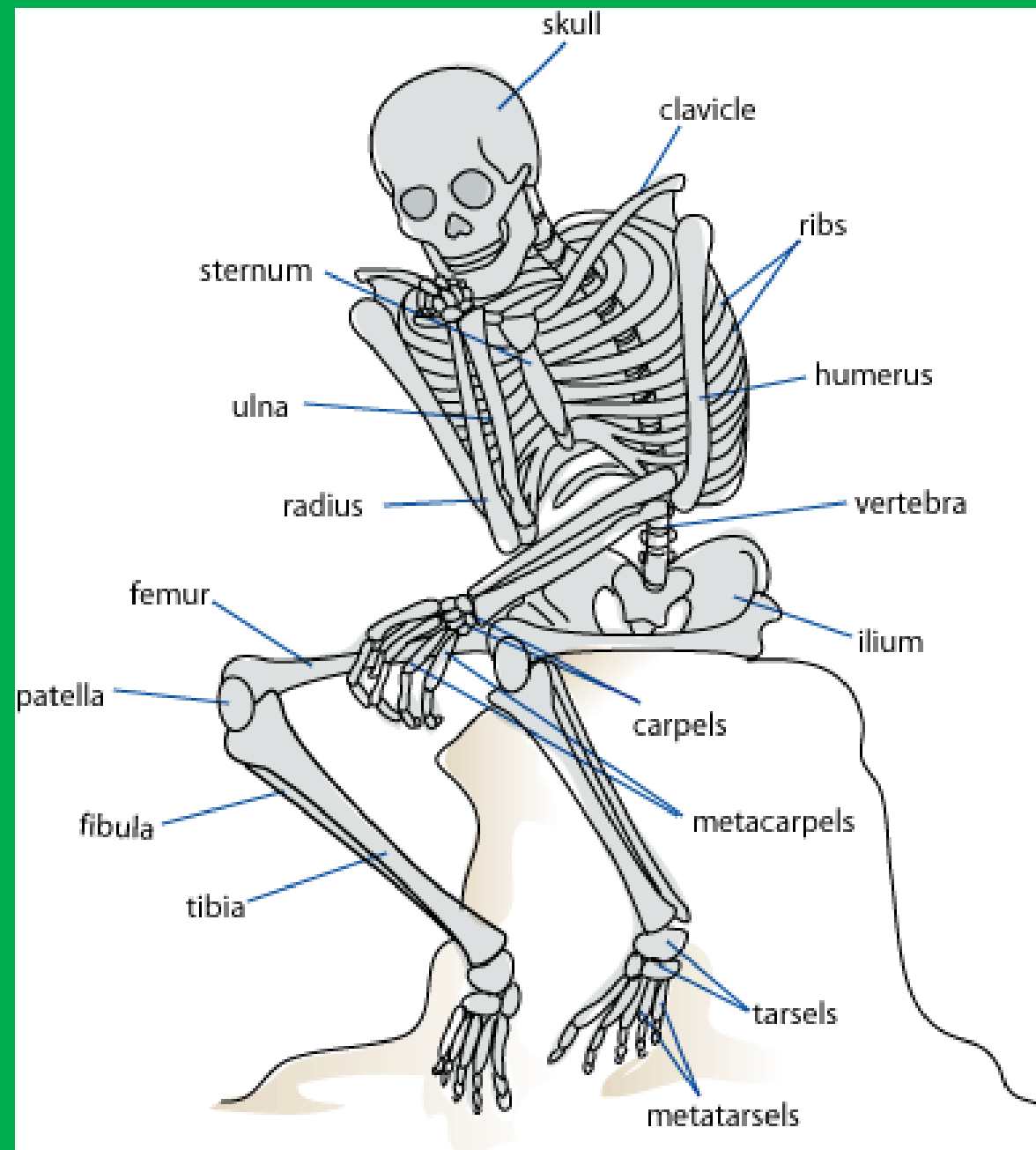


# KOSTERNÍ SOUSTAVA

*(Systema skeleti)*



# KOSTERNÍ SOUSTAVA

*(Systema skeleti)*

obecná osteologie

# kost

latinsky: *os*, 2. p. *ossis*, mn. č. *ossa*

řecky: *osteo-*



# kostra (*skeleton*)

- ❑ osová (axiální)
- ❑ končetinová (apendikulární)

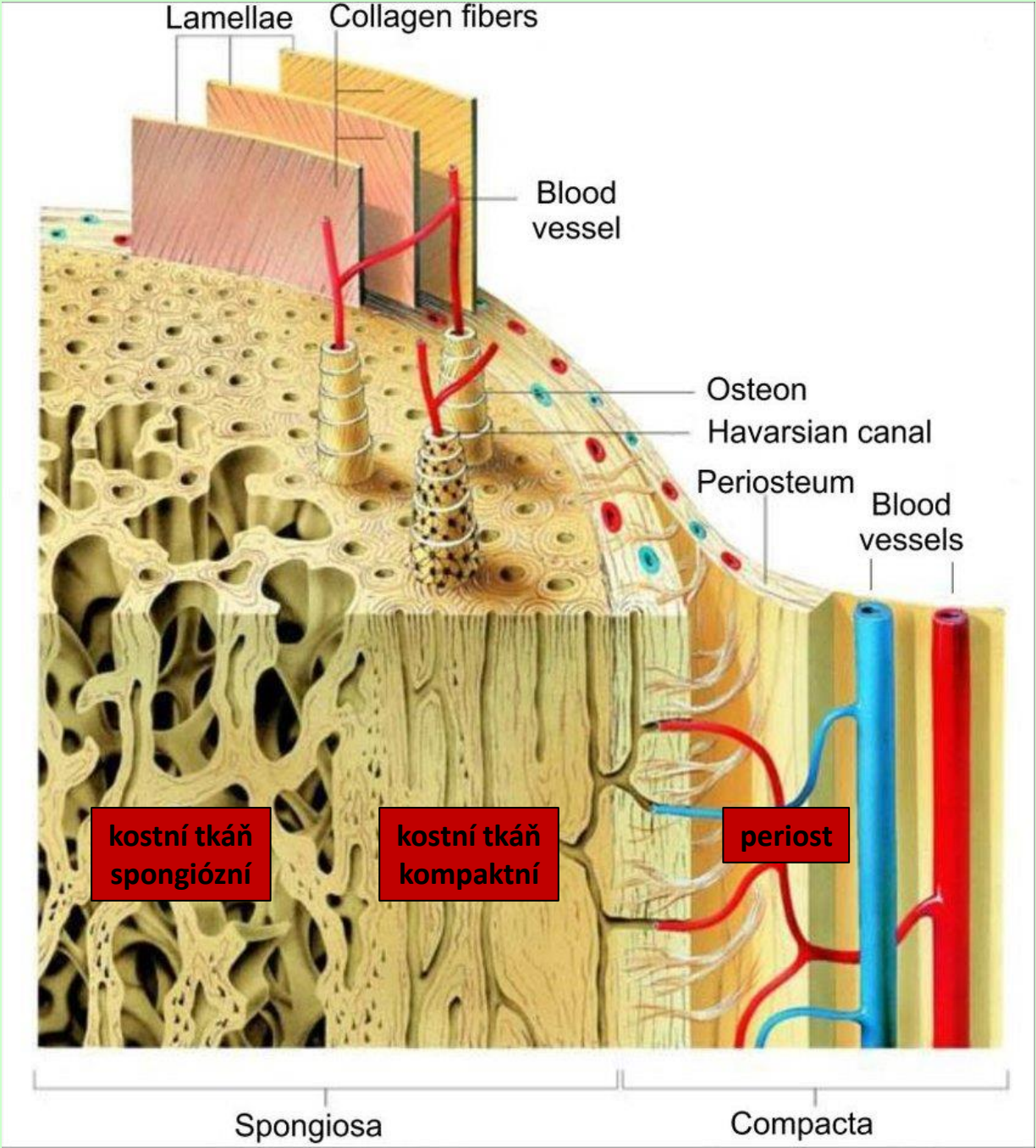
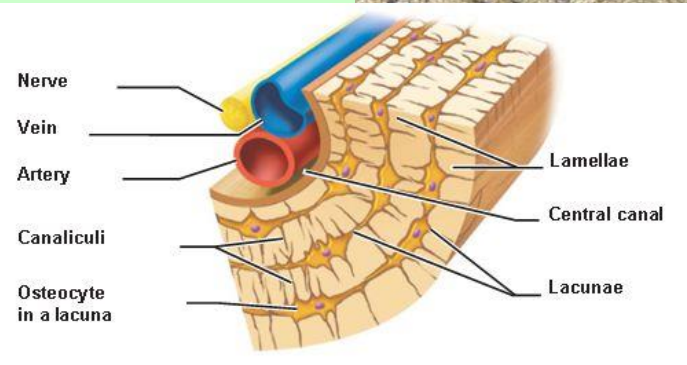
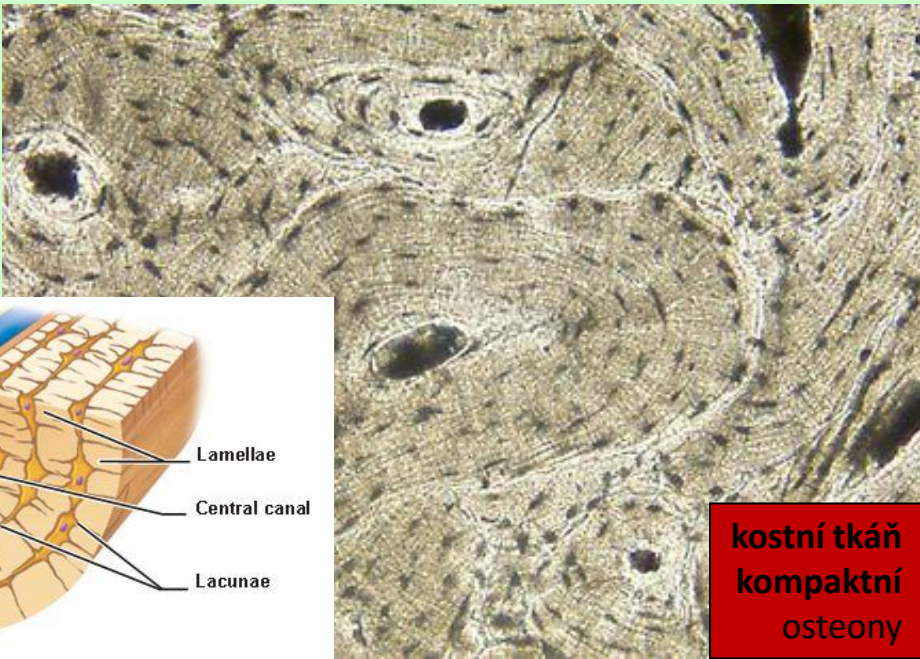
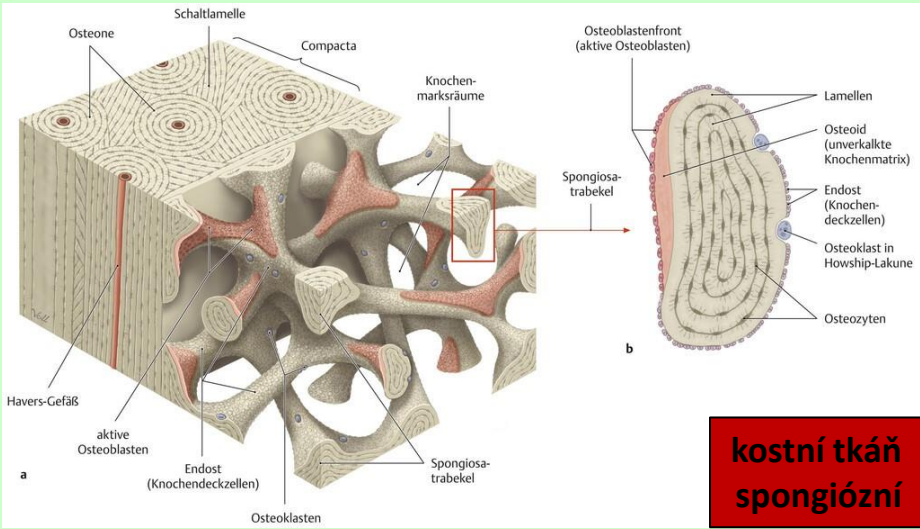
Axial skeleton



Appendicular skeleton



# histologická stavba kostí

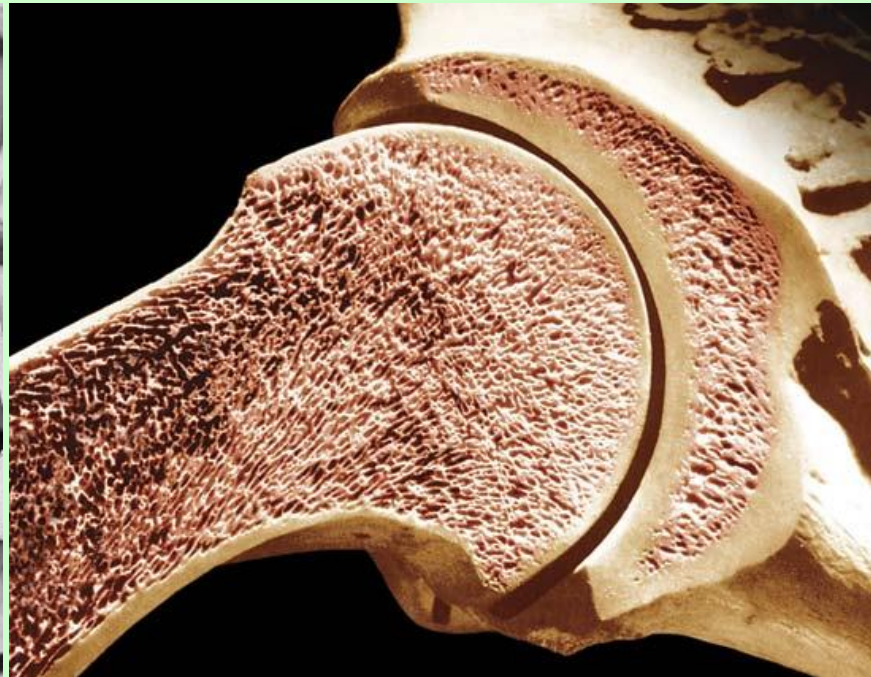


# histologická stavba kostí

hutná a houbovitá kostní tkáň

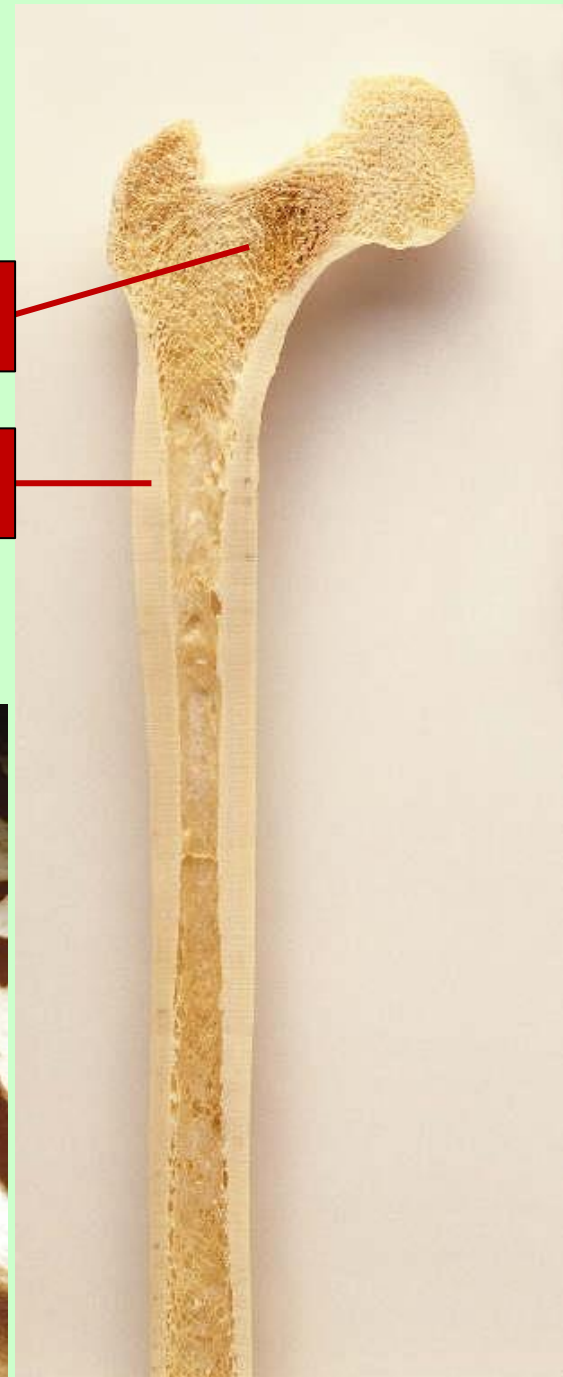


kostní tkáň  
spongiózní



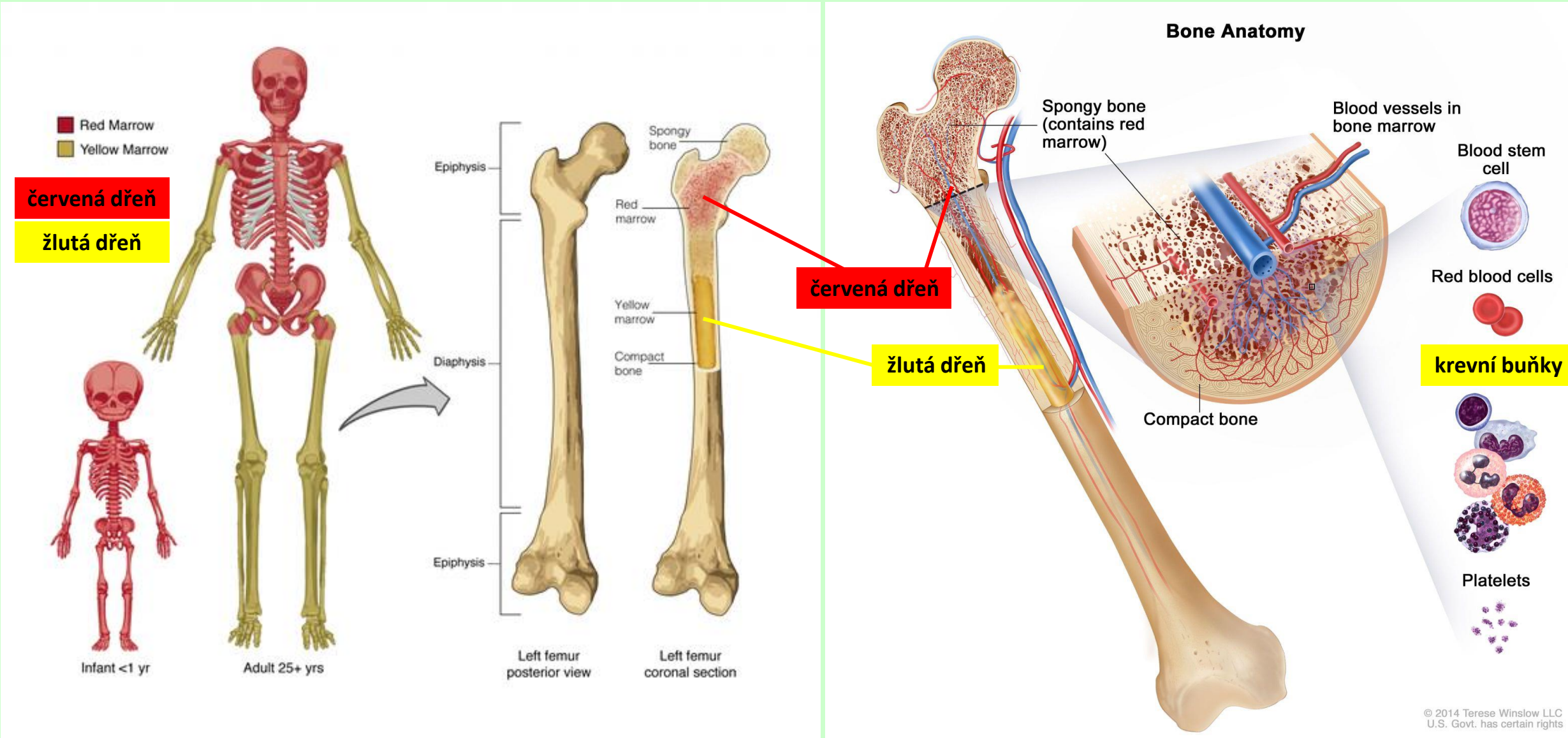
kostní tkáň  
spongiózní

kostní tkáň  
kompaktní



# histologická stavba kostí

## kostní dřeň



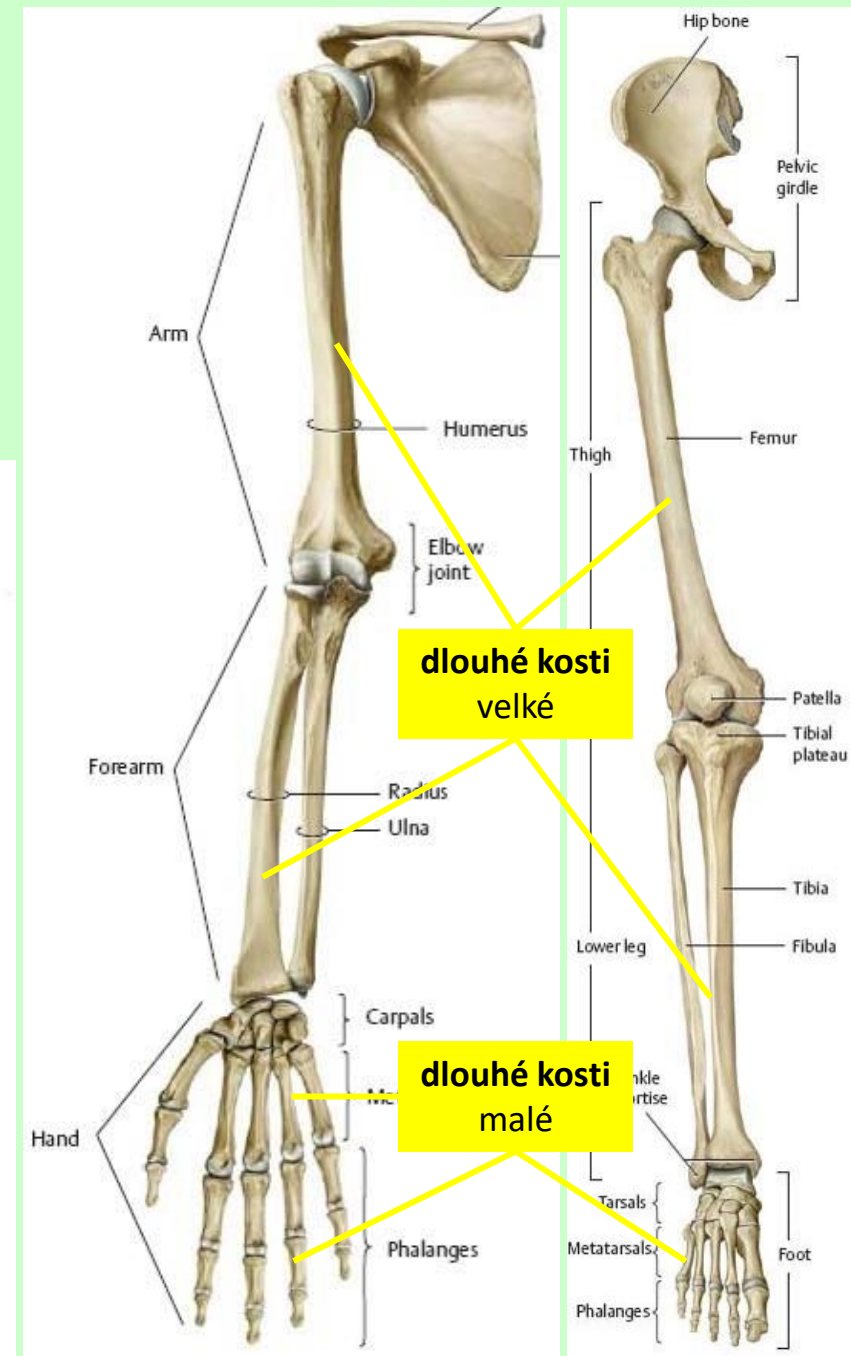
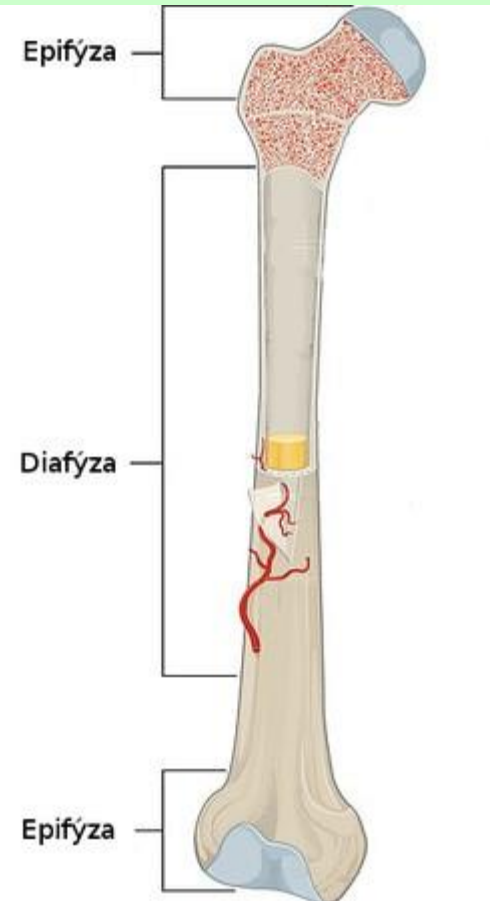
# makroskopická stavba kostí

kosti dlouhé (*ossa longa*)

proximální  
epifýza

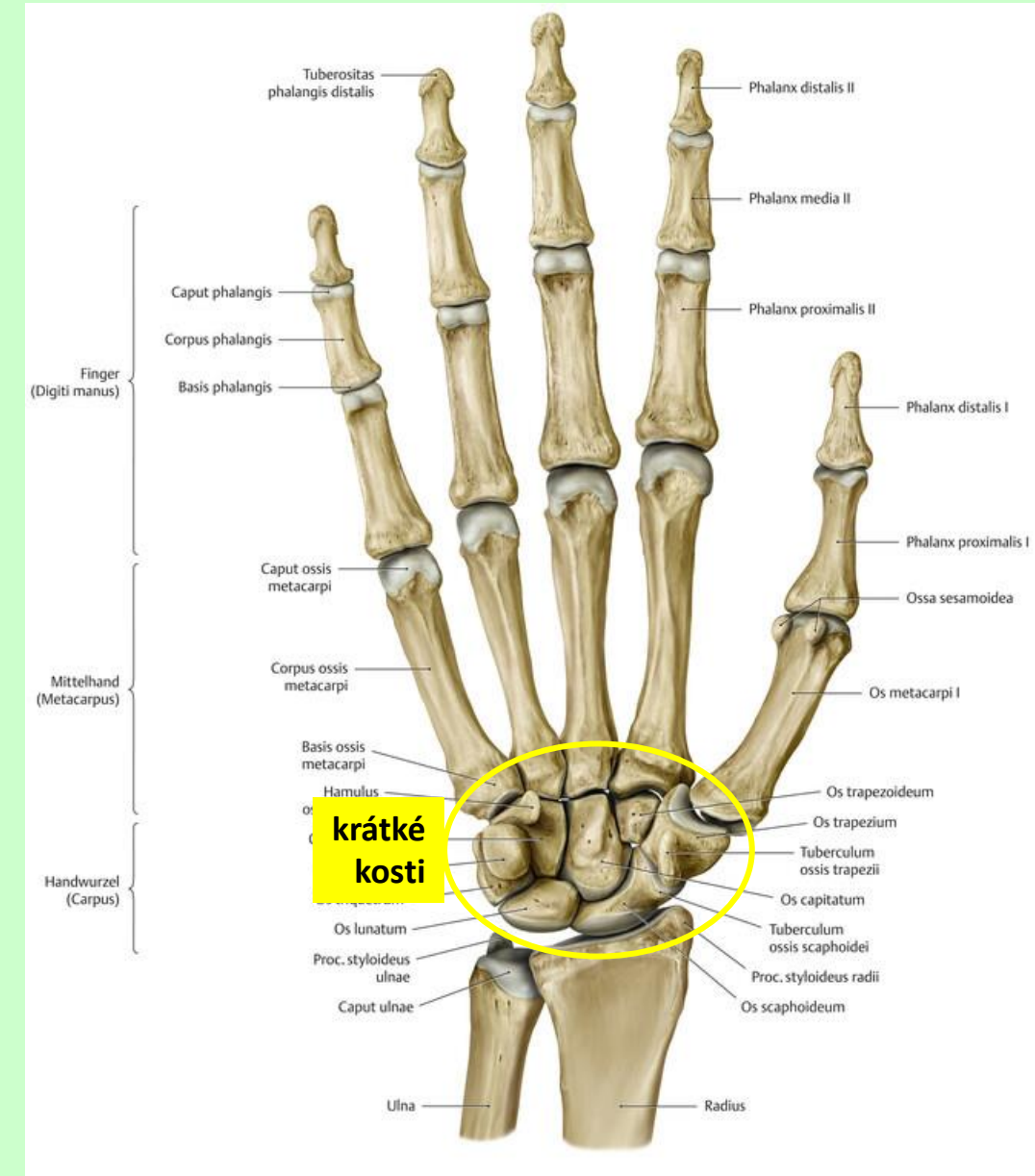
diafýza

distální  
epifýza



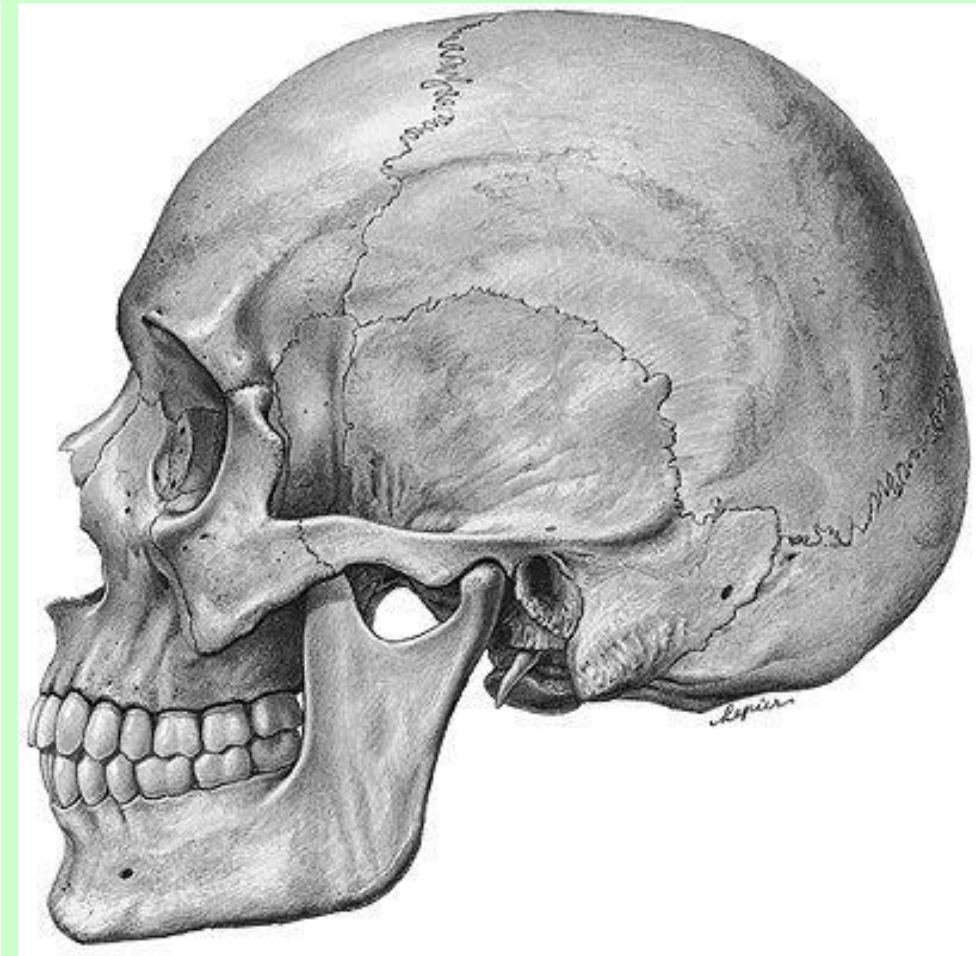
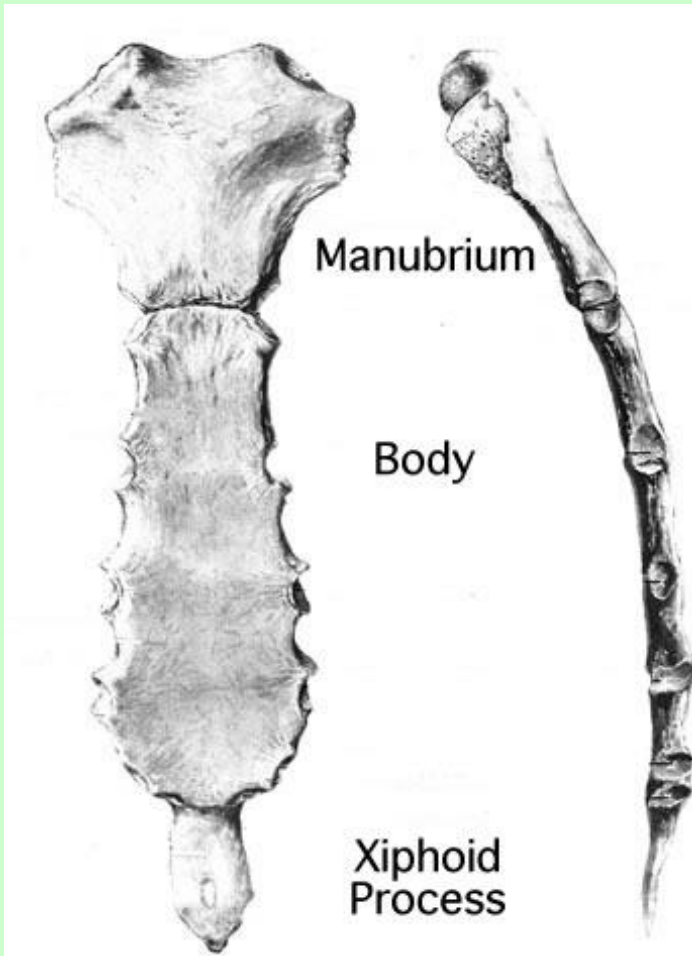
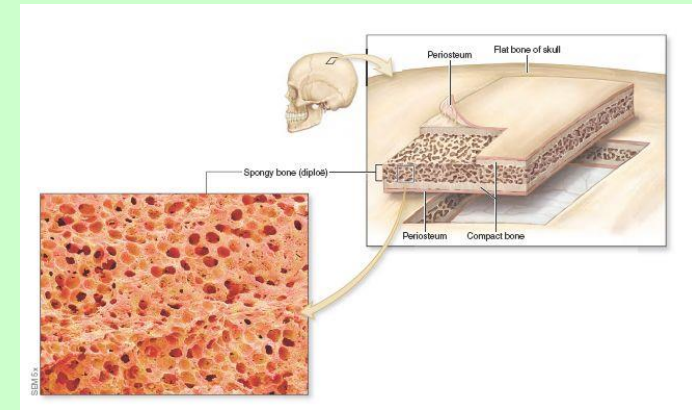
# makroskopická stavba kostí

kosti krátké (*ossa brevia*)



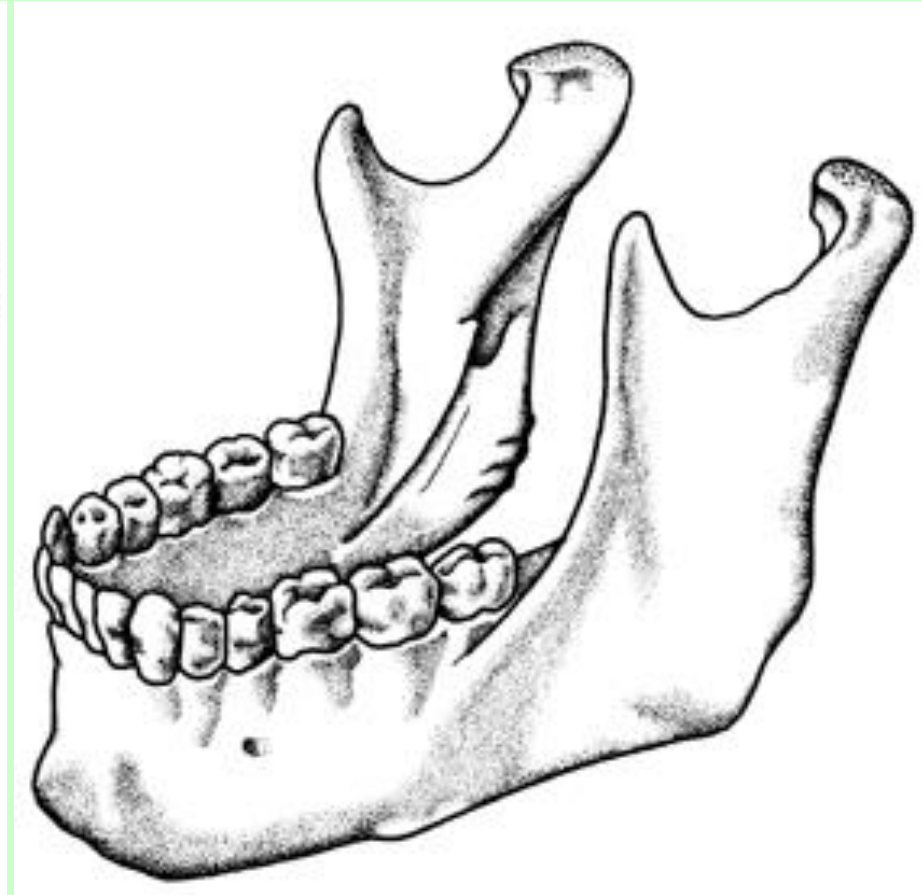
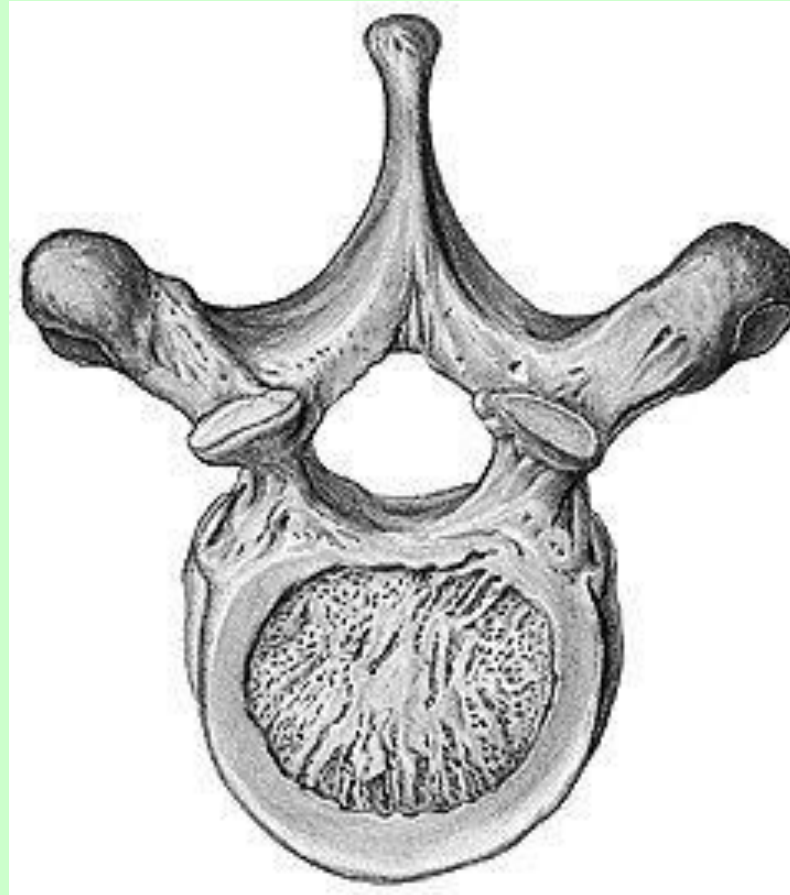
# makroskopická stavba kostí

kosti ploché (*ossa plana*)



# makroskopická stavba kostí

kosti nepravidelné (*ossa irregularia*)



# kostní spoje (obecná artrologie)

## spoje pojivové (synartrózy)

vazivový spoj (*junctura fibrosa, syndesmosis*)

chrupavčitý spoj (*junctura cartilaginea, synchondrosis*)

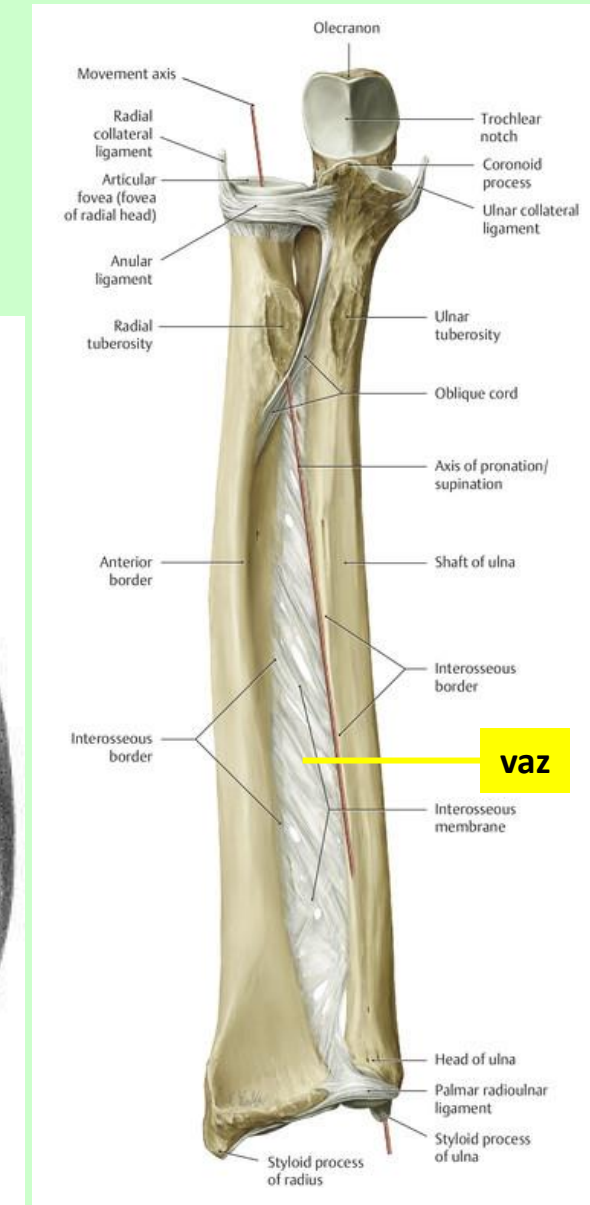
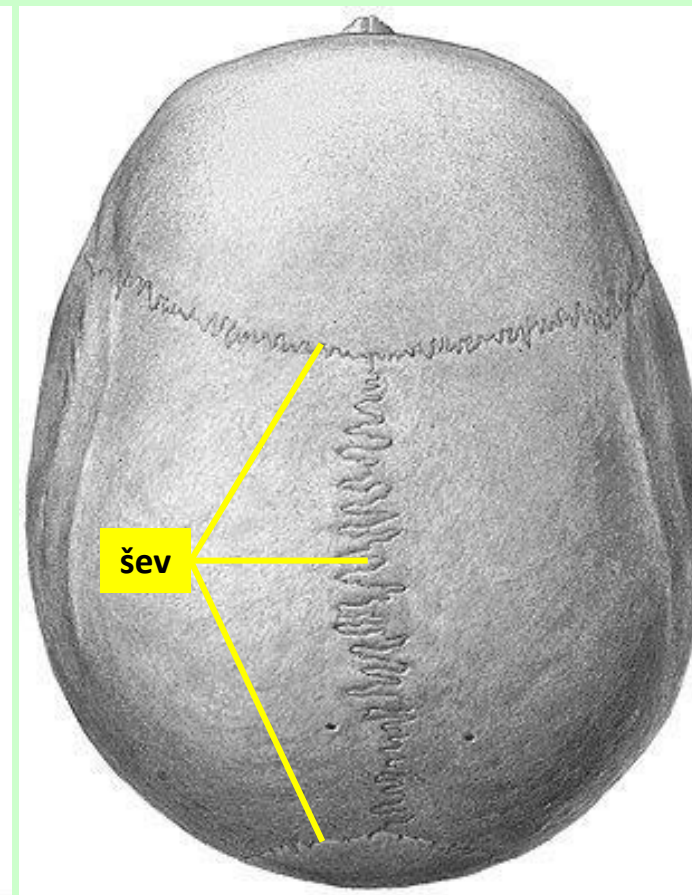
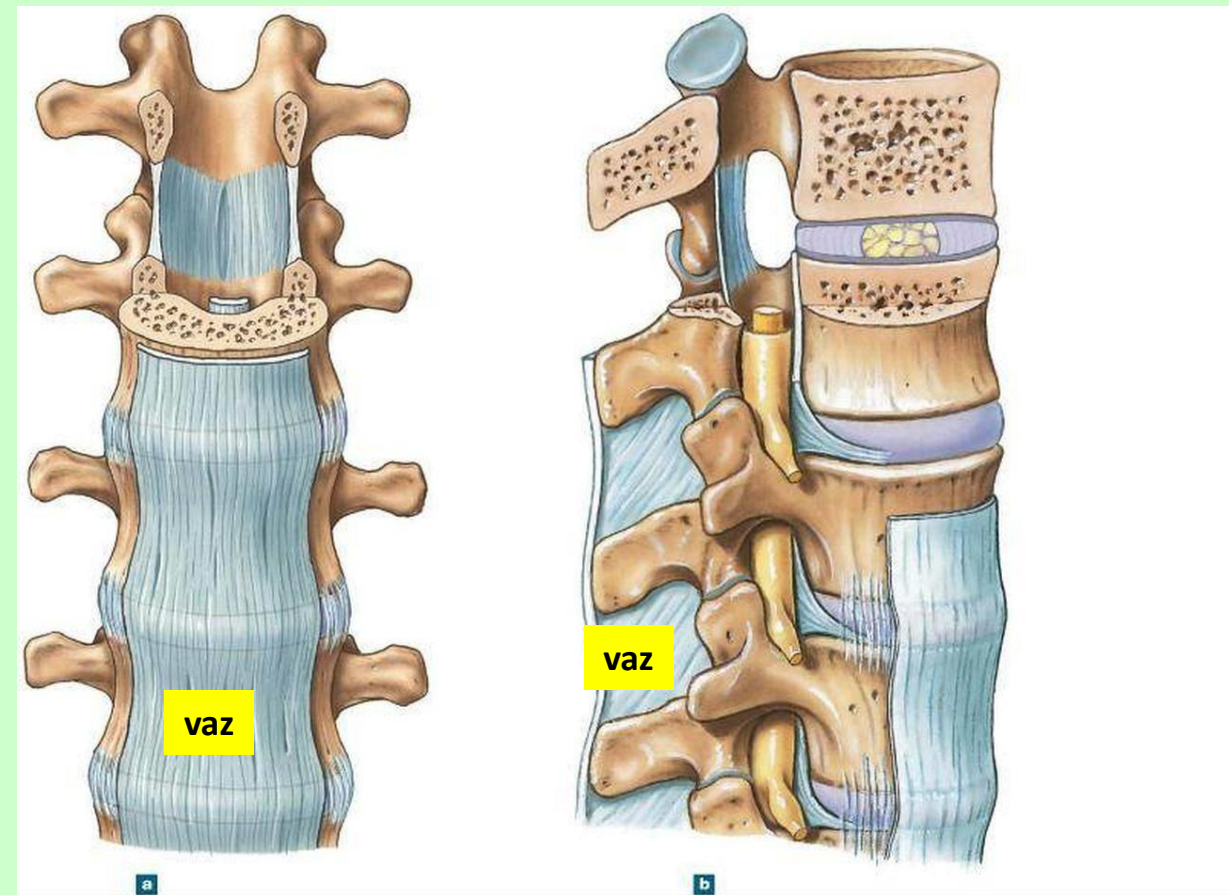
kostěný spoj (*junctura ossea, synostosis*)

## spoje kloubní (diartrózy)

kloub (*junctura synovialis, articulatio*)

# kostní spoje

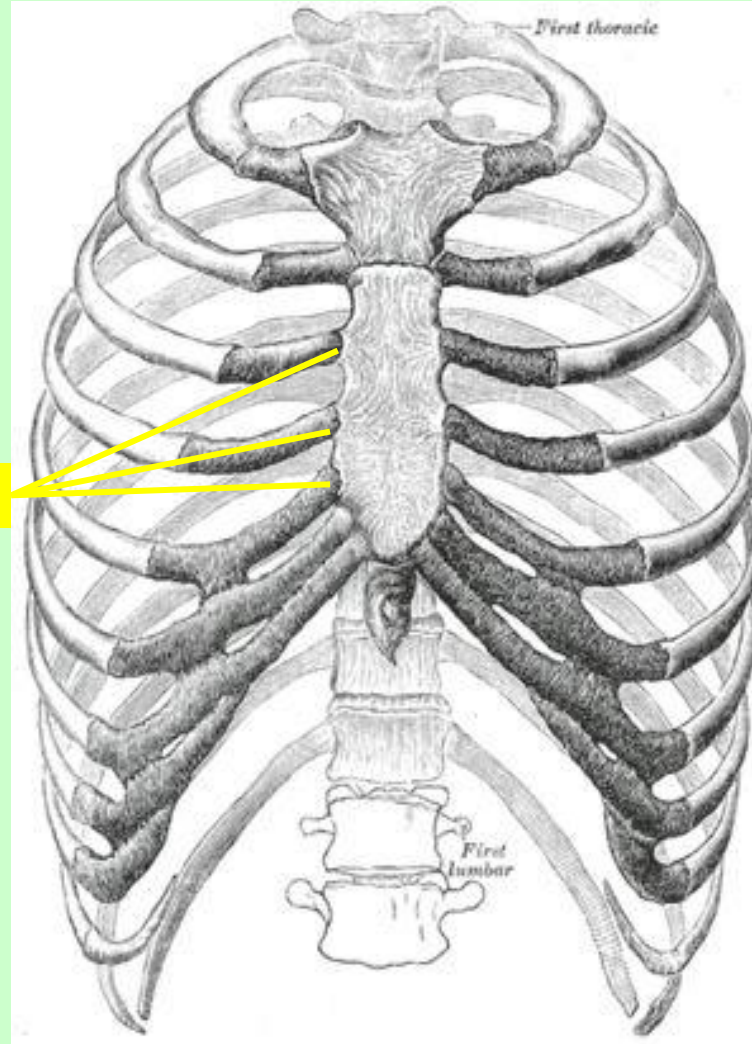
vazivový spoj (*junctura fibrosa, syndesmosis*)



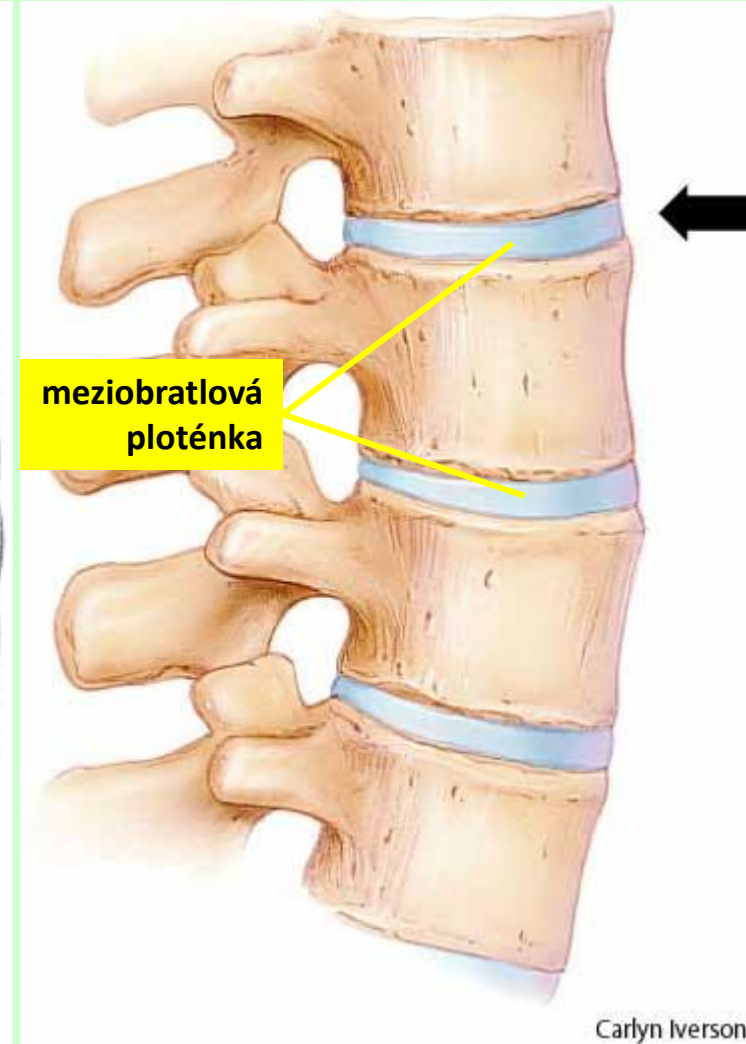
# kostní spoje

chrupavčitý spoj (*junctura cartilaginea, synchondrosis*)

sternální konec žebra



meziobratlová  
ploténka



# kostní spoje

kostěný spoj (*junctura ossea, synostosis*)

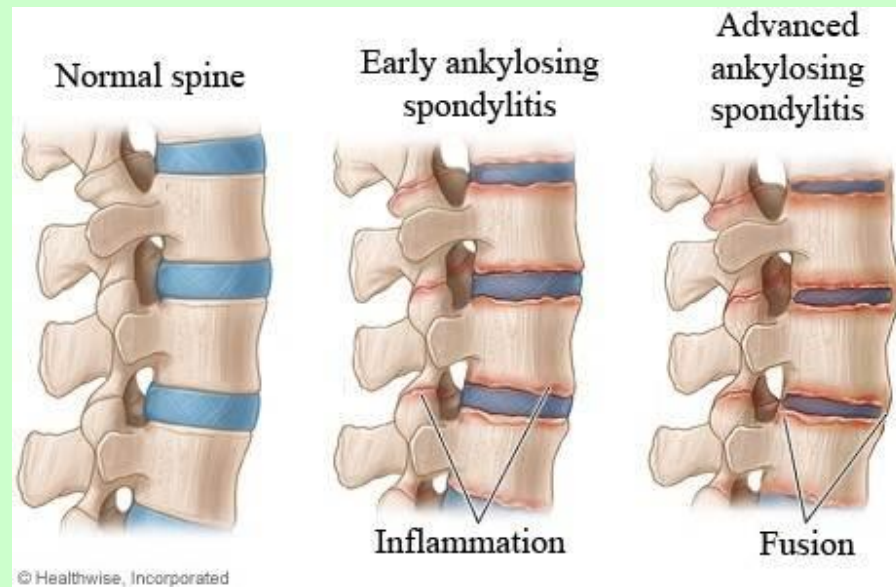


# kostní spoje

kostěný spoj (*junctura ossea, synostosis*)

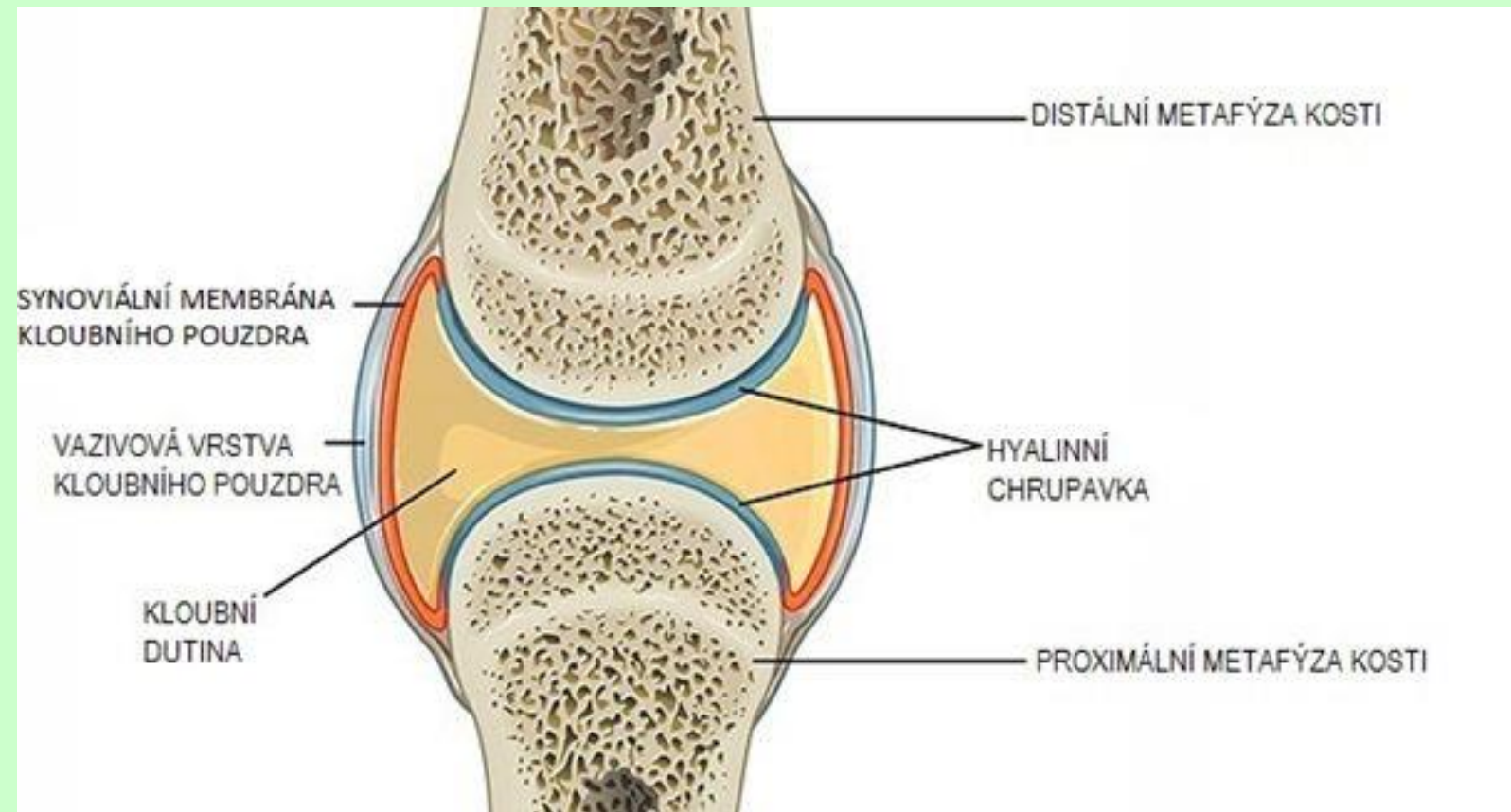
## ankylóza

(patologická synostóza  
v oblastech kloubů)



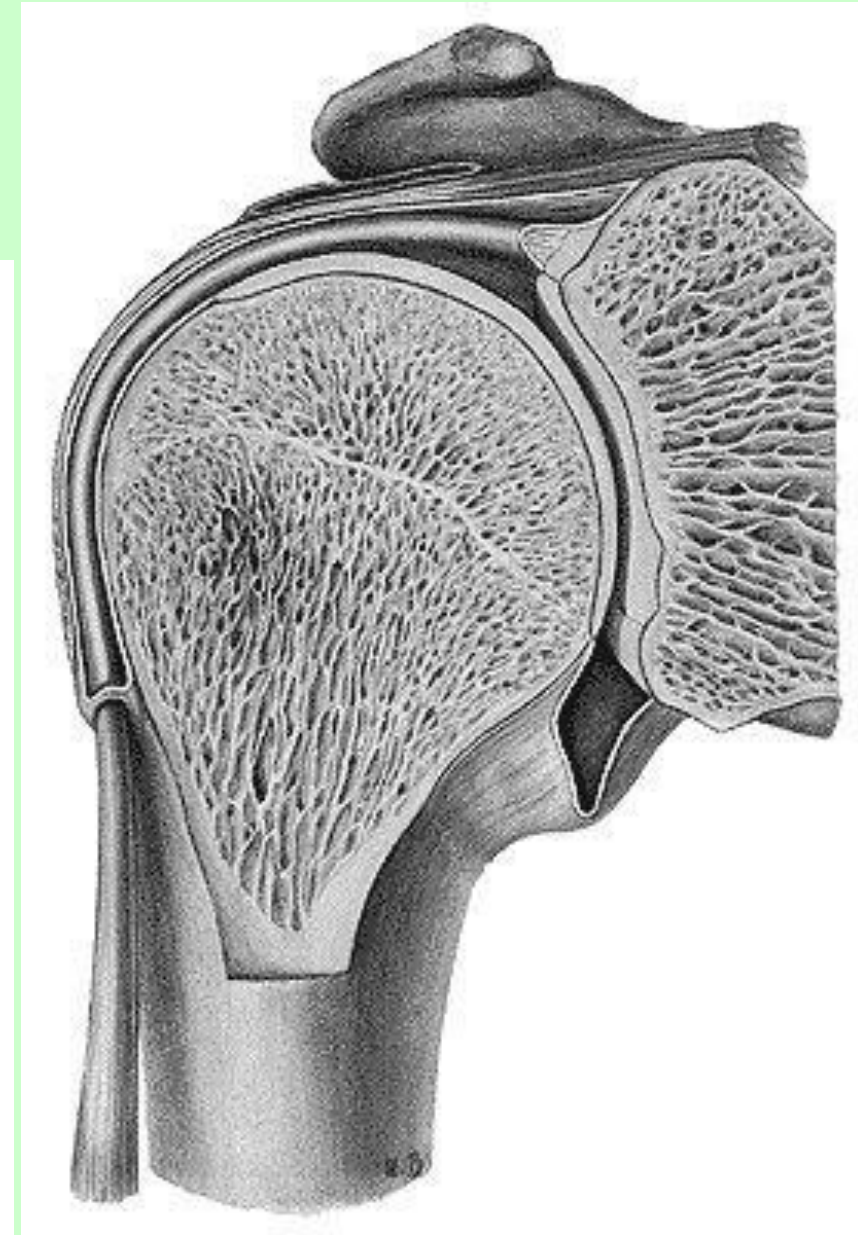
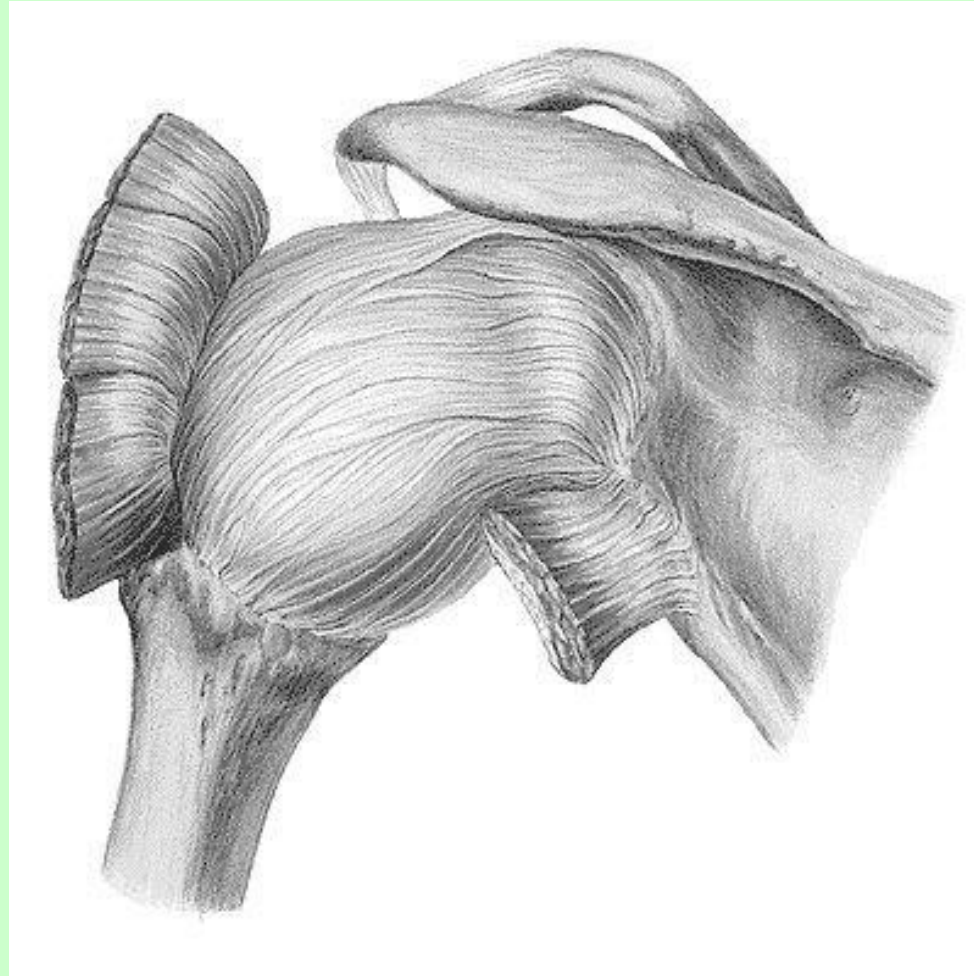
# kostní spoje

kloubní spoj (*junctura synovialis, articulatio*)



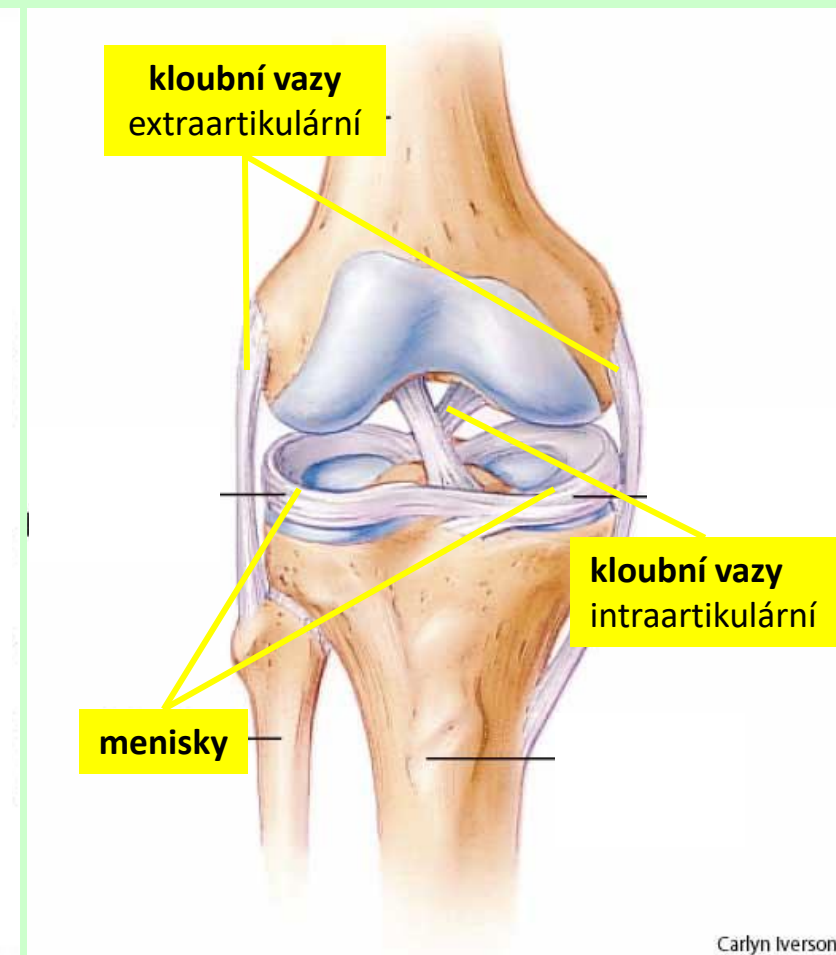
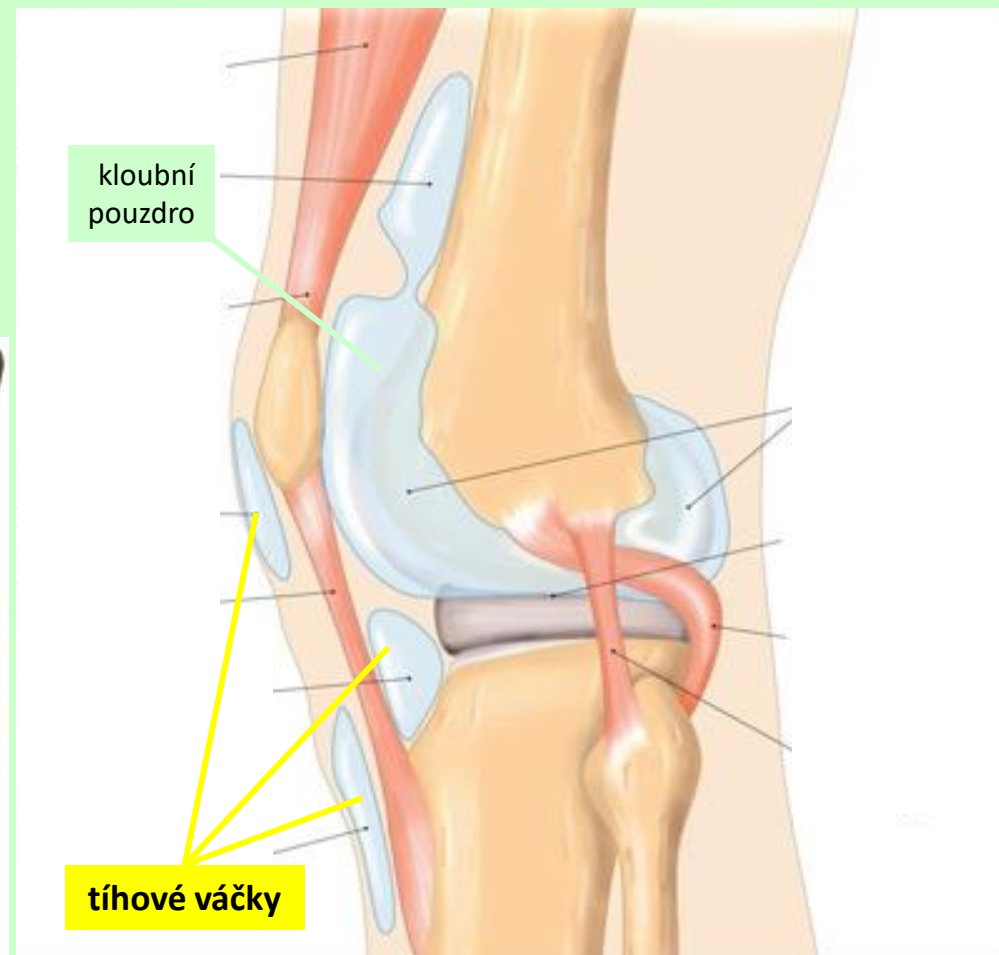
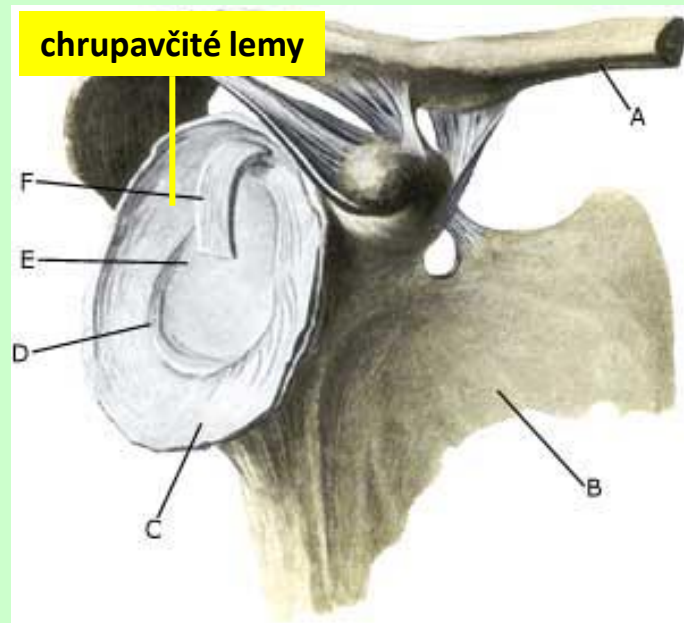
# kostní spoje

kloubní spoj (*junctura synovialis, articulatio*)



# kostní spoje

kloubní spoj (*junctura synovialis, articulatio*)



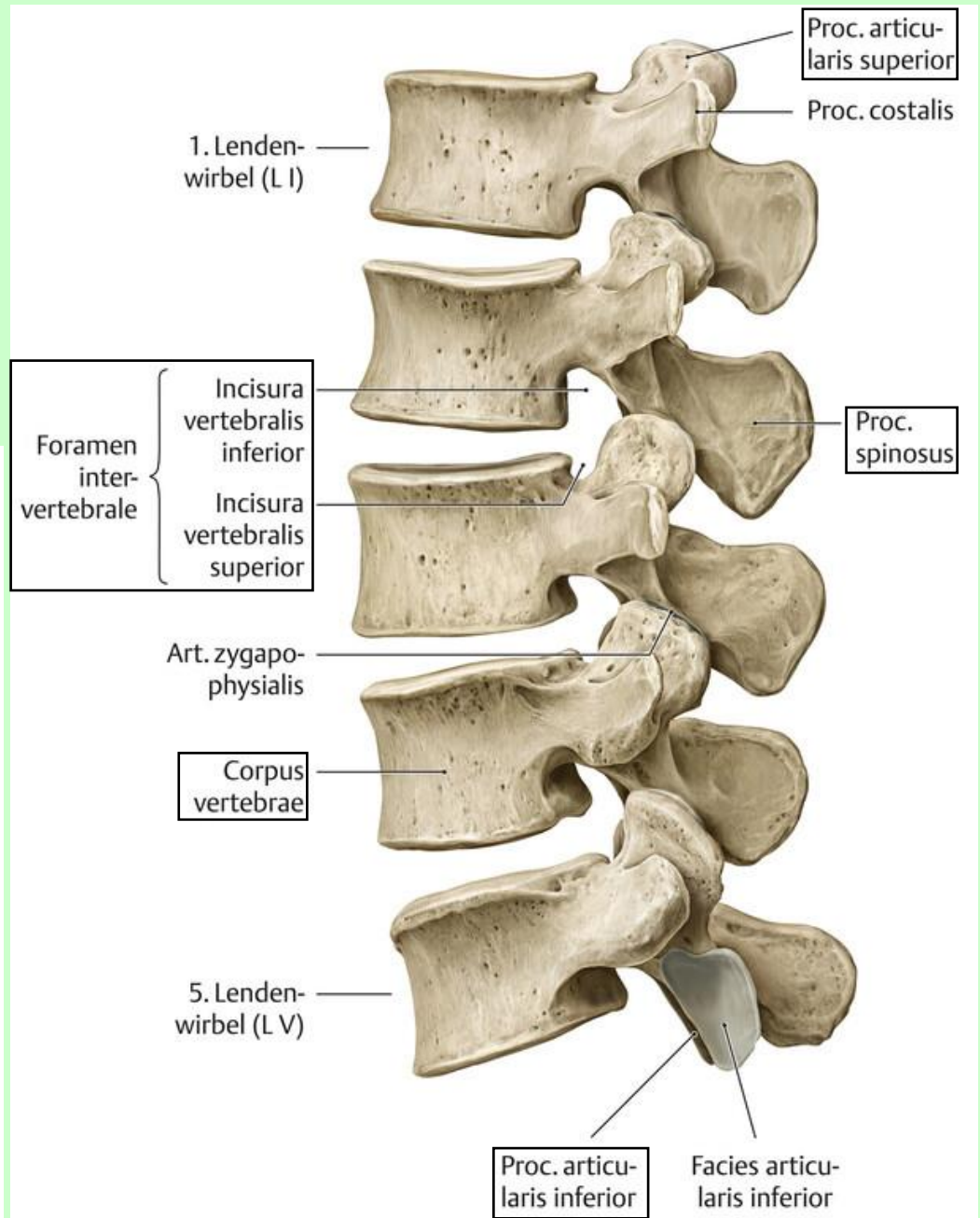
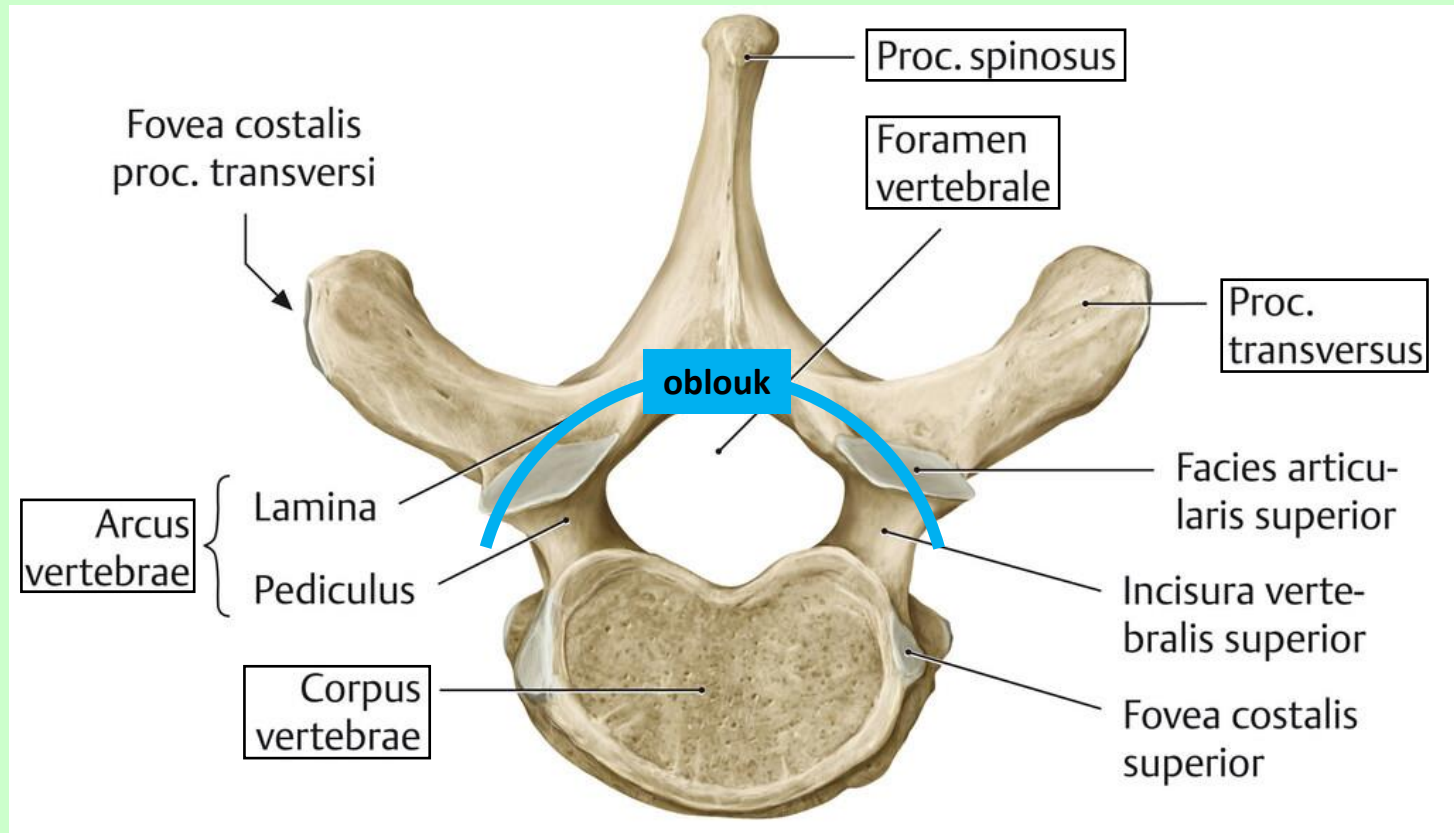
# KOSTERNÍ SOUSTAVA

*(Systema skeleti)*

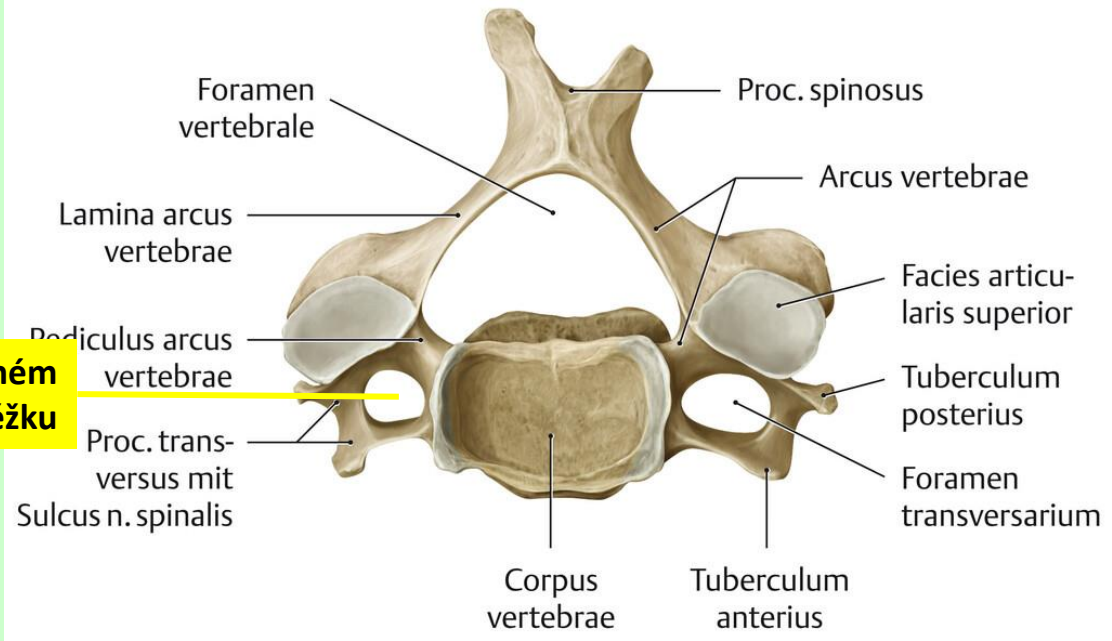
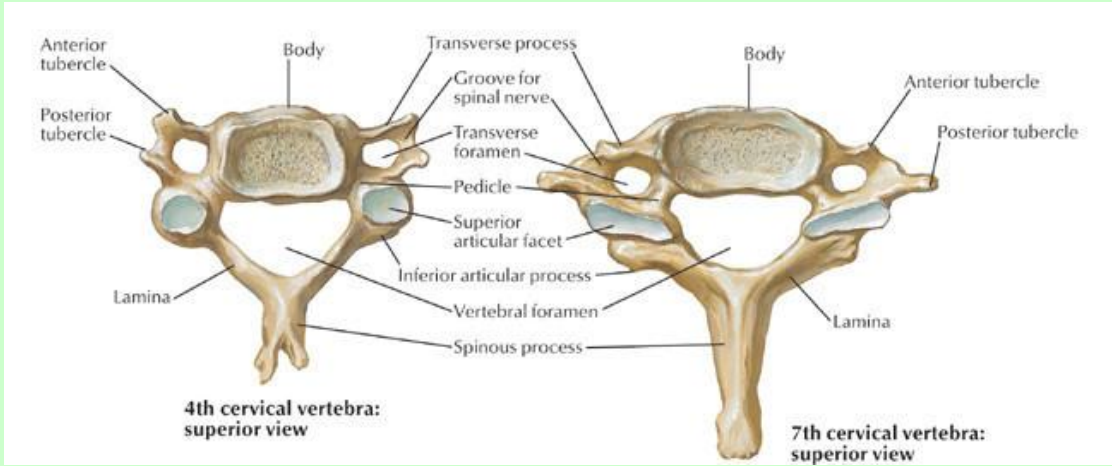
kostra trupu

páteř (*columna vertebralis*)

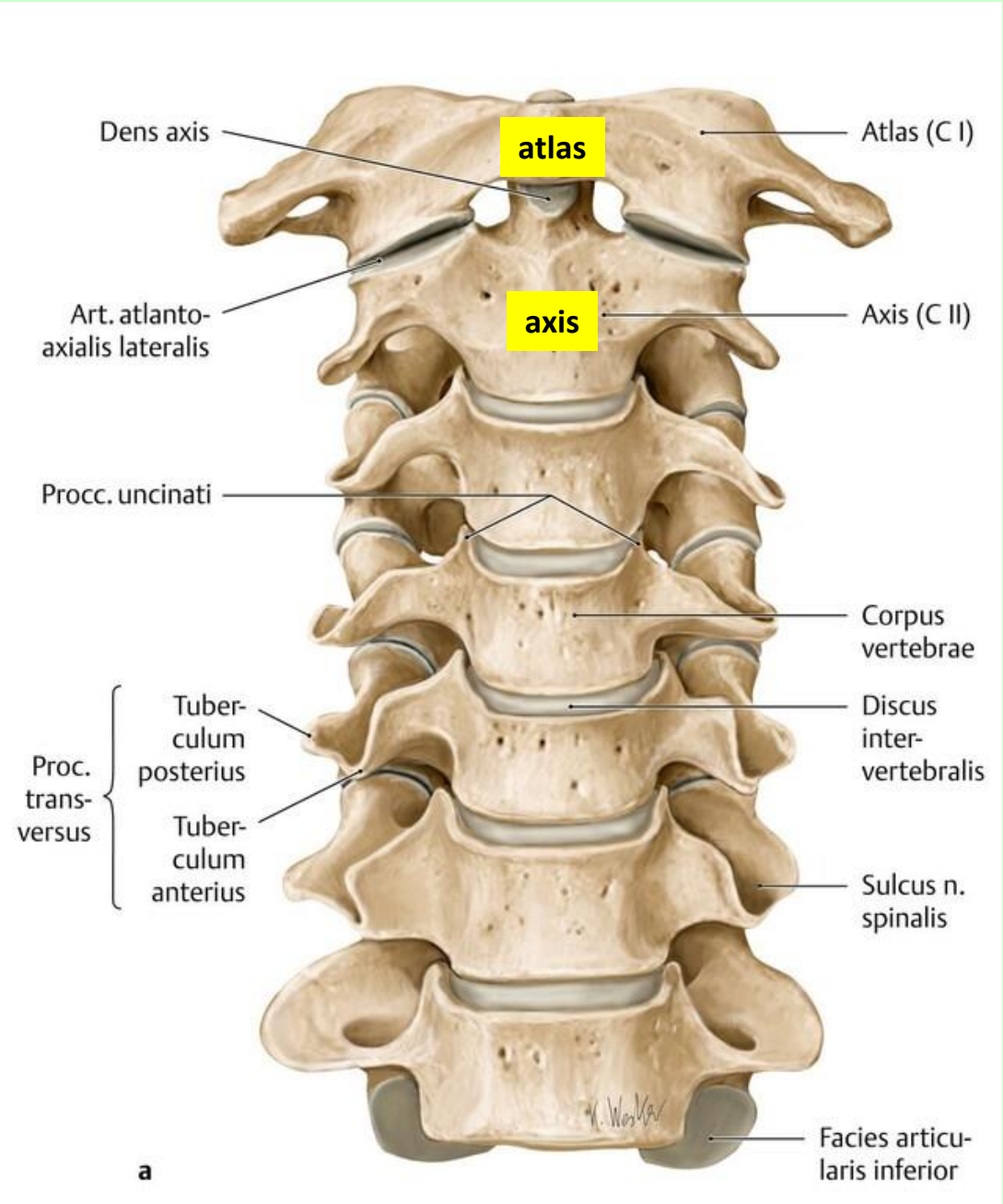
# obratel (vertebra)



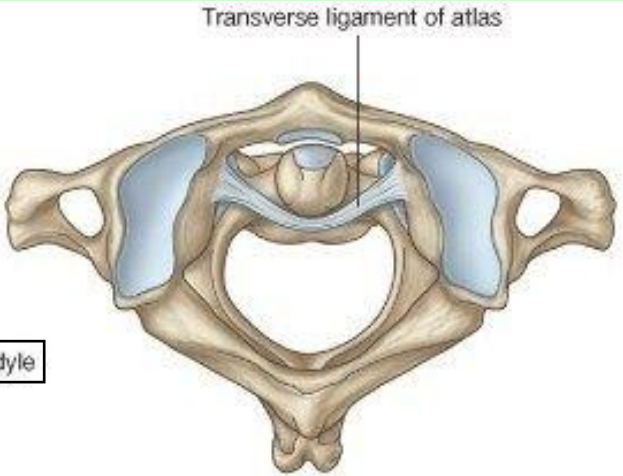
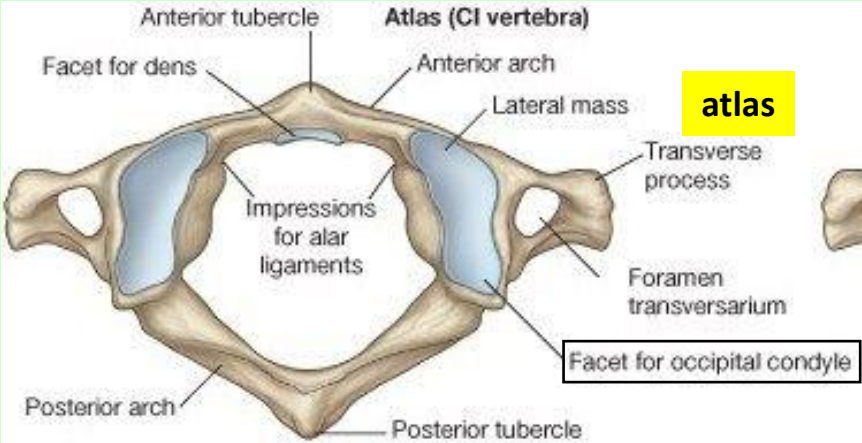
# krční obratle (*vertebrae cervicales*)



otvor v příčném výběžku

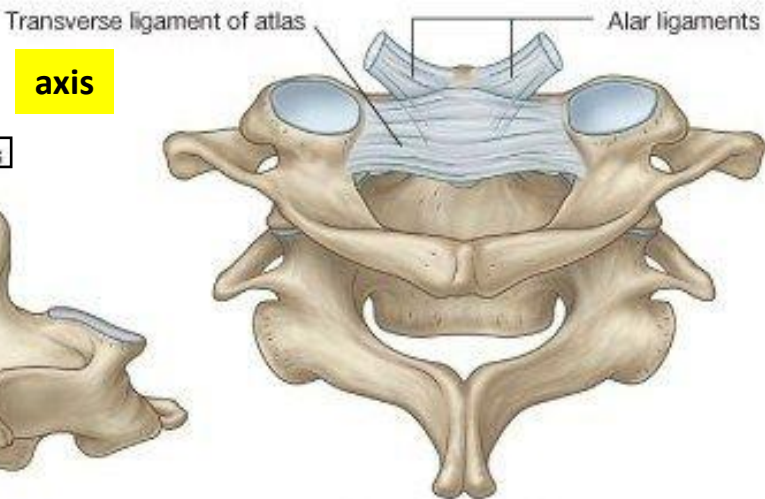
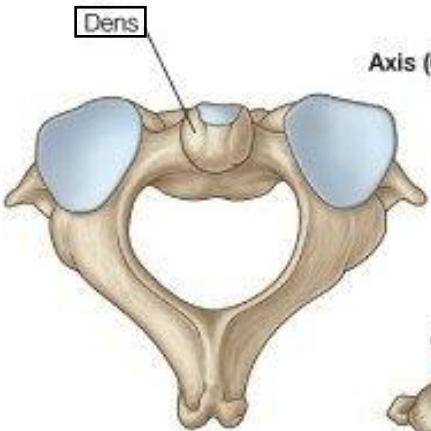


# krční obratle (*vertebrae cervicales*)



Superior view

Superior view

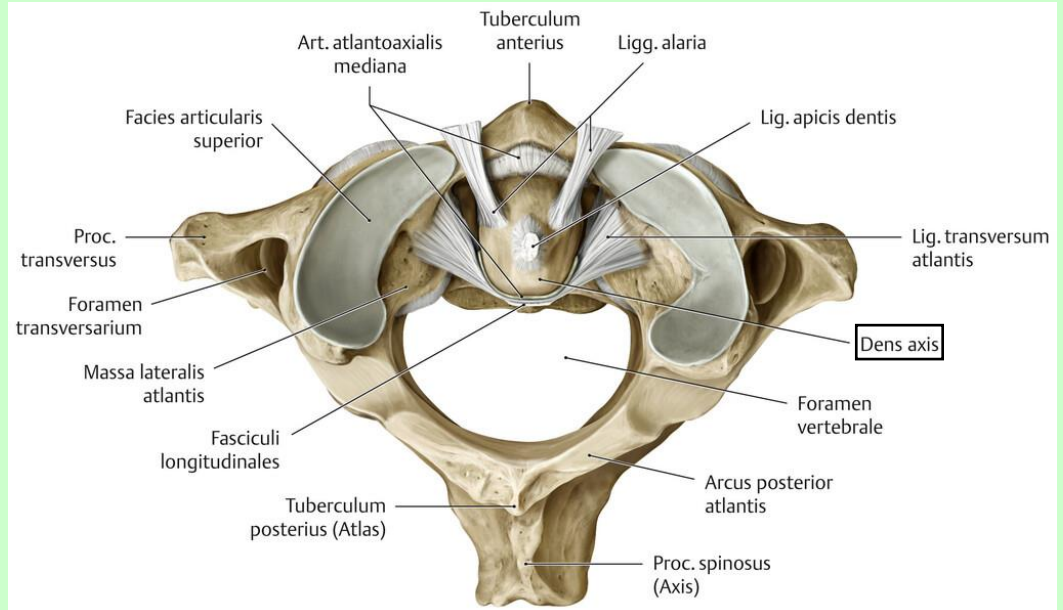


**axis**

Superior view

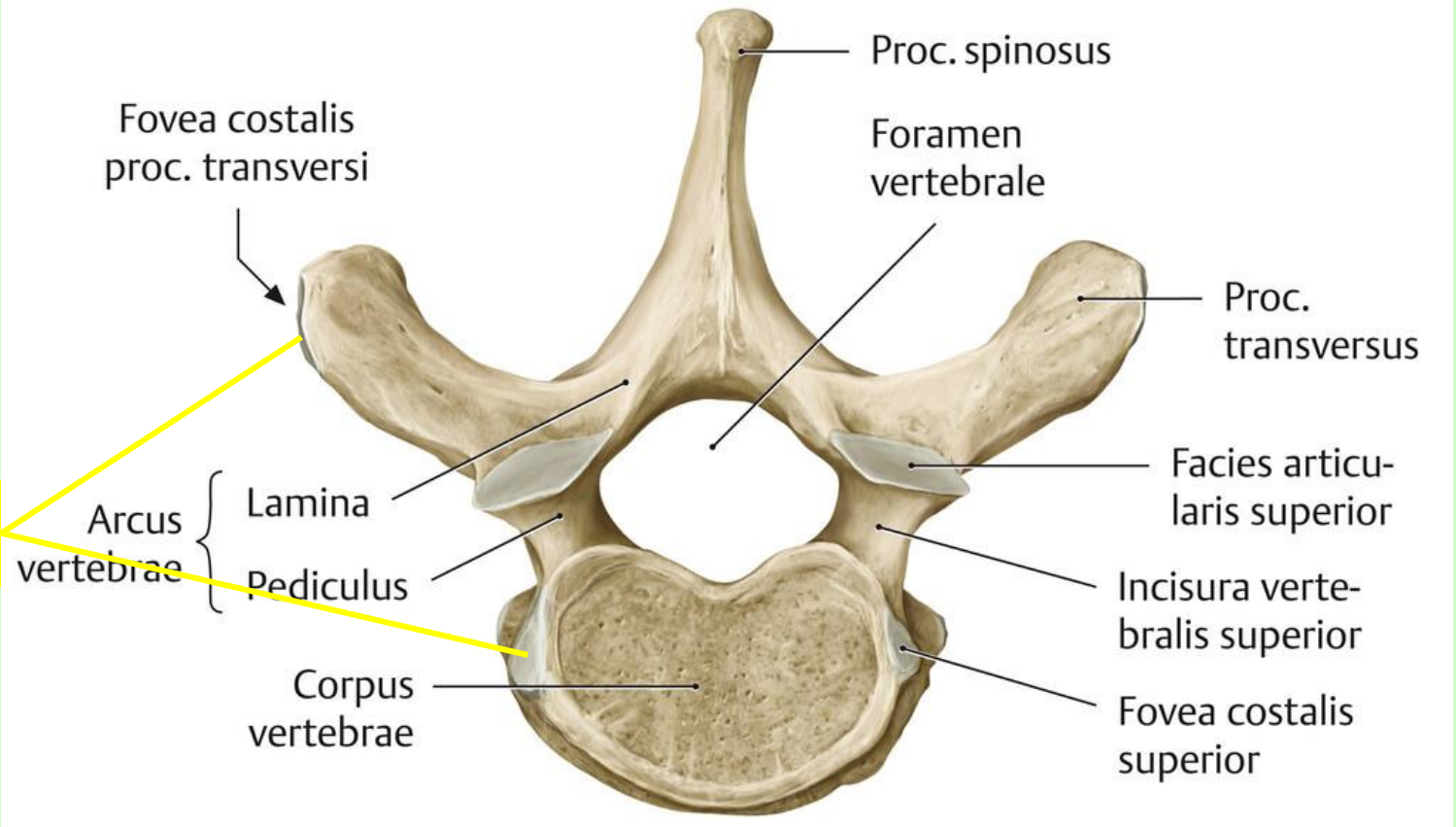
Posterior view

Posterosuperior view



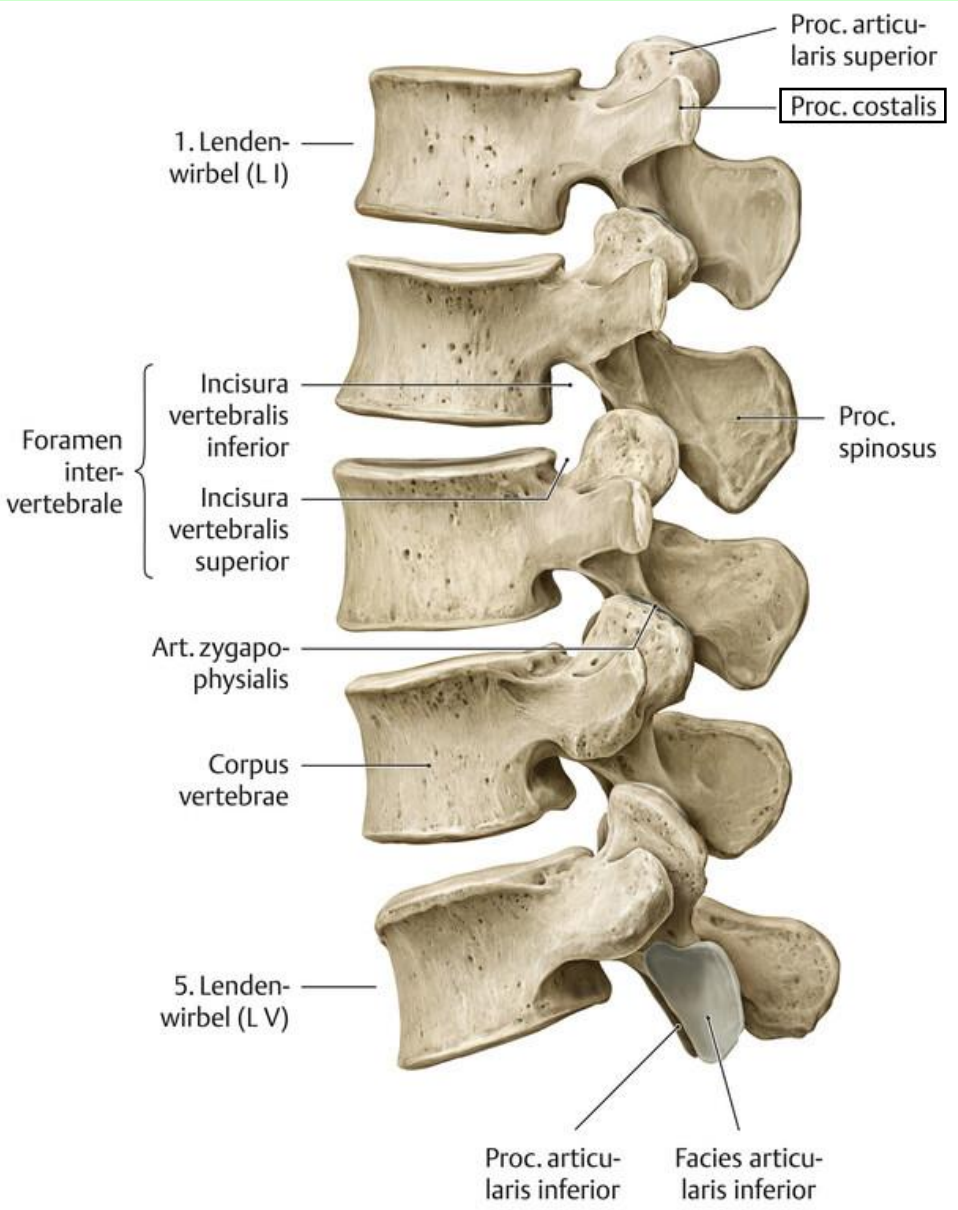
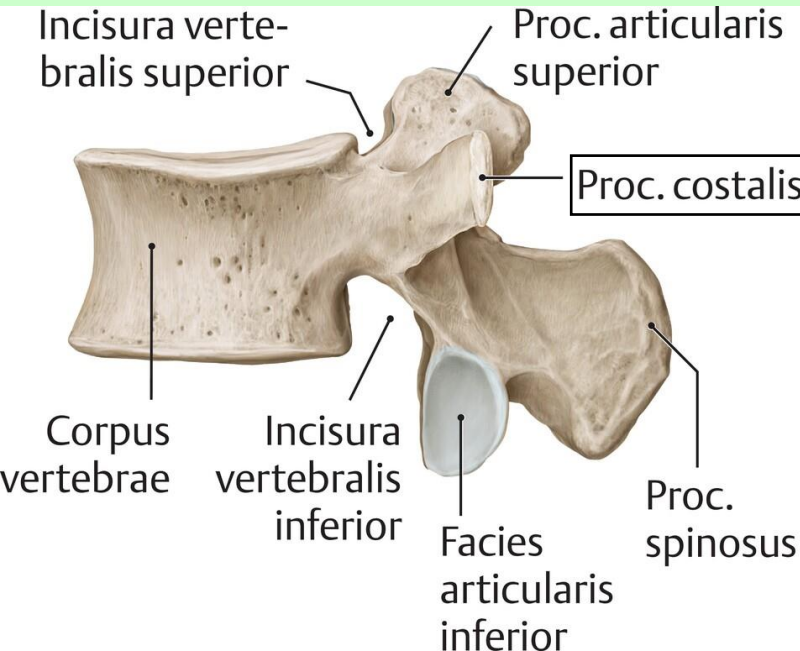
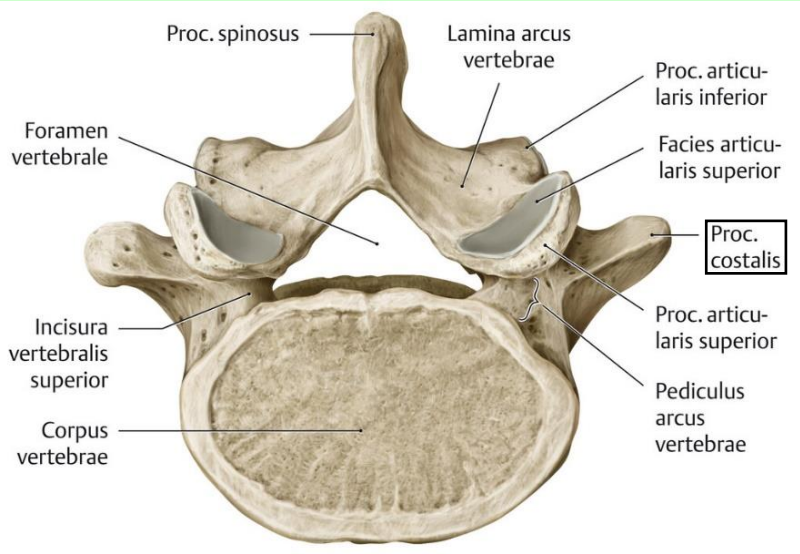
# hrudní obratle (*vertebrae thoracicae*)

kloubní plošky  
pro žebra

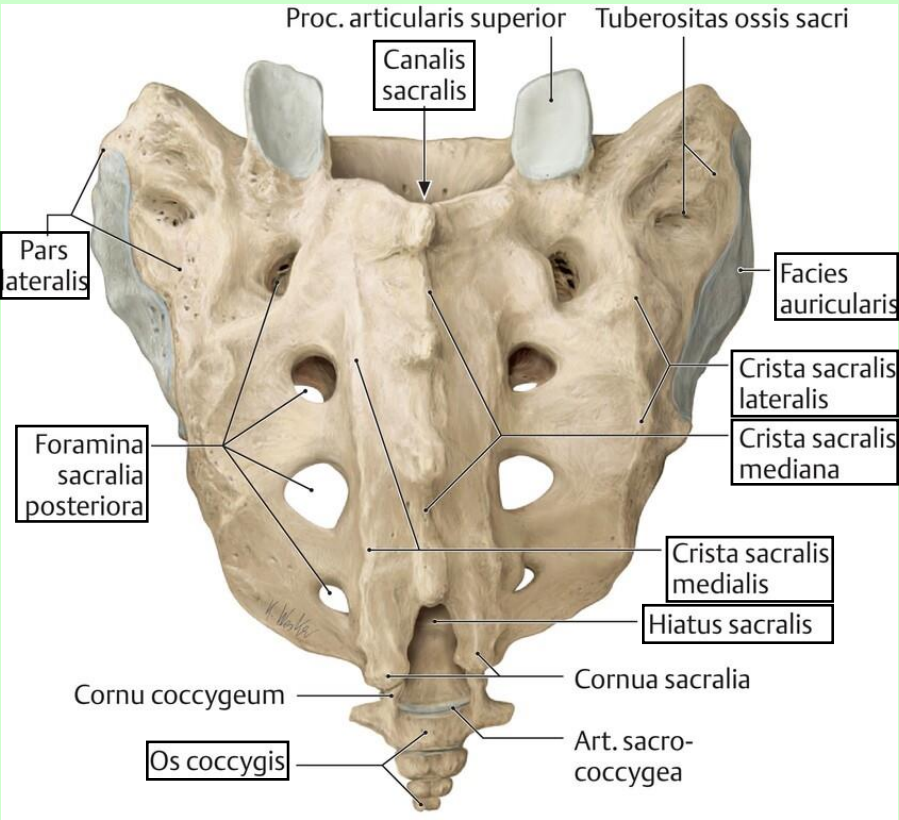
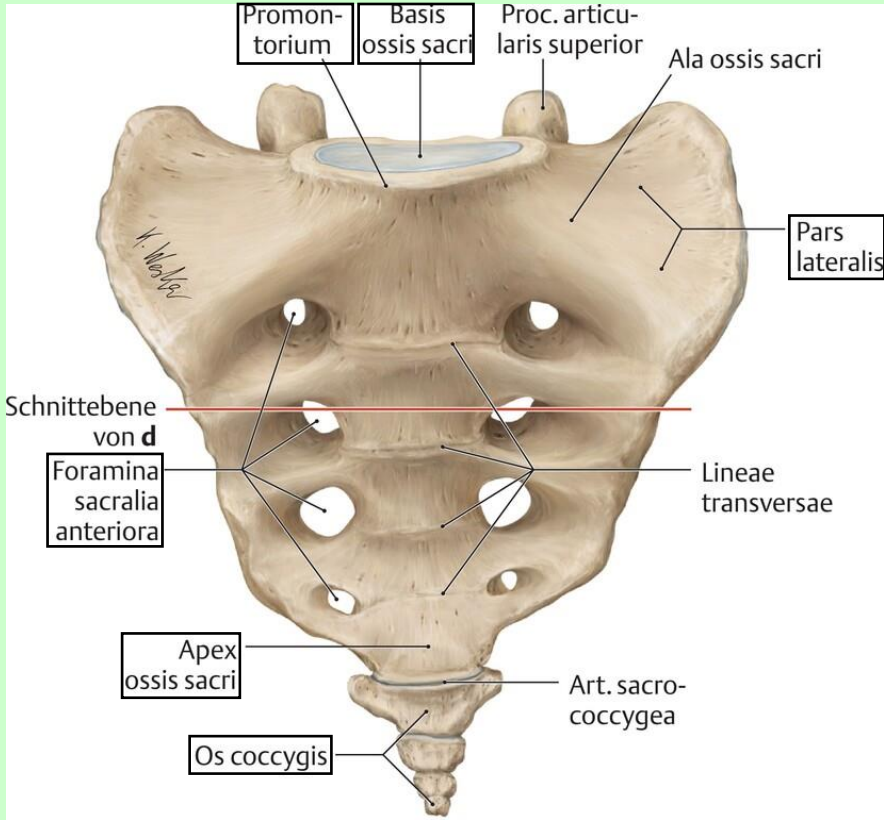
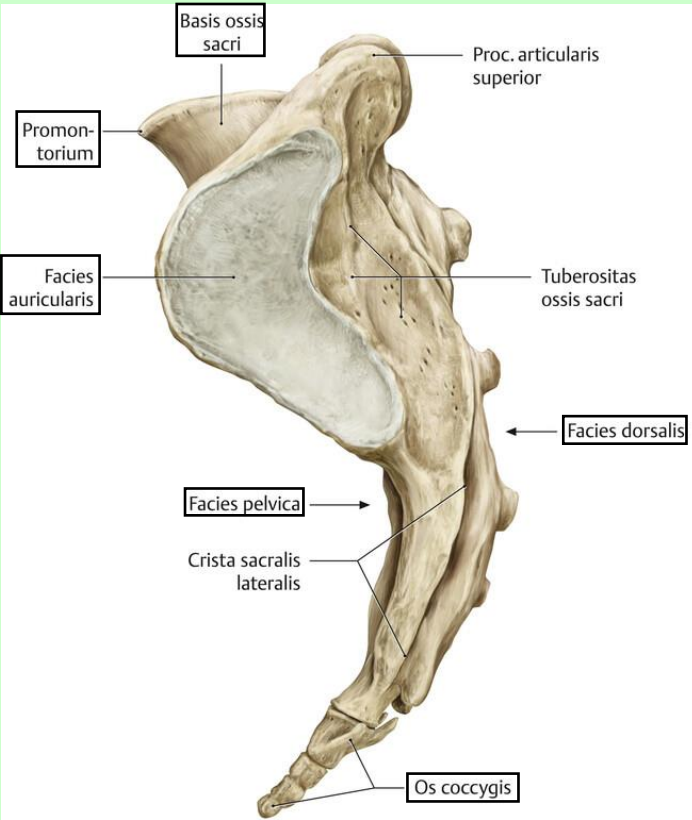
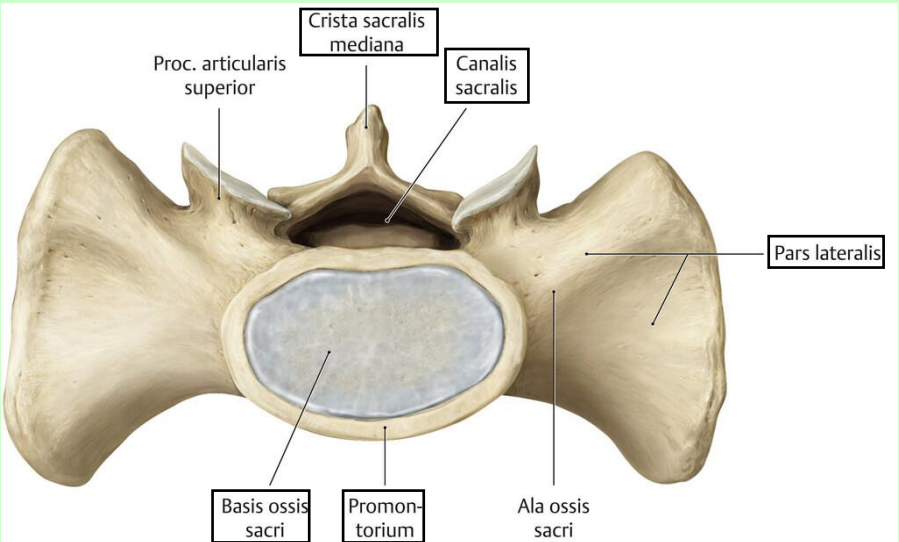


kloubní plošky  
pro žebra

# bederní obratle (*vertebrae lumbales*)

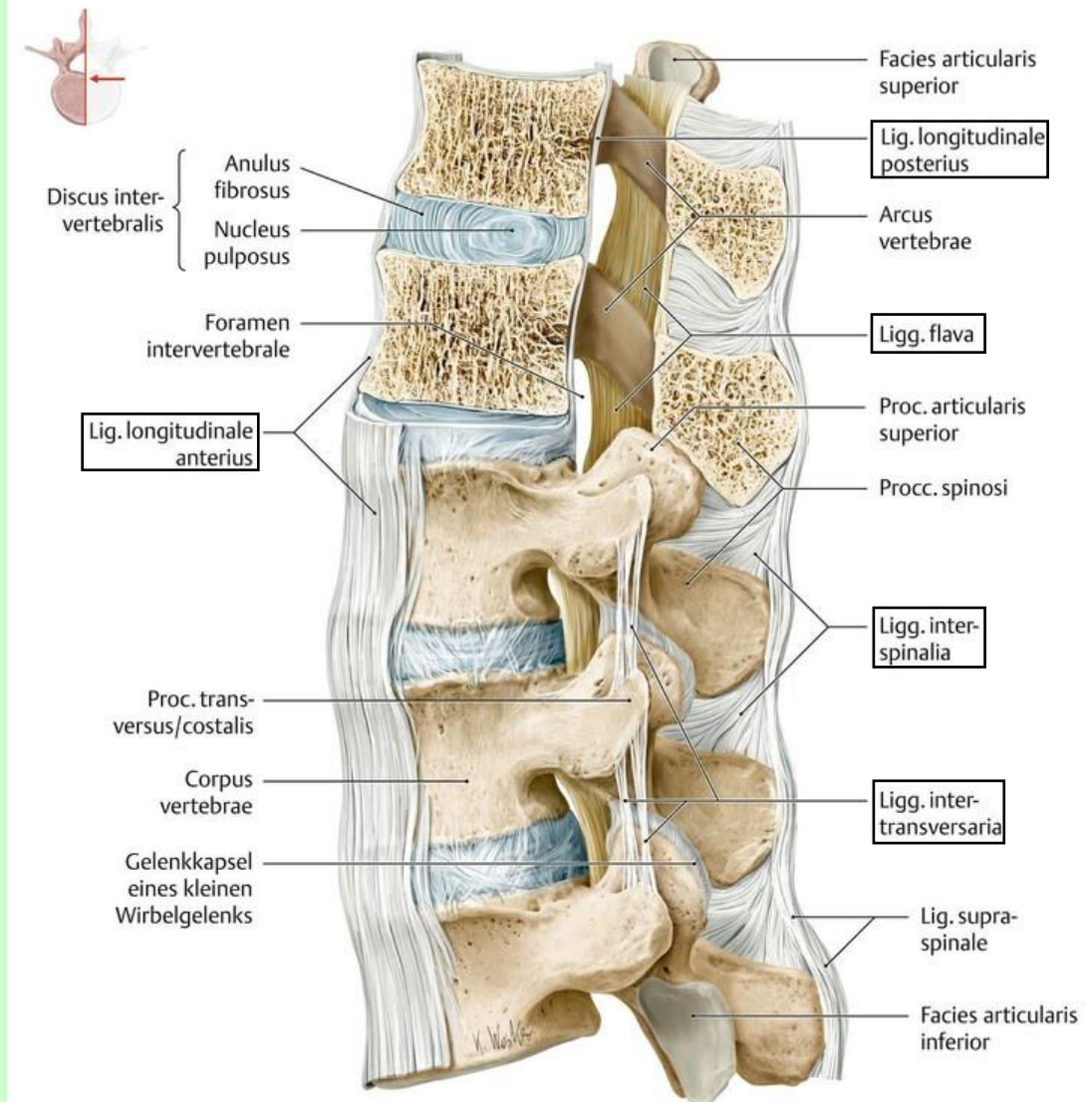
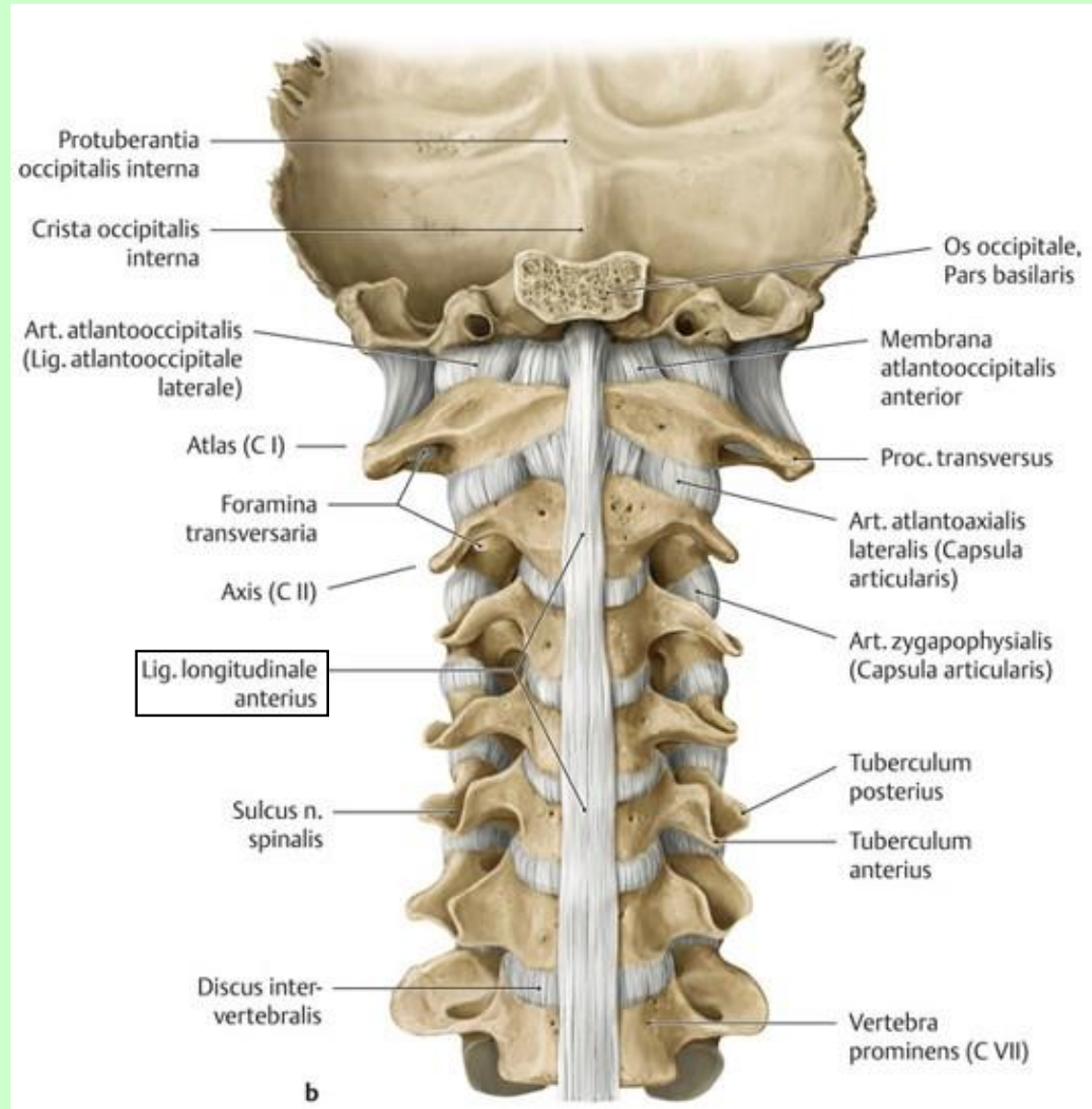


kost křížová (*os sacrum*)  
kost kostrční (*os coccygis*)



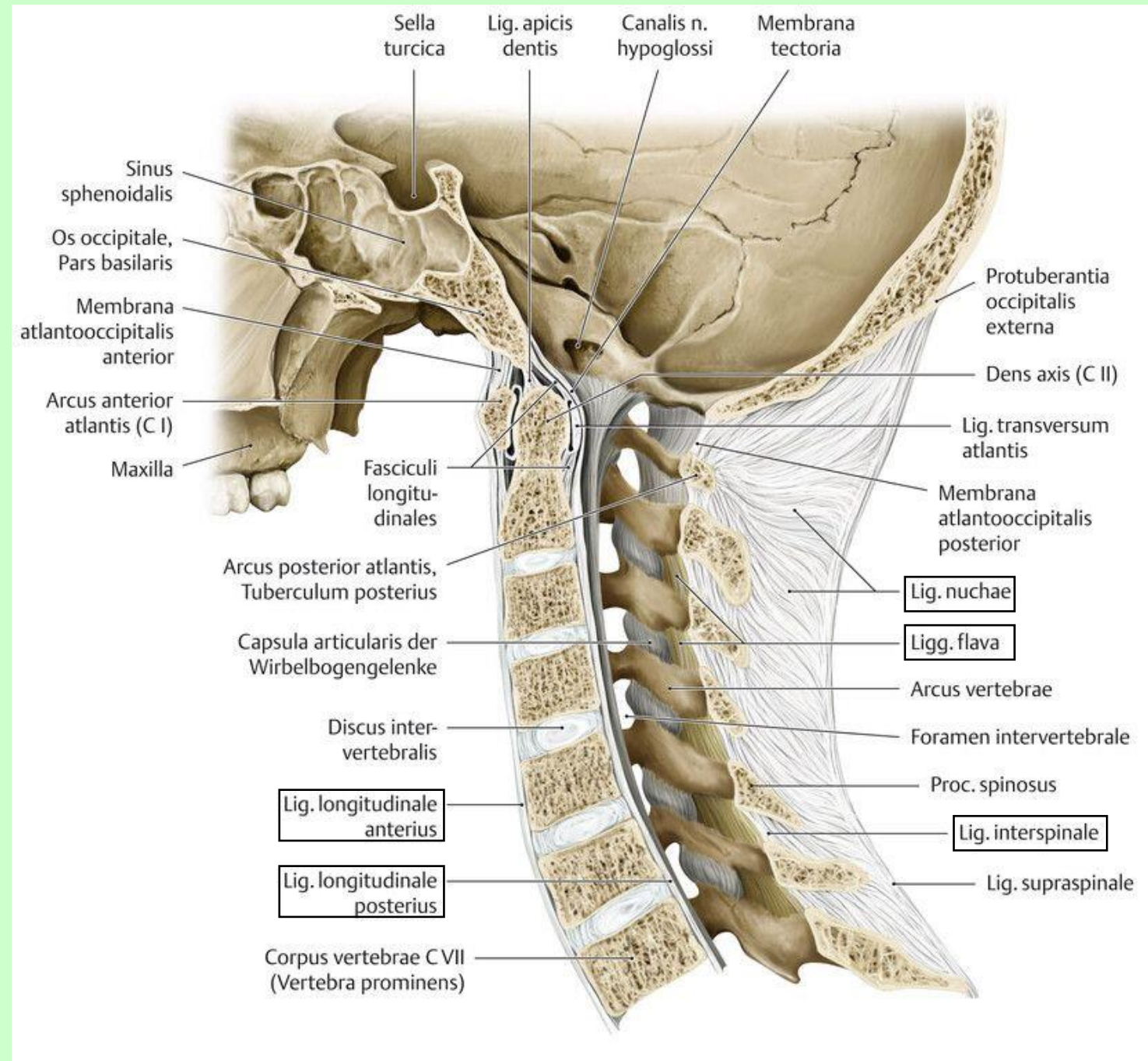
# spoje na páteři

## syndezmózy



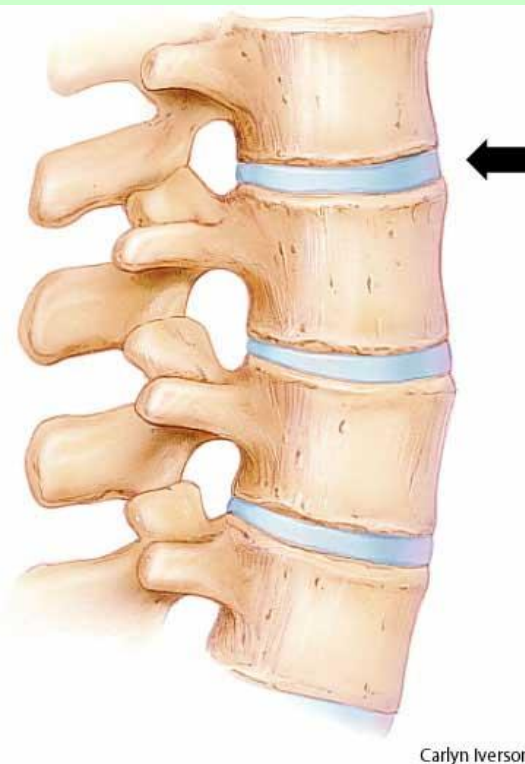
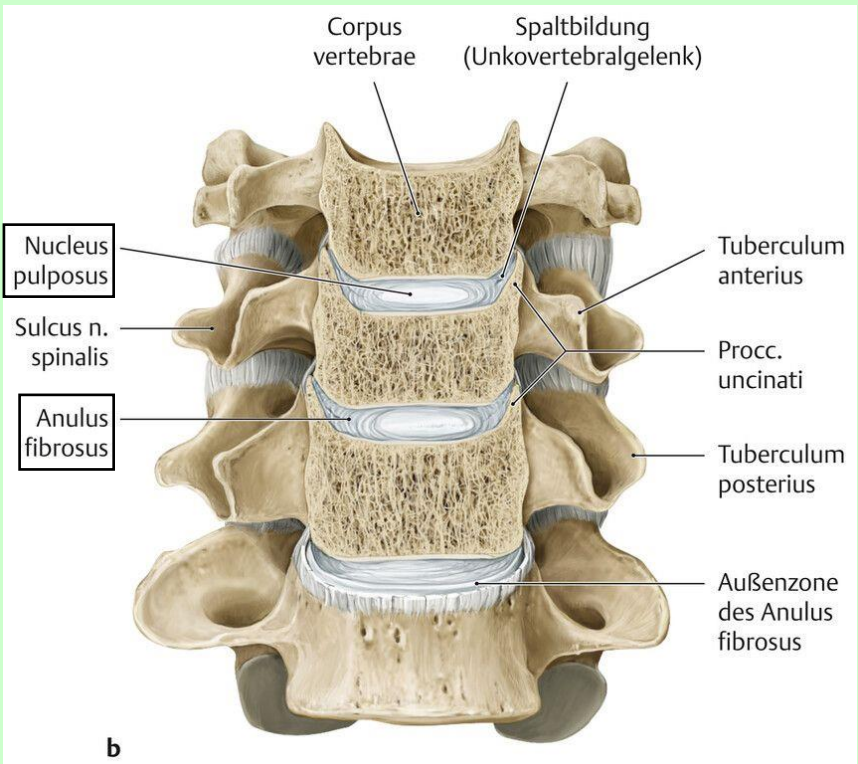
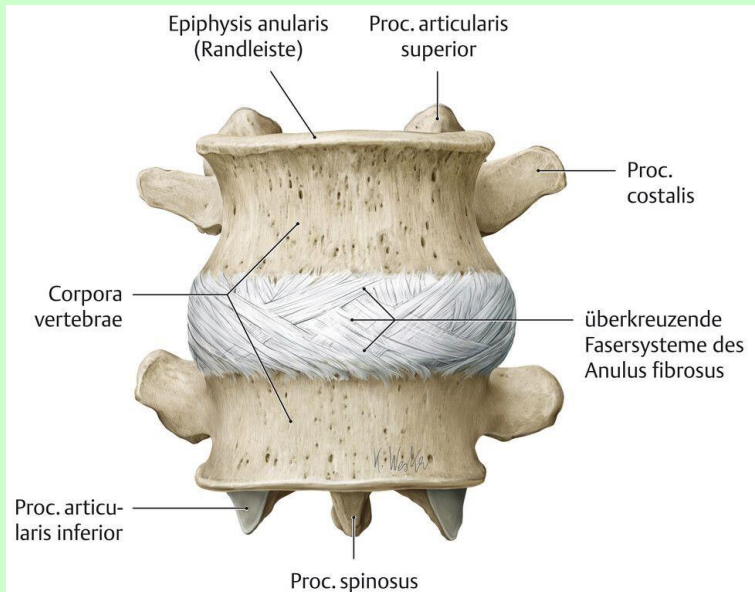
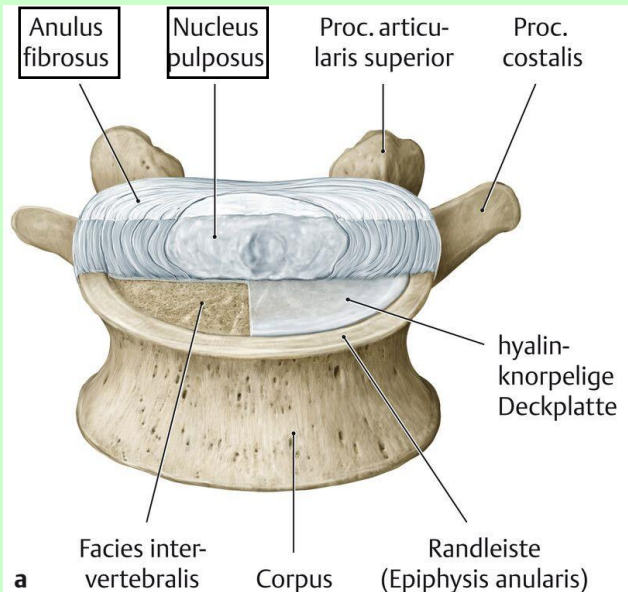
# spoje na páteři

## syndezmózy



# spoje na páteři

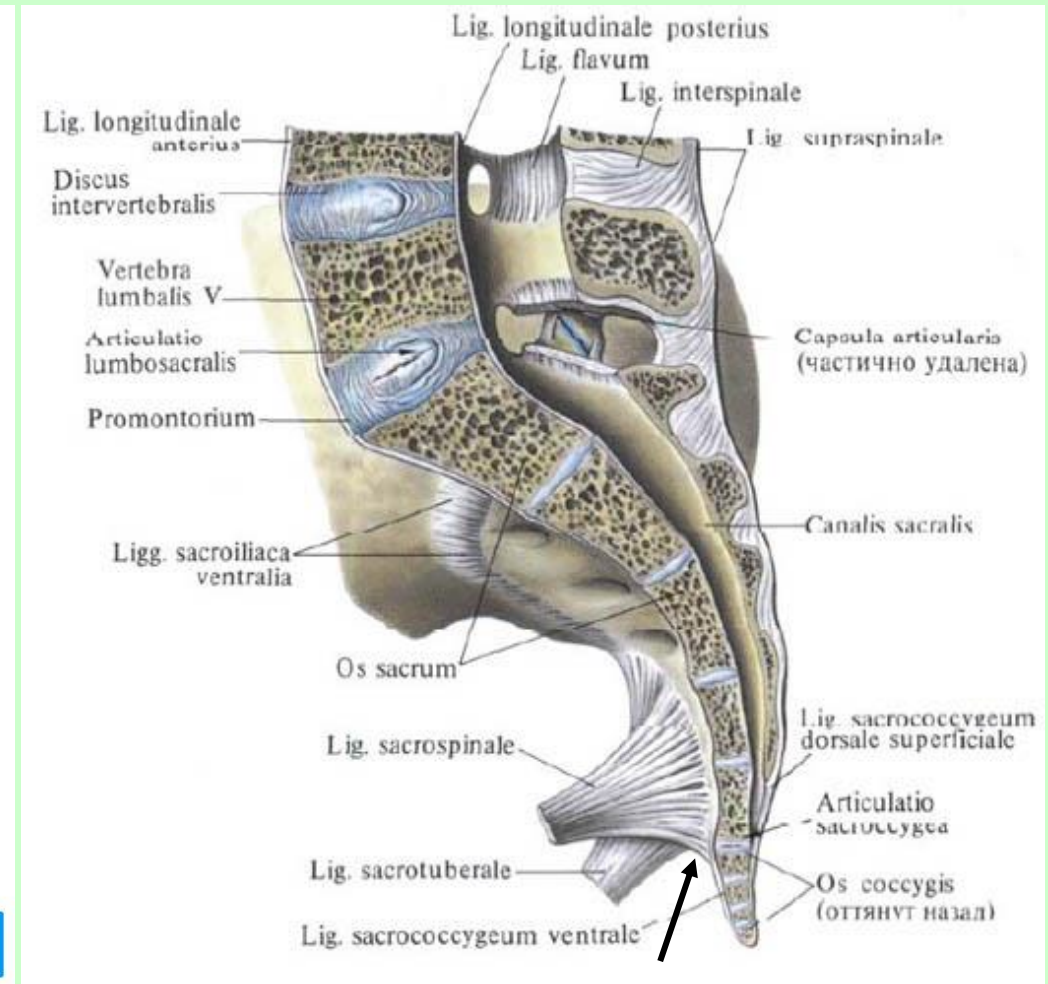
synchondrózy  
*symphysis intervertebralis*  
(*discus intervertebralis*)



# spoje na páteři

synostózy

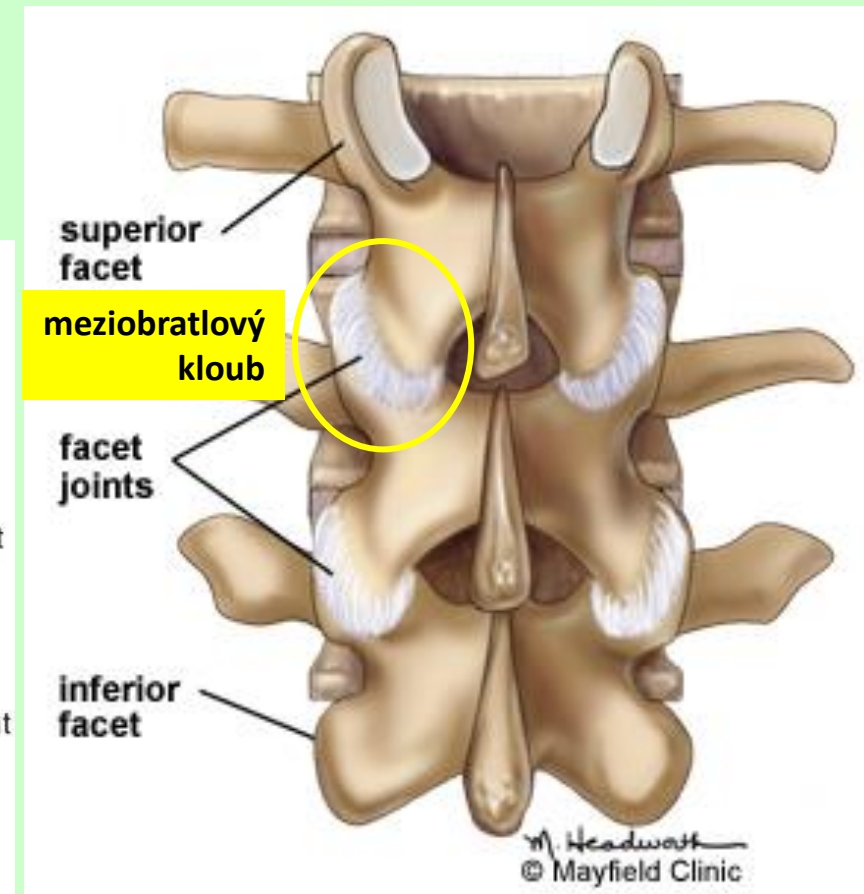
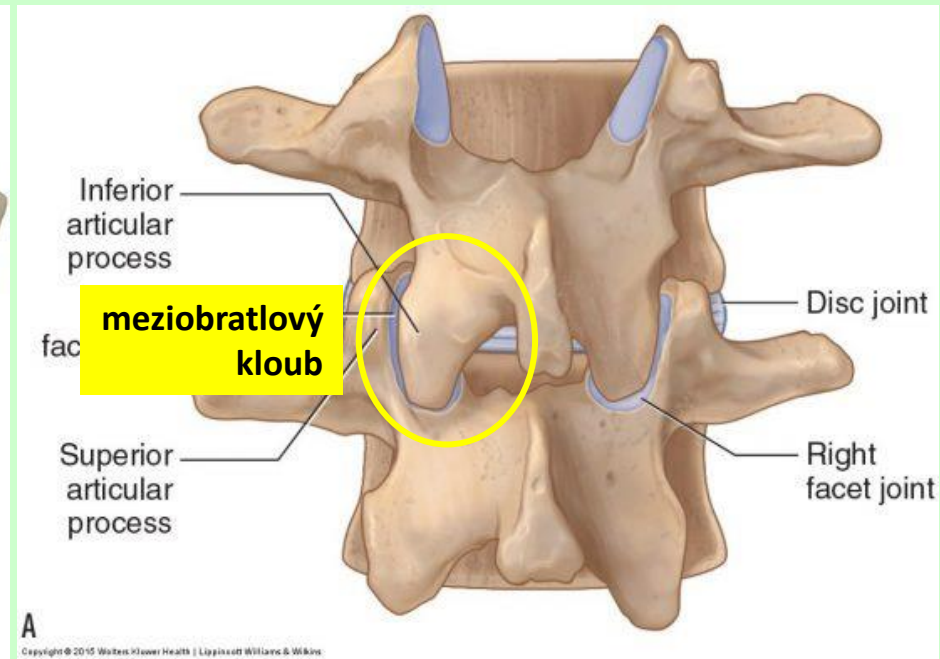
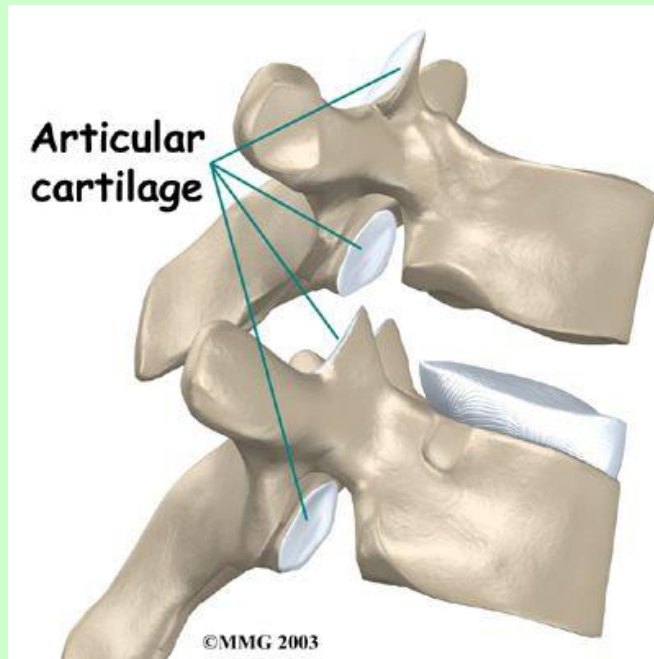
*symphysis sacrococcygea*



# spoje na páteři

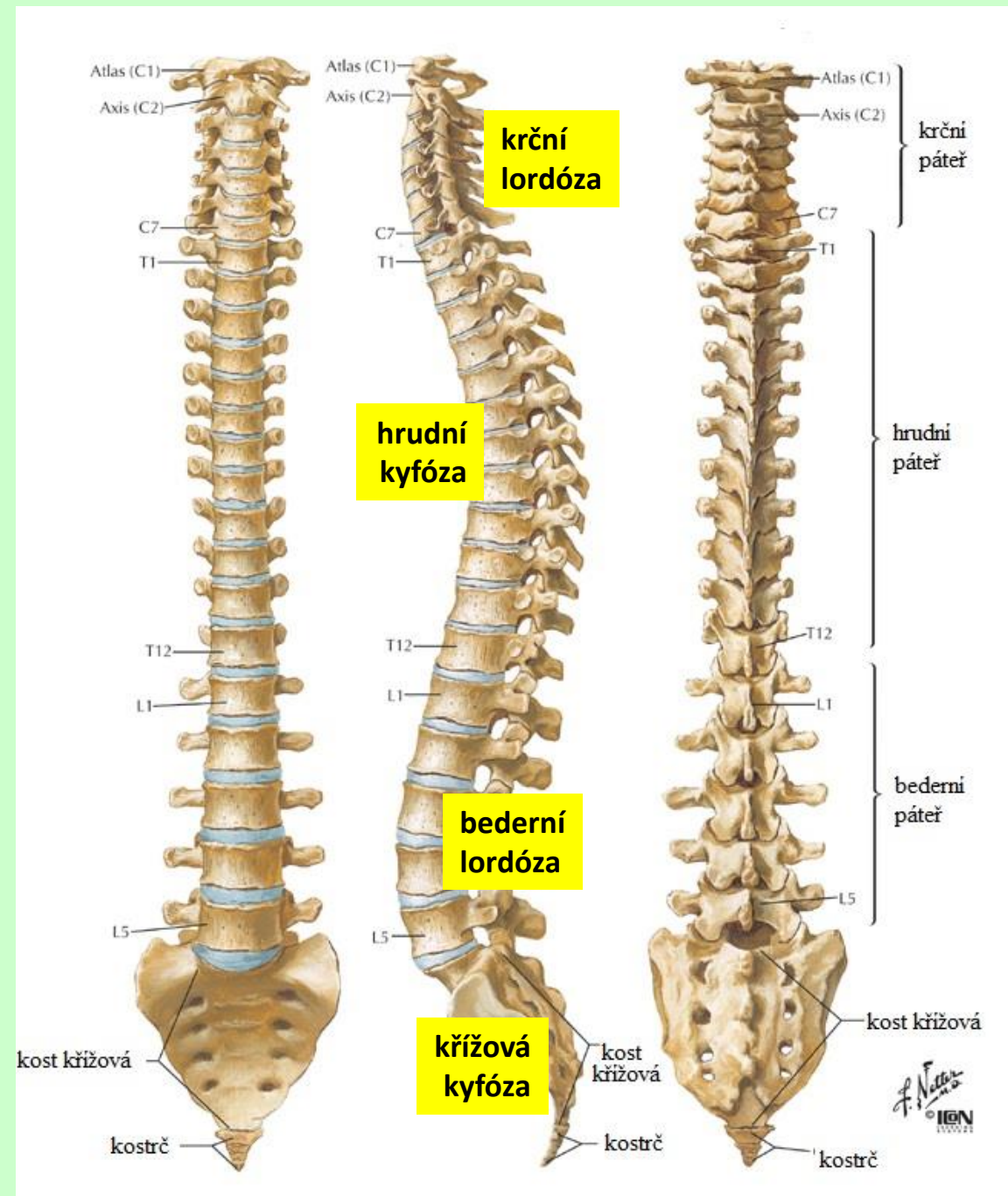
klouby

*articulatio intervertebralis*



# zakřivení páteře

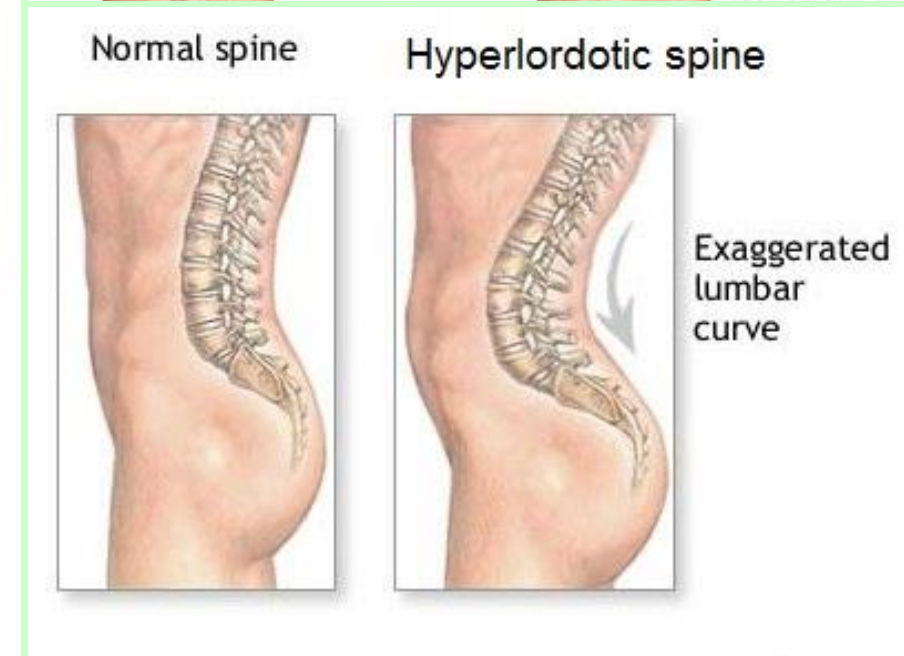
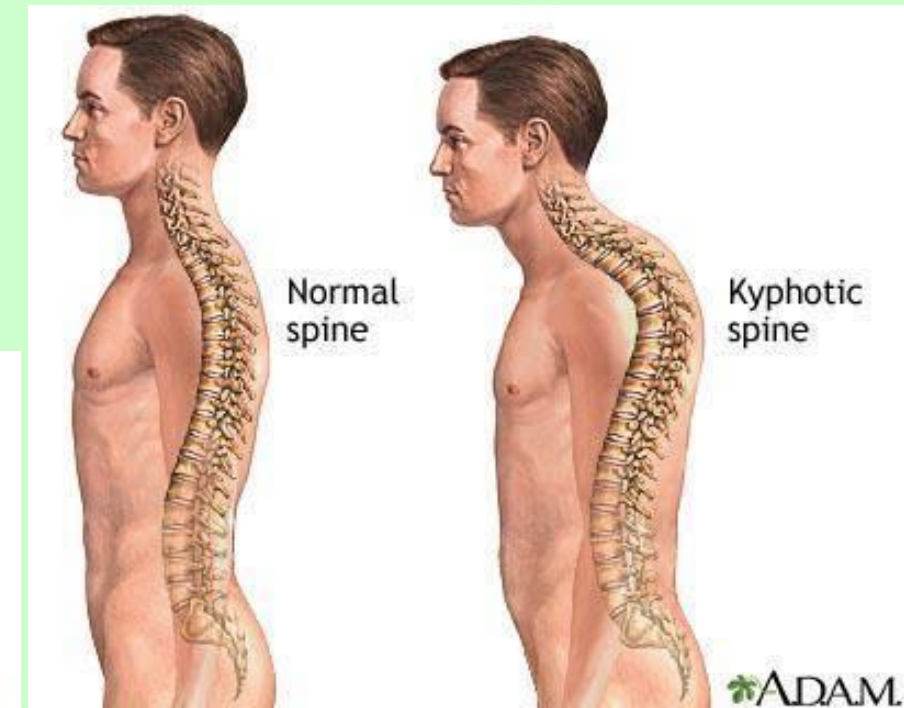
sagitální zakřivení  
frontální zakřivení



# zakřivení páteře

sagitální zakřivení  
frontální zakřivení

patologie



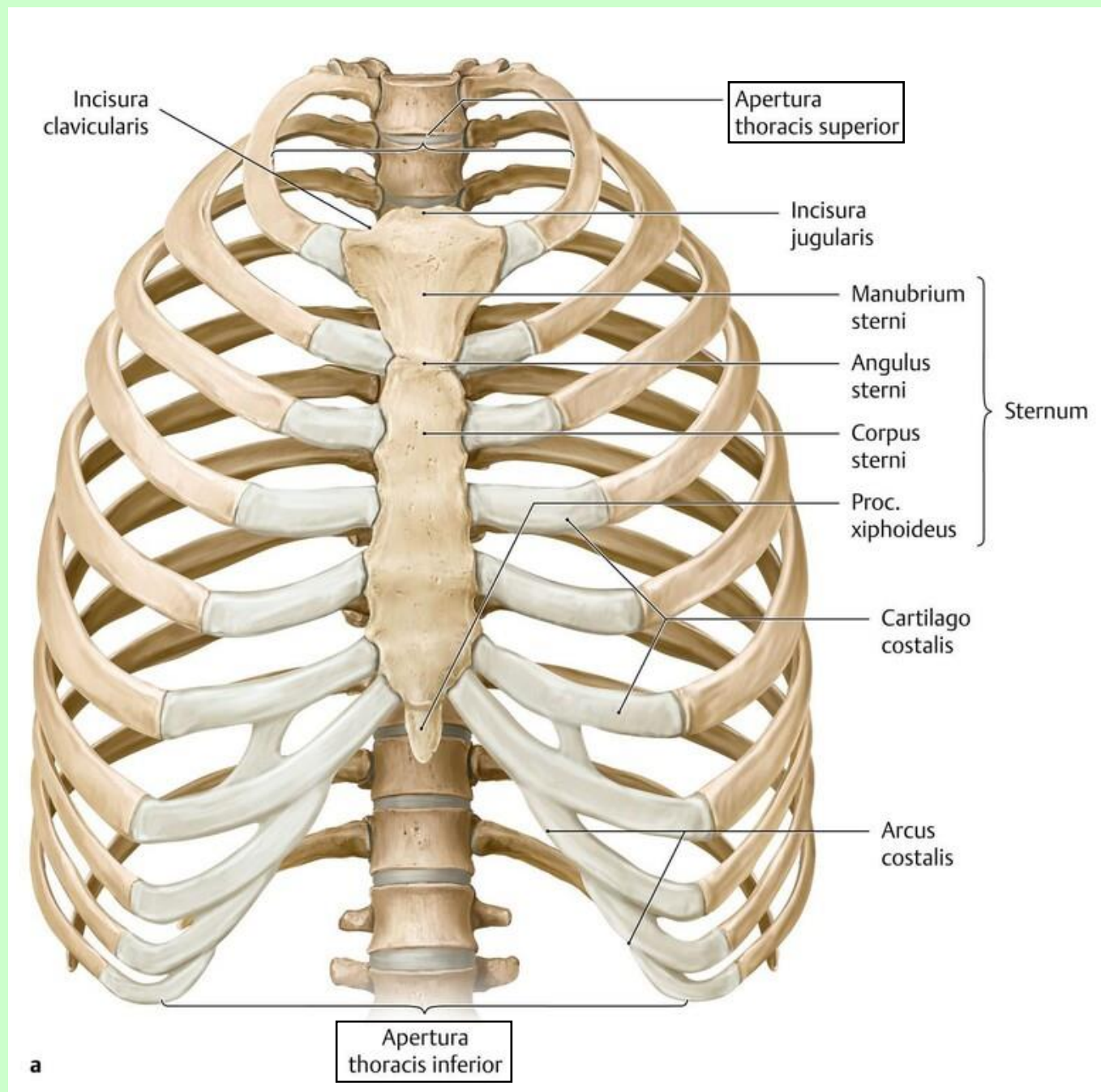
# KOSTERNÍ SOUSTAVA

*(Systema skeleti)*

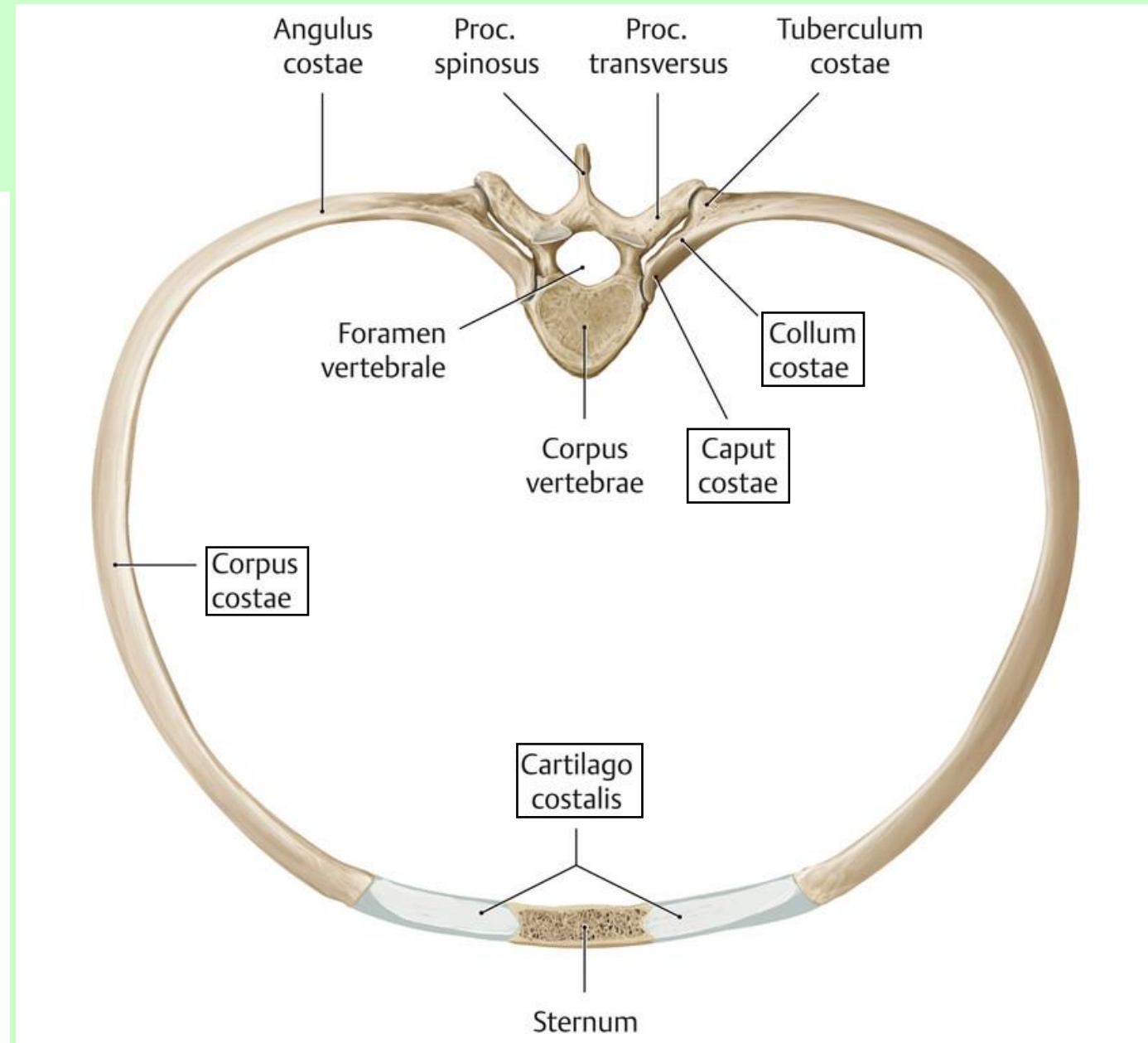
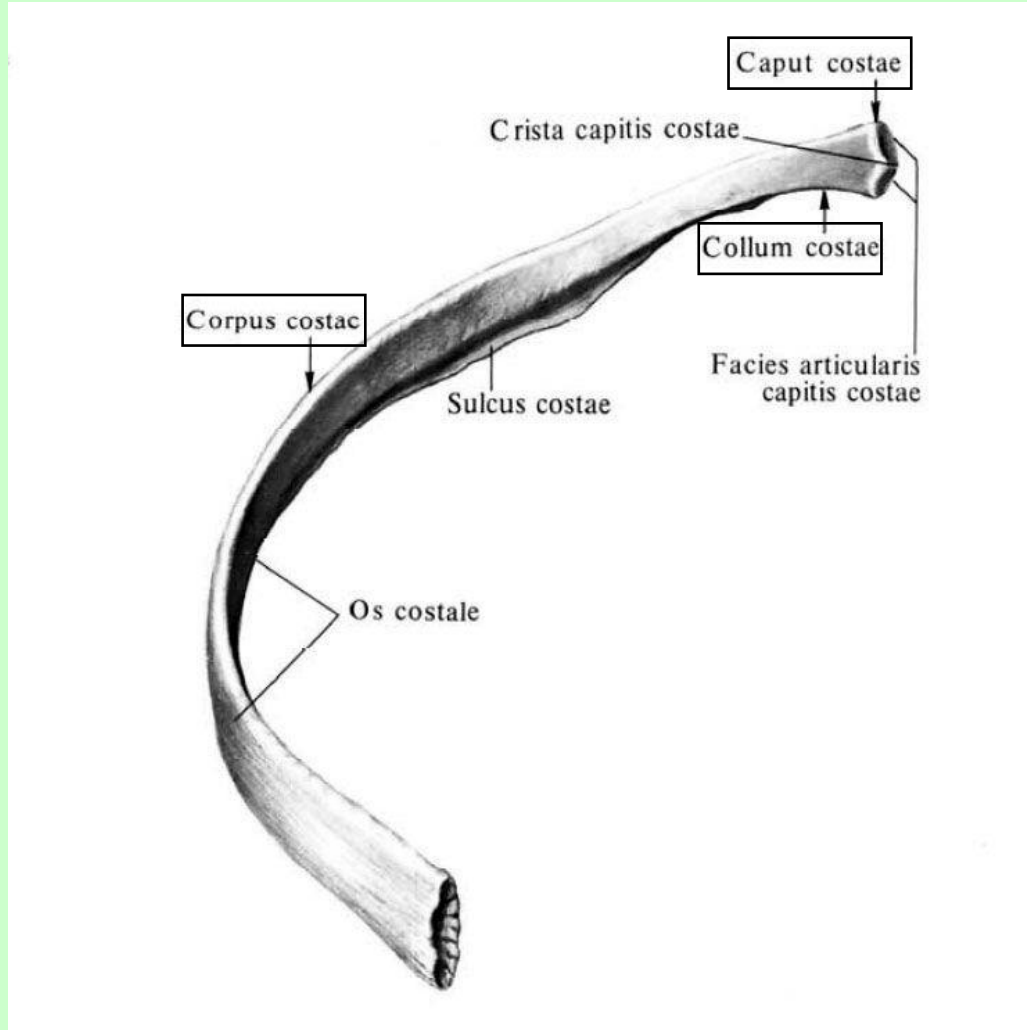
kostra trupu

hrudník (*thorax*)

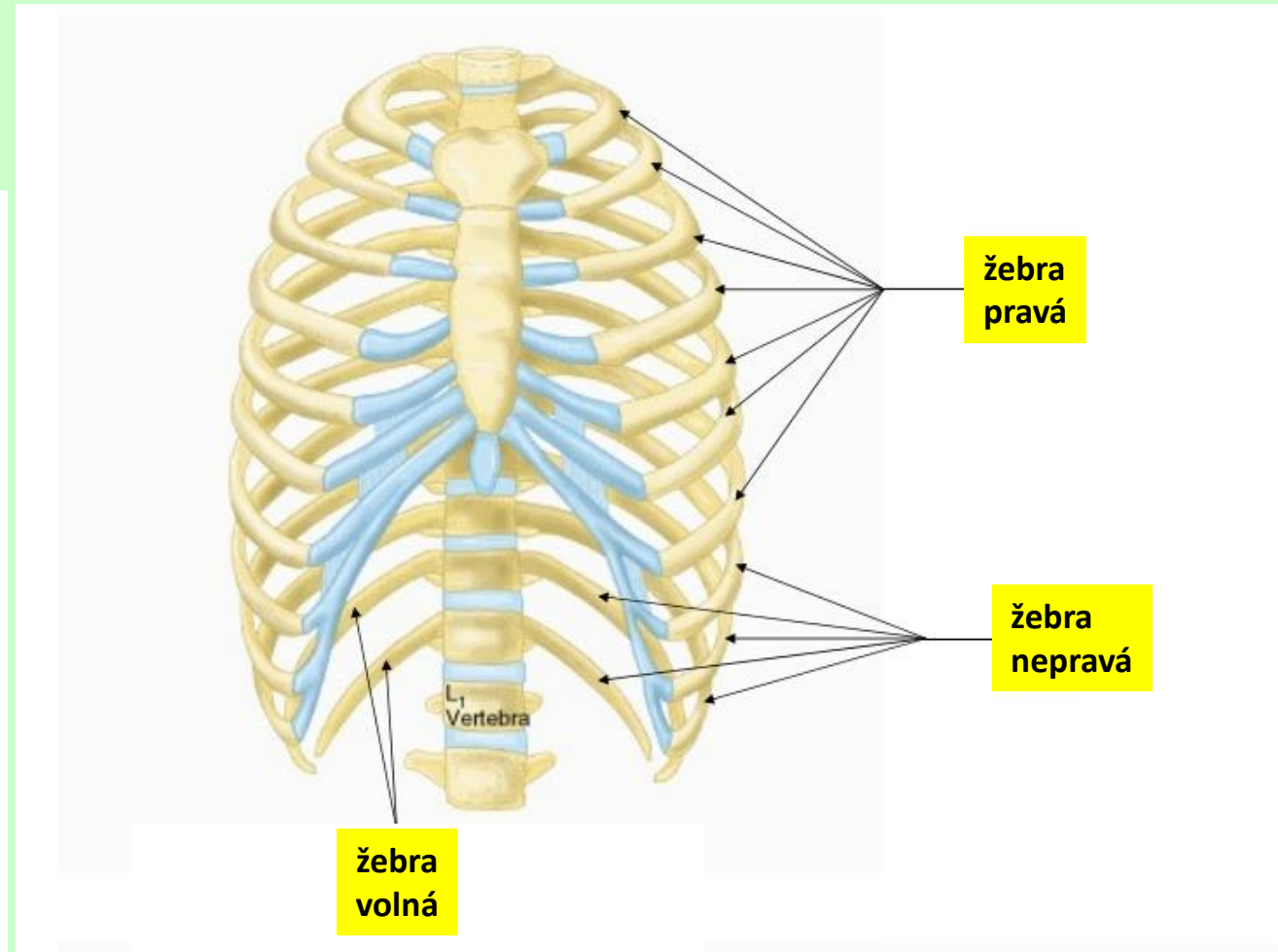
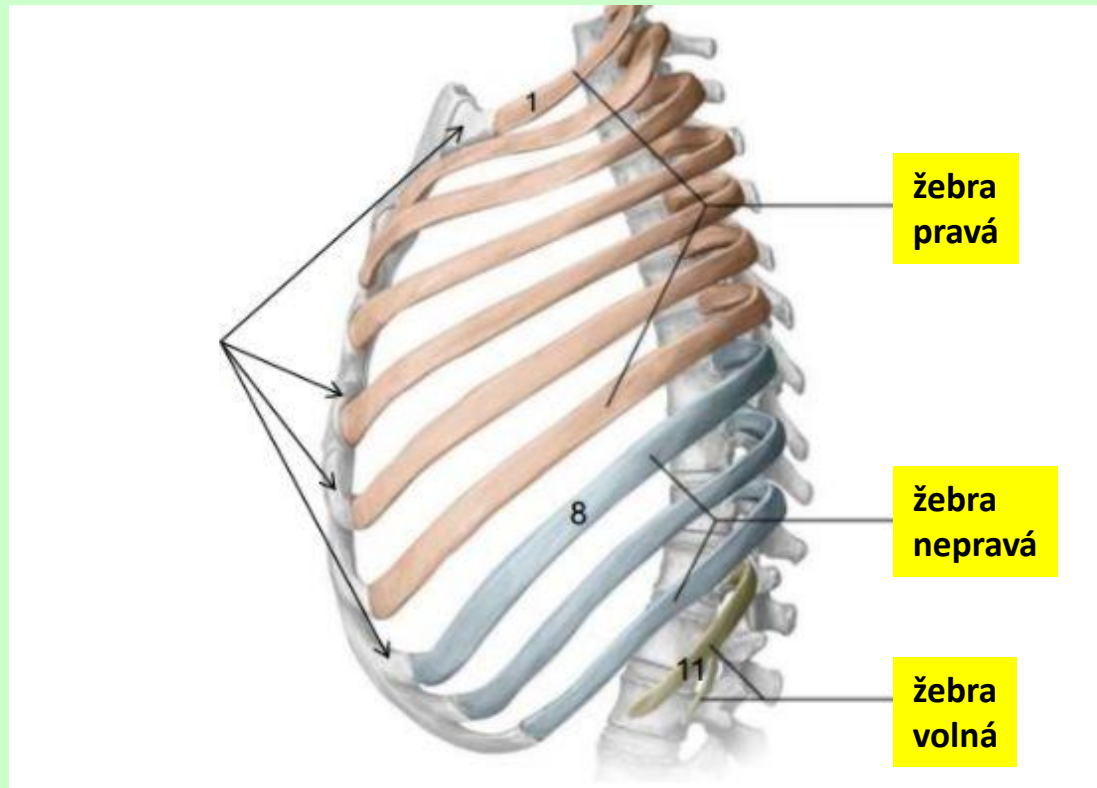
# hrudní koš



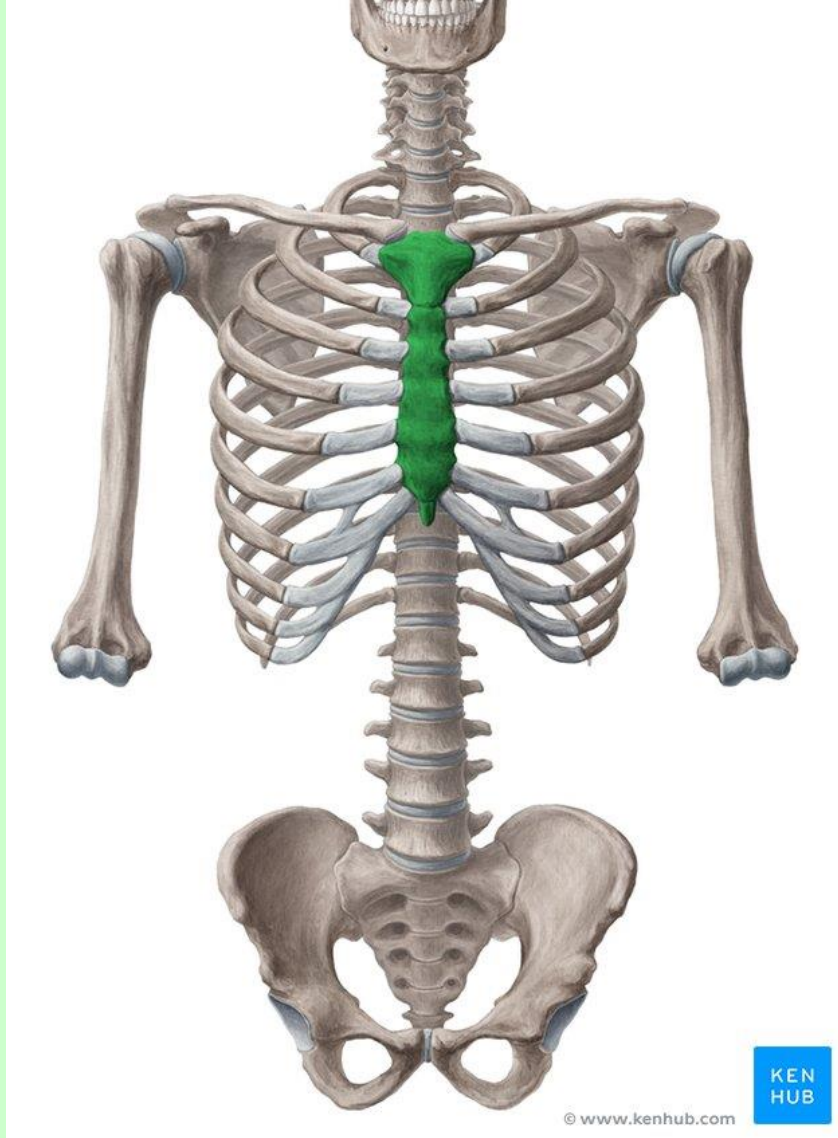
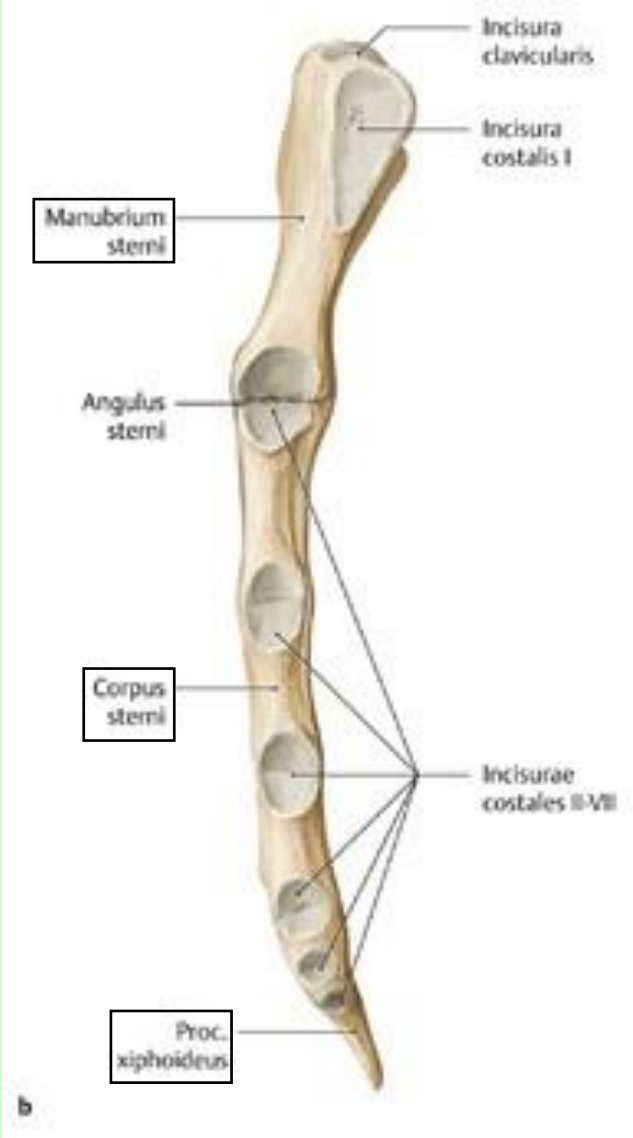
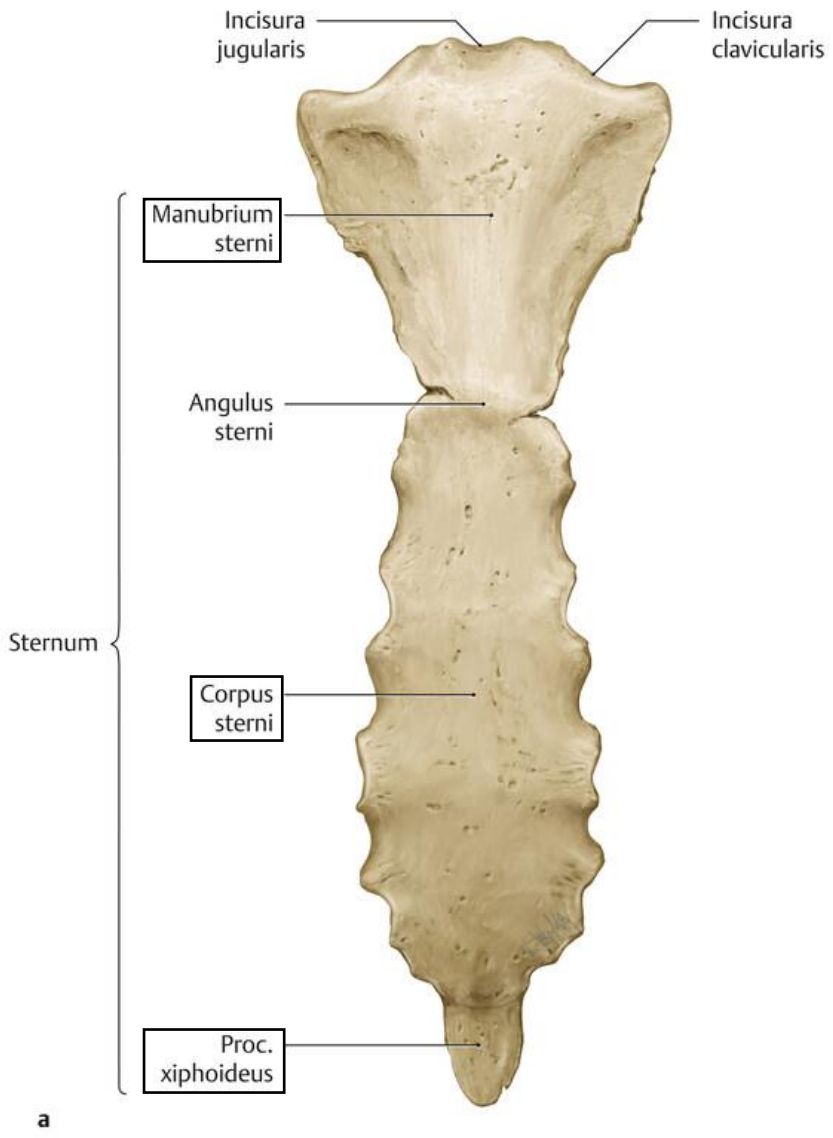
# žebra (*costae*)



# žebra (*costae*)



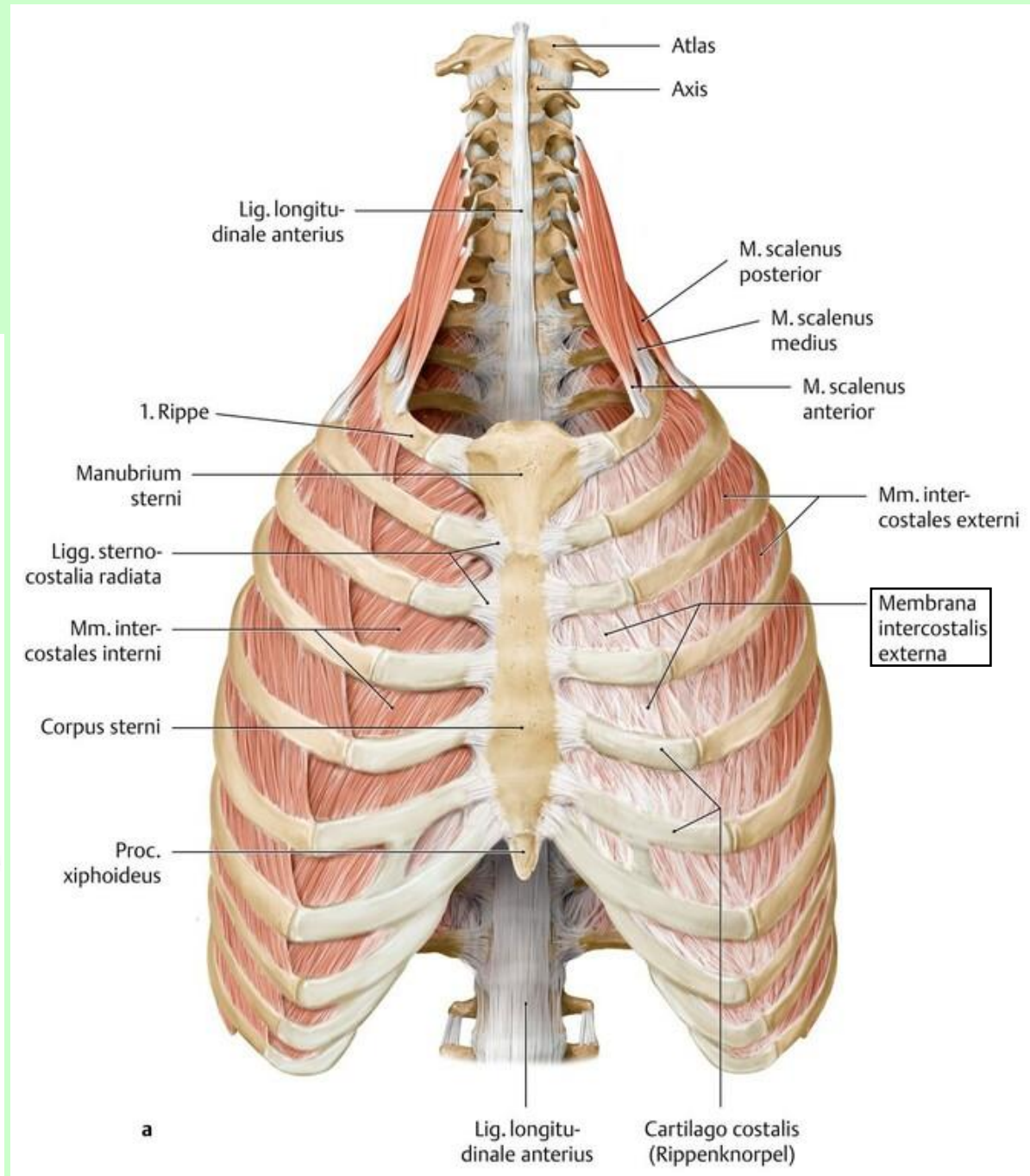
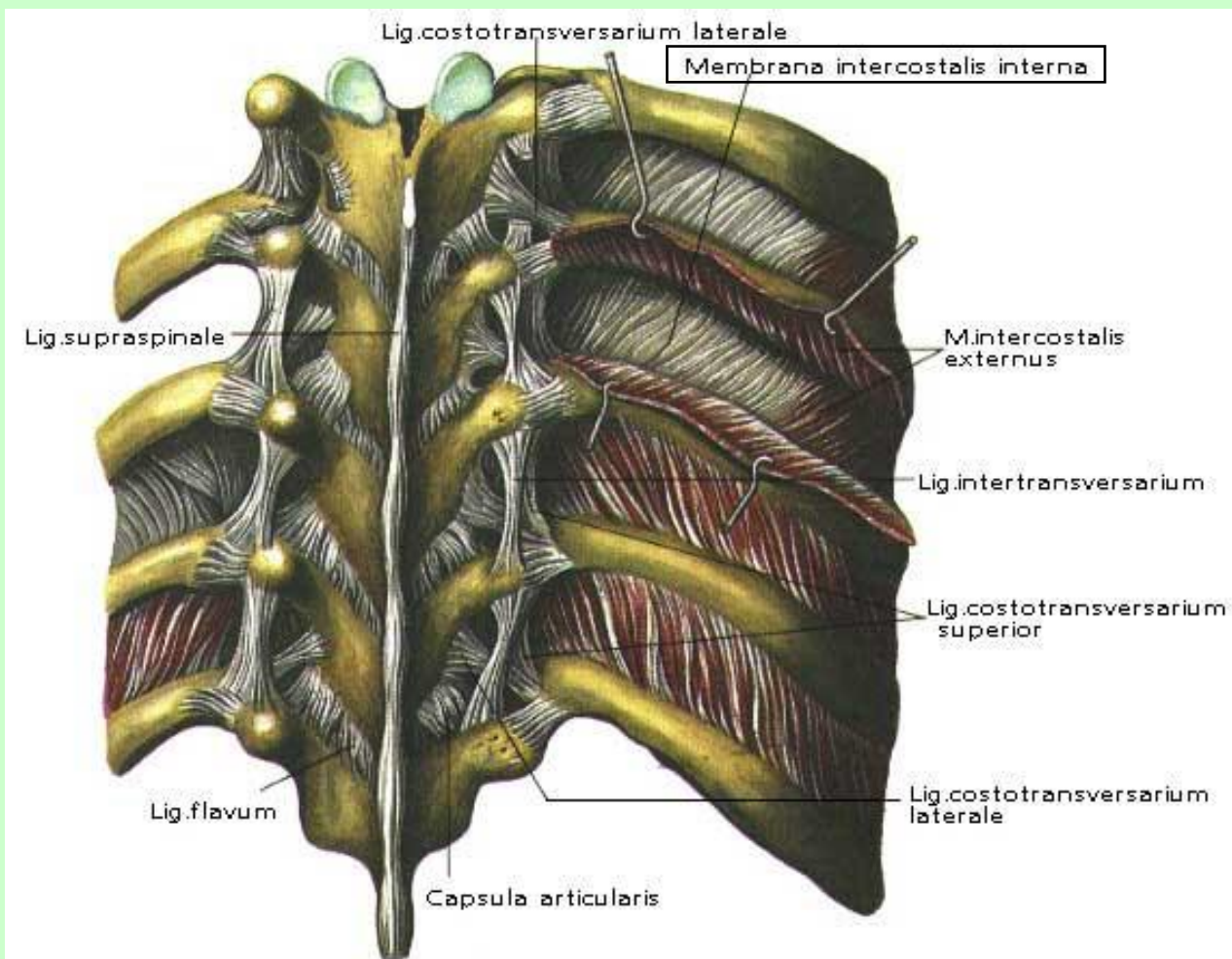
# kost hrudní (*sternum*)



# spoje na hrudníku

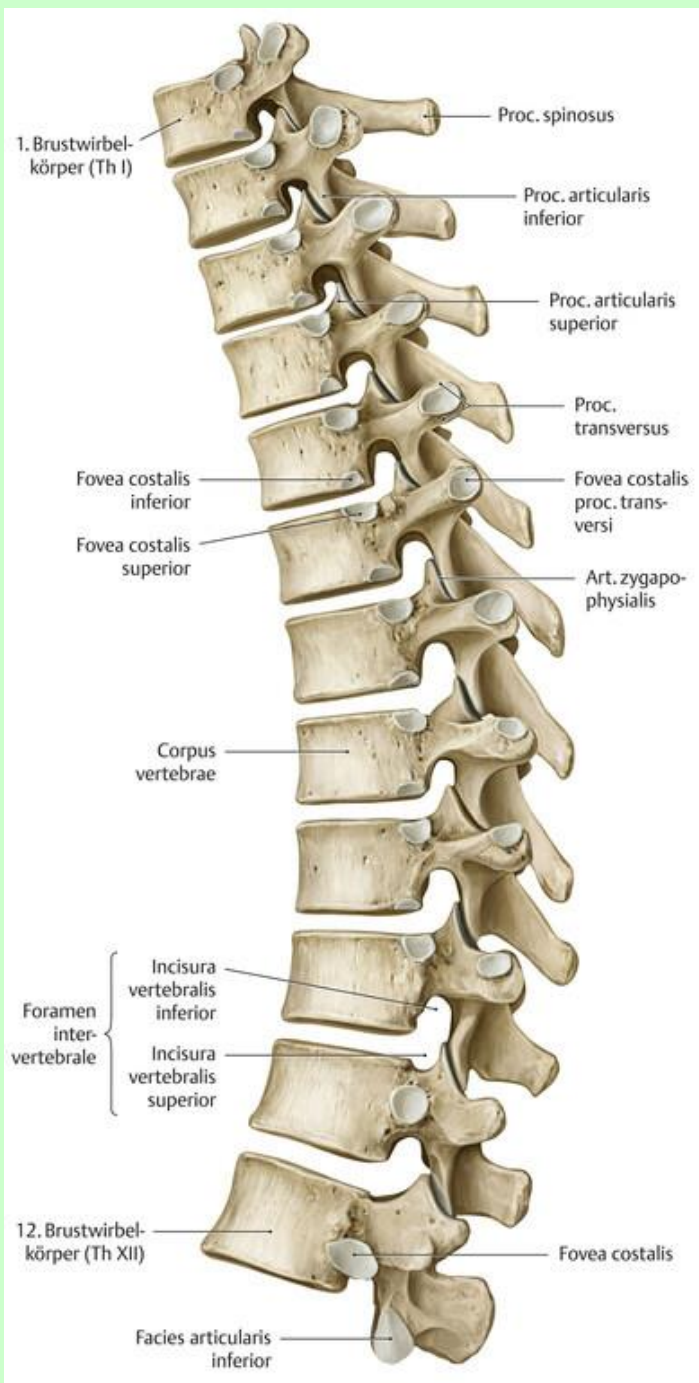
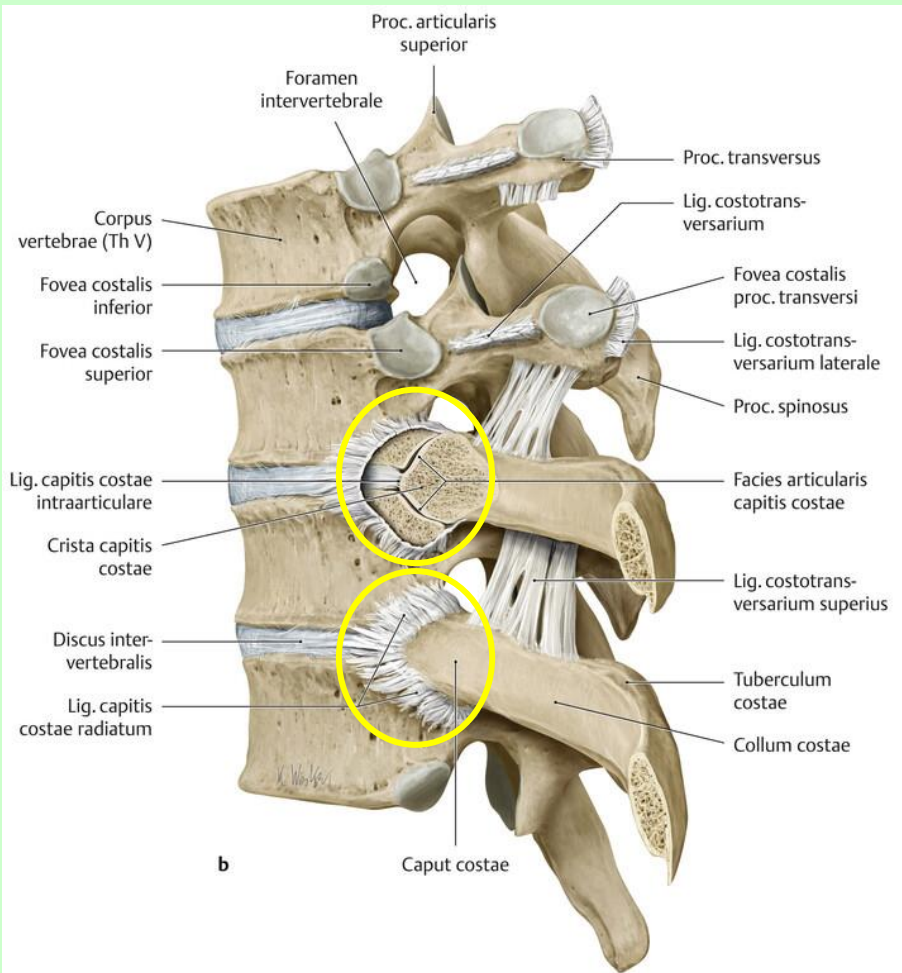
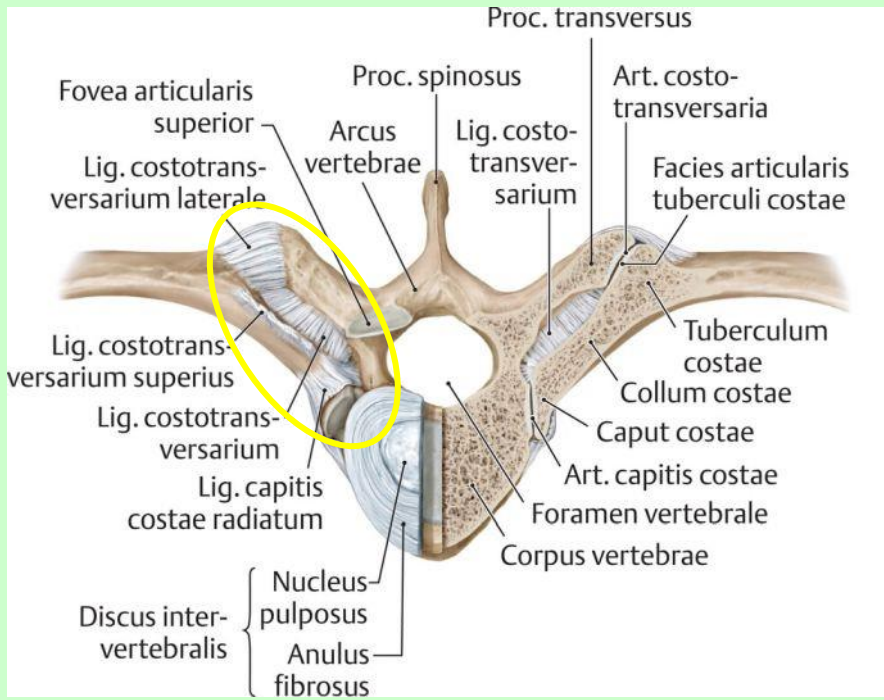
*membrana intercostalis externa*

*membrana intercostalis interna*



# spoje na hrudníku

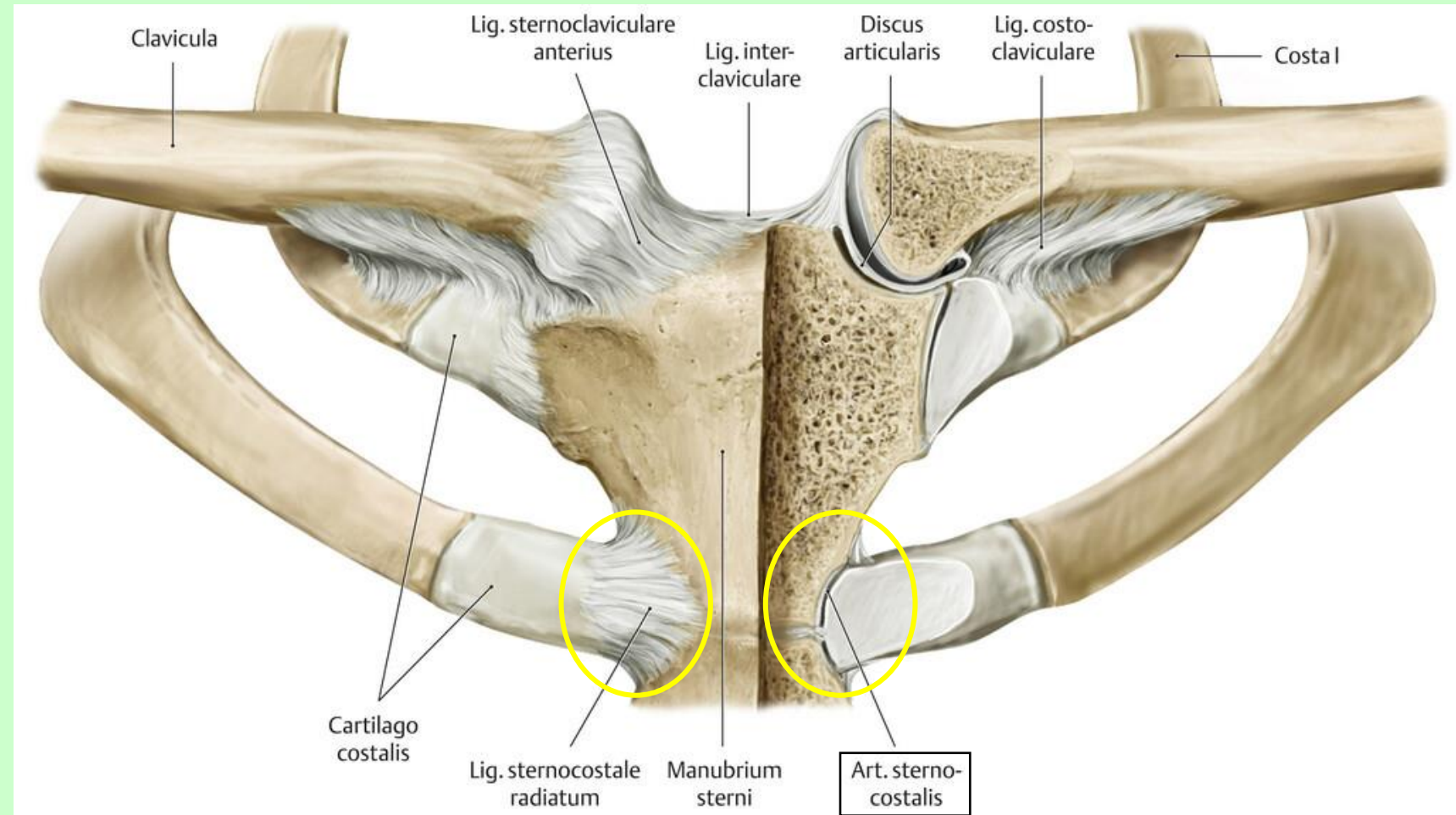
## articulatio costovertebralis



# spoje na hrudníku

*articulatio sternocostalis*

*synchondrosis sternocostalis*



# KOSTERNÍ SOUSTAVA

*(Systema skeleti)*

lebka (*cranium*)

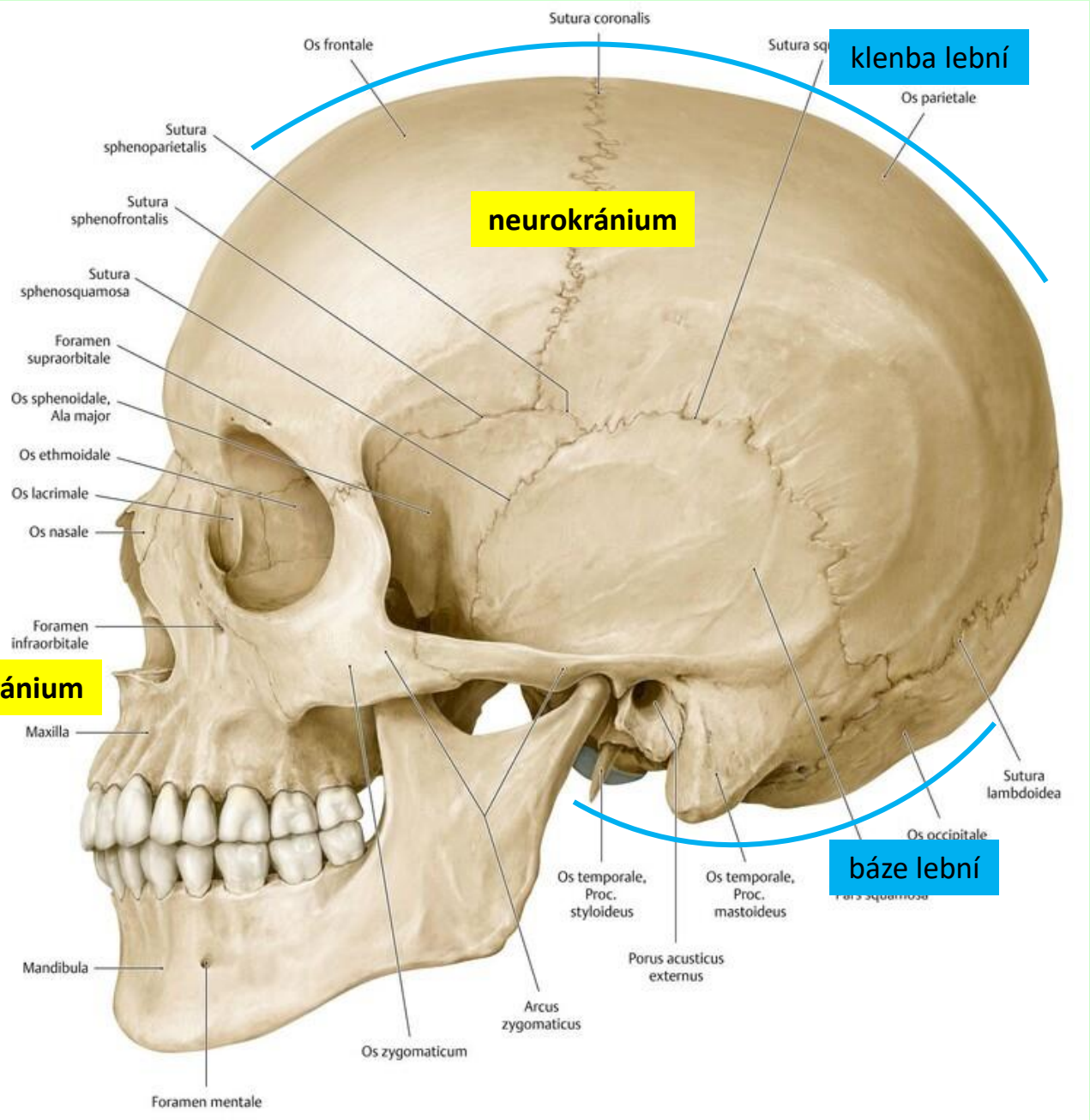
# celková stavba

splanchnokránium

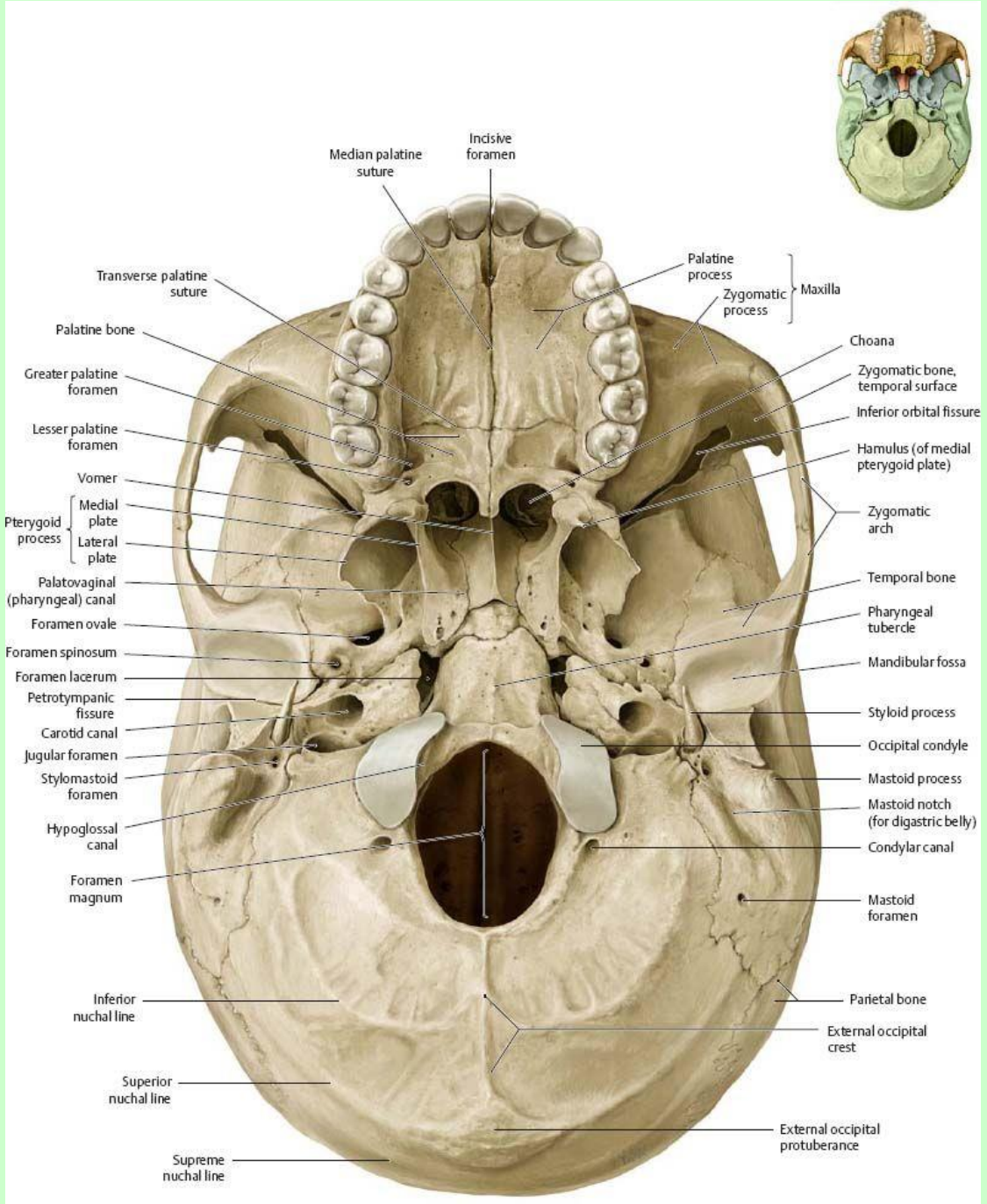
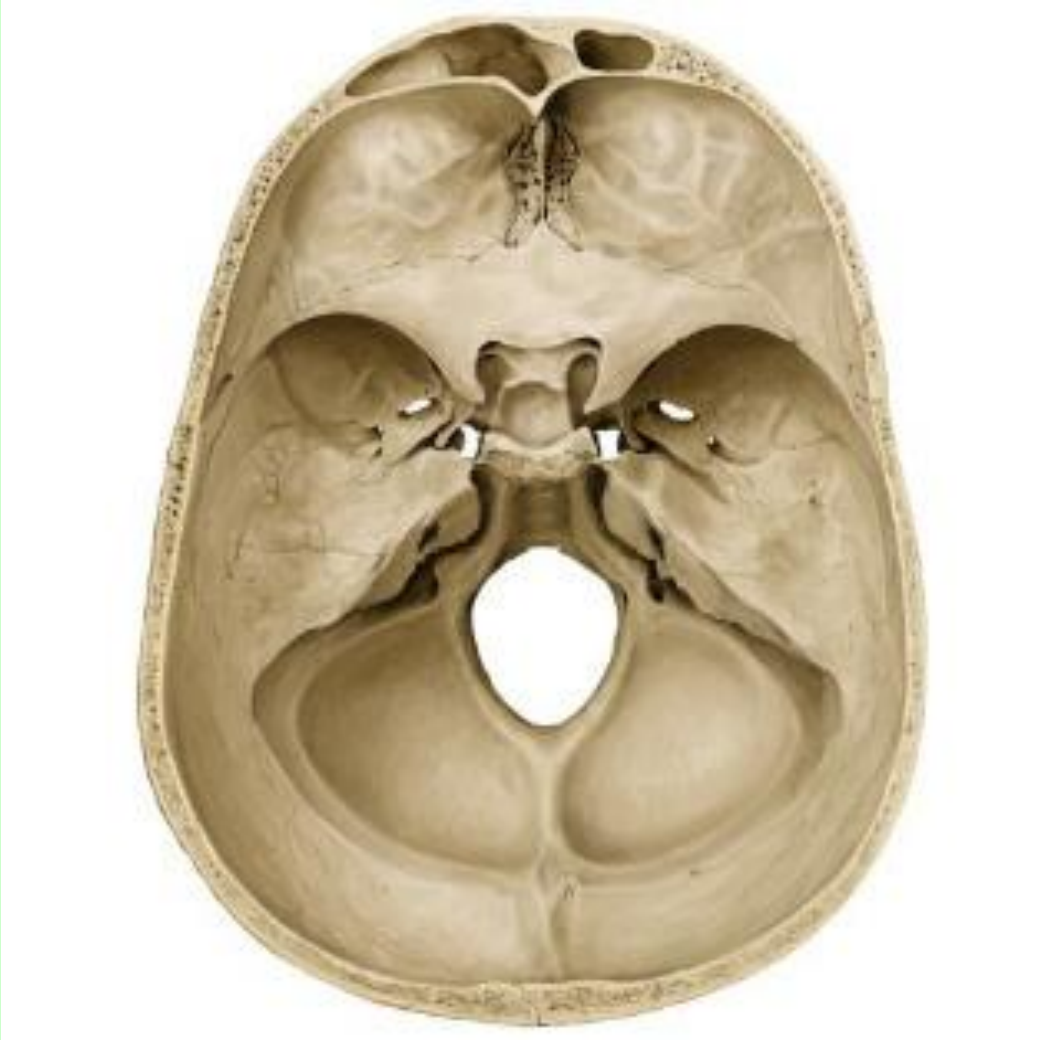
neurokránium

klenba lební

báze lební



# celková stavba



# báze lební (vnější plocha)

horní čelist

kost patrová

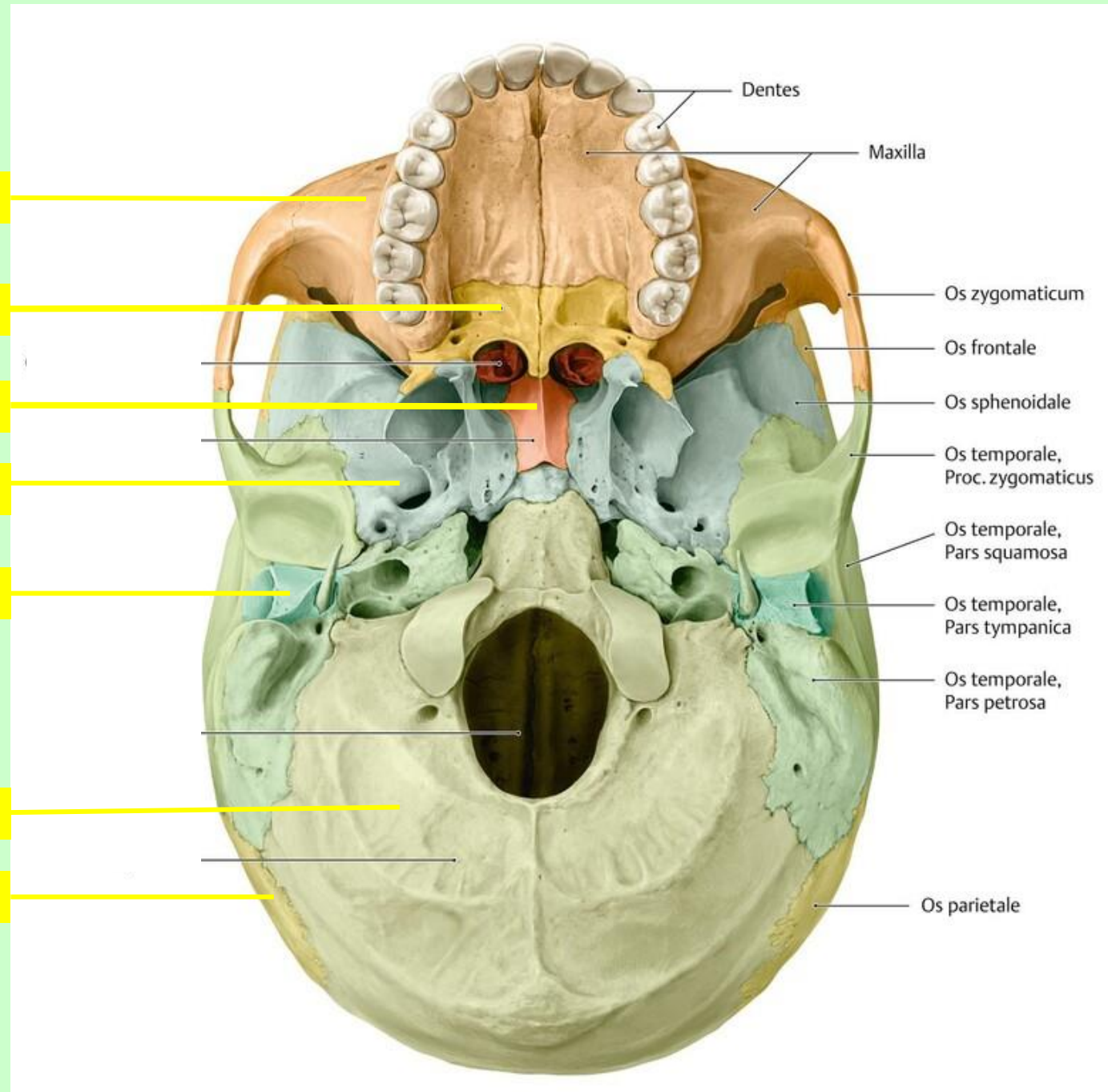
kost radličná

kost klínová

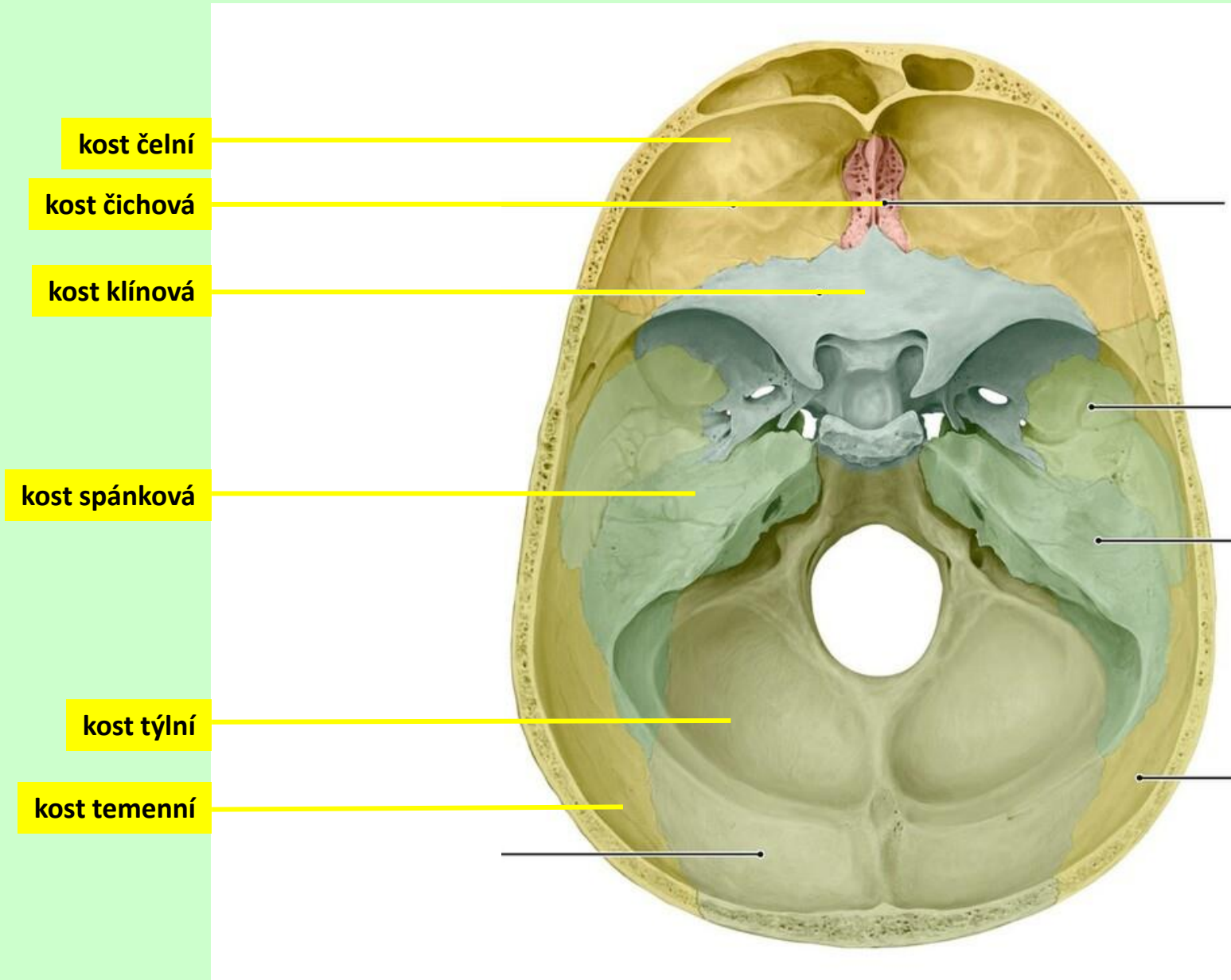
kost spánková

kost týlní

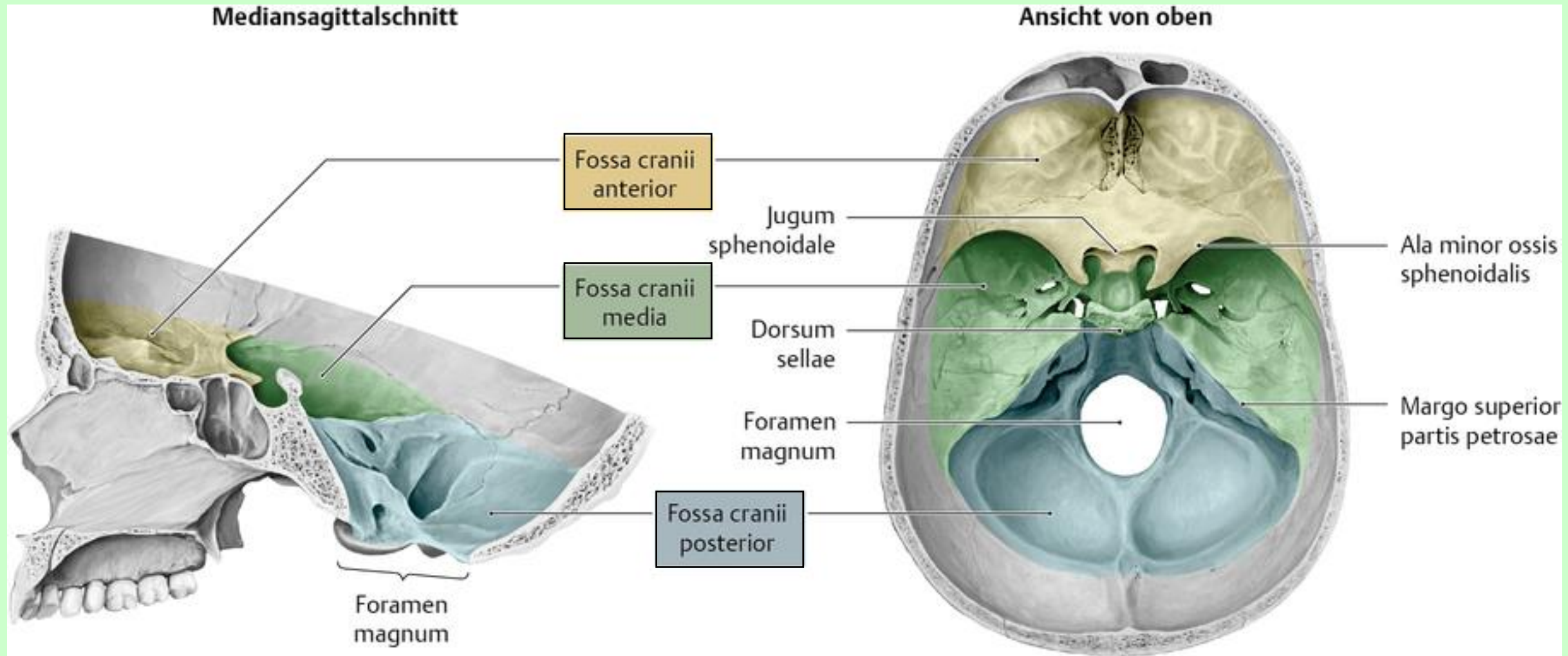
kost temenní



# báze lební (vnitřní plocha)



# báze lební (vnitřní plocha)

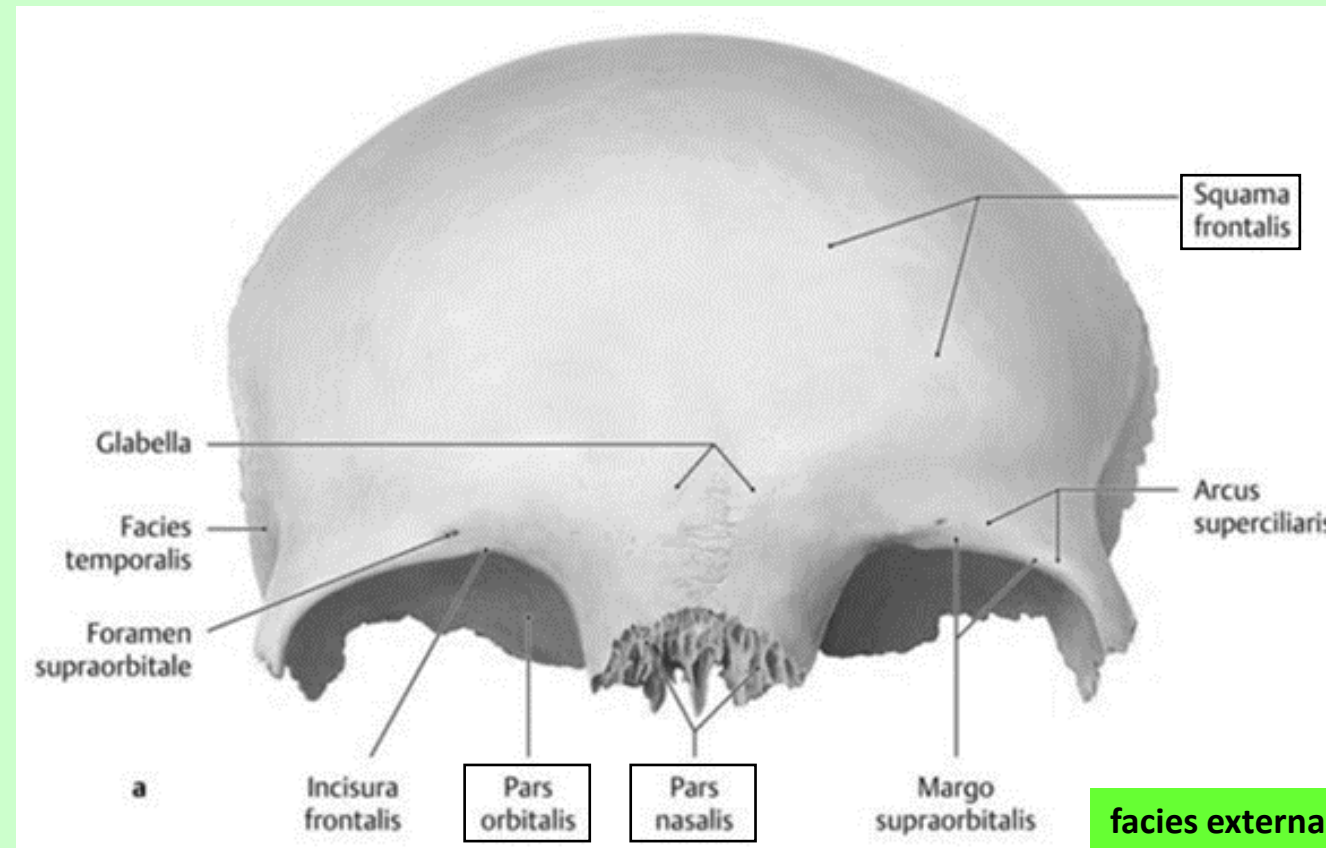
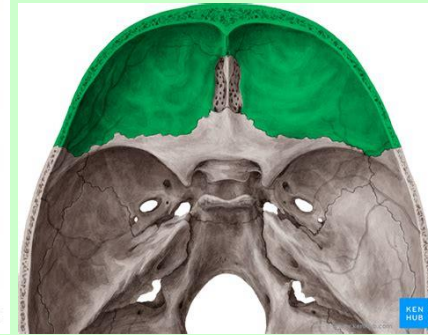
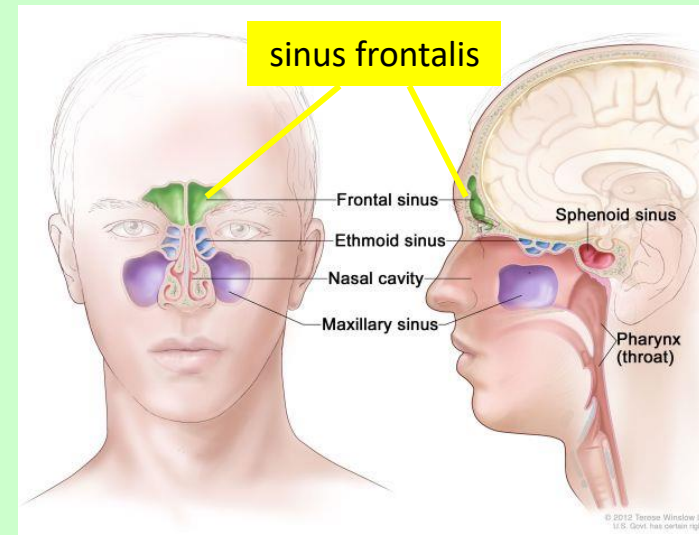


# kost čelní (*os frontale*)

*squama*

*pars orbitalis*

*pars nasalis*

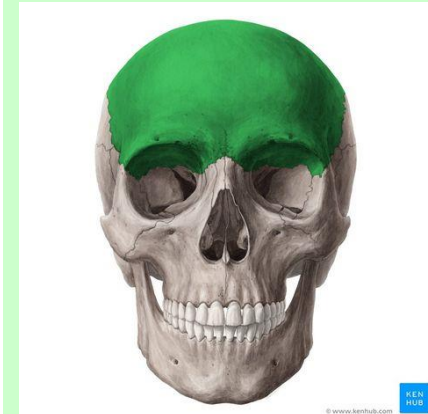
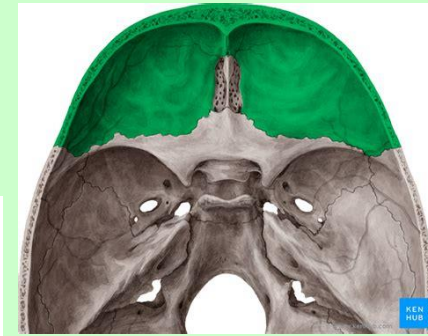
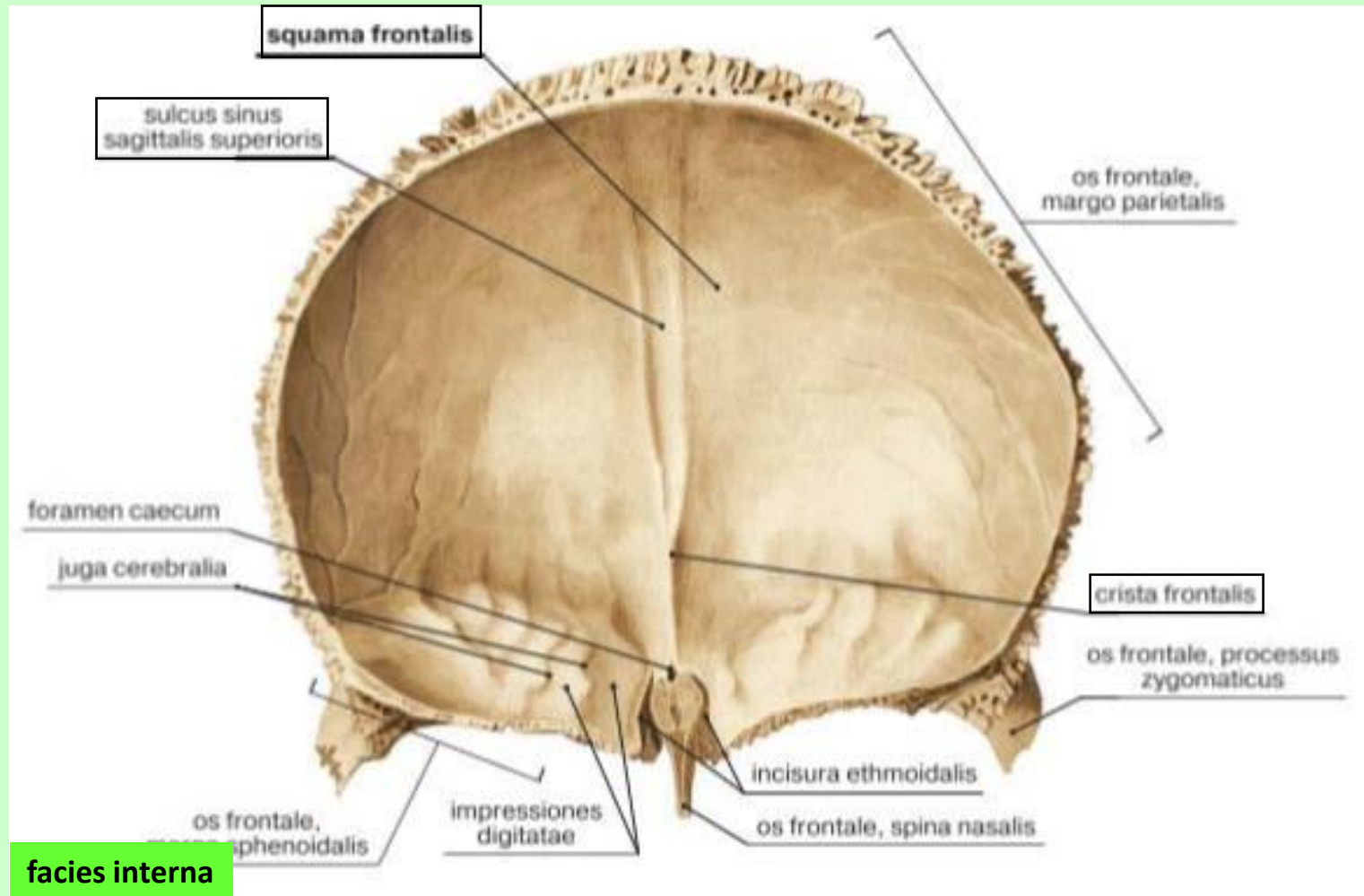


# kost čelní (*os frontale*)

*squama*

*pars orbitalis*

*pars nasalis*

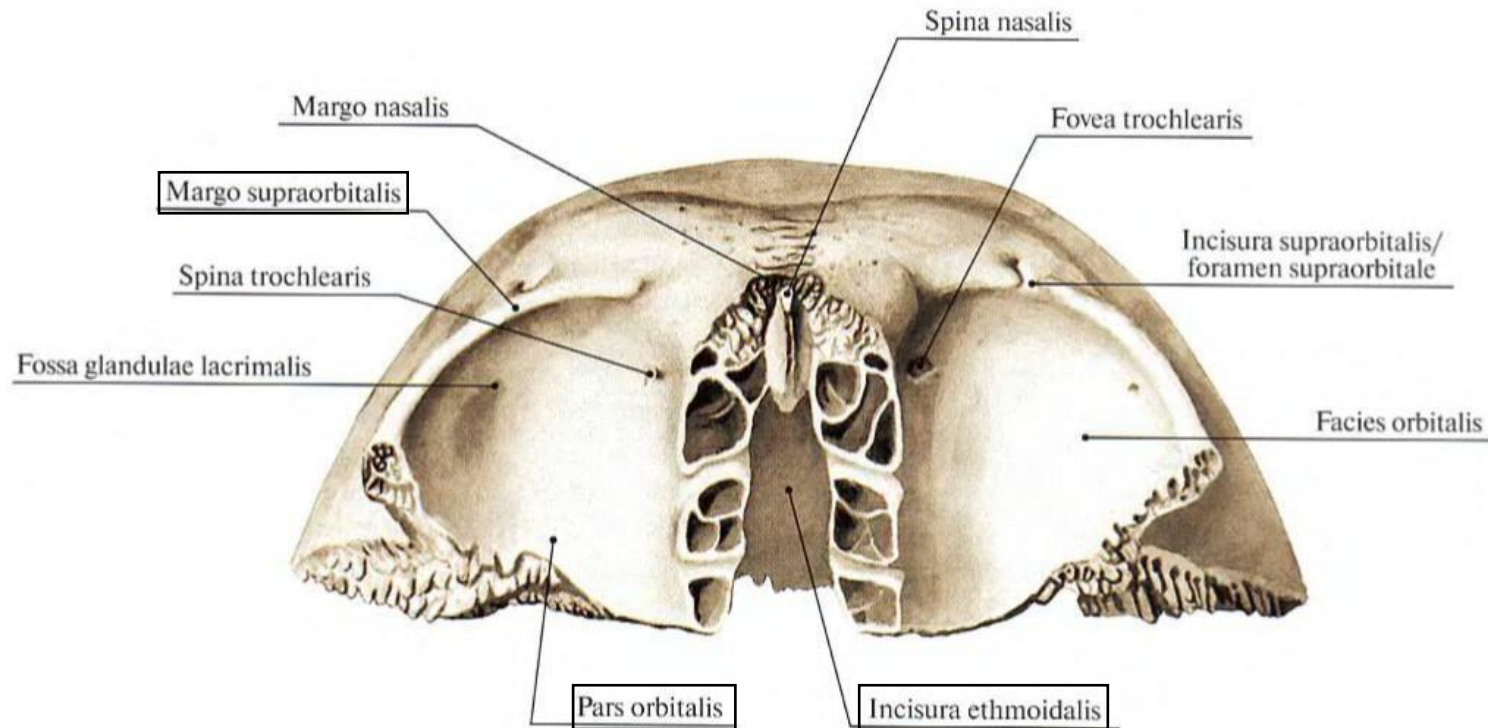


# kost čelní (*os frontale*)

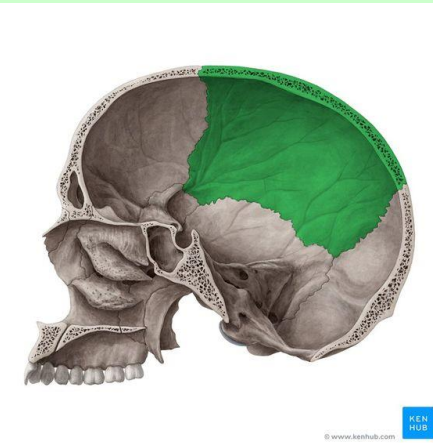
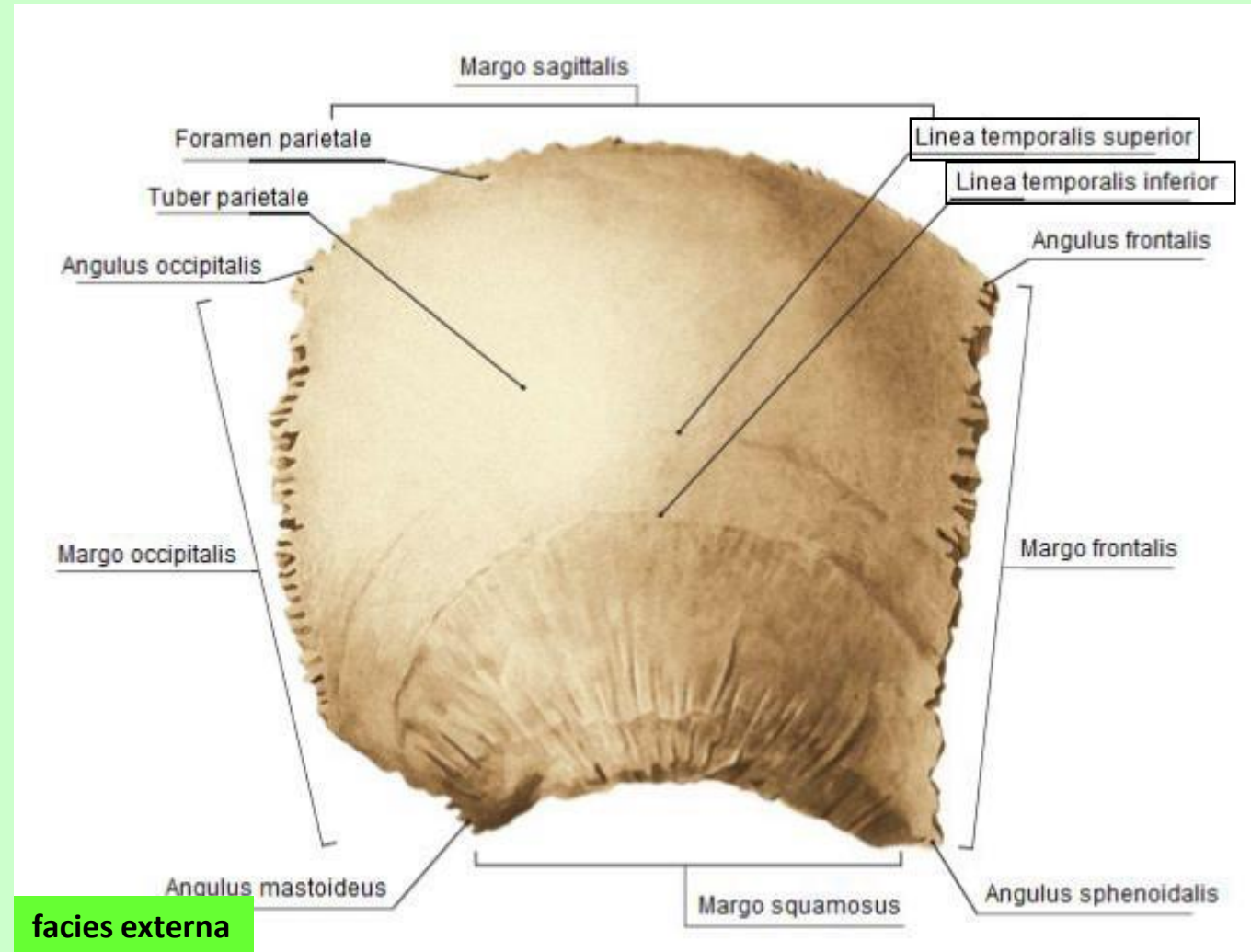
*squama*

*pars orbitalis*

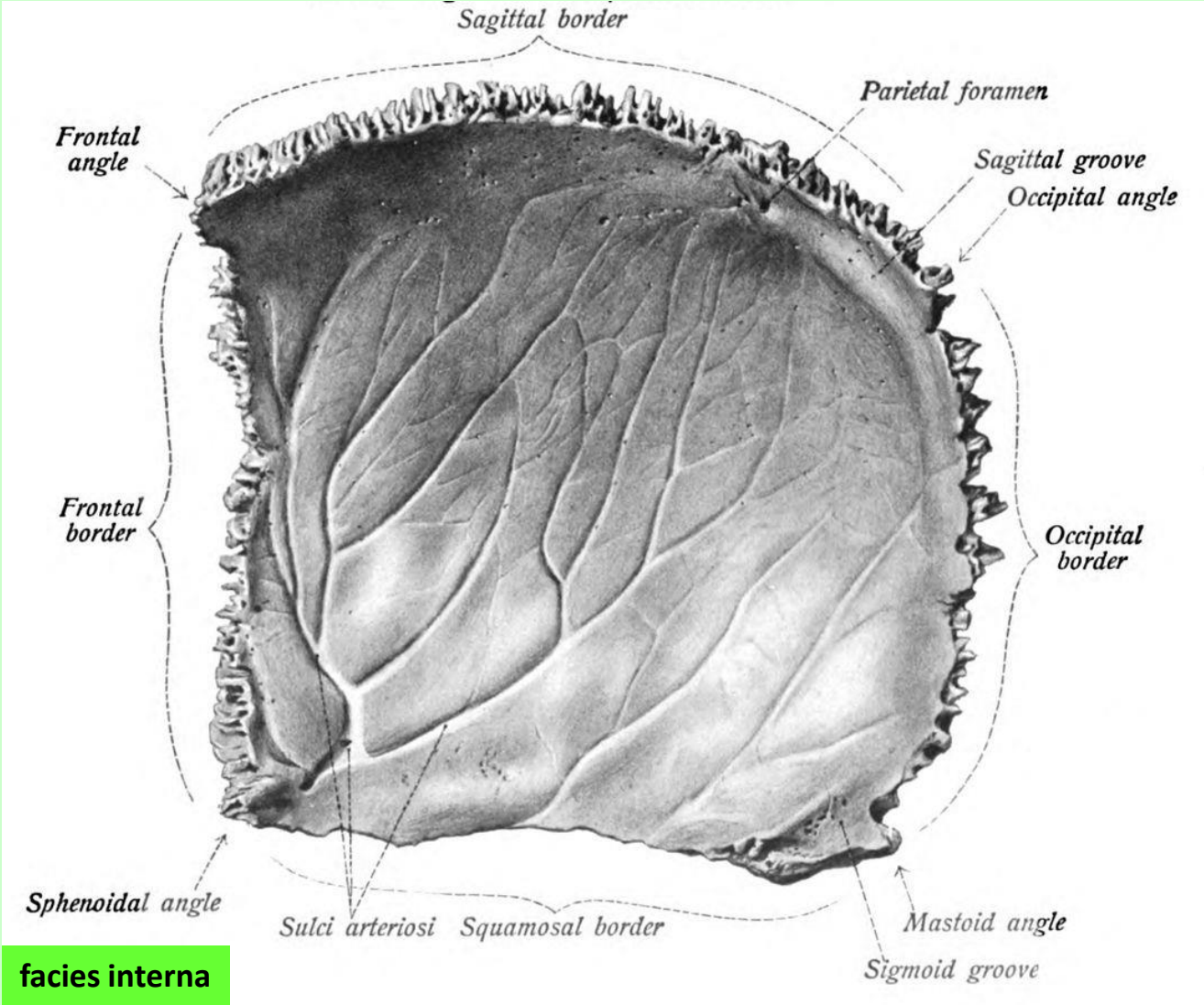
*pars nasalis*



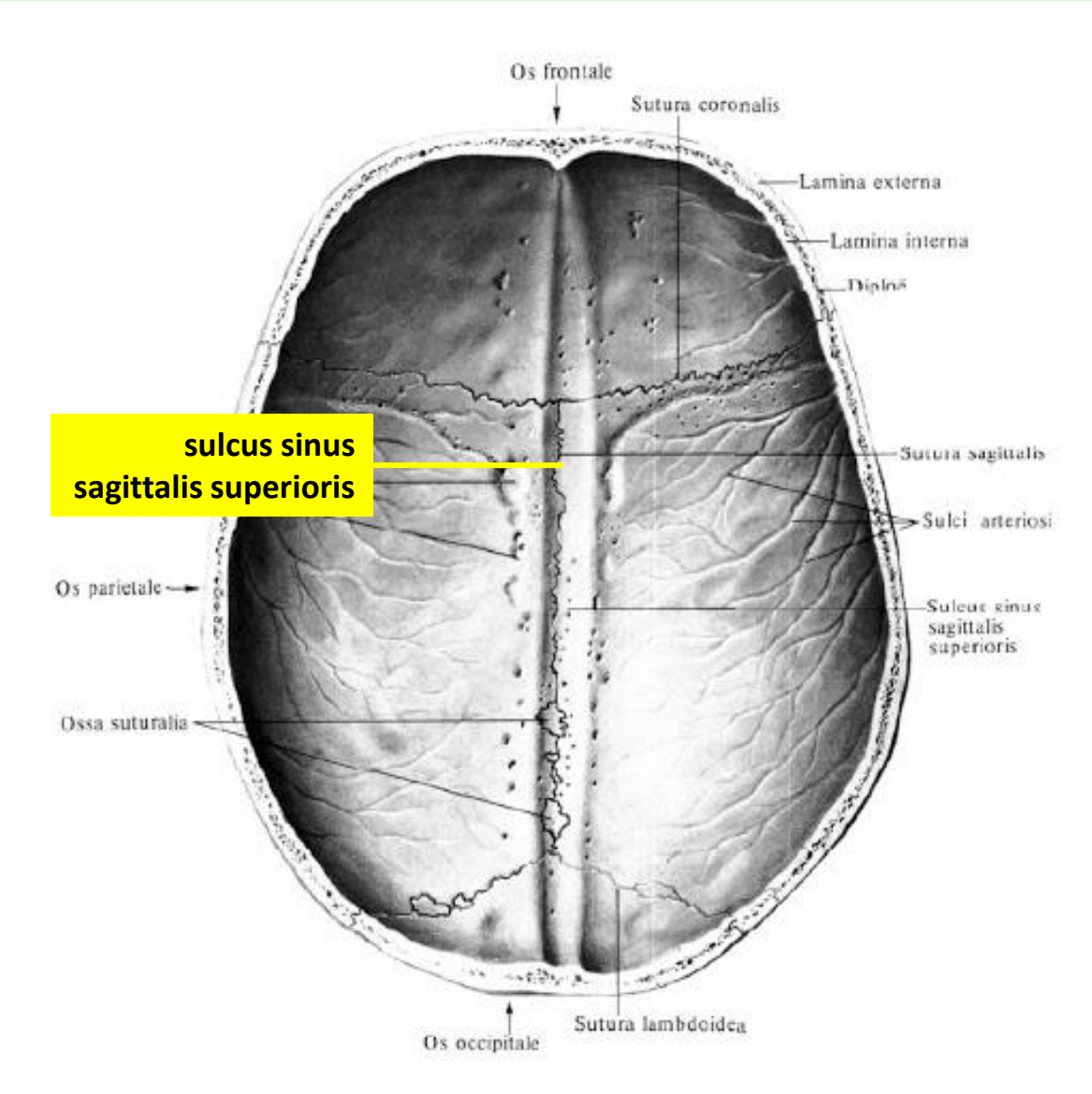
# kost temenní (*os parietale*)



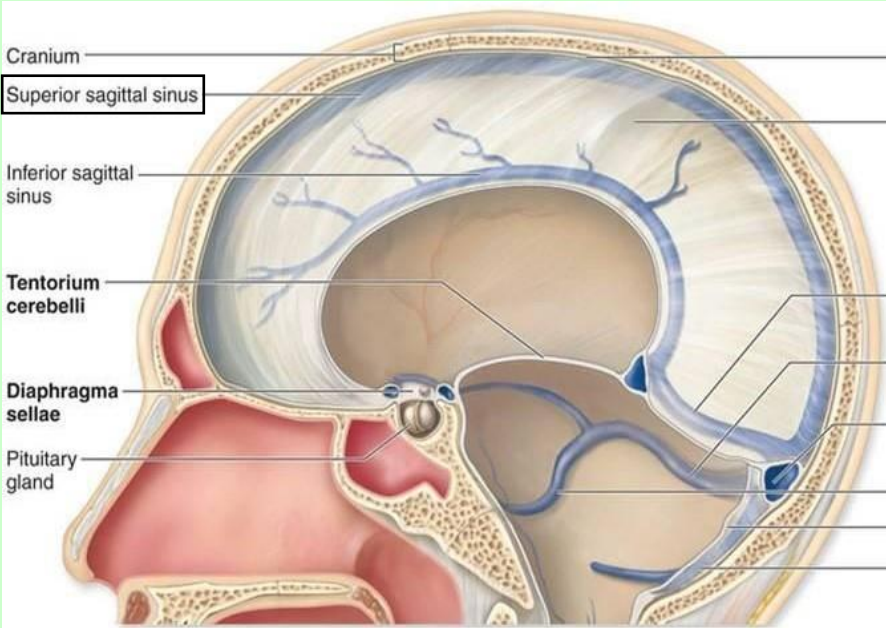
# kost temenní (*os parietale*)



# kost temenní (*os parietale*)

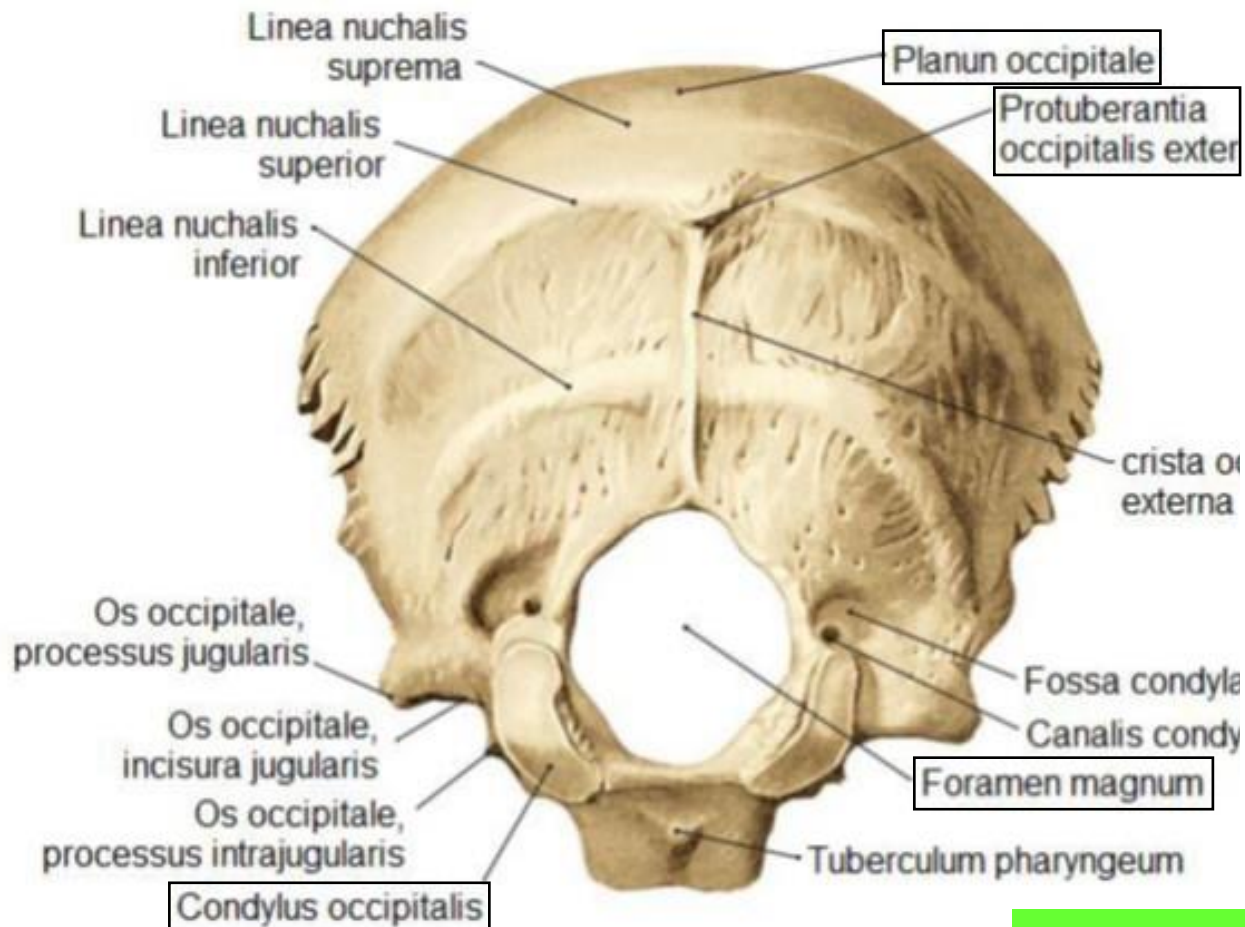


sulcus sinus  
sagittalis superioris

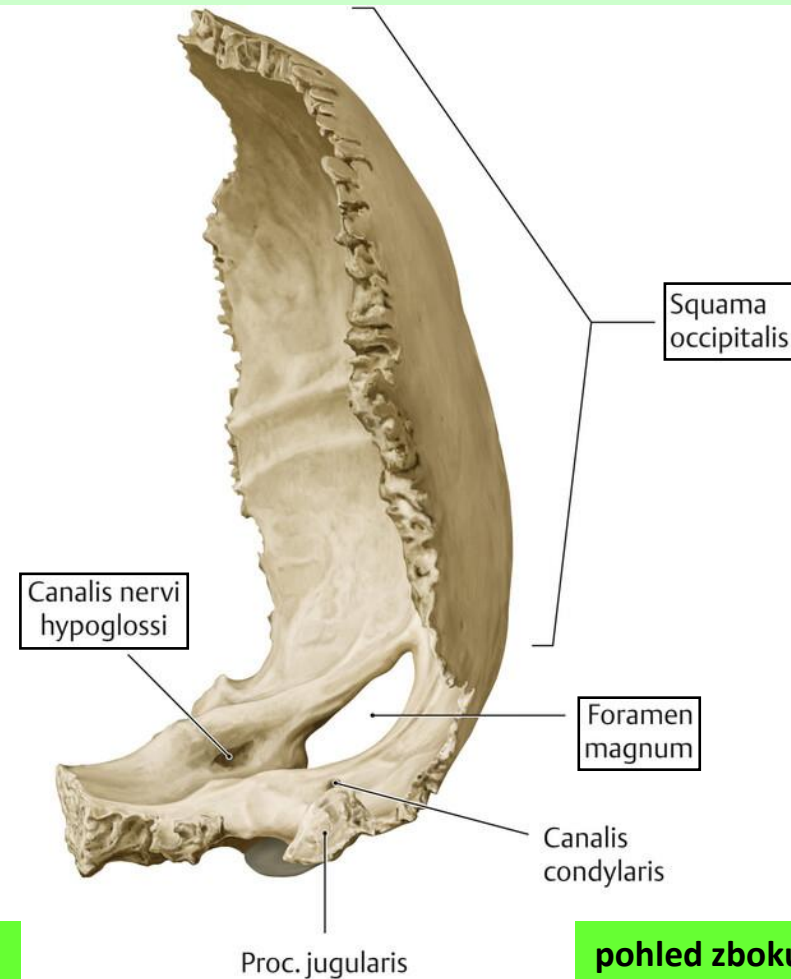


# kost týlní (*os occipitale*)

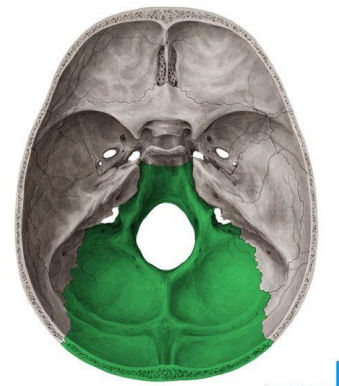
*pars basilaris*  
*pars lateralis*  
*squama*



facies externa

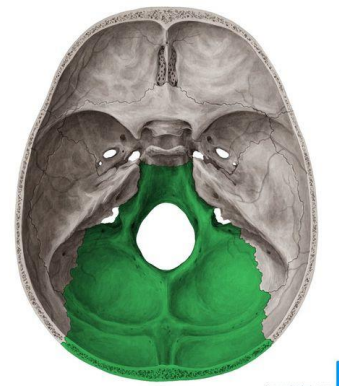
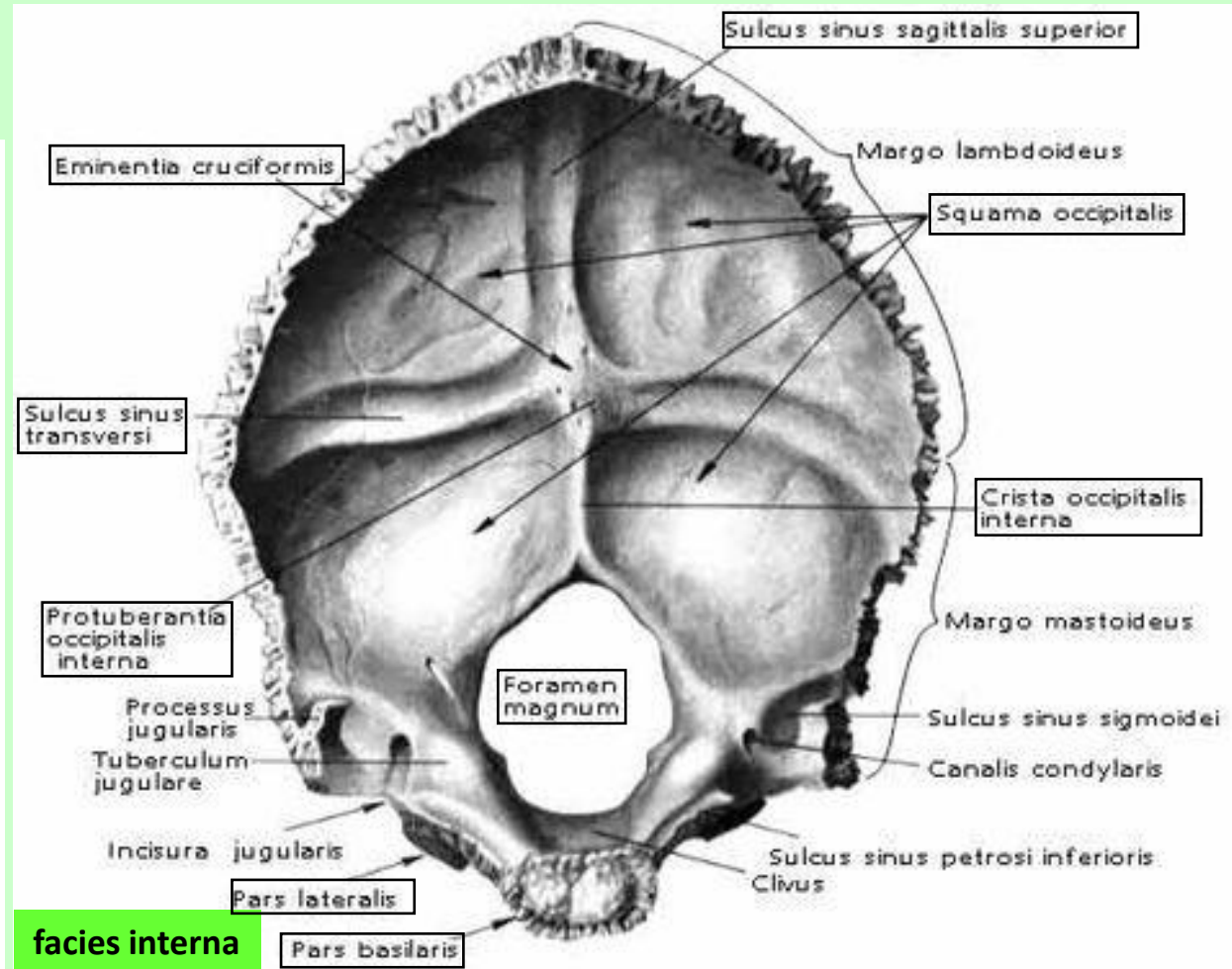
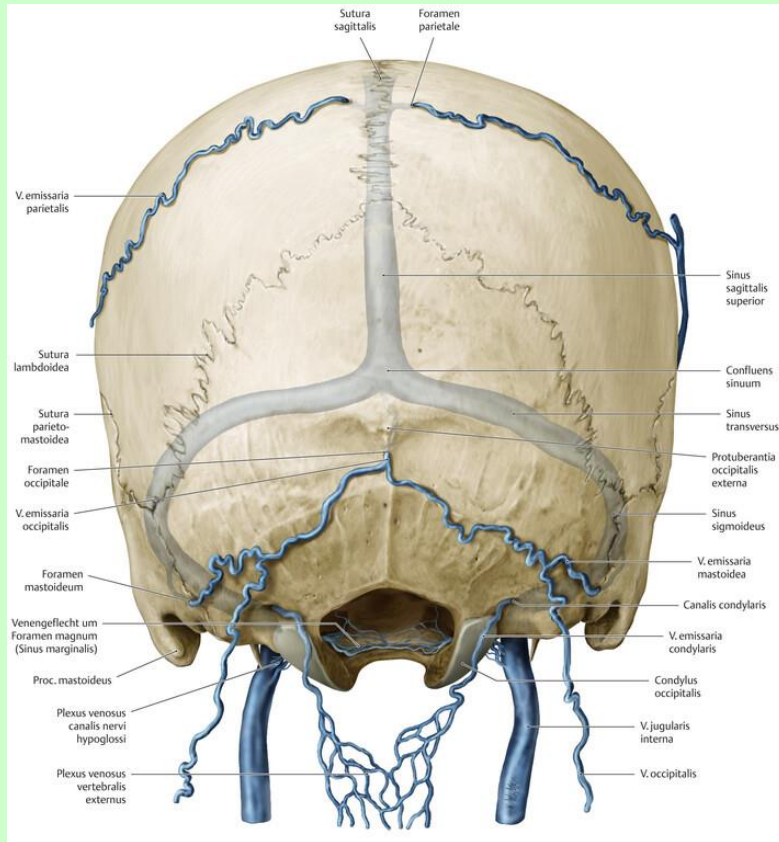


pohled z boku



# kost týlní (*os occipitale*)

*pars basilaris*  
*pars lateralis*  
*squama*



# kost spánková (*os temporale*)

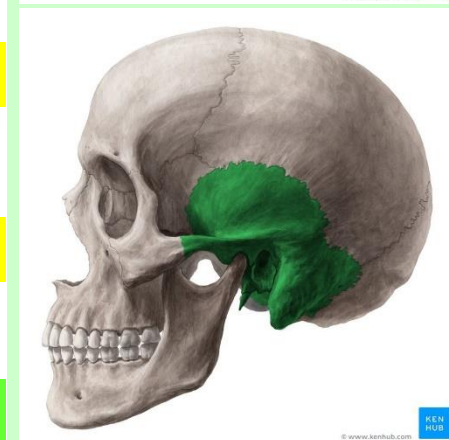
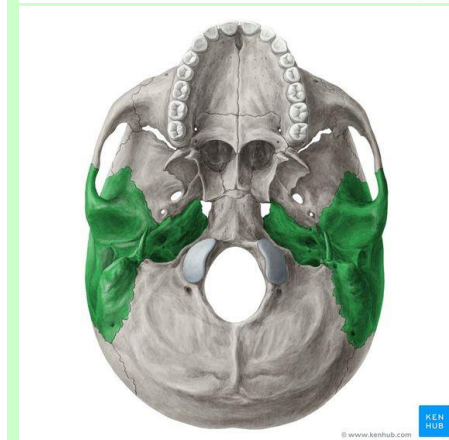
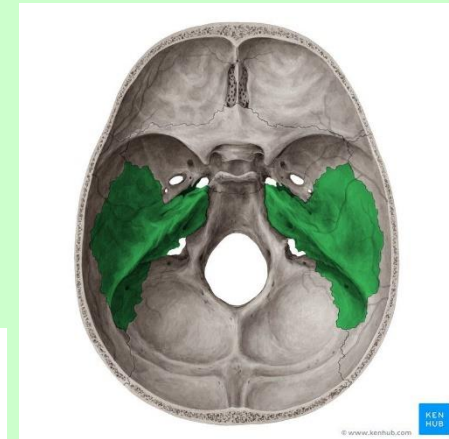
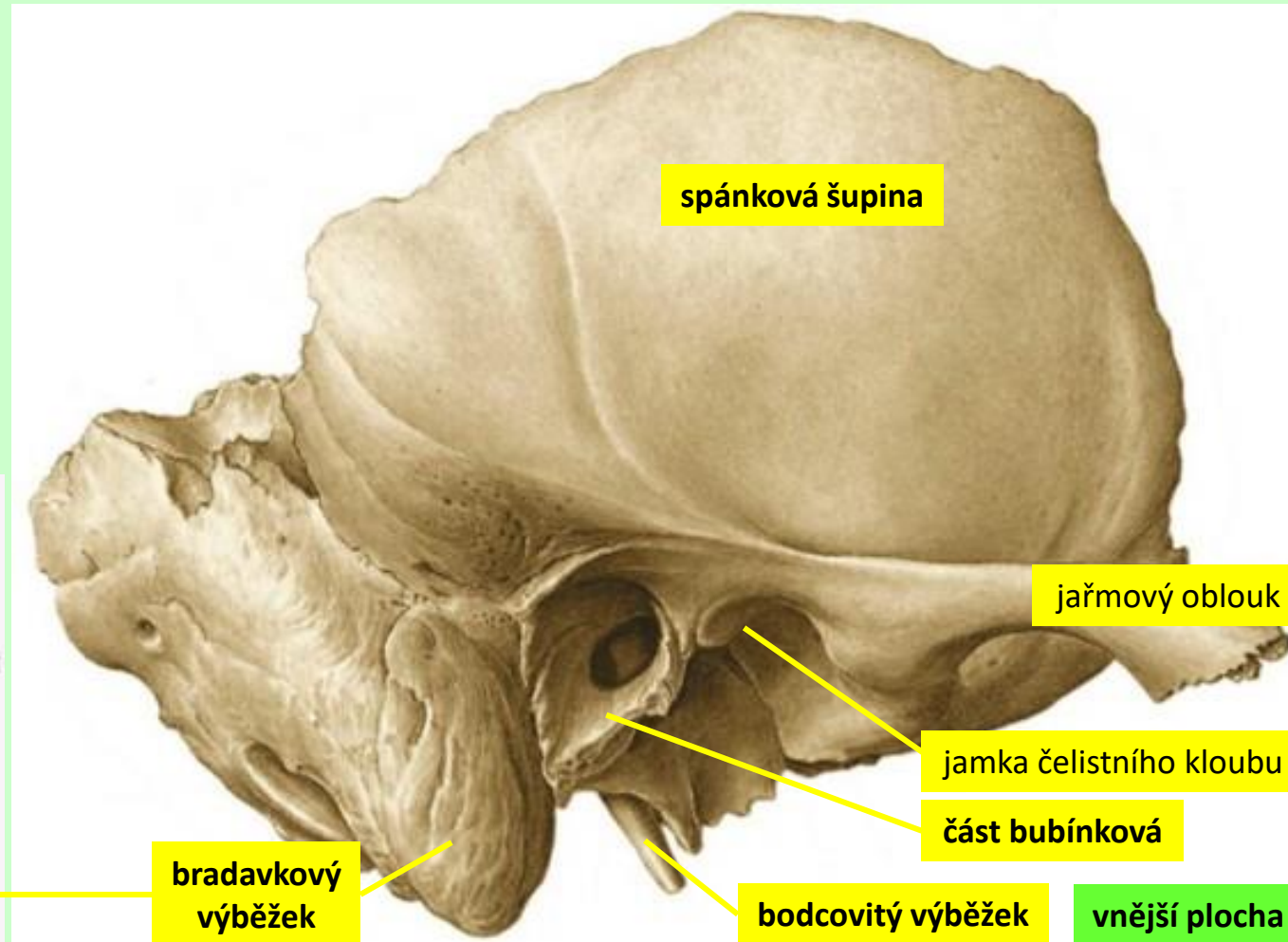
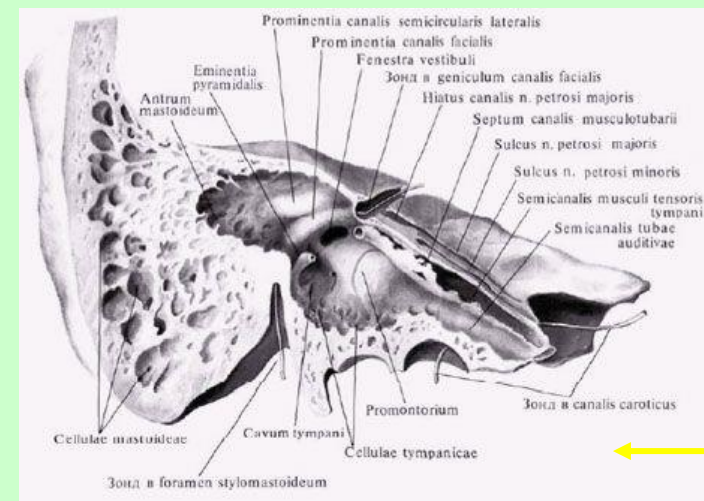
*squama*

*processus mastoideus*

*processus styloideus*

*pars tympanica*

*pars petrosa*



# kost spánková (*os temporale*)

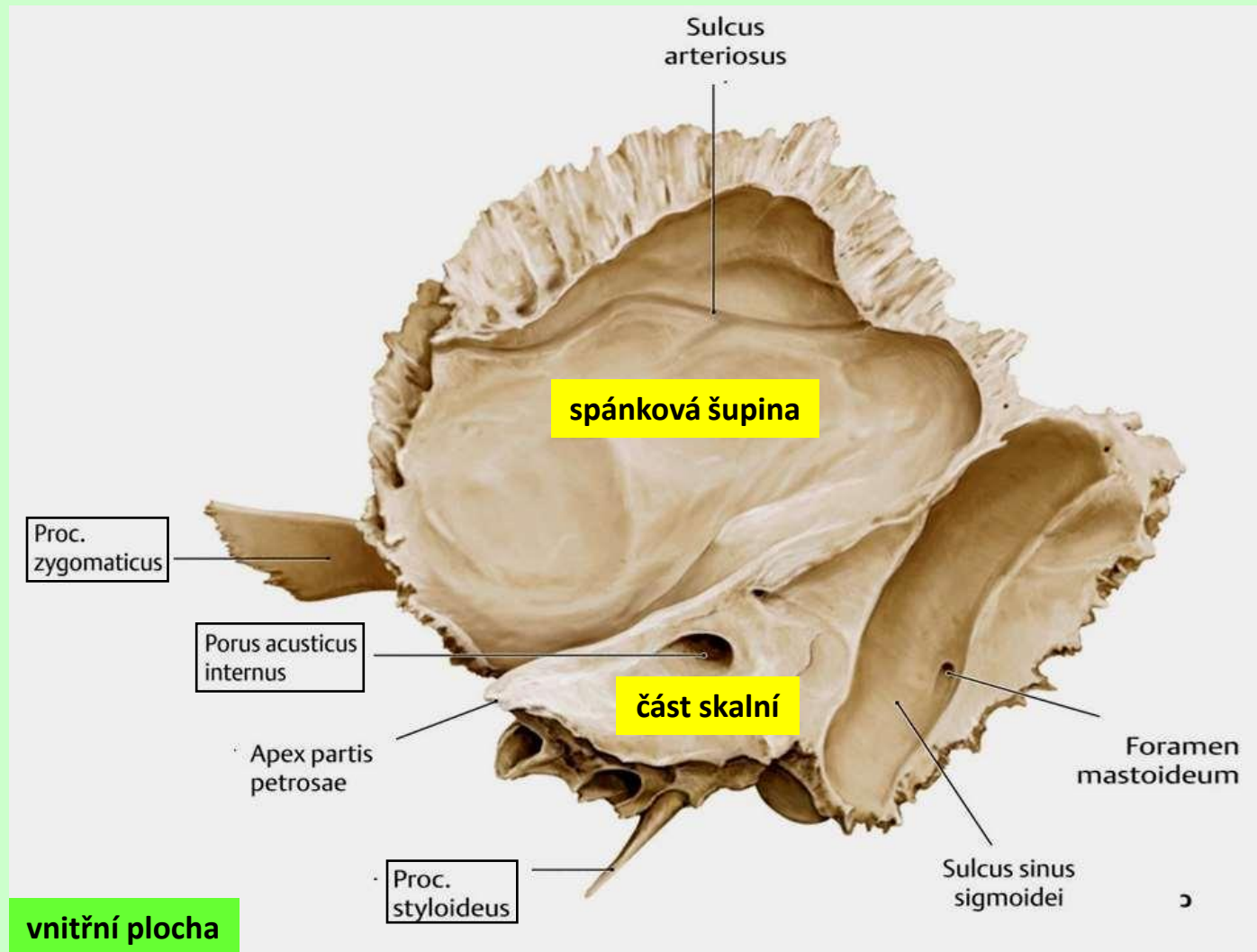
*squama*

*processus mastoideus*

*processus styloideus*

*pars tympanica*

*pars petrosa*



# kost spánková (*os temporale*)

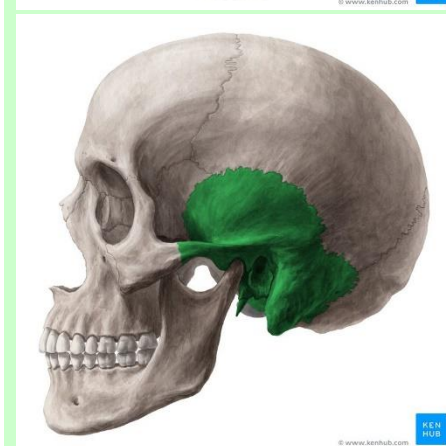
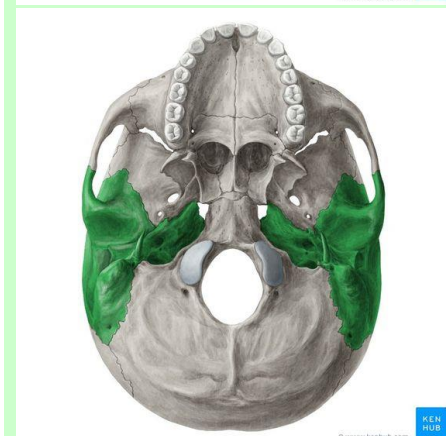
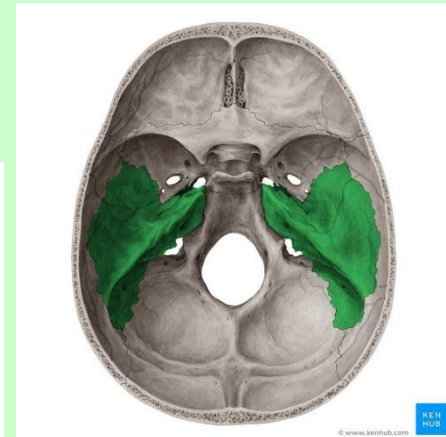
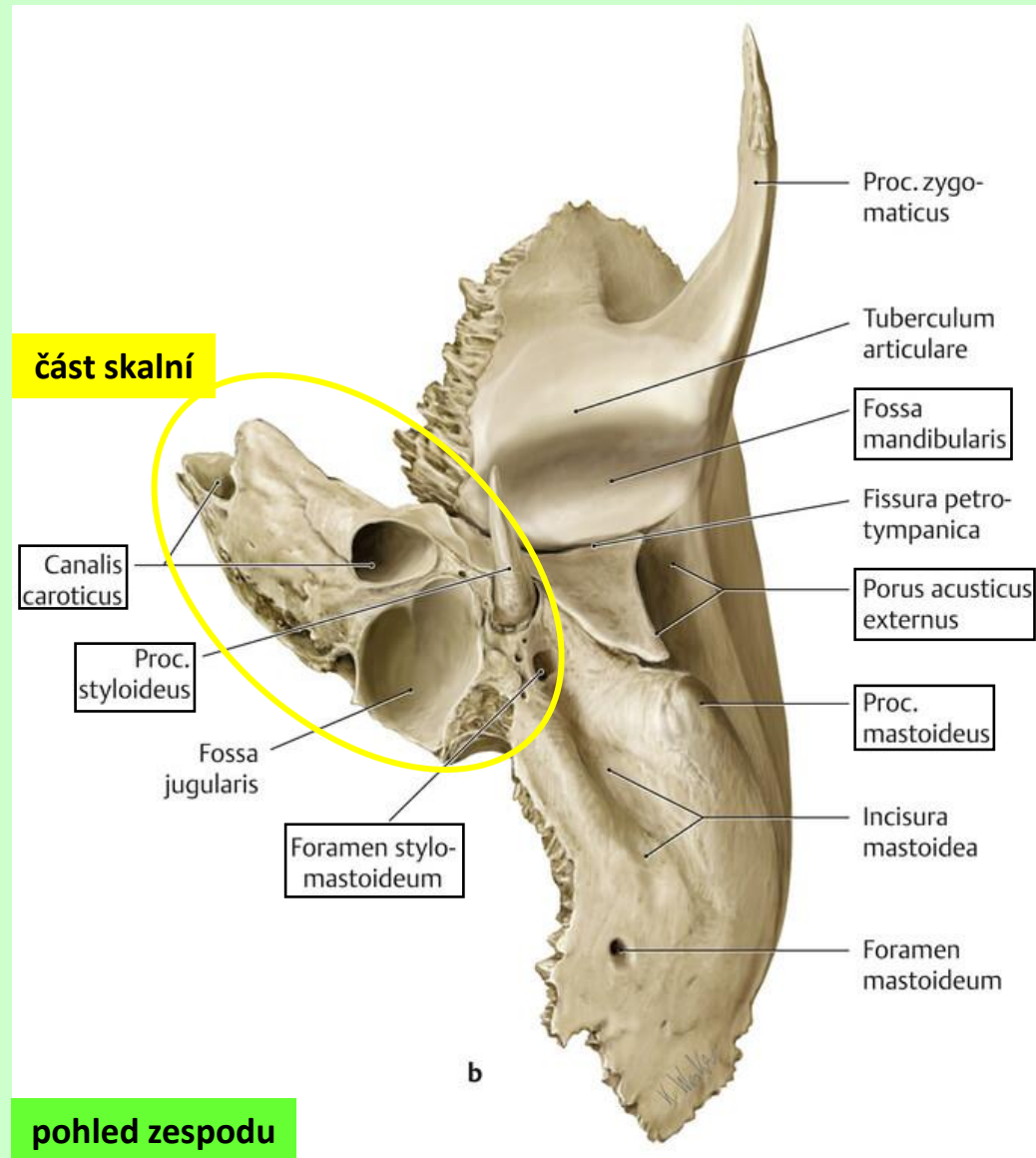
*squama*

*processus mastoideus*

*processus styloideus*

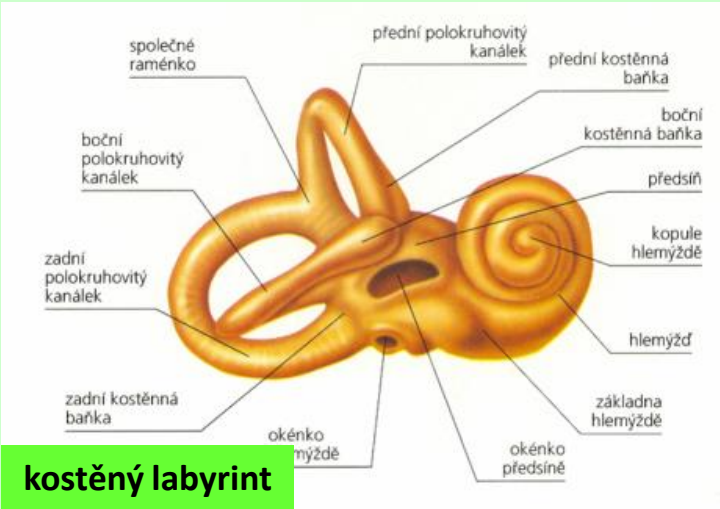
*pars tympanica*

*pars petrosa*

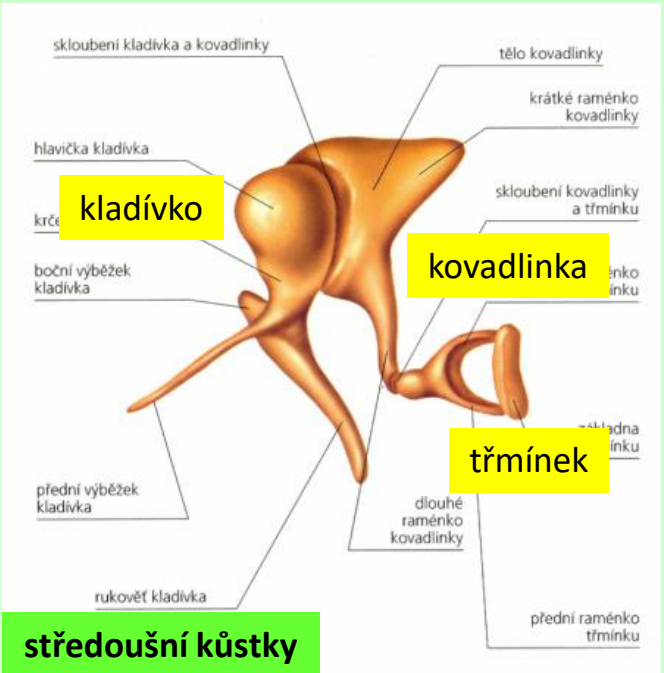
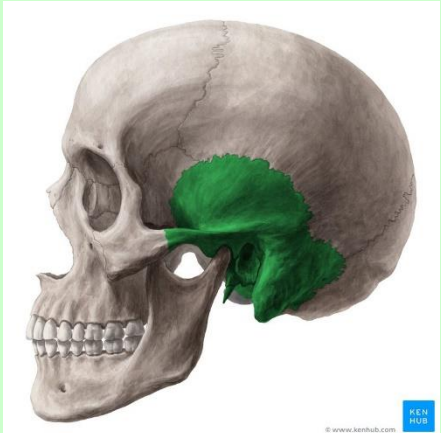
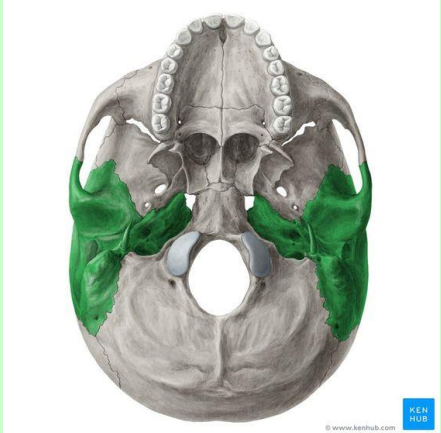
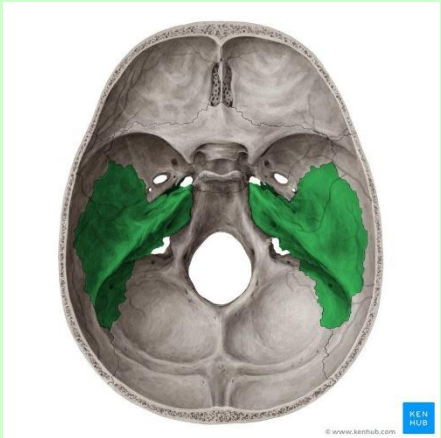


# kost spánková (os temporale)

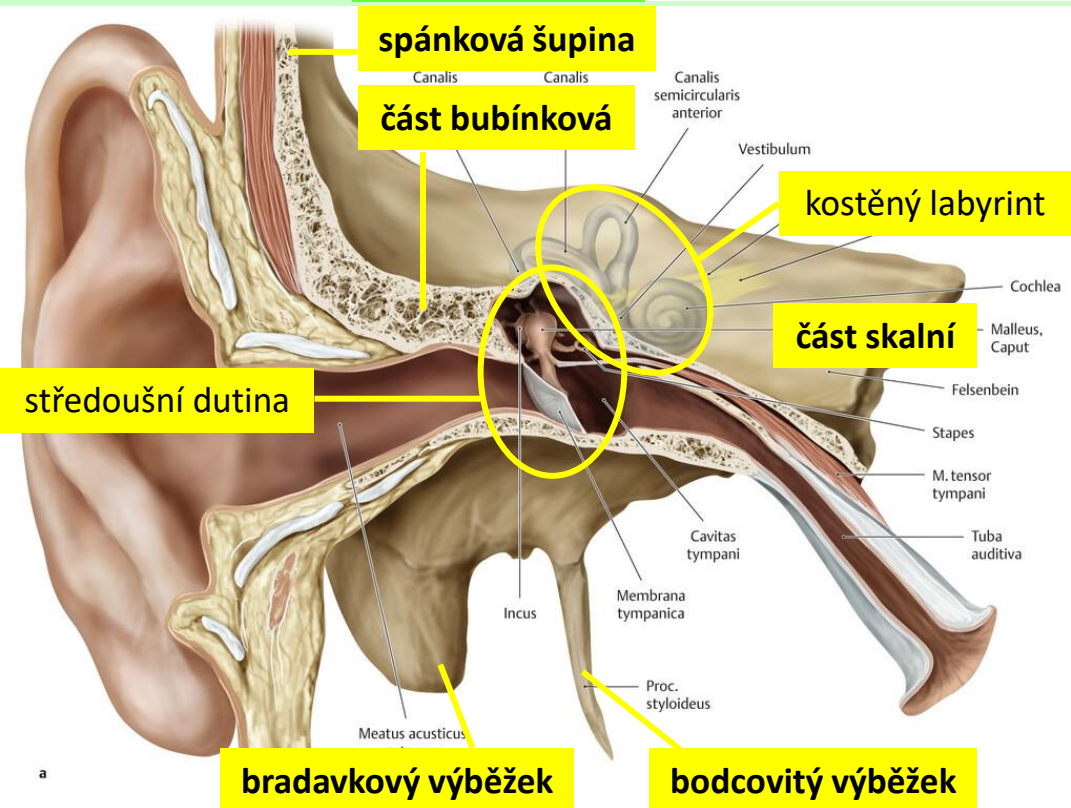
squama  
processus mastoideus  
processus styloideus  
pars tympanica  
pars petrosa



kostěný labyrint



středoušní kůstky



spánková šupina

část bubínková

kostěný labyrint

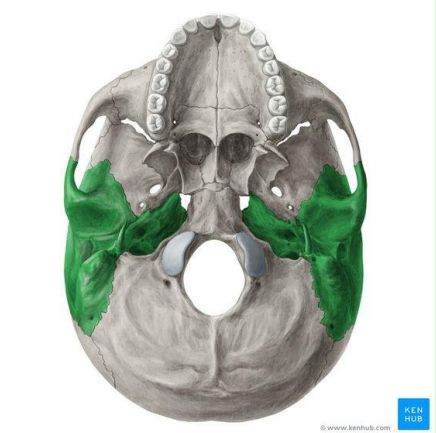
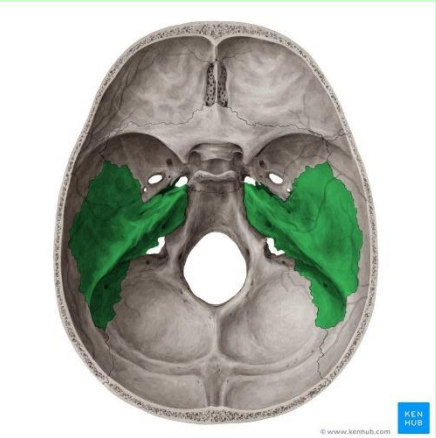
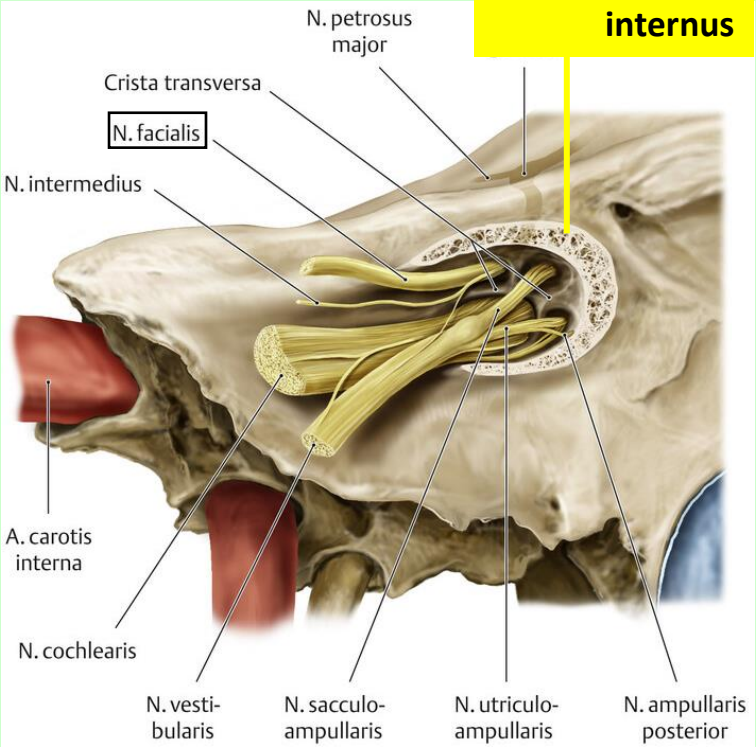
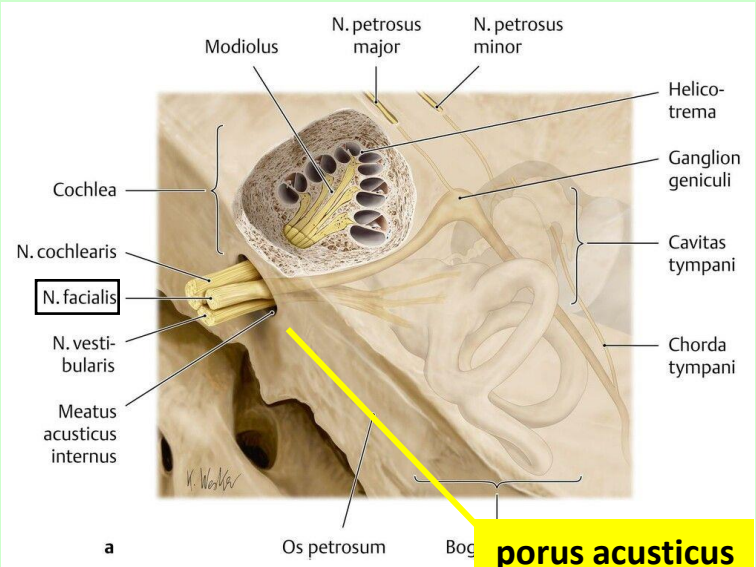
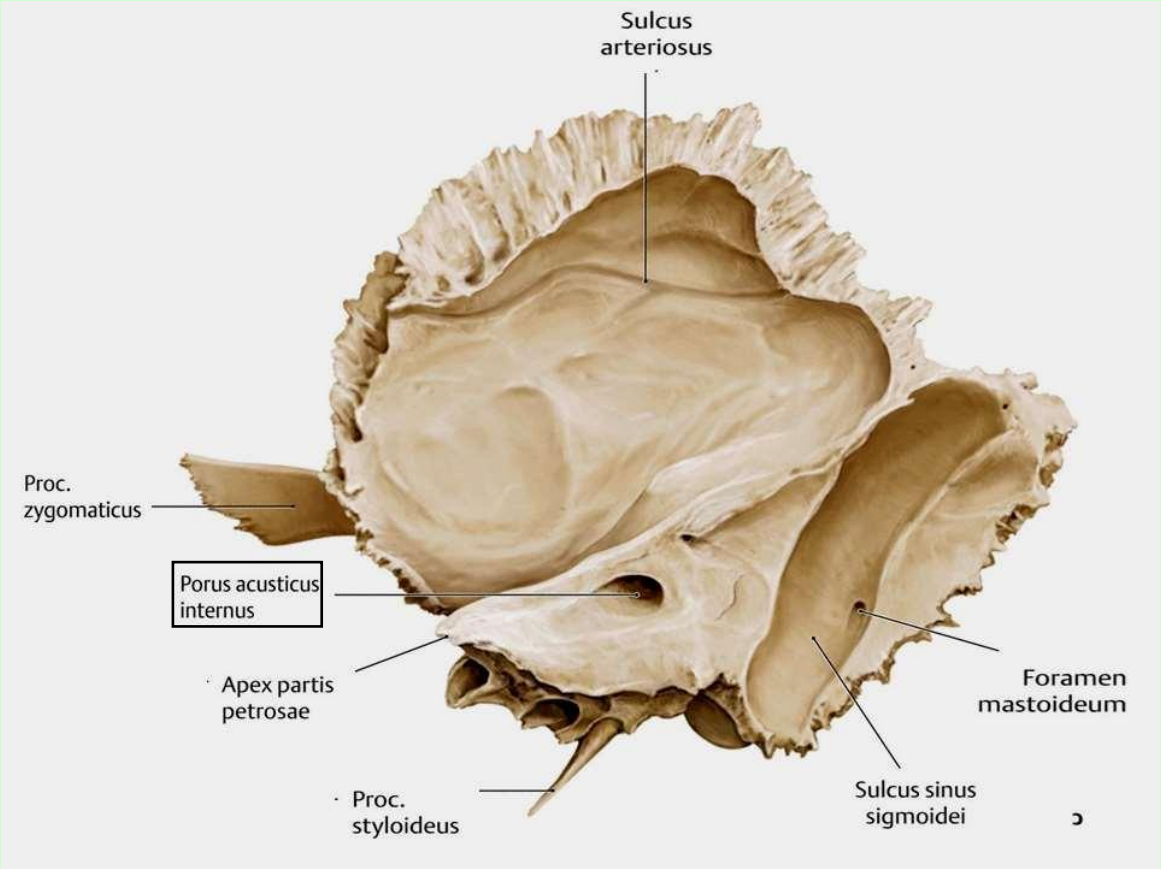
část skalní

# kost spánková (*os temporale*)

*pars petrosa*

*canalis nervi facialis*

vstup do spánkové kosti  
(porus acusticus internus)

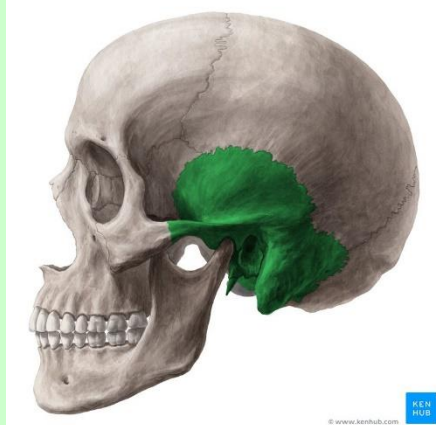
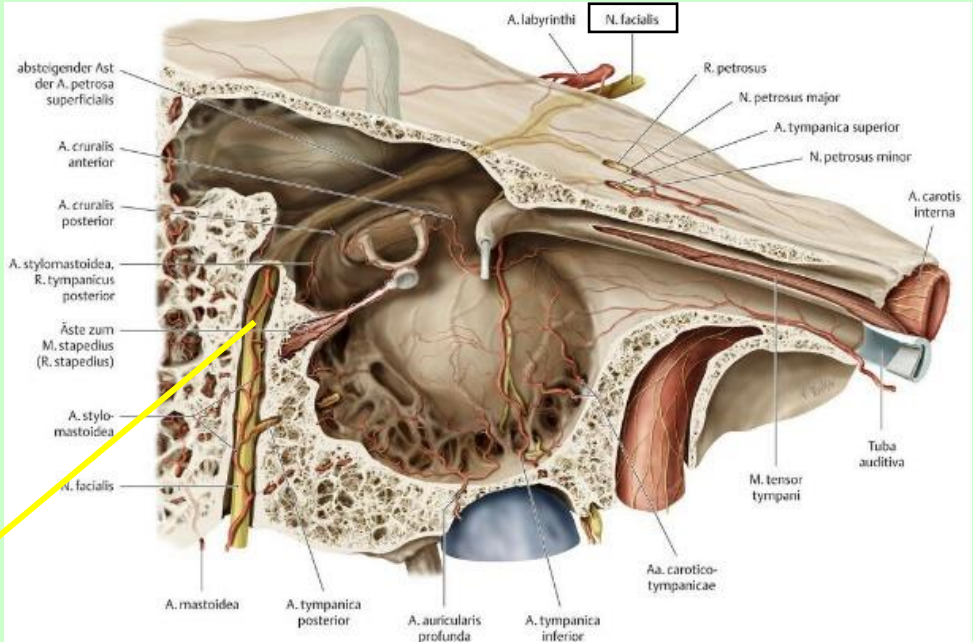
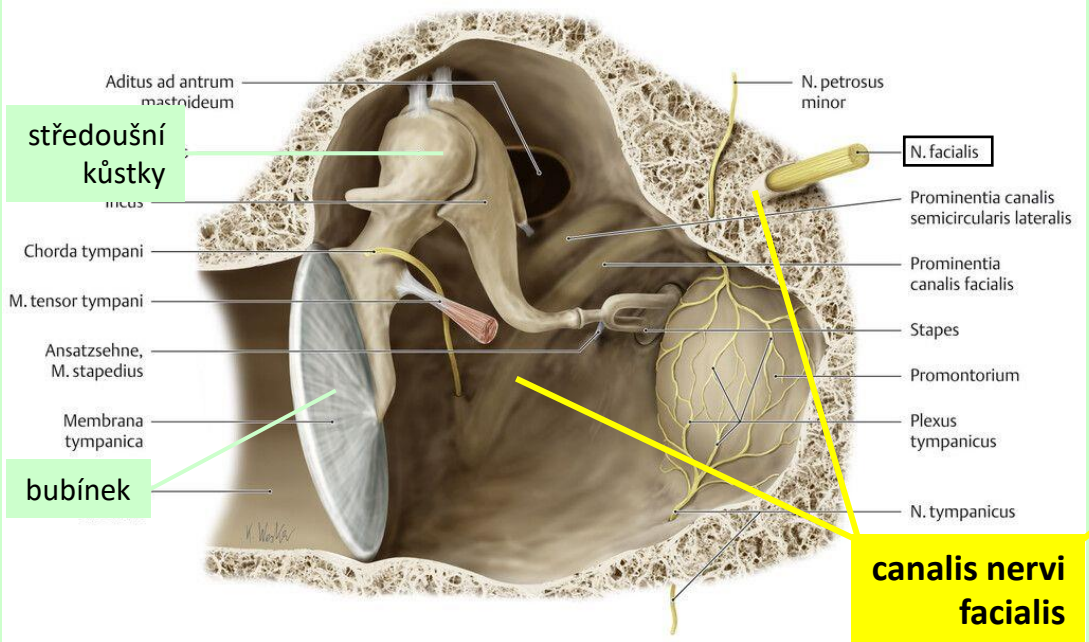


# kost spánková (os temporale)

pars petrosa

canalis nervi facialis

průběh spánkovou kostí

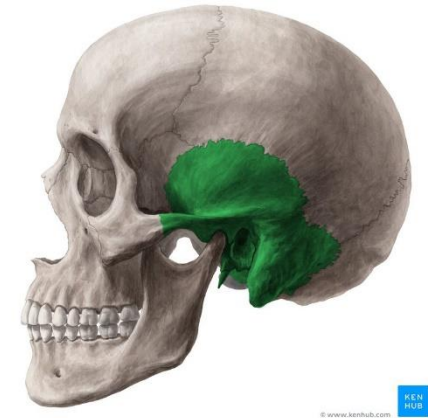
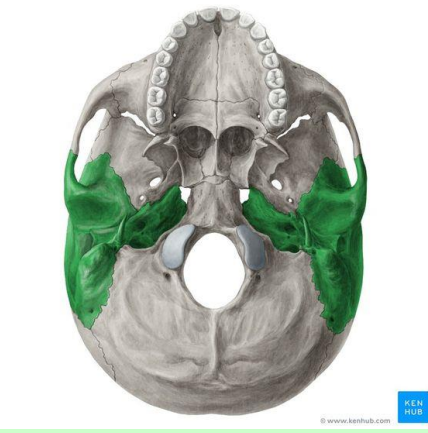
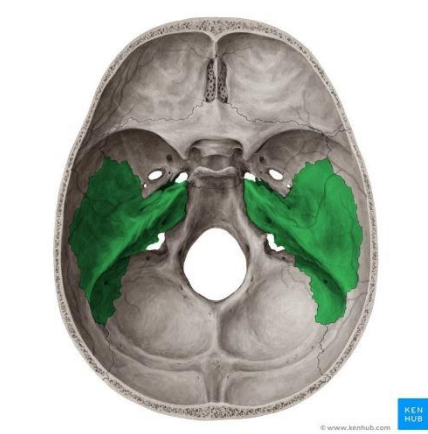
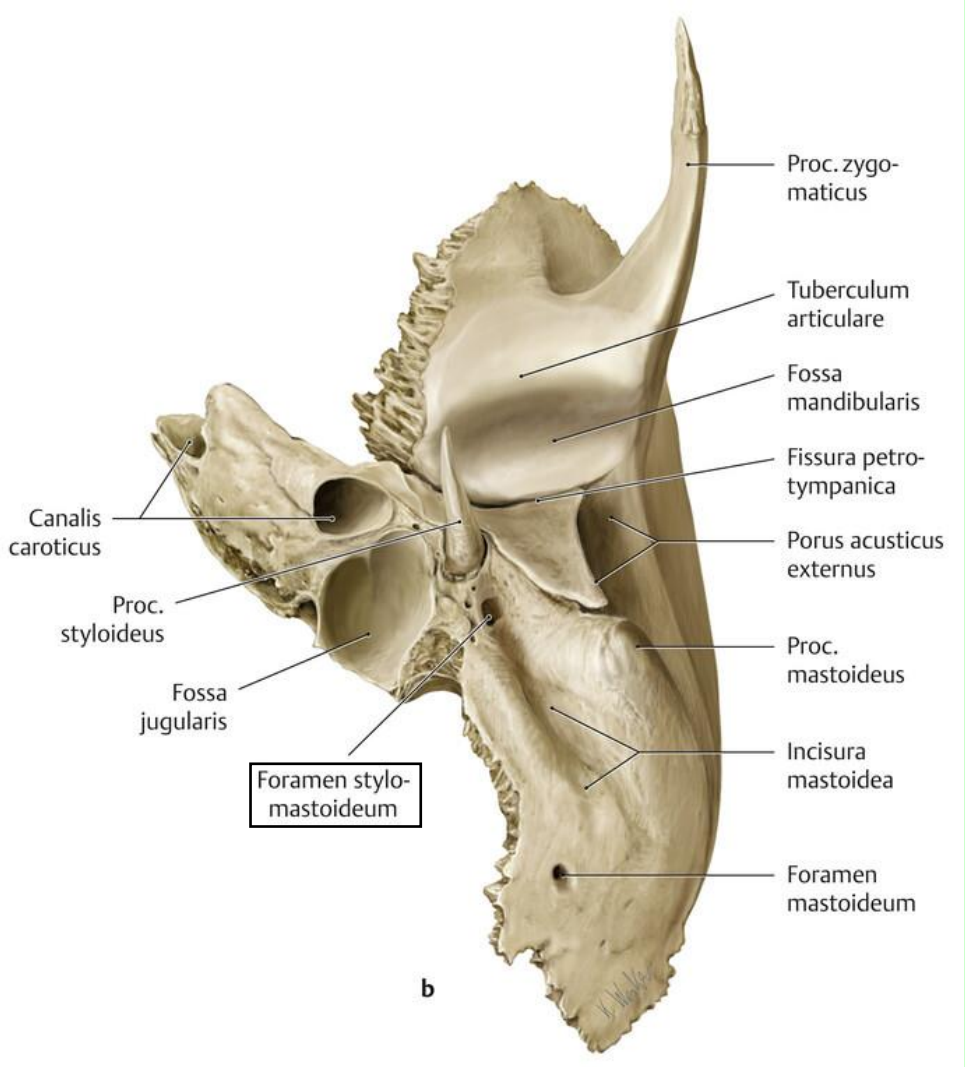
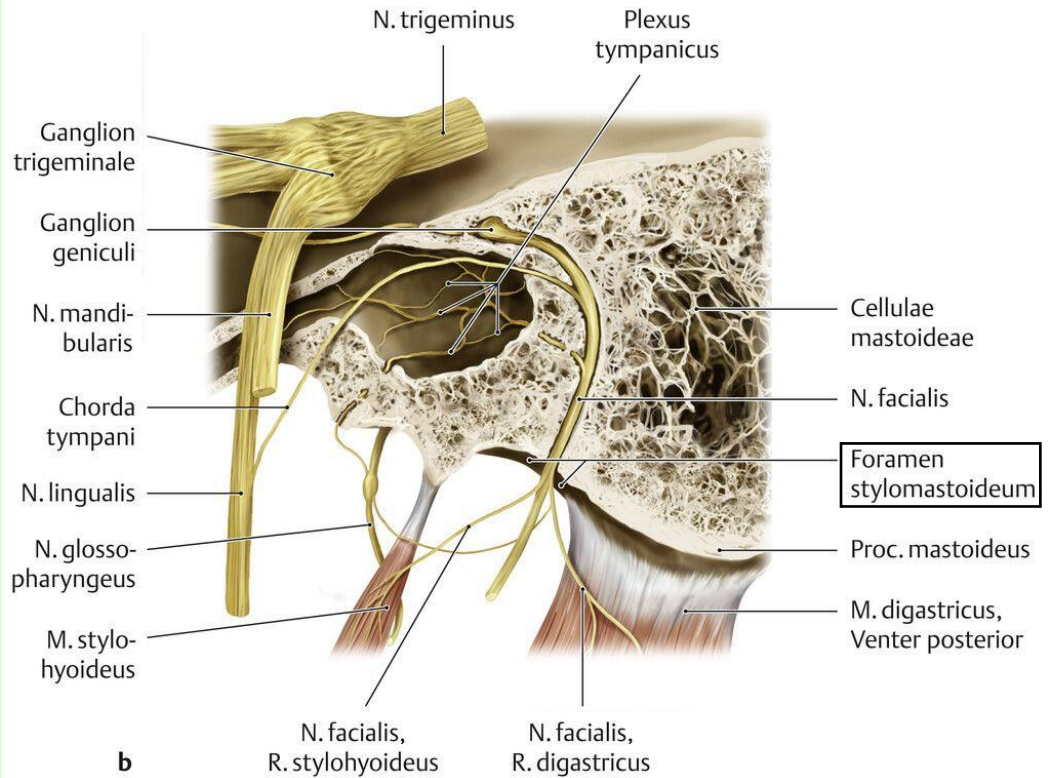


# kost spánková (os temporale)

## pars petrosa

### canalis nervi facialis

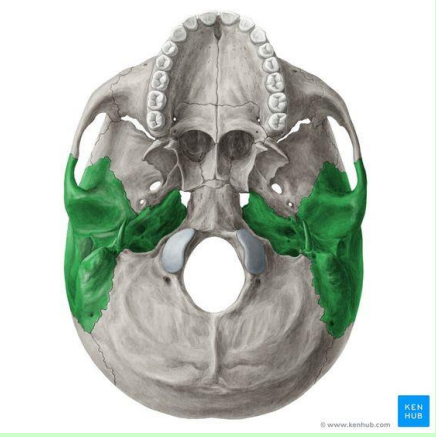
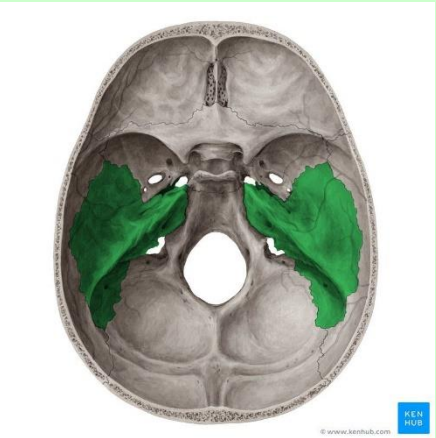
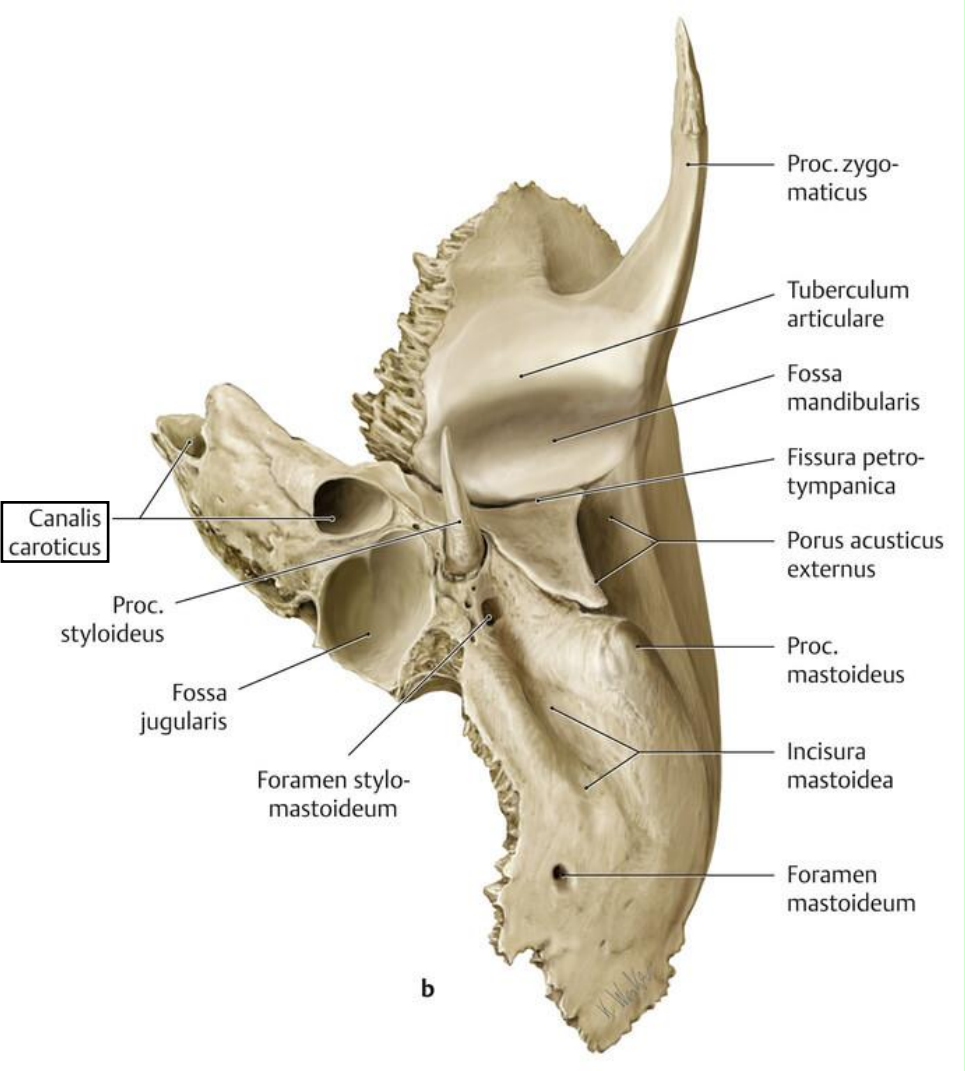
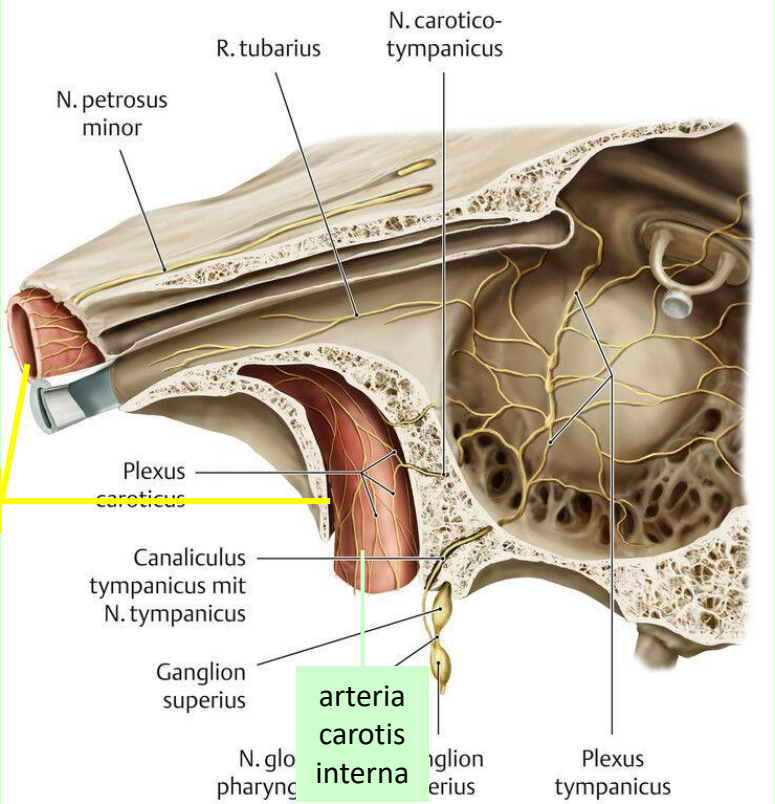
výstup ze spánkové kosti  
(foramen stylomastoideum)



# kost spánková (os temporale)

pars petrosa

canalis caroticus

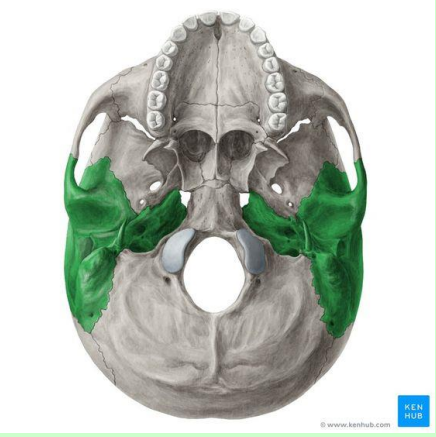
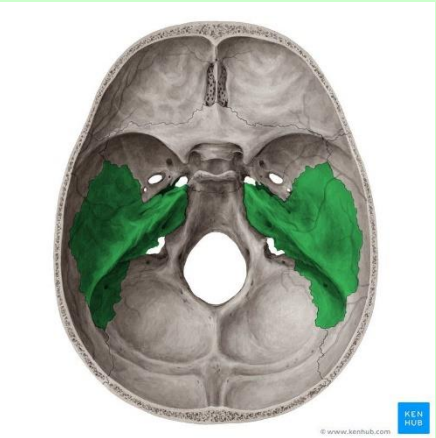
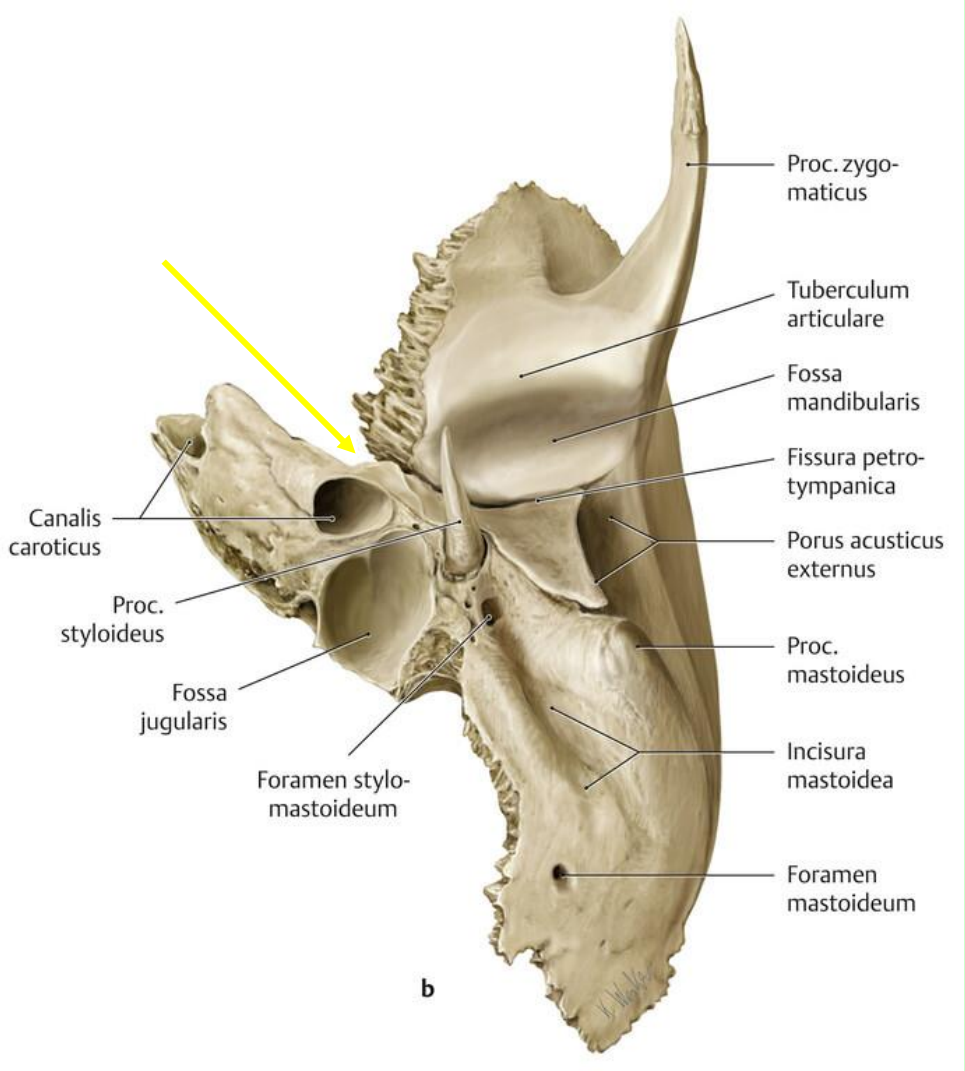
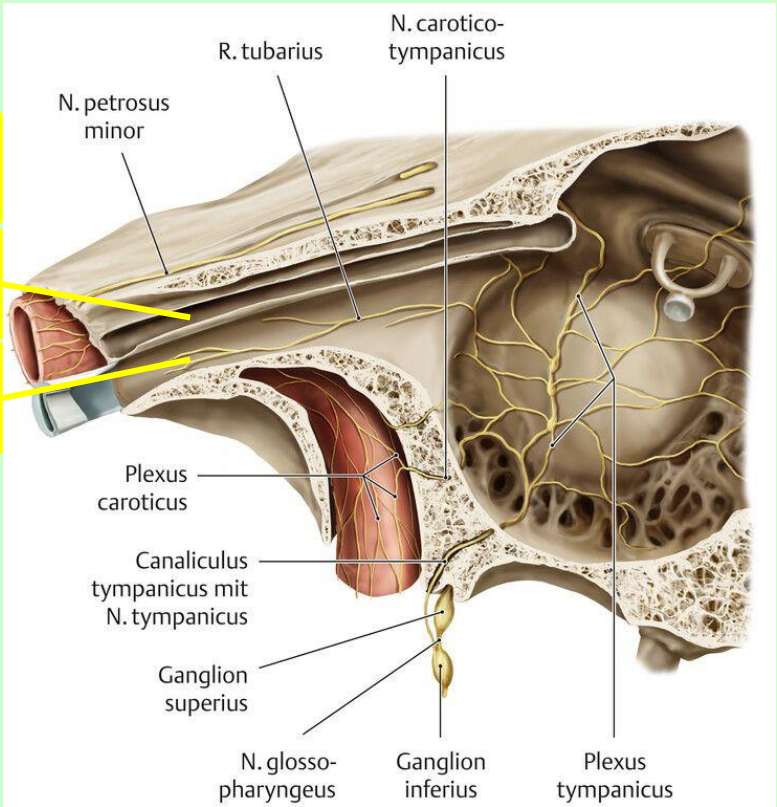


# kost spánková (os temporale)

pars petrosa

canalis musculotubarius

- canalis musculotubarius
- etáž pro napínač bubínku
- etáž pro sluchovou trubici



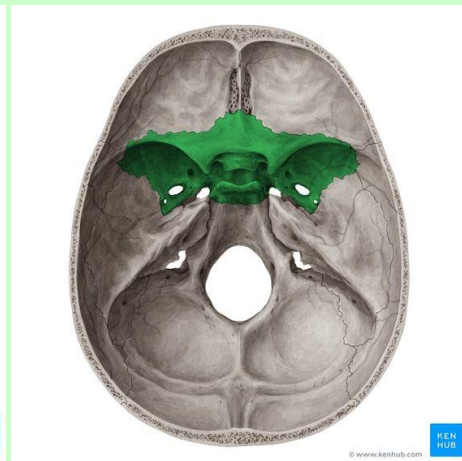
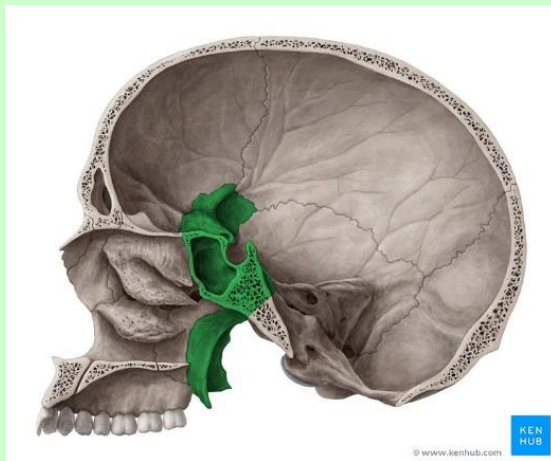
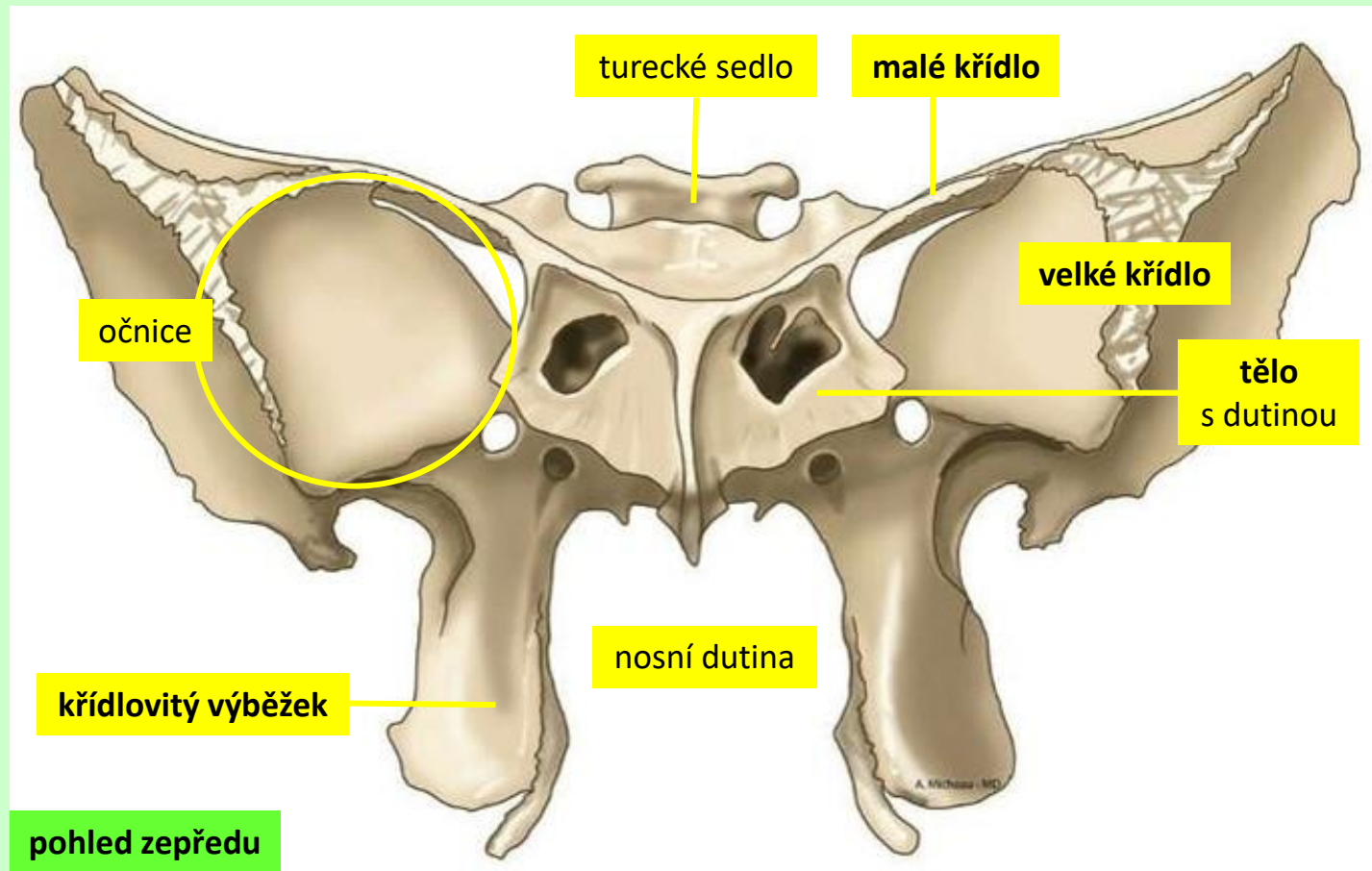
# kost klínová (*os sphenoidale*)

*corpus*

*processus pterygoideus*

*ala major*

*ala minor*



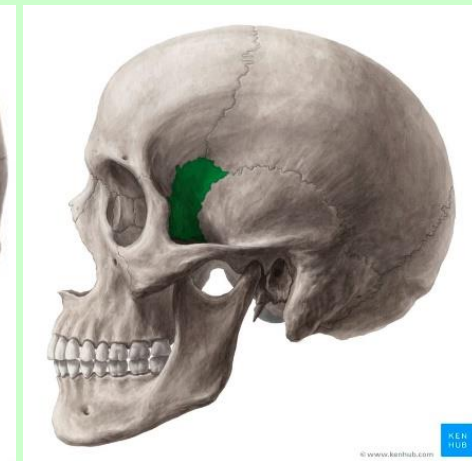
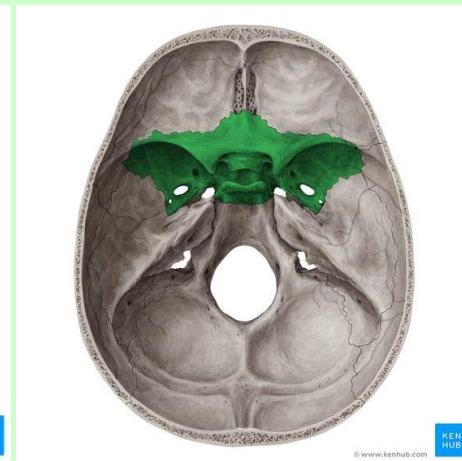
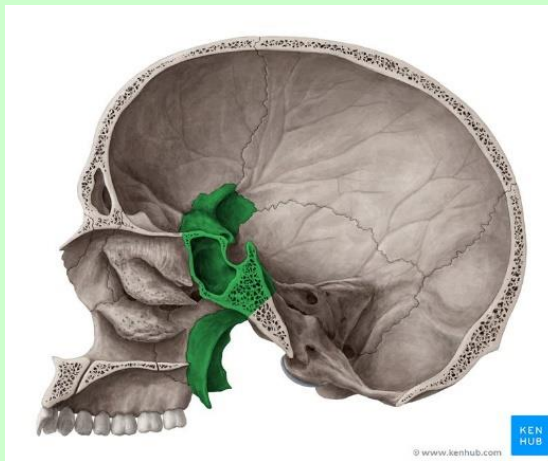
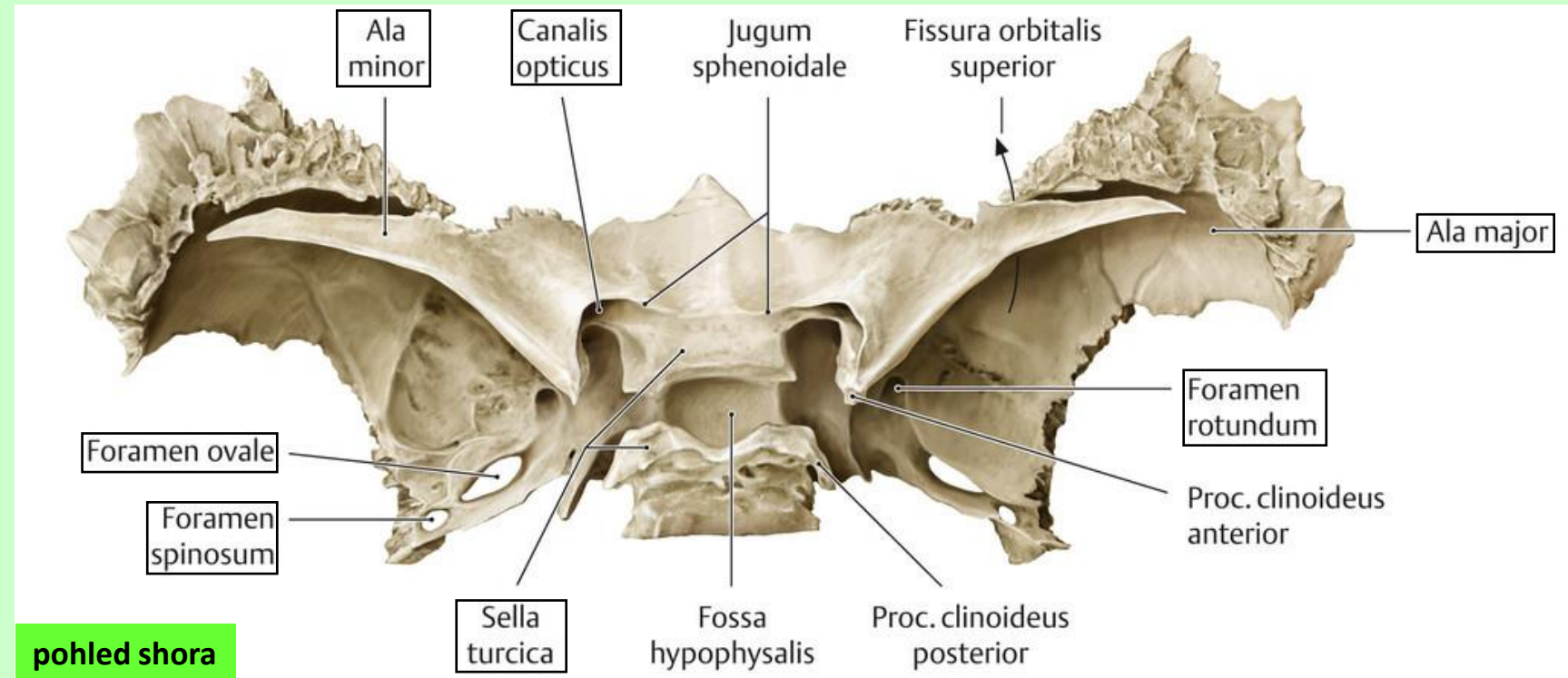
# kost klínová (*os sphenoidale*)

*corpus*

*processus pterygoideus*

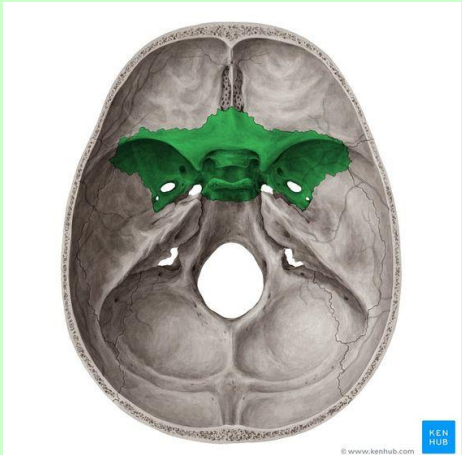
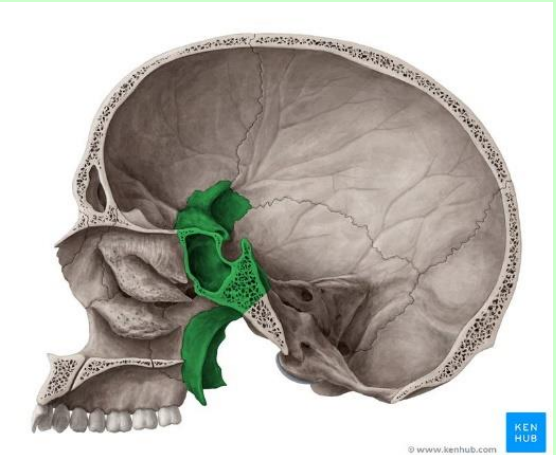
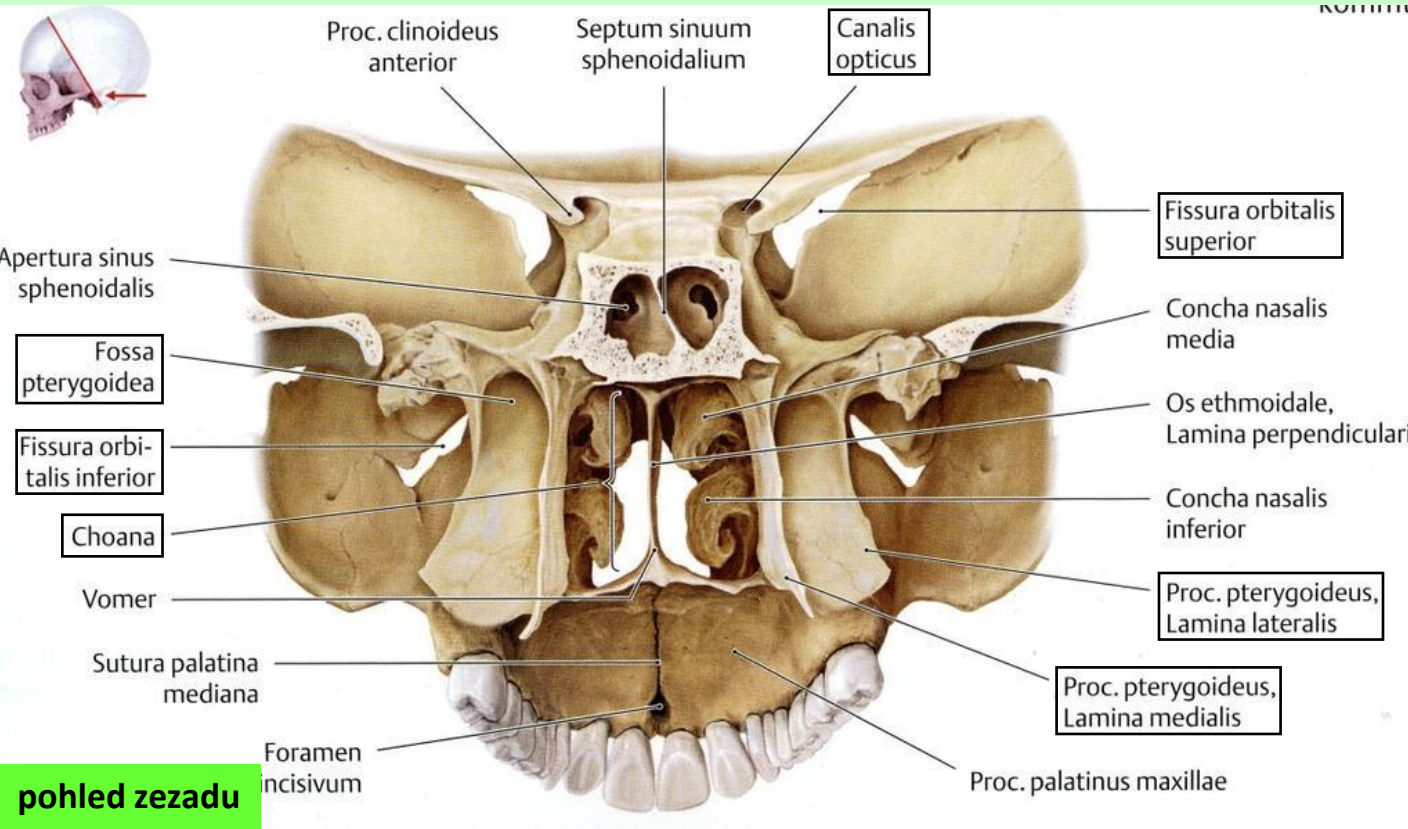
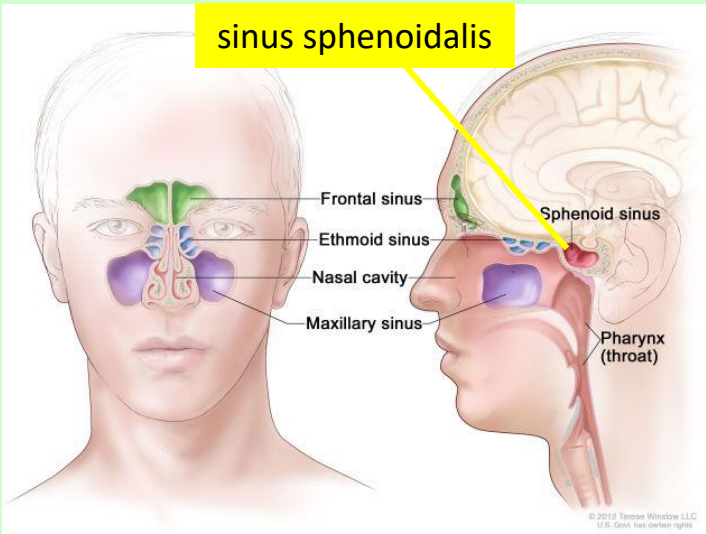
*ala major*

*ala minor*



# kost klínová (*os sphenoidale*)

*corpus*  
*processus pterygoideus*  
*ala major*  
*ala minor*

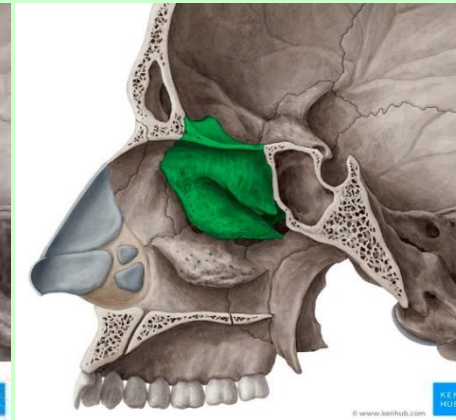
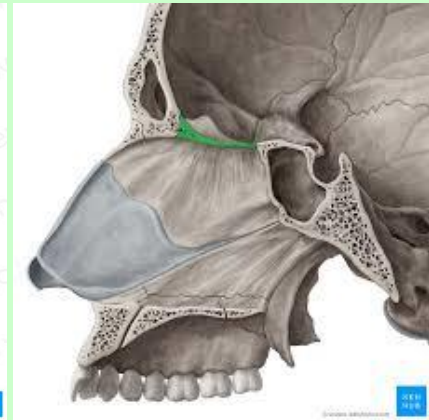
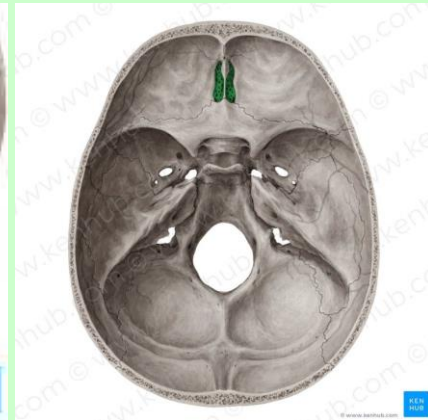
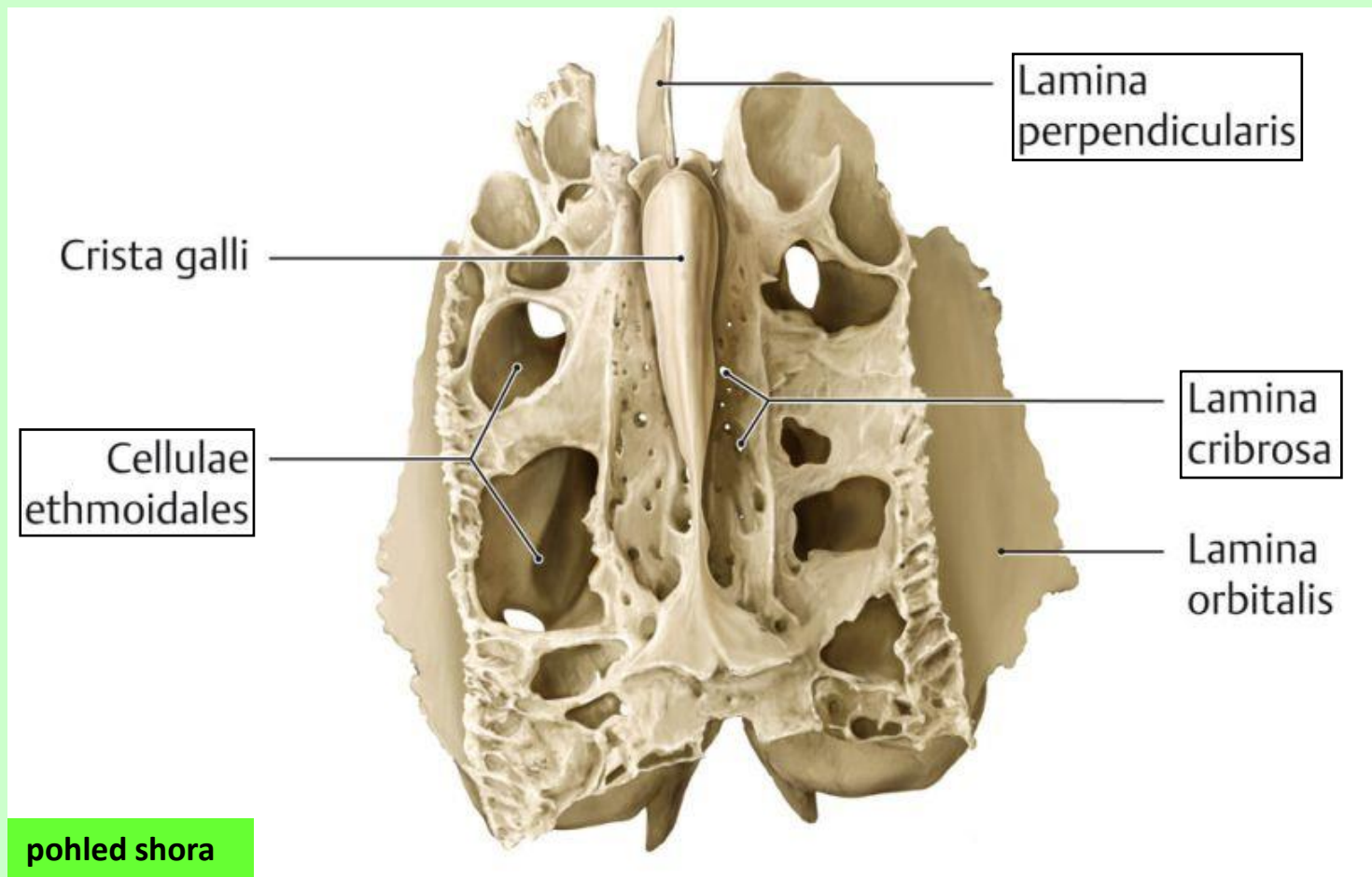


# kost čichová (*os ethmoidale*)

*lamina cribrosa*

*lamina perpendicularis*

*labyrinthus ethmoidalis*

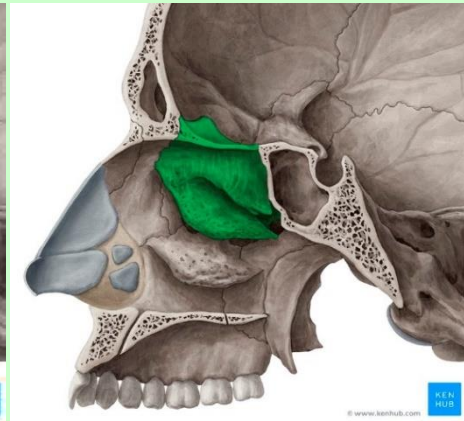
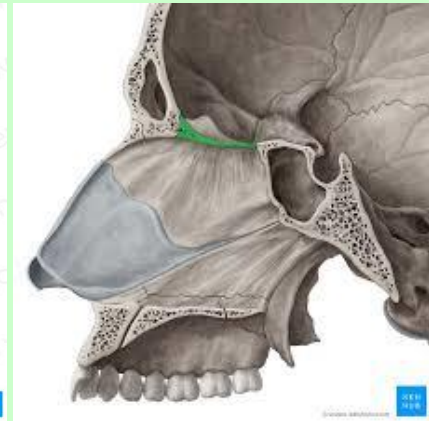
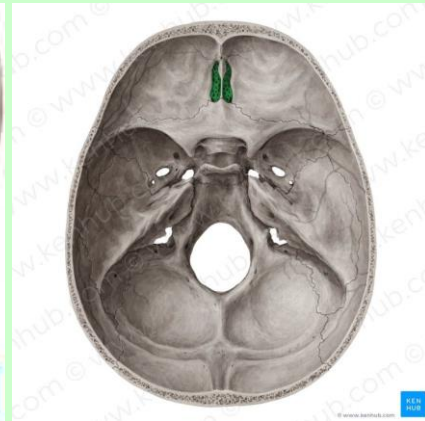
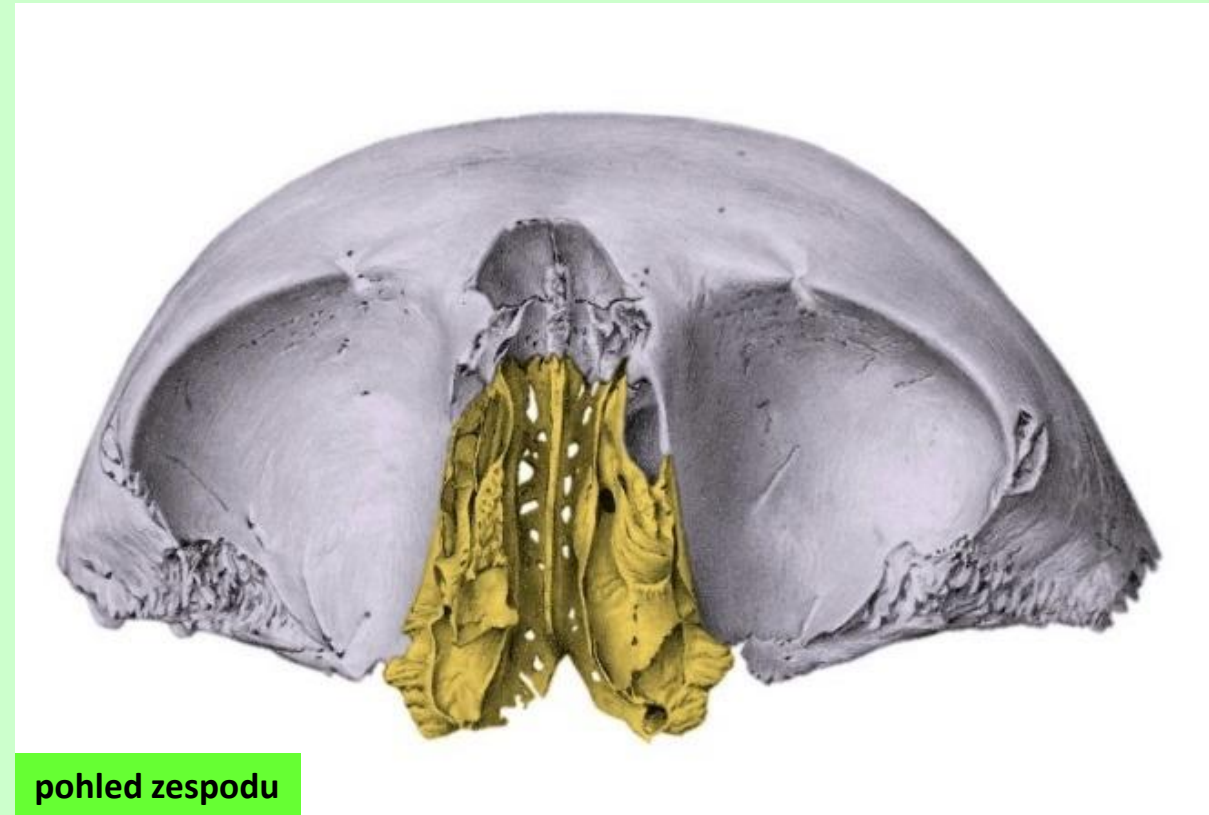


# kost čichová (*os ethmoidale*)

*lamina cribrosa*

*lamina perpendicularis*

*labyrinthus ethmoidalis*

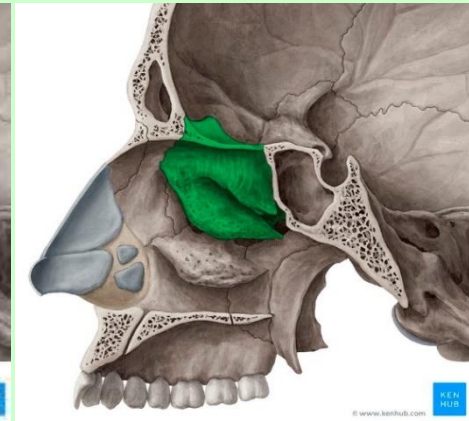
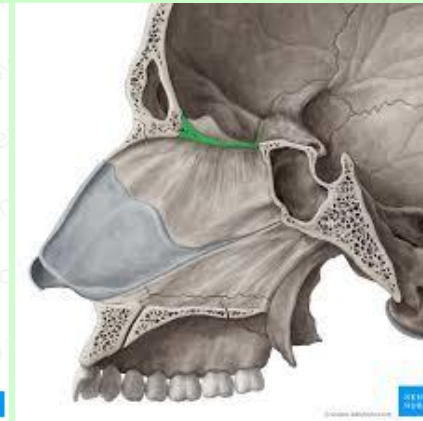
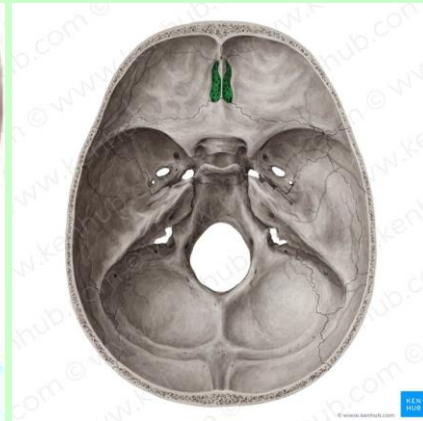
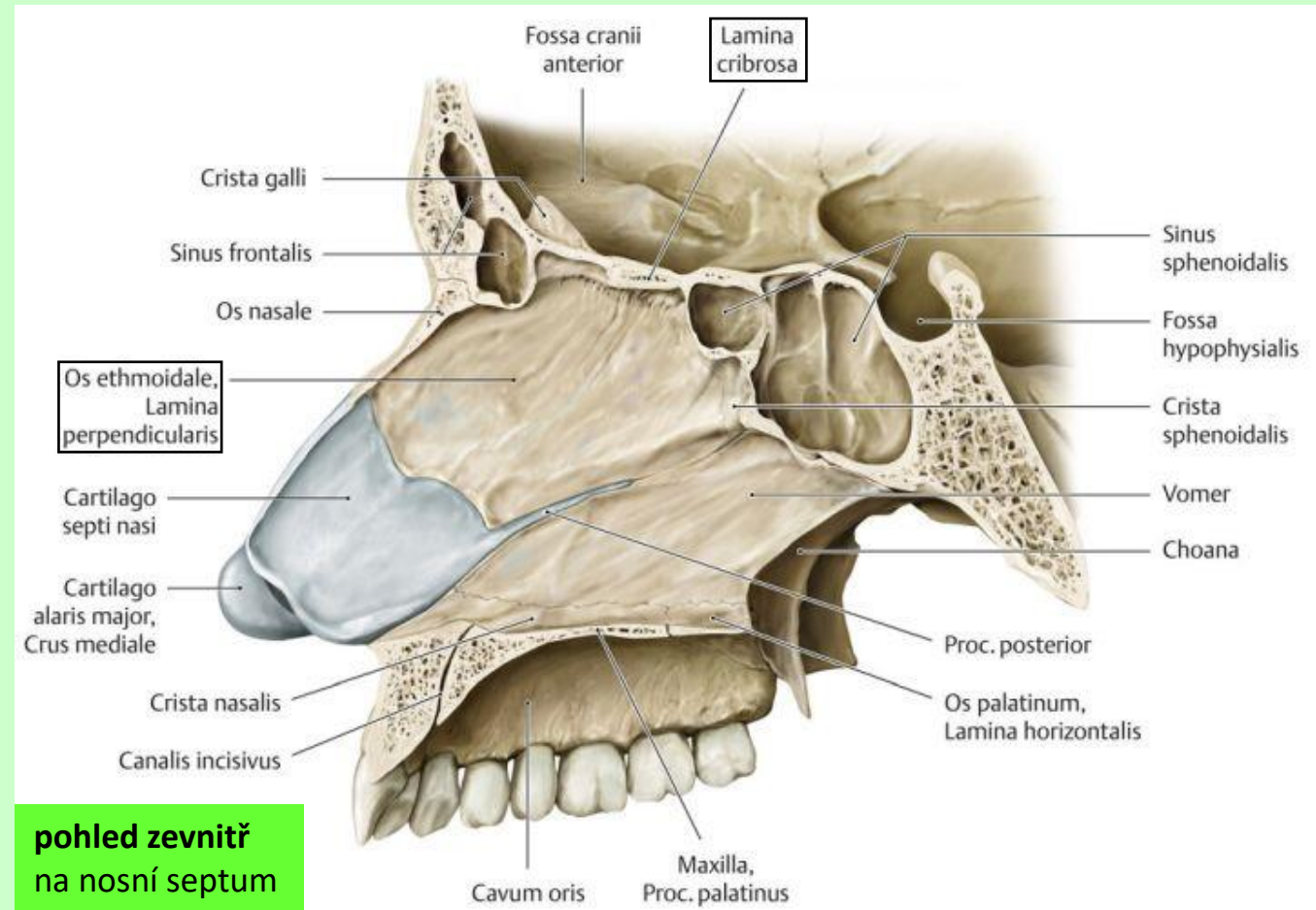


# kost čichová (*os ethmoidale*)

*lamina cribrosa*

*lamina perpendicularis*

*labyrinthus ethmoidalis*

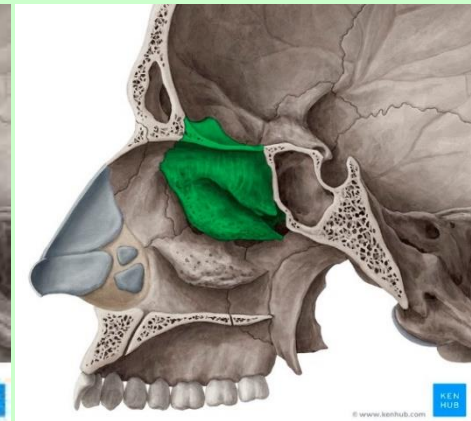
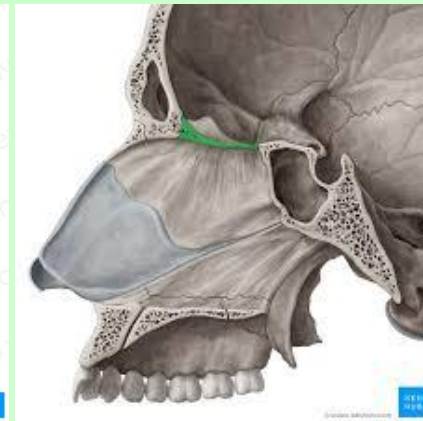
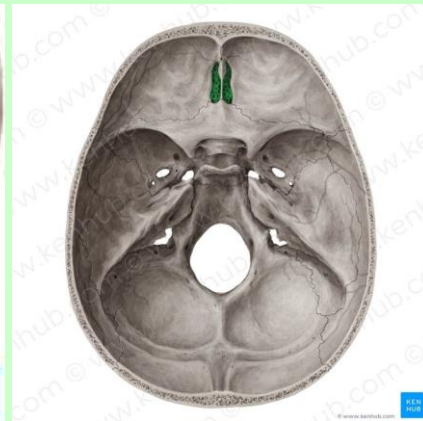
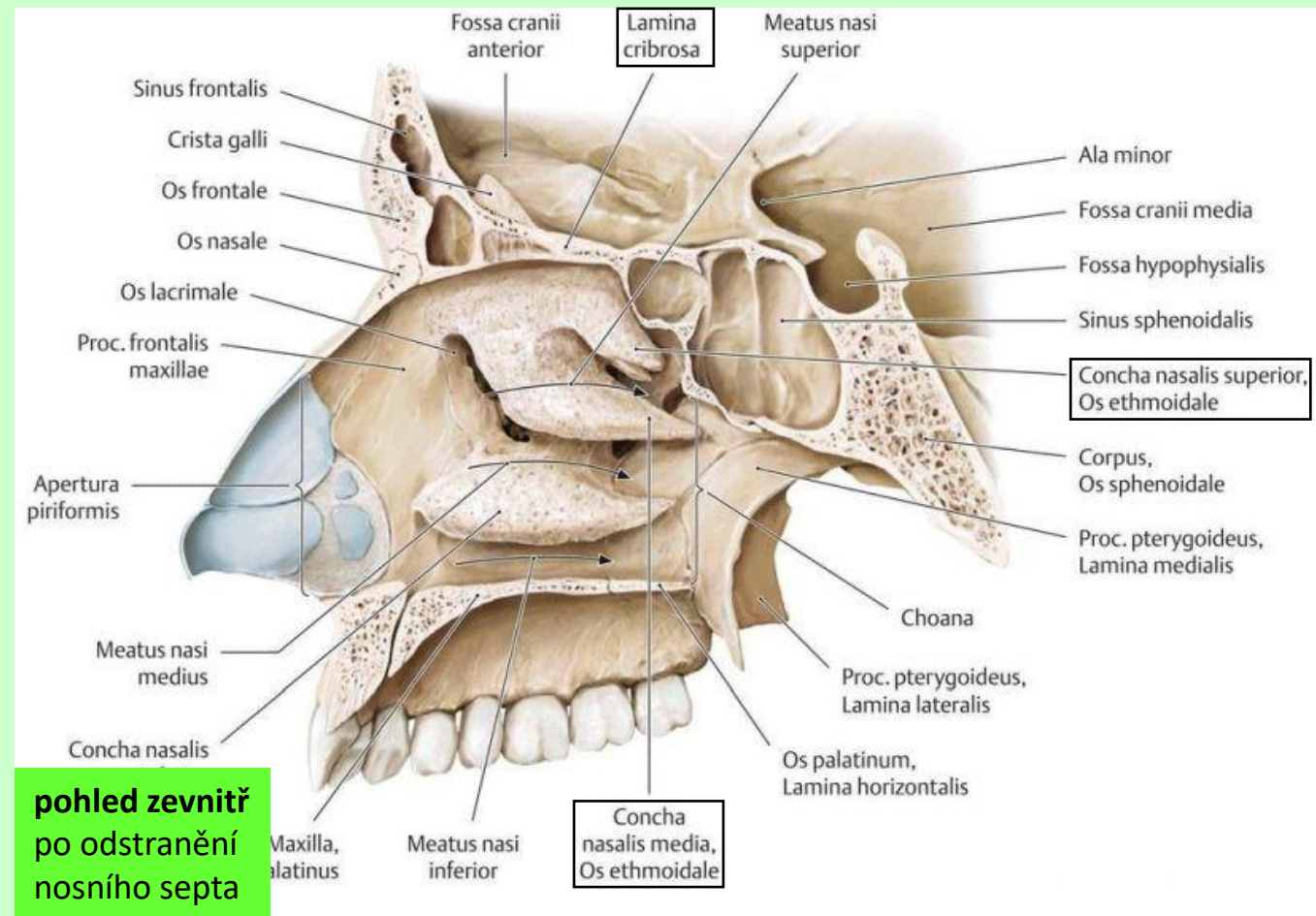


# kost čichová (*os ethmoidale*)

*lamina cribrosa*

*lamina perpendicularis*

*labyrinthus ethmoidalis*

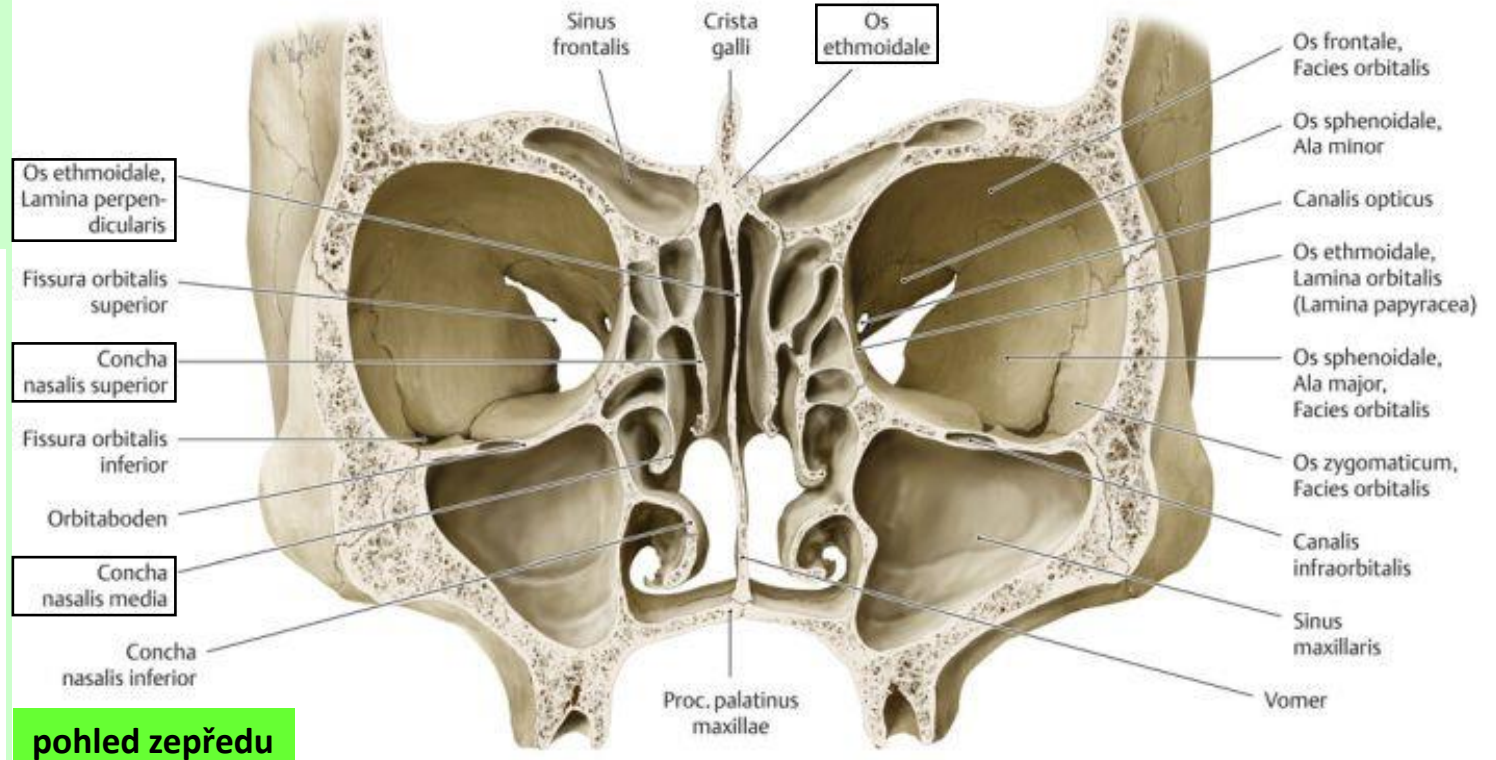
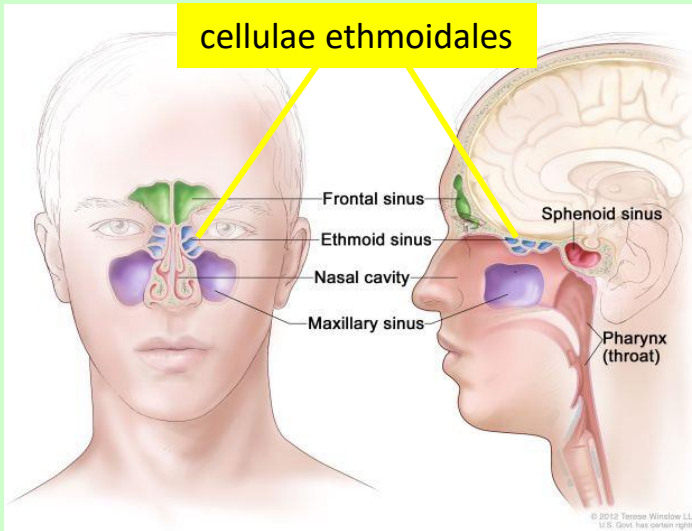


# kost čichová (*os ethmoidale*)

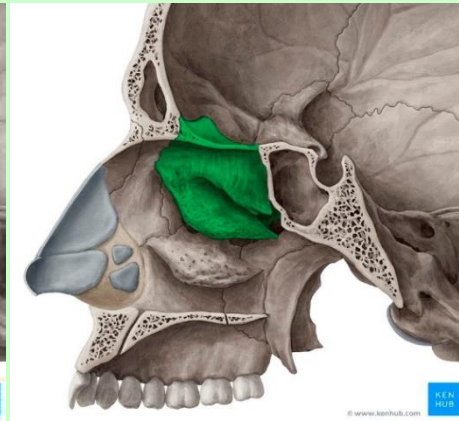
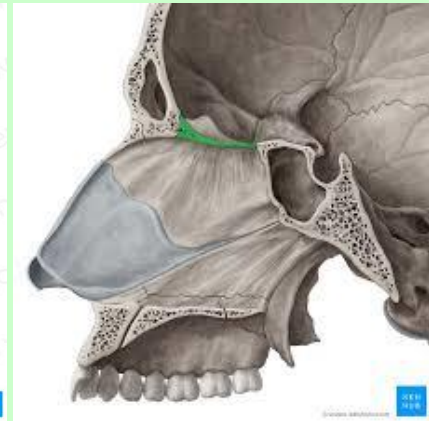
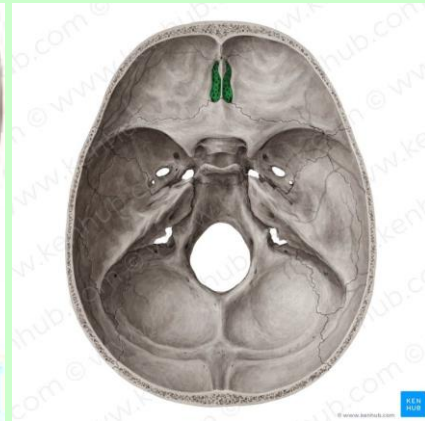
*lamina cribrosa*

*lamina perpendicularis*

*labyrinthus ethmoidalis*

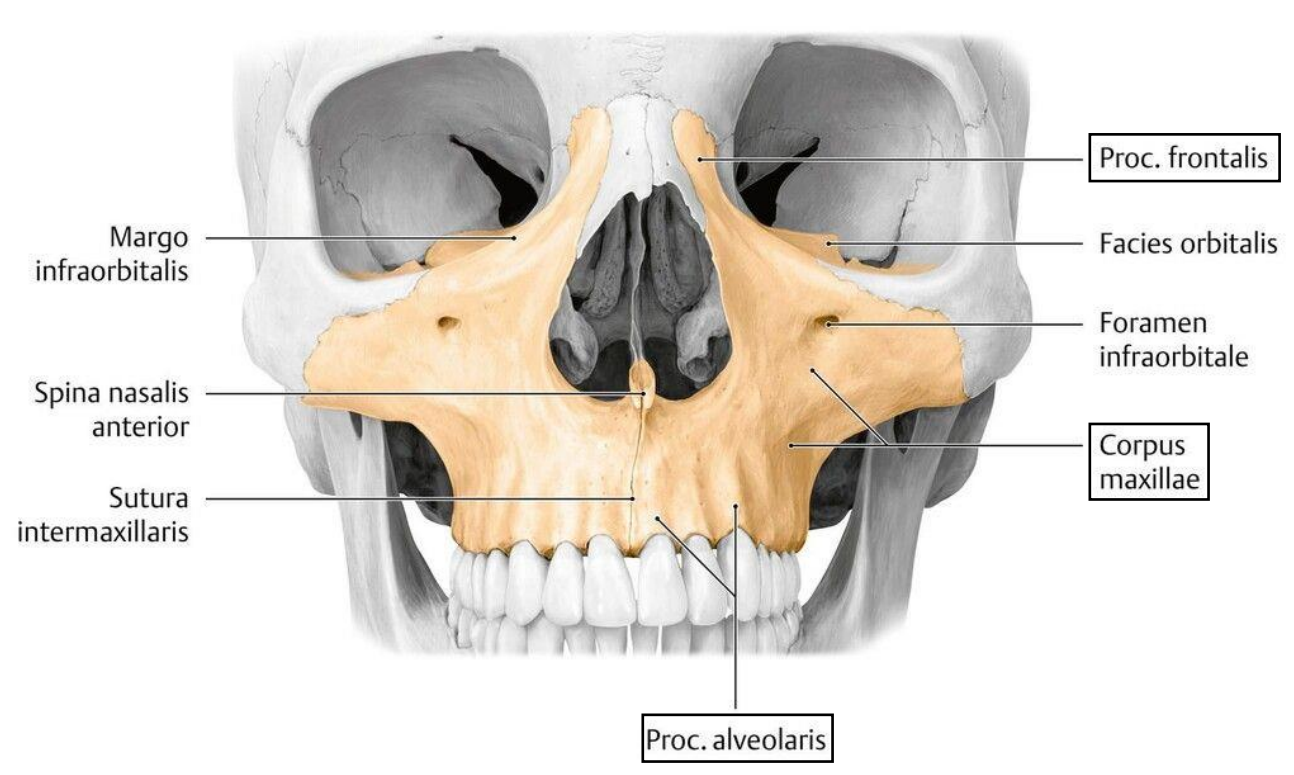
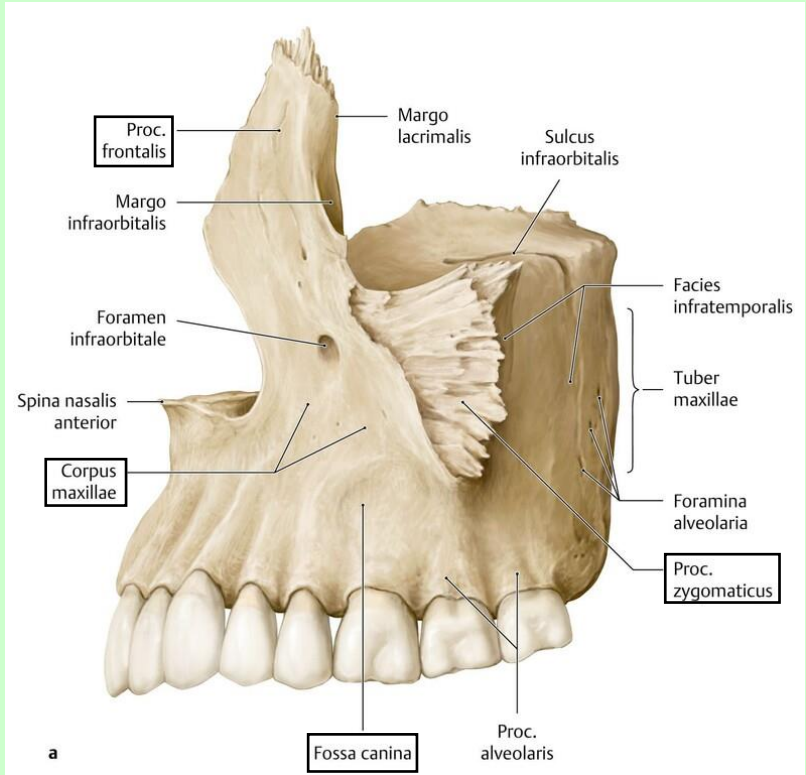
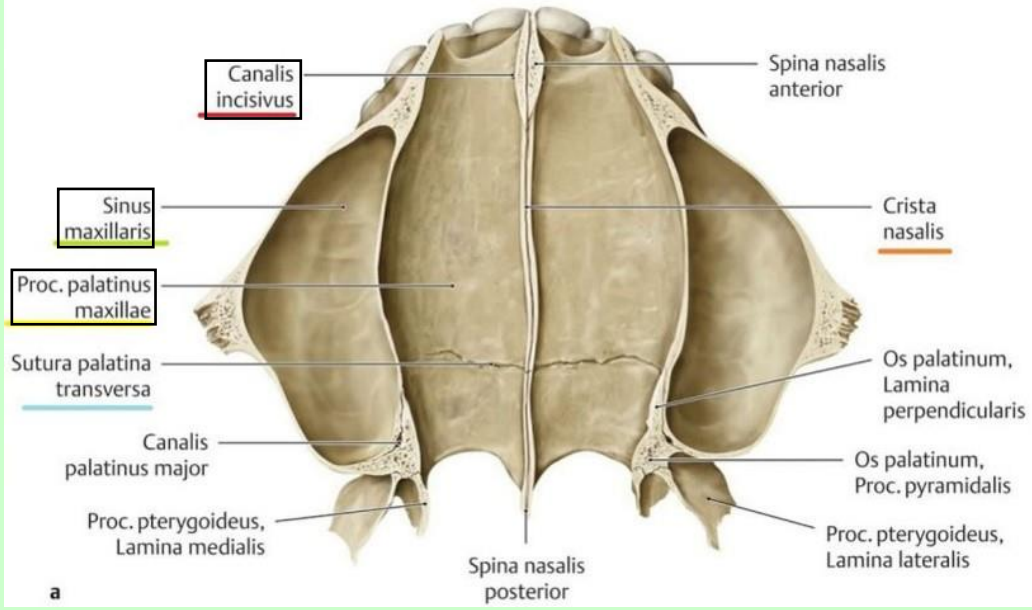
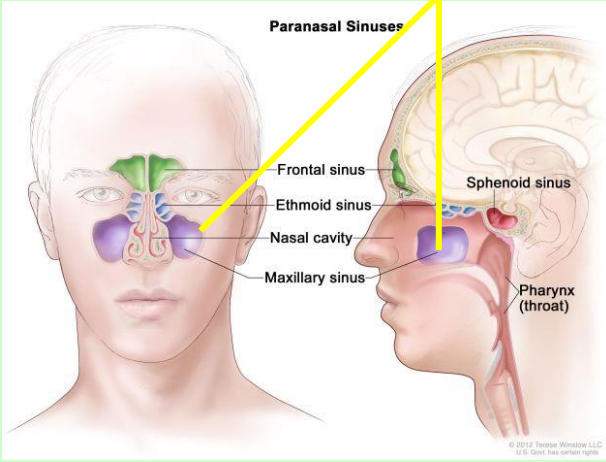


pohled zepředu

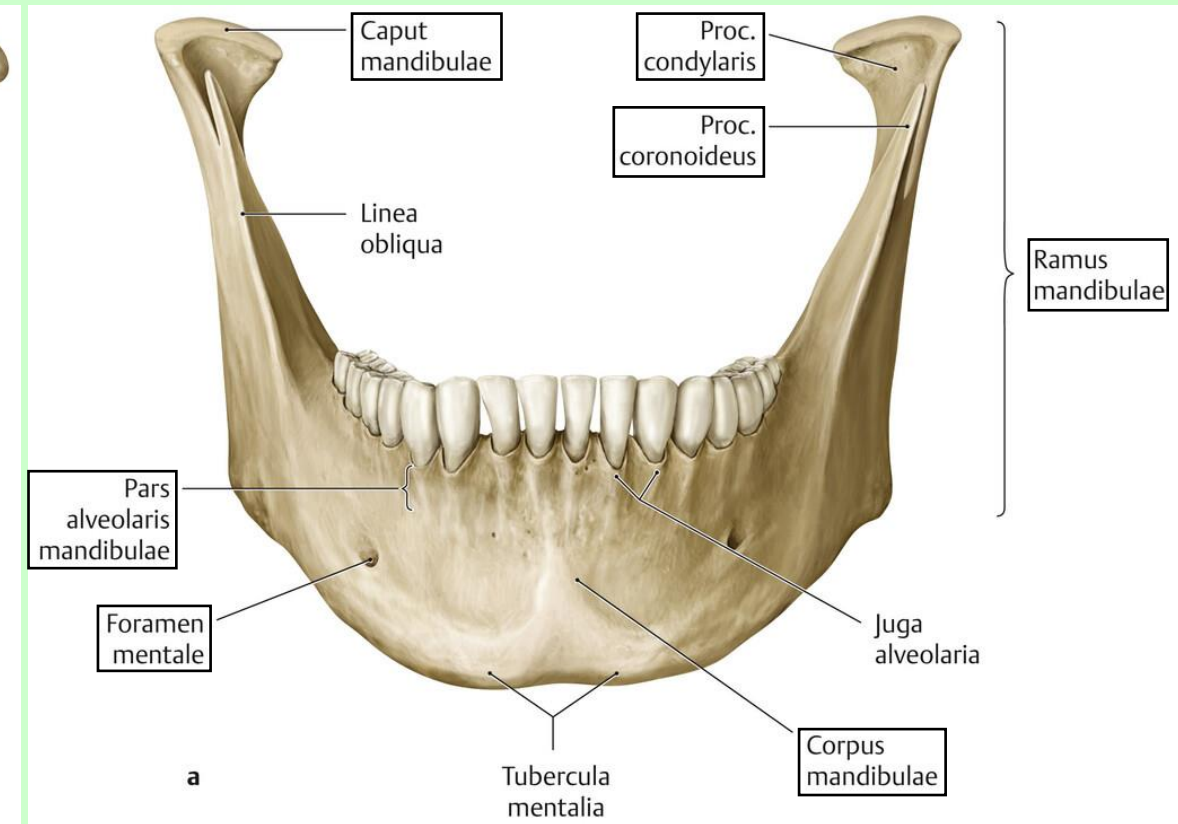
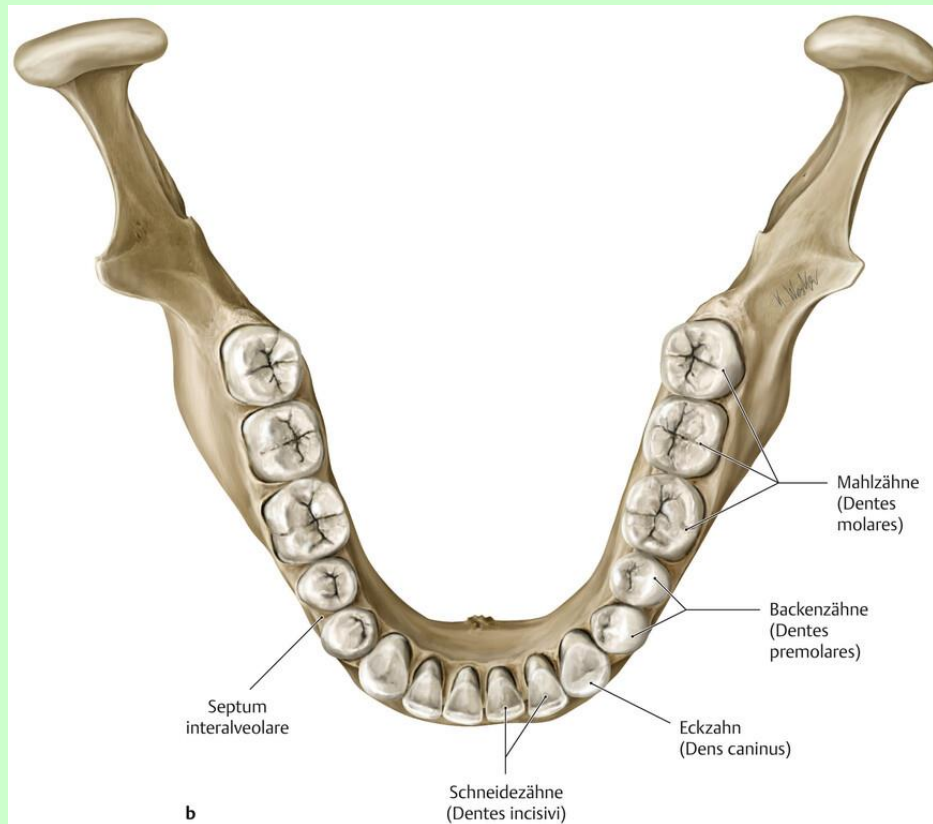
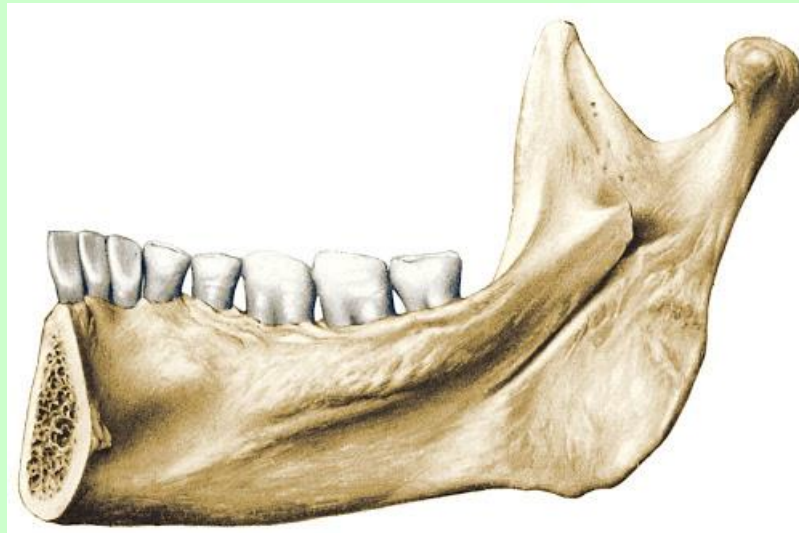


# horní čelist (maxilla)

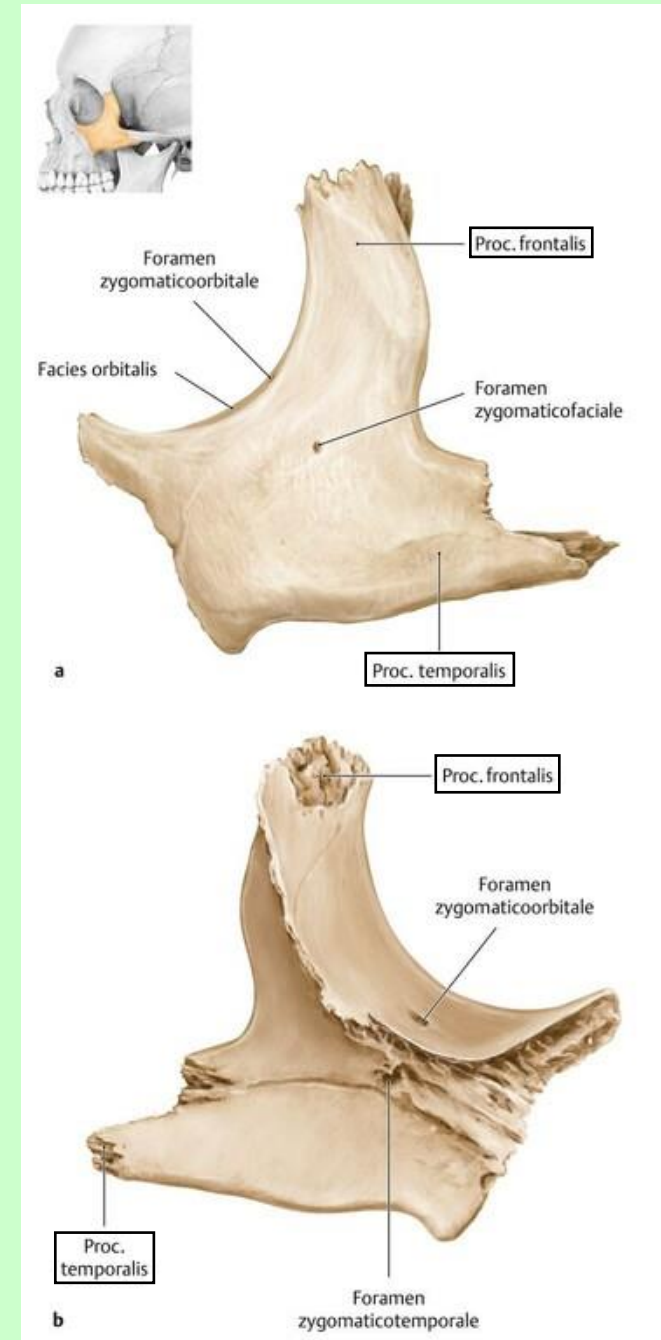
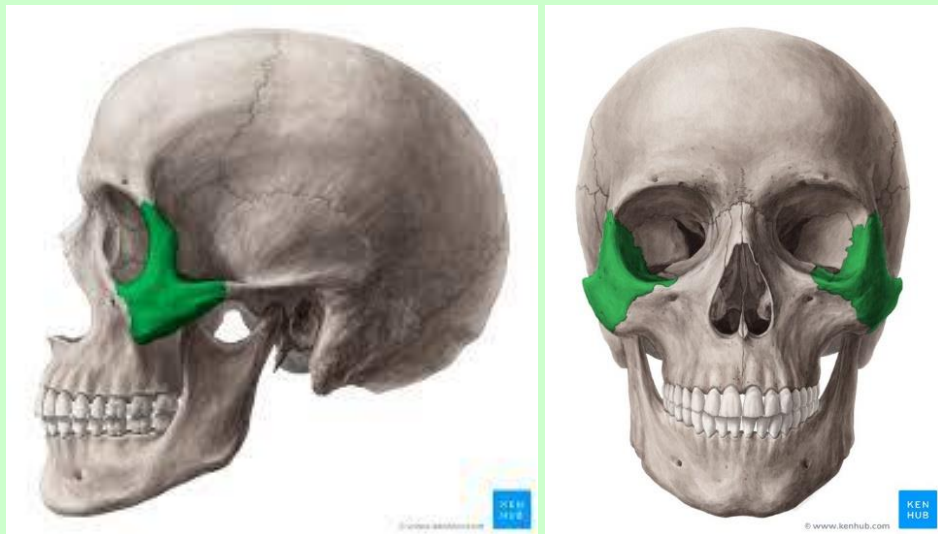
sinus maxillaris



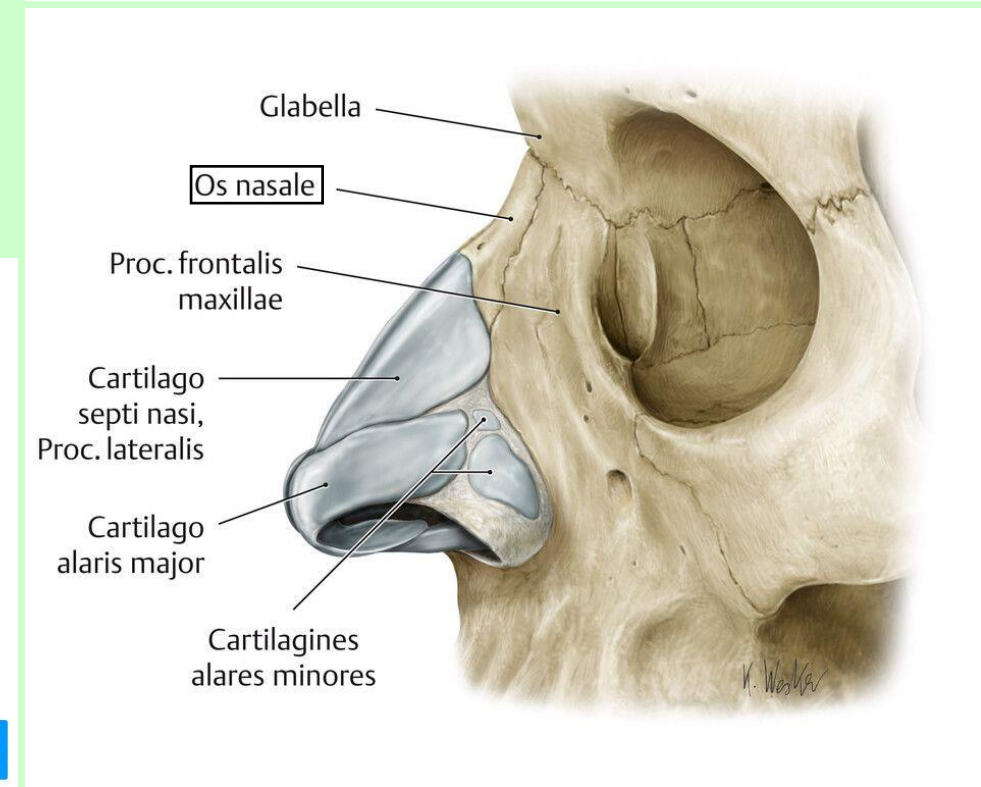
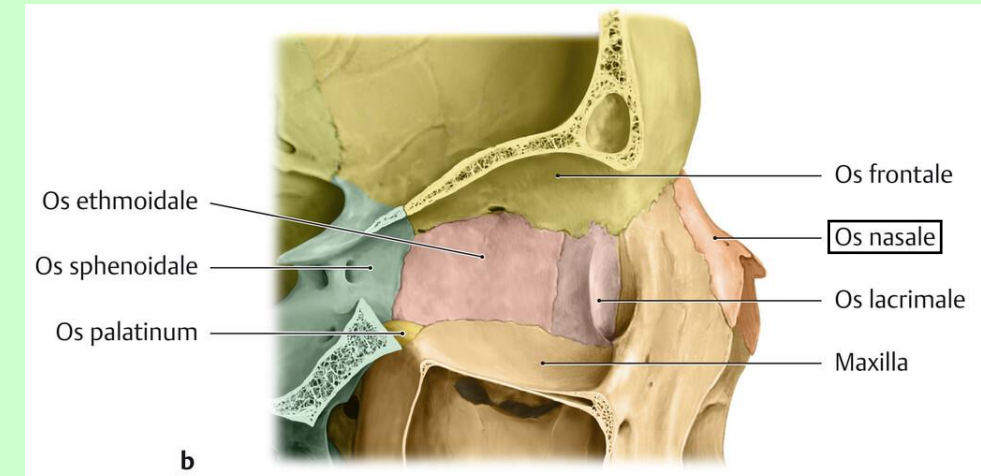
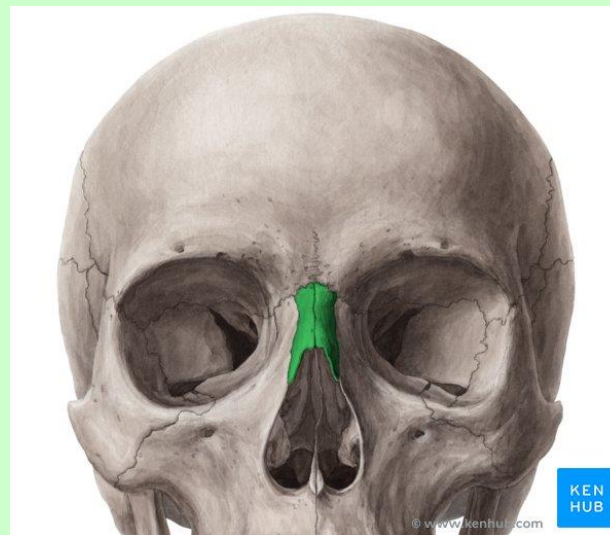
# dolní čelist (mandibula)



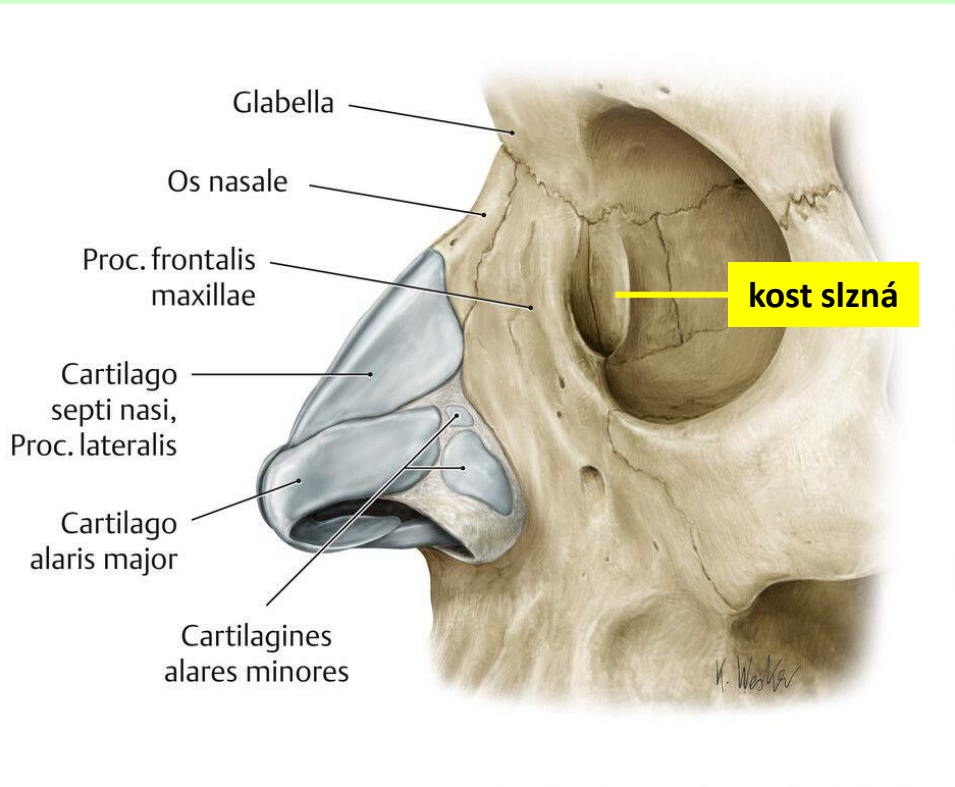
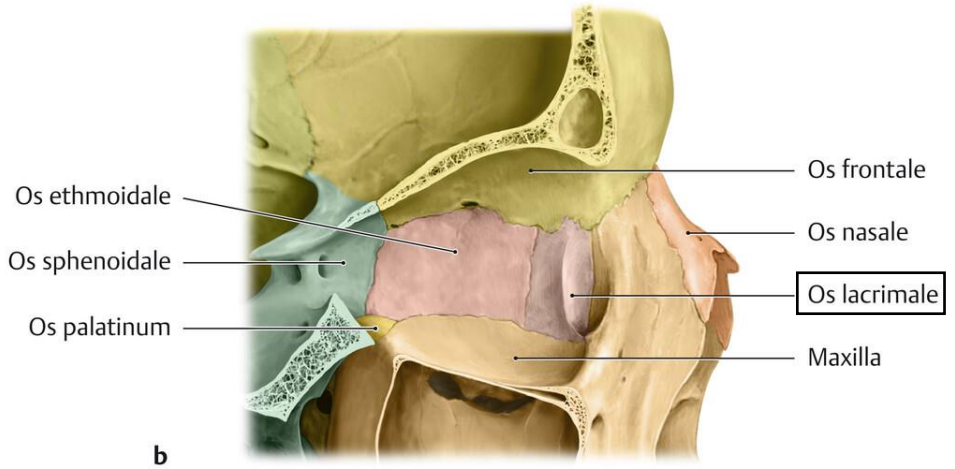
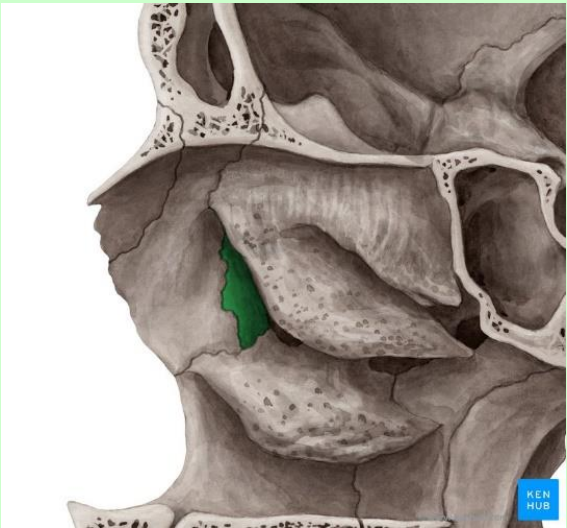
# kost lícní (*os zygomaticum*)



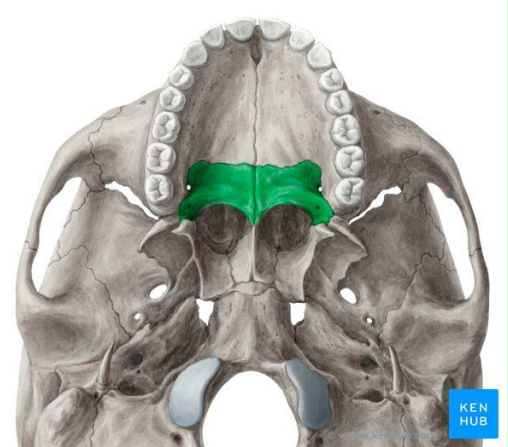
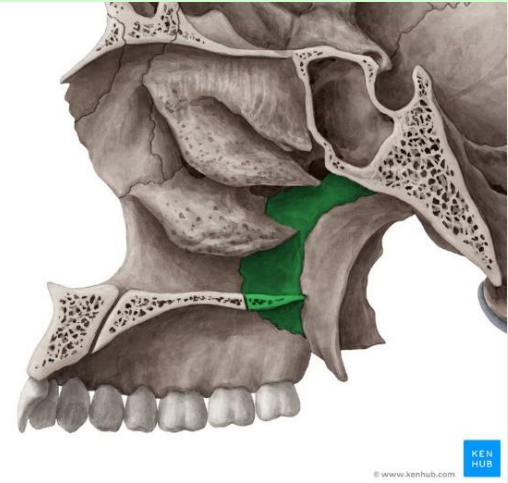
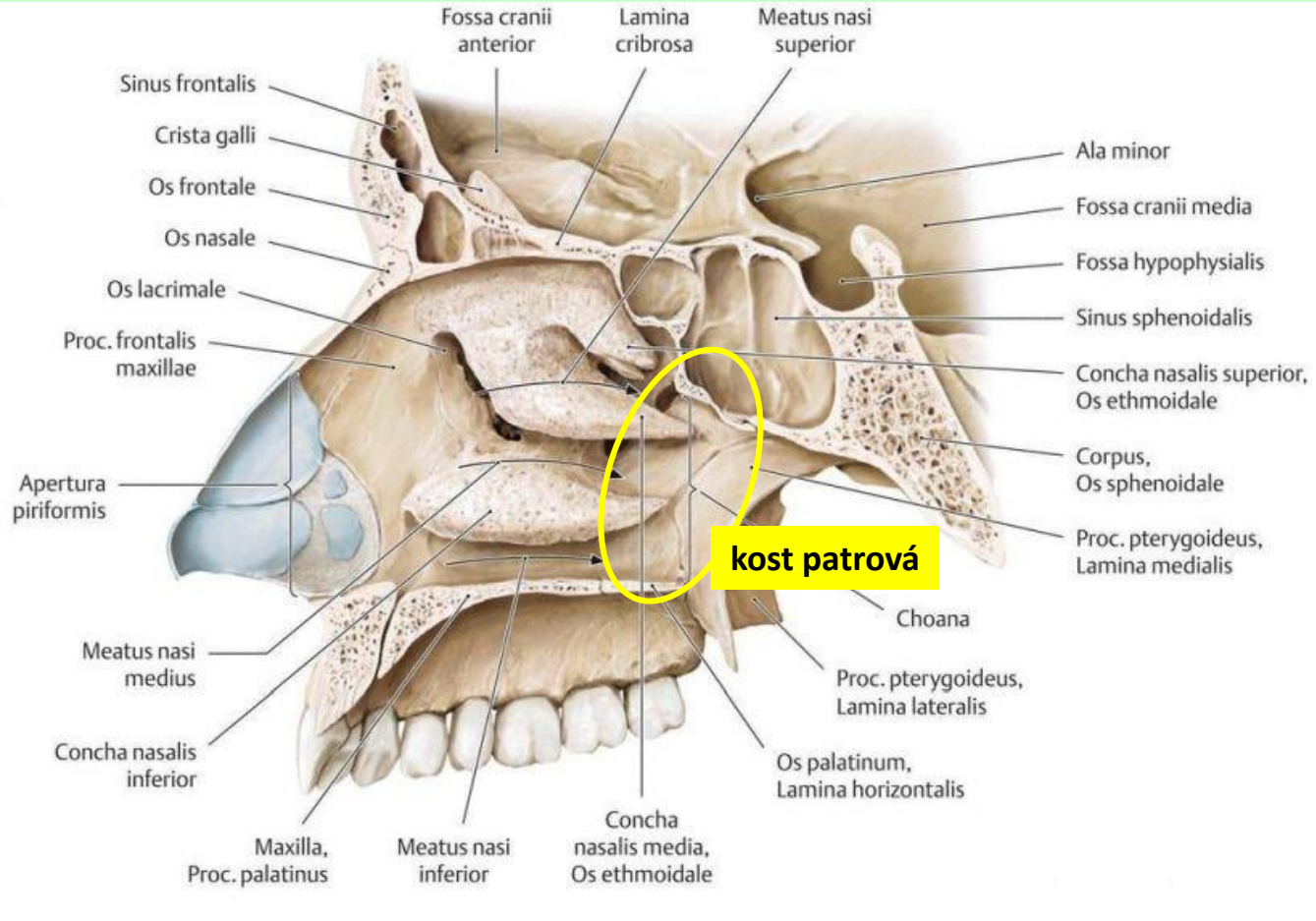
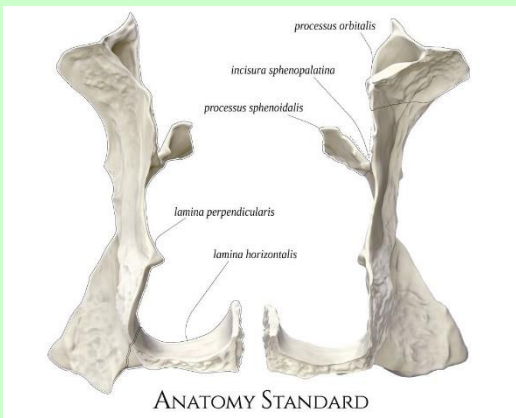
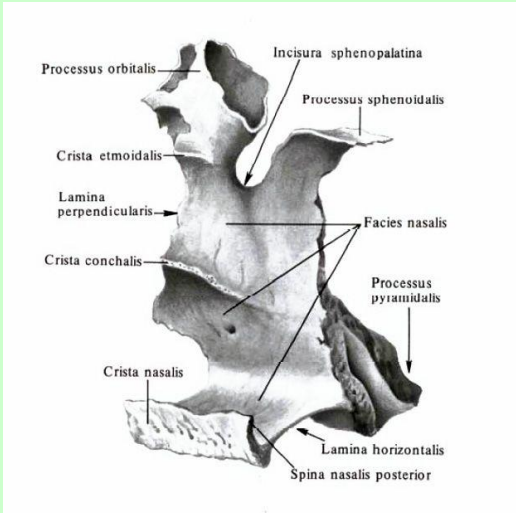
# kost nosní (*os nasale*)



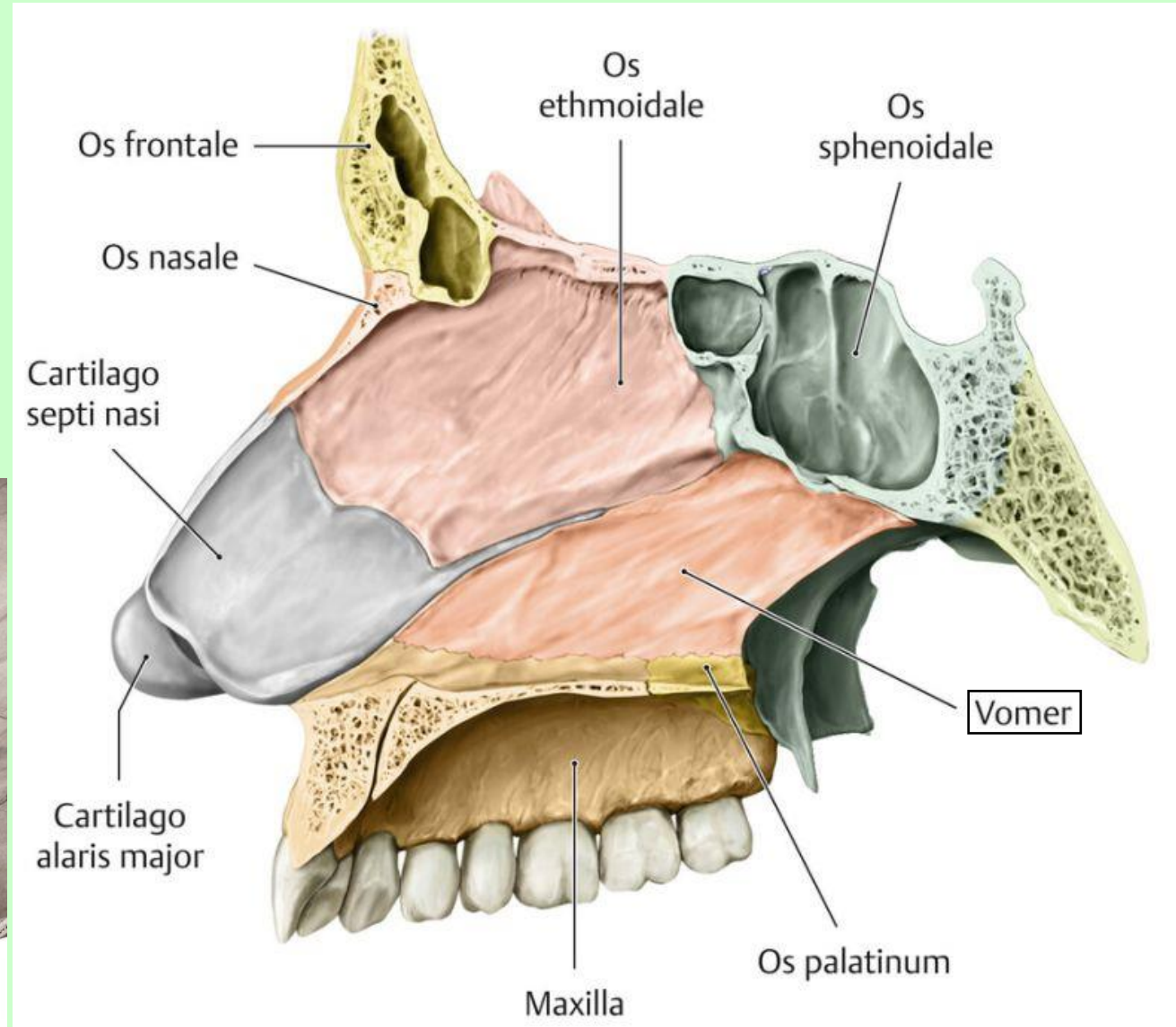
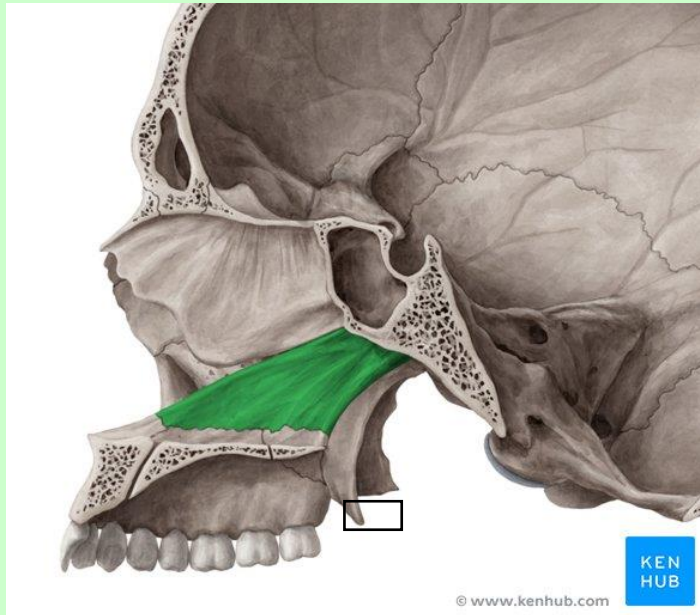
# kost slzná (*os lacrimale*)



# kost patrová (*os palatinum*)

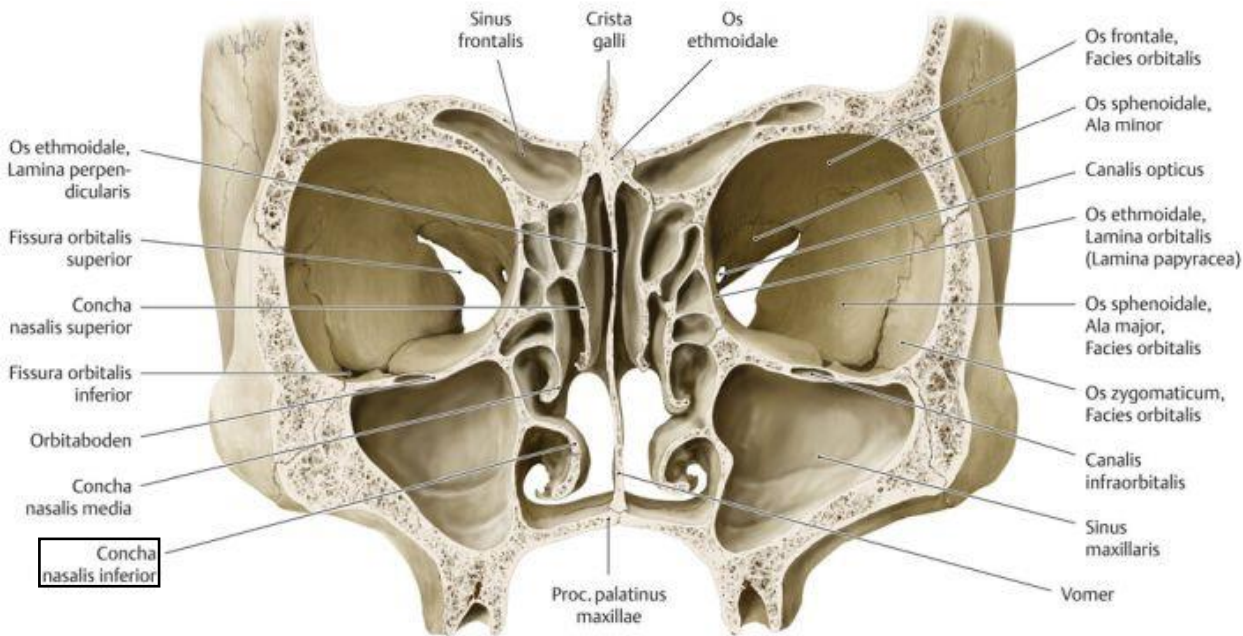
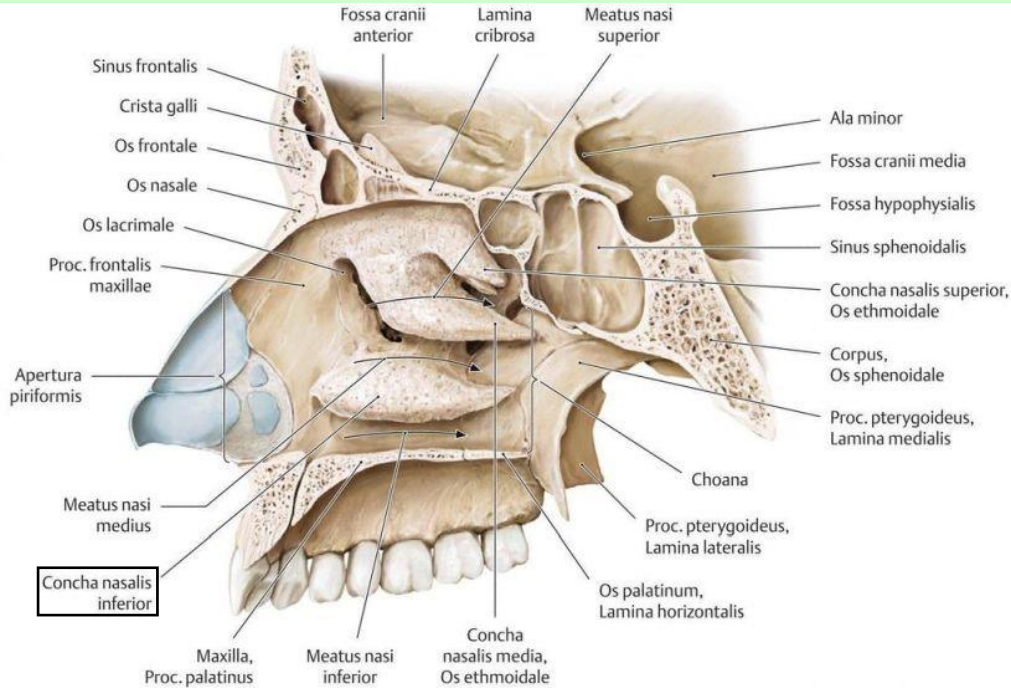
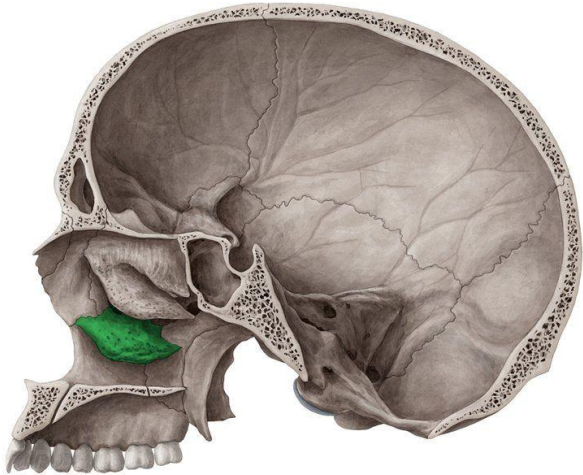
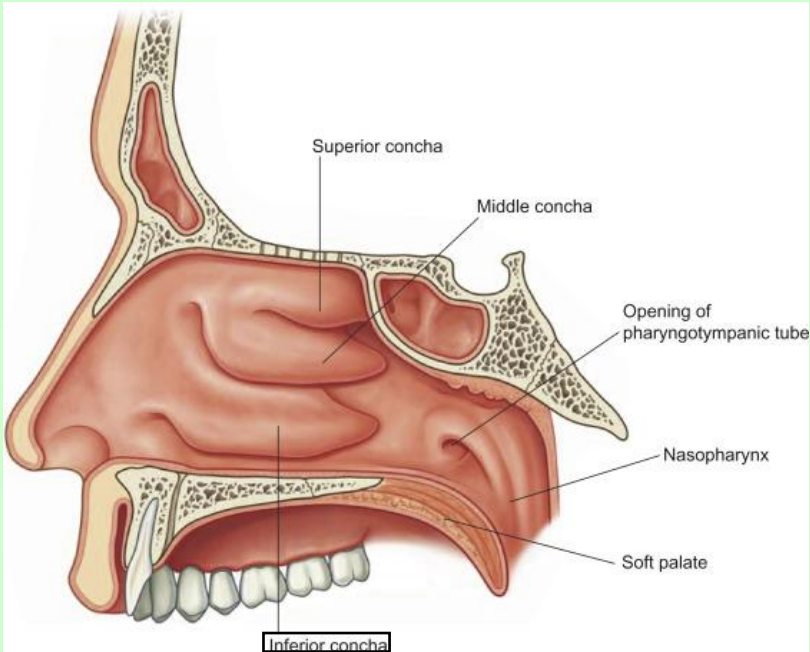


# kost radličná (*vomer*)

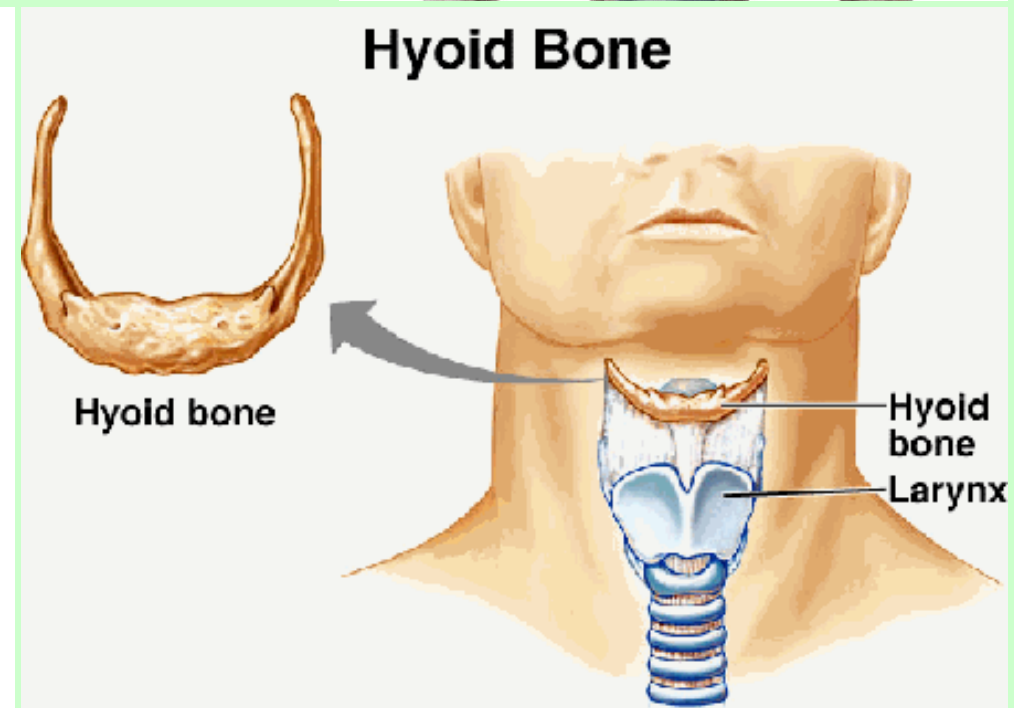
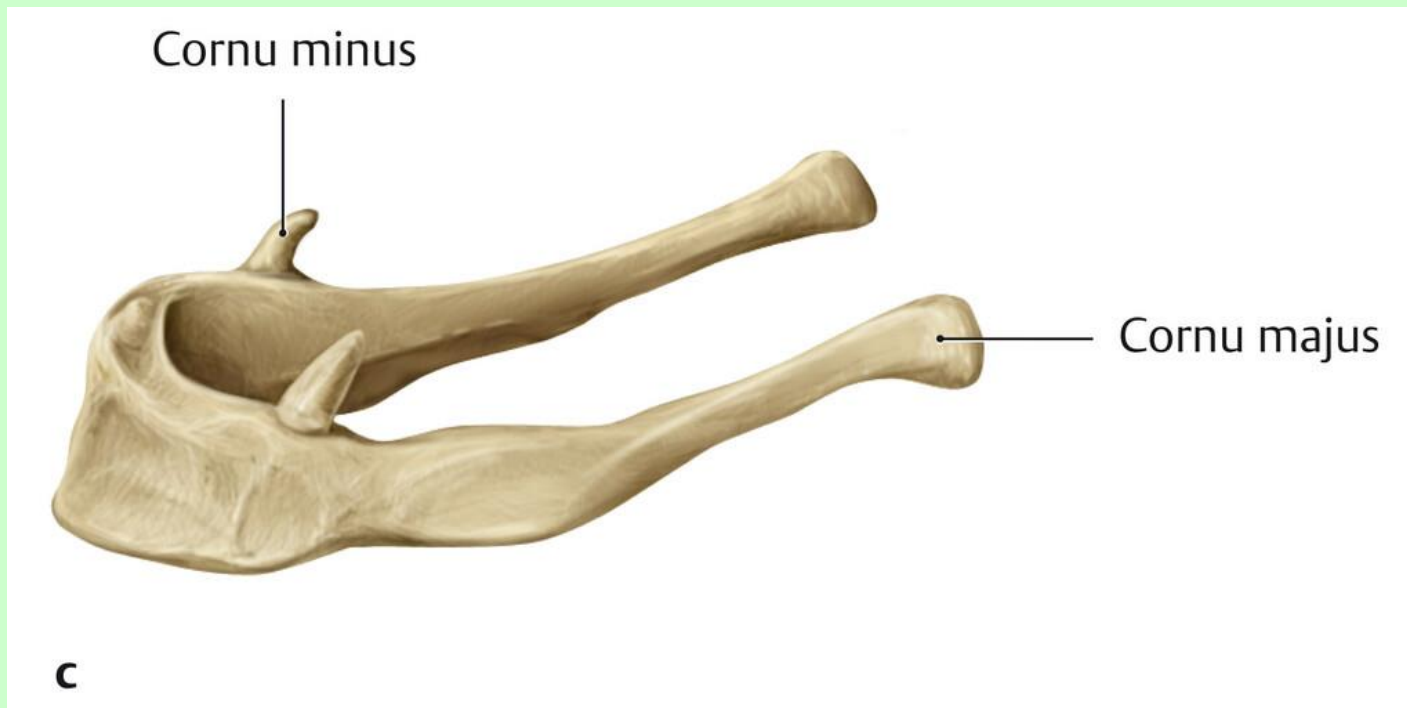
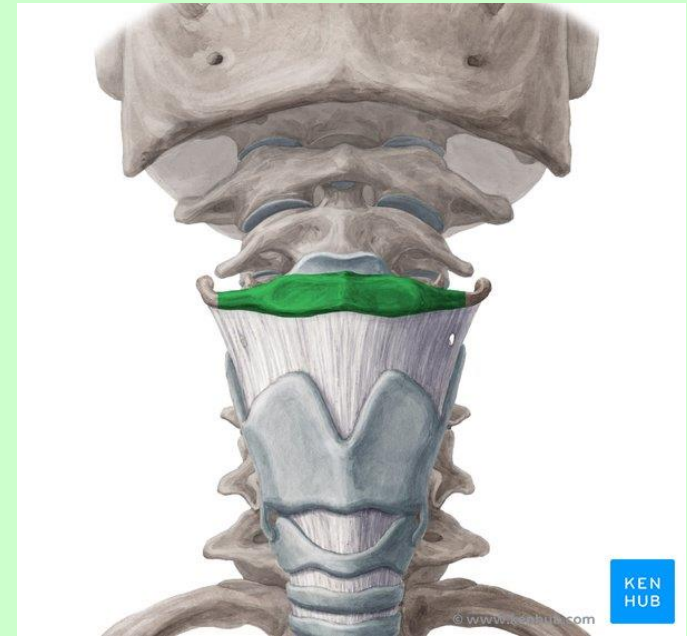


# dolní skořepa nosní

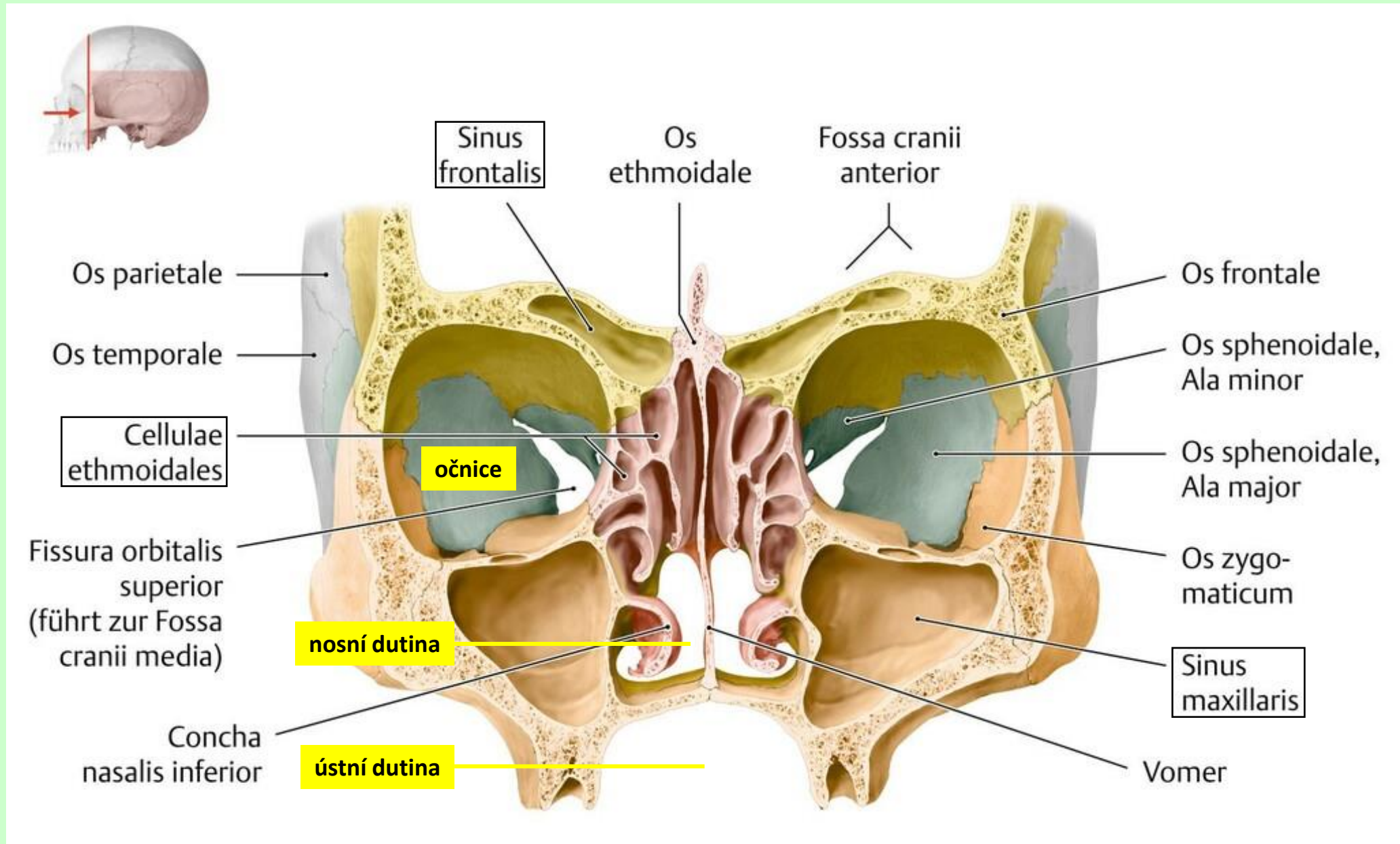
(*concha nasalis inferior*)



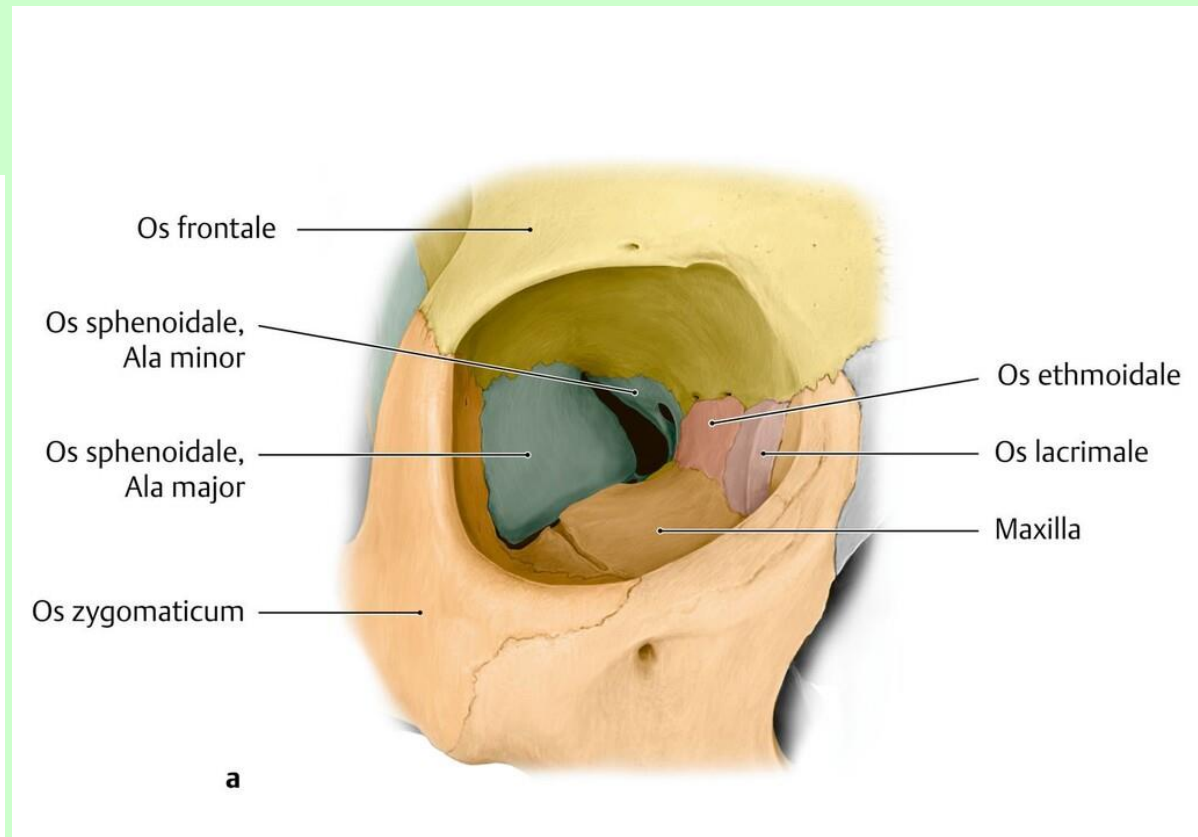
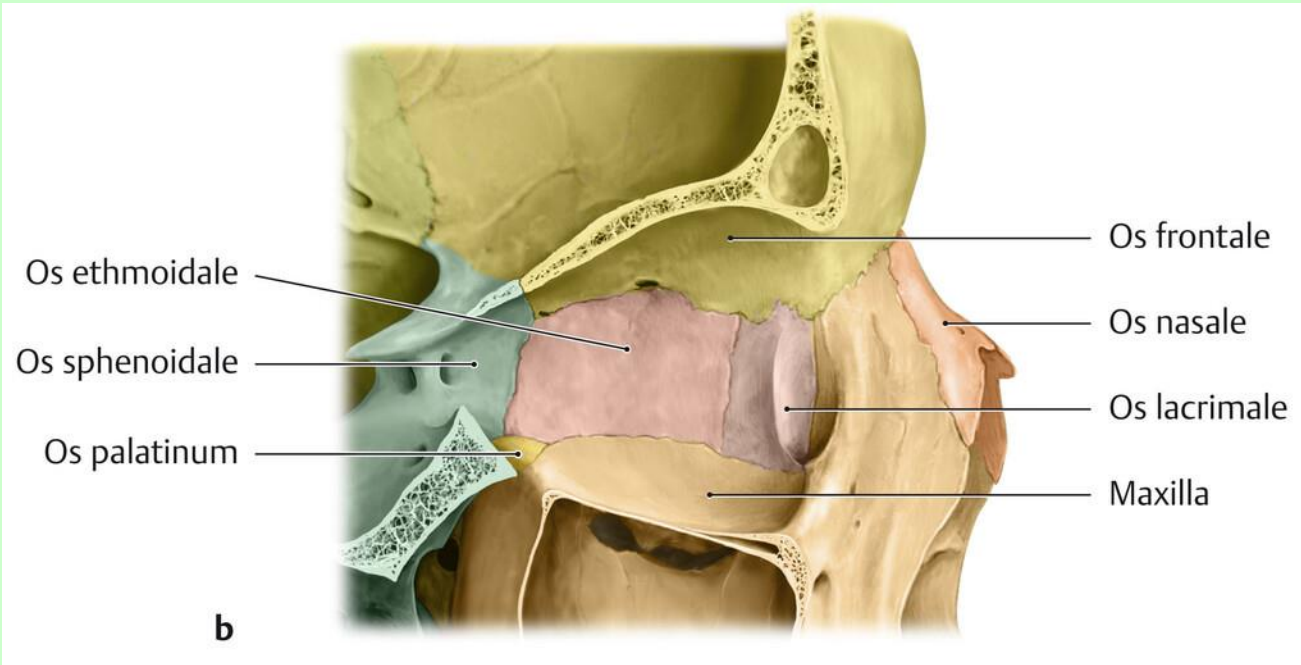
# jazyłka (*os hyoideum*)



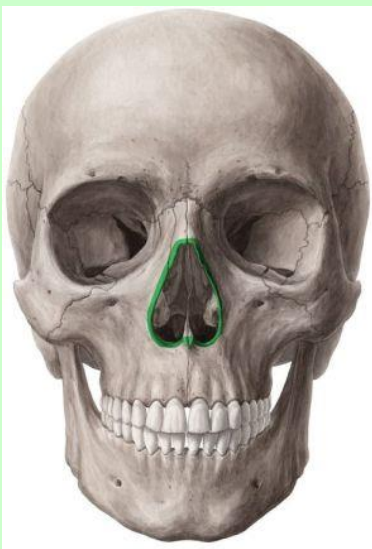
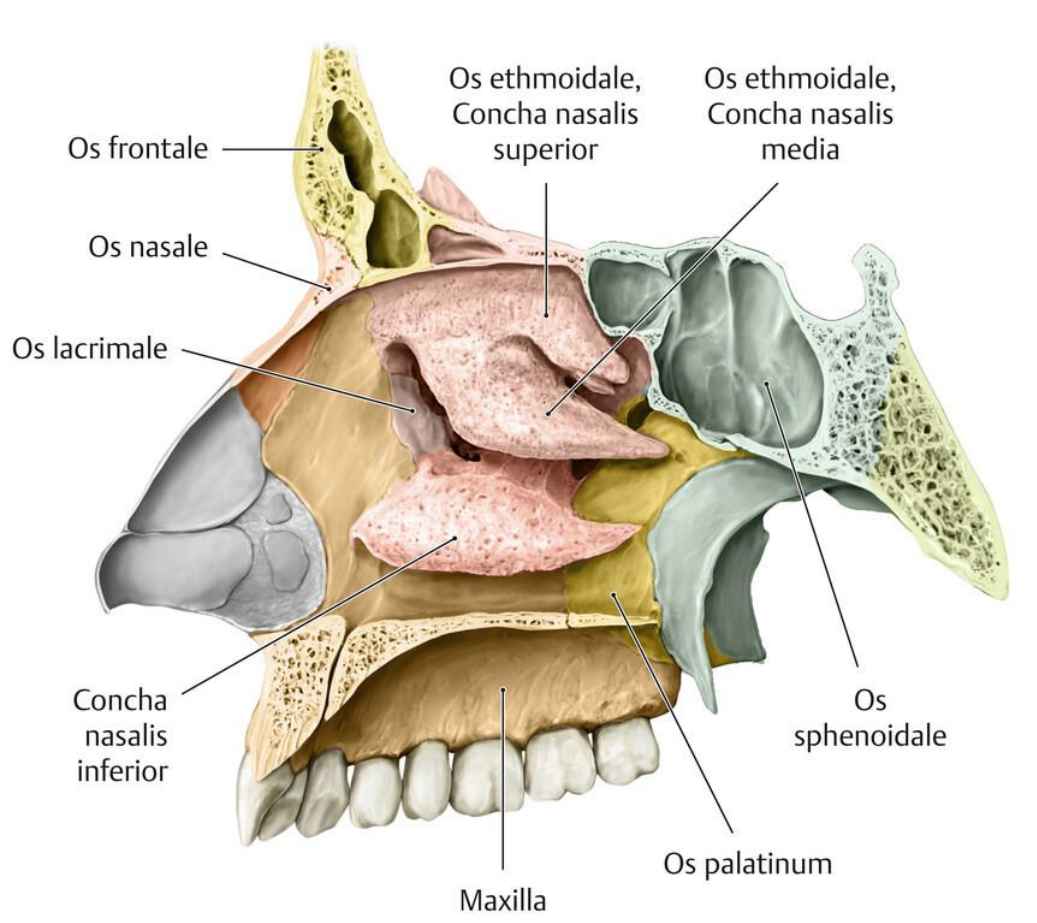
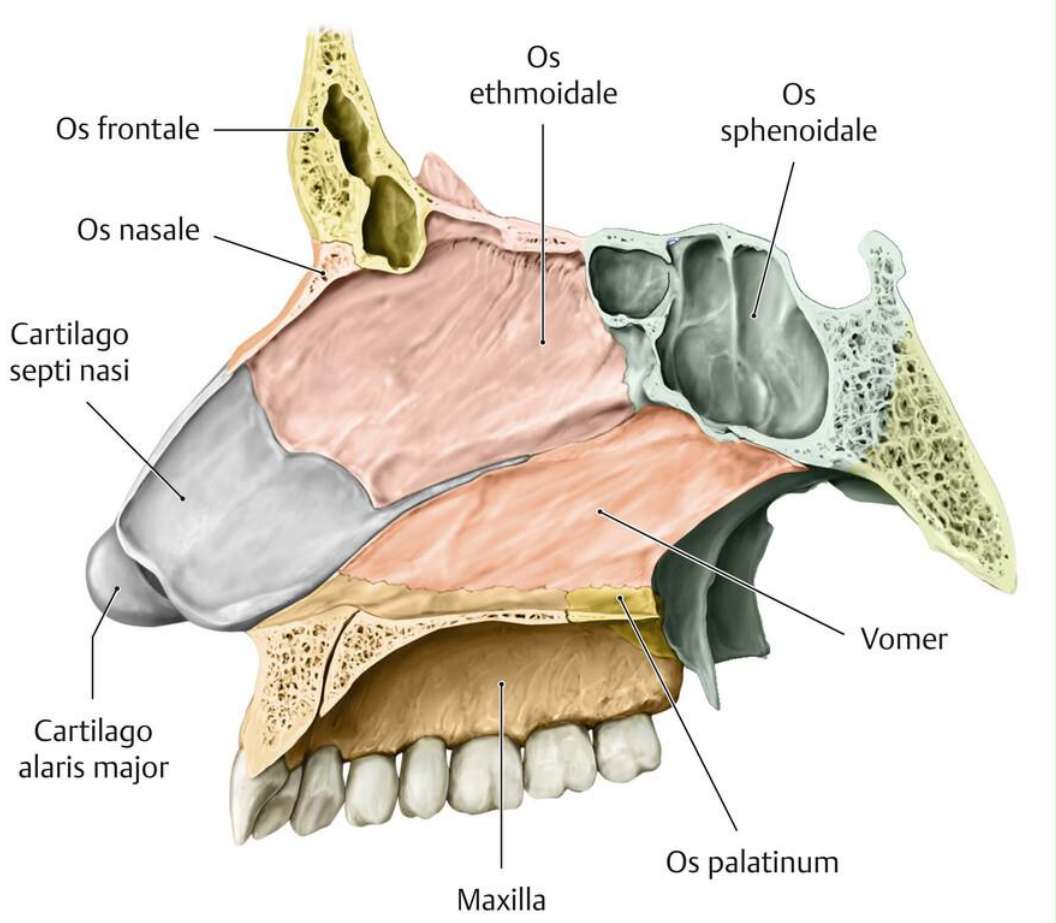
# dutiny splanchnokránia



# očníce (*orbita*)

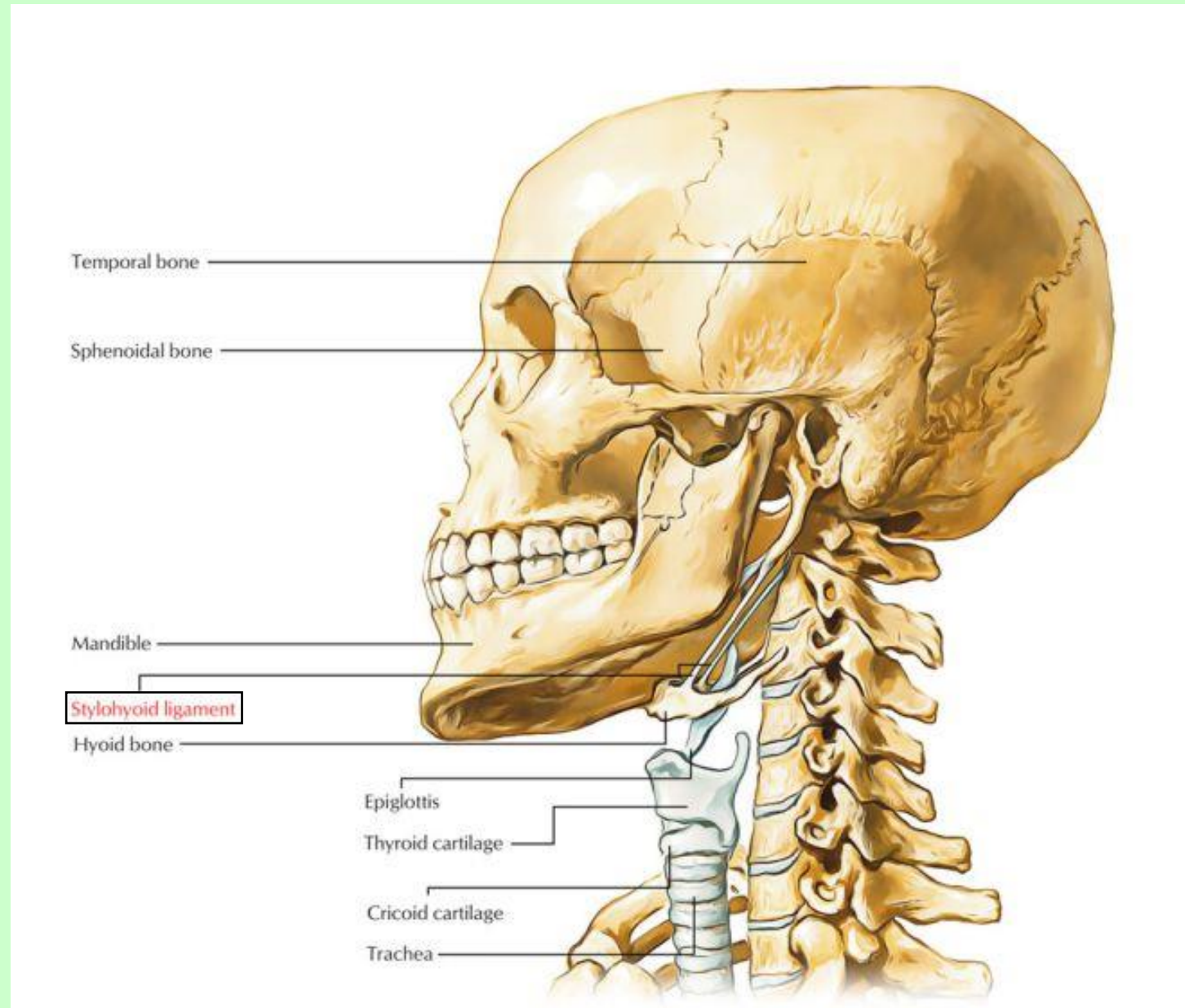


# dutina nosní (*cavum nasi*)



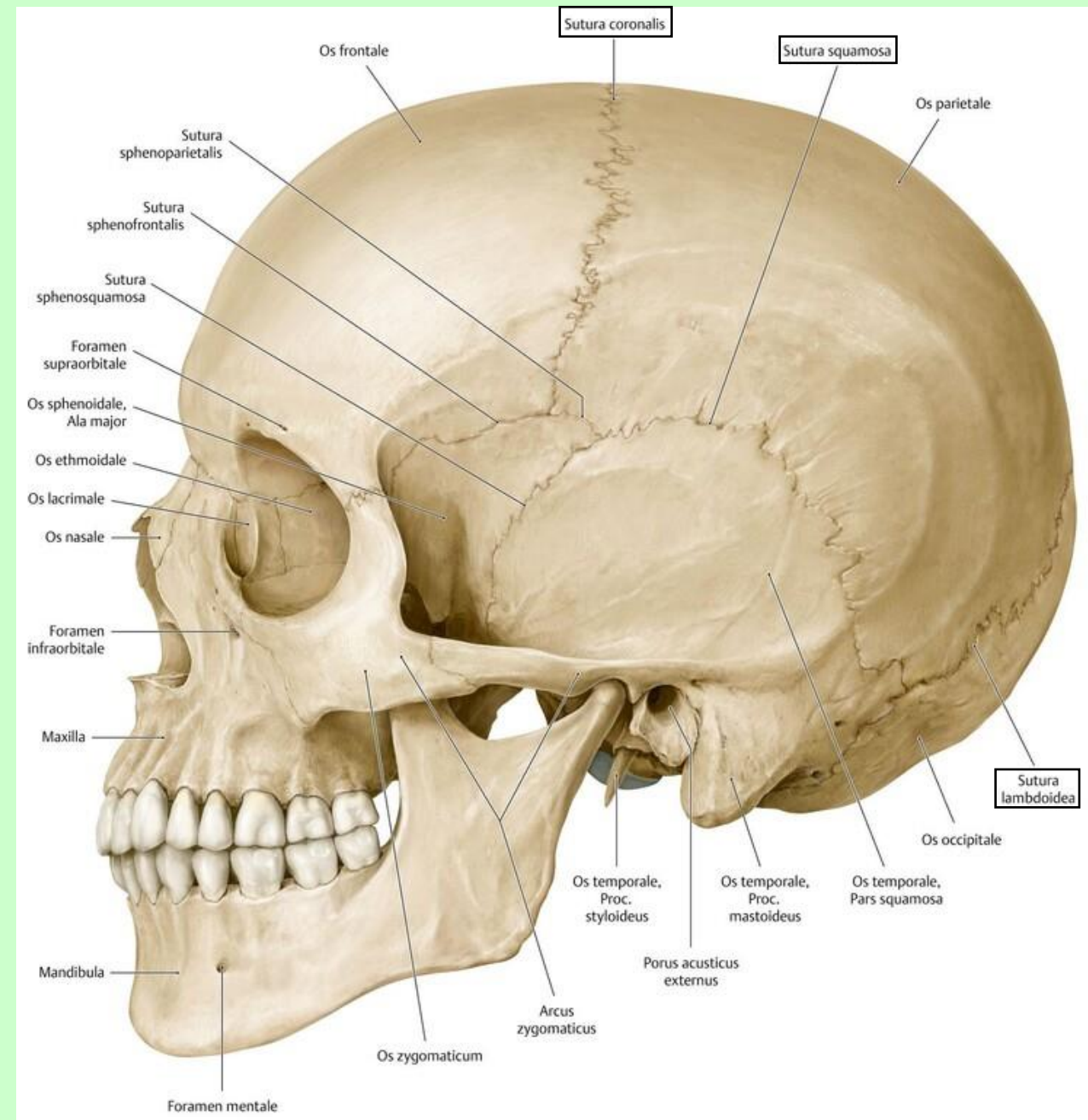
# spoje lebečních kostí

*ligamentum stylohyoideum*



# spoje lebečních kostí

*sutura coronalis*  
*sutura sagittalis*  
*sutura lambdoidea*  
*sutura squamosa*



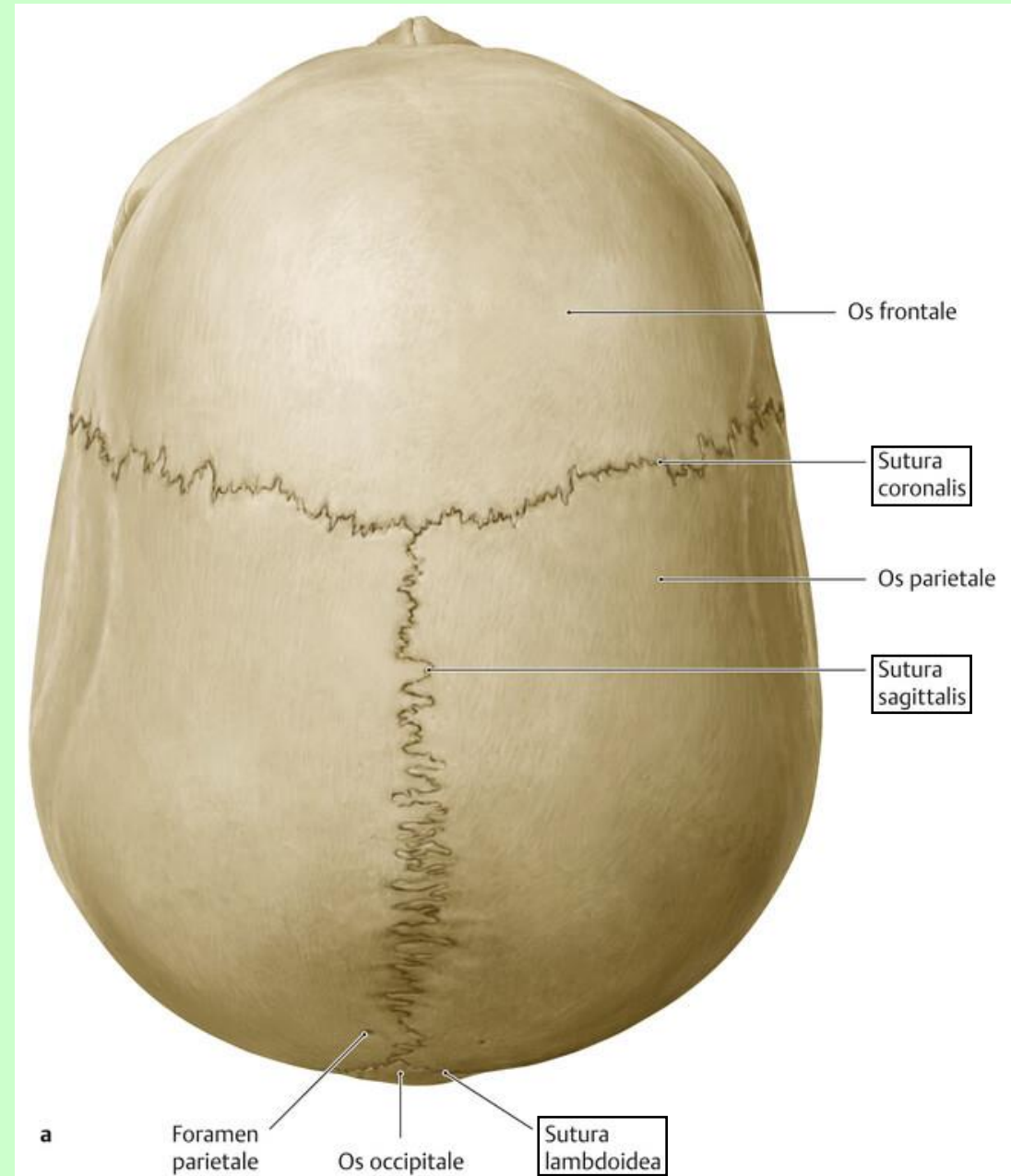
# spoje lebečních kostí

*sutura coronalis*

*sutura sagittalis*

*sutura lambdoidea*

*sutura squamosa*



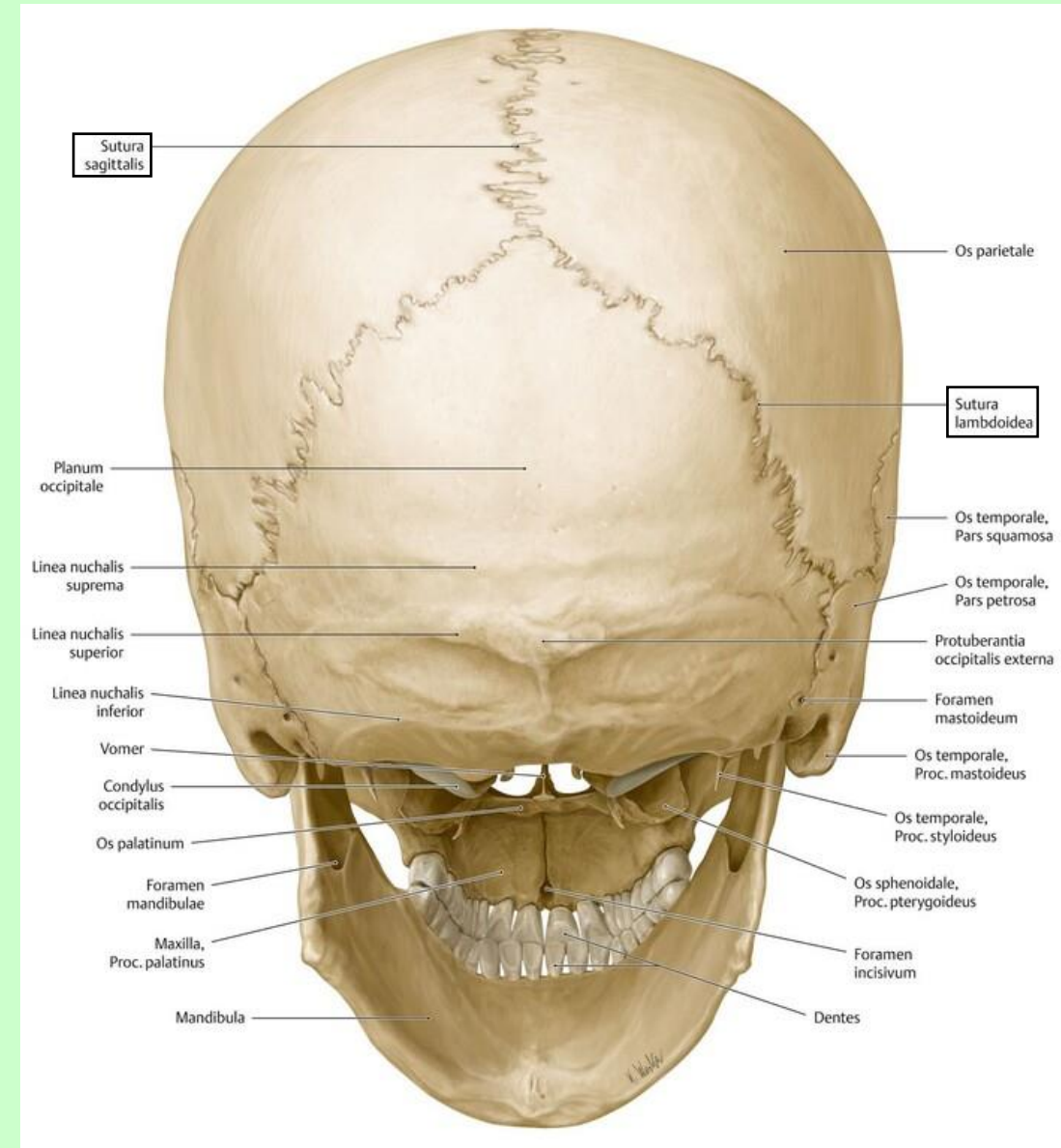
# spoje lebečních kostí

*sutura coronalis*

*sutura sagittalis*

*sutura lambdoidea*

*sutura squamosa*



# spoje lebečních kostí

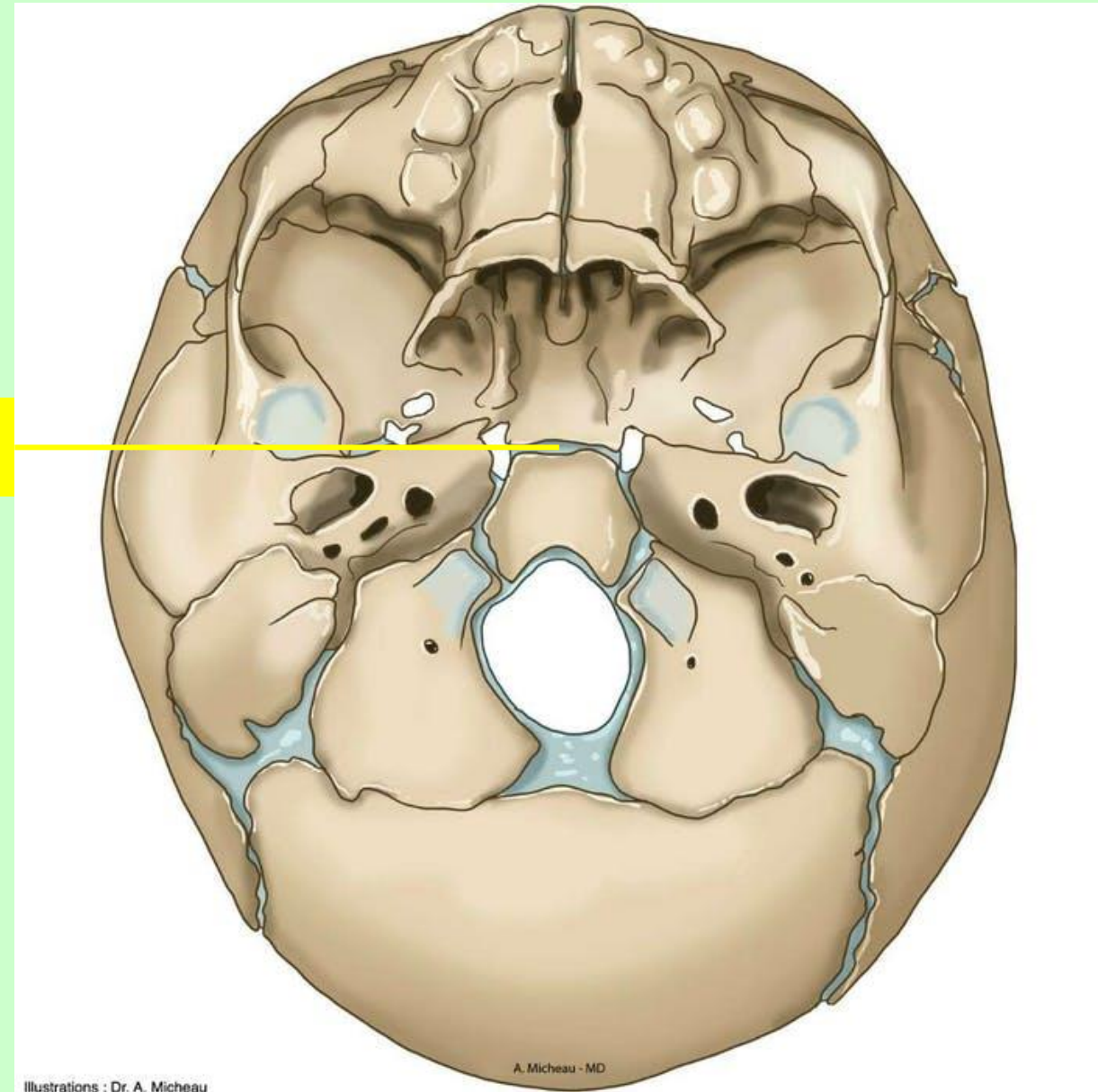
*sutura metopica*



# spoje lebečních kostí

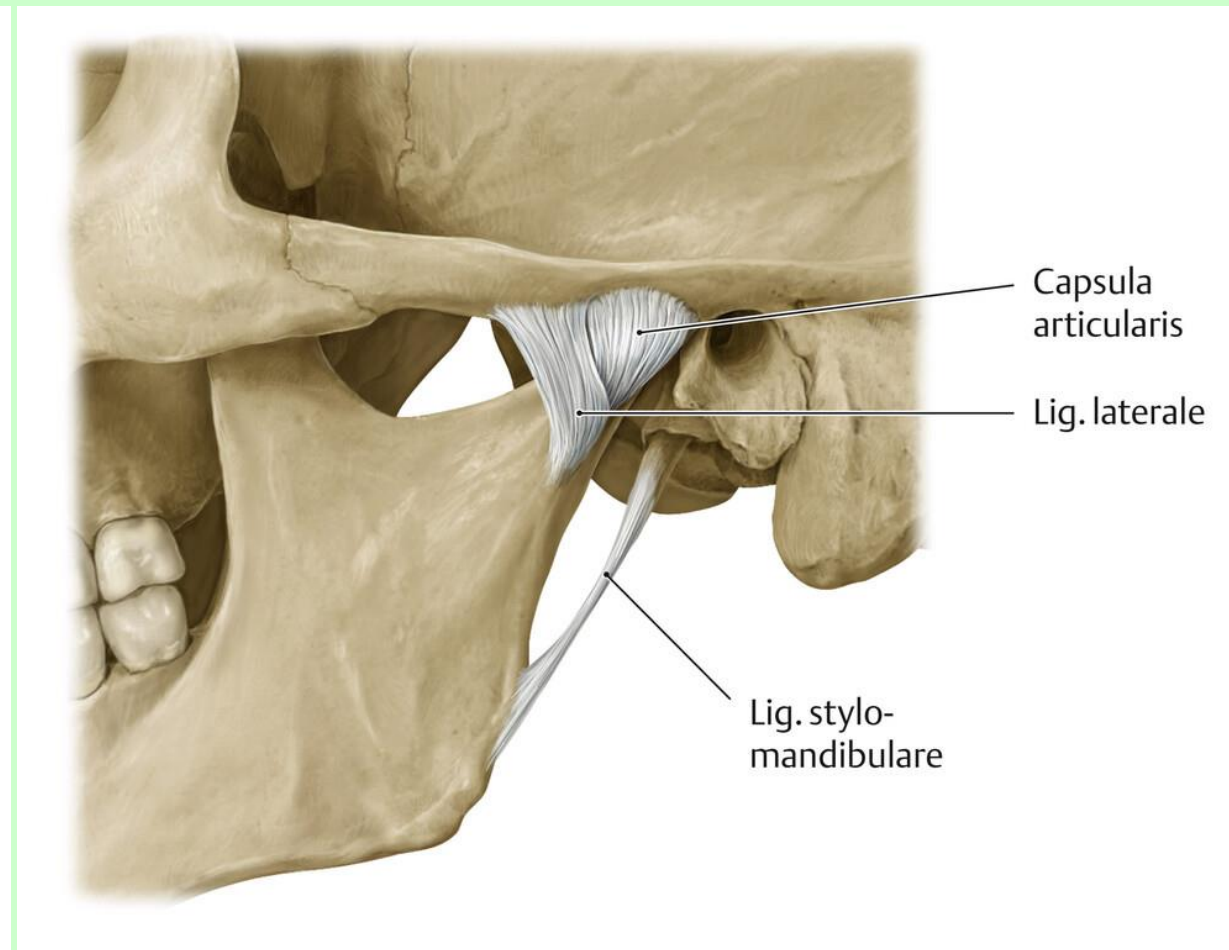
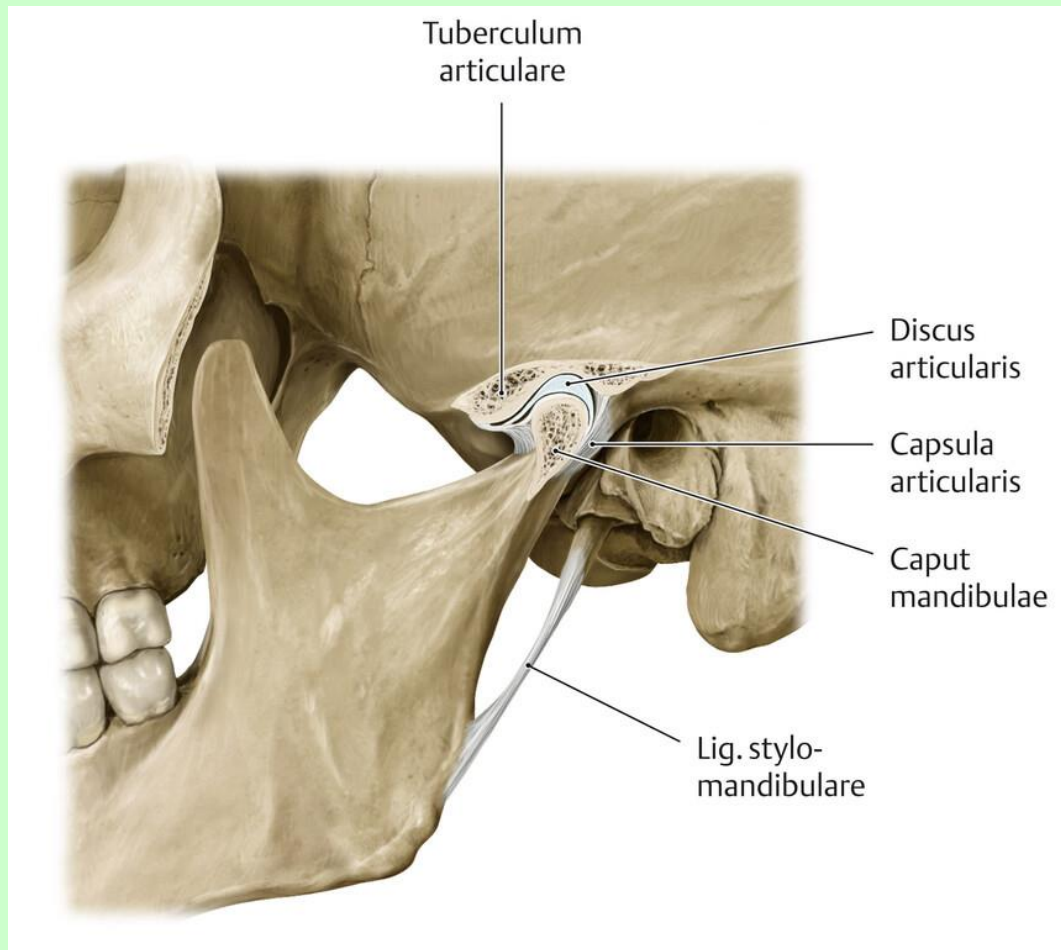
*synchondrosis sphenoccipitalis*

synchondrosis  
sphenoccipitalis



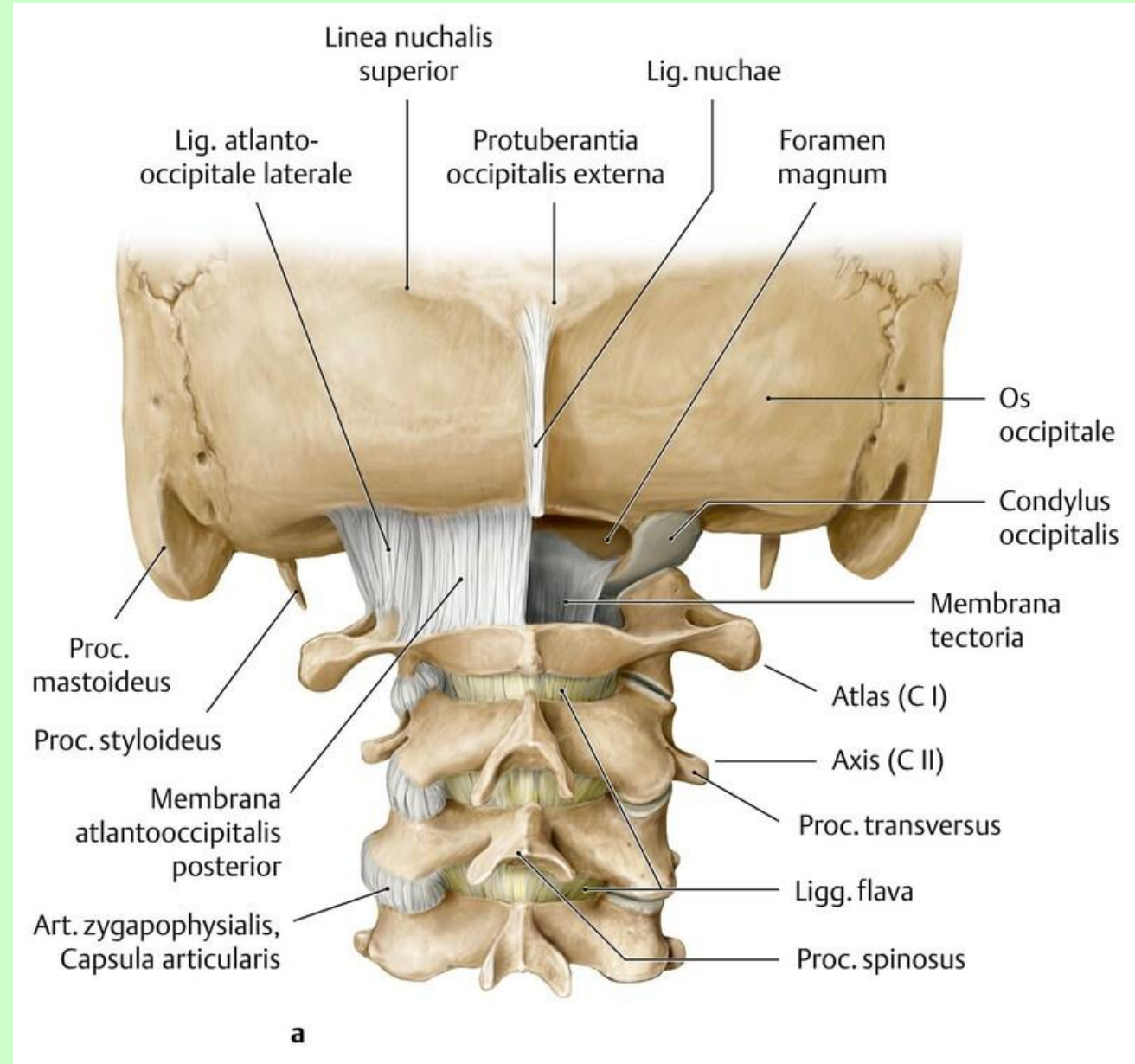
# spoje lebečních kostí

## *articulatio temporomandibularis*

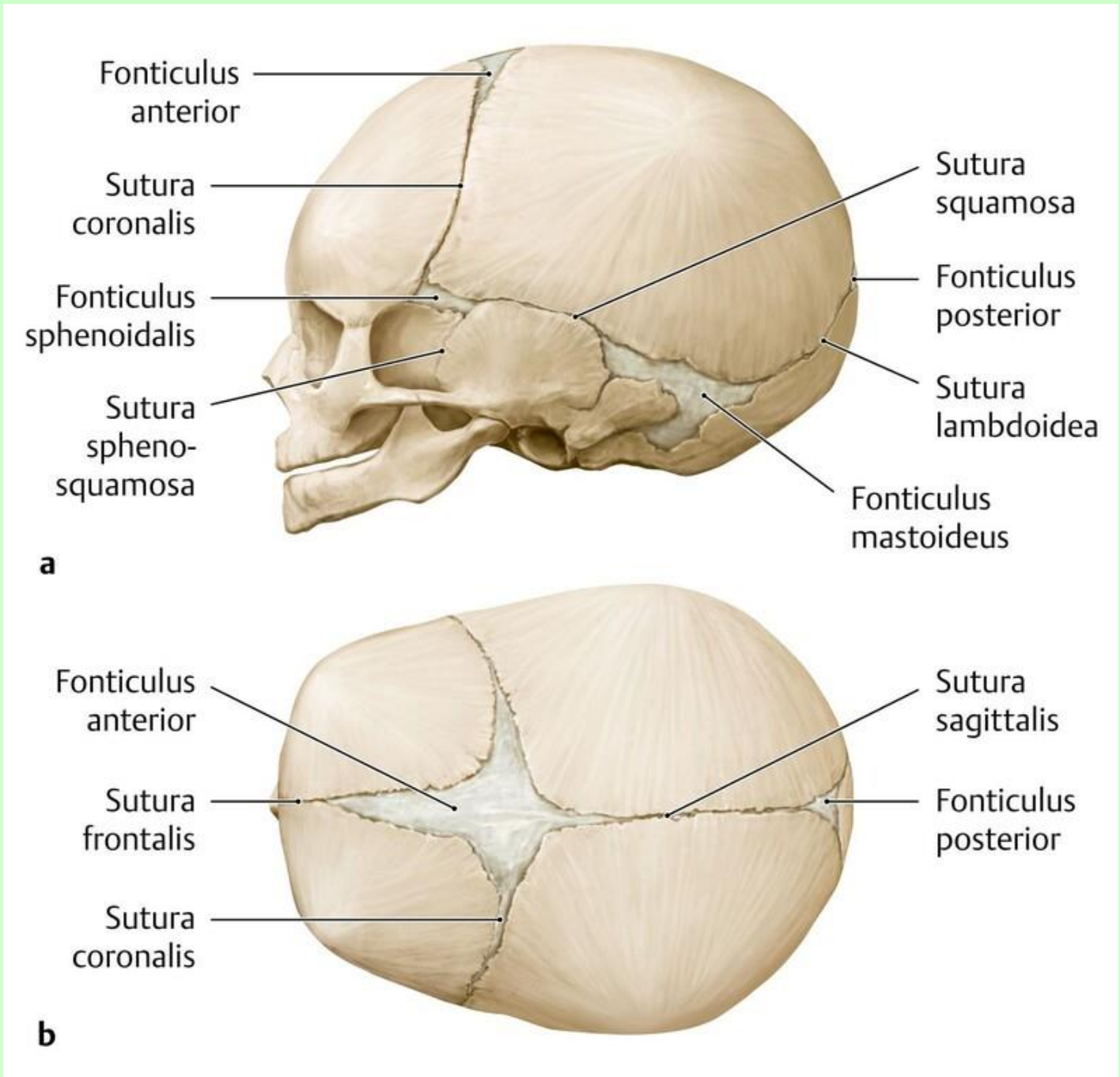


# spoje lebečních kostí

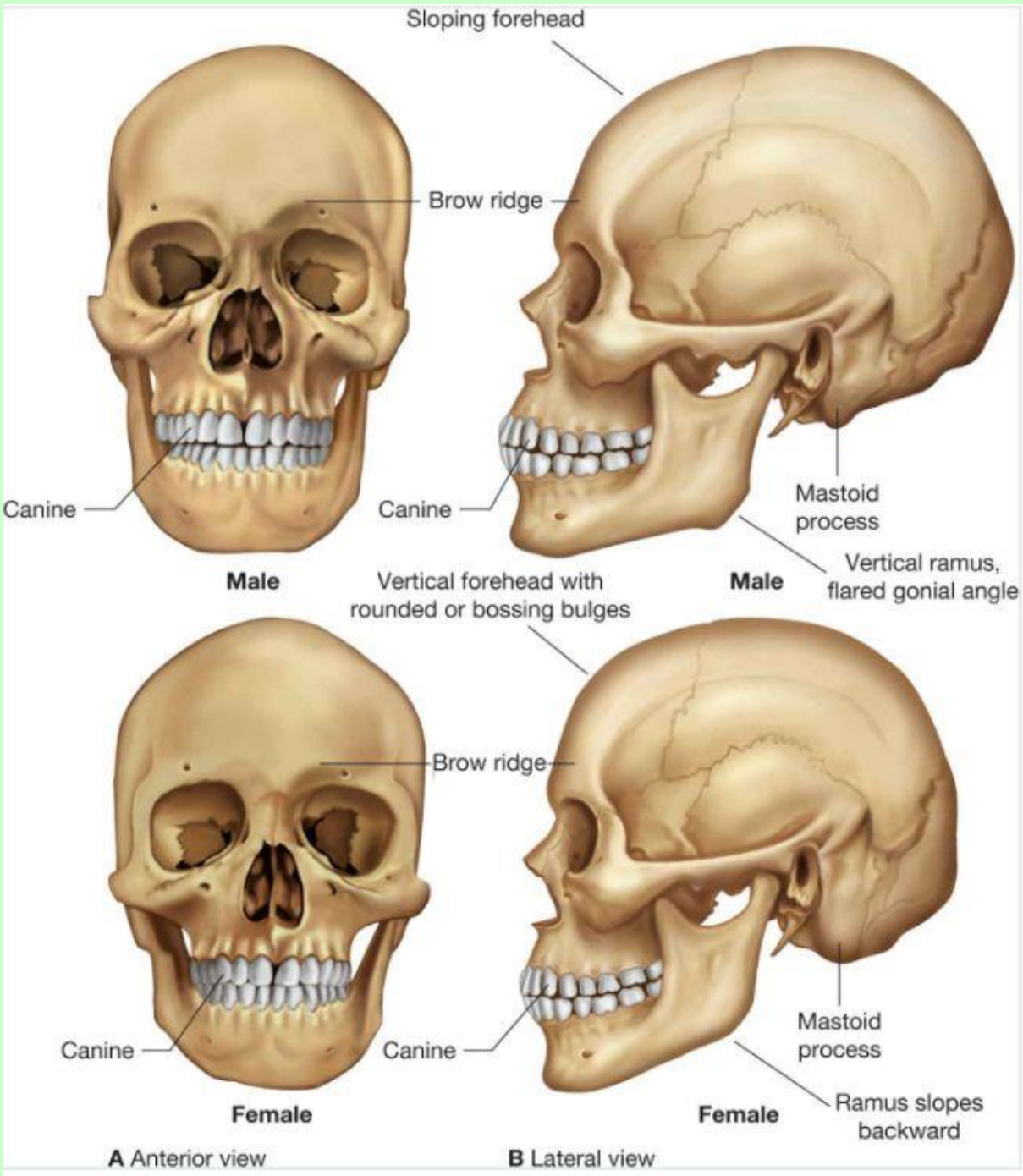
## *articulatio atlantooccipitalis*



# lebka novorozence



pohlavní rozdíly na lebce

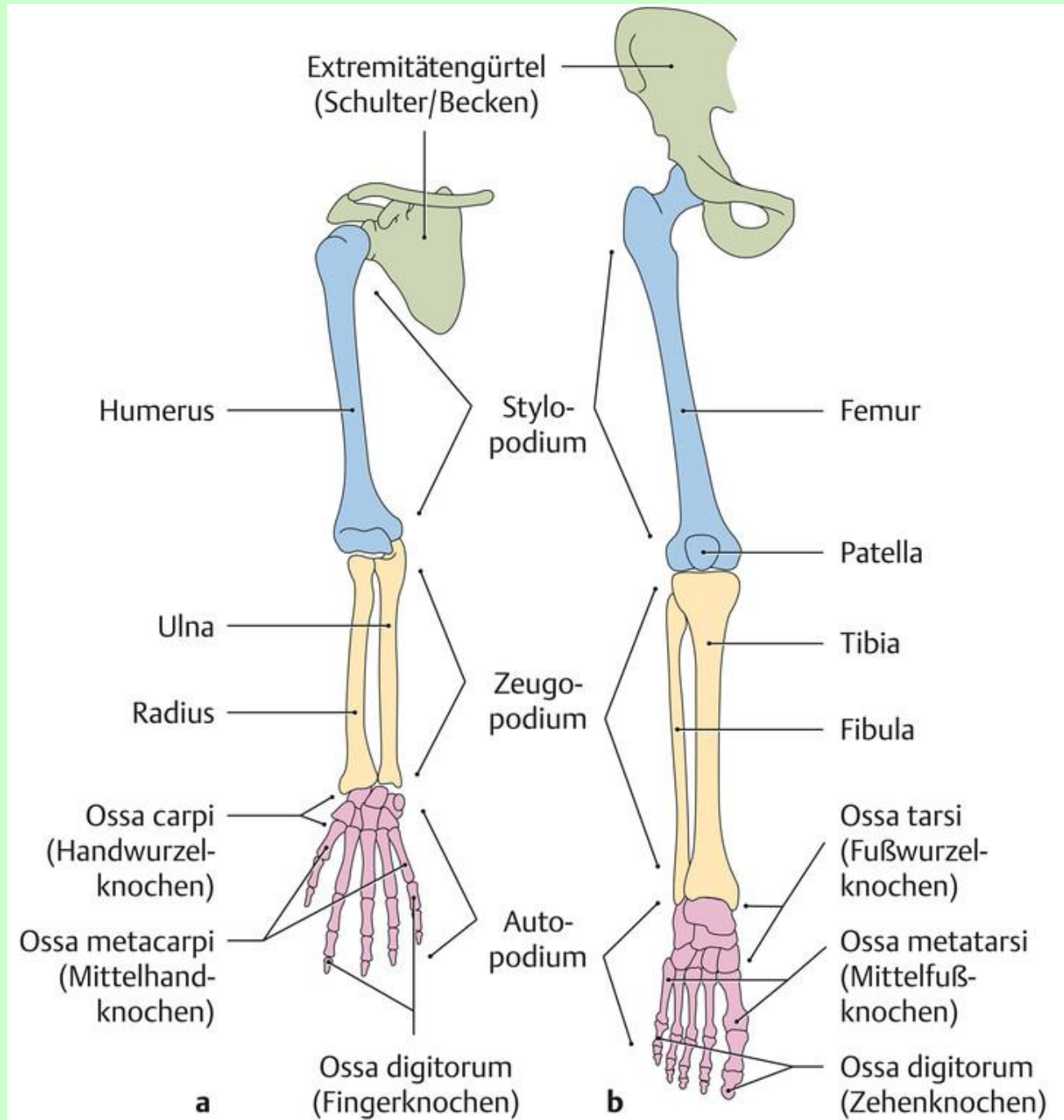


# KOSTERNÍ SOUSTAVA

*(Systema skeleti)*

kostra horní končetiny  
*(ossa membri superioris)*

# kosti horní končetiny



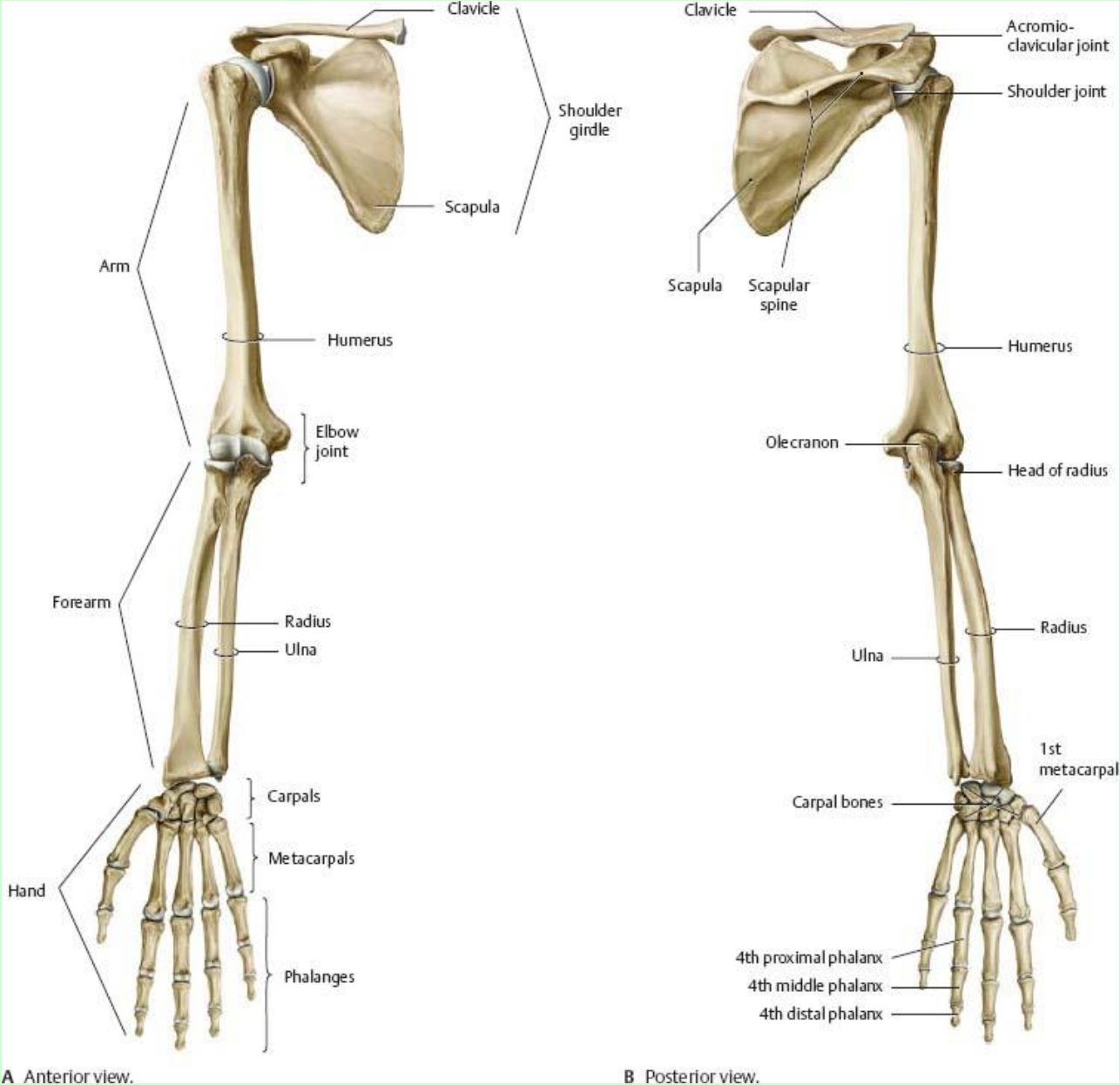
# kosti horní končetiny

*cingulum*

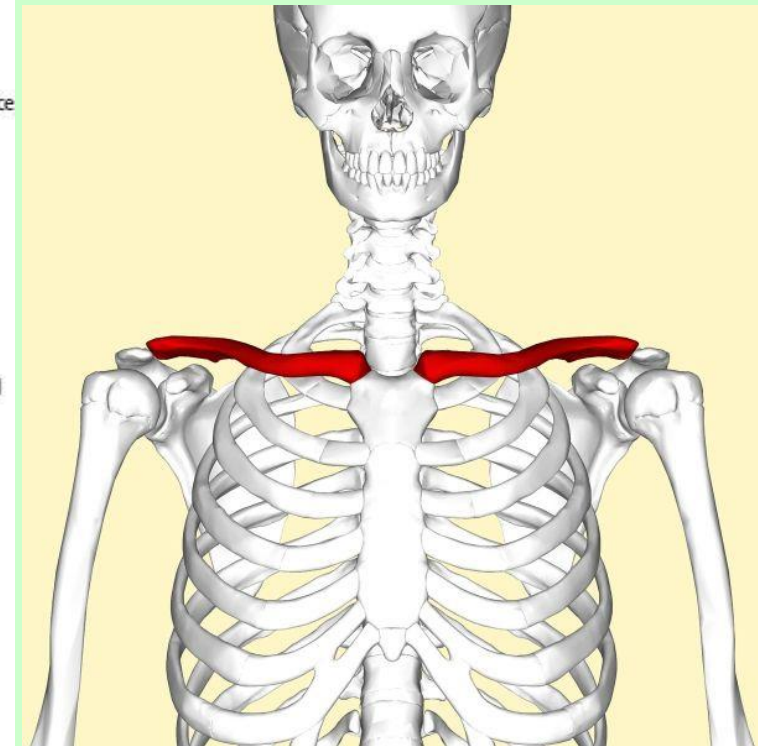
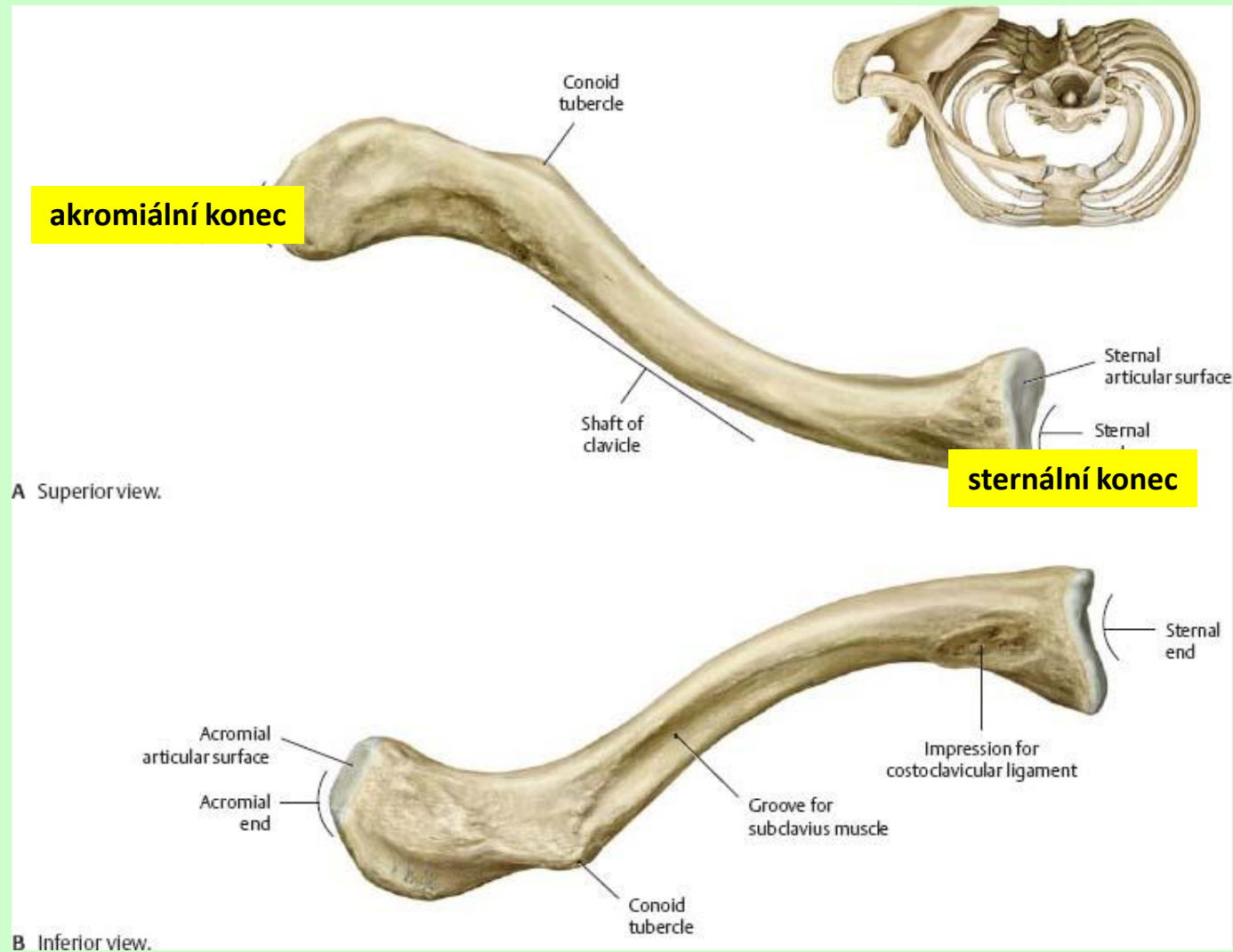
*stylopodium*

*zeugopodium*

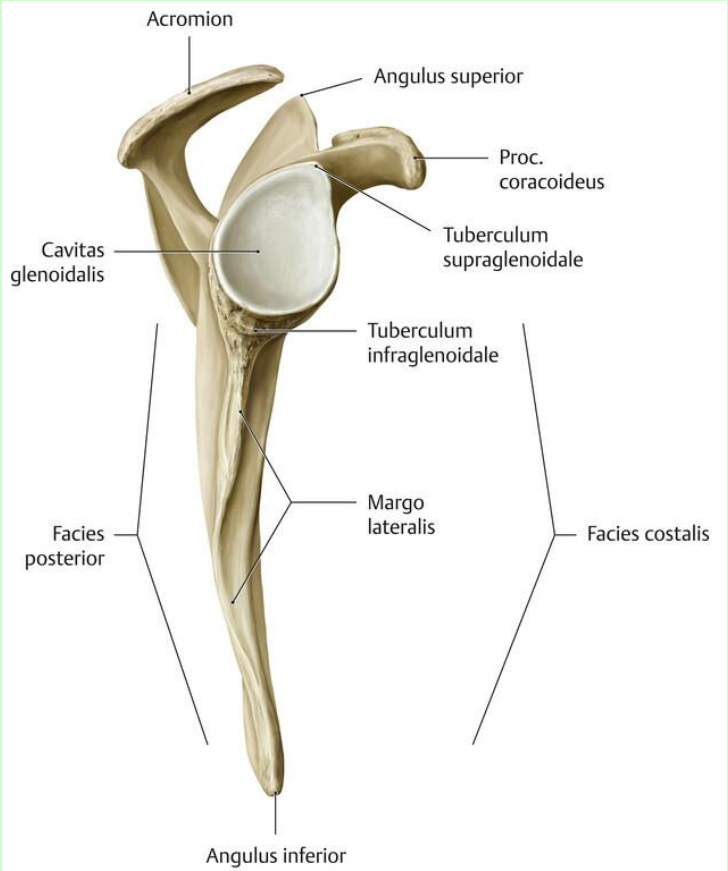
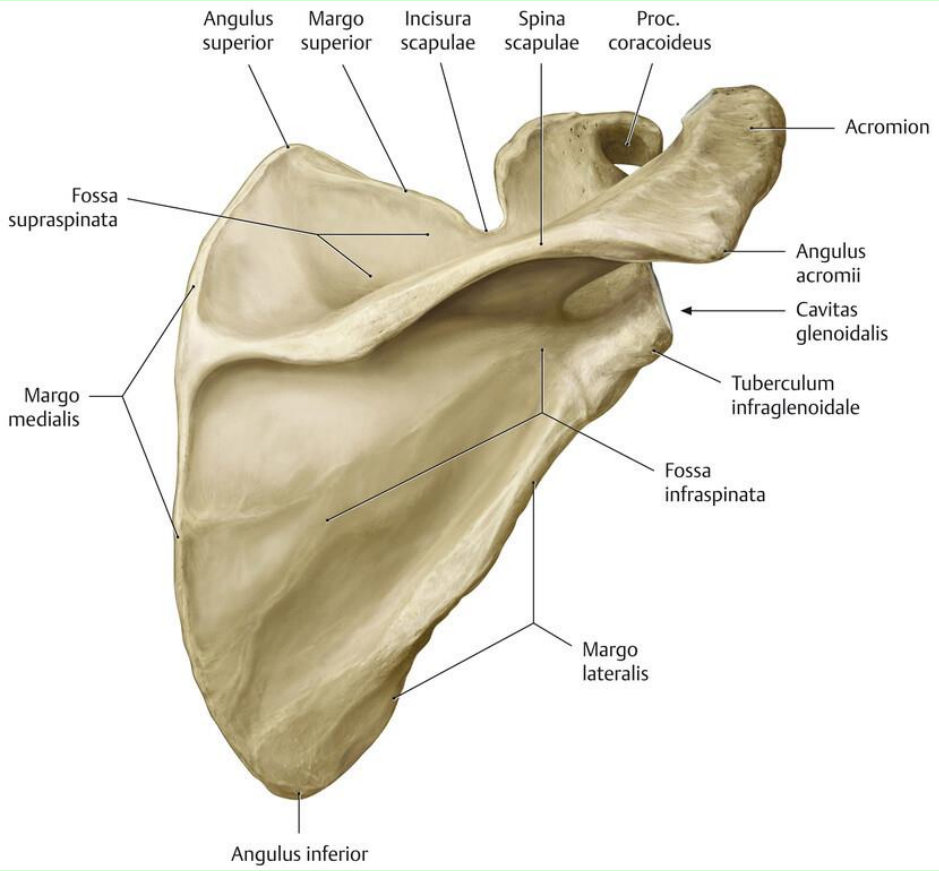
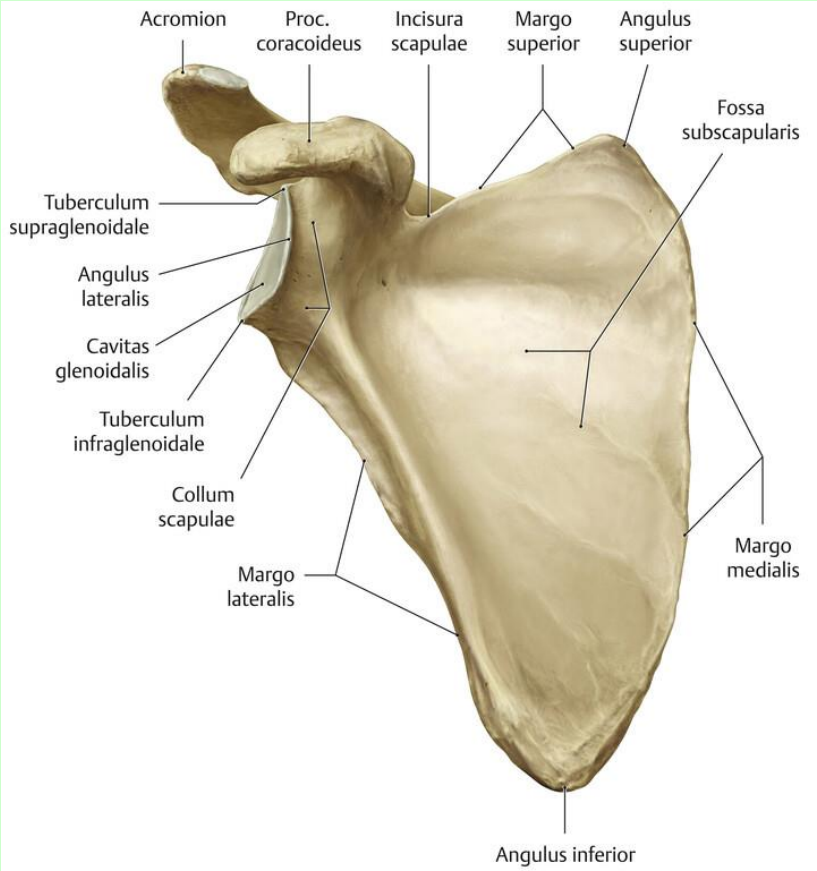
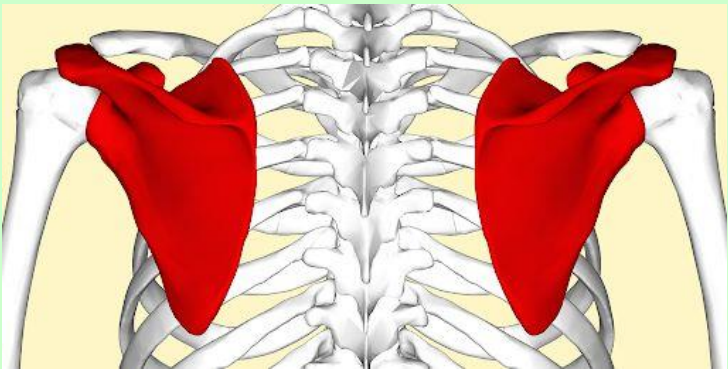
*autopodium*



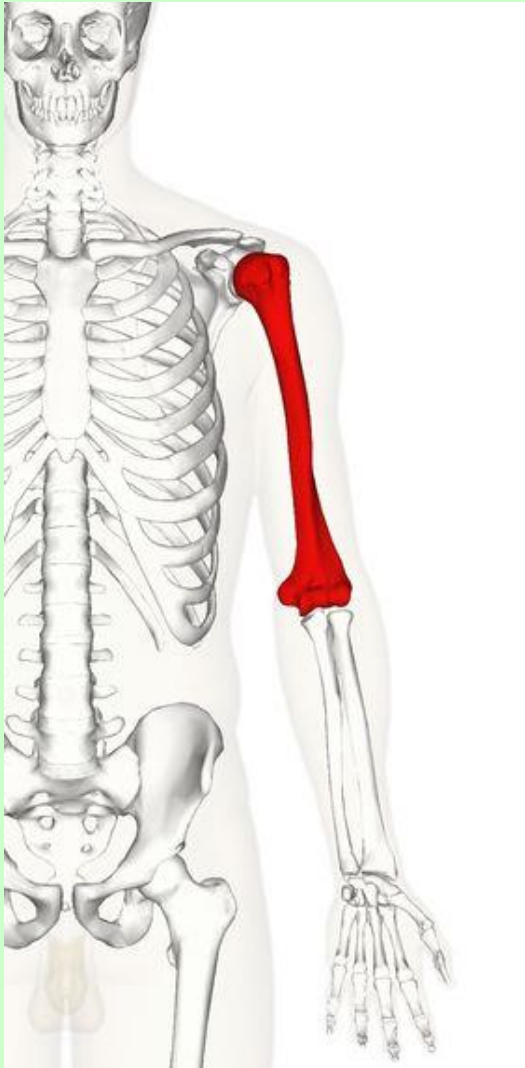
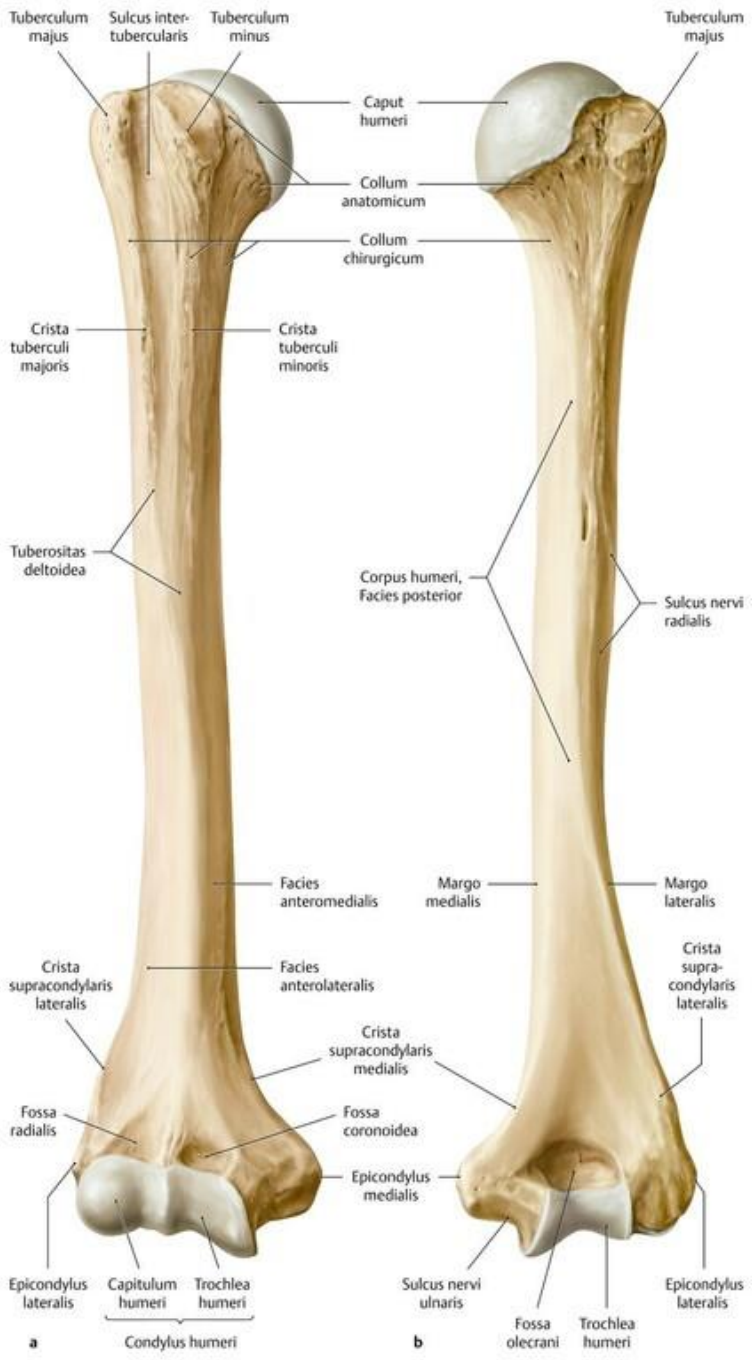
# kost klíční (*clavicula*)



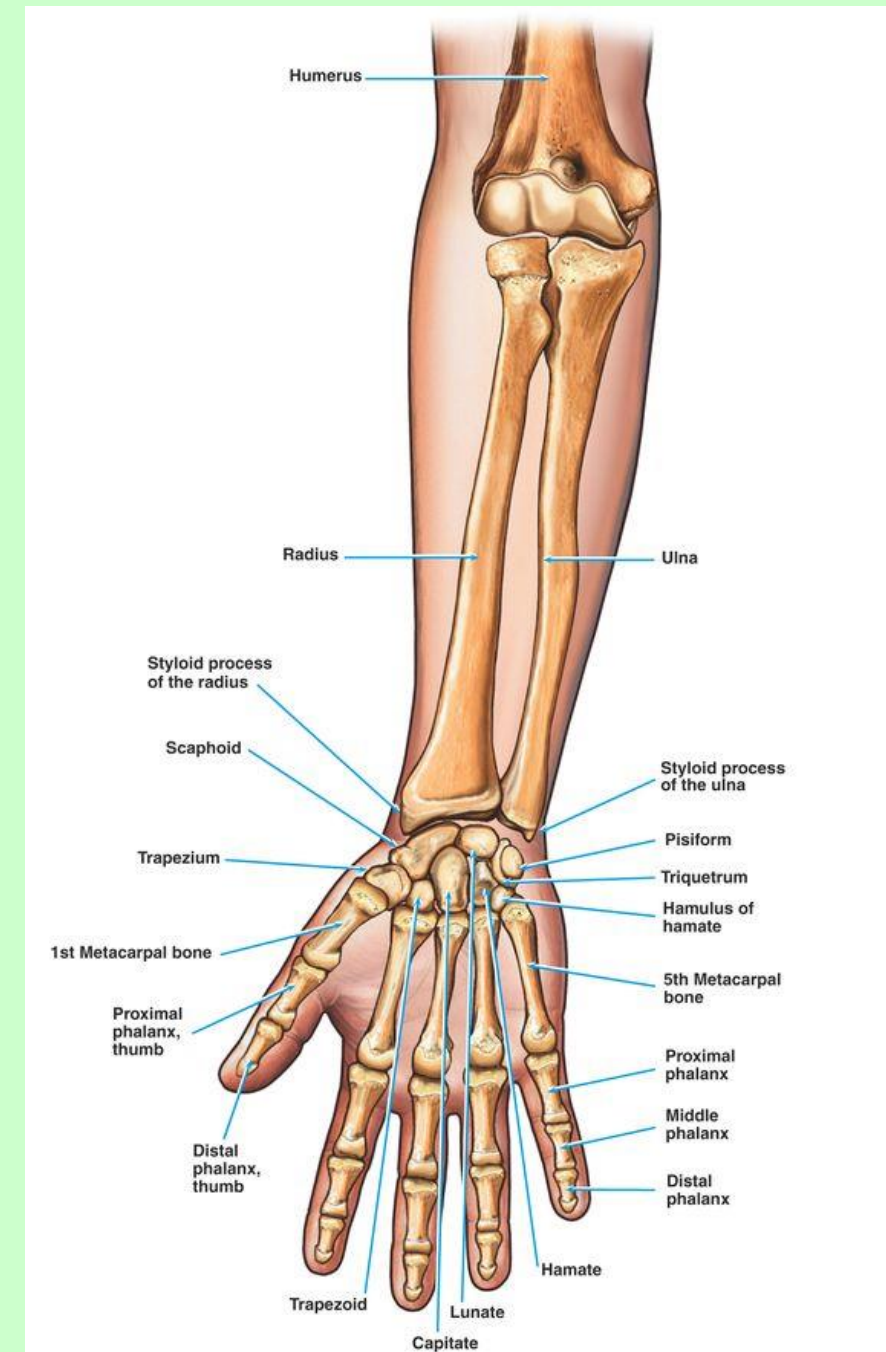
# Iopatka (scapula)



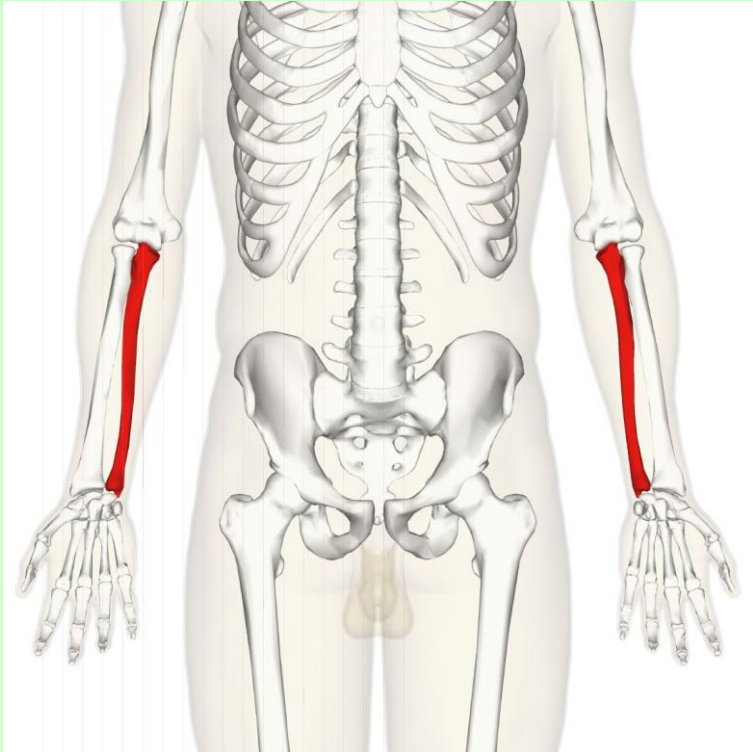
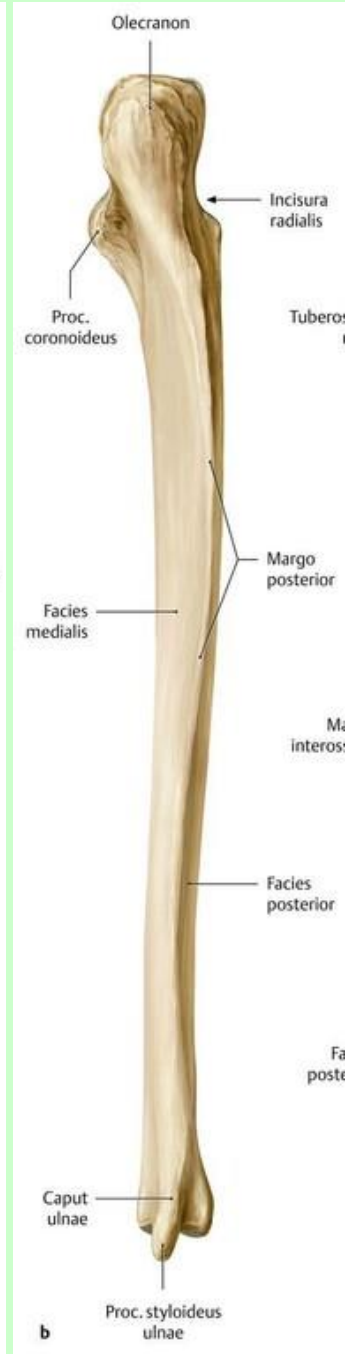
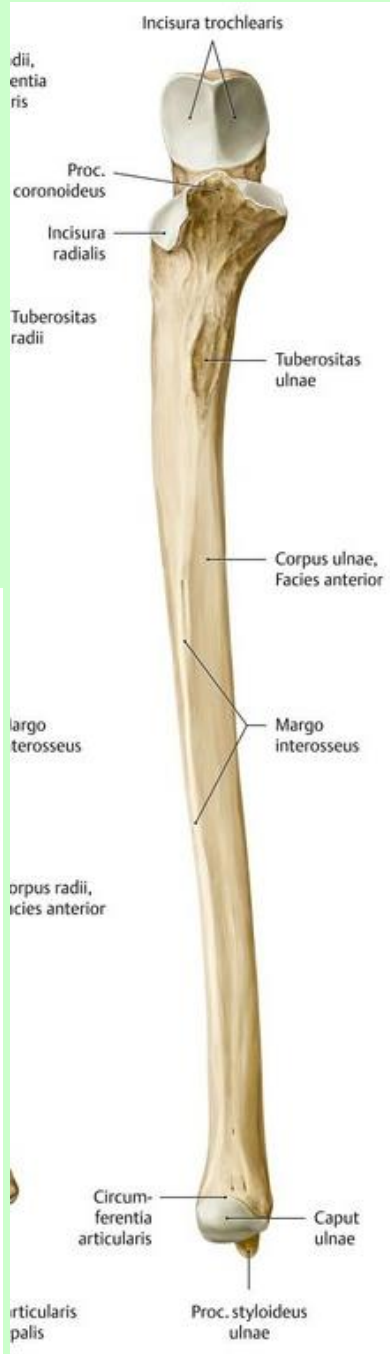
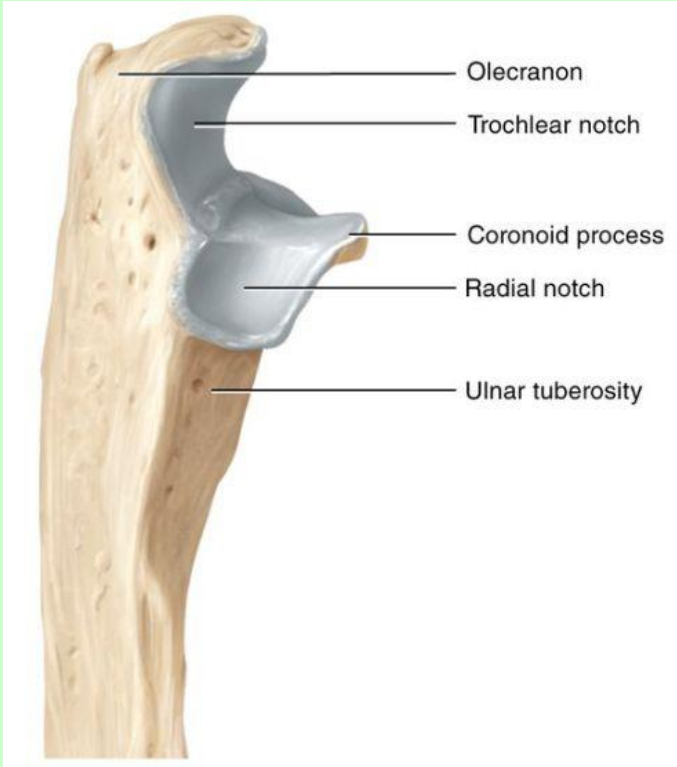
# kost pažní (*humerus*)



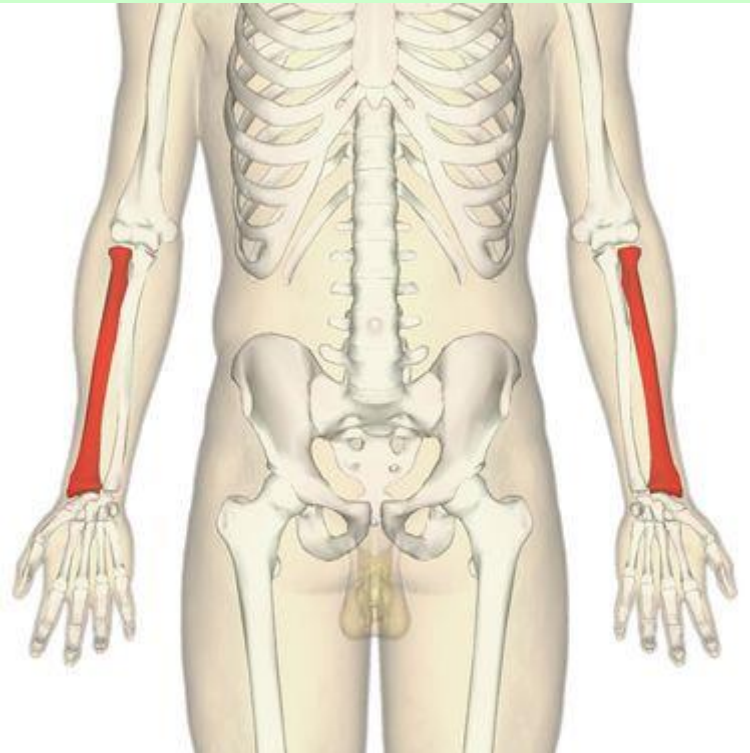
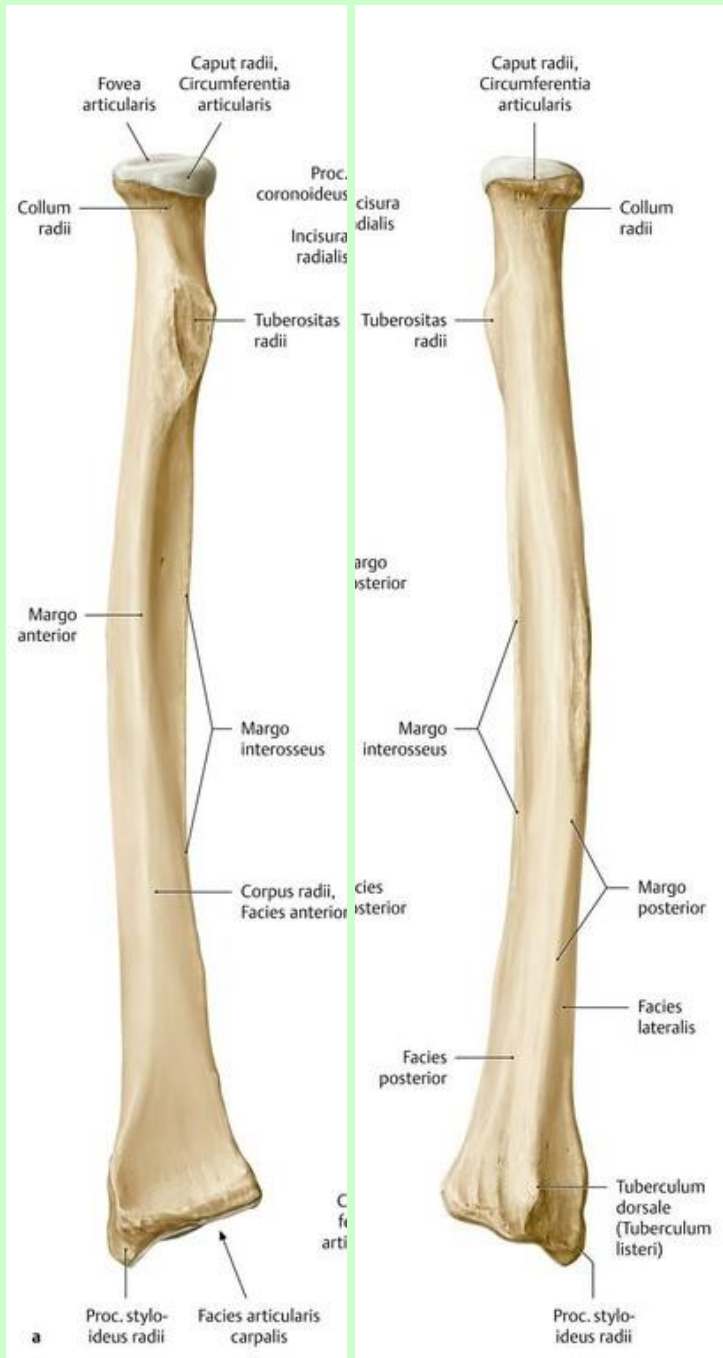
# kosti předloktí



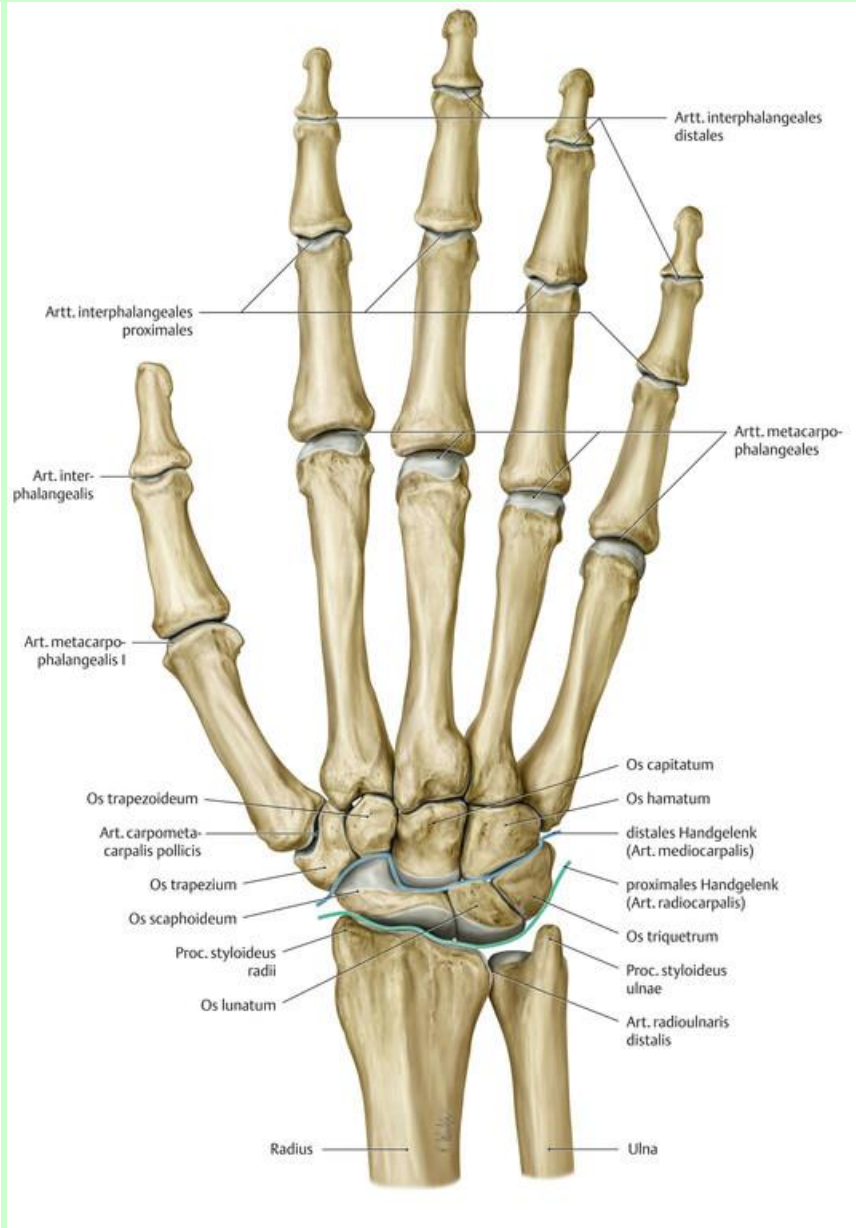
# kost loketní (*ulna*)



# kost vřetenní (*radius*)



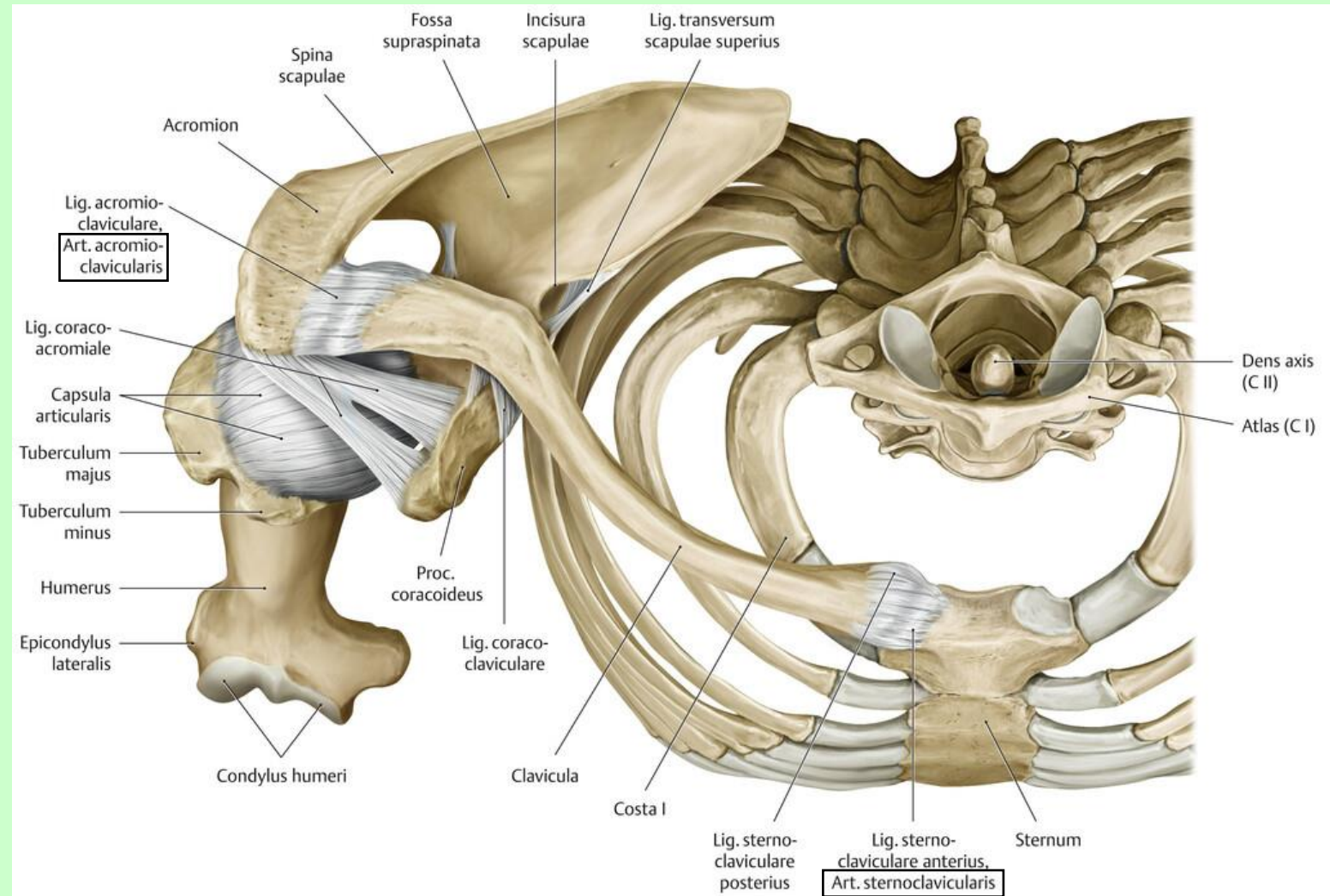
# kosti ruky (*ossa manus*)



# spoje kostí horní končetiny

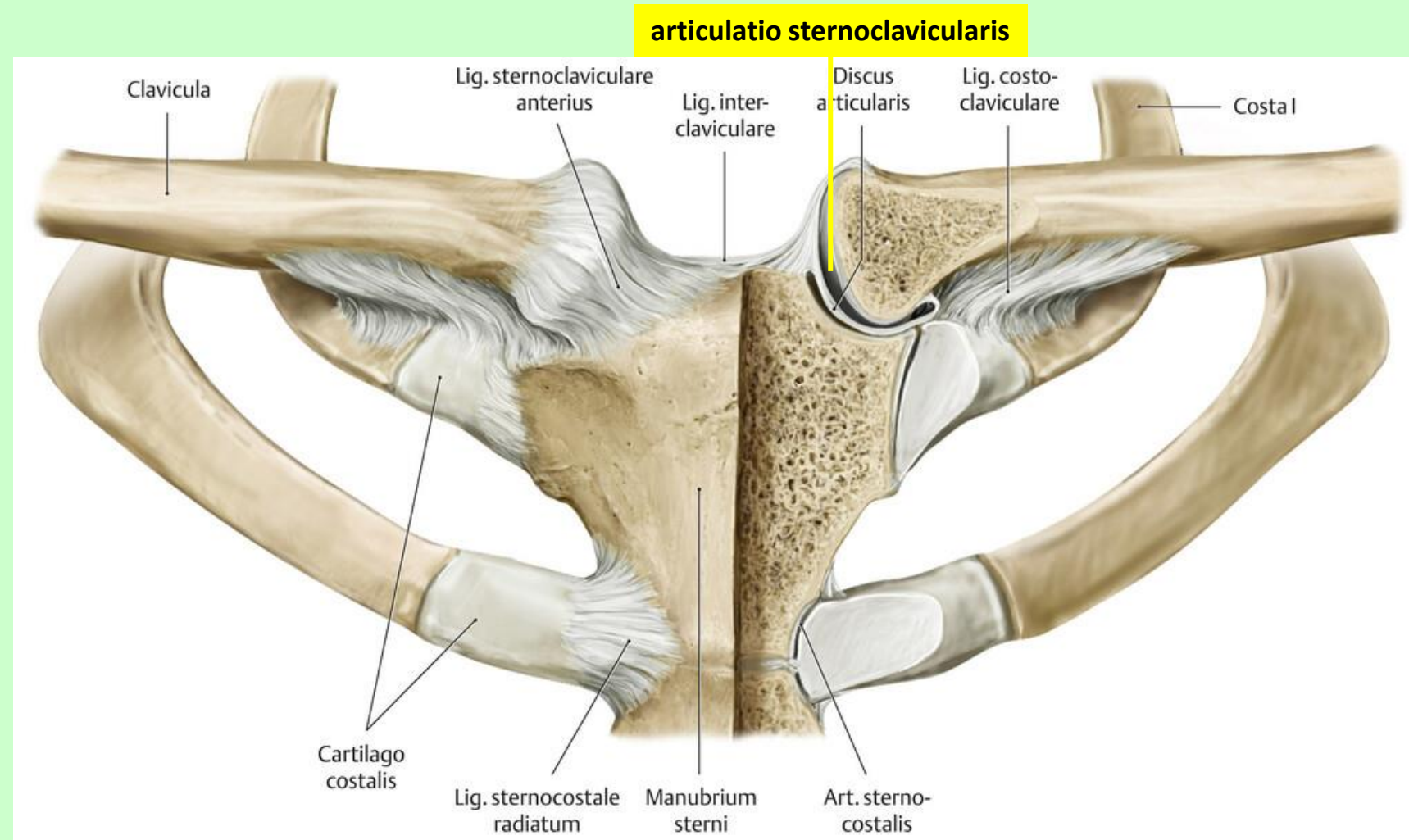
*articulatio sternoclavicularis*

*articulatio acromioclavicularis*



# spoje kostí horní končetiny

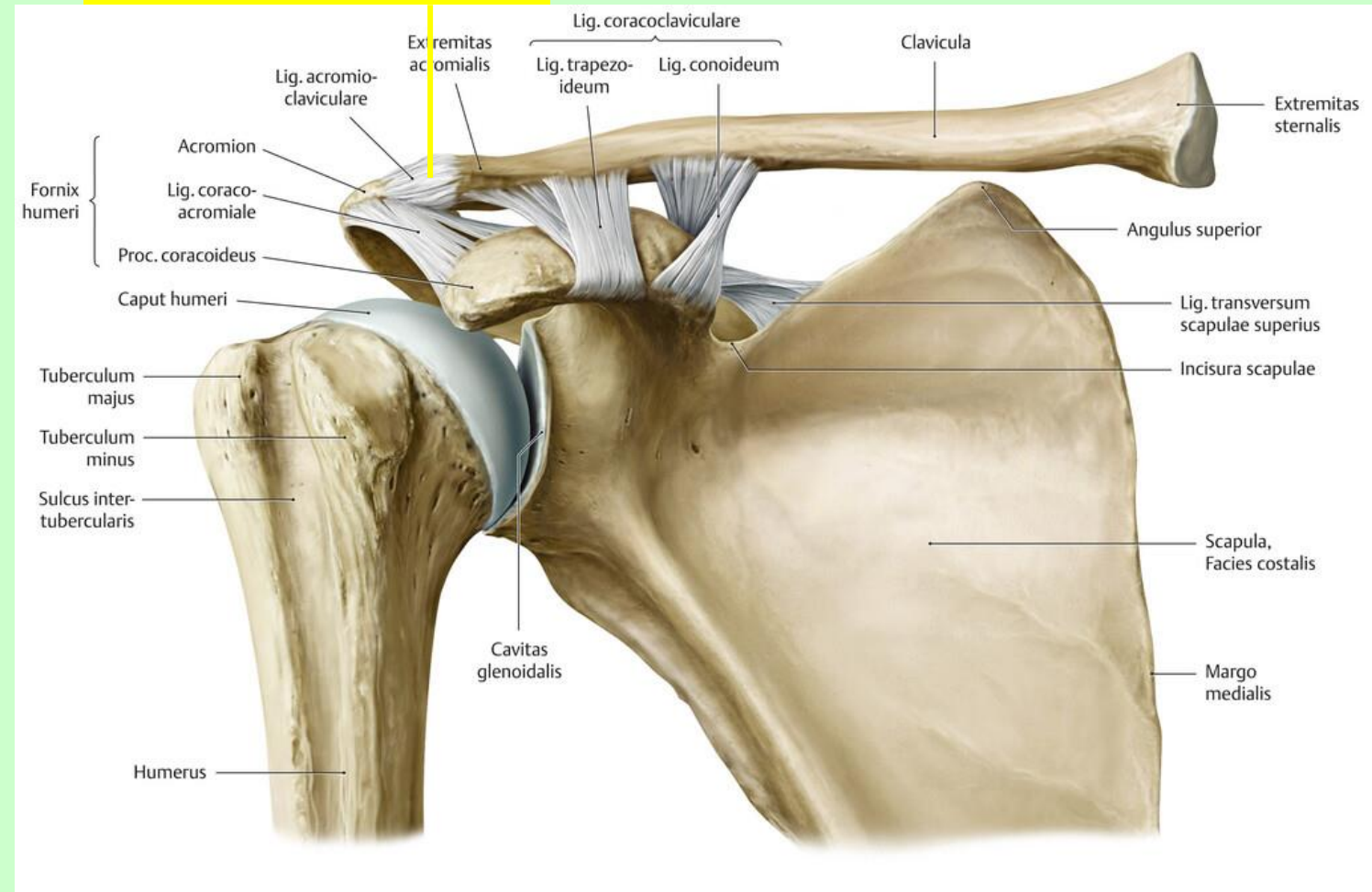
## *articulatio sternoclavicularis*



# spoje kostí horní končetiny

## *articulatio acromioclavicularis*

### articulatio acromioclavicularis

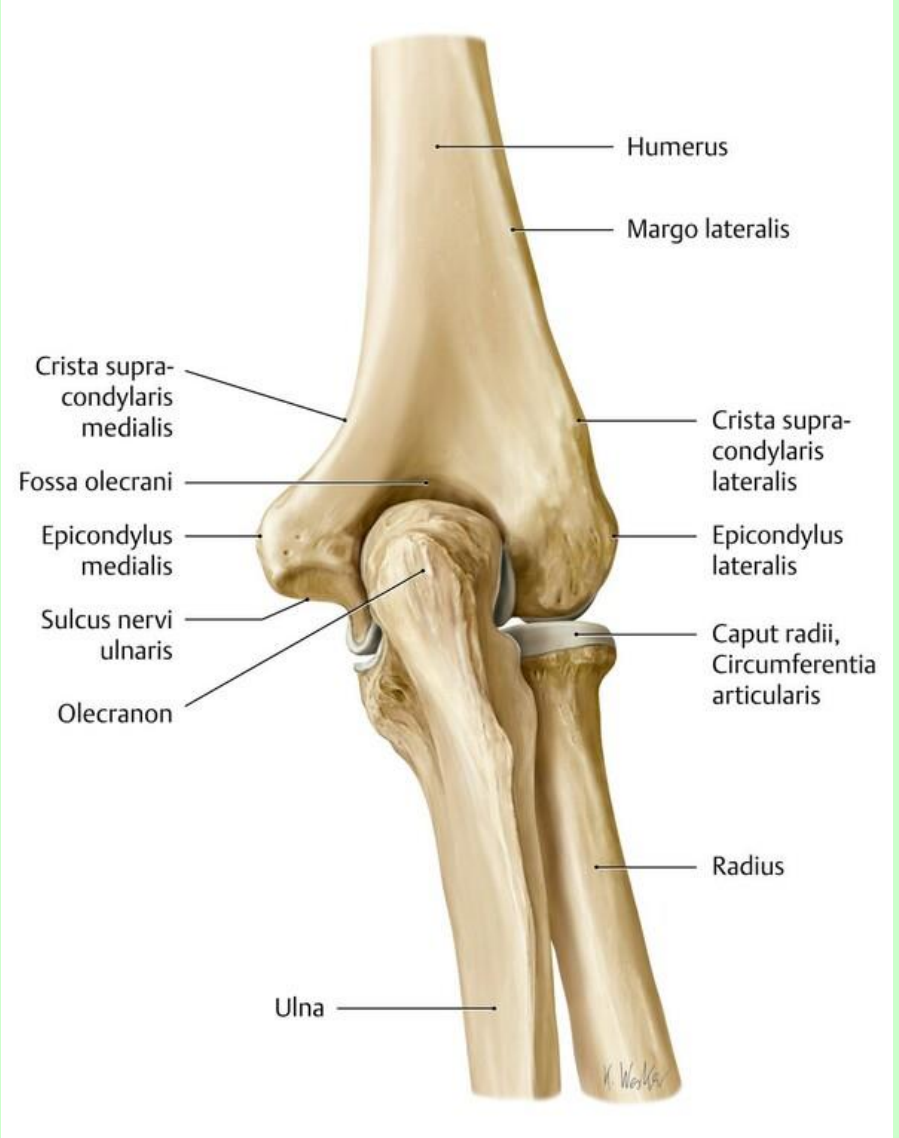
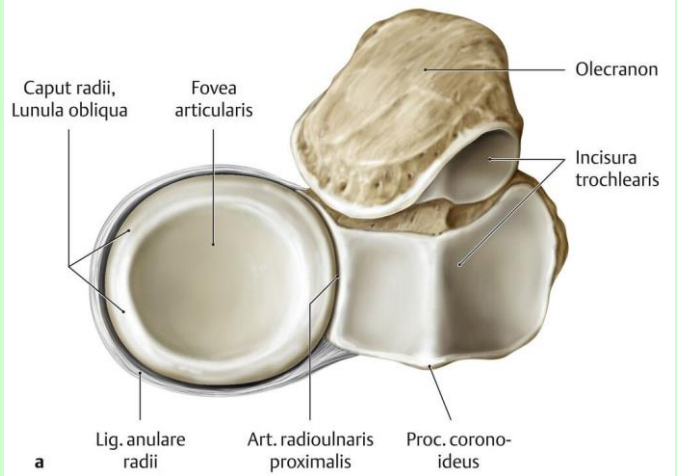


*articulatio humeri*



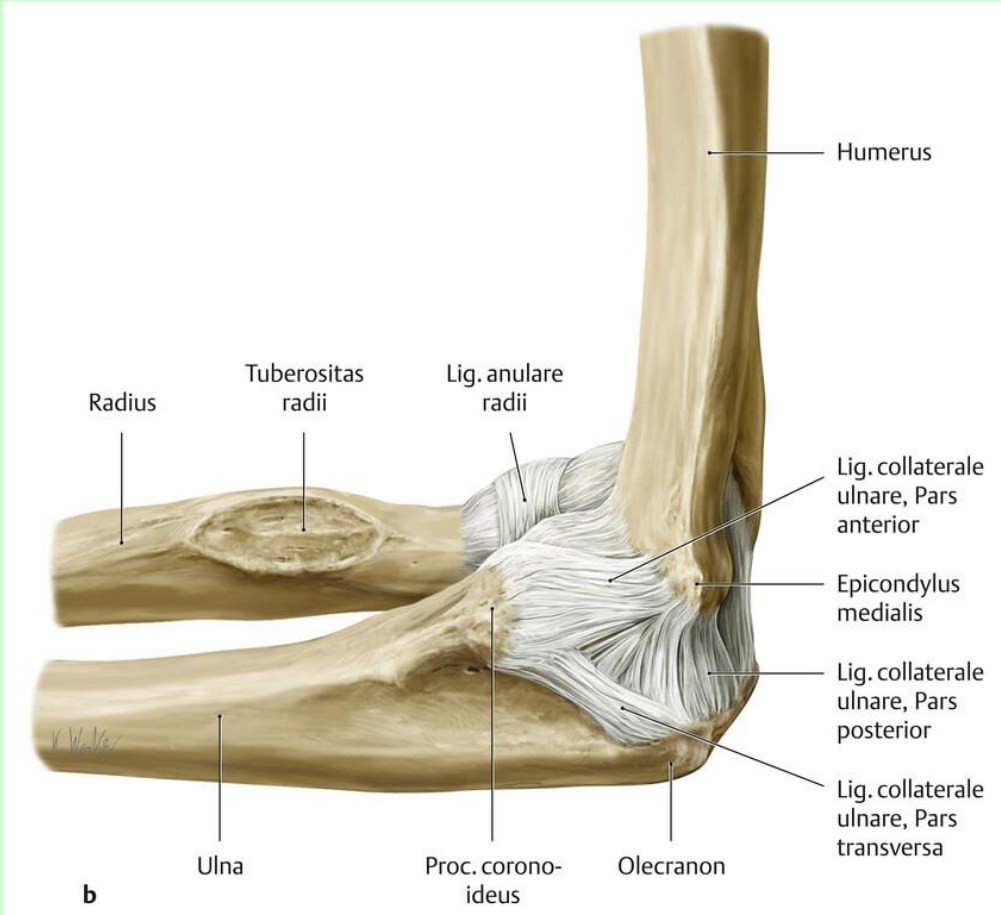
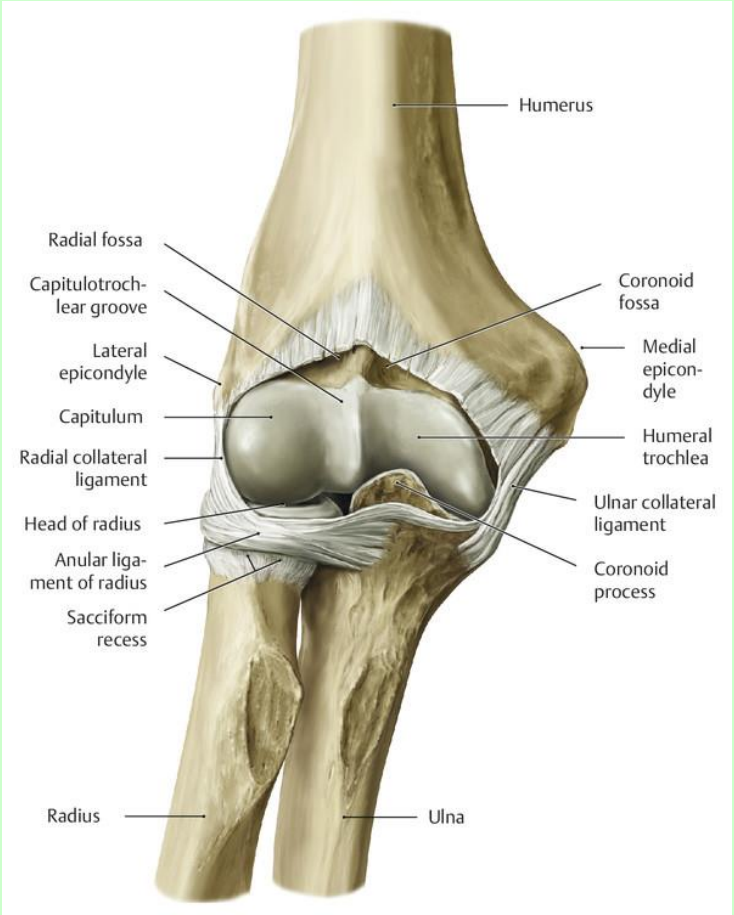
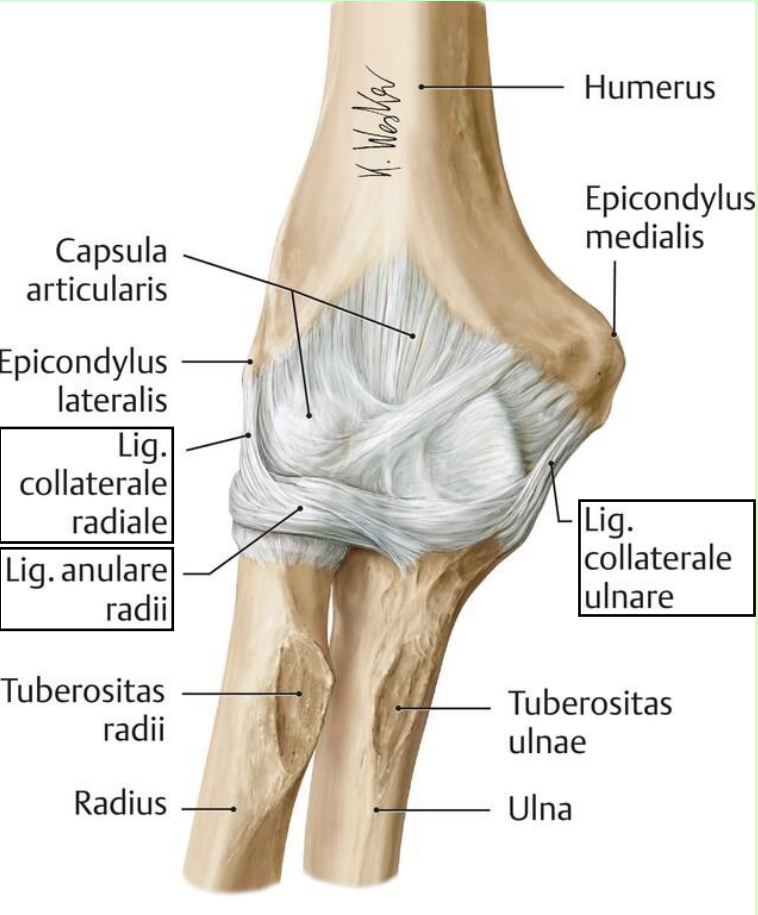
# spoje kostí horní končetiny

## articulatio cubiti



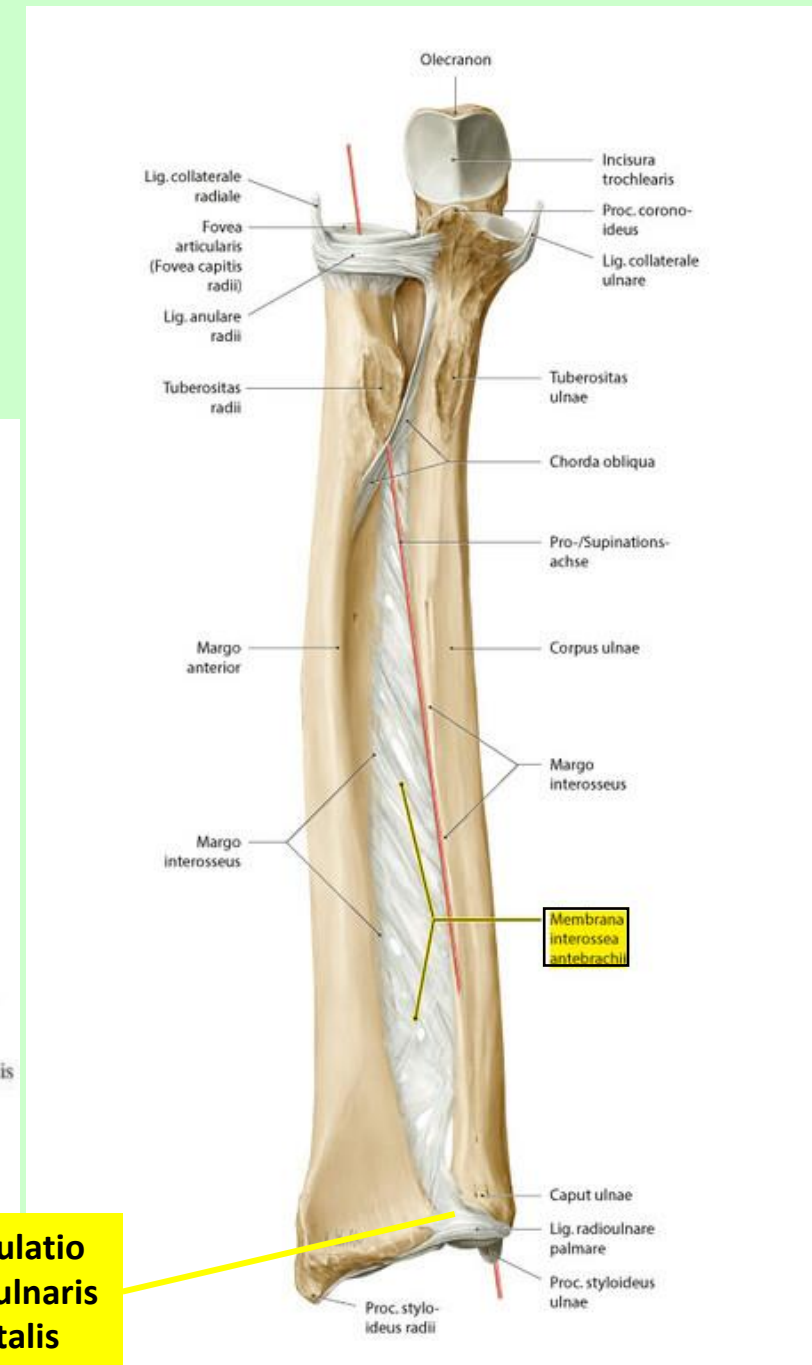
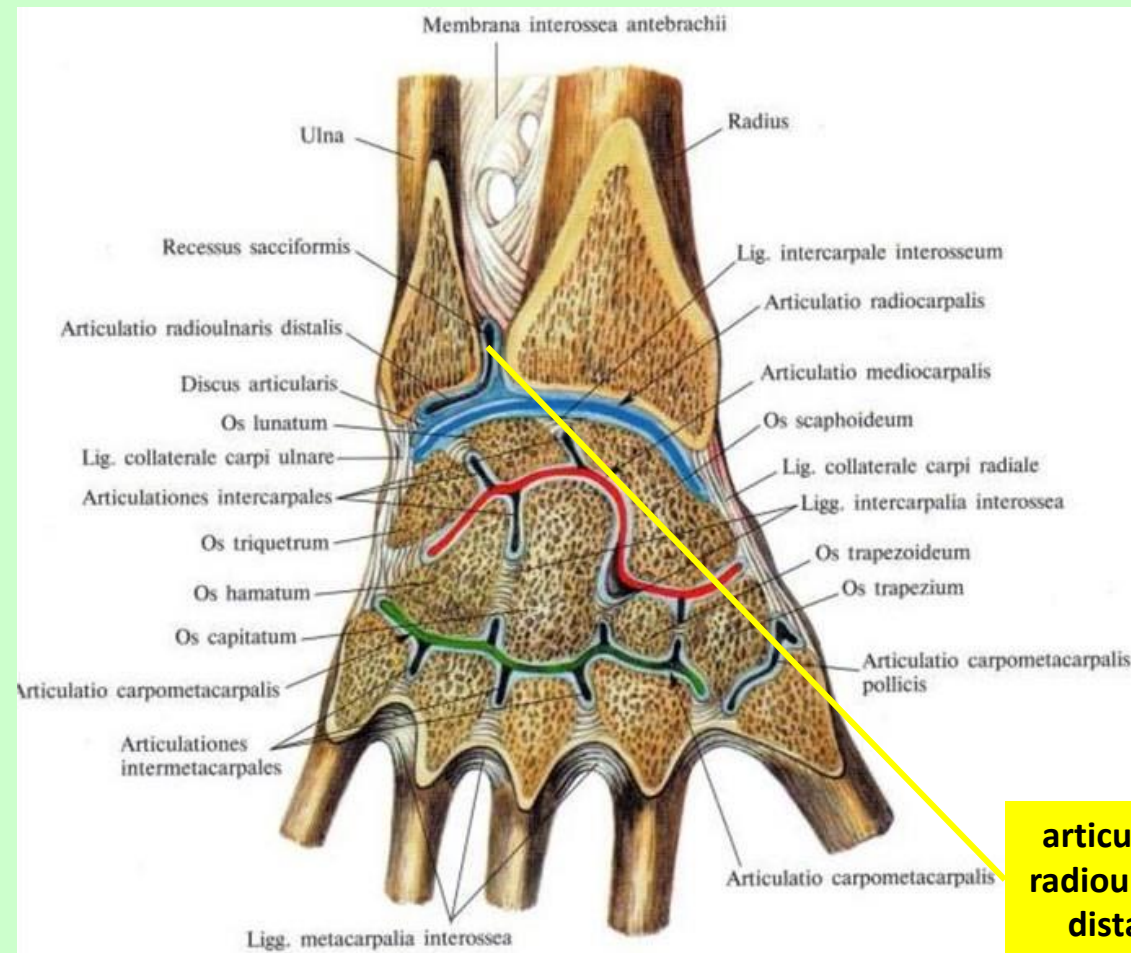
# spoje kostí horní končetiny

## articulatio cubiti



# spoje kostí horní končetiny

*membrana interossea antebrachii*  
*articulatio radioulnaris distalis*

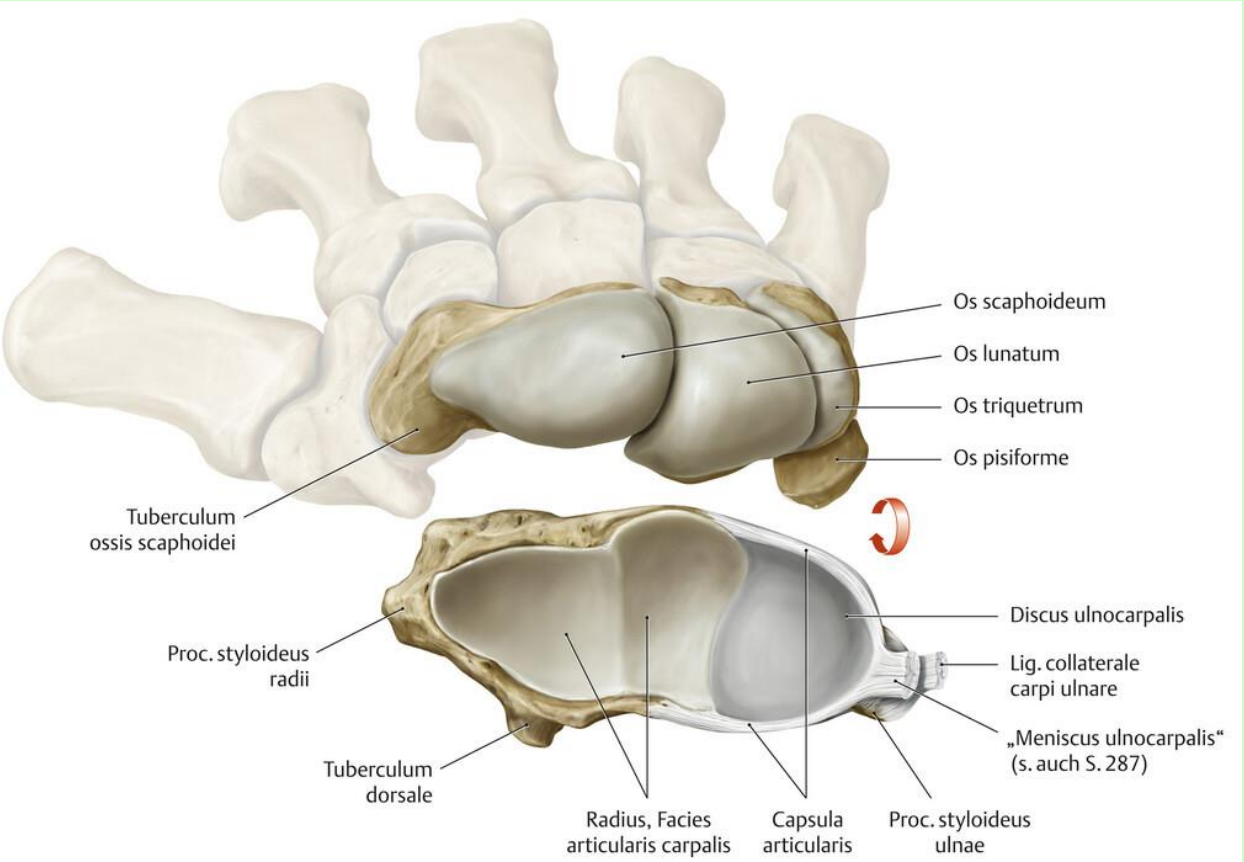
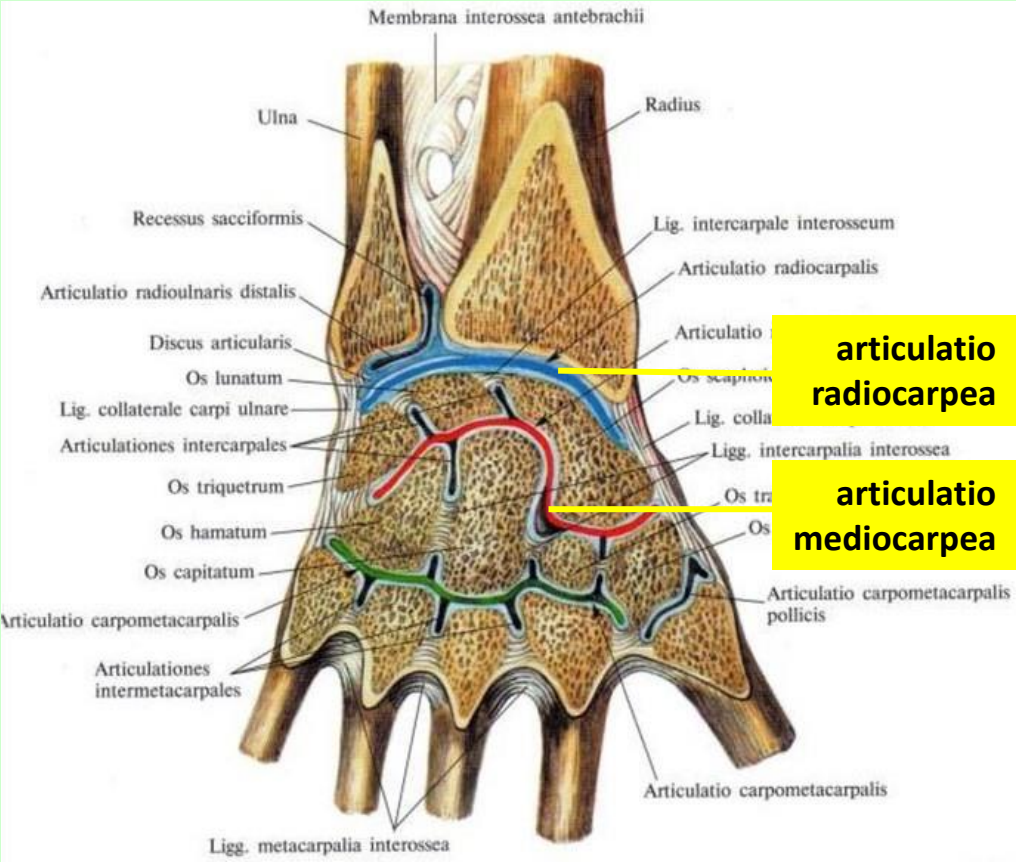
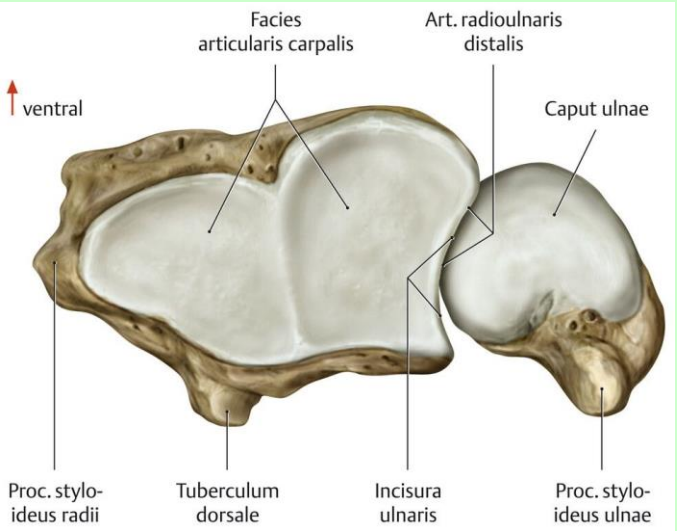


**articulatio  
radioulnaris  
distalis**

# spoje kostí horní končetiny

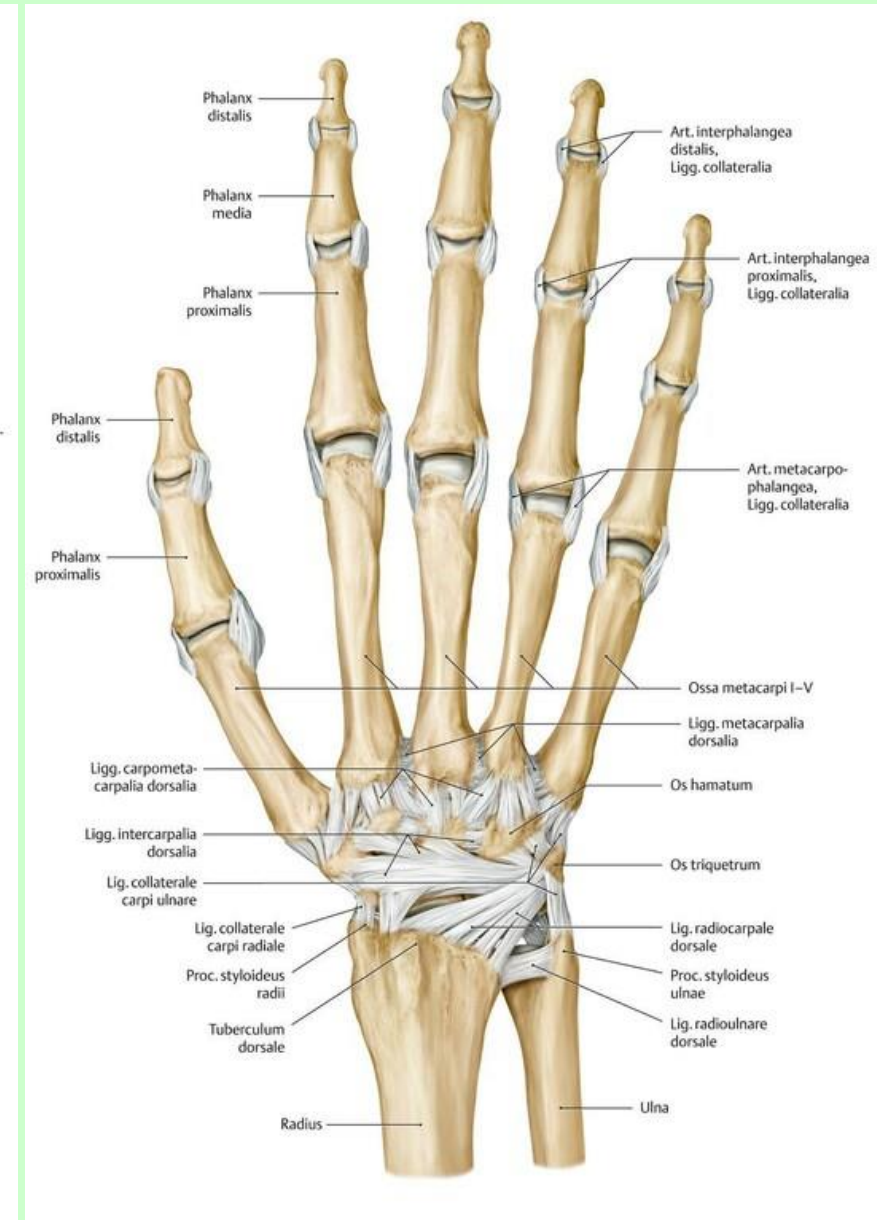
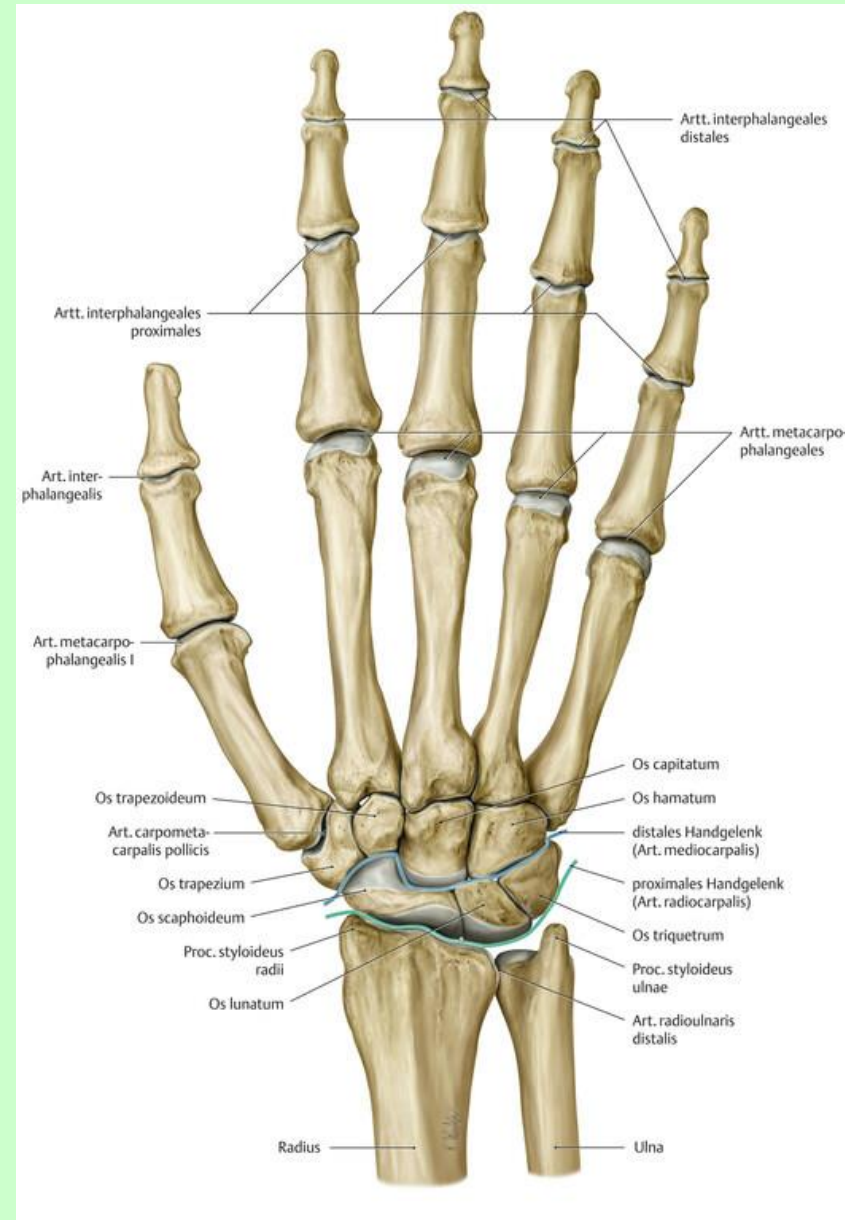
*articulatio radiocarpea*

*articulatio mediocarpea*



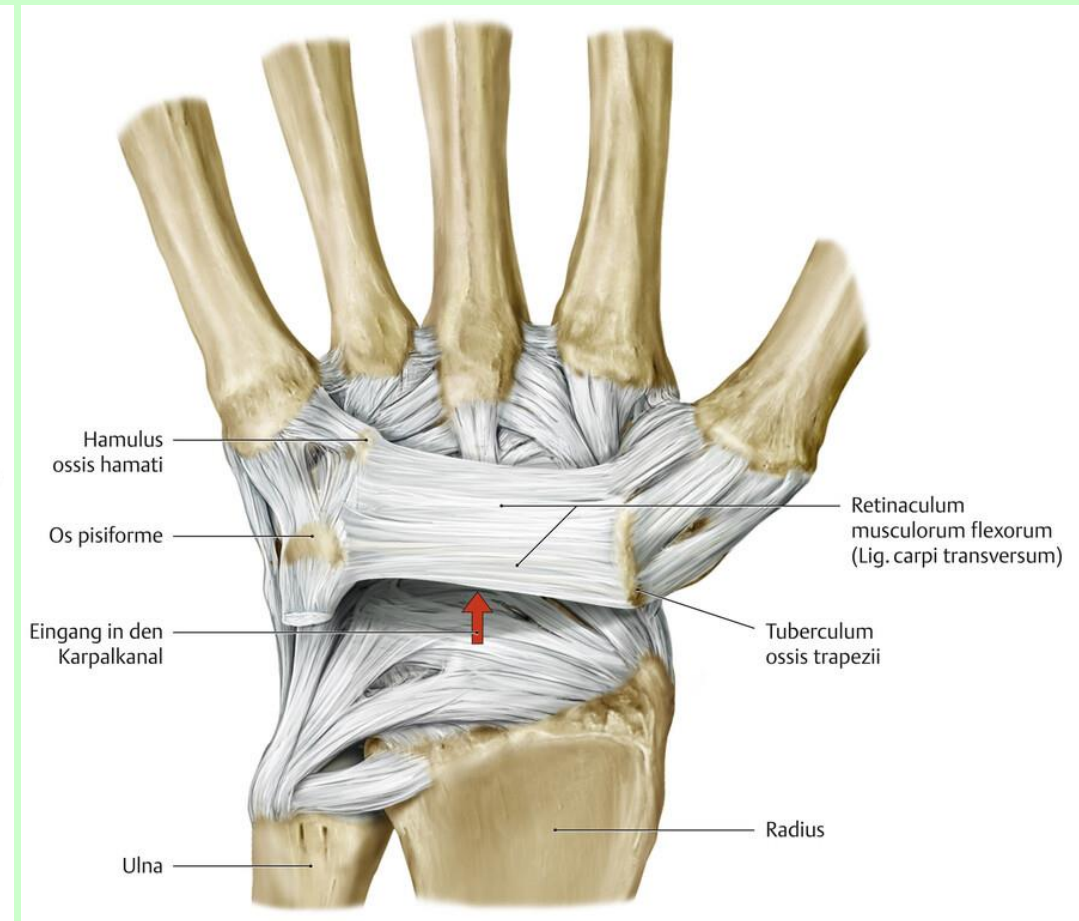
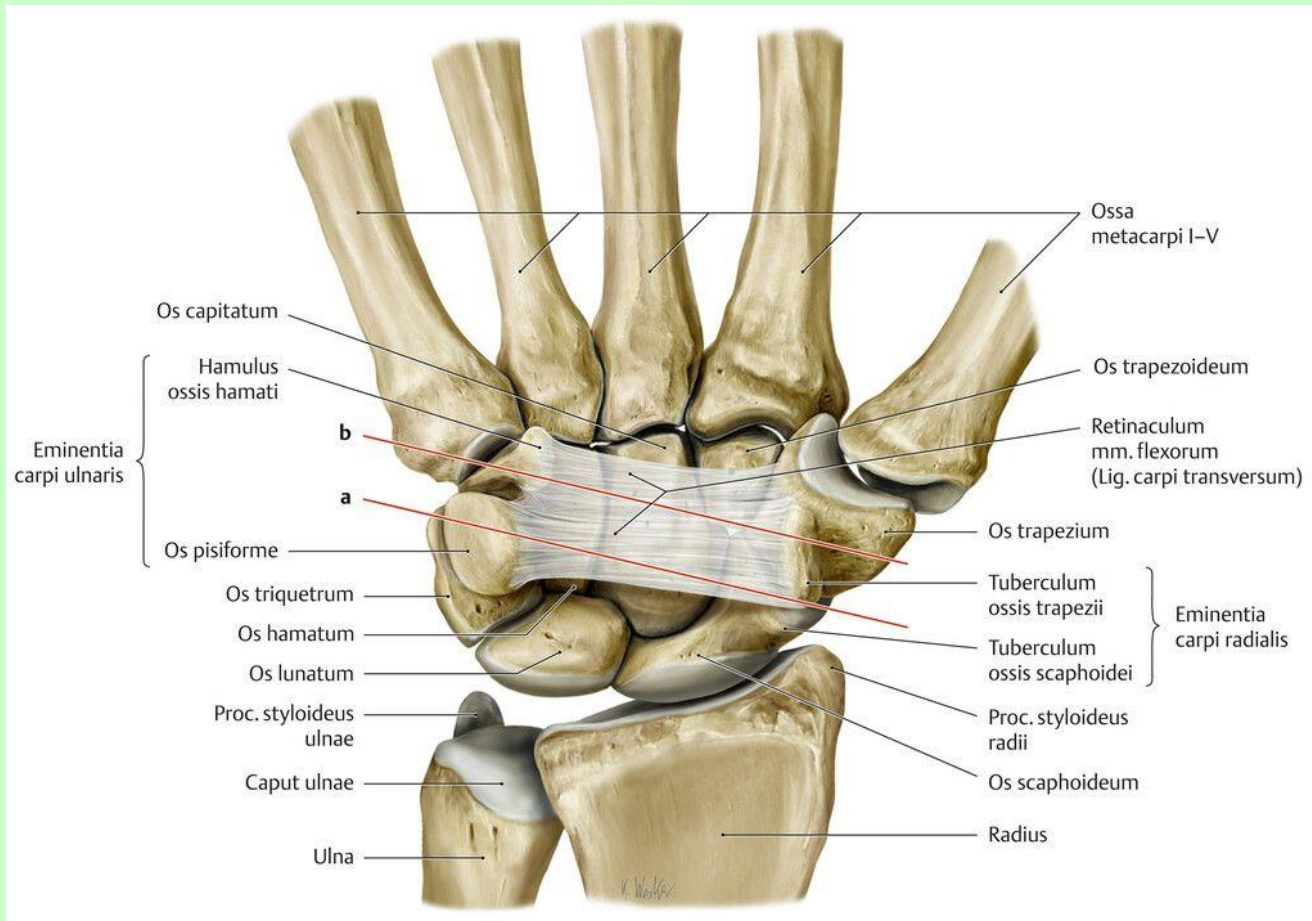
# spoje kostí horní končetiny

## *articulationes manus*



# spoje kostí horní končetiny

## *articulationes manus*

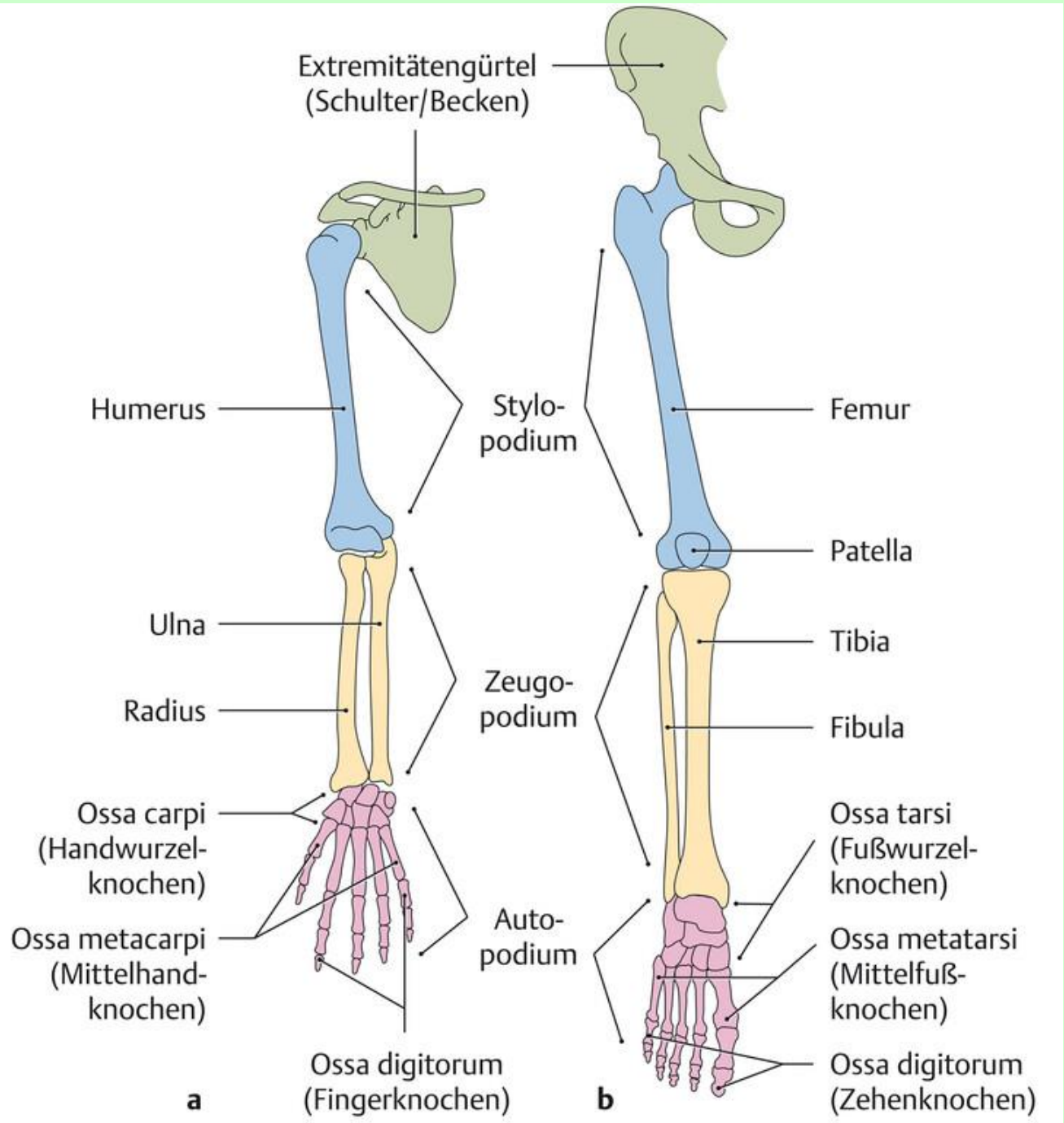


# KOSTERNÍ SOUSTAVA

*(Systema skeleti)*

kostra dolní končetiny  
*(ossa membri inferioris)*

# kosti dolní končetiny



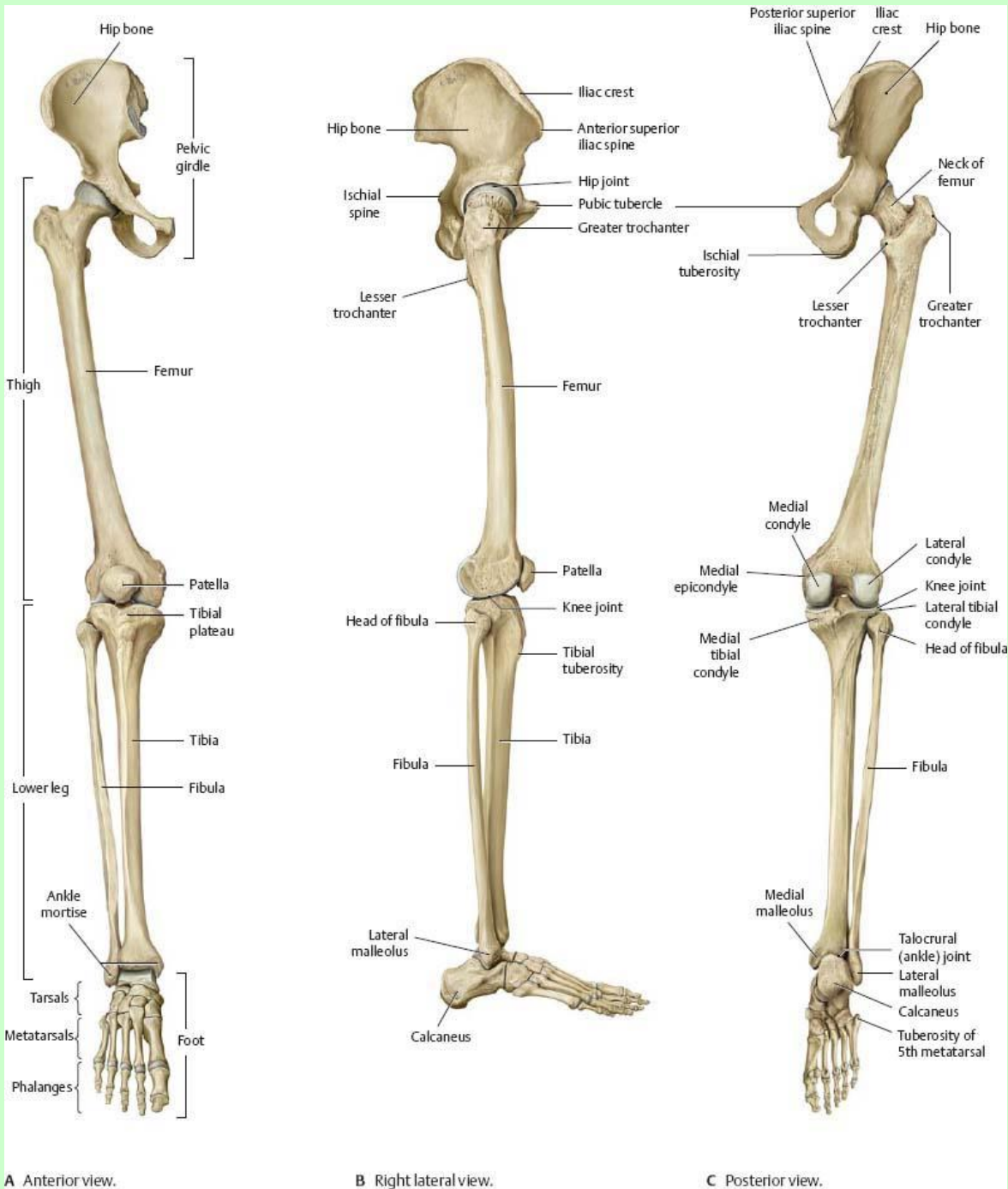
# kosti dolní končetiny

*cingulum*

*stylopodium*

*zeugopodium*

*autopodium*

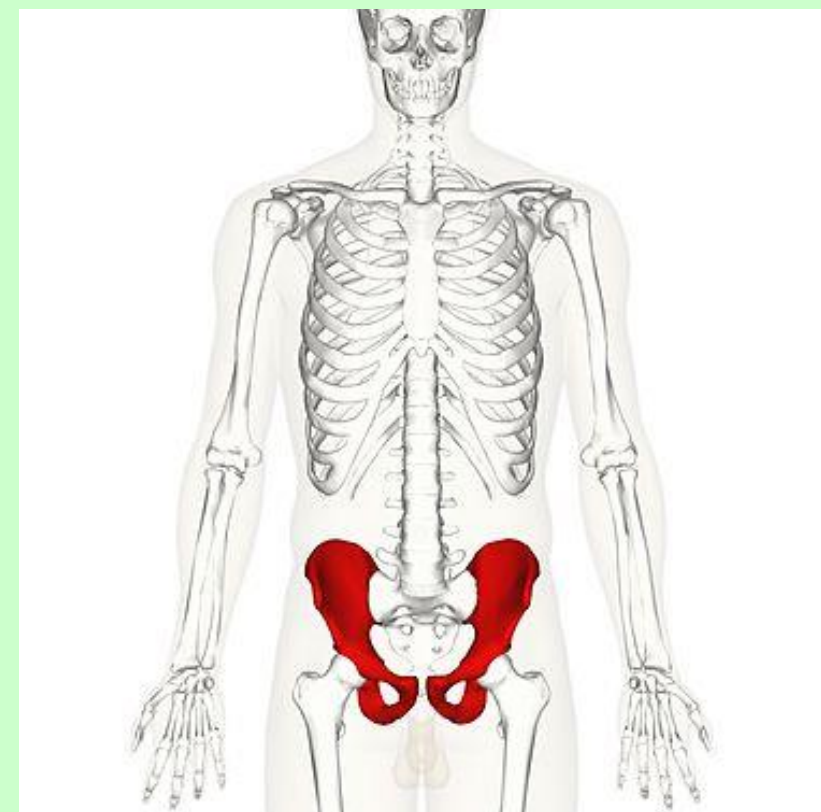
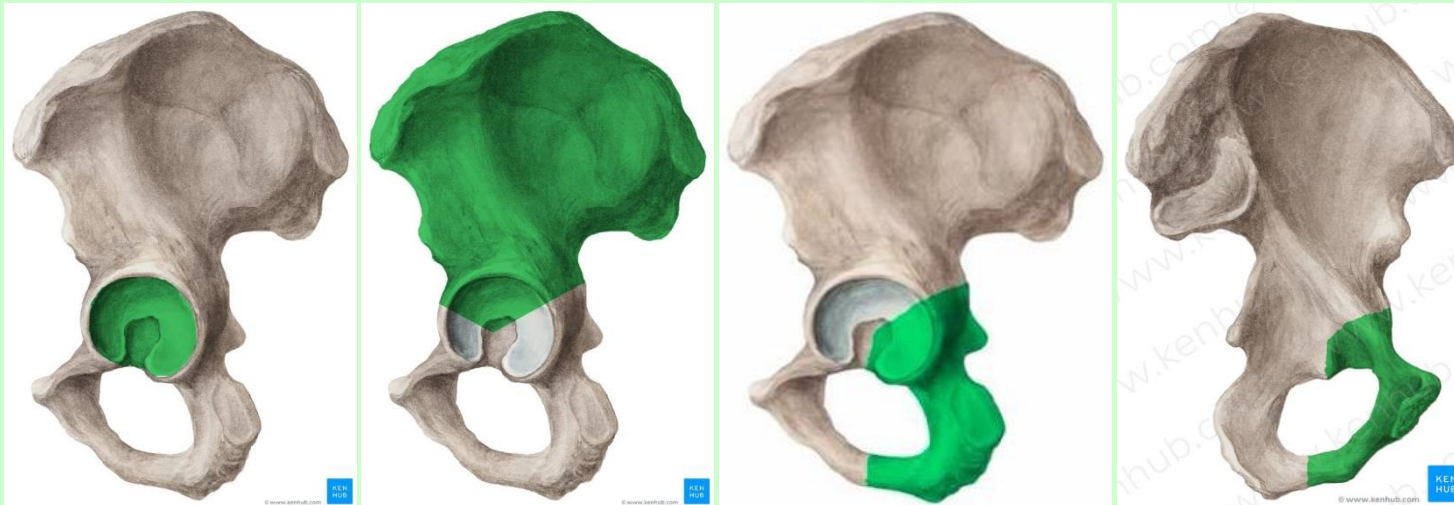
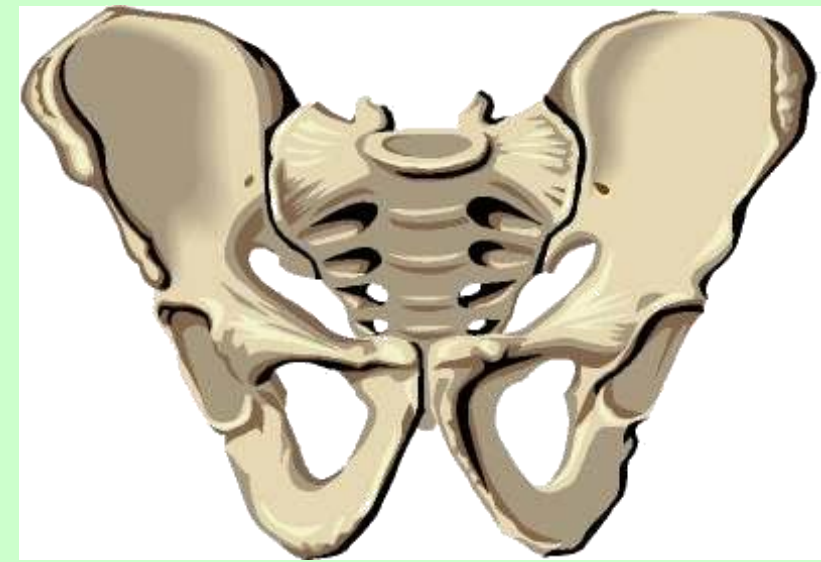
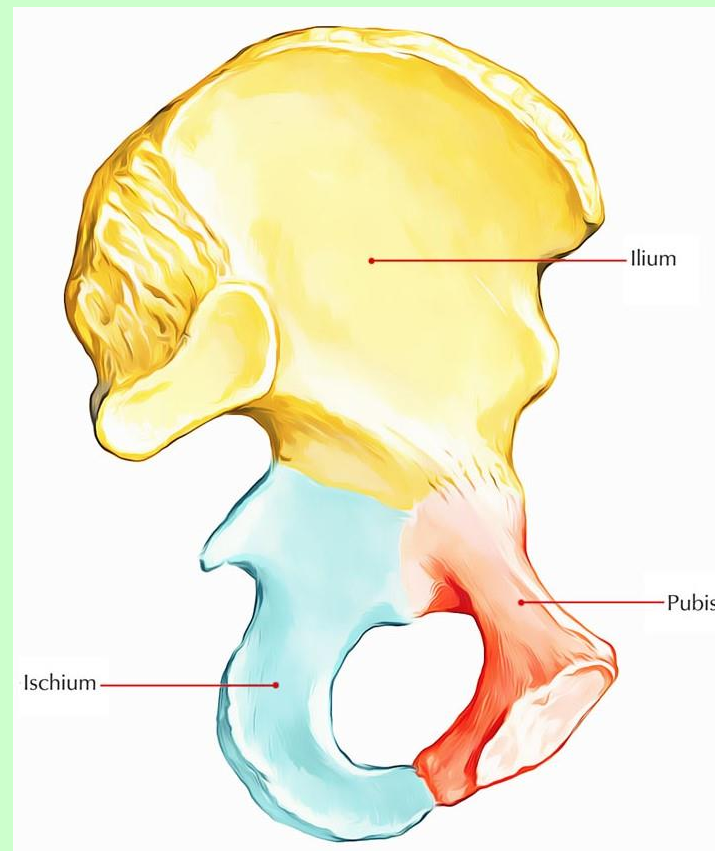


# kost pánevni (*os coxae*)

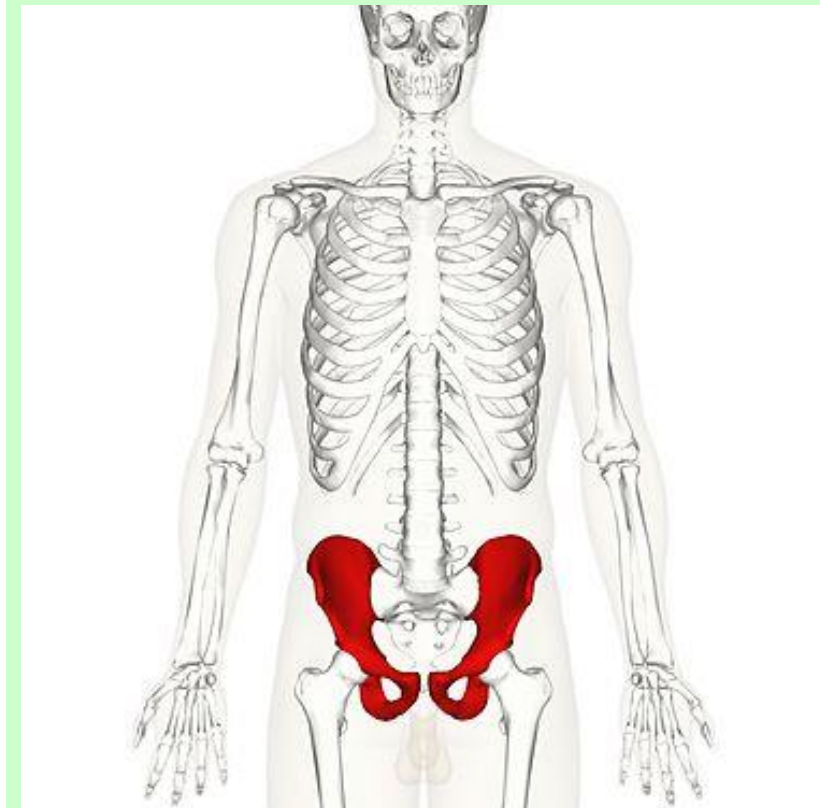
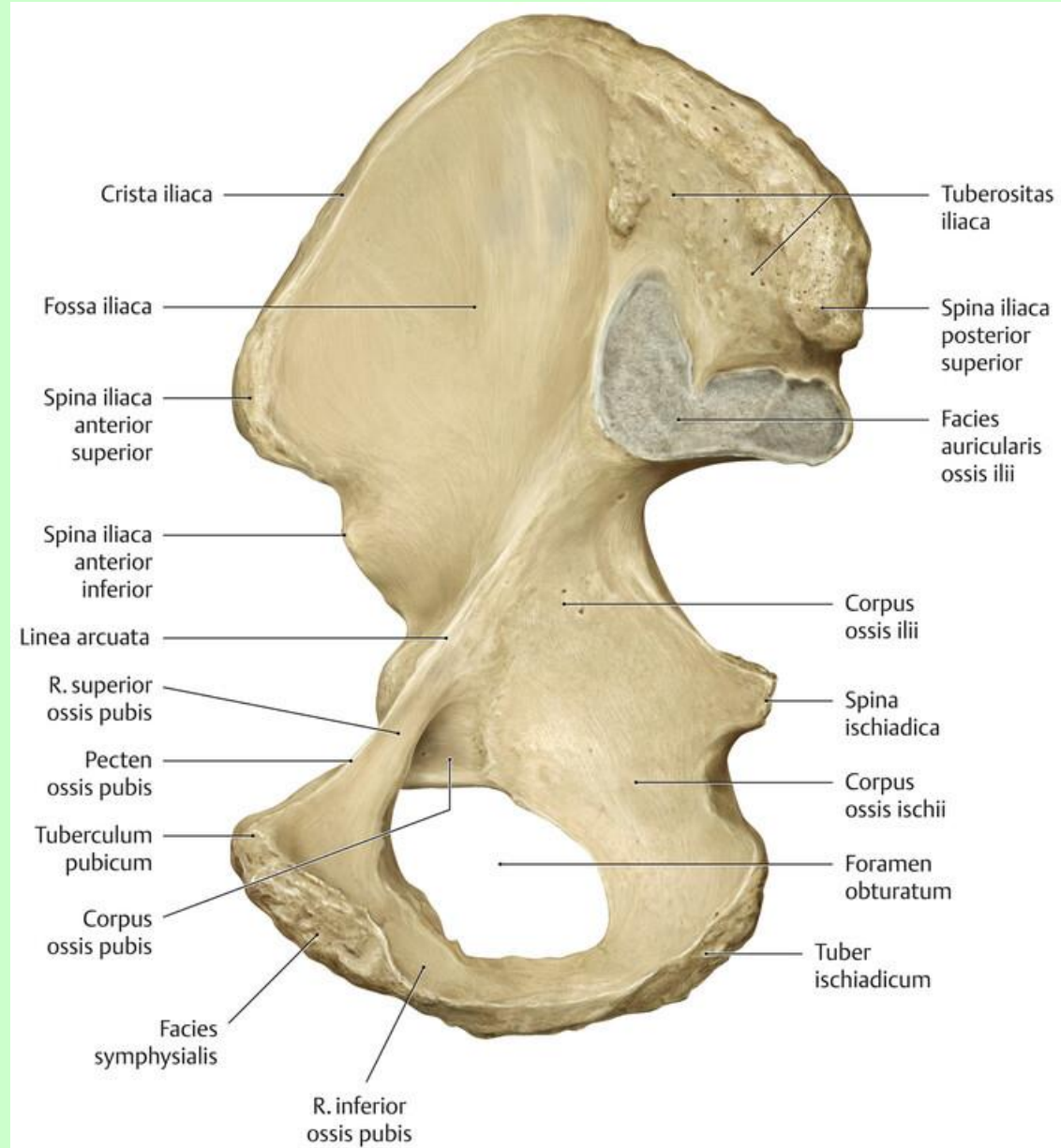
kost kyčelní (*os ilium*)

kost sedací (*os ischii*)

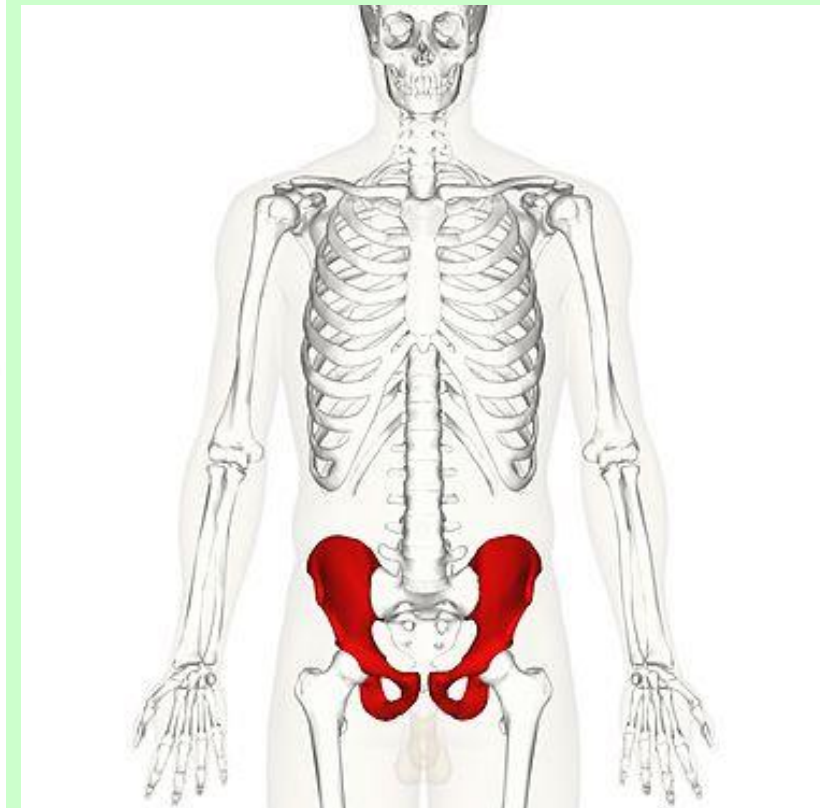
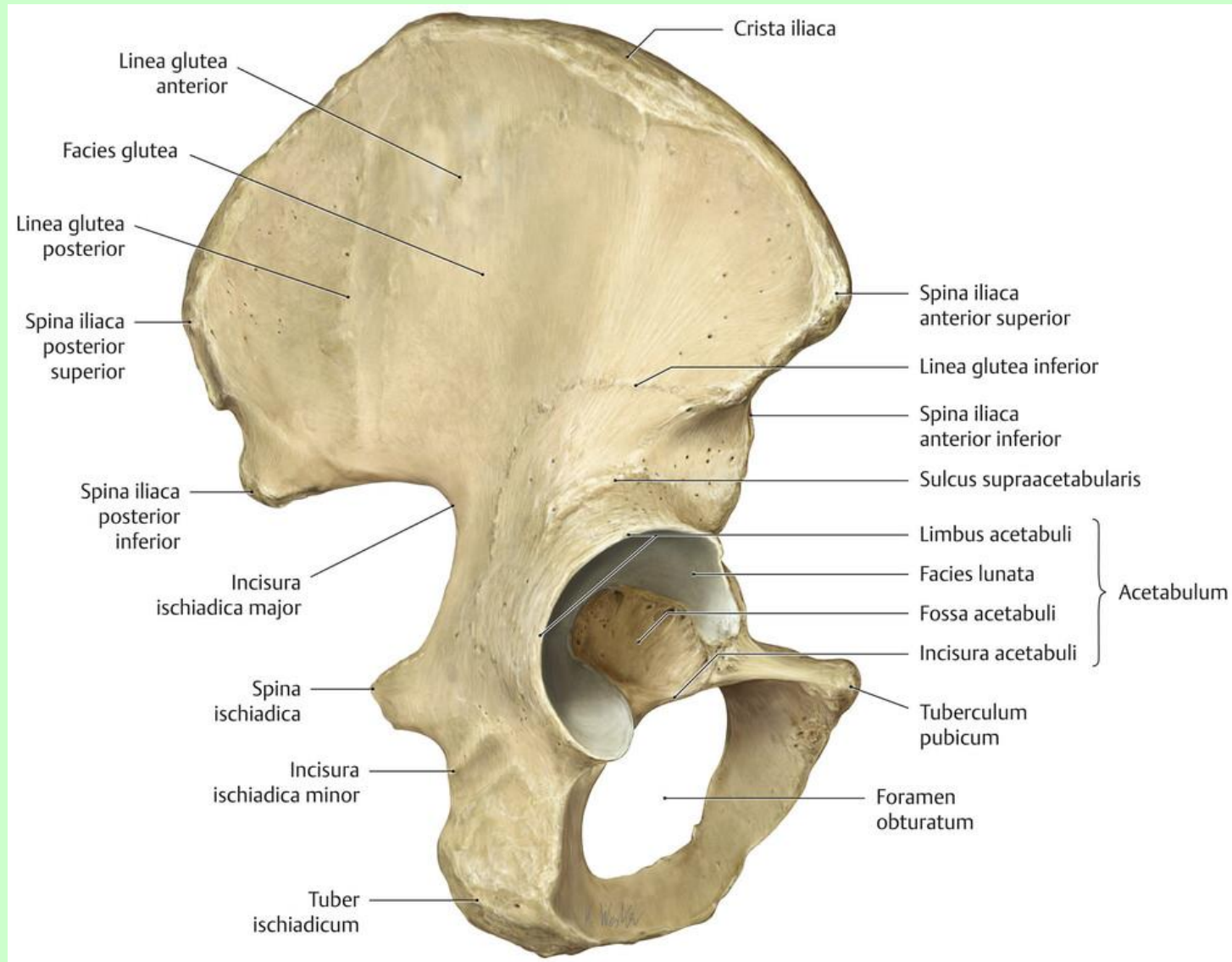
kost stydká (*os pubis*)



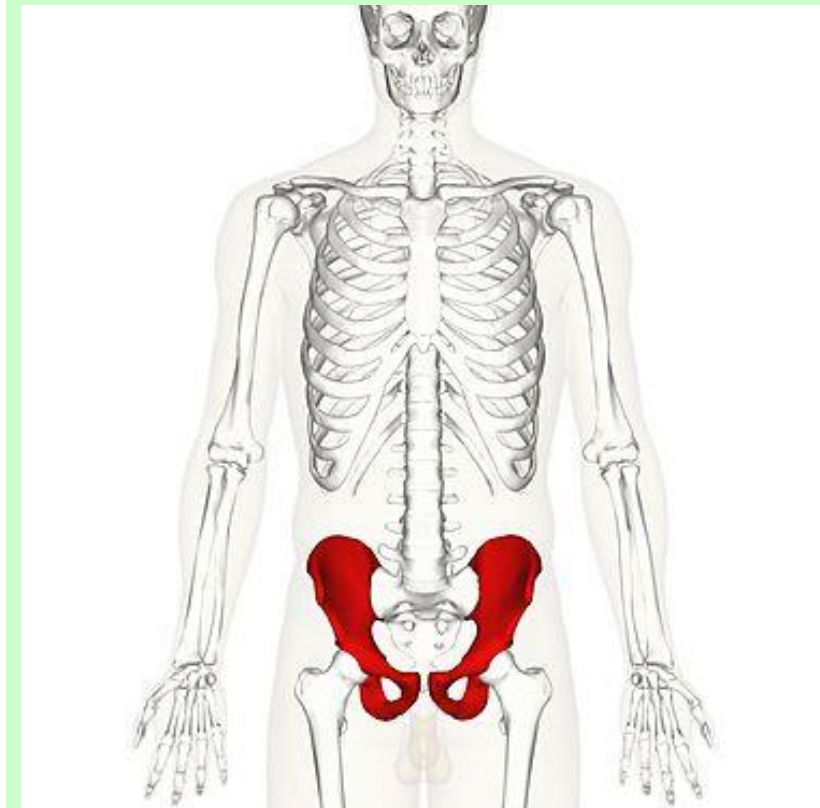
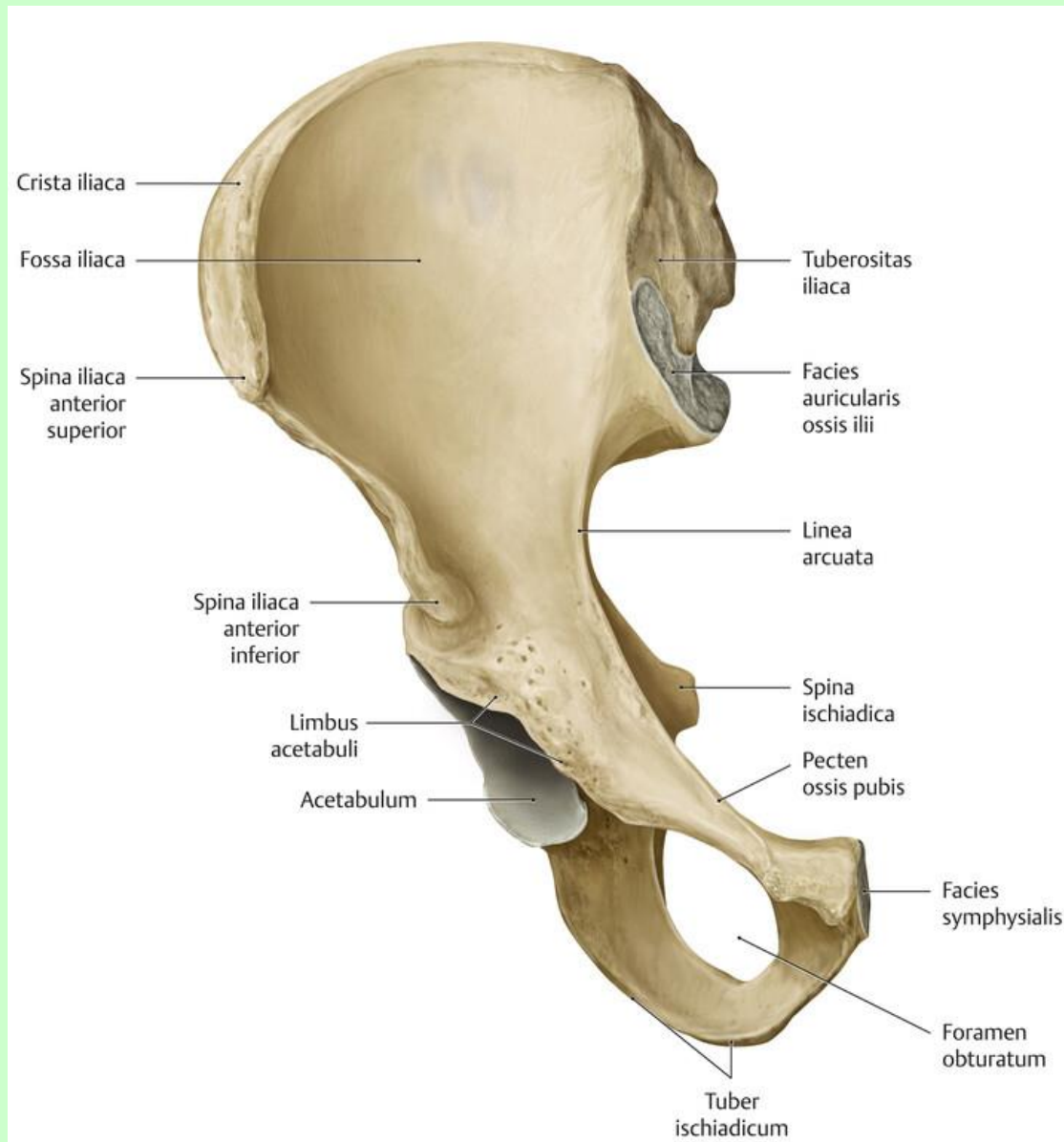
# kost pánevni (*os coxae*)



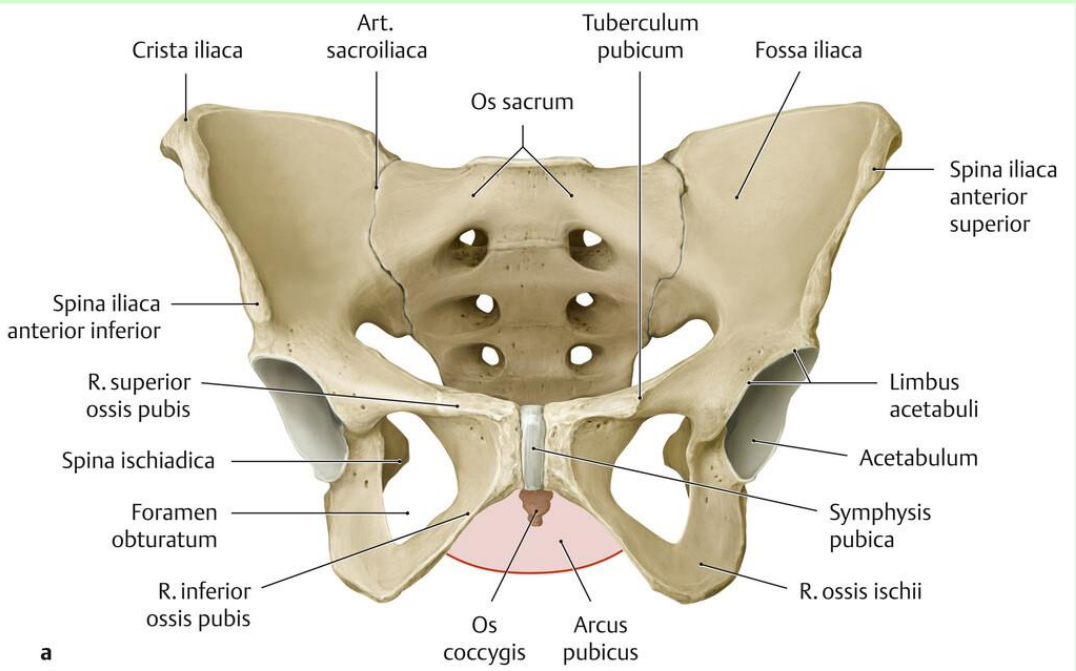
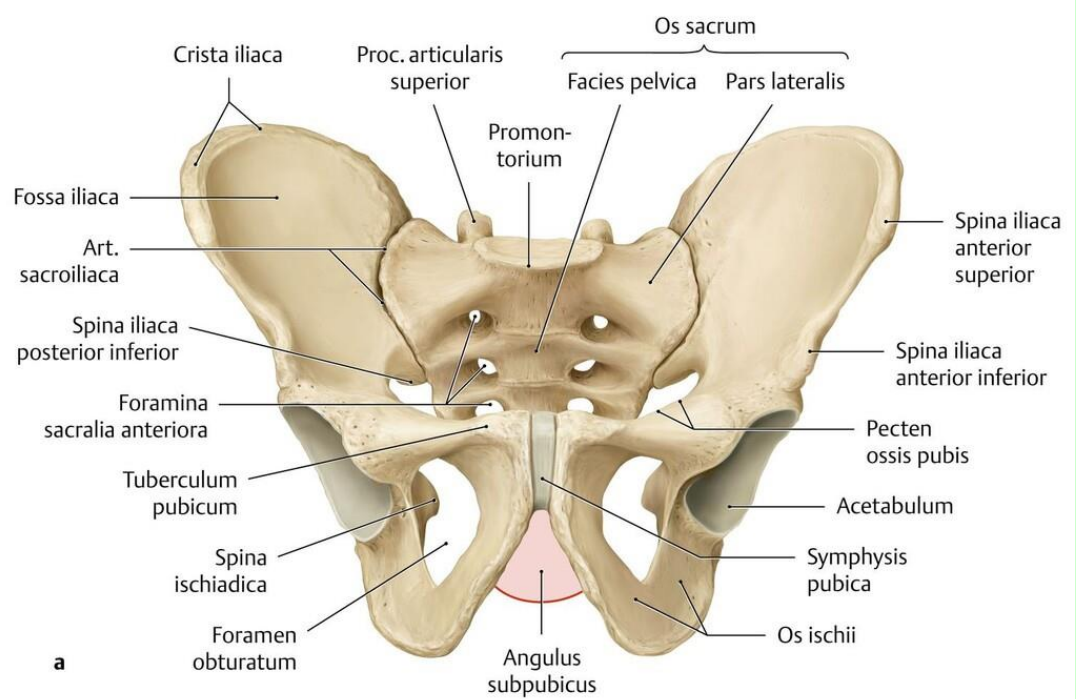
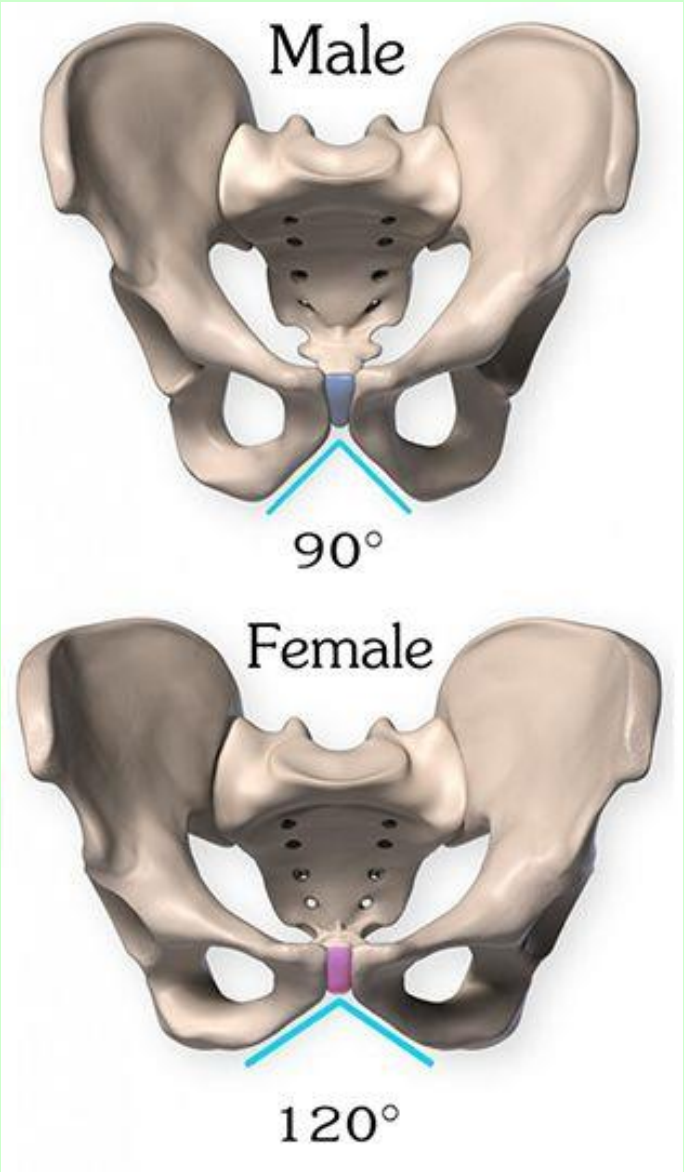
# kost pánevni (*os coxae*)



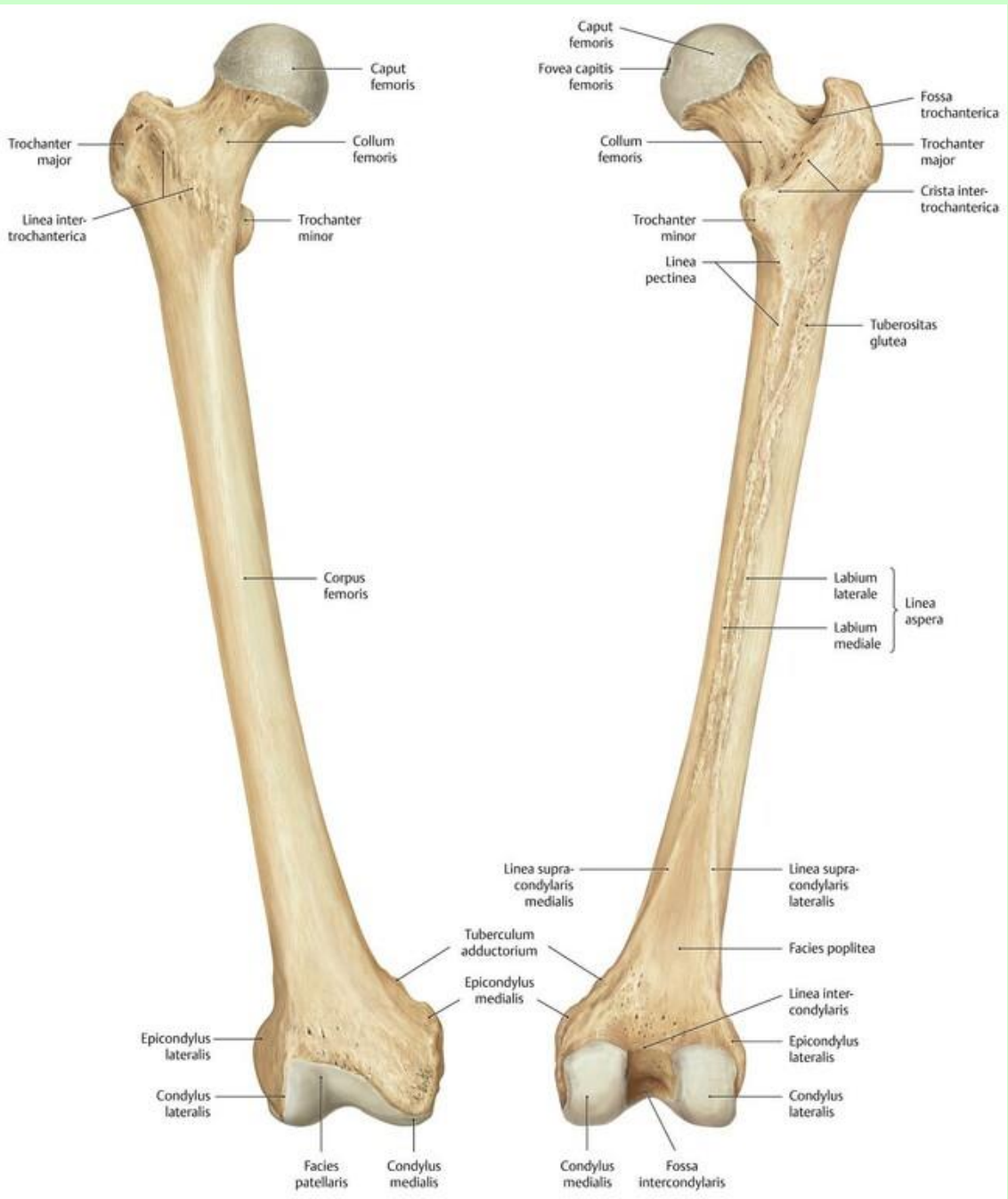
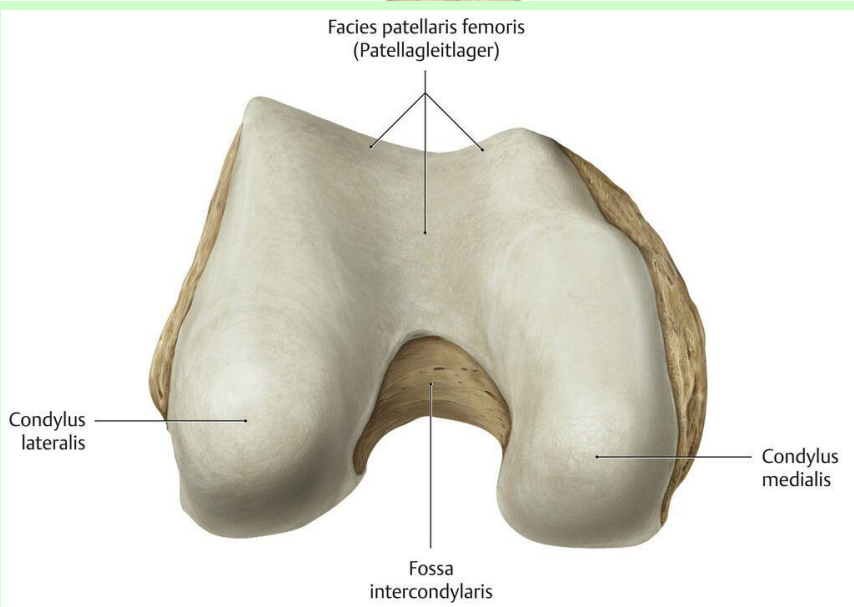
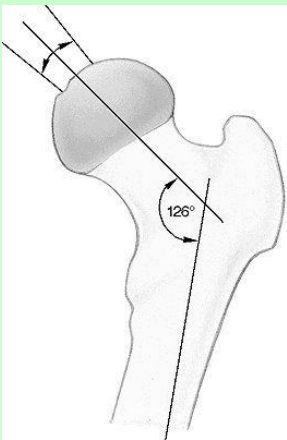
# kost pánevni (*os coxae*)



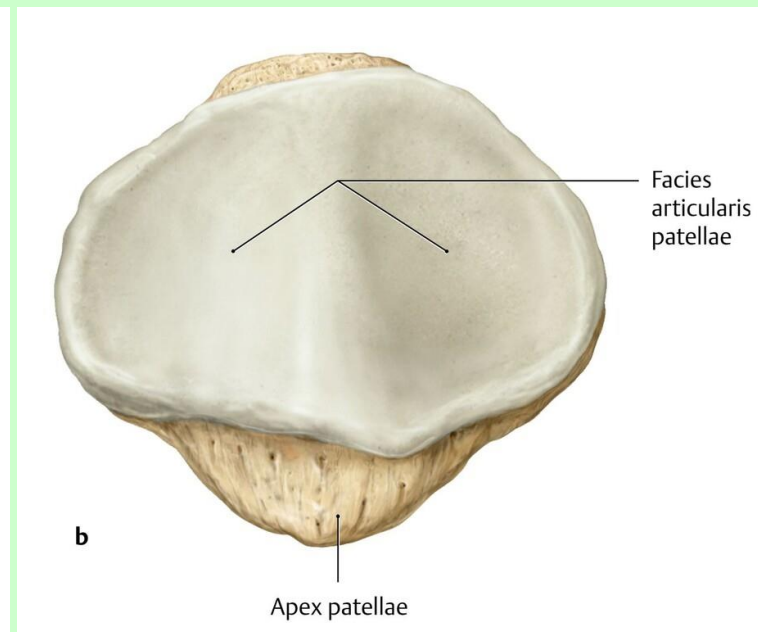
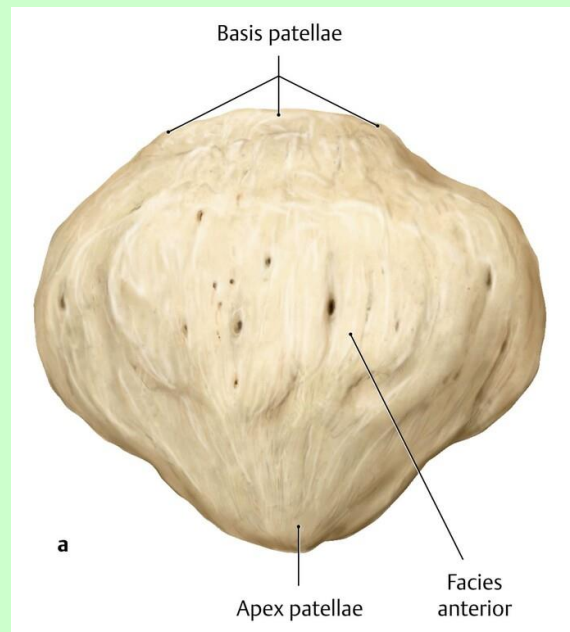
# pohlavní rozdíly na pánvi



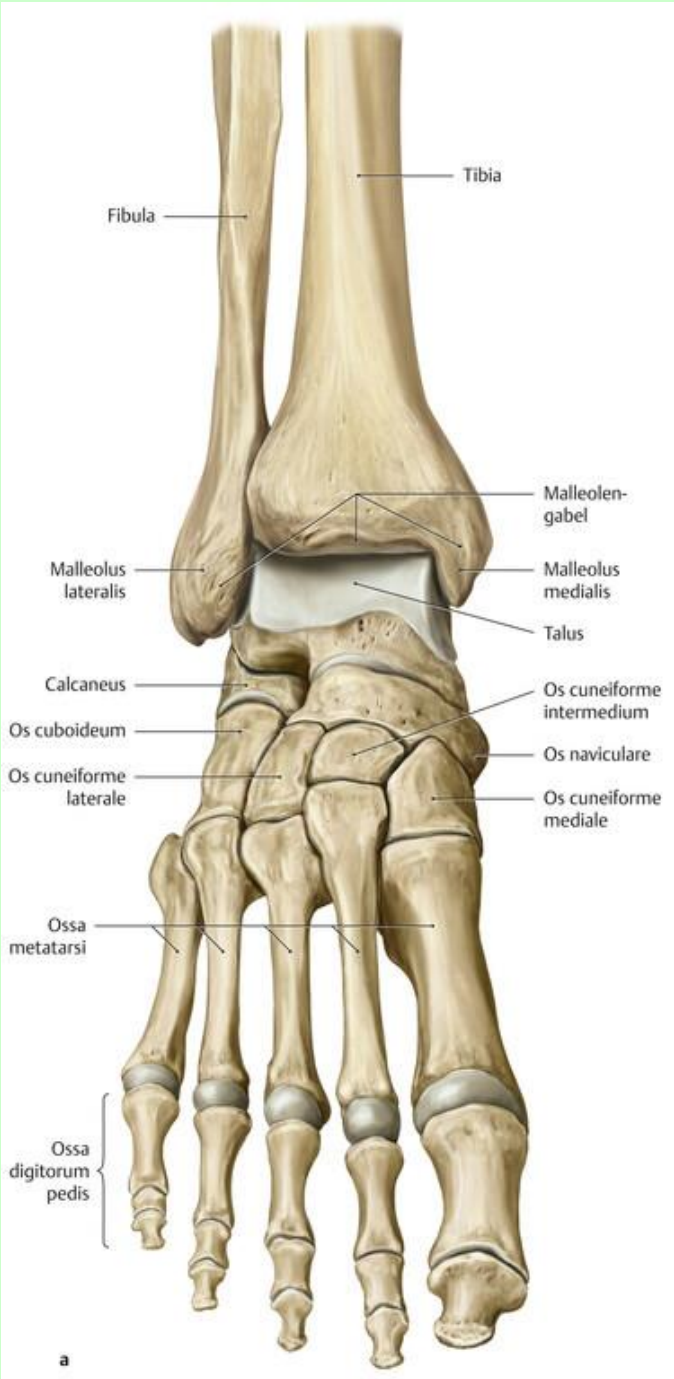
# kost stehenní (*femur*)



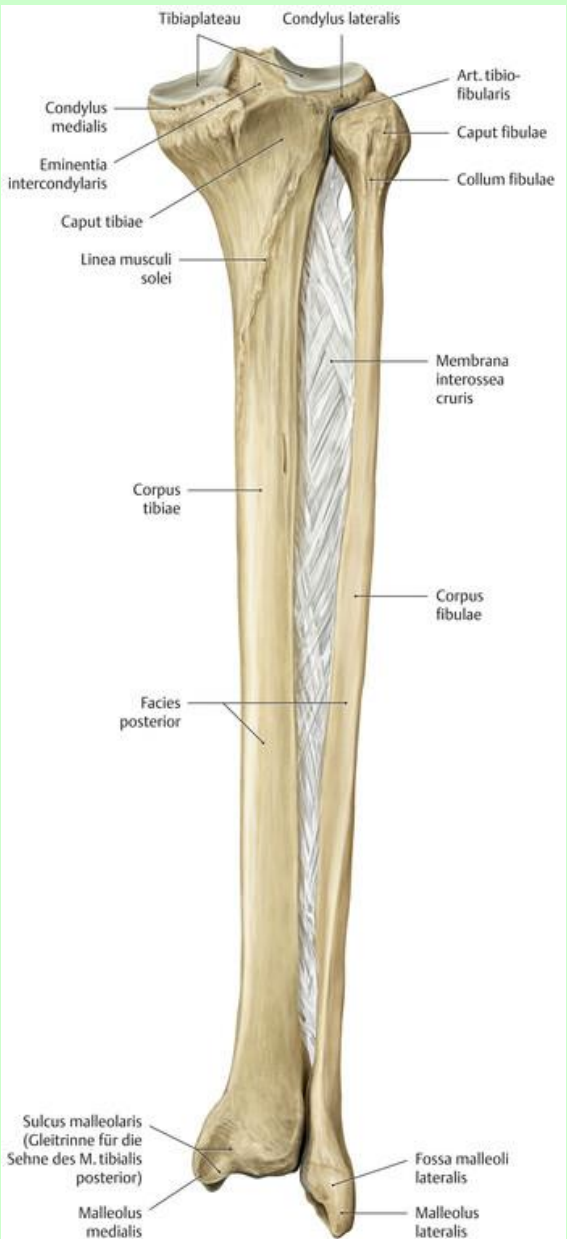
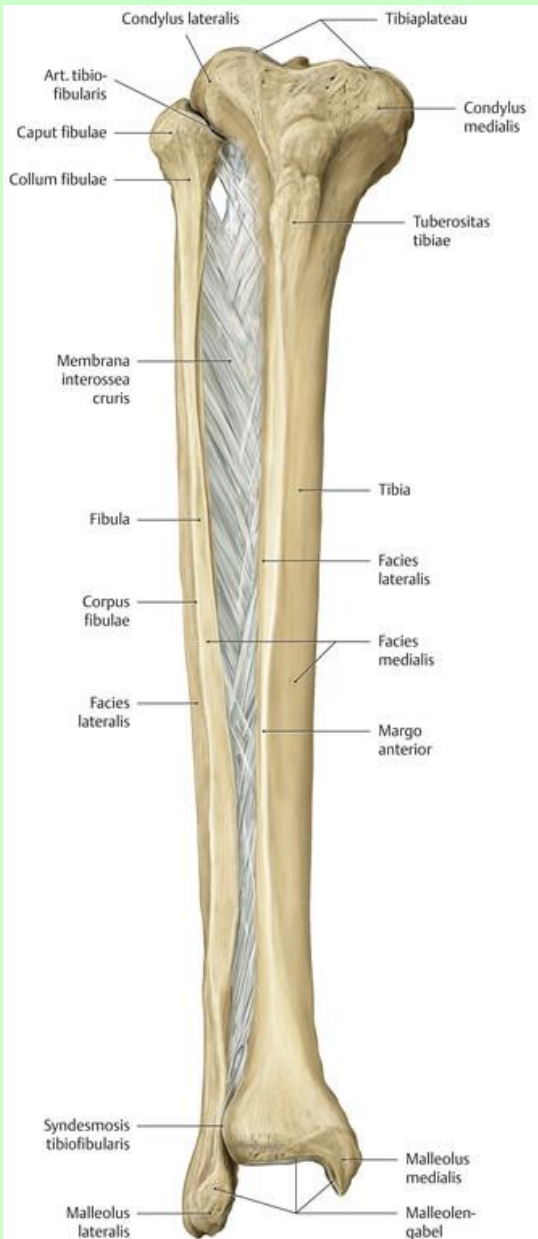
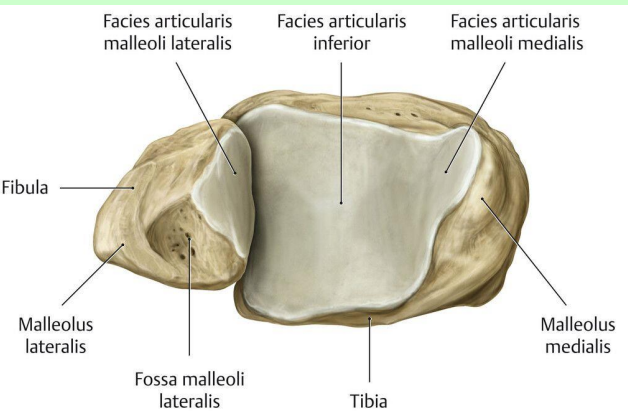
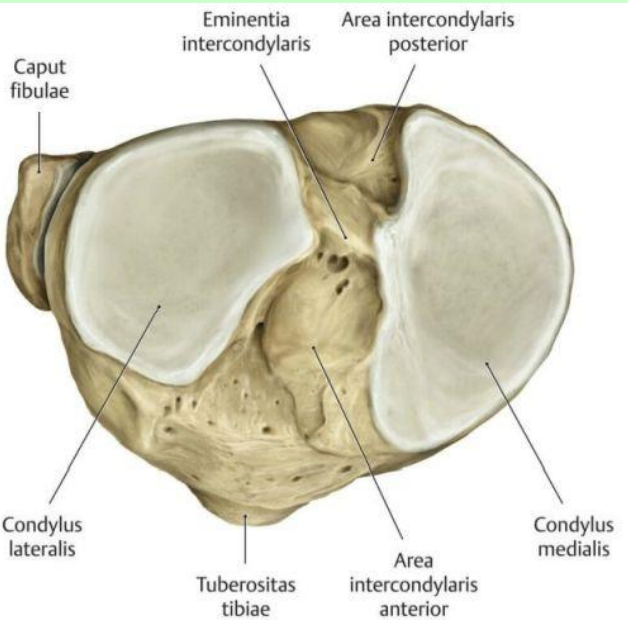
# čéška (*patella*)



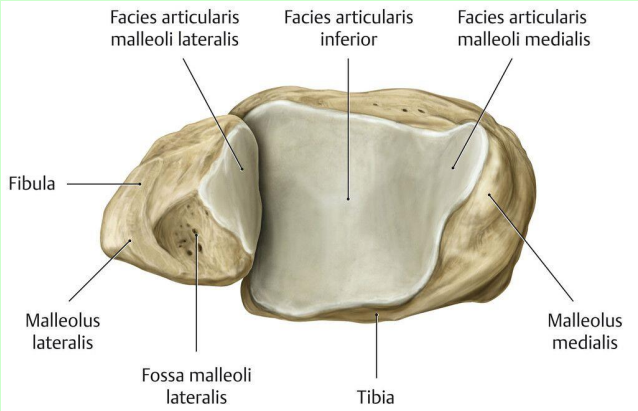
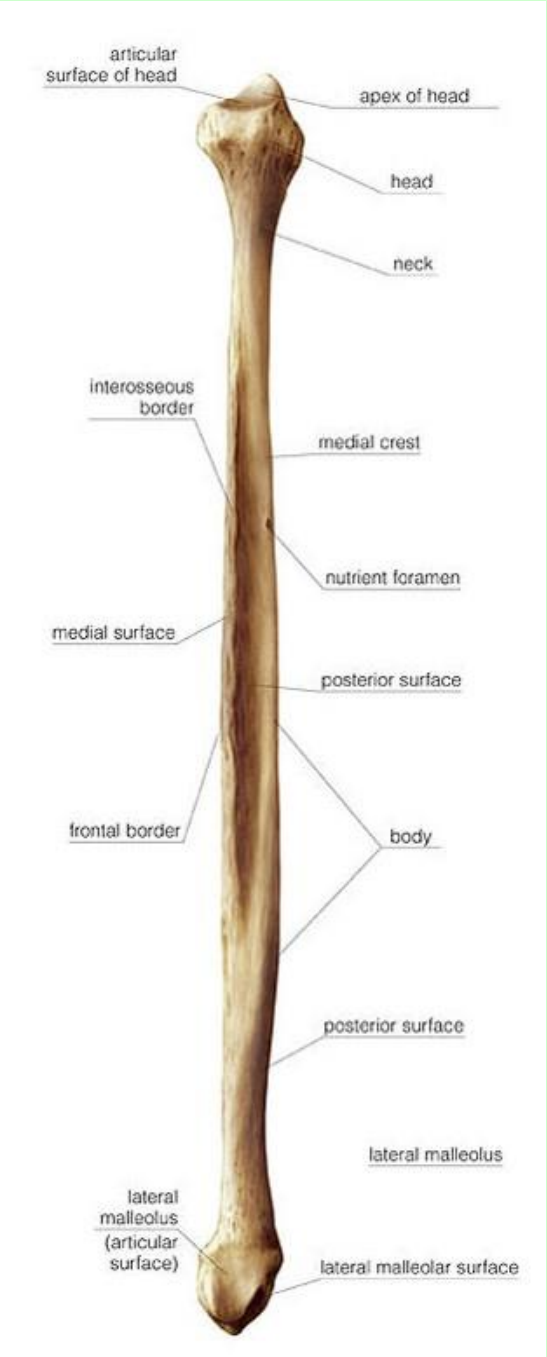
# kosti bérce



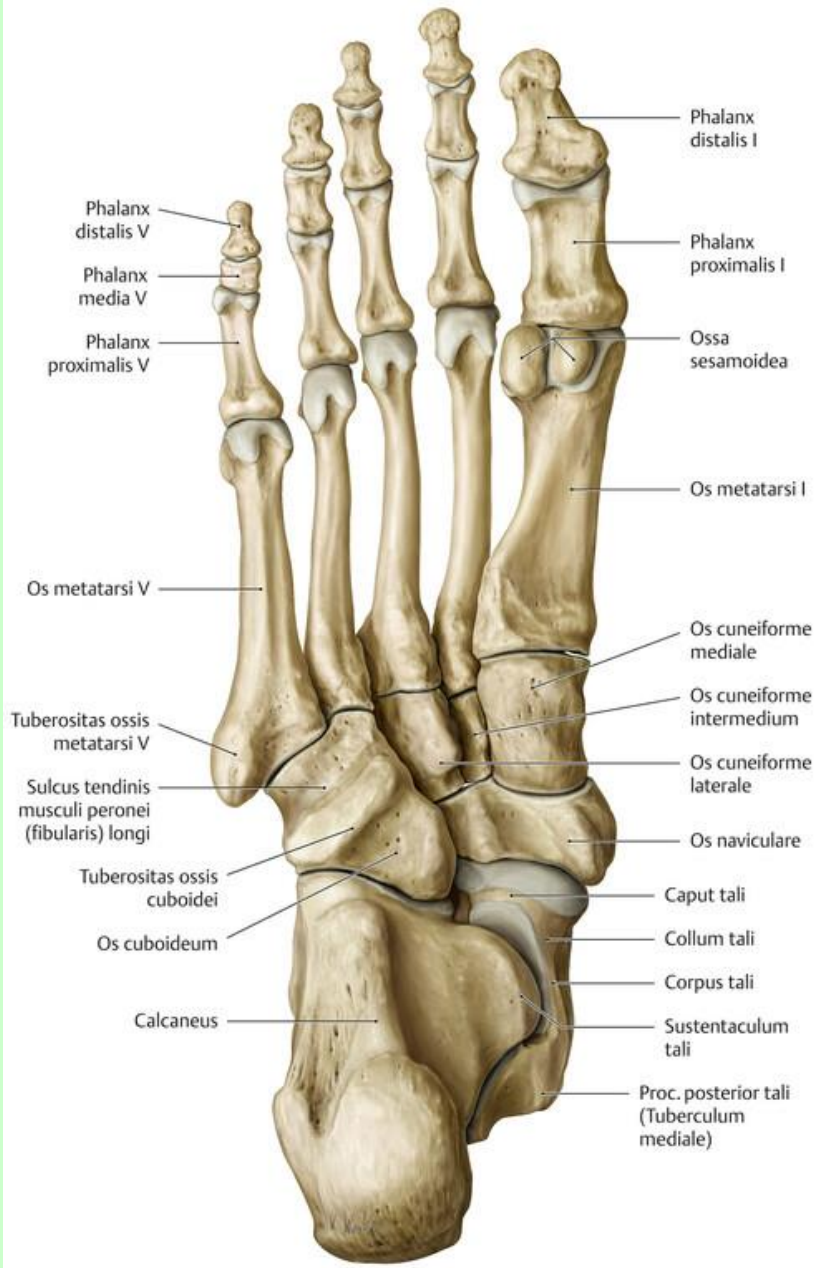
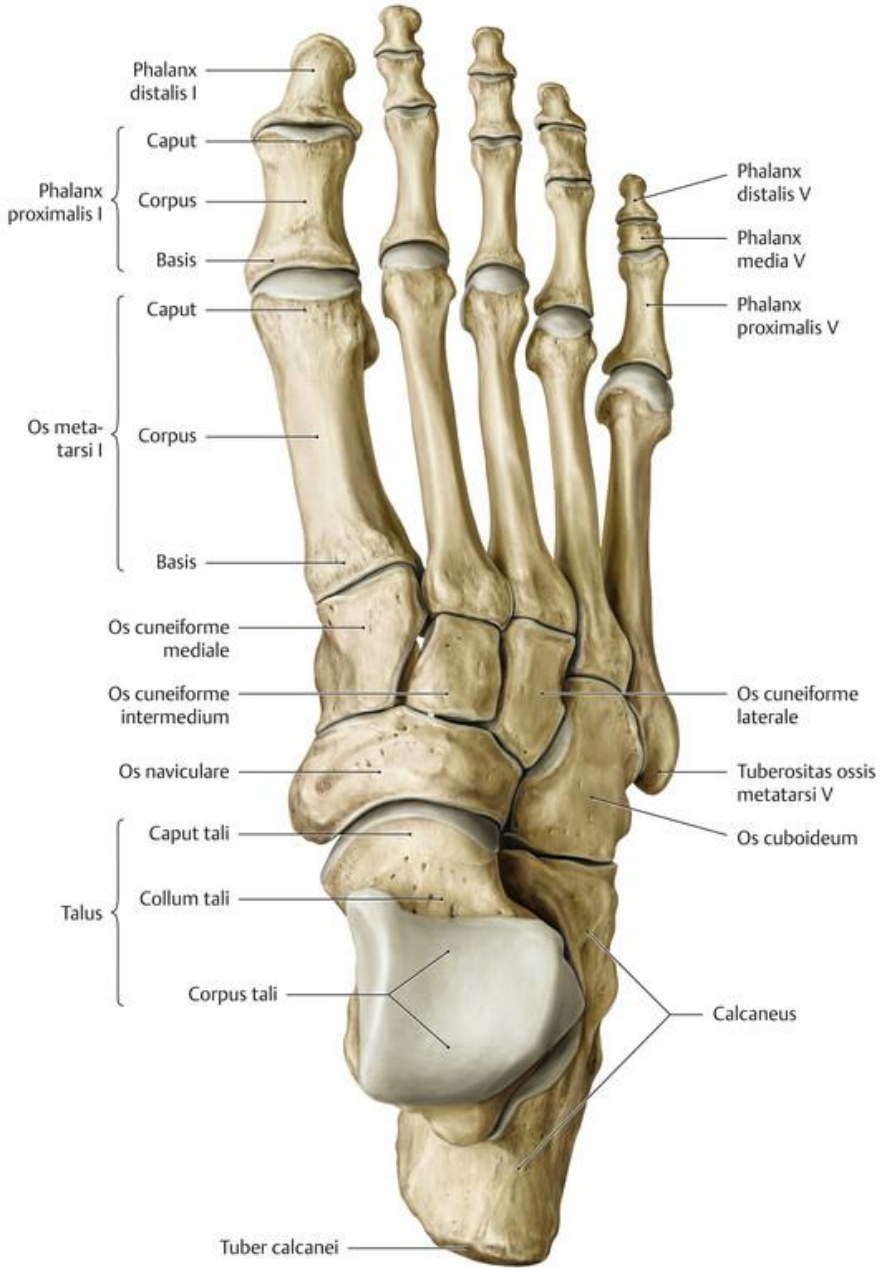
# kost holenní (*tibia*)



# kost lýtková (*fibula*)

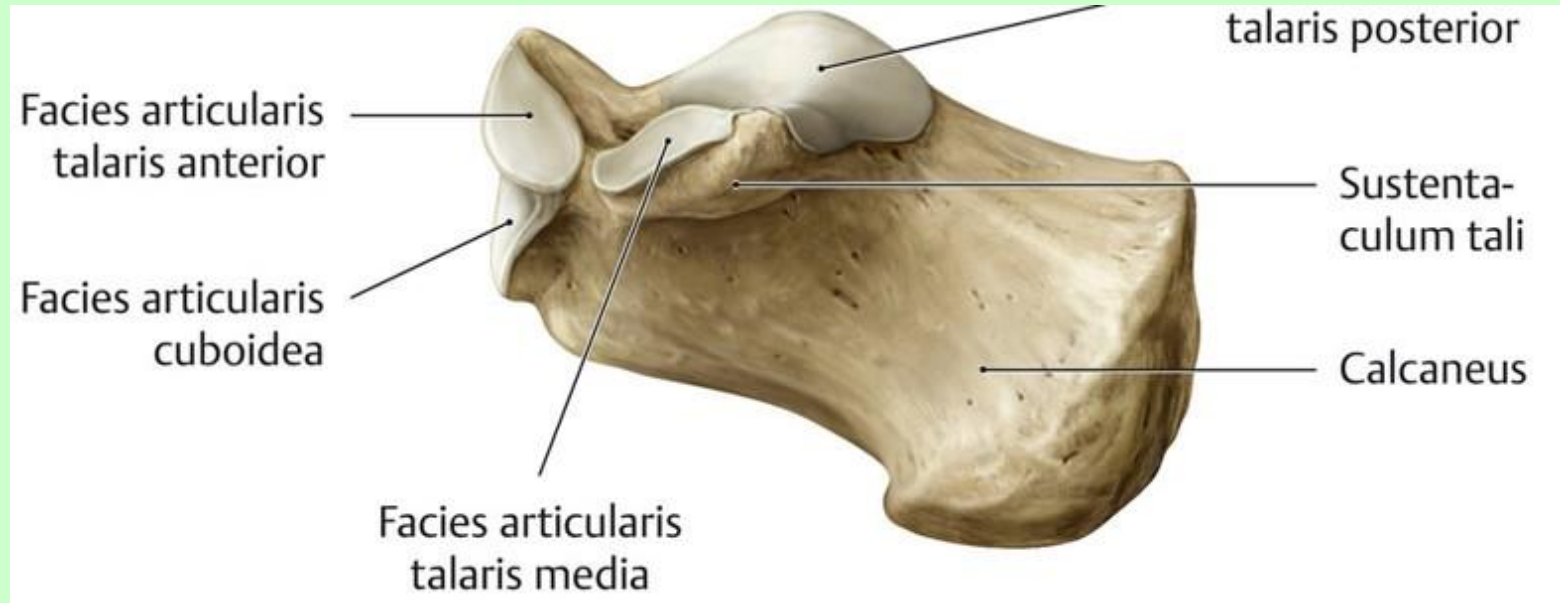
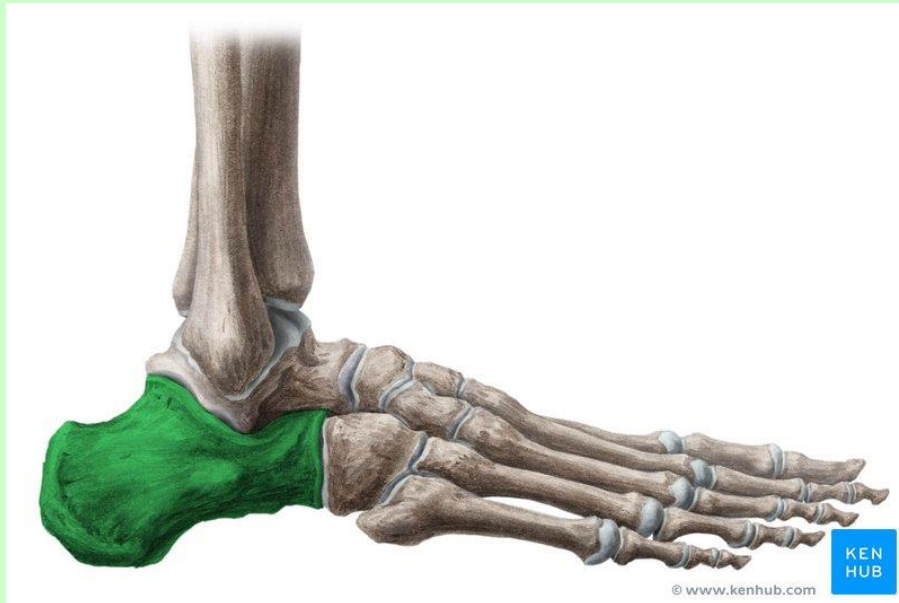


# kosti nohy (*ossa pedis*)



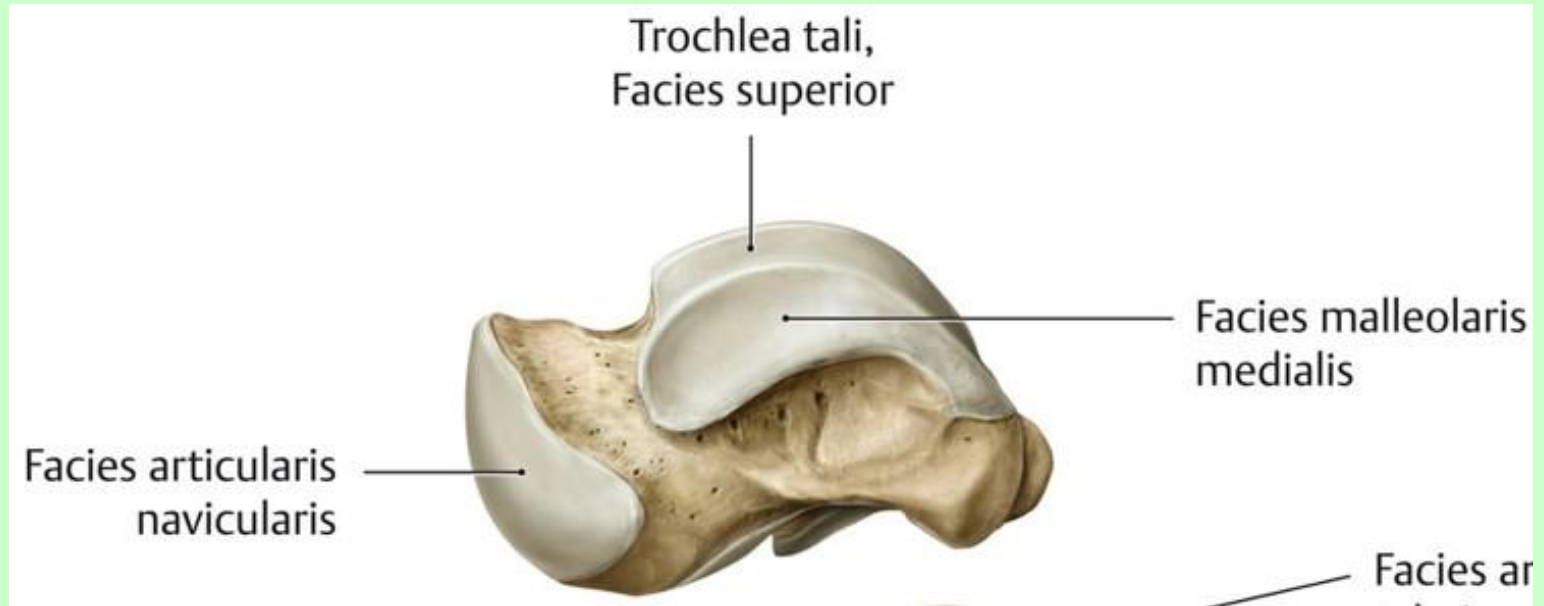
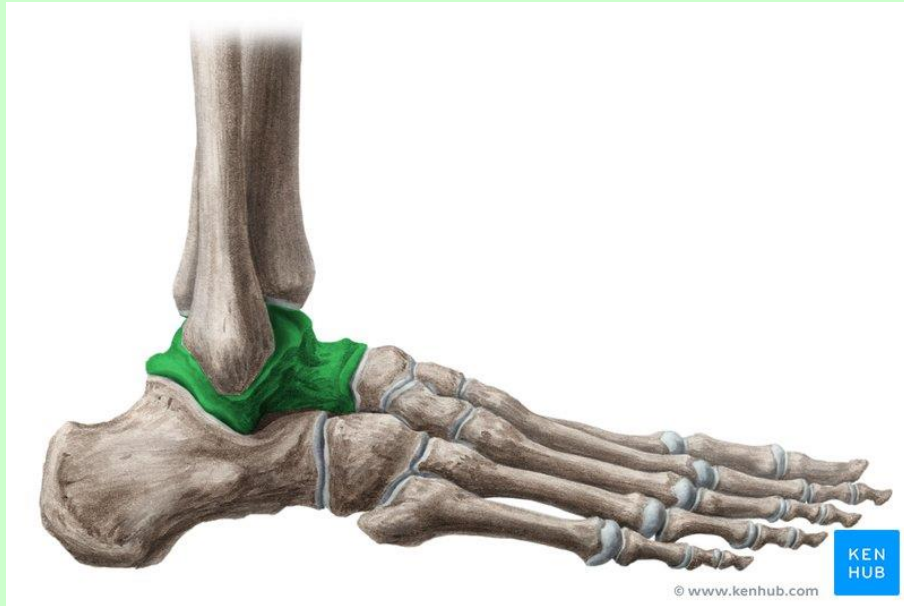
# kosti nohy (*ossa pedis*)

## kost patní (*calcaneus*)

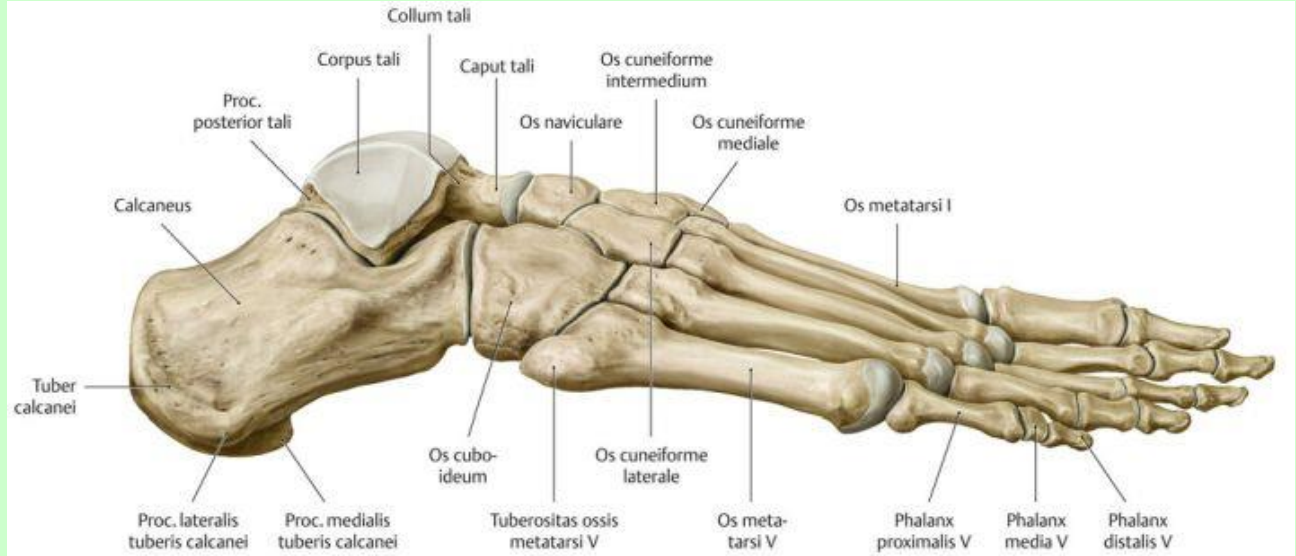
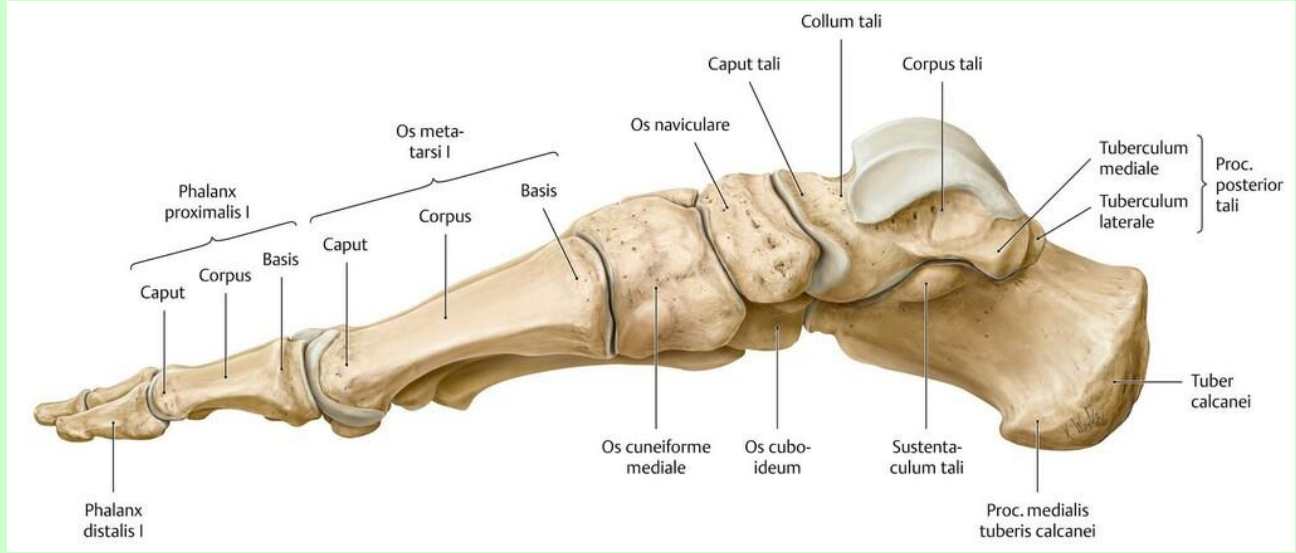


# kosti nohy (*ossa pedis*)

## kost hlezenní (*talus*)

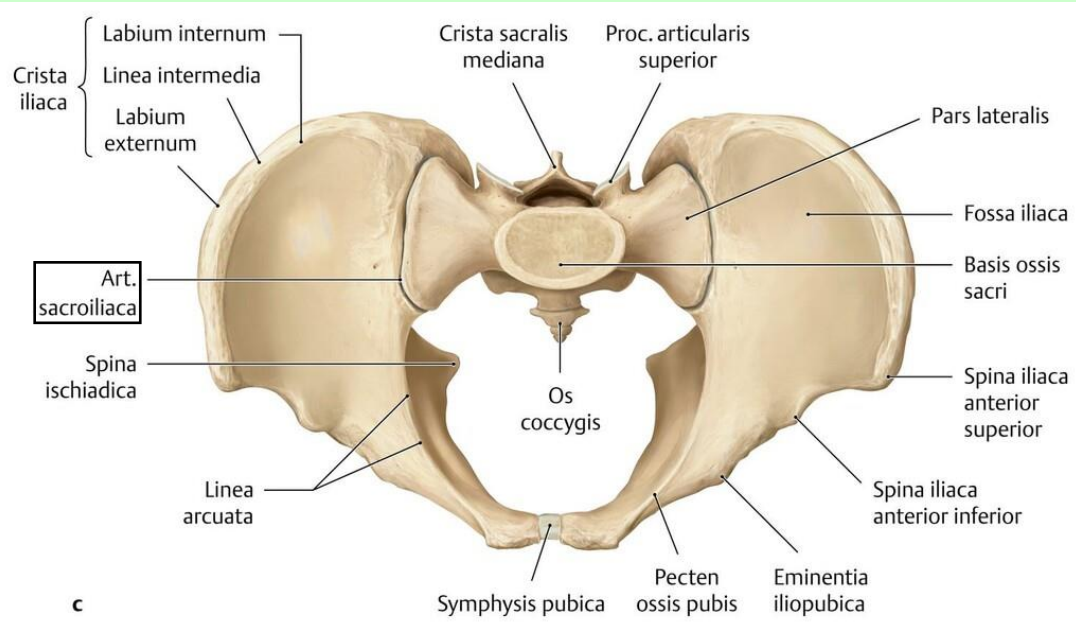
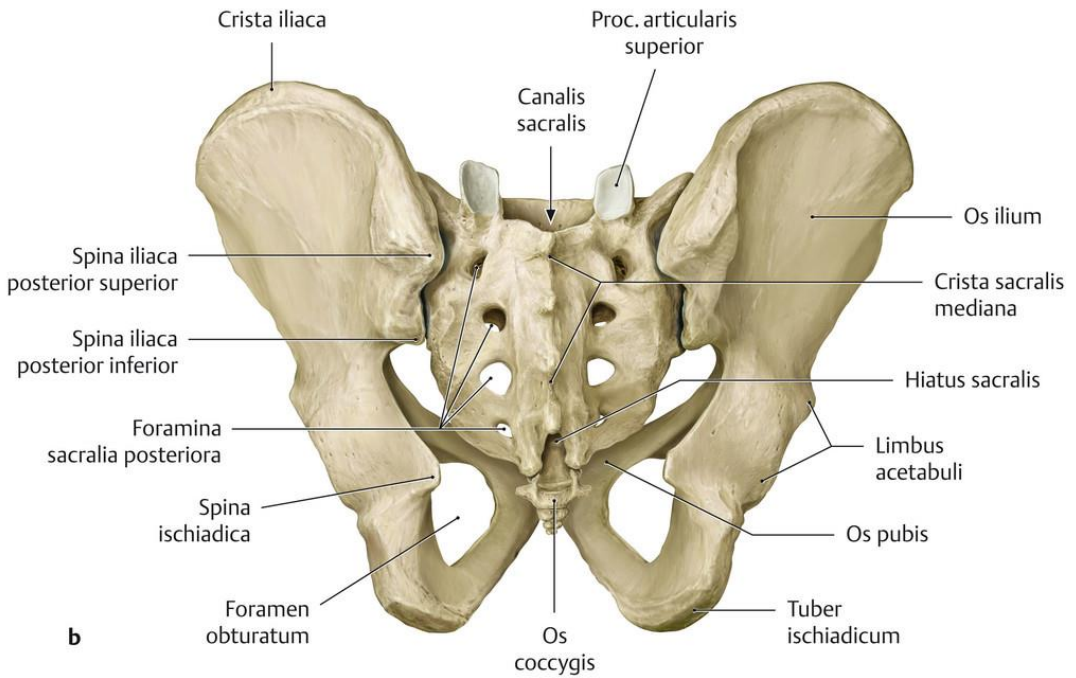
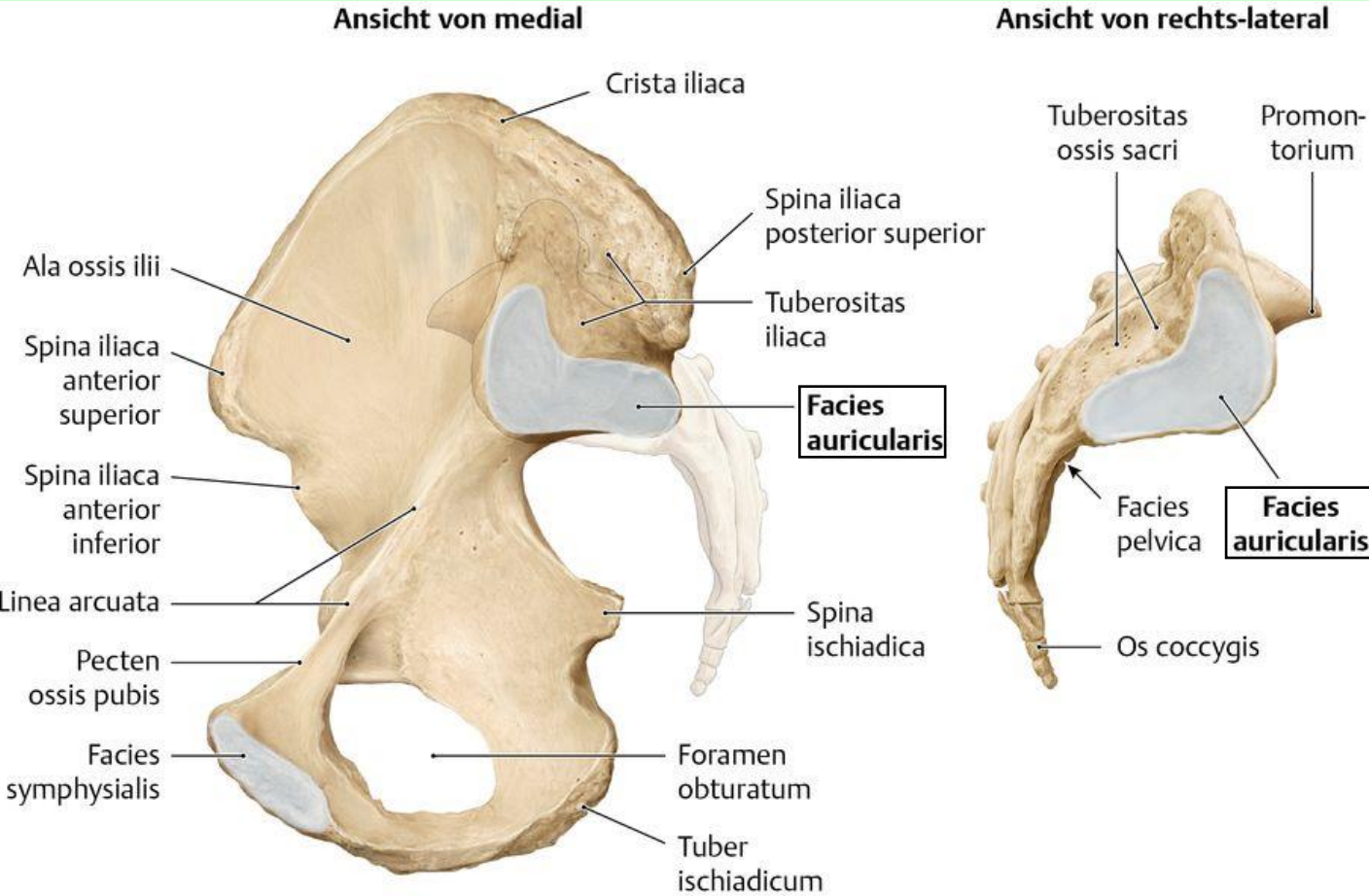


# klenba nožní



# spoje kostí dolní končetiny

## articulatio sacroiliaca

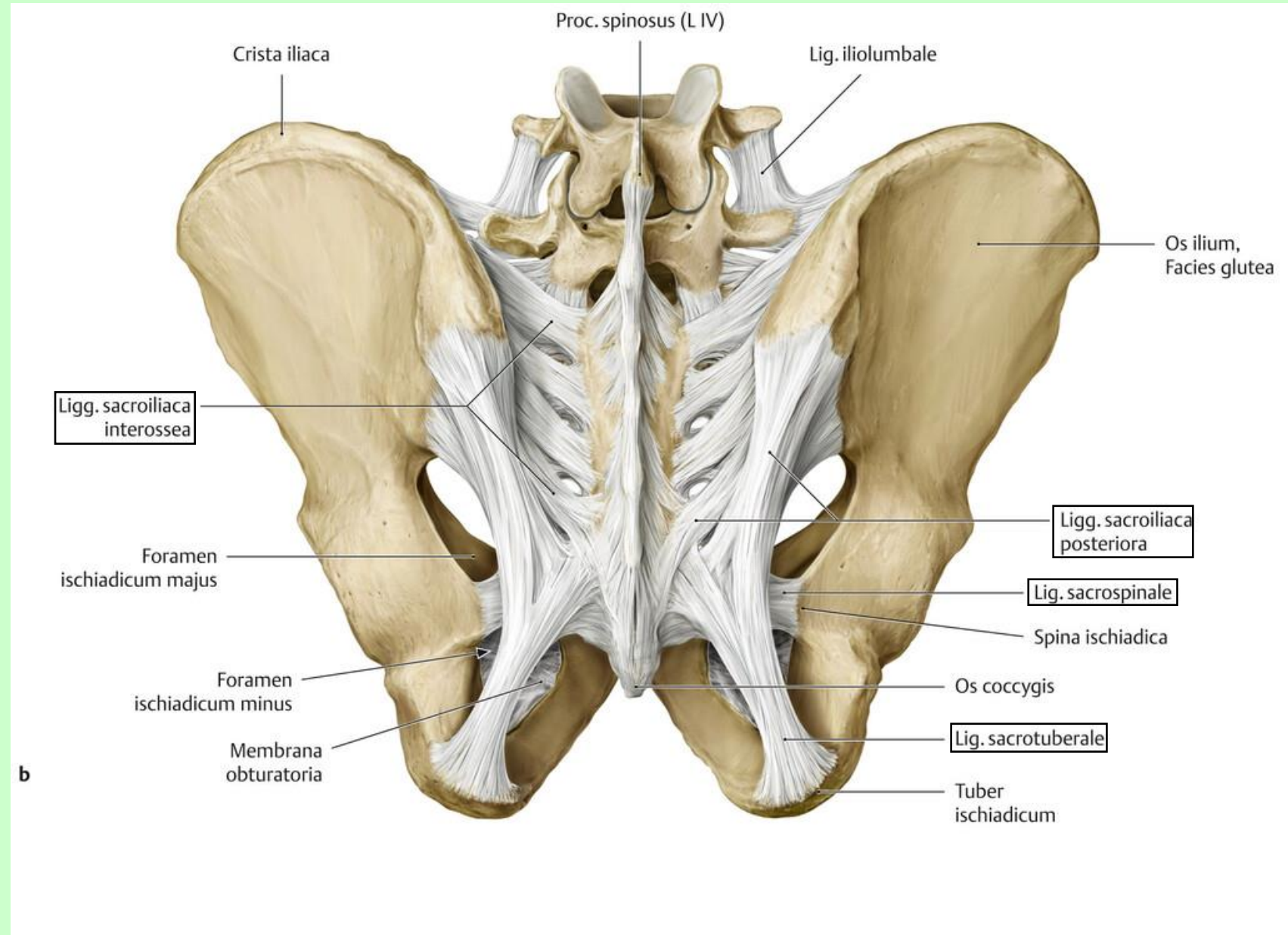


## *articulatio sacroiliaca*



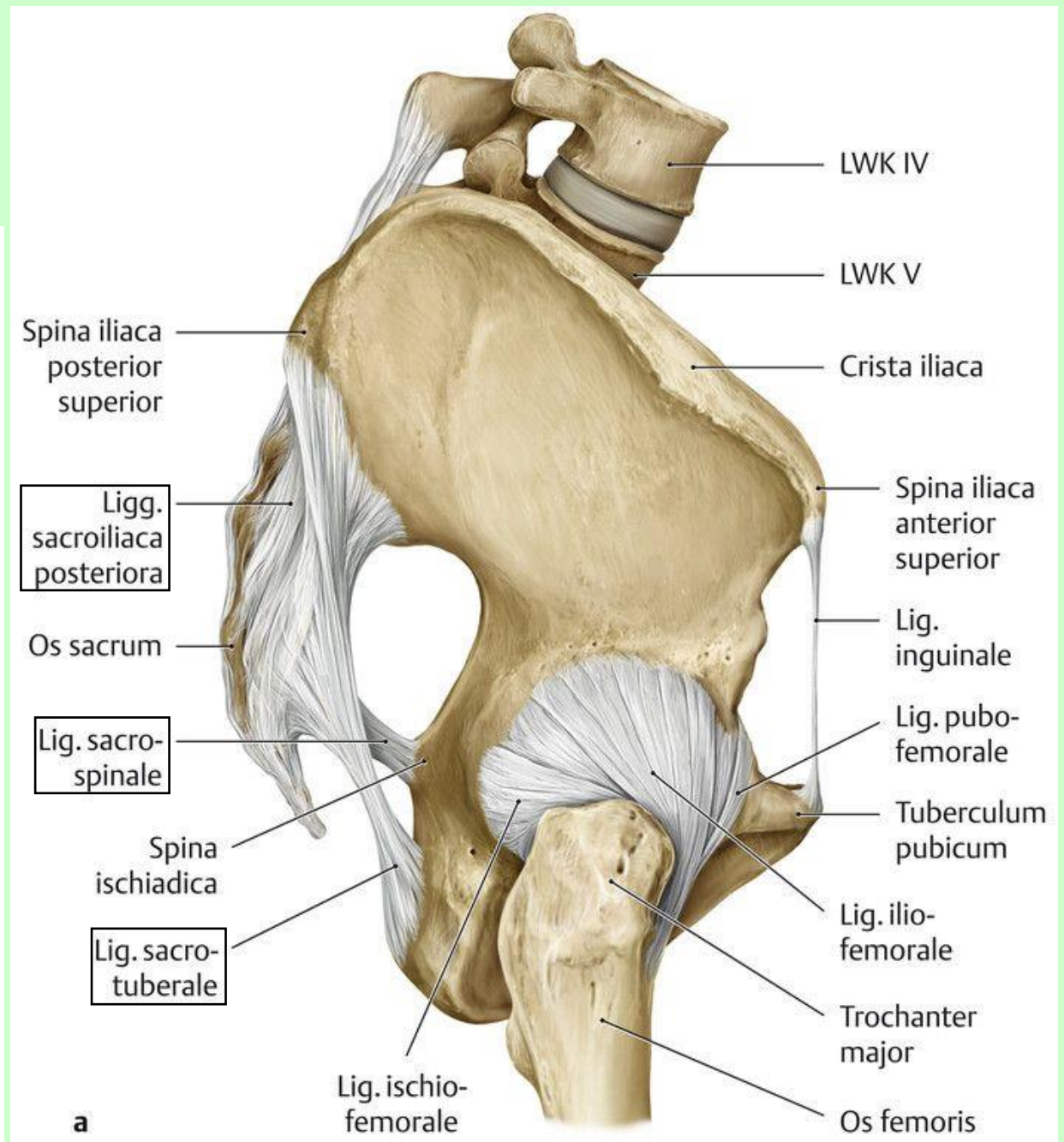
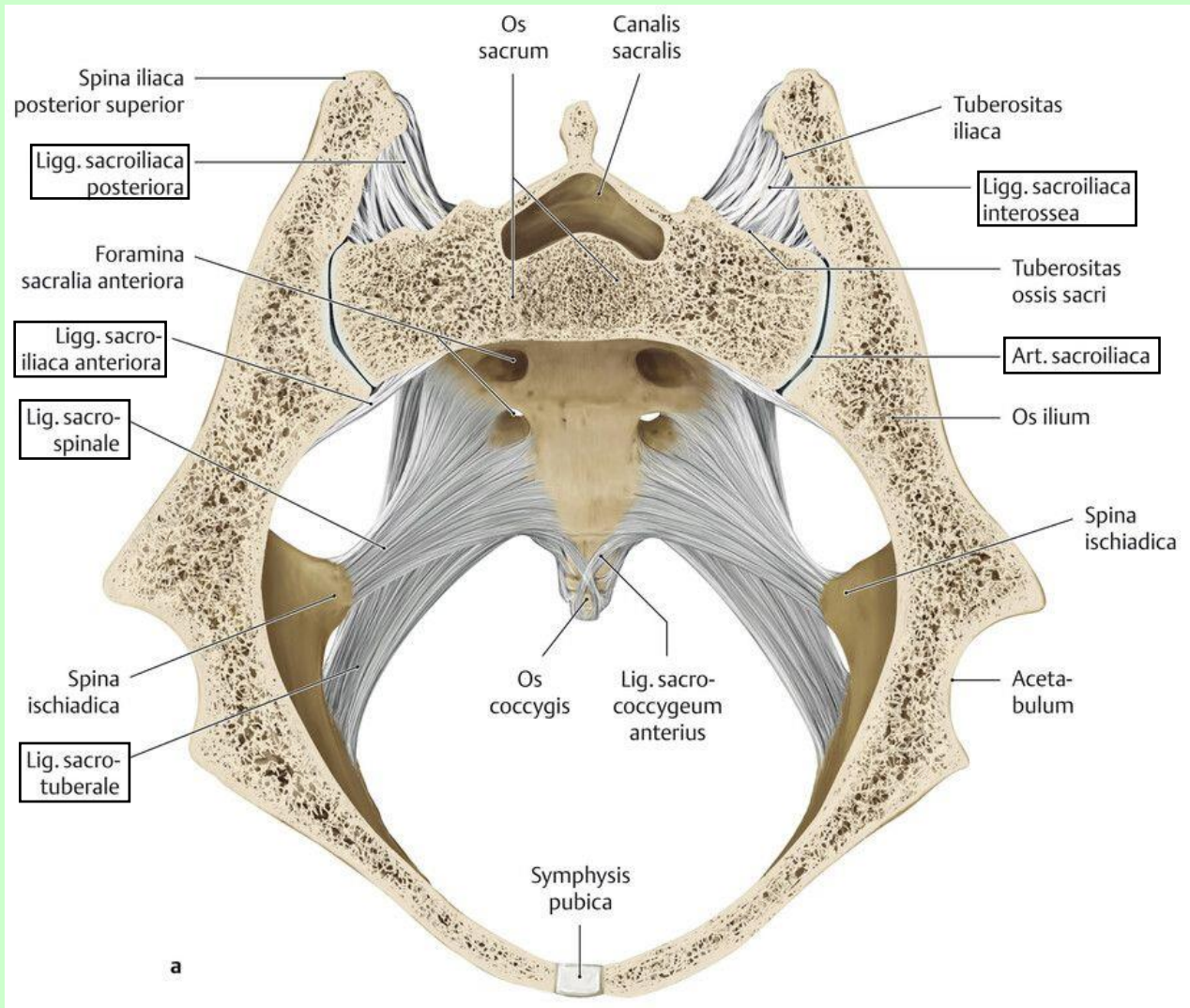
# spoje kostí dolní končetiny

## *articulatio sacroiliaca*



# spoje kostí dolní končetiny

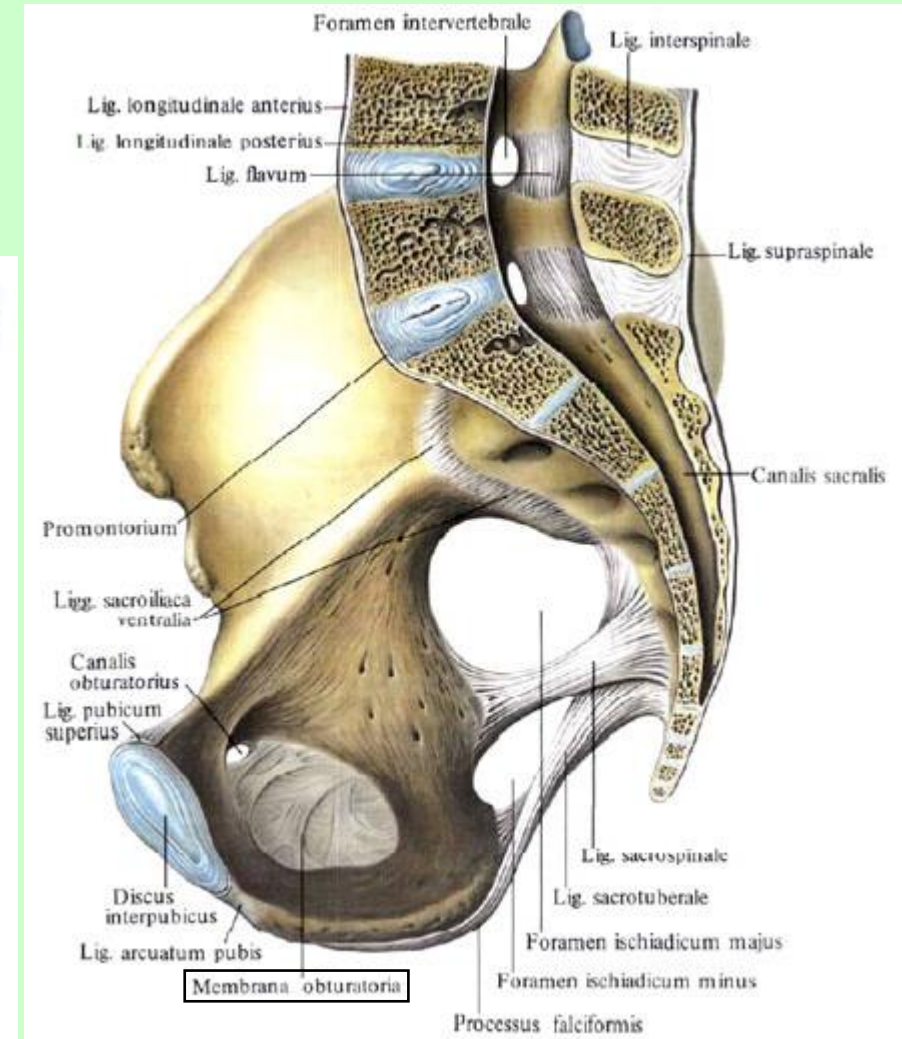
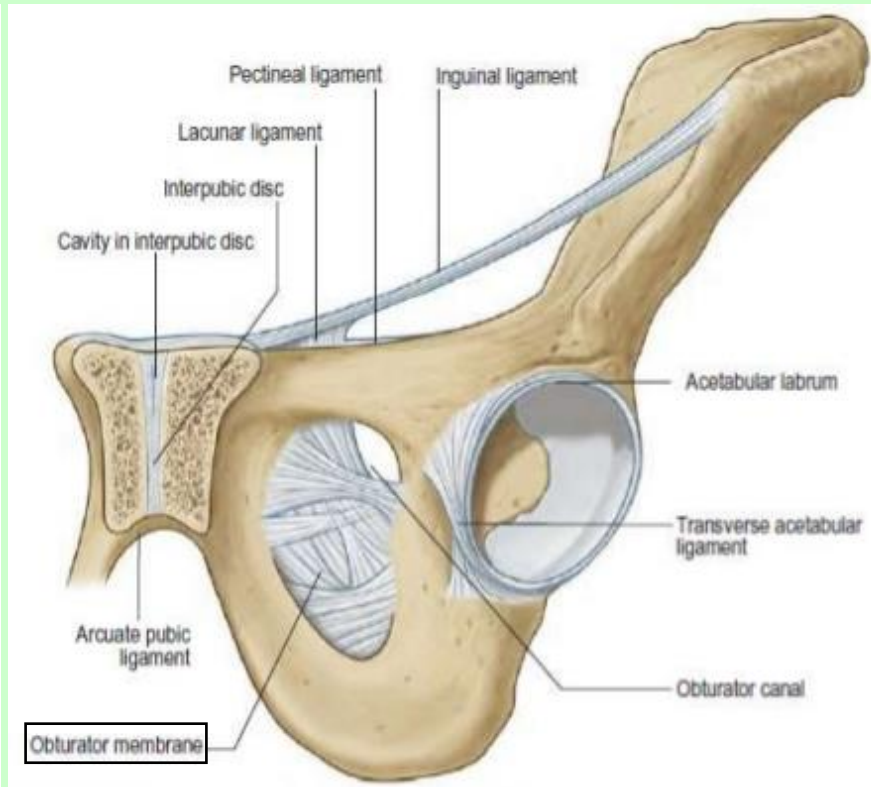
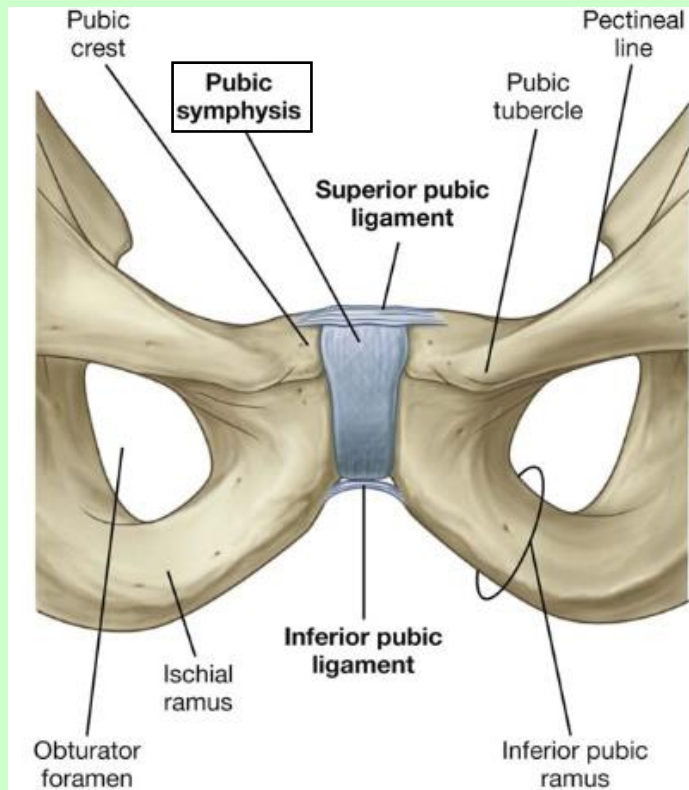
## articulatio sacroiliaca



# spoje kostí dolní končetiny

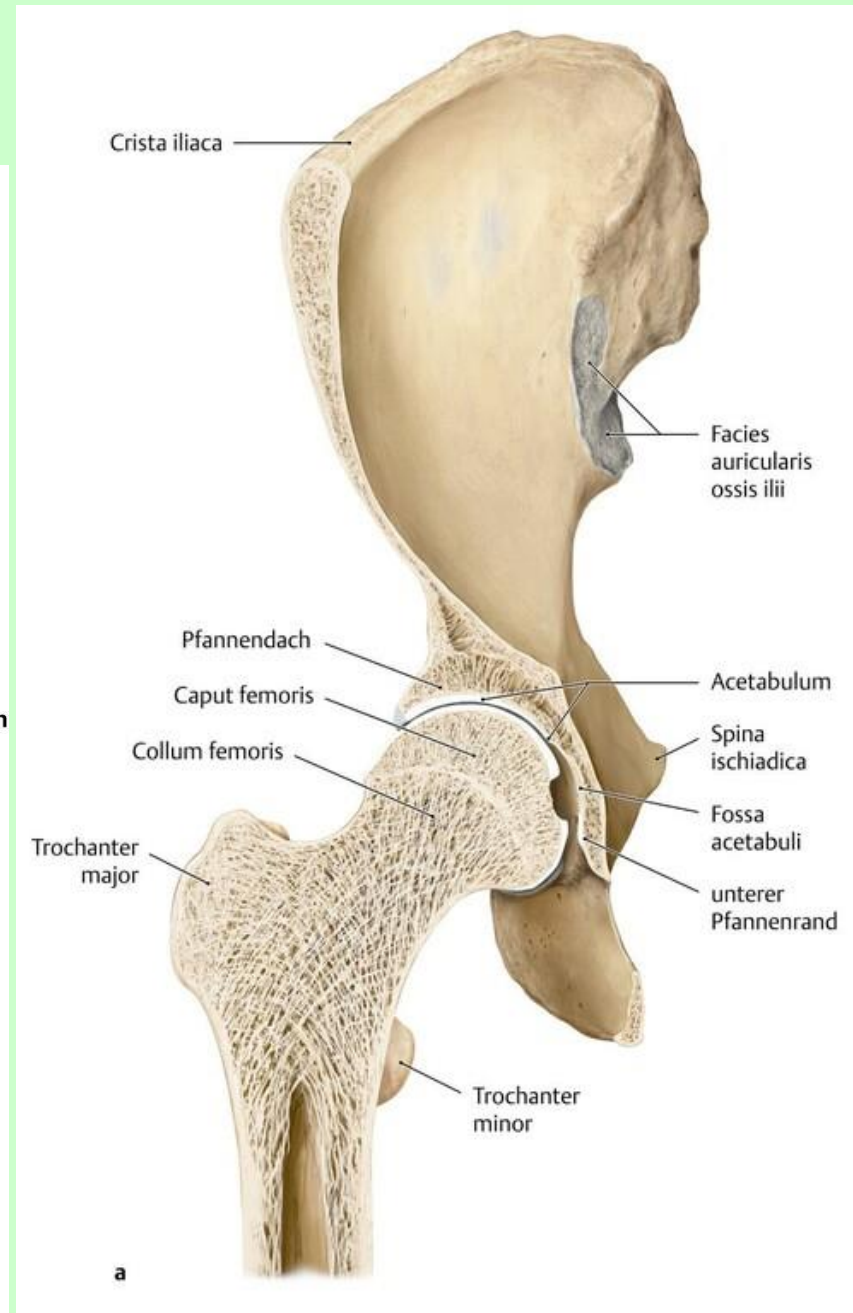
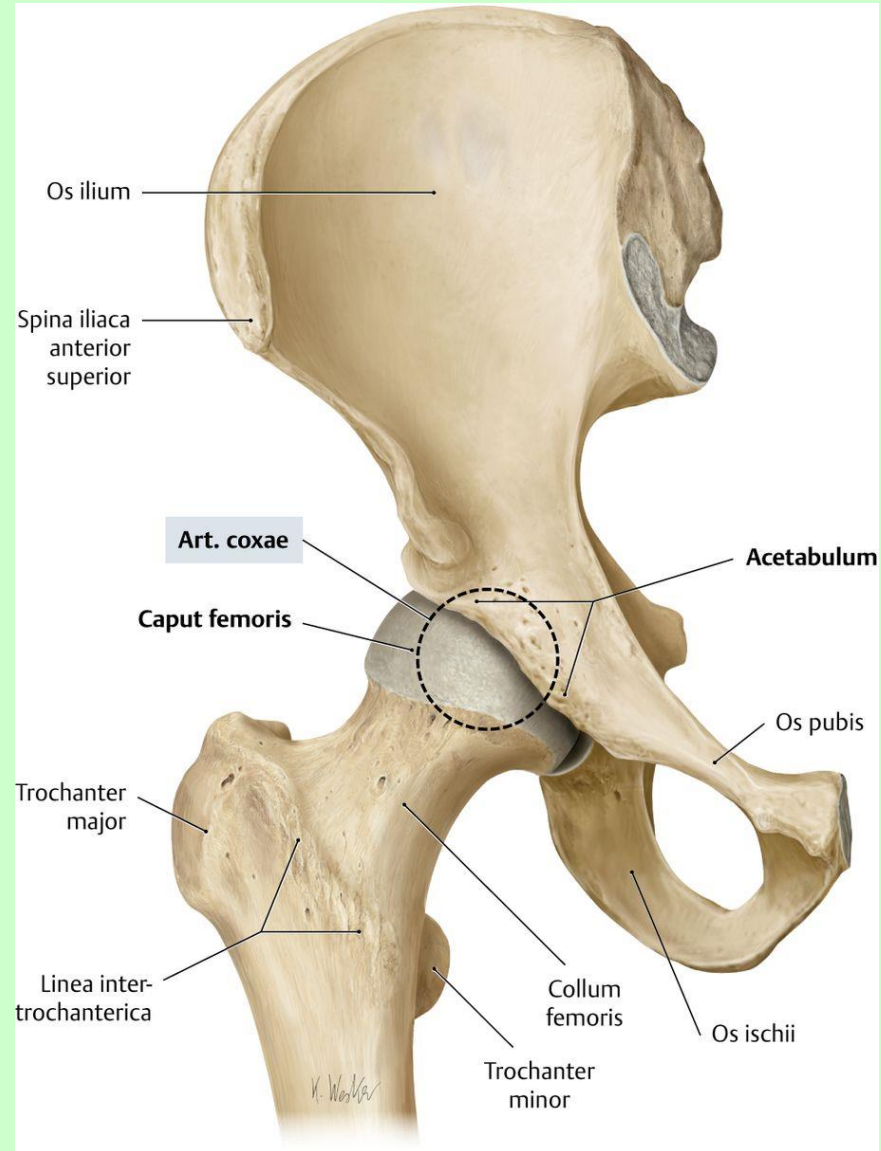
*symphysis pubica*

*membrana obturatoria*



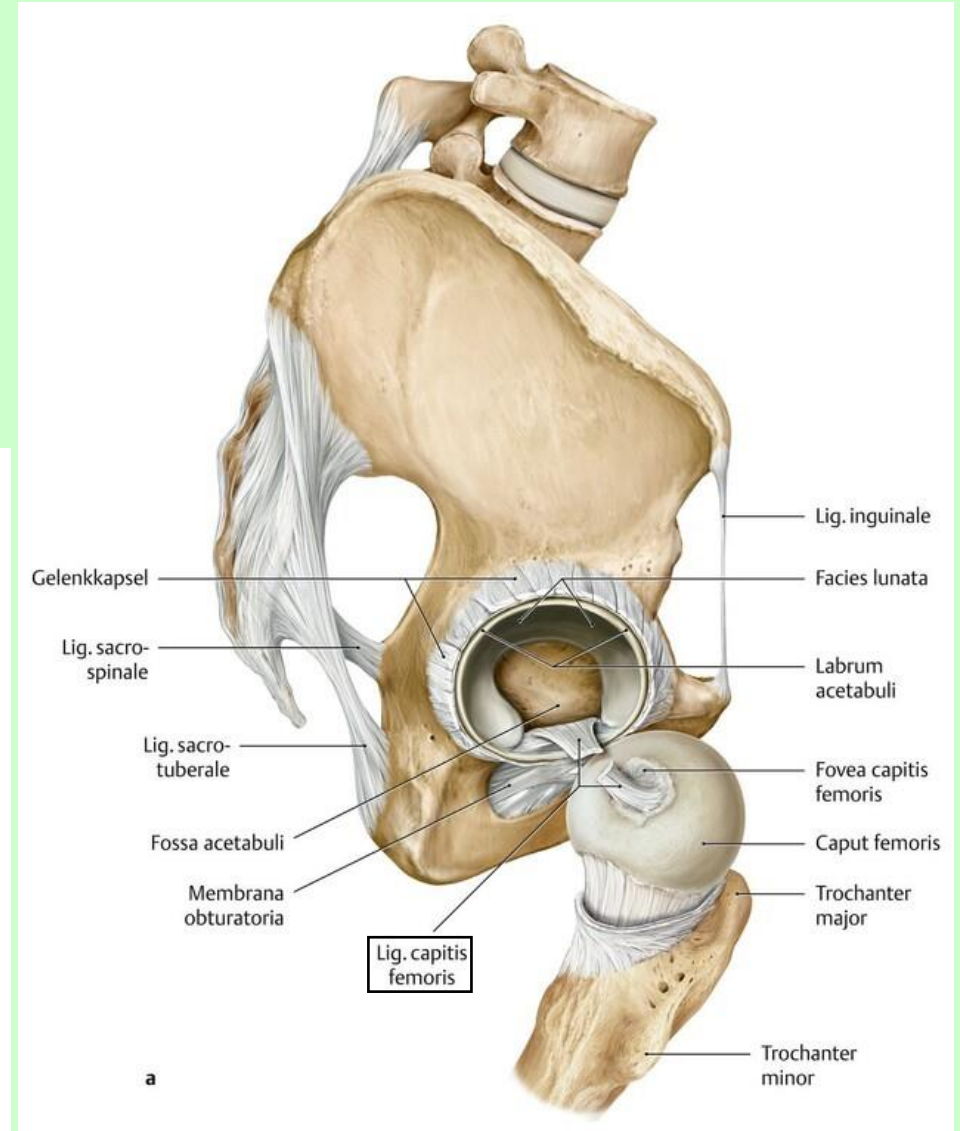
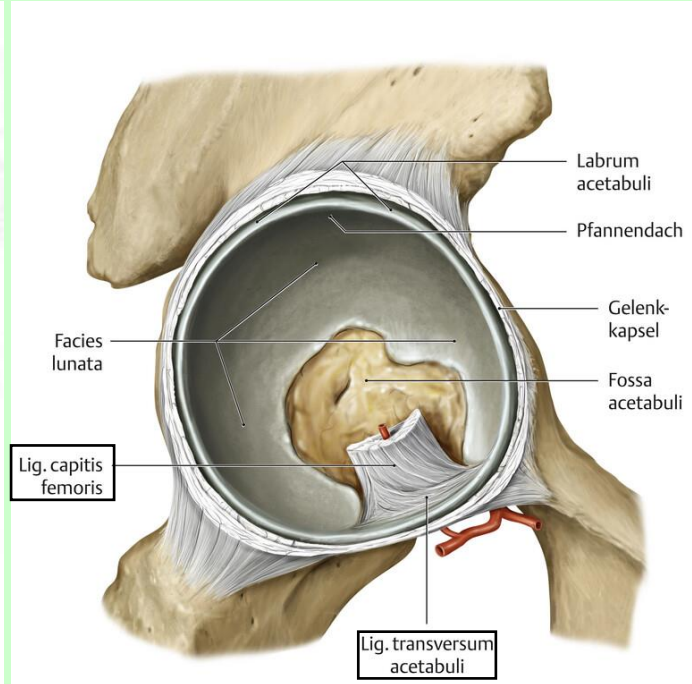
# spoje kostí dolní končetiny

## *articulatio coxae*



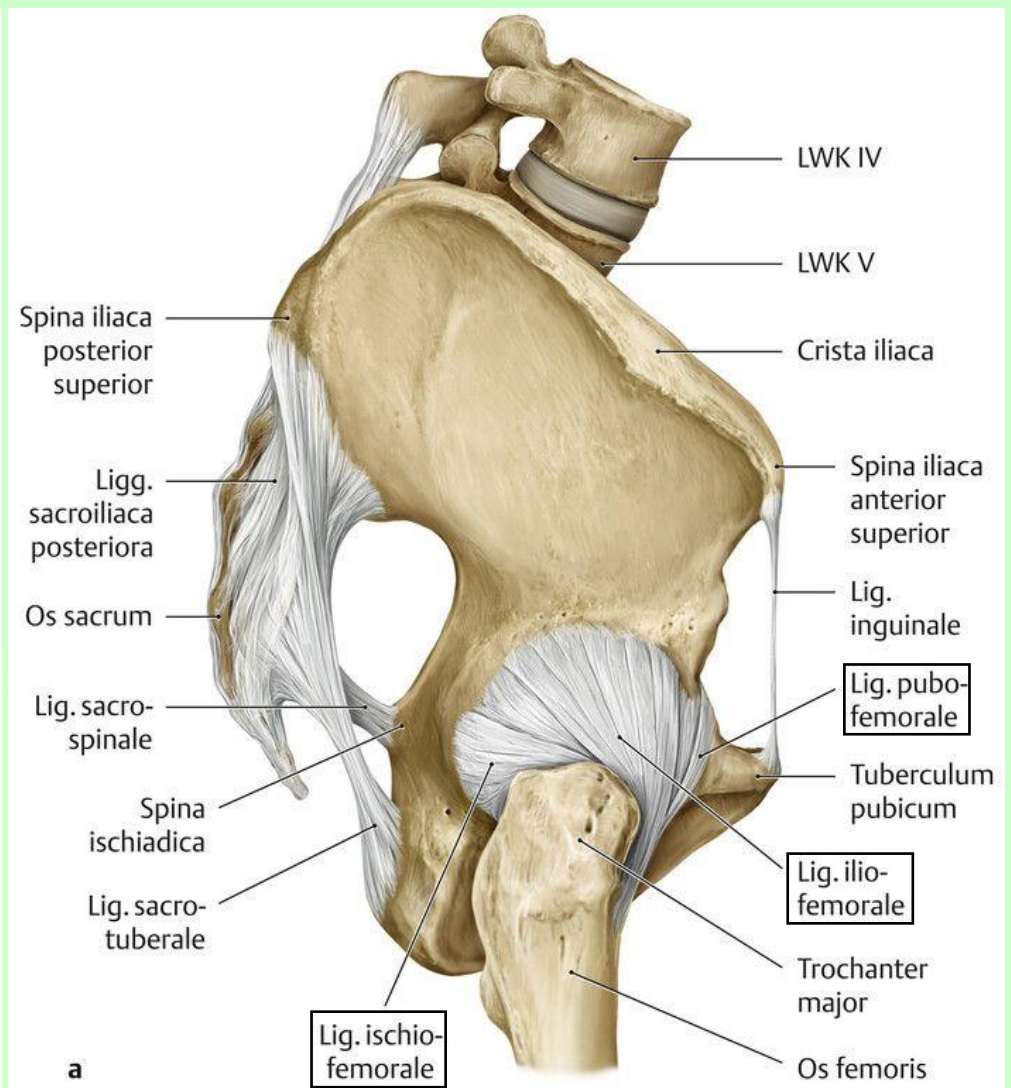
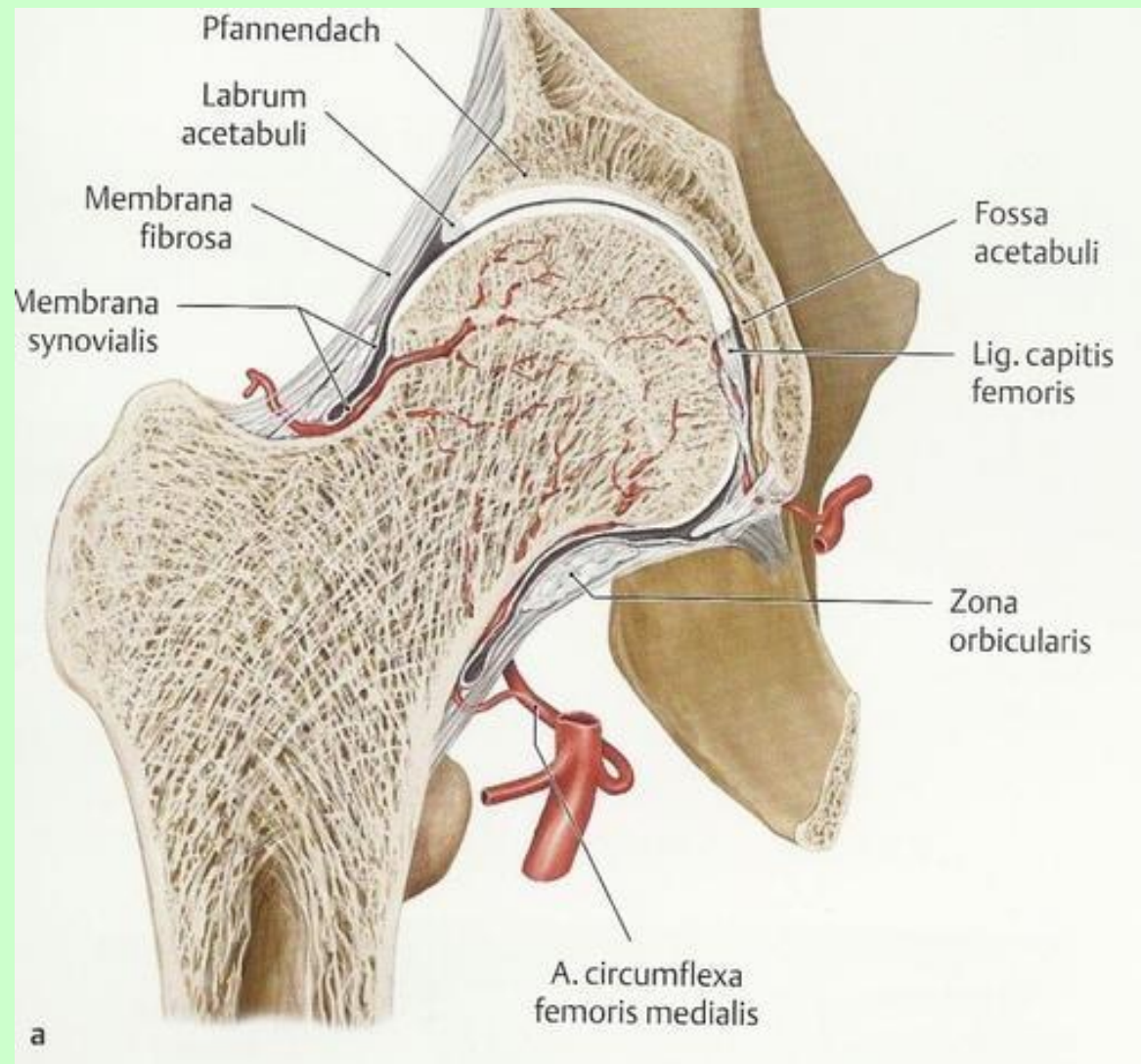
# spoje kostí dolní končetiny

*articulatio coxae*



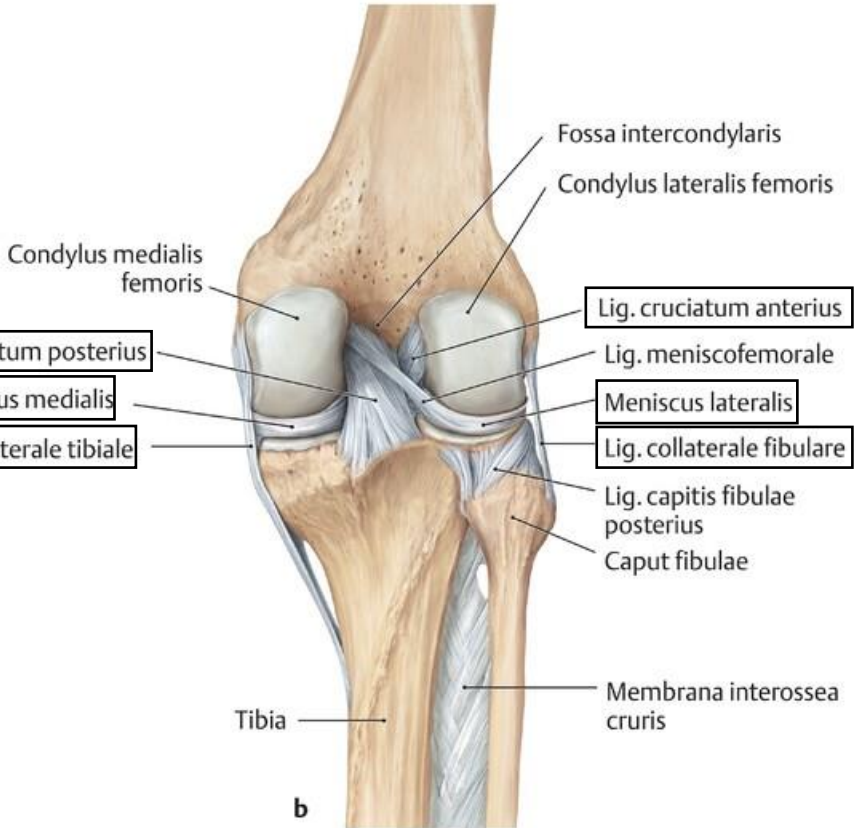
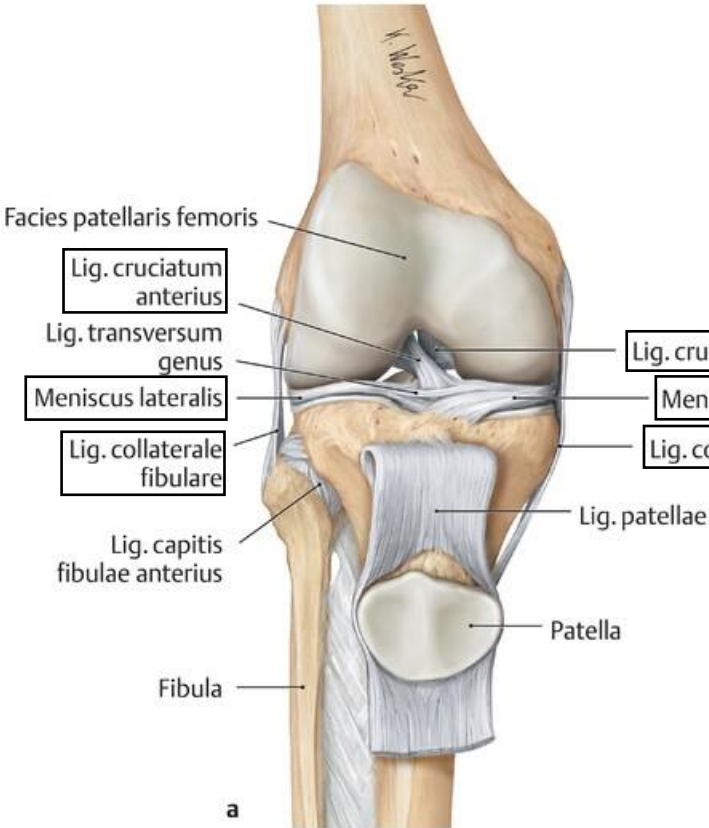
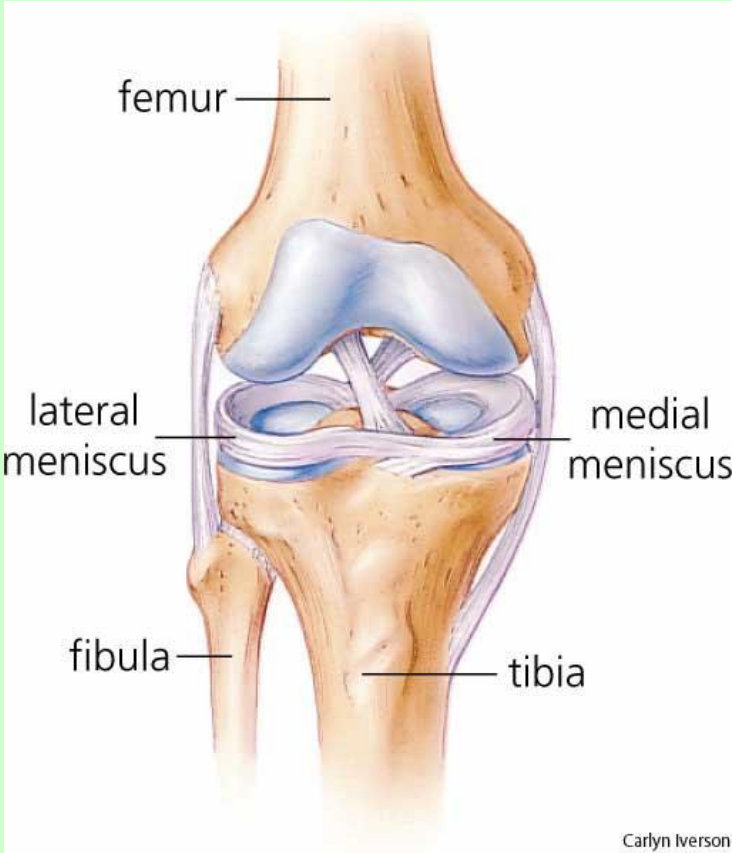
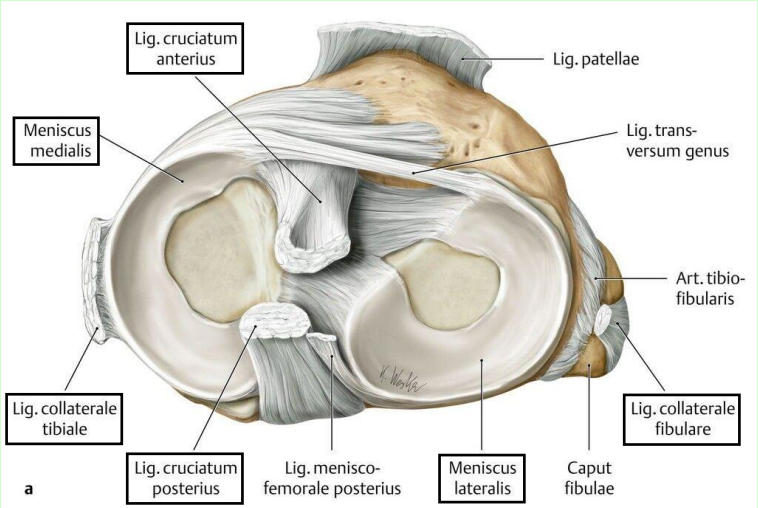
# spoje kostí dolní končetiny

## articulatio coxae



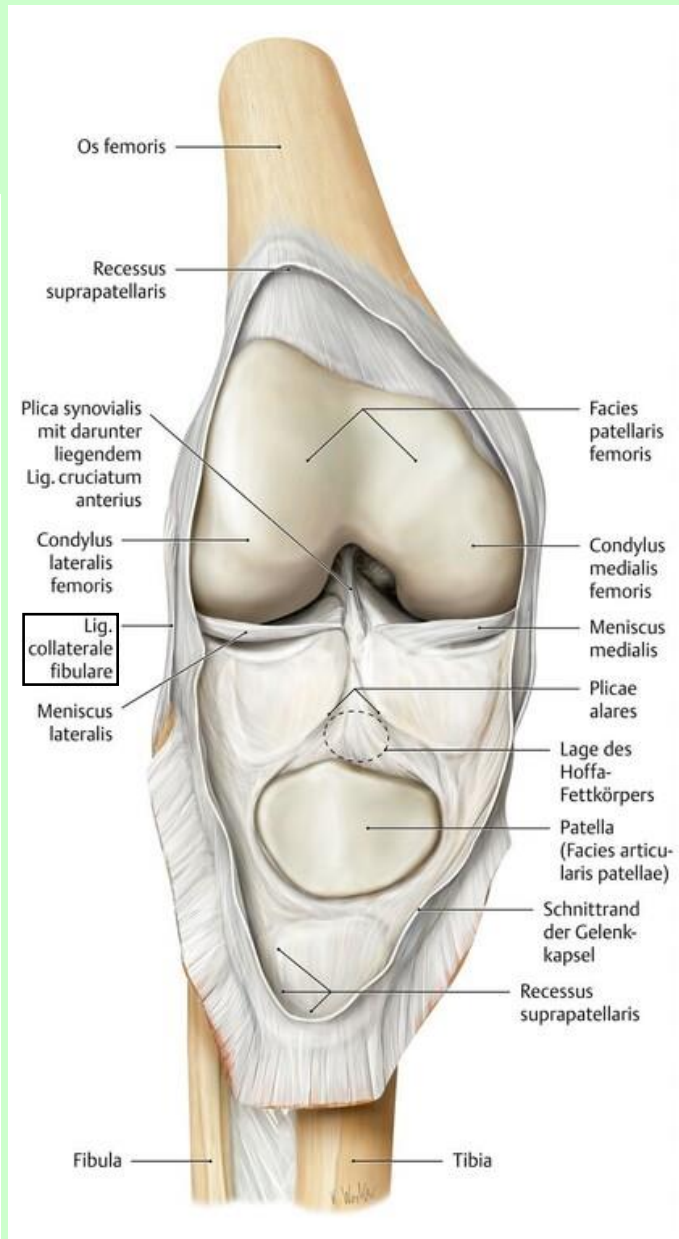
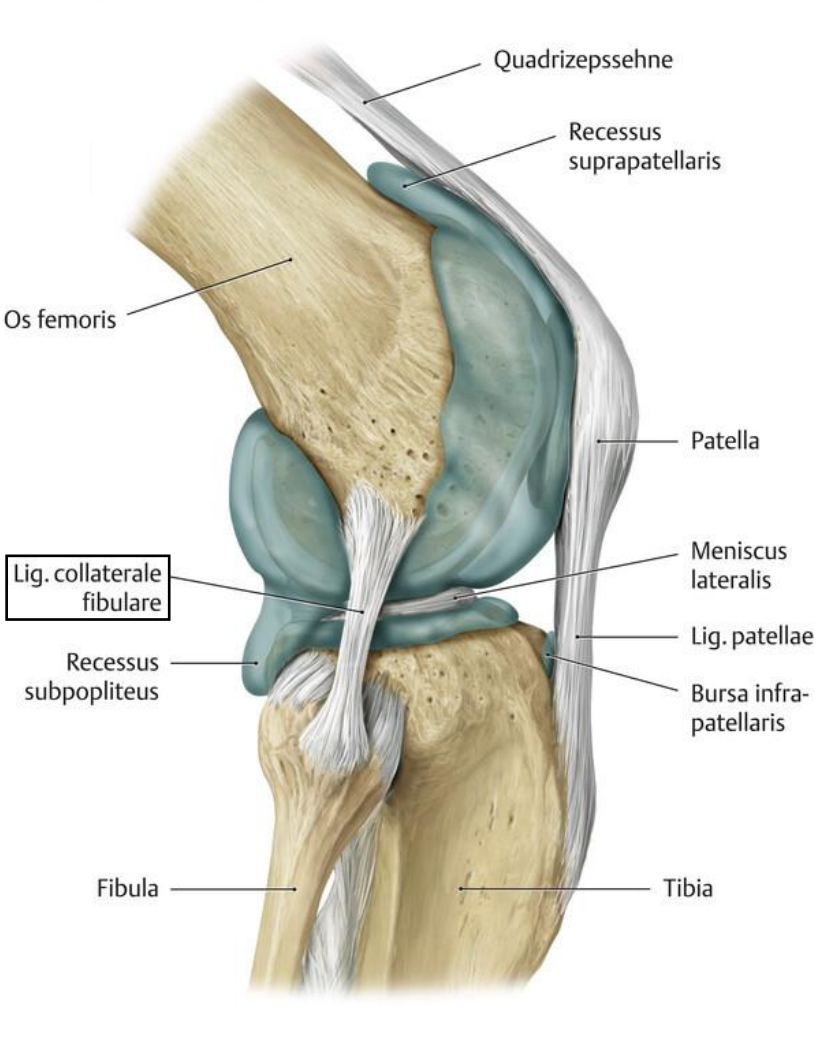
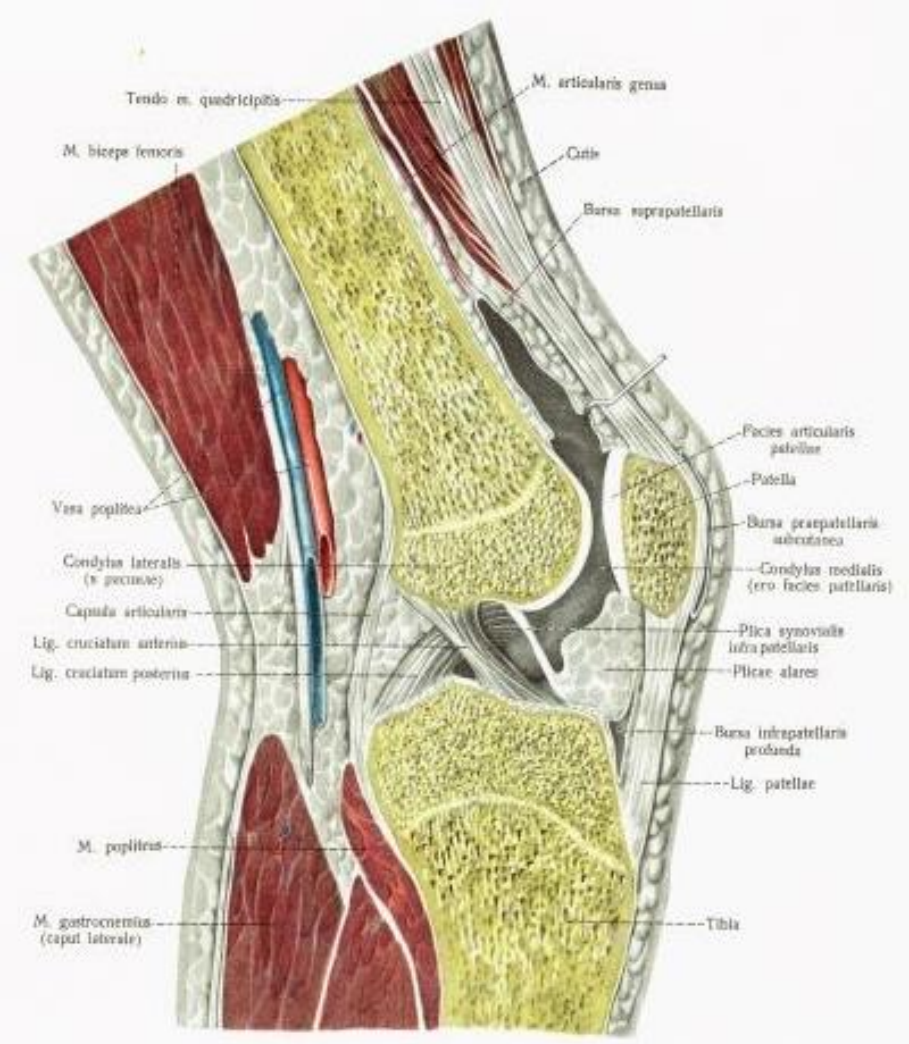
# spoje kostí dolní končetiny

## articulatio genus



# spoje kostí dolní končetiny

## articulatio genus

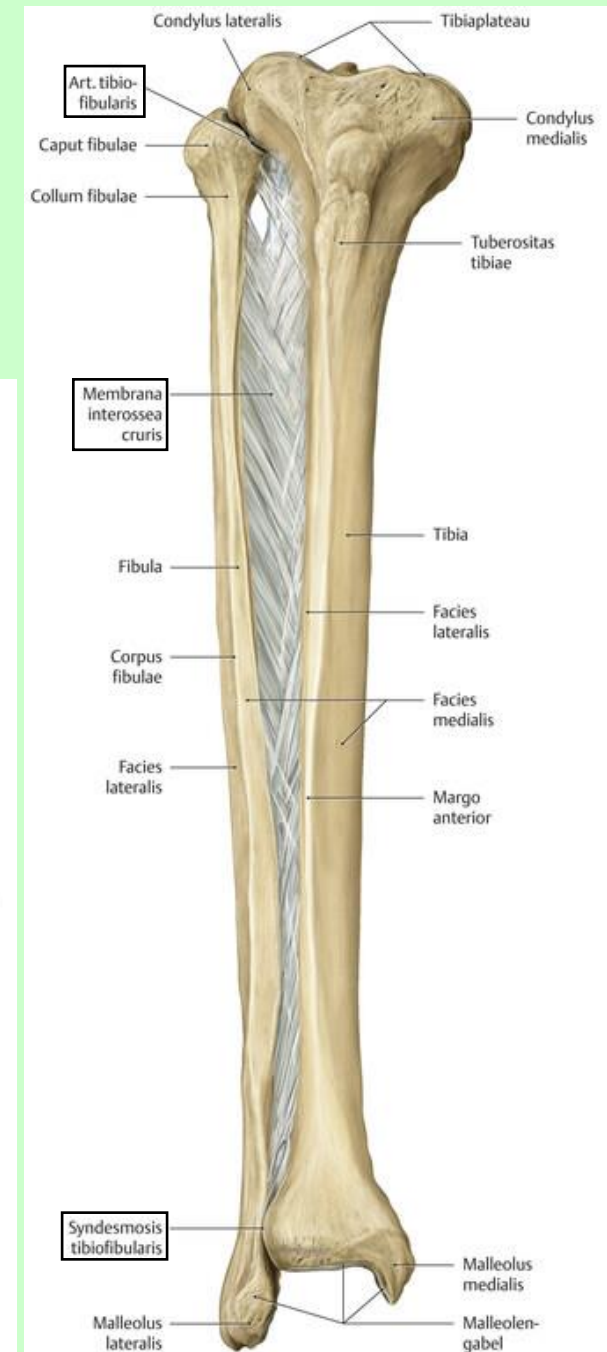
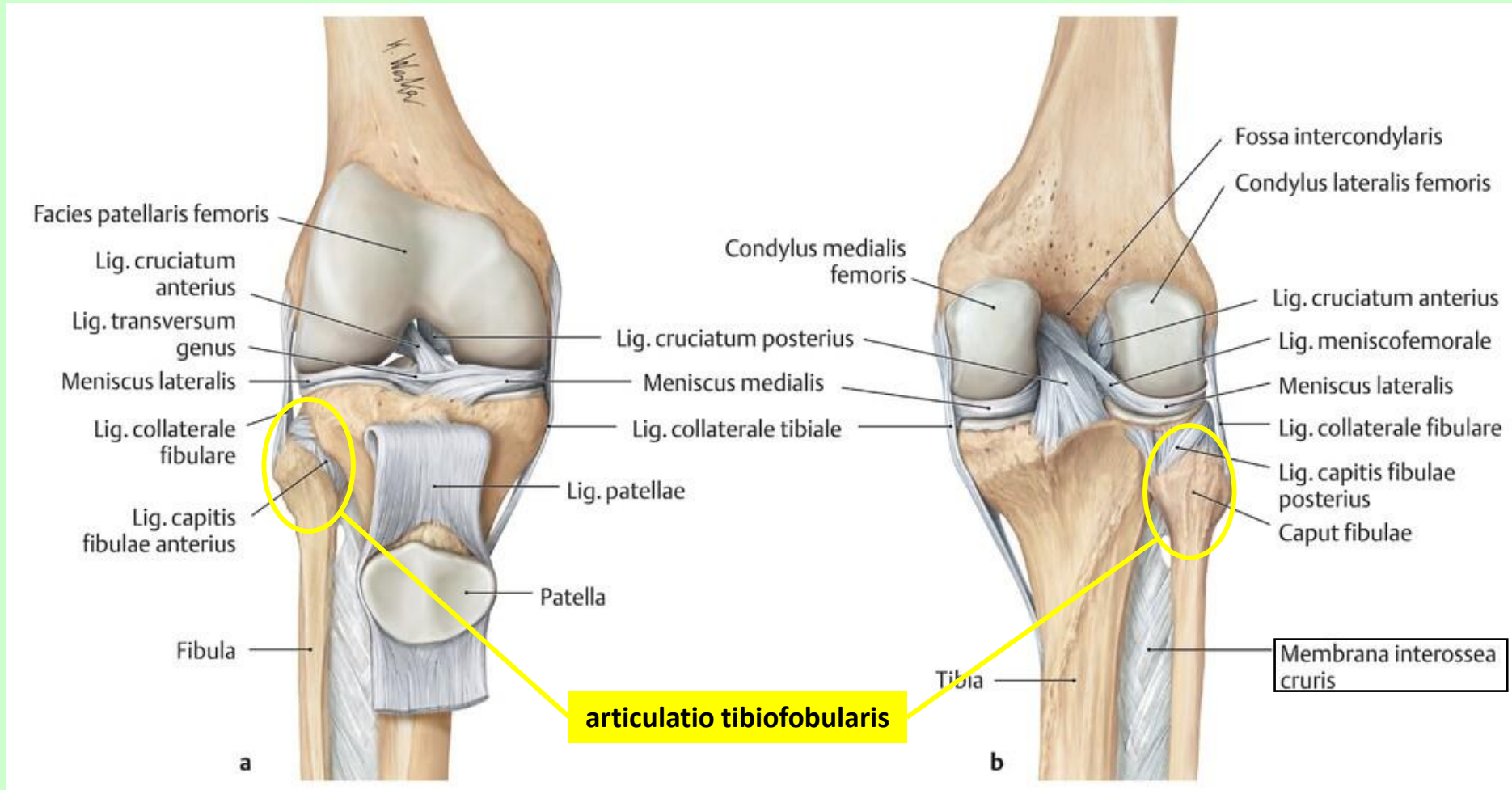


# spoje kostí dolní končetiny

*membrana interossea cruris*

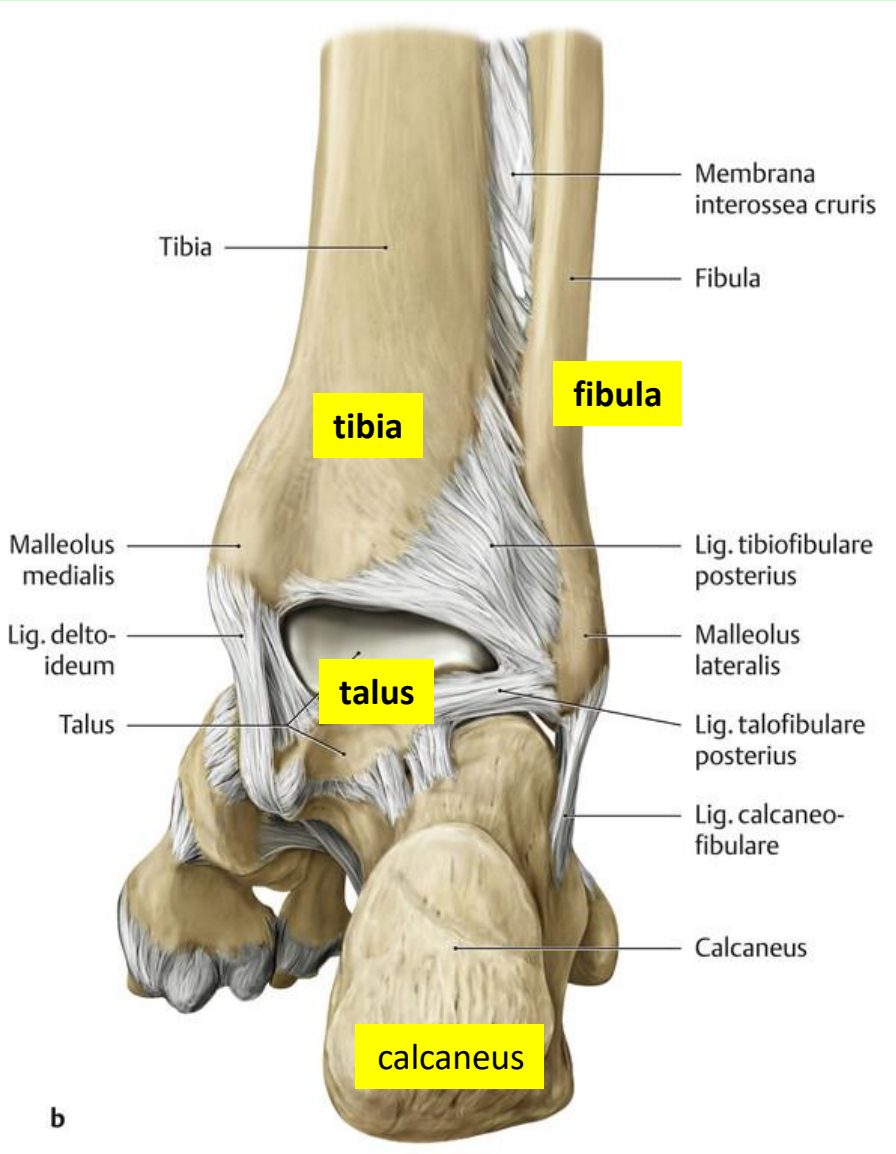
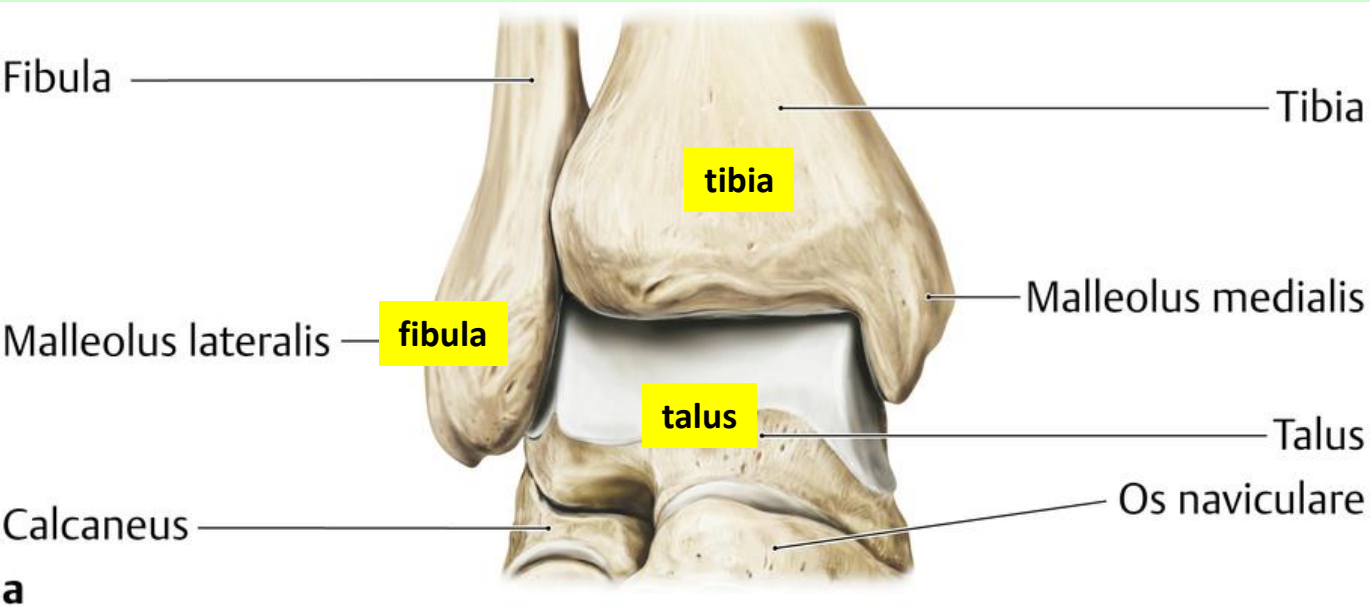
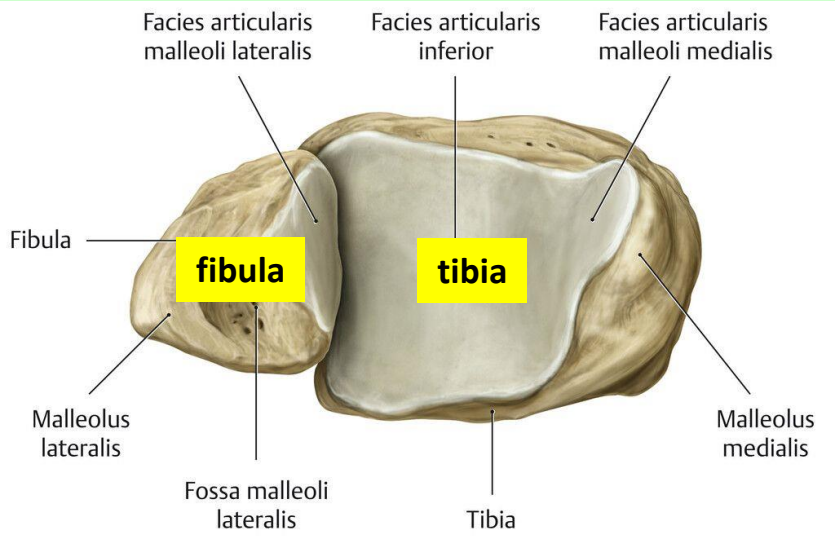
*articulatio tibiofibularis*

*syndesmosis tibiofibularis*



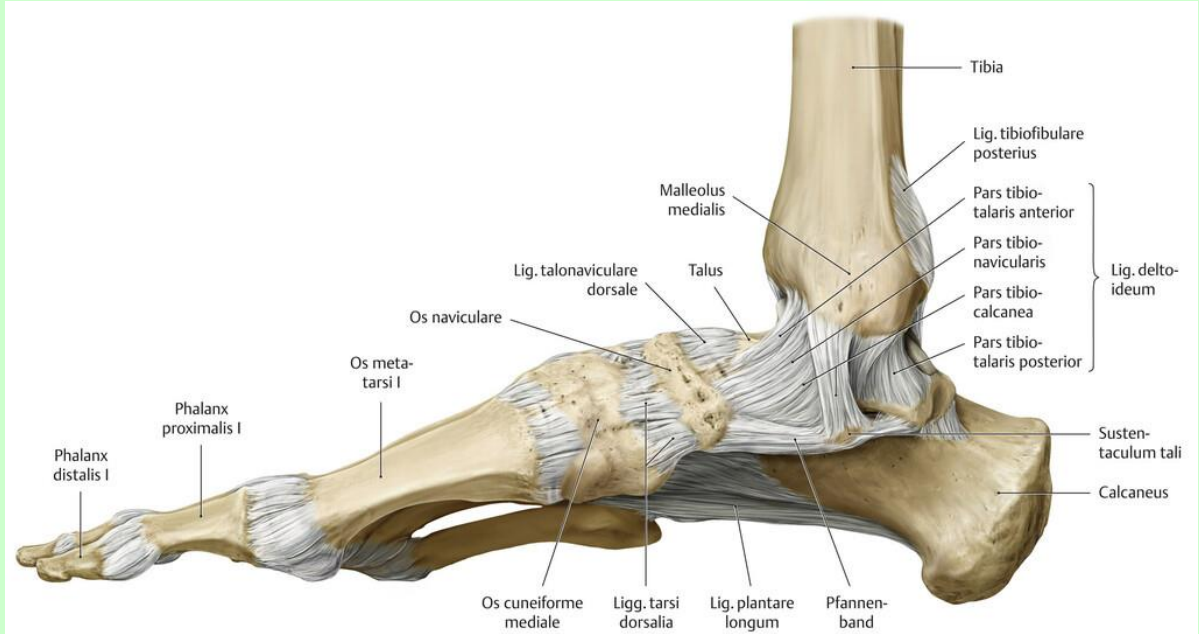
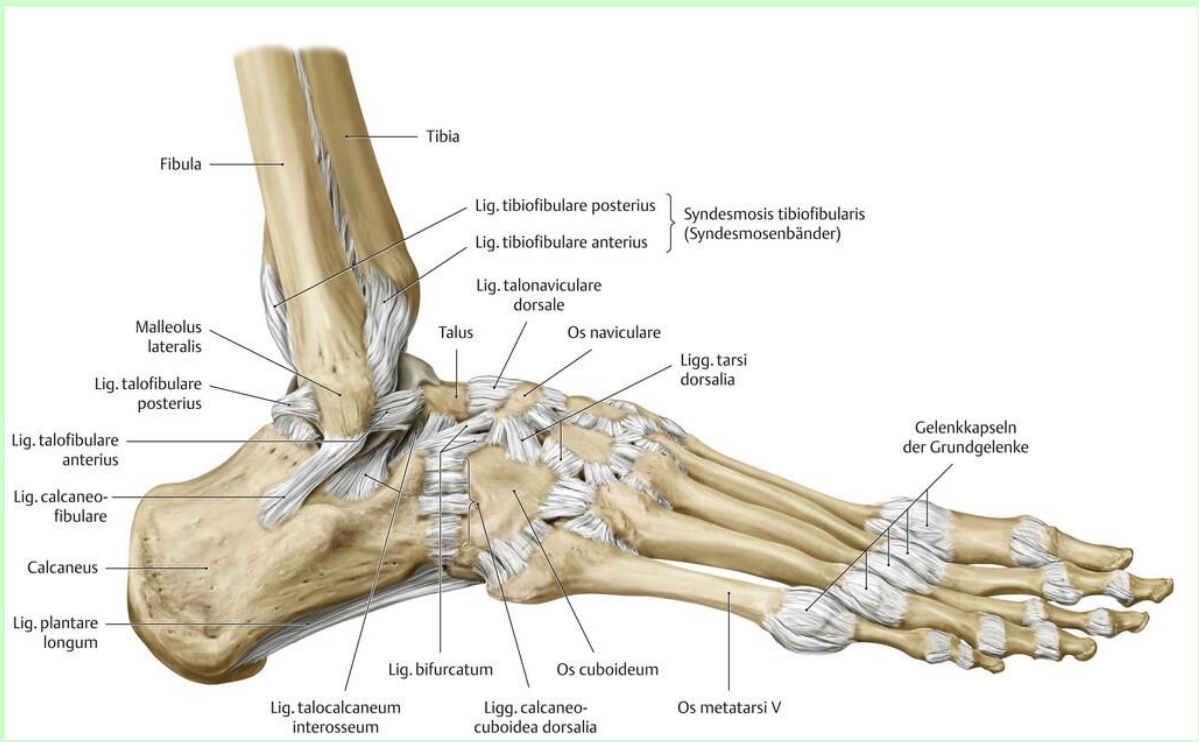
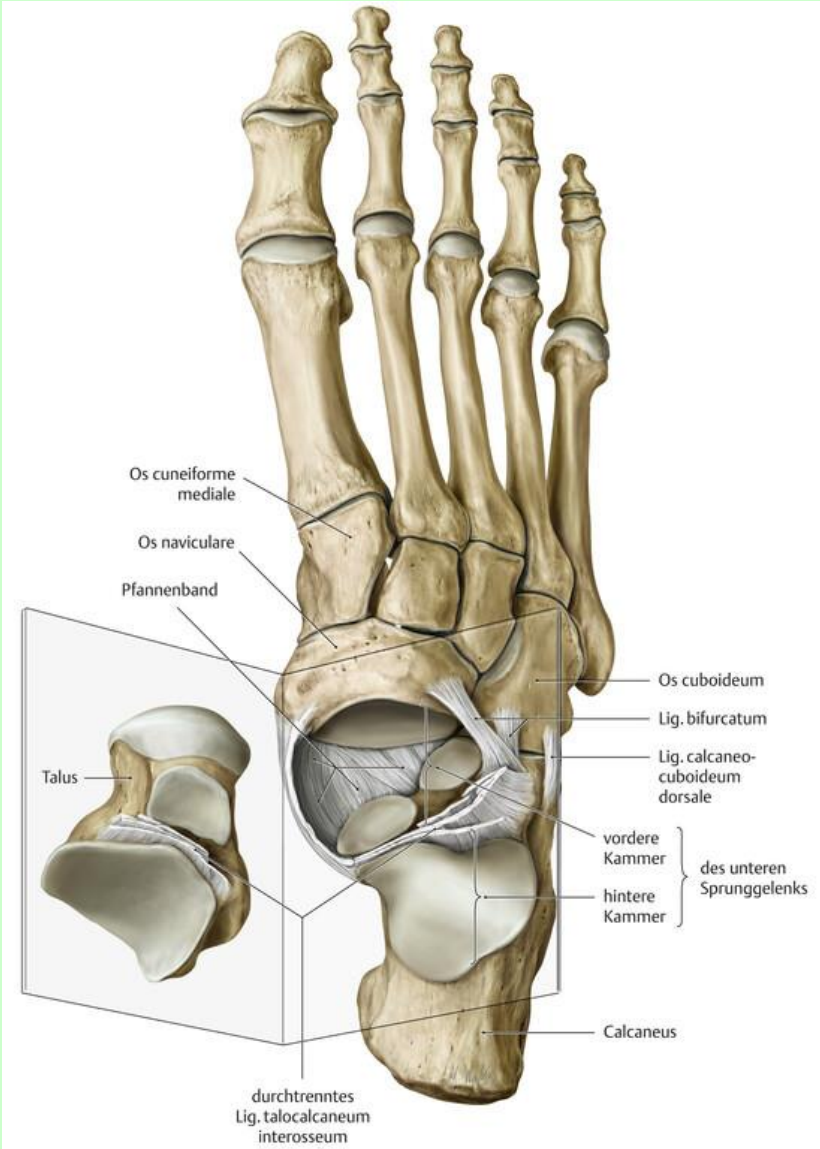
# spoje kostí dolní končetiny

## articulatio talocruralis



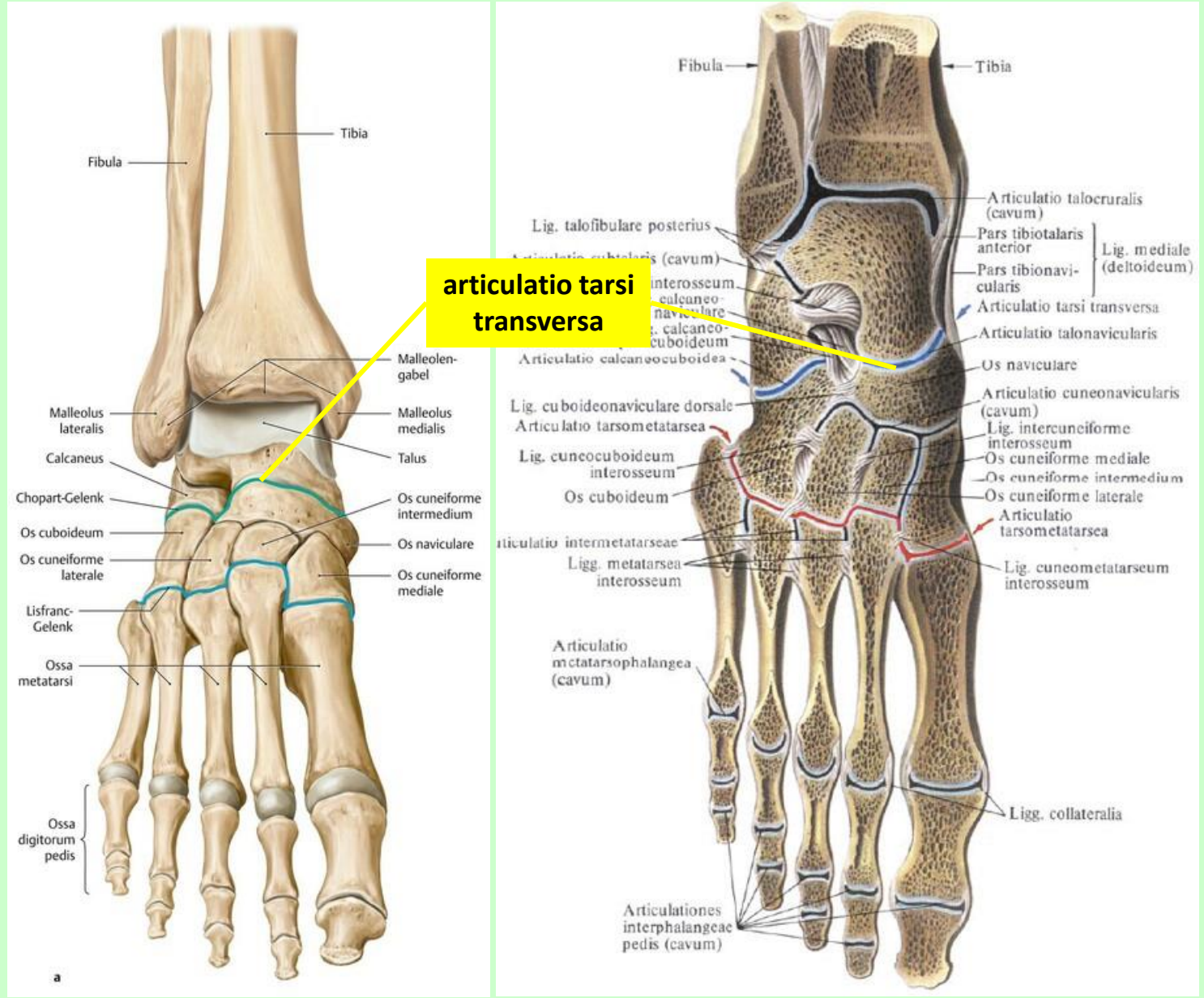
# spoje kostí dolní končetiny

## articulationes pedis



# spoje kostí dolní končetiny

## articulatio tarsi transversa



# spoje kostí dolní končetiny

## *ligamentum plantare longum*

