

Skull cavities

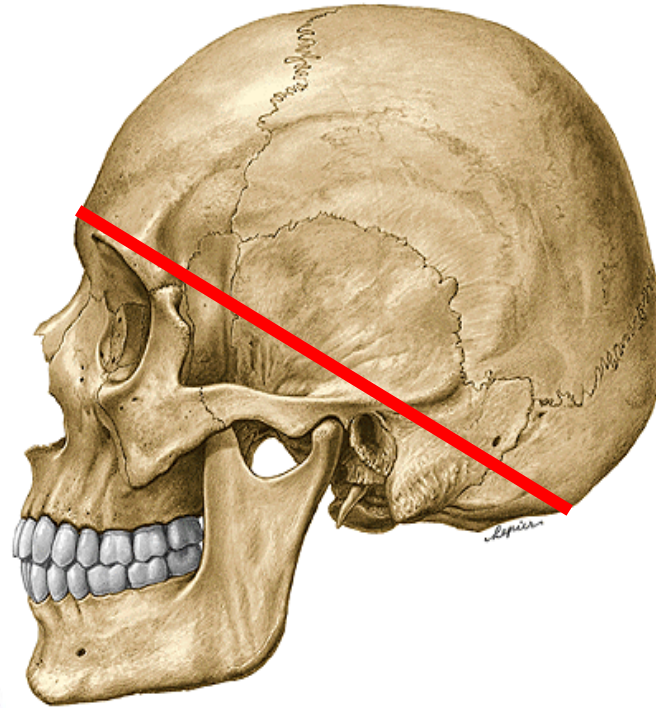
LECTURE 6

DENTISTRY AUTUMN 2017

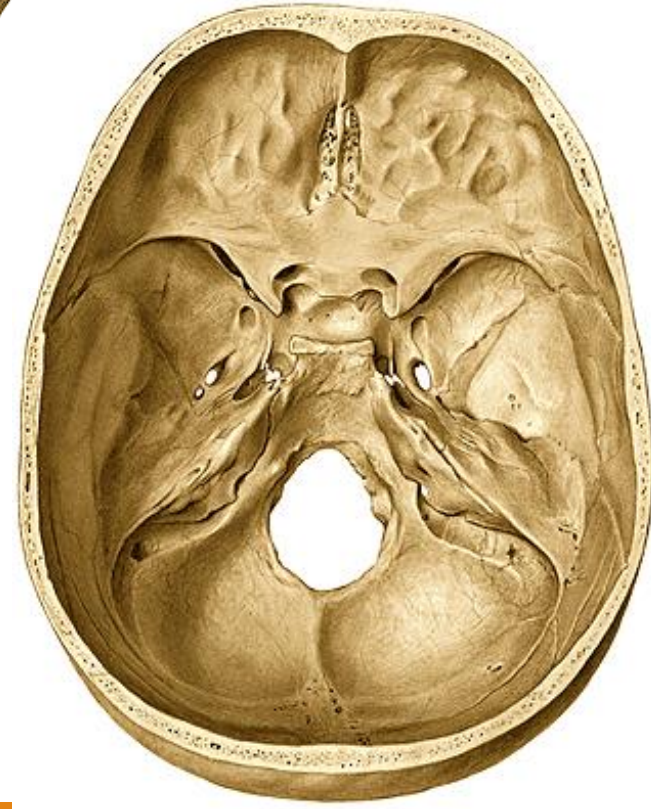
RNDr. Michaela Račanská, Ph.D.



Calvaria



Basis cranii



Calvaria



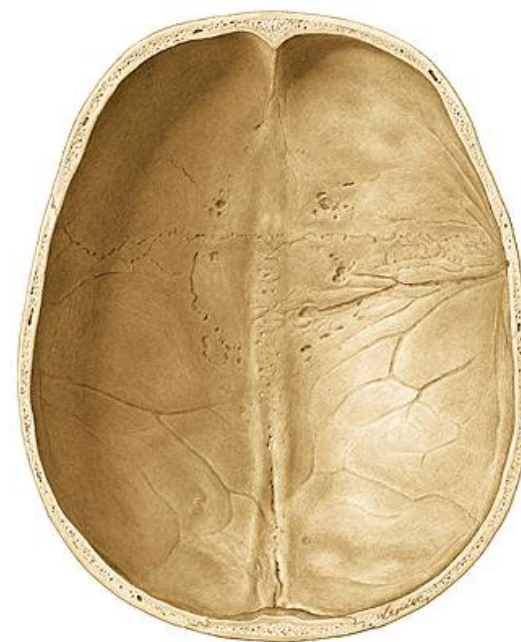
frons, vertex, occiput

sutura sagittalis, coronalis, lambdoidea,
squamosa

tubera frontalia, parietalia

linea temporalis superior et inferior,

foramina parietalia



impressiones gyrorum

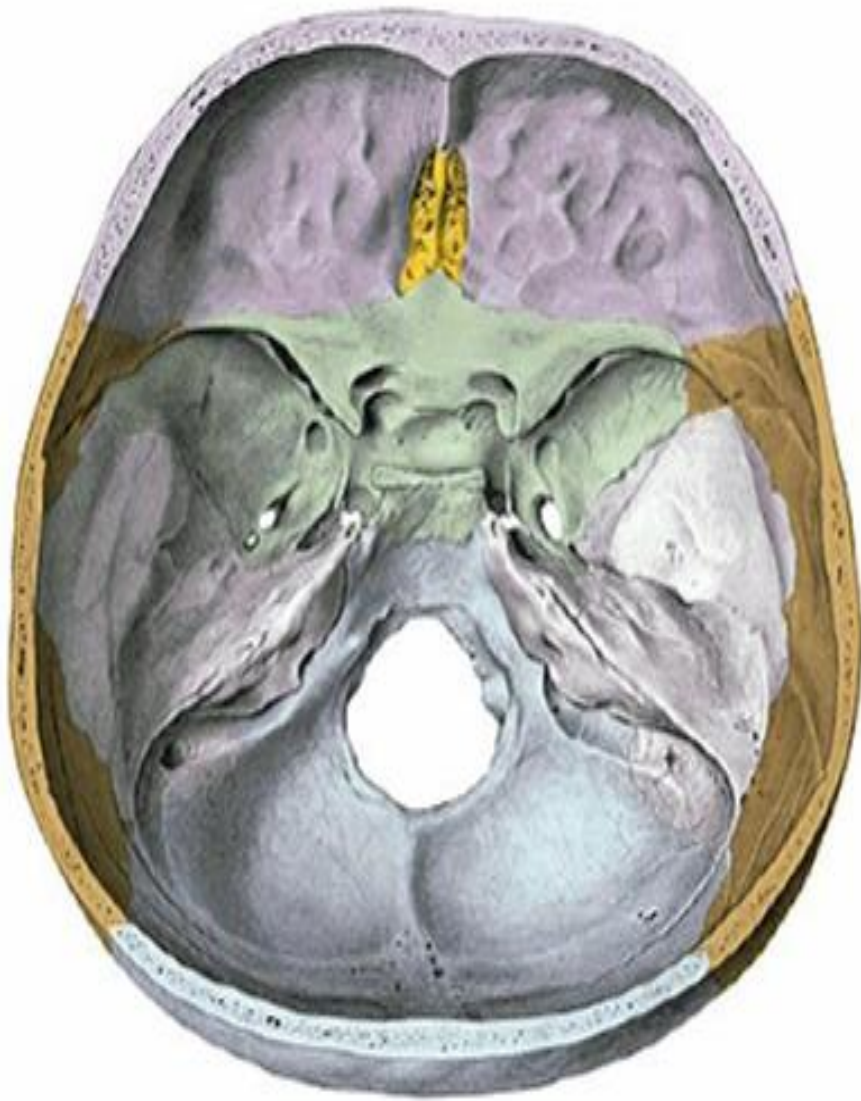
juga cerebra

foveolae granulares

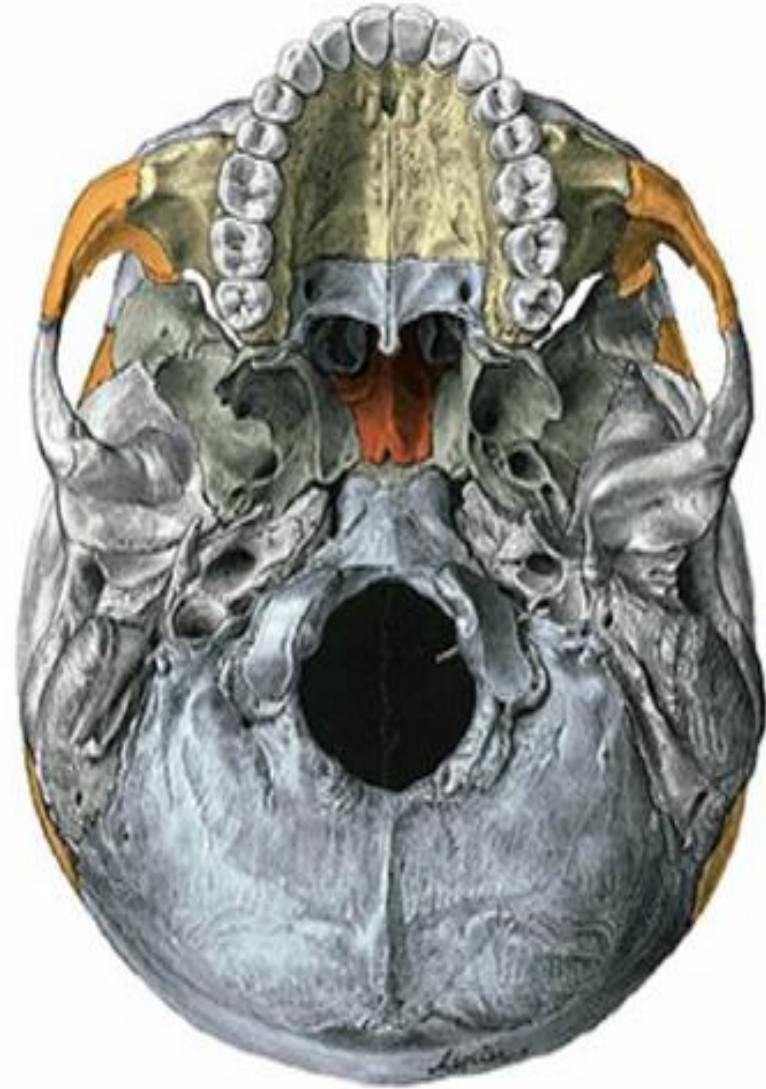
sulci arteriosi

sulcus sinus sagittalis superior

sulcus sinus transversi



Basis cranii interna



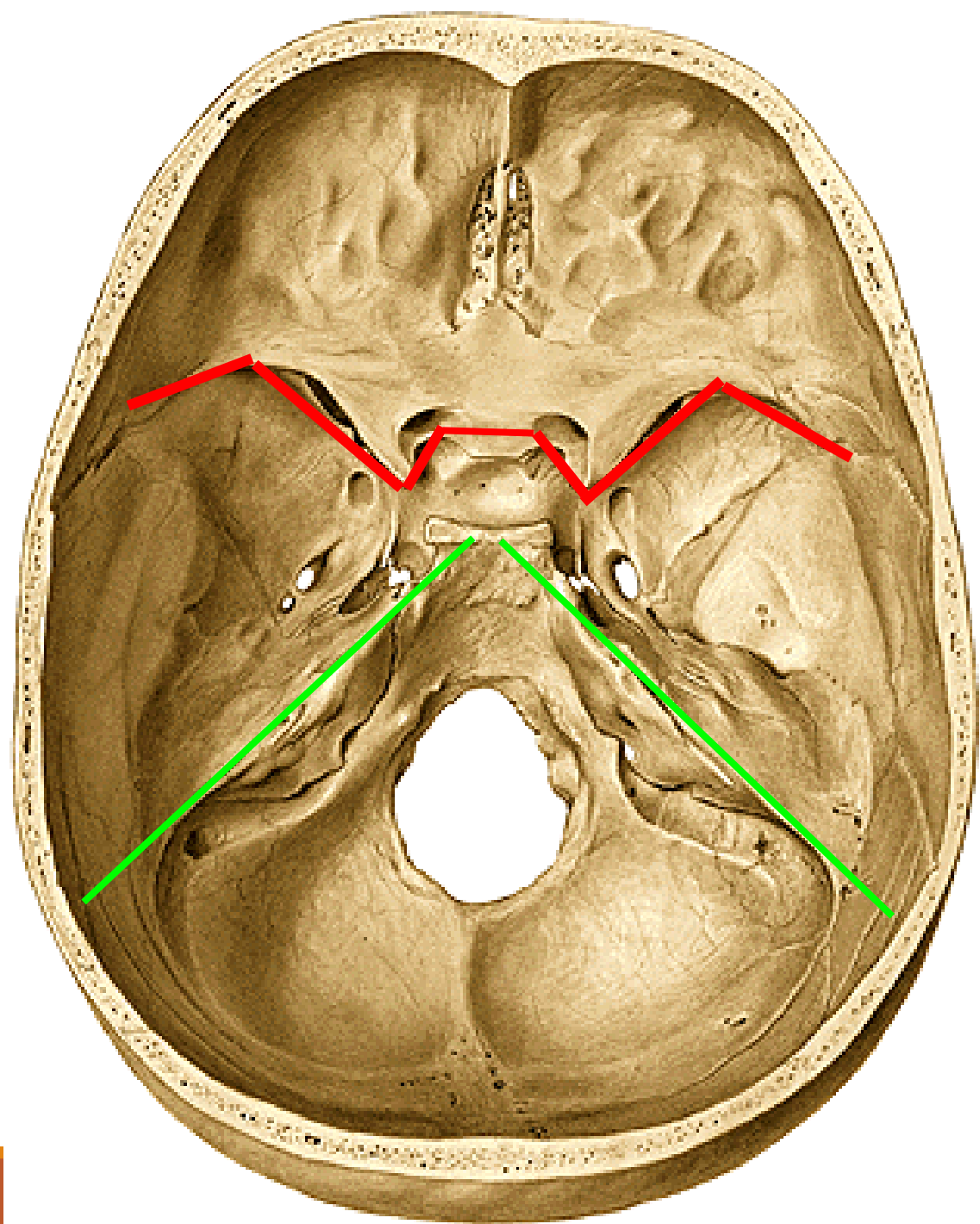
Basis cranii externa

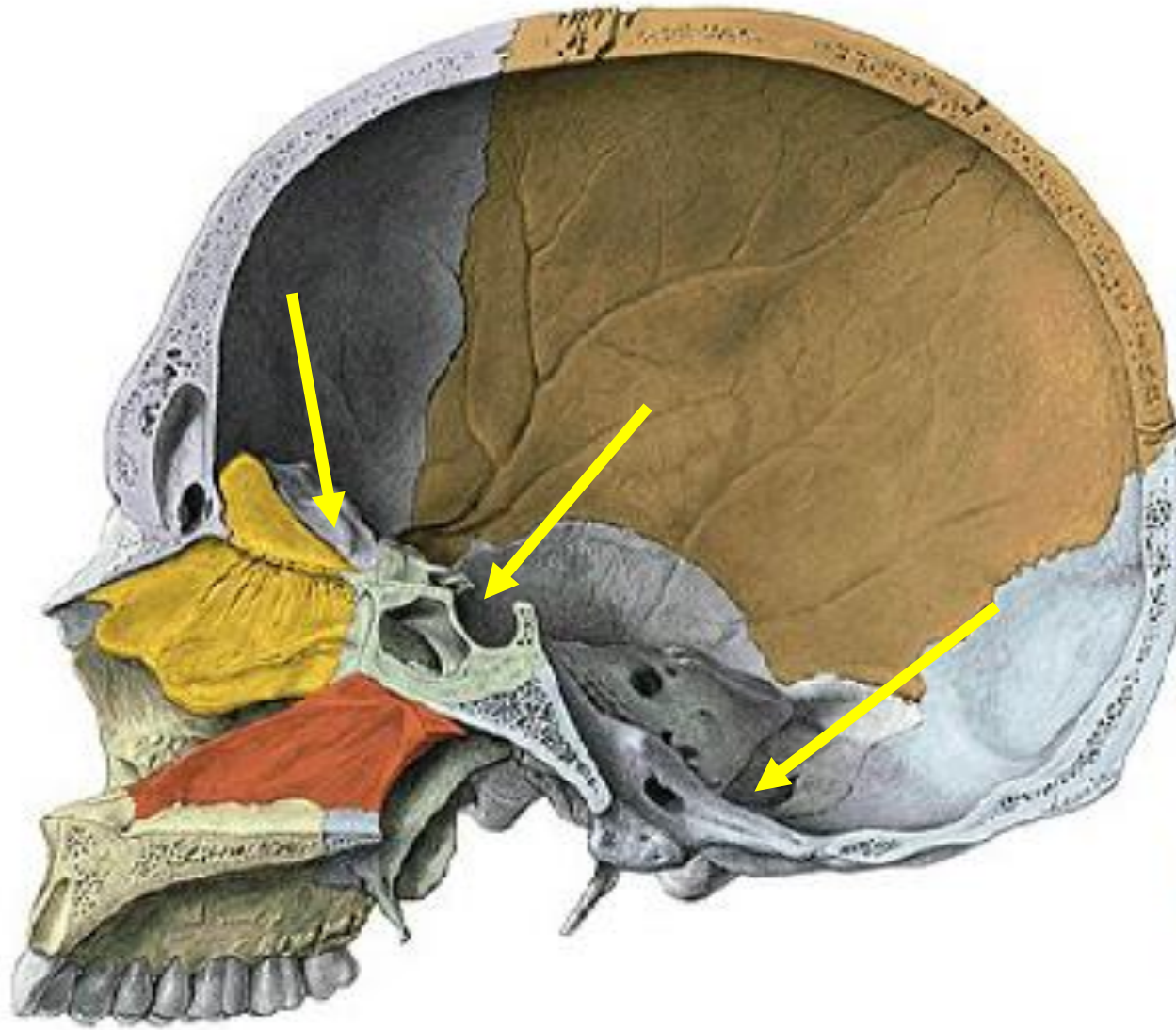
BASIS CRANII INTERNA

Fossa cranii anterior

Fossa cranii media

Fossa cranii posterior



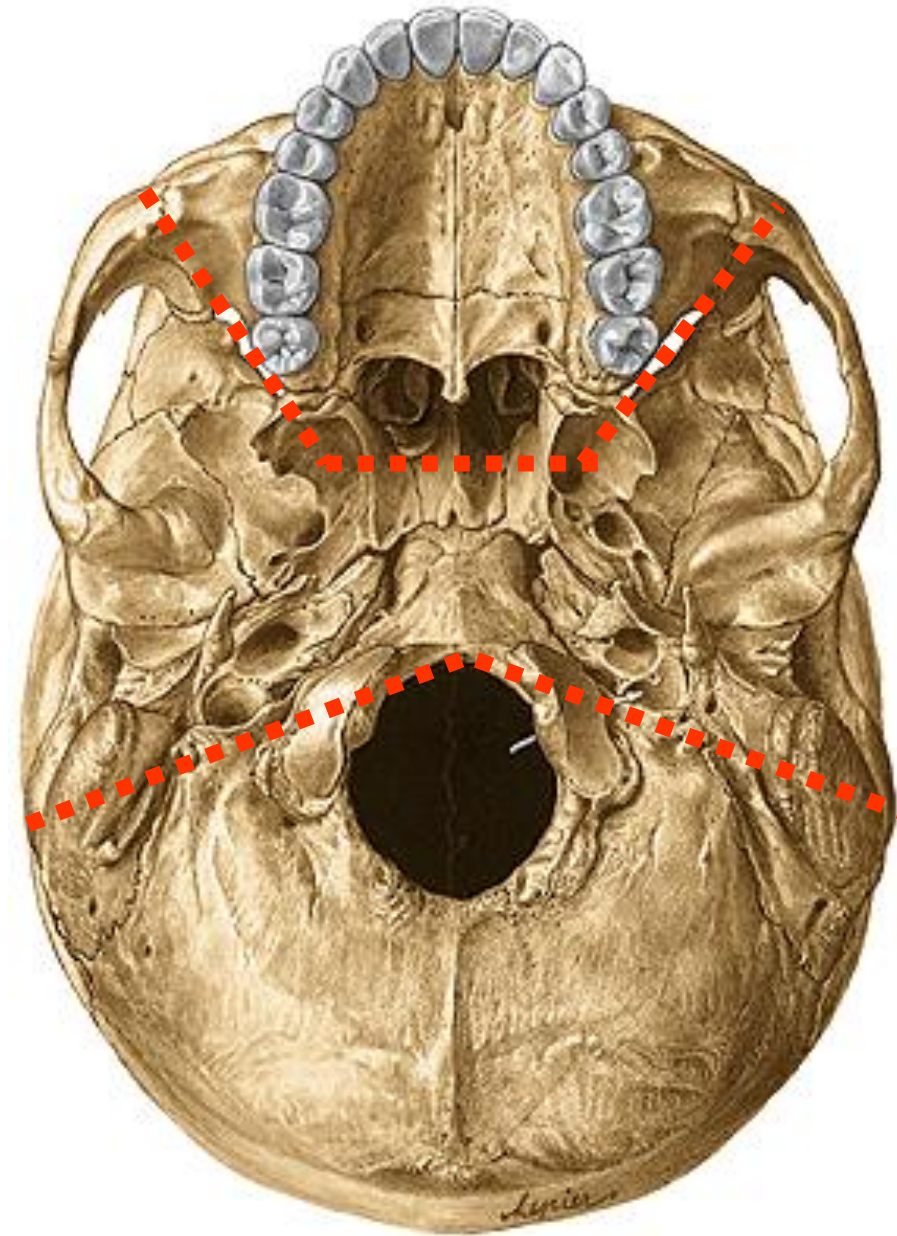


BASIS CRANII EXTERNA

Fossa cranii anterior

Fossa cranii media

Fossa cranii posterior



FOSSAE CRANII

FOSSA TEMPORALIS

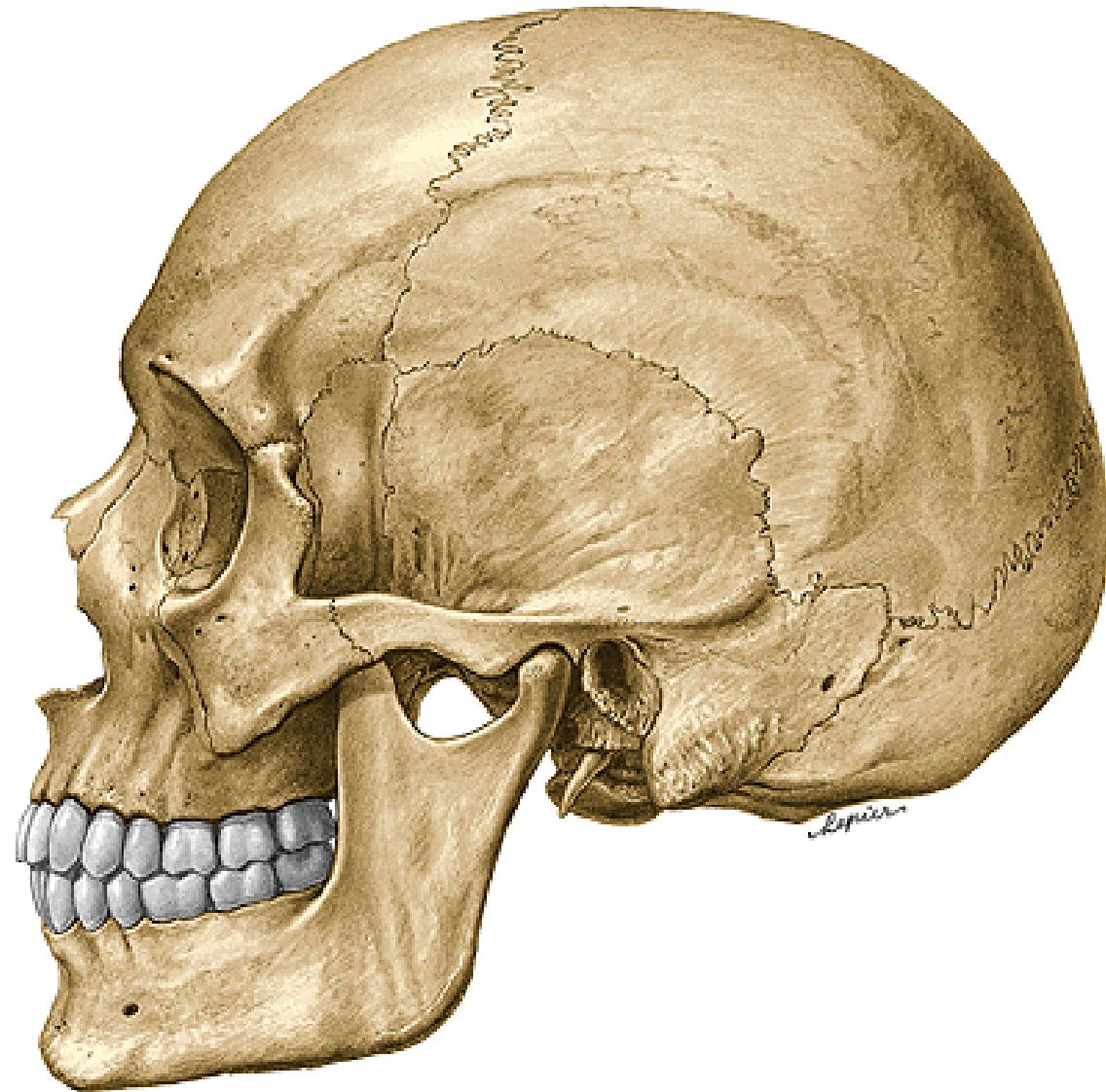
FOSSA INFRATEMPORALIS

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

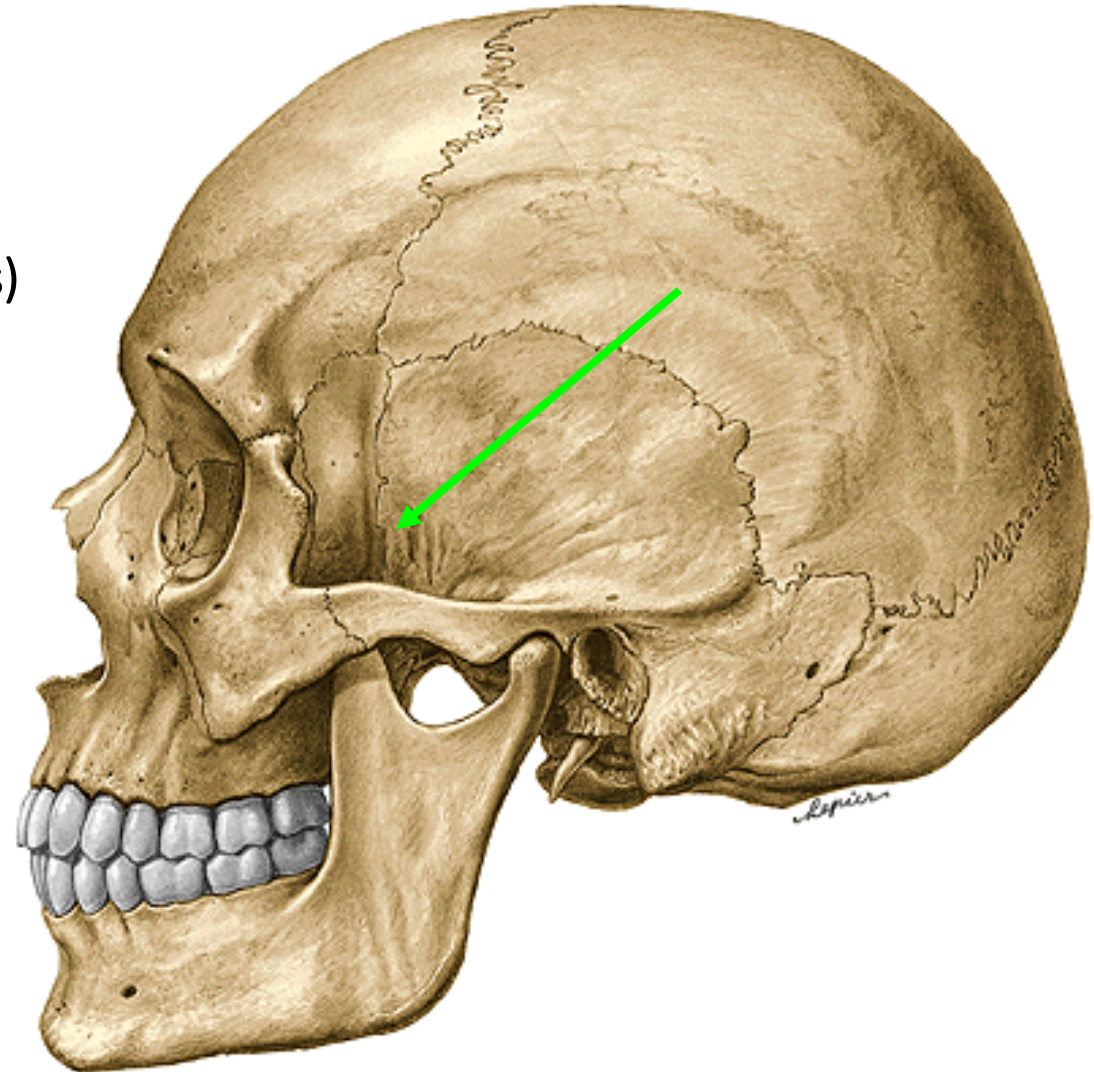
arcus zygomaticus
crista infratemporalis

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

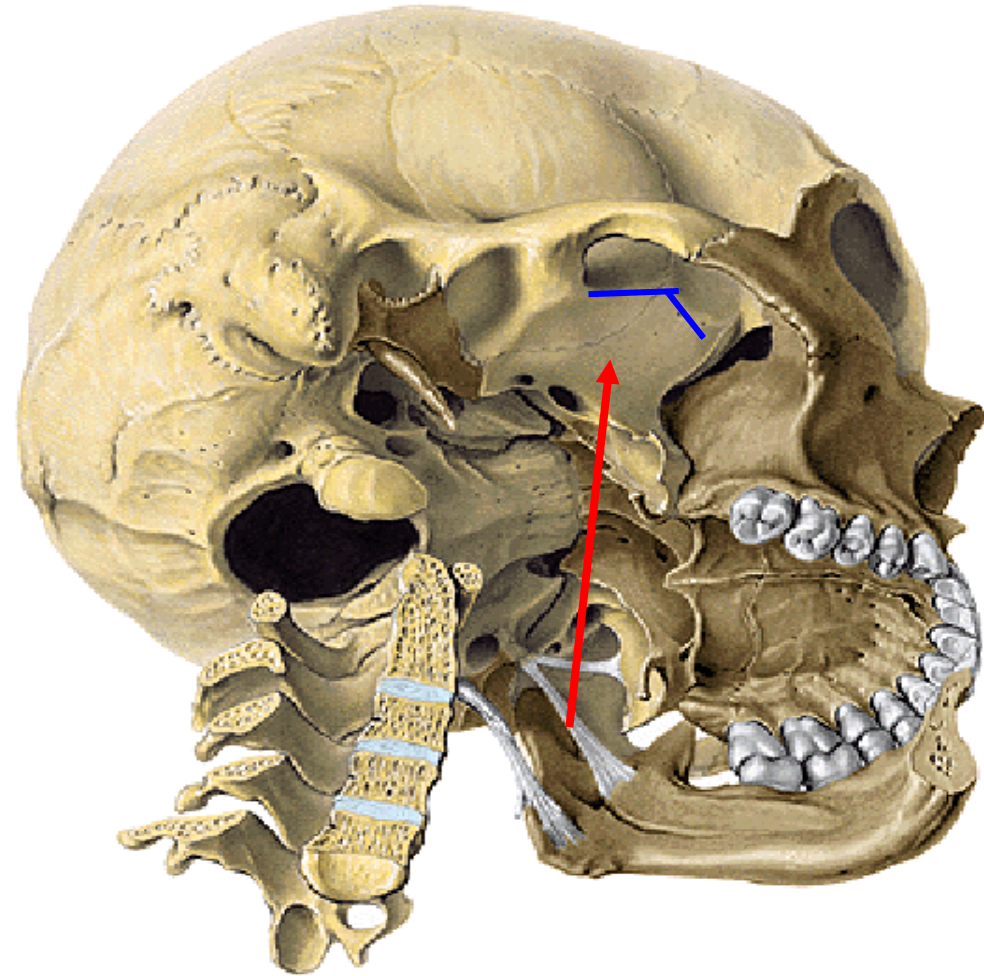
foramen ovale

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

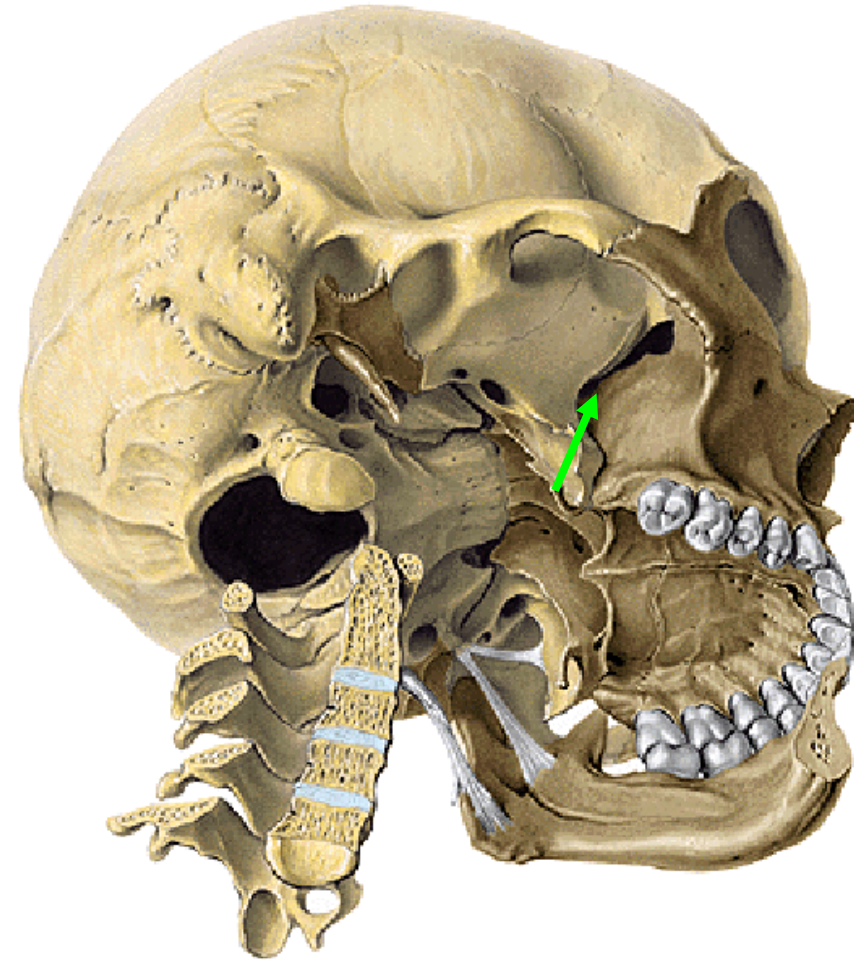
tuber maxillae

Dorsal wall

Processus pterygoideus ossis sphenoidalis

Content

Vessels and nerves (ganglion pterygopalatinum)



Fossa pterygopalatina – openings and communications



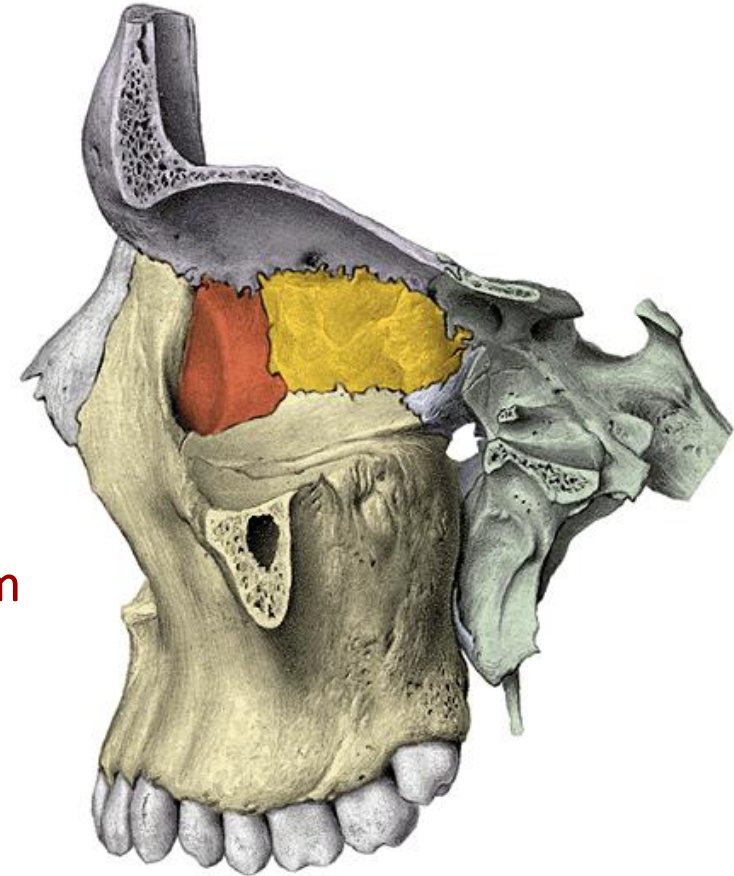
foramen rotundum
fossa cranii media

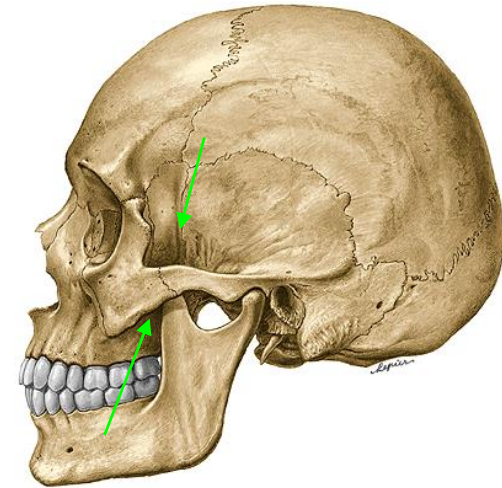
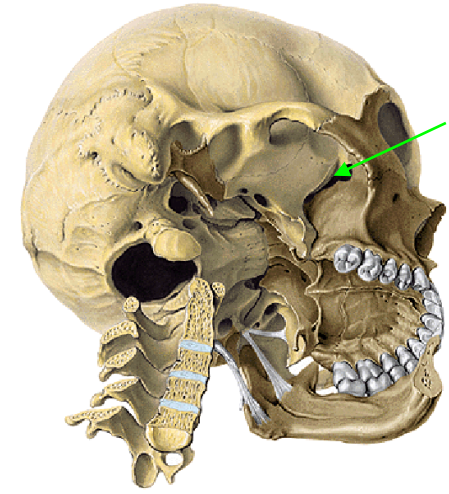
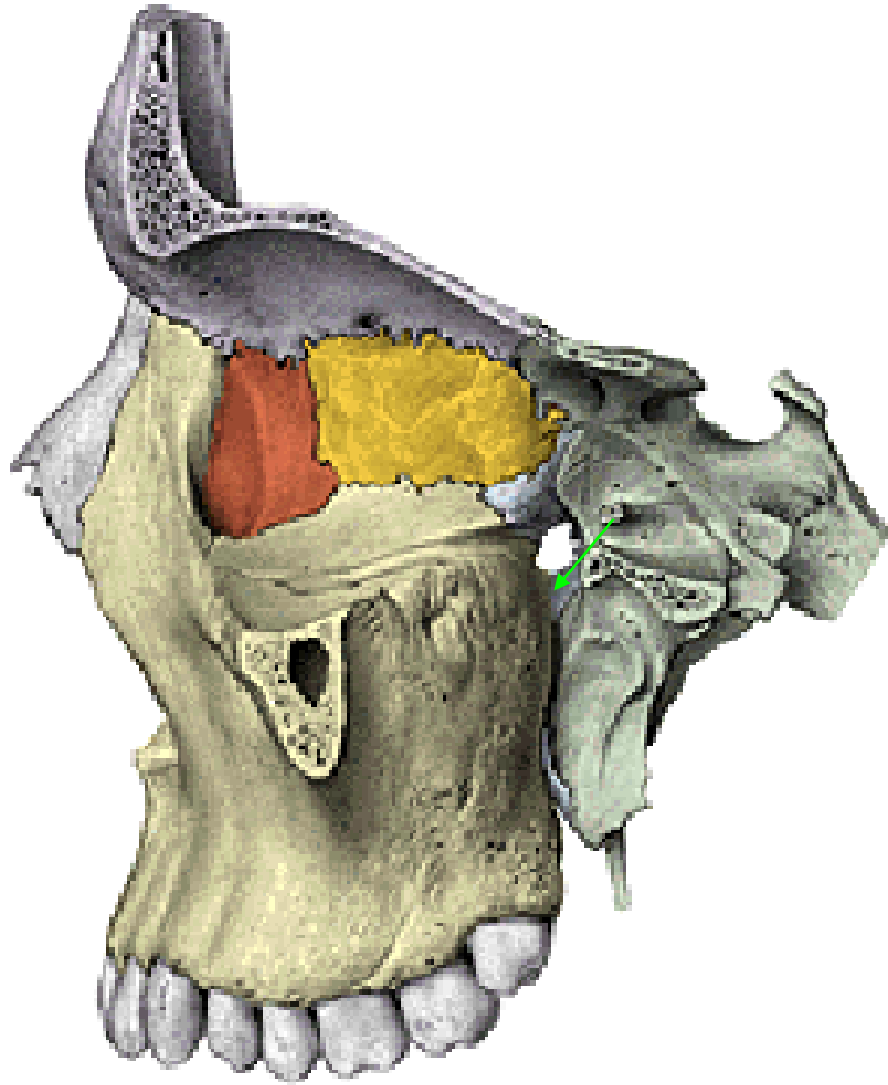
canalis palatinus major
cavum oris

fissura orbitalis inferior
orbita

foramen sphenopalatinum
cavum nasi osseum

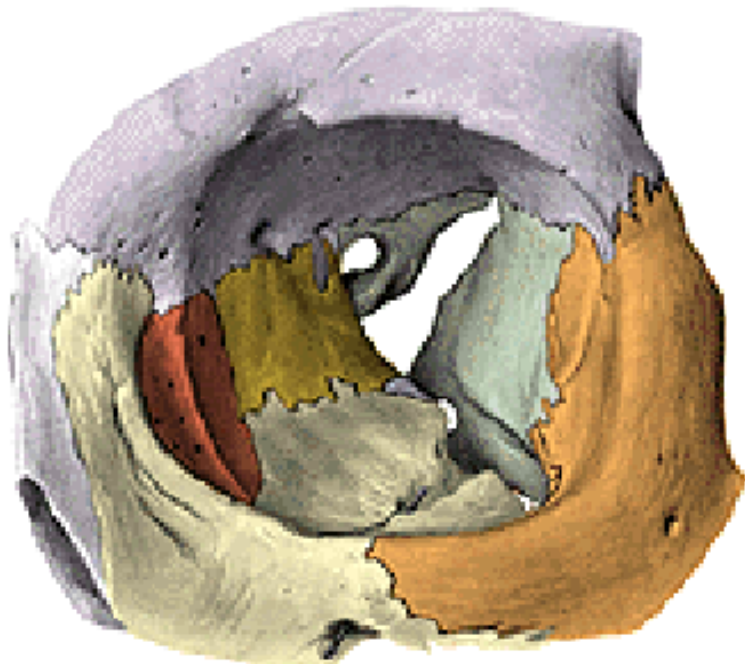
canalis pterygoideus
basis cranii externa





Fossa pterygopalatina

Orbita



Aditus orbitae (base)

margo supraorbitalis, infraorbitalis

Apex

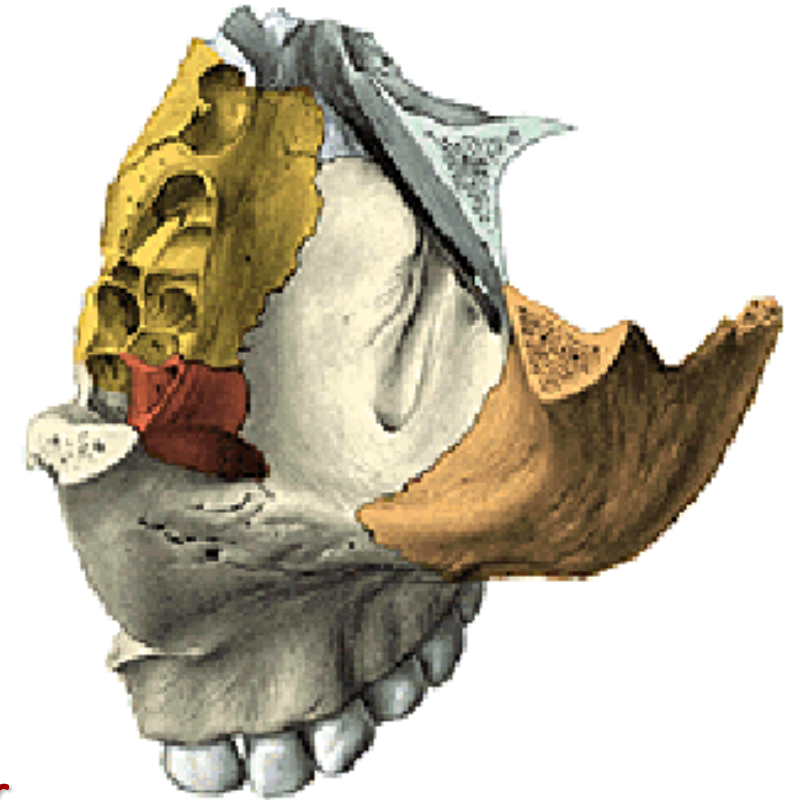
Canalis opticus

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

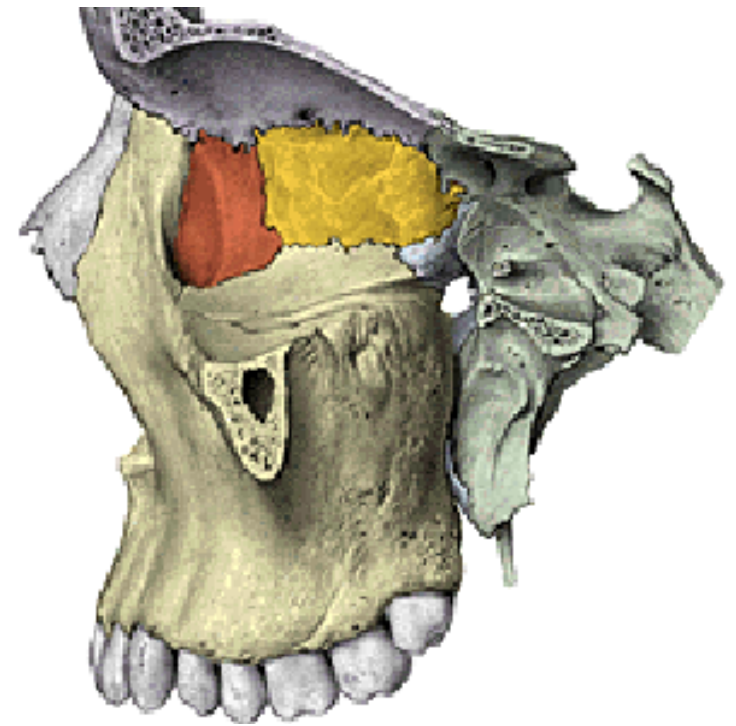
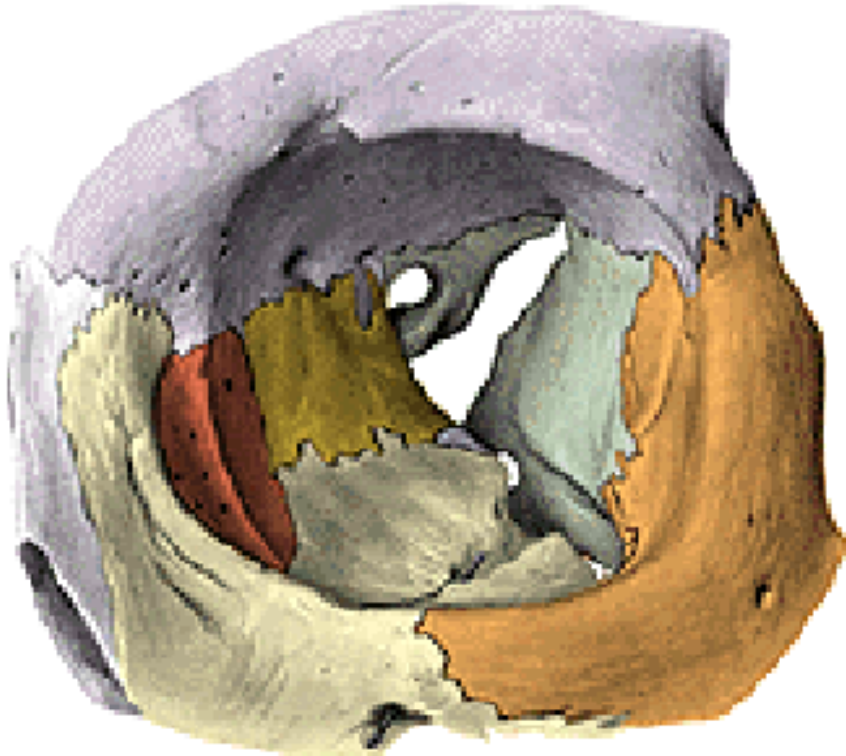
processus orbitalis ossis palatini

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

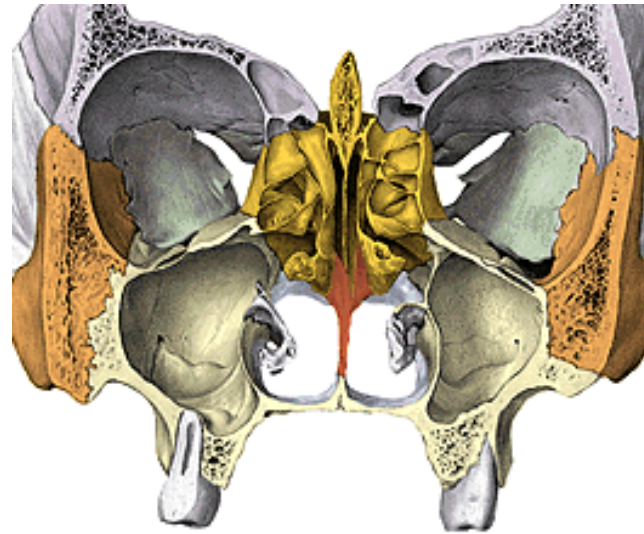
(fossa sacci lacrimalis)

ala minor ossis sphenoidalis

openings: foramen ethmoidale anterius
foramen ethmoidale posterius

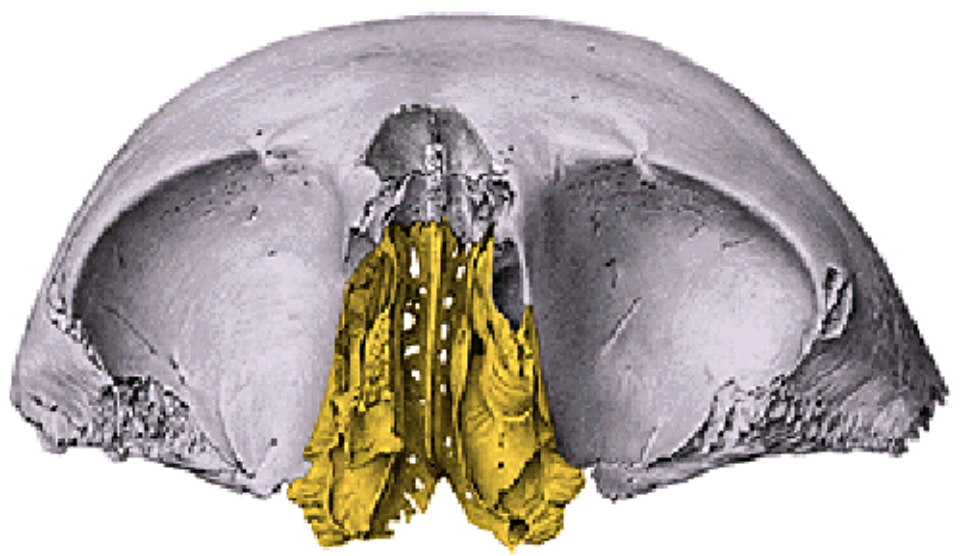
Cavitas nasi ossea

Apertura piriformis
Choanae

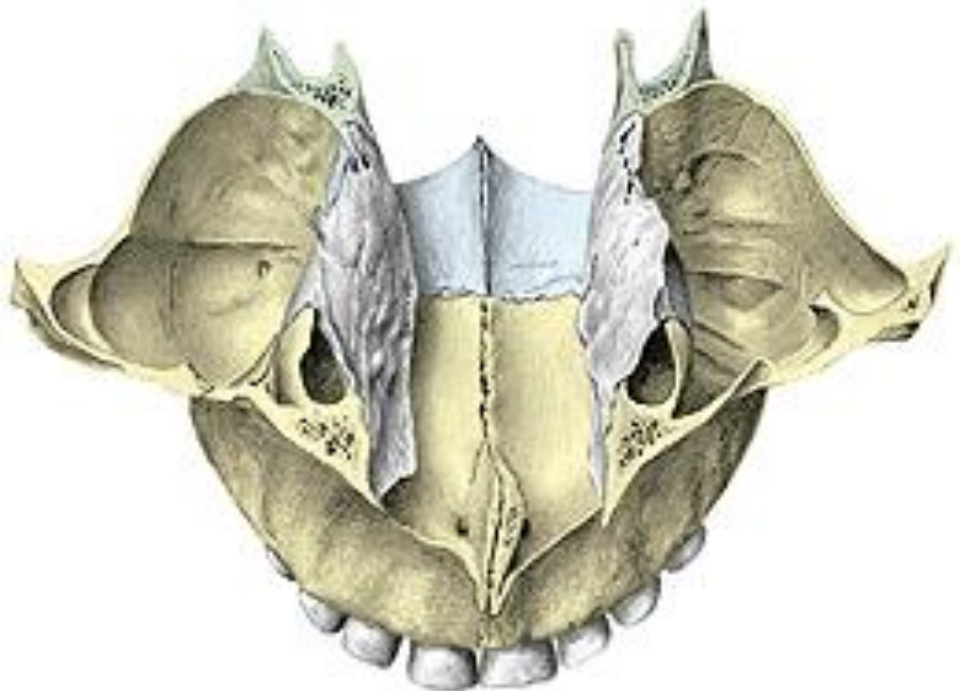


Roof
Floor (palatum durum)
Medial wall (septum nasi)
Lateral wall (3 layers)

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

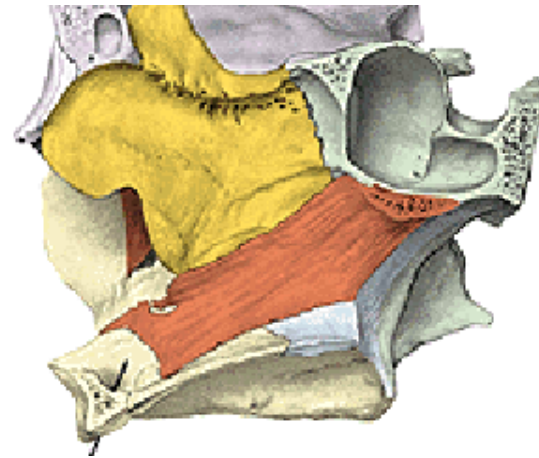
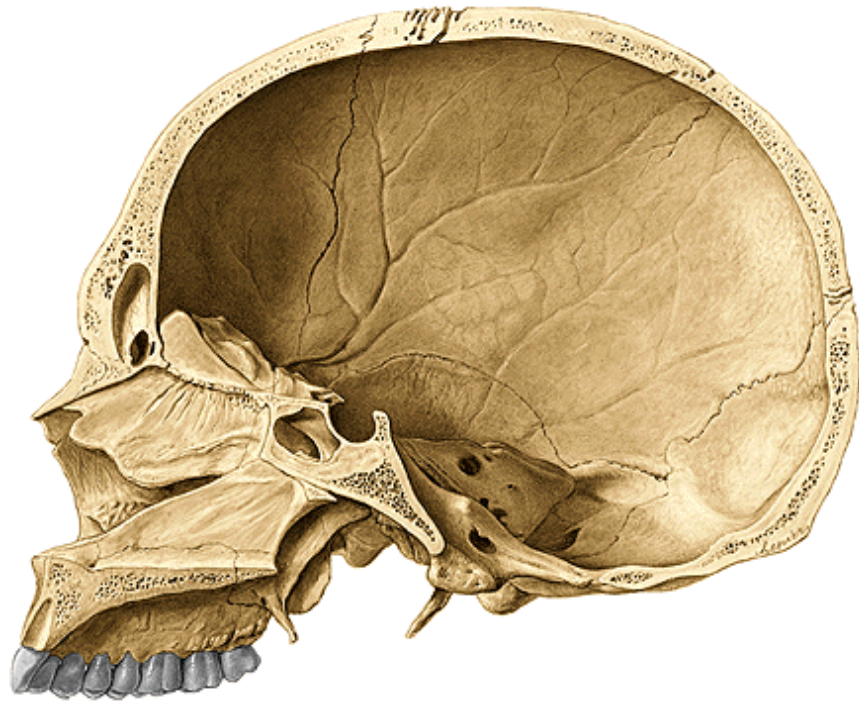


Floor: (palatum durum)
processus palatini maxillae
lamina horizontalis ossis palatini
(os incisivum)



Medial wall (septum nasi)

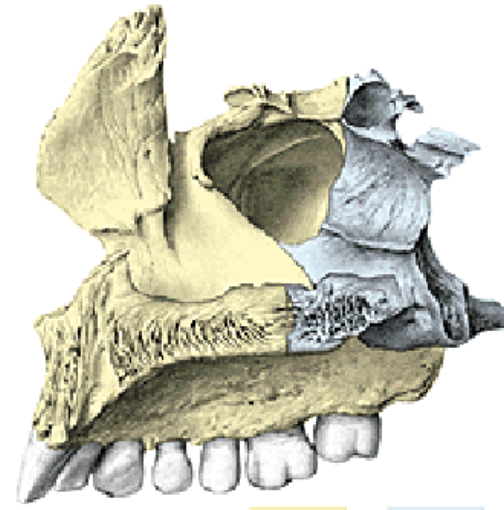
lamina perpendicularis ossis ethmoidalis
vomer



Lateral wall

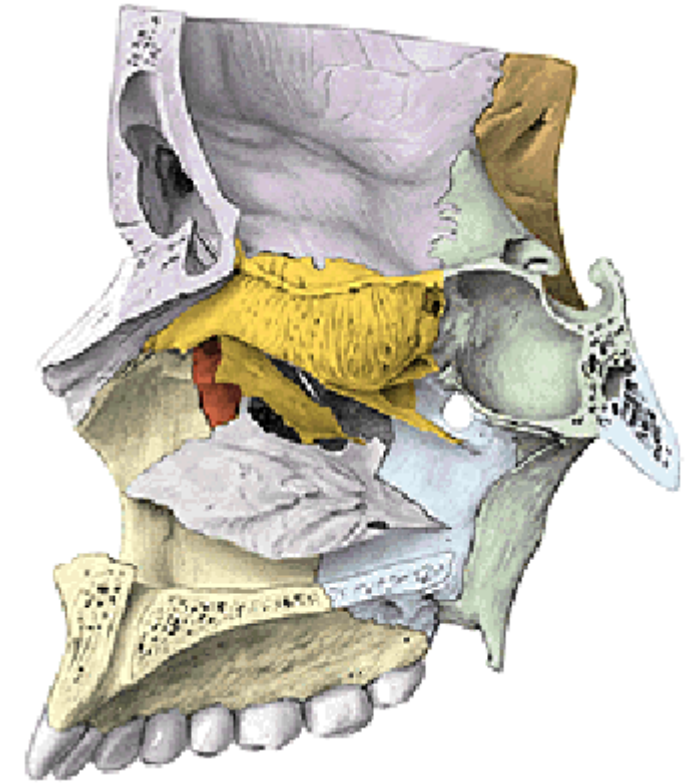
Lateral layer

processus frontalis maxillae
corpus maxillae
lamina medialis processus pterygoidei



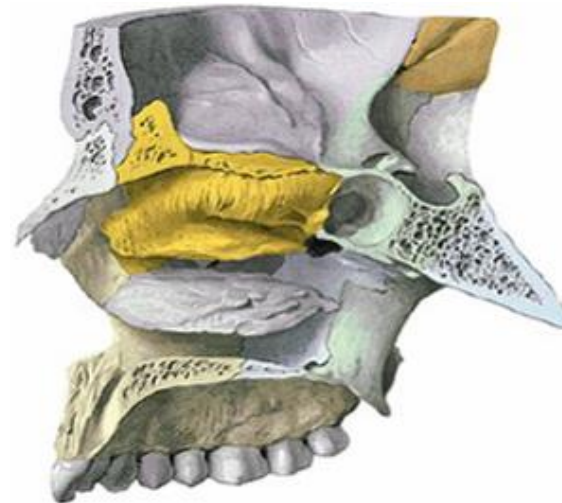
Middle layer

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:

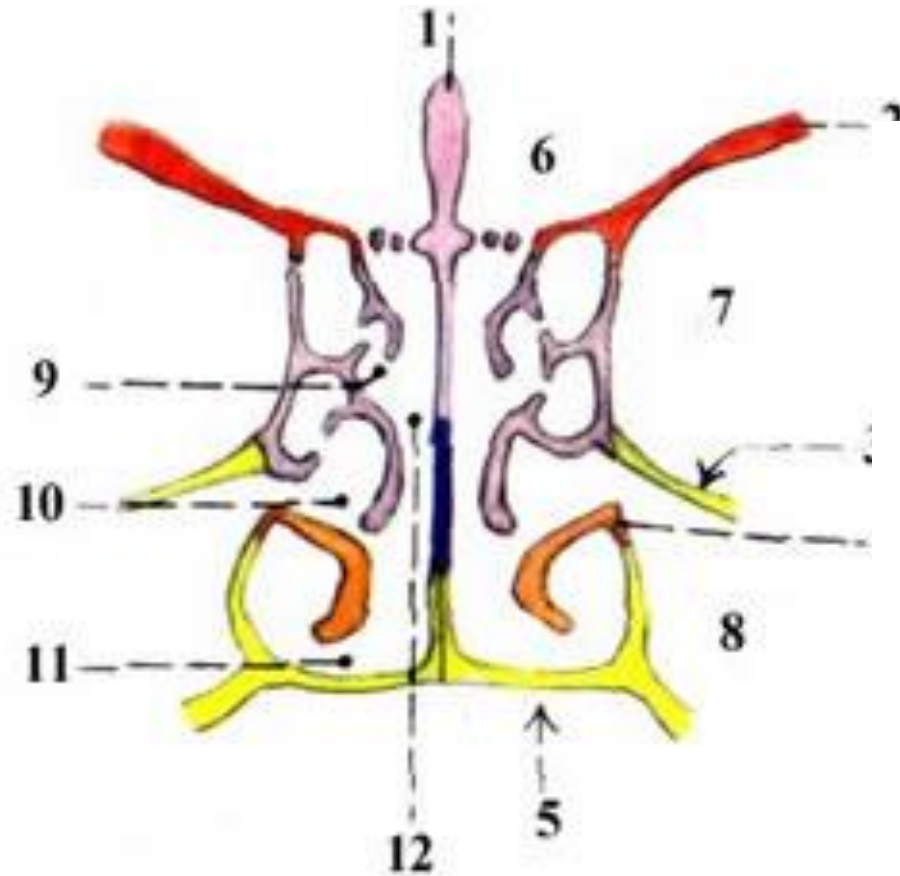
-Above concha nasalis media
cellulae ethmoidales posteriores
sinus sphenoidalis

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

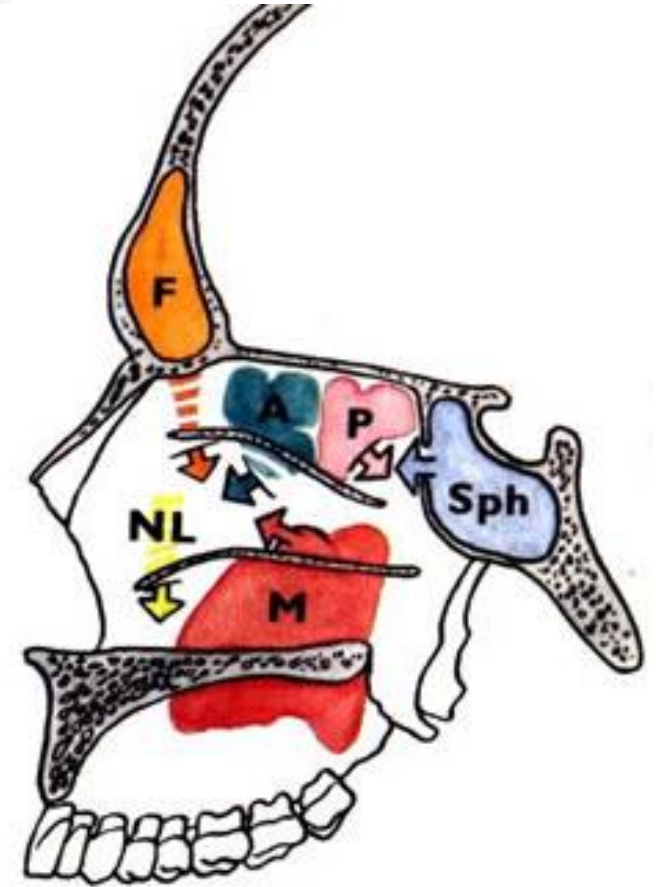


Meatus nasi communis:

-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

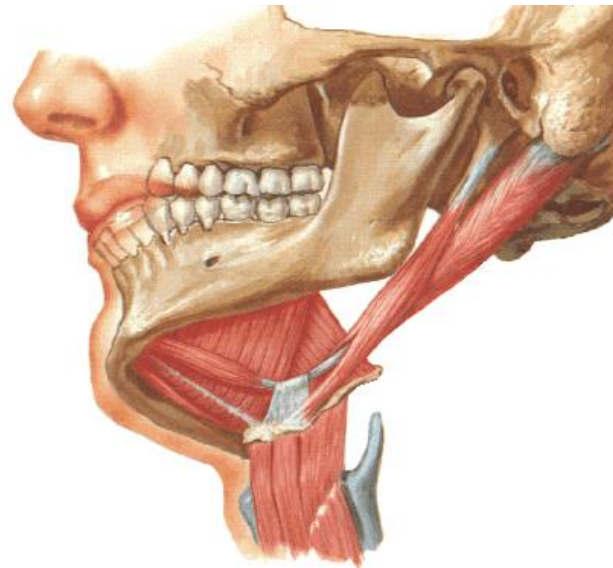
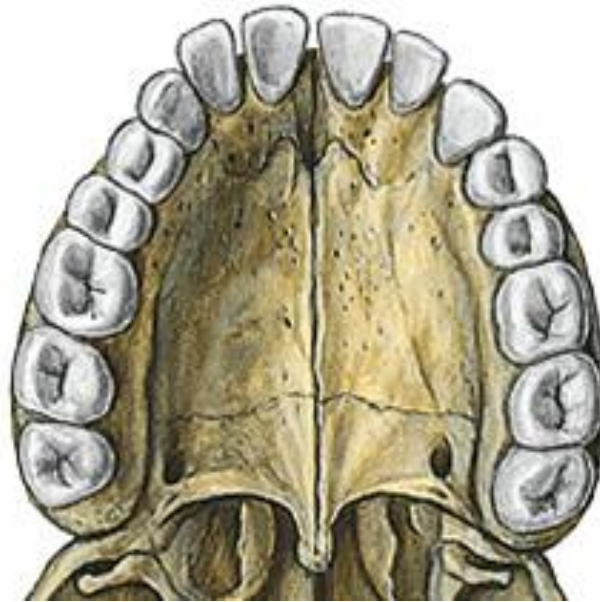
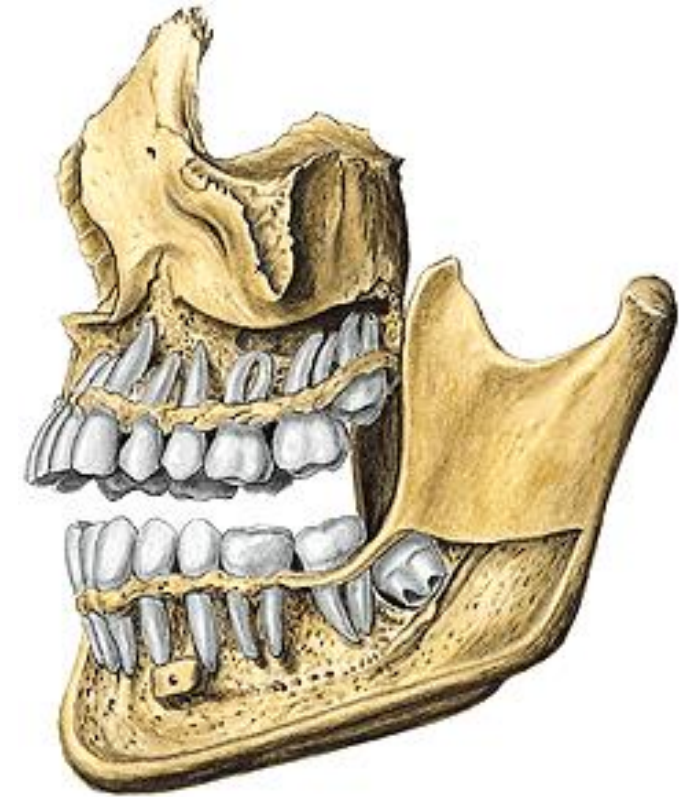
lamina horizontalis ossis palatini

Lateral and anterior walls

processus alveolares maxillae and
mandibulae

Floor

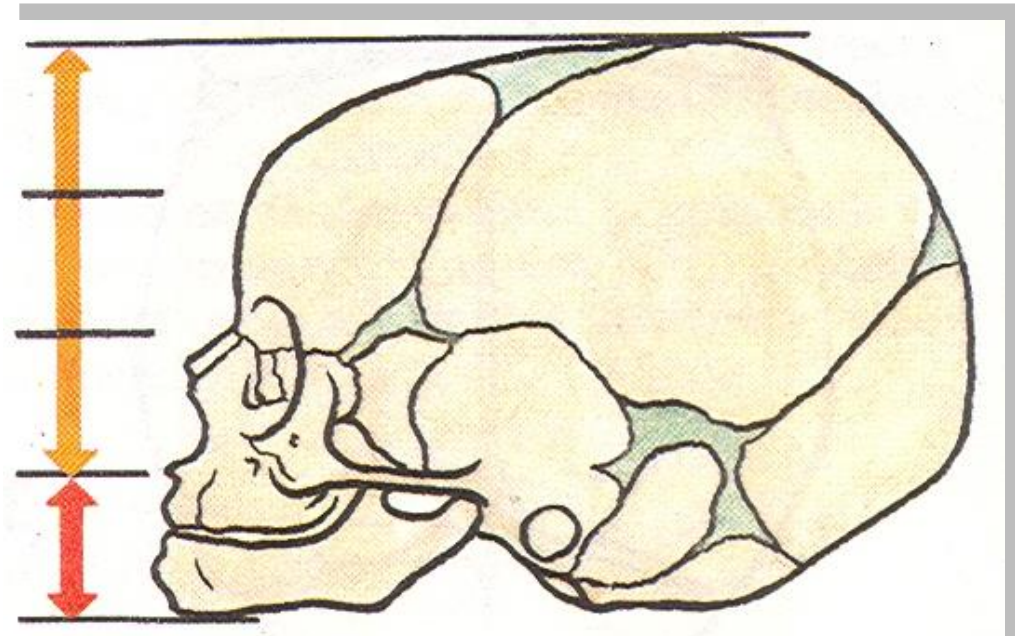
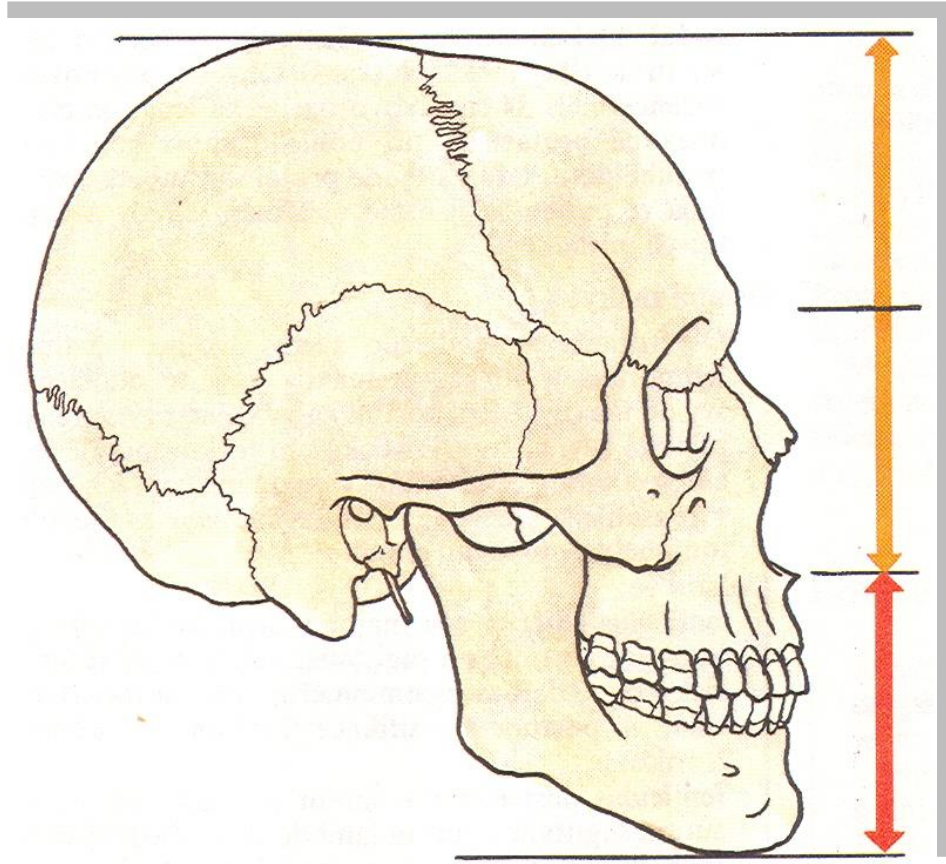
Muscles!!!!!!!



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- anterior (disappears 1-2 year), minor - posterior (disappears around 3 month), sphenoidalis, mastoideus)
- low splanchnocranium
- without processus alveolares (maxillae et mandibulae)
- without paranasal sinuses
- sutura frontalis (sutura metopica)
- anulus tympanicus
- symphysis menti
- mandibular angle 150 - 170°





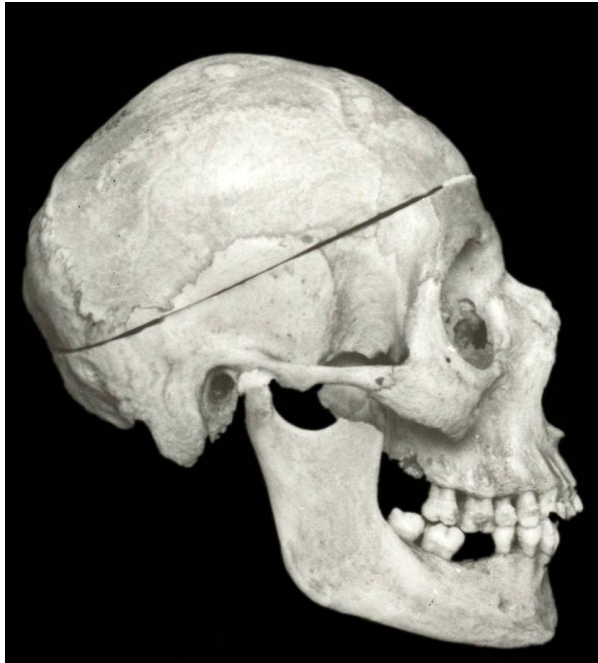
Skull capacity

Males 1350 cm³

Females 1250 cm³

Mikrocephaly (below 1000 cm³)

Makrocephaly (over 1800 cm³)



Mikrocephaly (355 ccm)



**Anencephaly
(frog kids)**

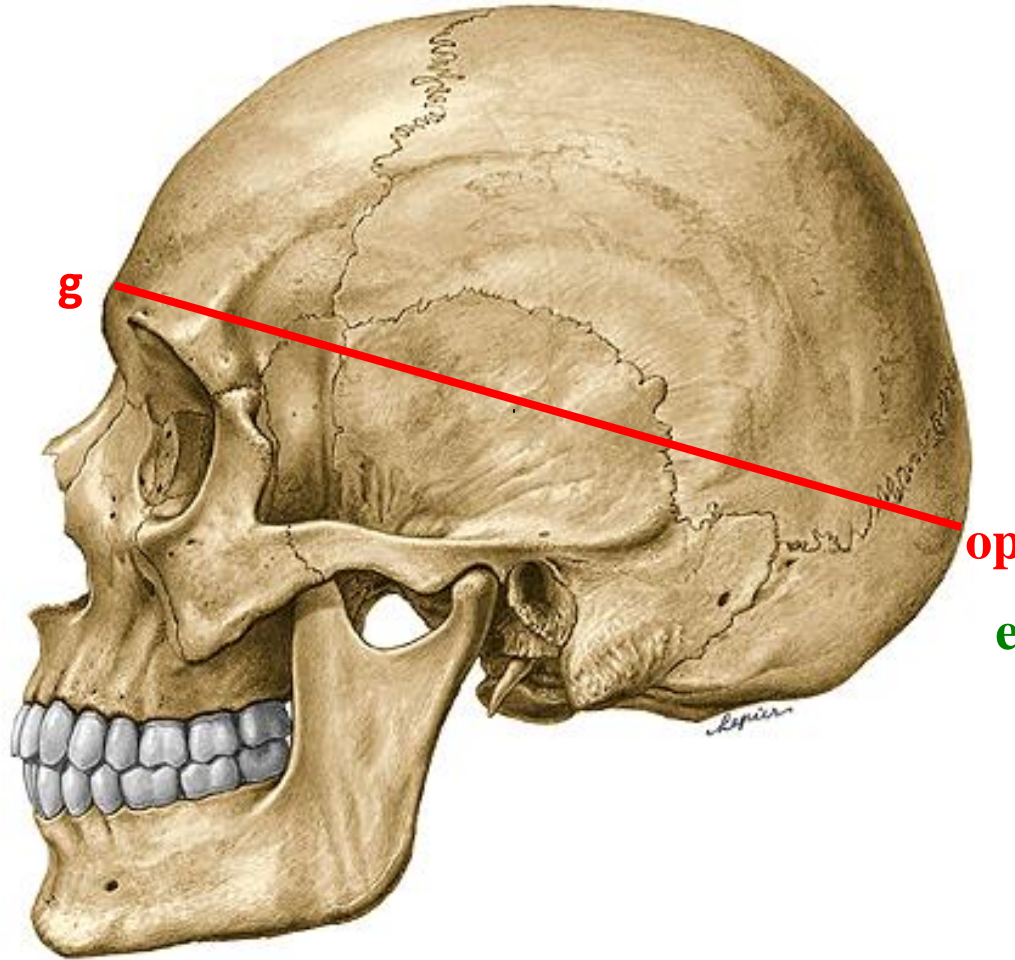


Makrocephaly (6840 ccm)

Craniometry

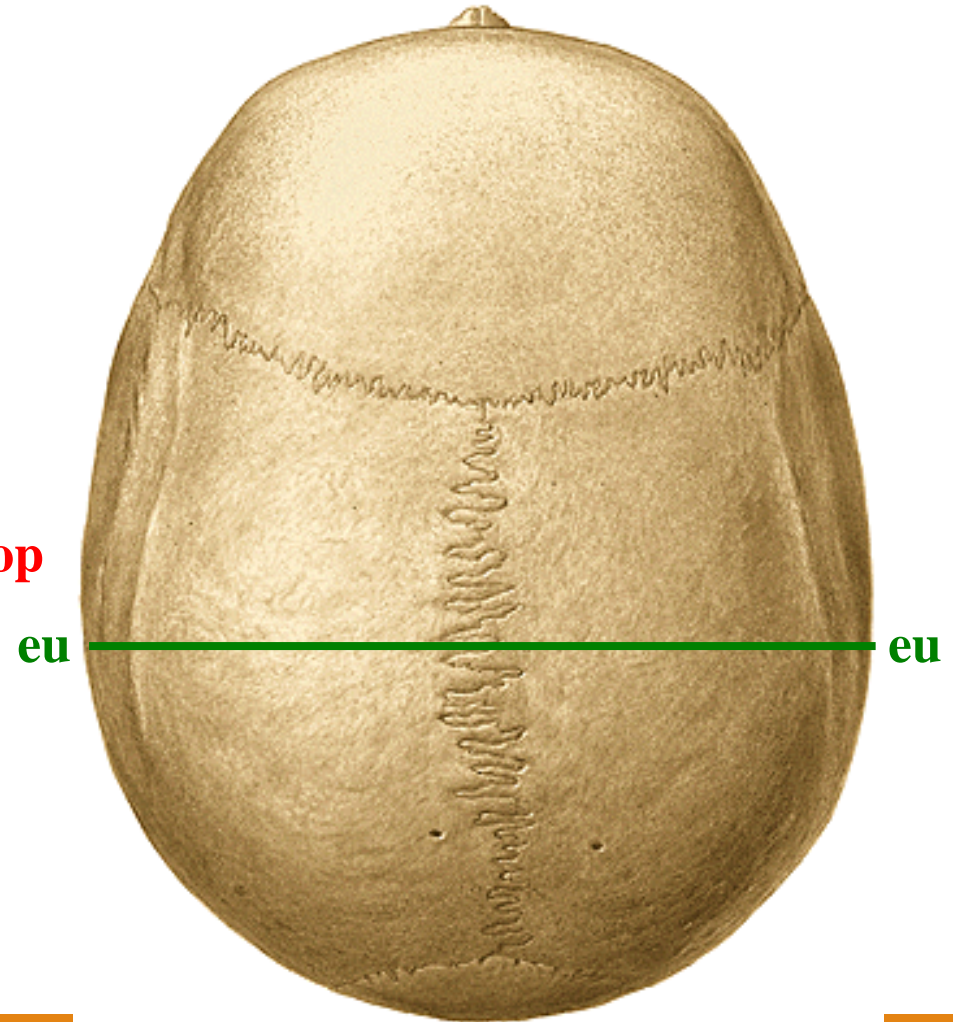
Length of the skull

glabella (g) – opisthocranium (op)



Width of the skull

euryon (eu) – euryon (eu)

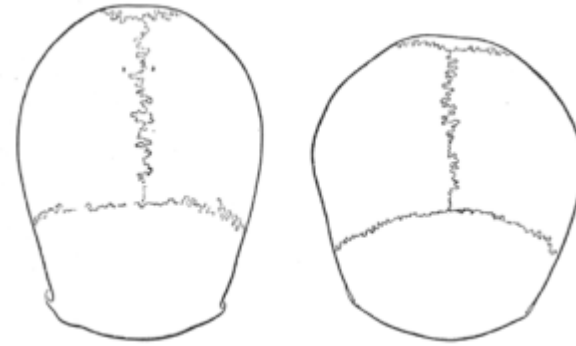


Cranial / cephalic / width-length - index

$$\frac{\text{Width of the skull (eu-eu)} \times 100}{\text{Length of the skull (g-op)}}$$

Categories of the cranial index

Brachycranial (short heads)	80 – x
Mesocranial (middle heads)	75 – 79,9
Dolichocranial (long heads)	x – 74.9



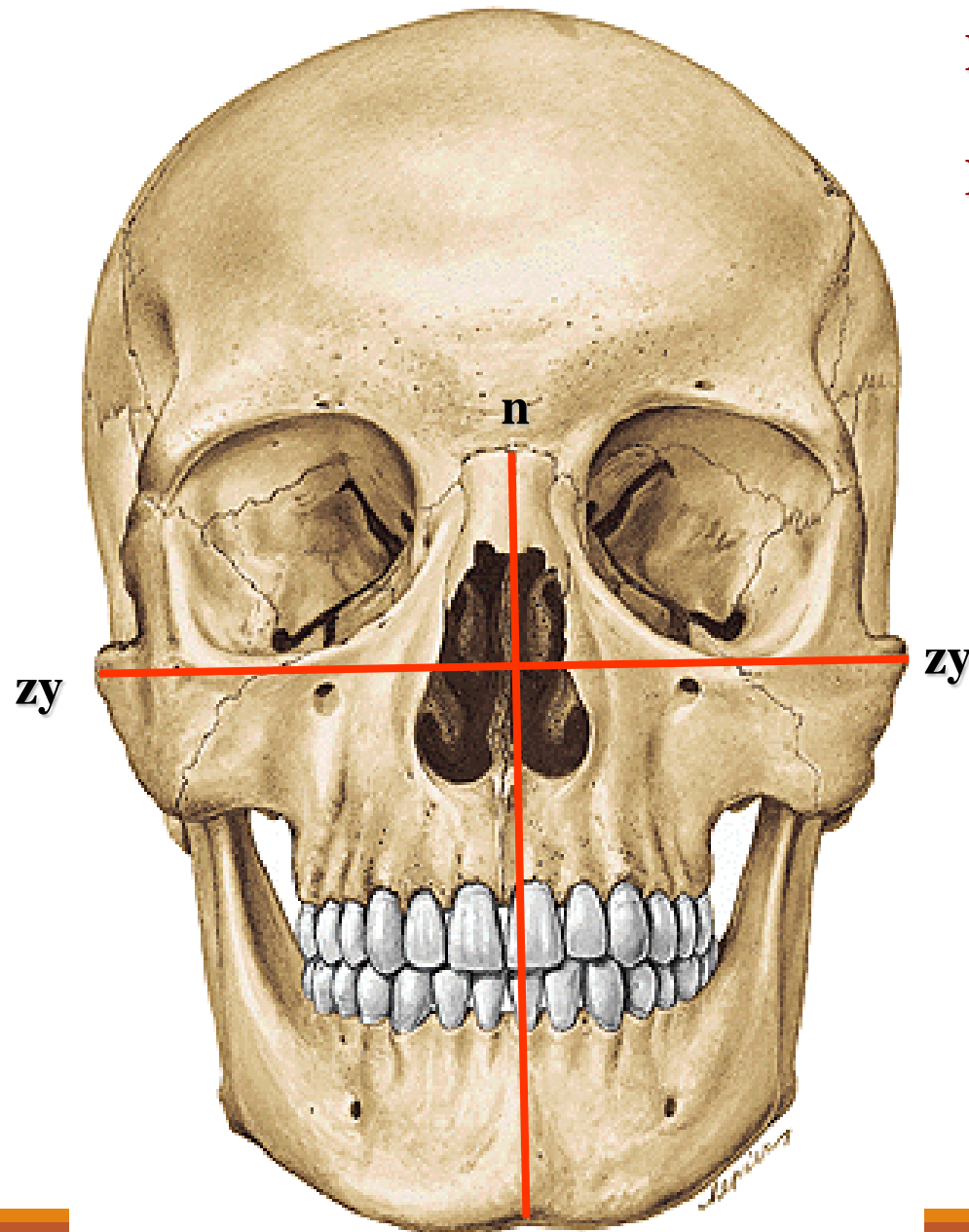
craniometer / cefalometer



Craniometry

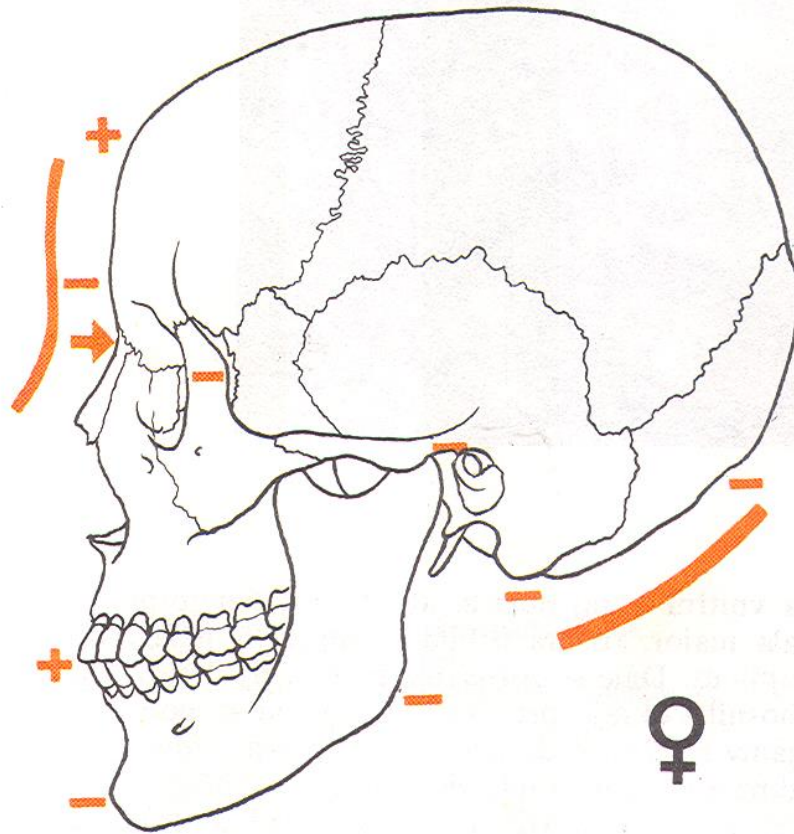
Height of the face: nasion – gnathion

Length of the face: zygion – zygion

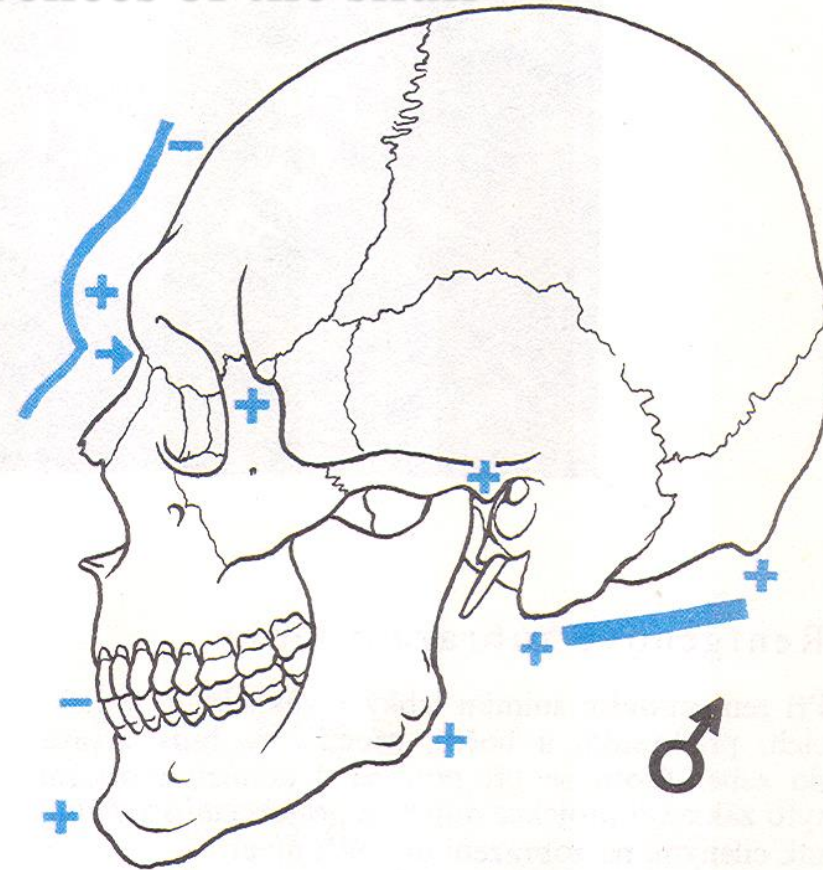


Gn

Gender differences of the skull

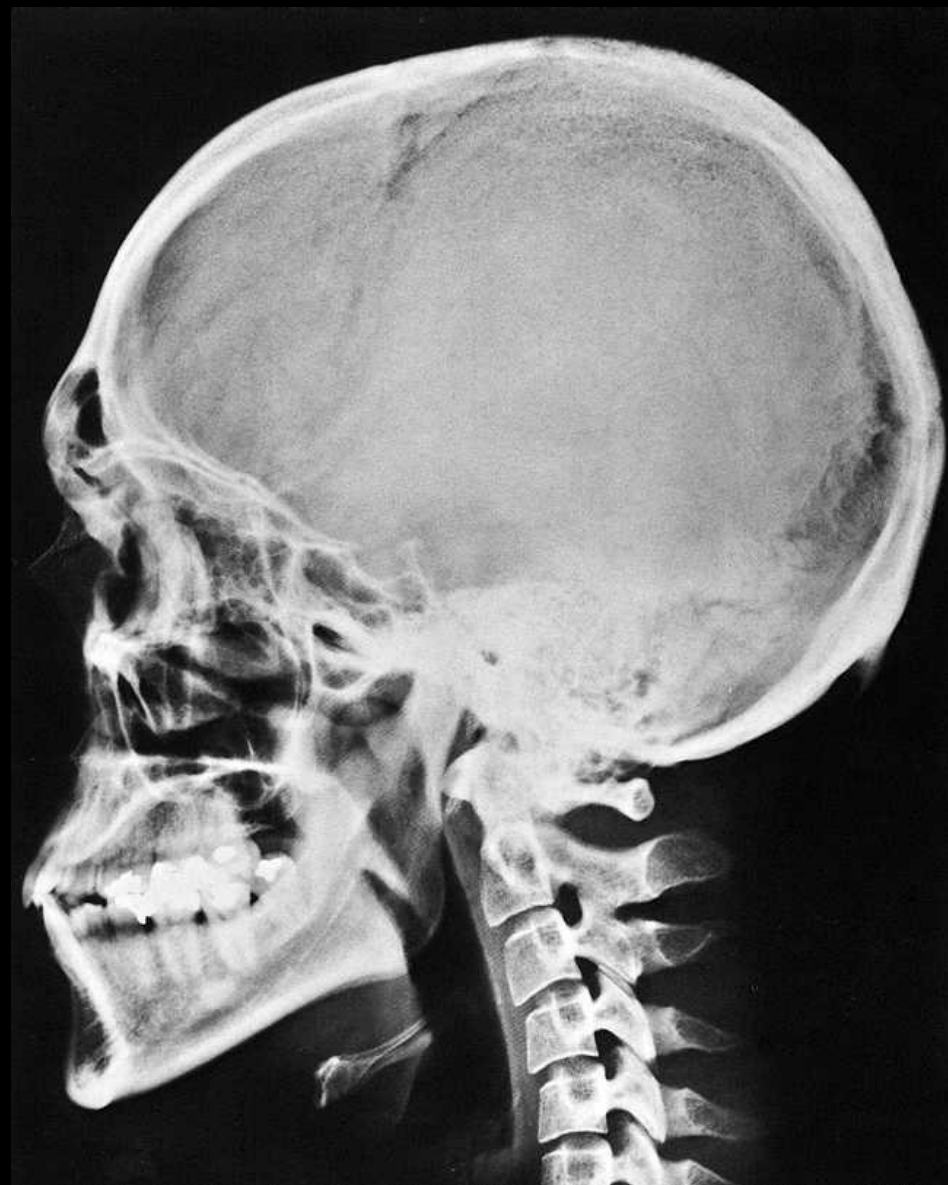
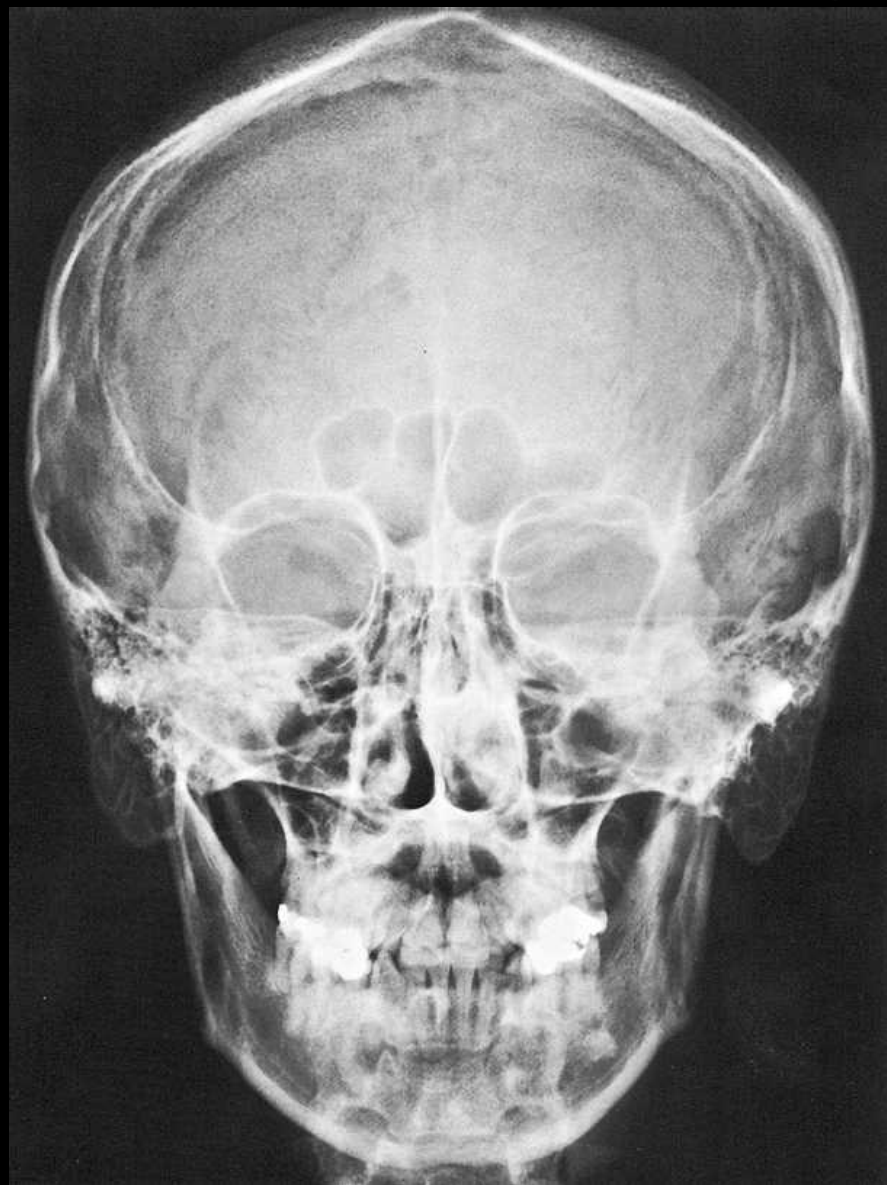


glabella, arcus superciliares
tubera frontalia and parietalia
processus mastoideus



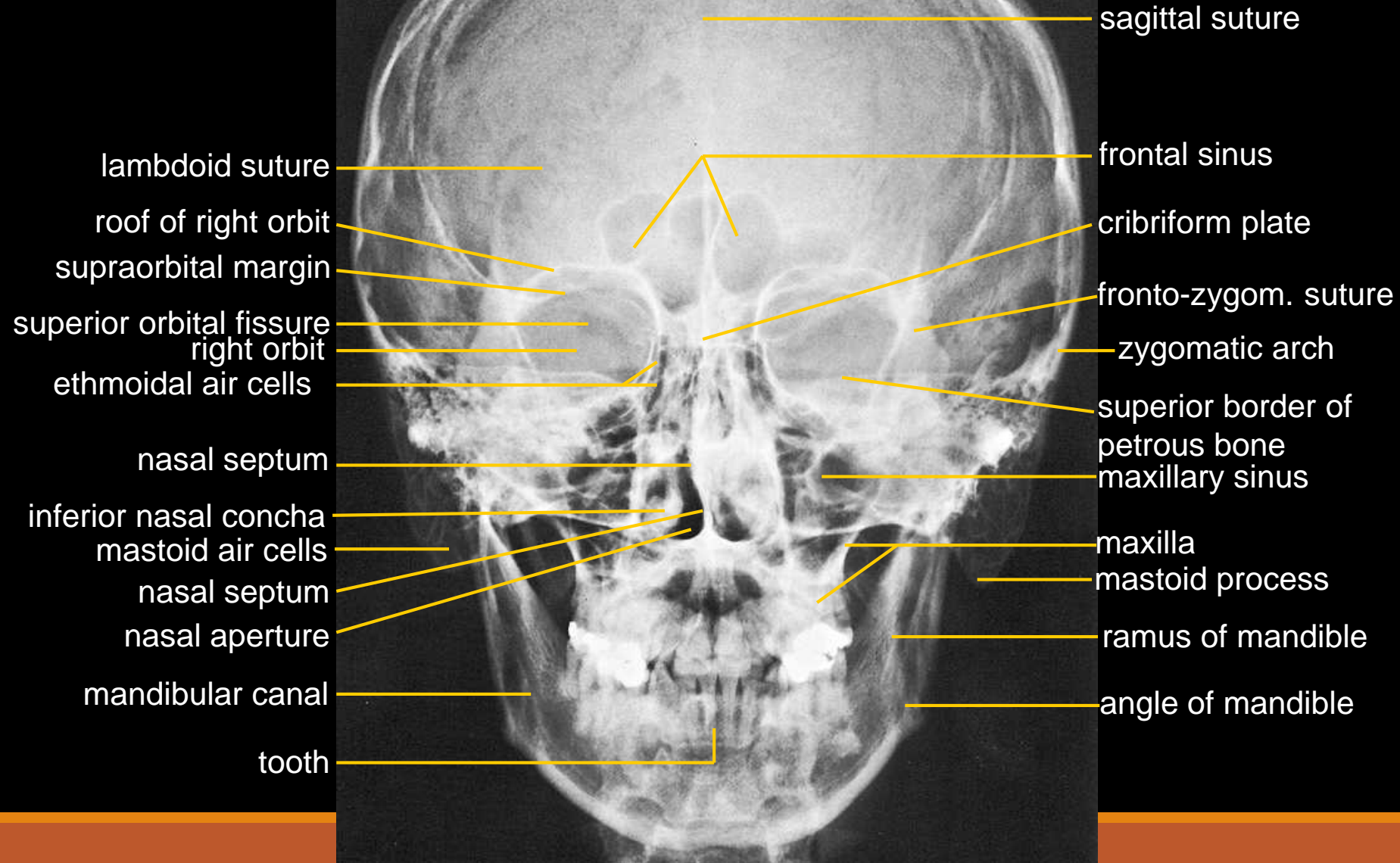
protuberantia occipitalis externa (regio nuchae)
protuberantia mentalis
tuberositas masseterica
processus alveolares

X-ray of the head



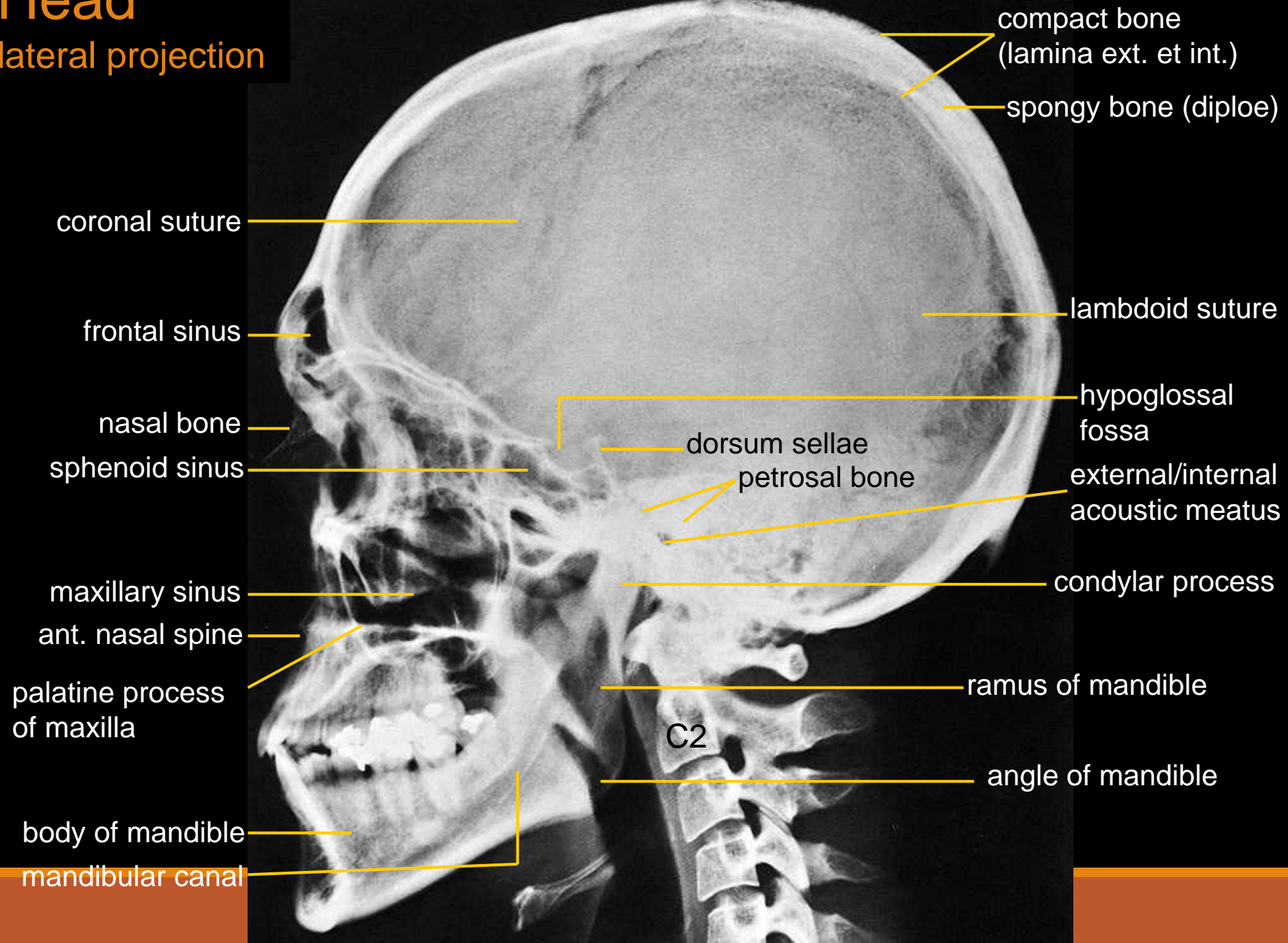
Head

axial projection



Head

lateral projection



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.