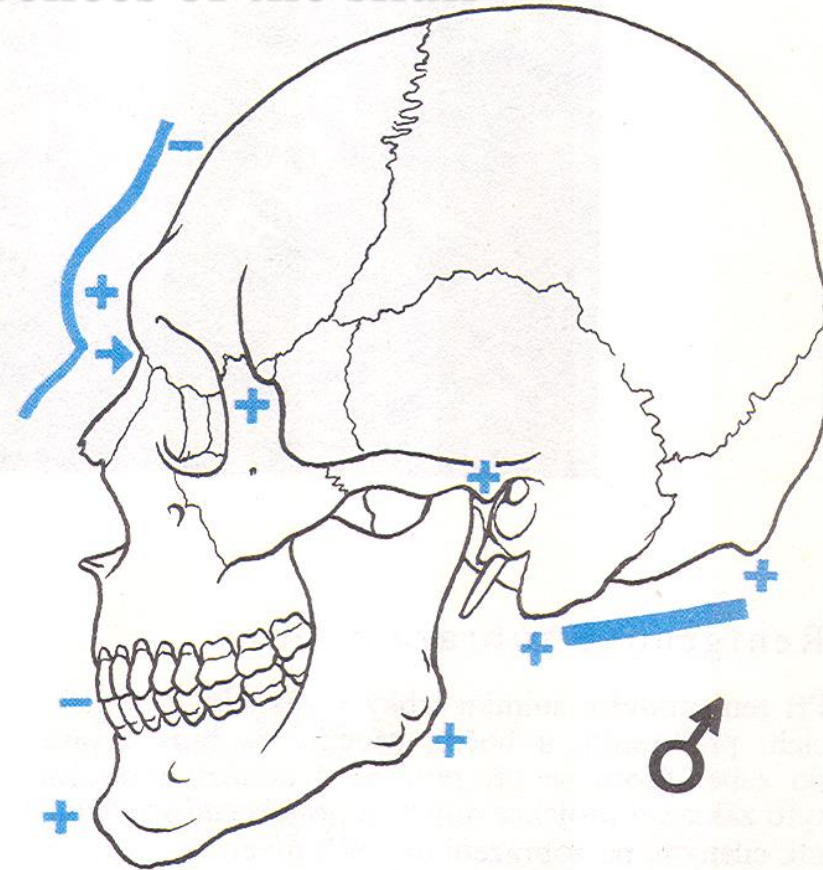
- capacity 370 ccm
- circumference 34 cm
- length 11-12 cm, width 9-10 cm
- big neurocranium
- fonticuli (major, minor, sphenoidalis, mastoideus)
- low splanchnocranium
- without processus alveolares (maxillae et mandibulae)
- without paranasal sinuses
- sutura frontalis
- anulus tympanicus
- symphysis menti
- mandibular angle 150 - 170°



## Gender differences of the skull



glabella, arcus superciliares  
tubera frontalia and parietalia  
processus mastoideus



protuberantia occipitalis externa (regio nuchae)  
protuberantia mentalis  
tuberositas masseterica  
processus alveolares

The pictures used in this lecture were taken from following sources:

Putz, R. (2008):

Atlas of Human Anatomy Sobotta. Elsevier Books.

Keith L. Moore, Arthur F. Dalley (2005):

Clinically Oriented Anatomy. Williams and Wilkins.

Platzer, W., Kahle, W., Leonhardt H. (1992):

Locomotor system. Georg Thieme Verlag, Stuttgart, New York, 4th edition.

Čihák, R. (1987): Anatomie 1. Avicenum, Zdravotnické nakladatelství.

Netter, F. H. (1997):

Interactive Atlas of Clinical Anatomy. Novartis, USA.