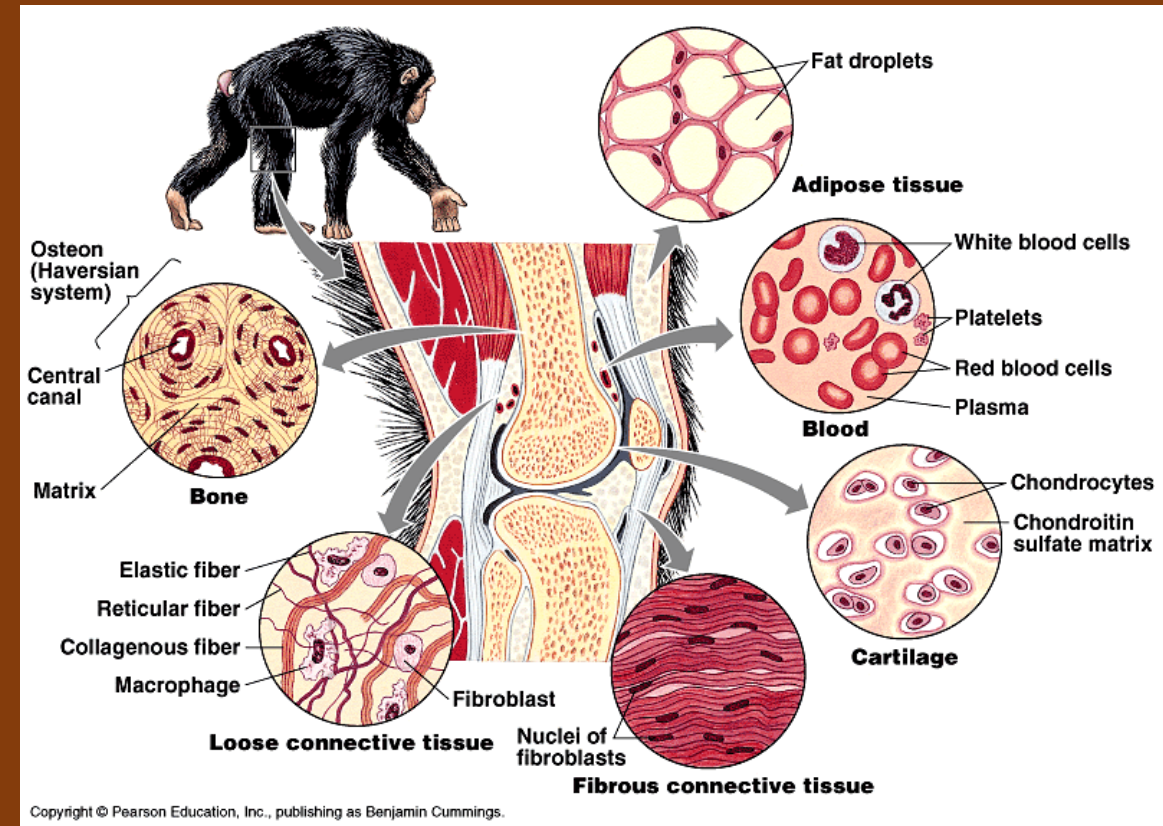


# TKÁNĚ POJIVOVÉ A OPĚRNÉ pojiva



# TKÁNĚ POJIVOVÉ A OPĚRNÉ

## mezibuněčná hmota

# mezibuněčná hmota

## vláknitá (fibrilární)

kolagenní vlákna

elastická vlákna

retikulární vlákna

## beztvará (amorfní)

voda

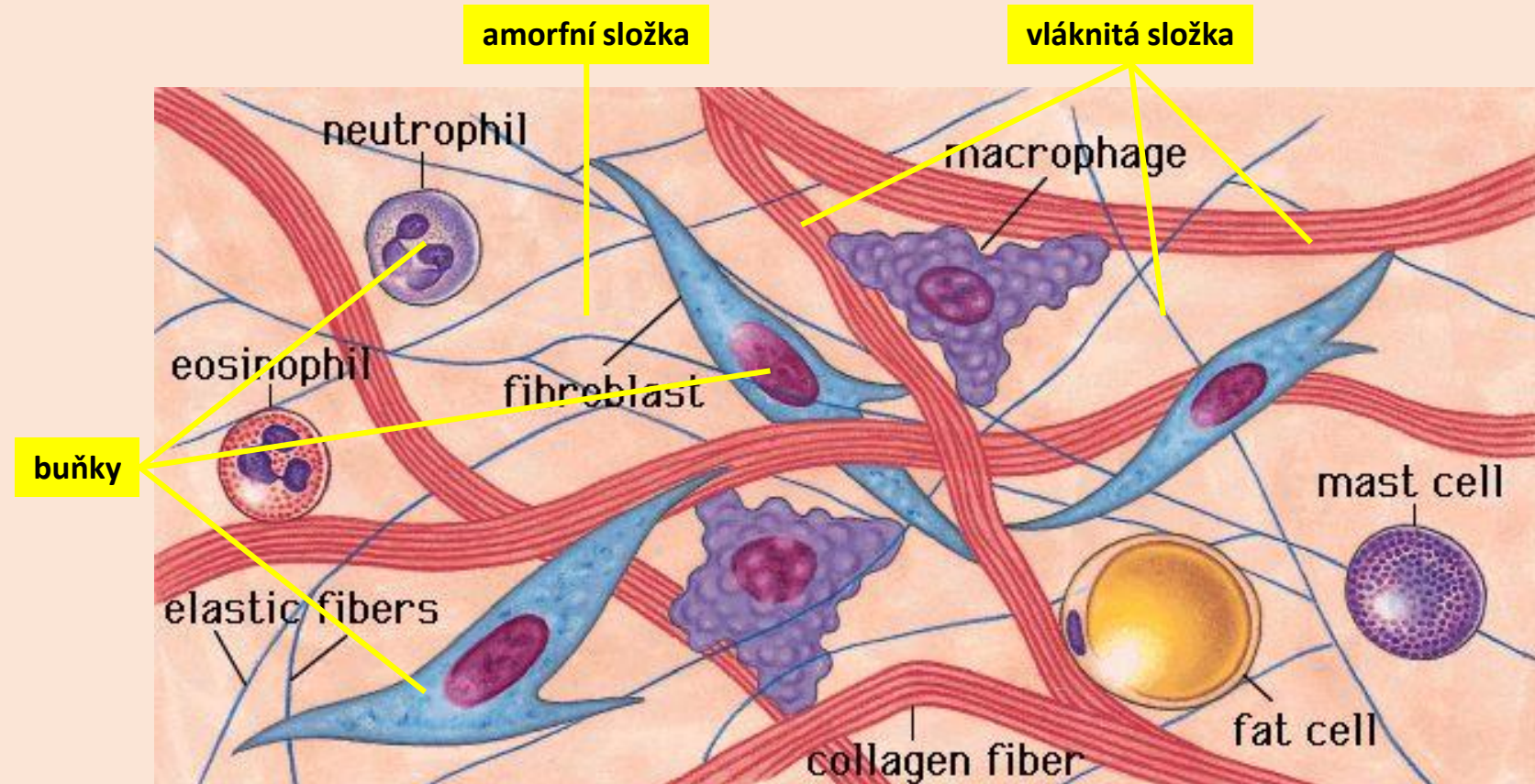
anorganické látky

organické látky

glykoproteiny

proteoglykany

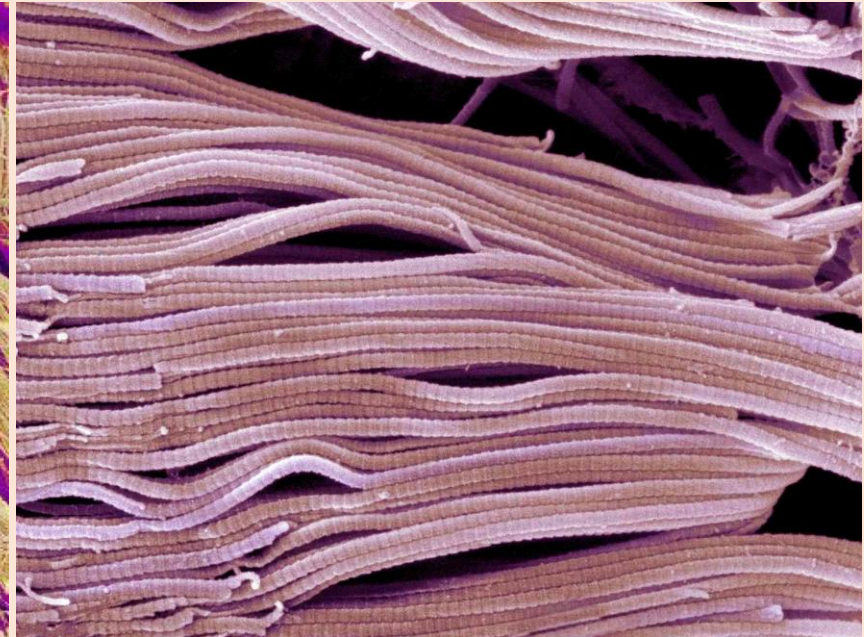
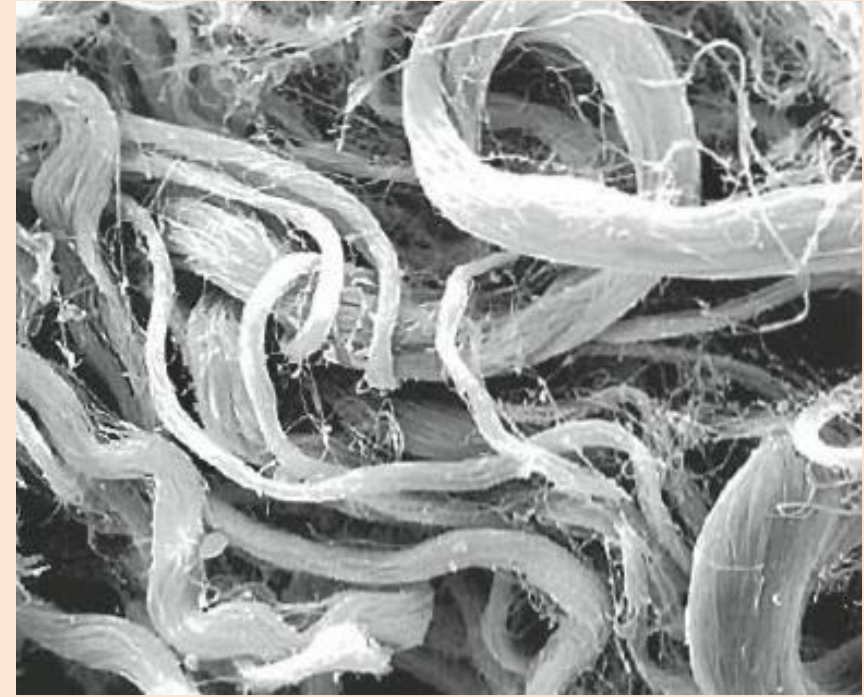
kyselina hyaluronová





# mezibuněčná hmota

kolagenní vlákna



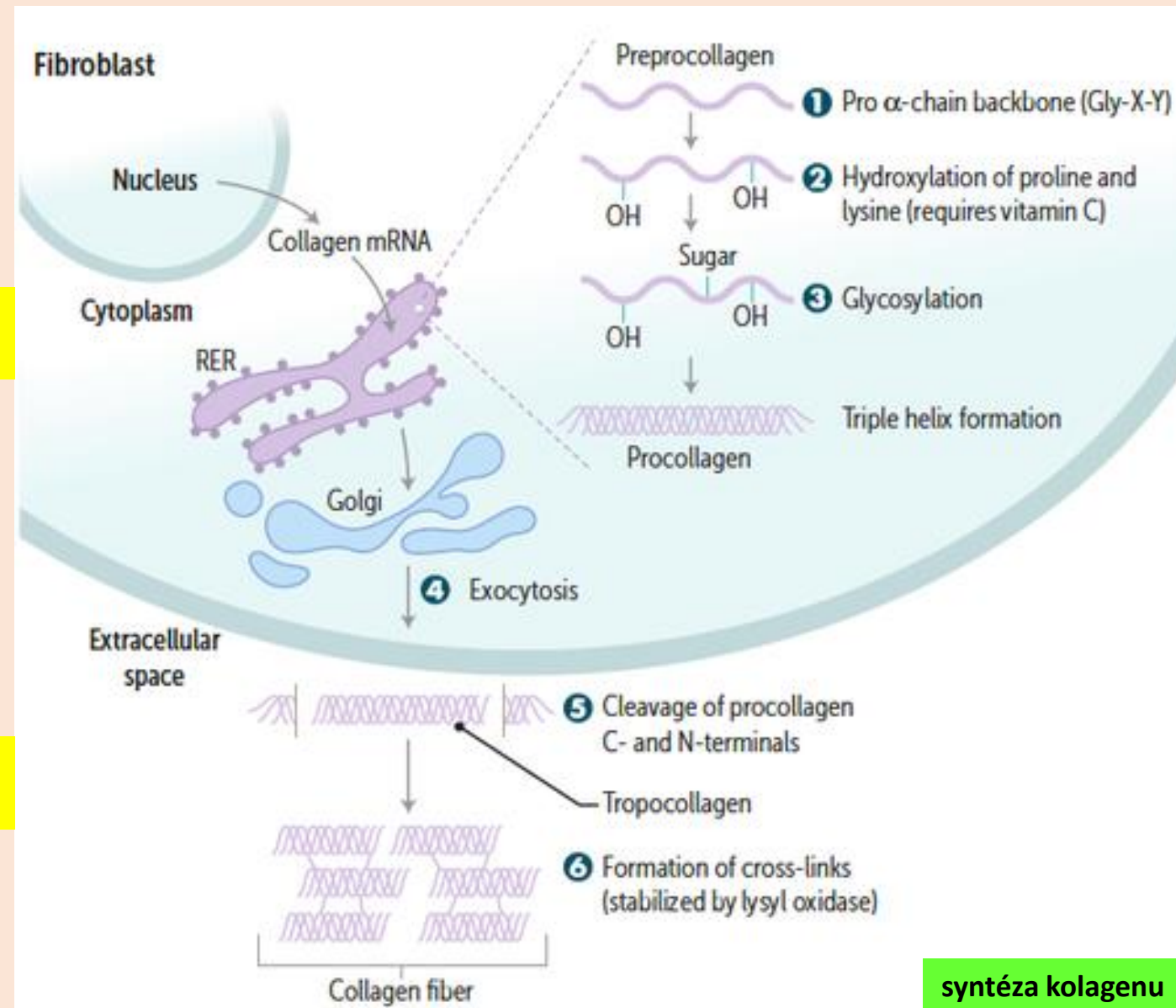


# mezibuněčná hmota

## kolagenní vlákna

intracelulární  
fáze

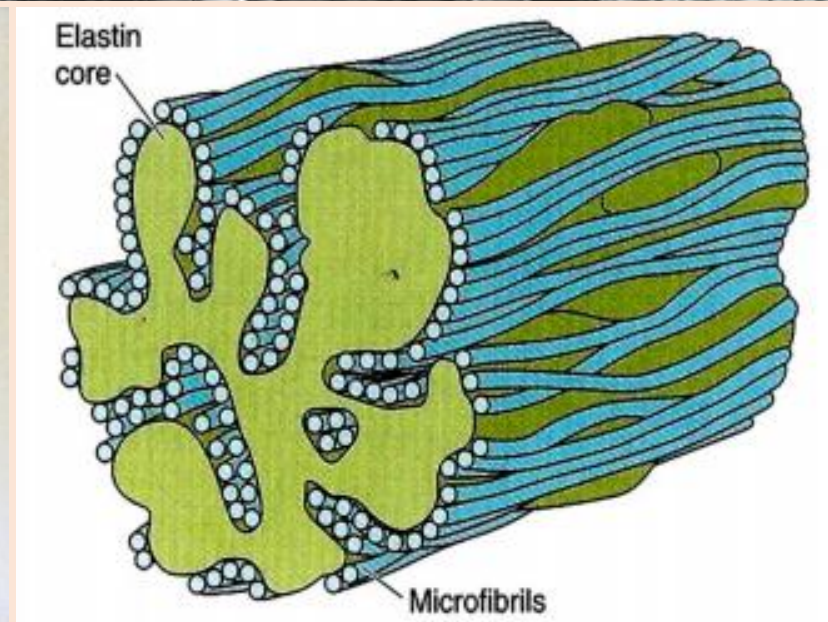
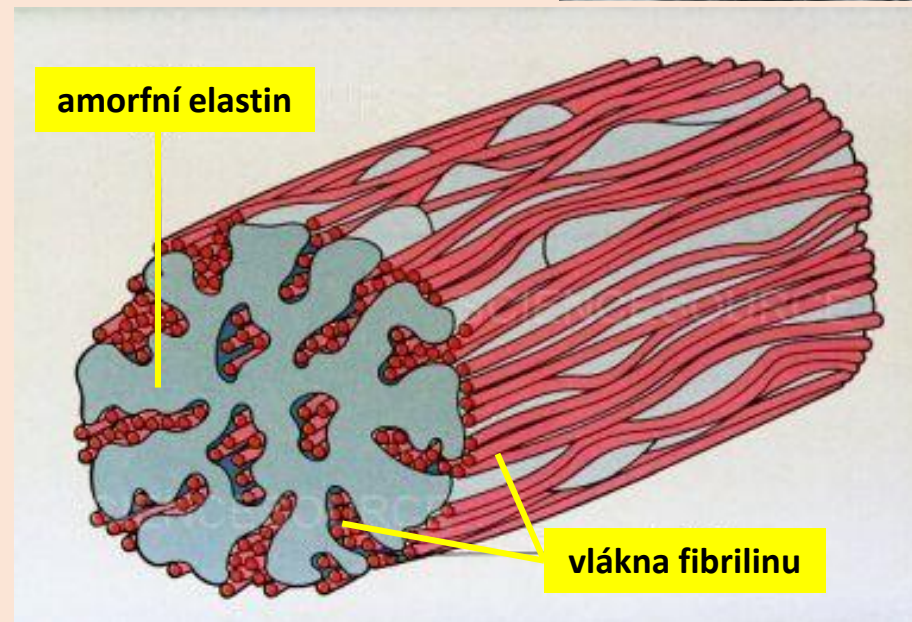
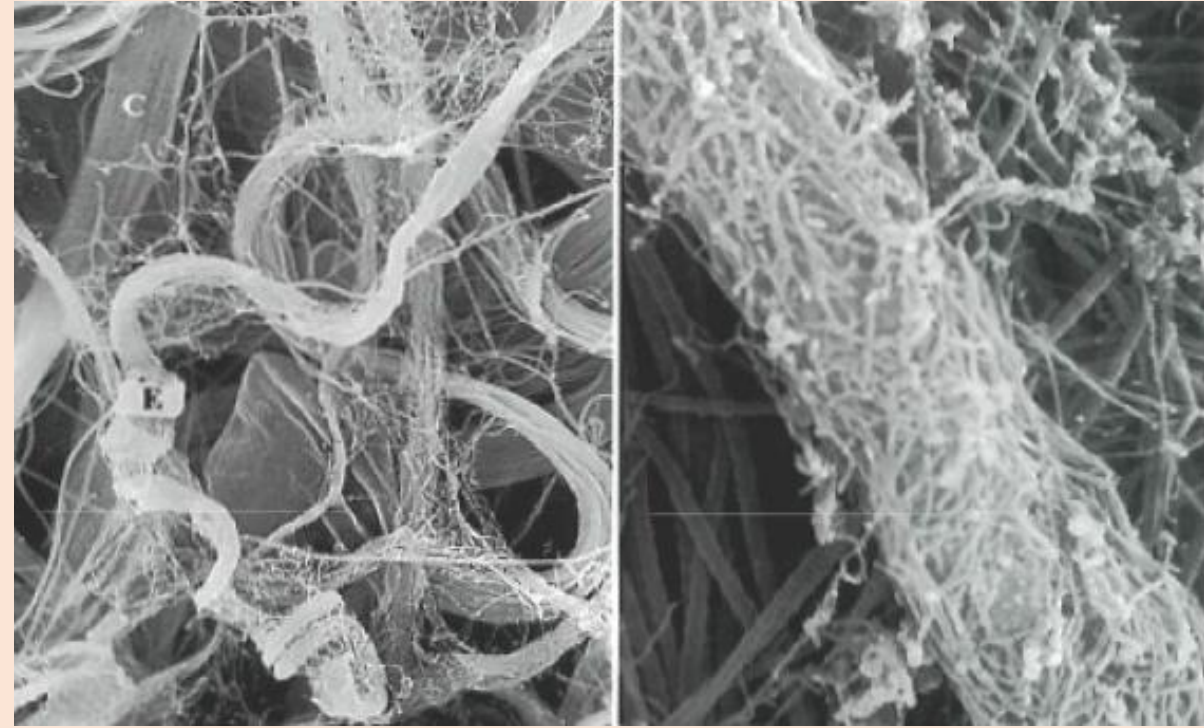
extracelulární  
fáze



syntéza kolagenu

# mezibuněčná hmota

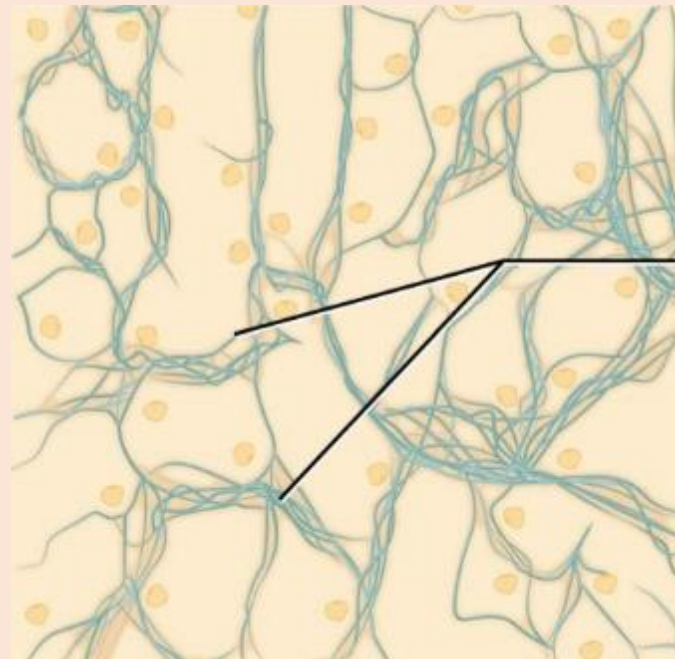
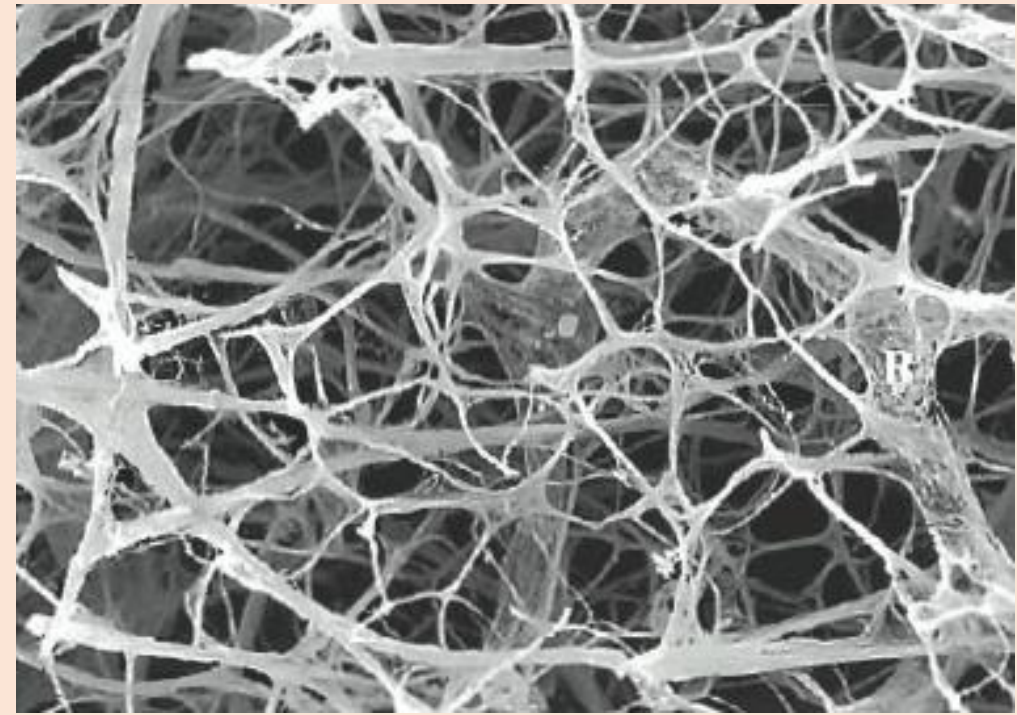
elastická vlákna



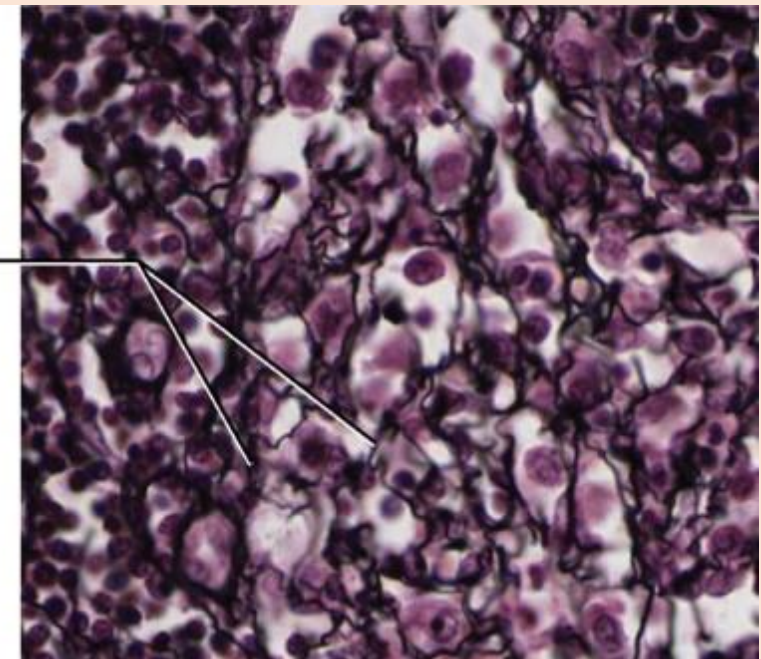


# mezibuněčná hmota

retikulární vlákna



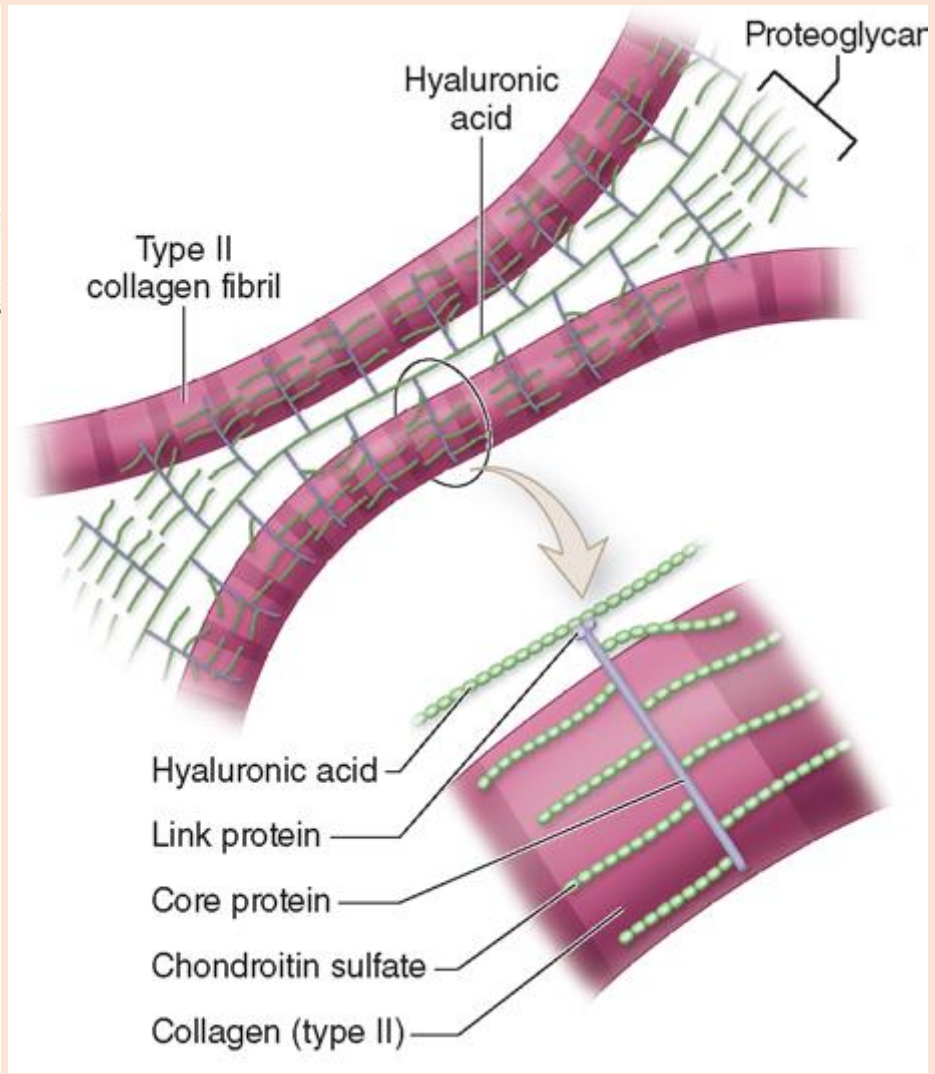
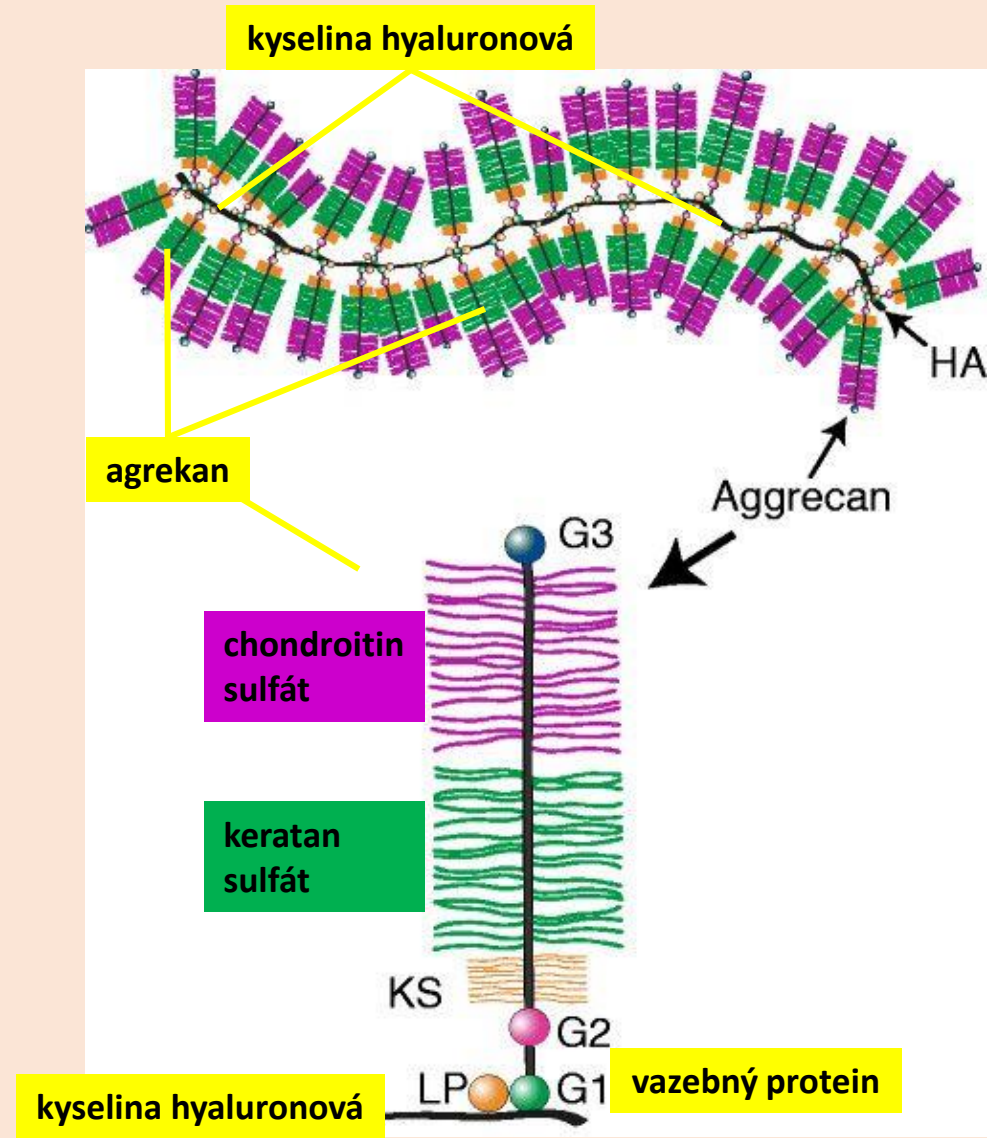
Reticular fibers





# mezibuněčná hmota

amorfní složka  
proteoglykany

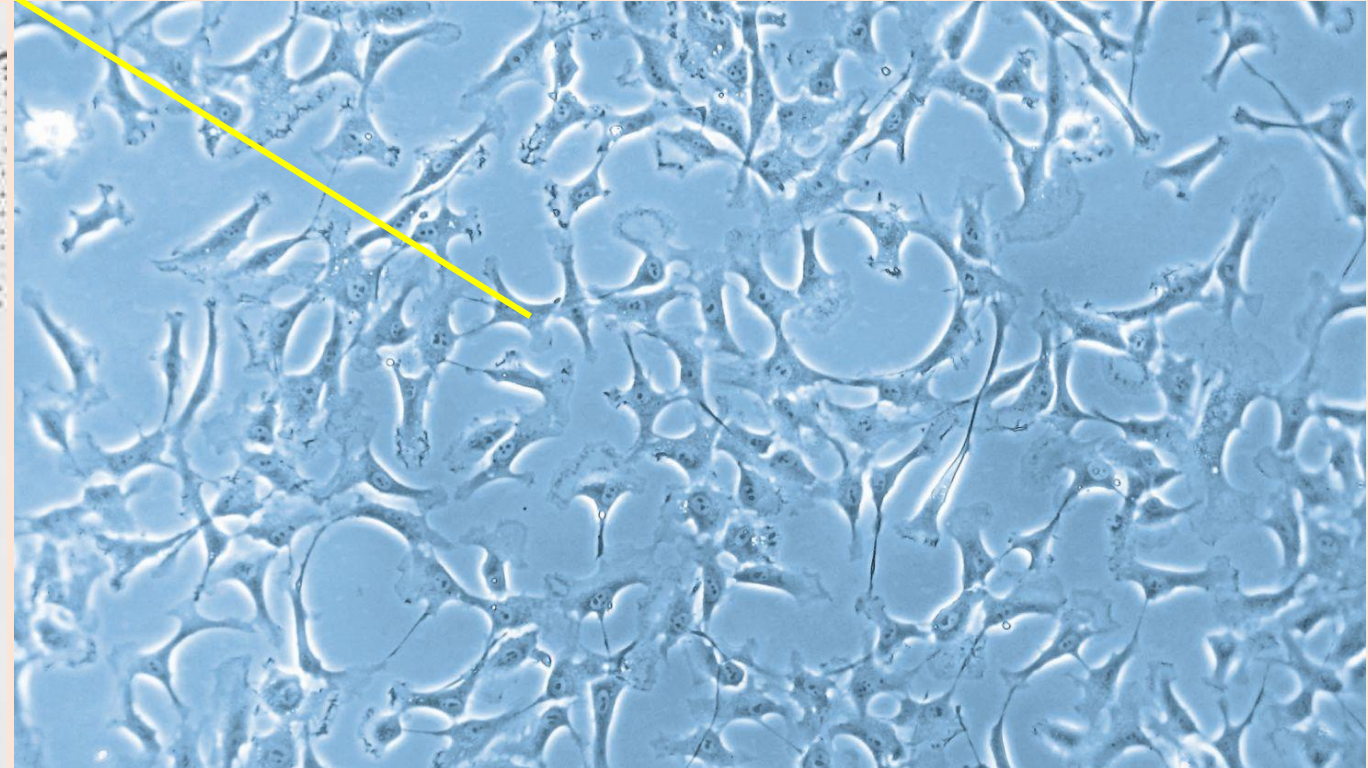
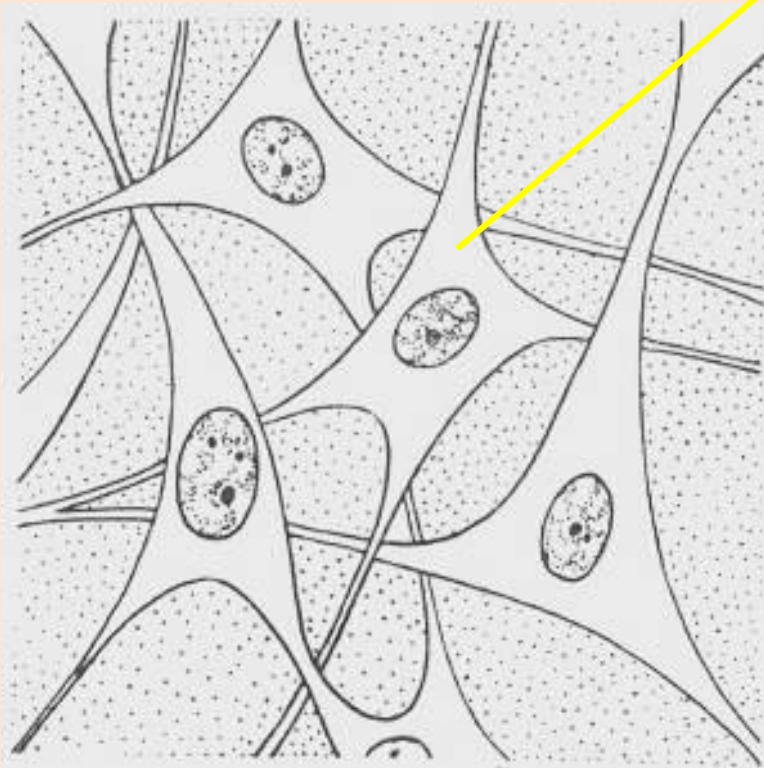


# TKÁNĚ POJIVOVÉ A OPĚRNÉ

## mezenchym

# mezenchym

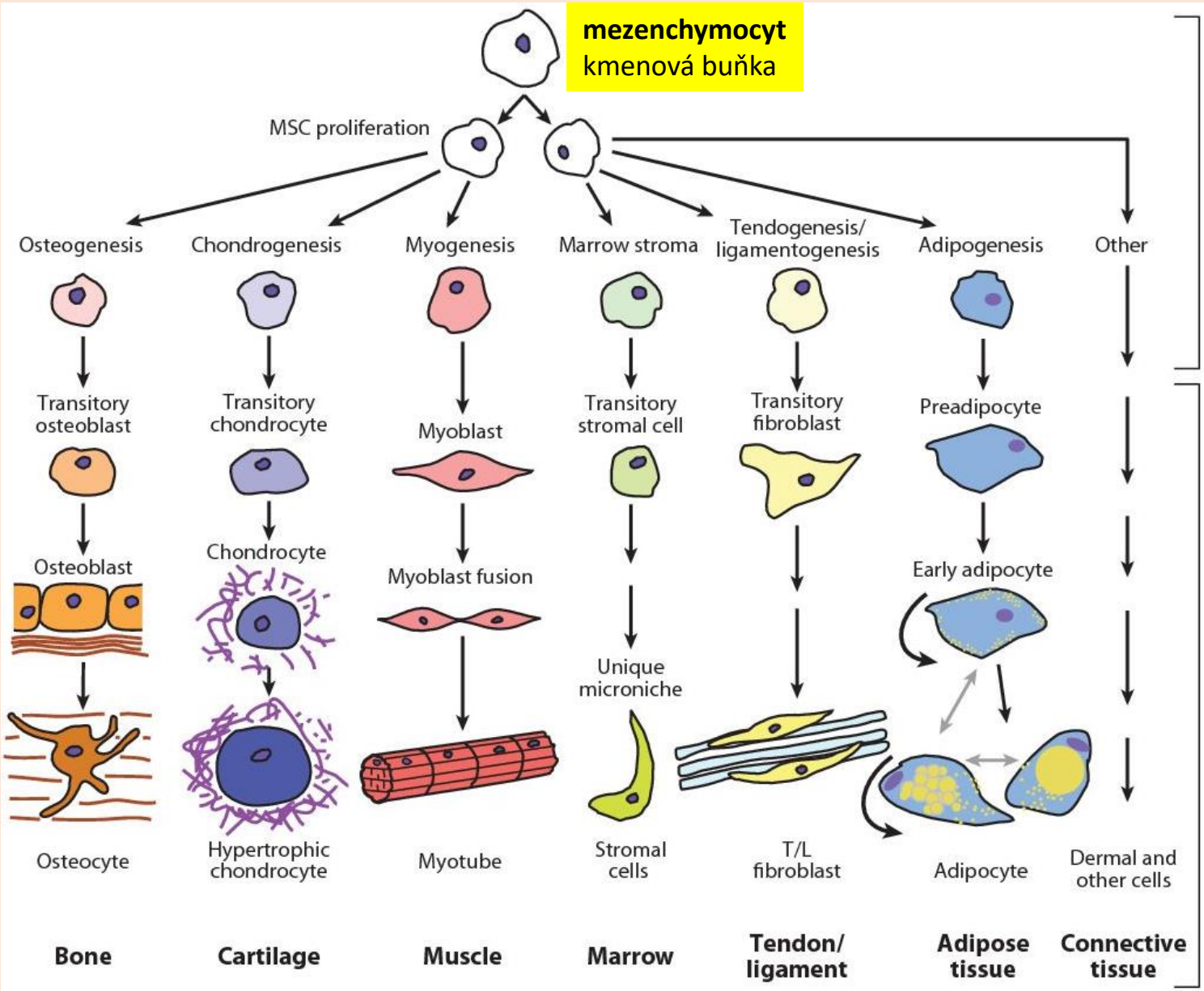
mezenchymocyty





# mezenchym

diferenciace v další typy tkání

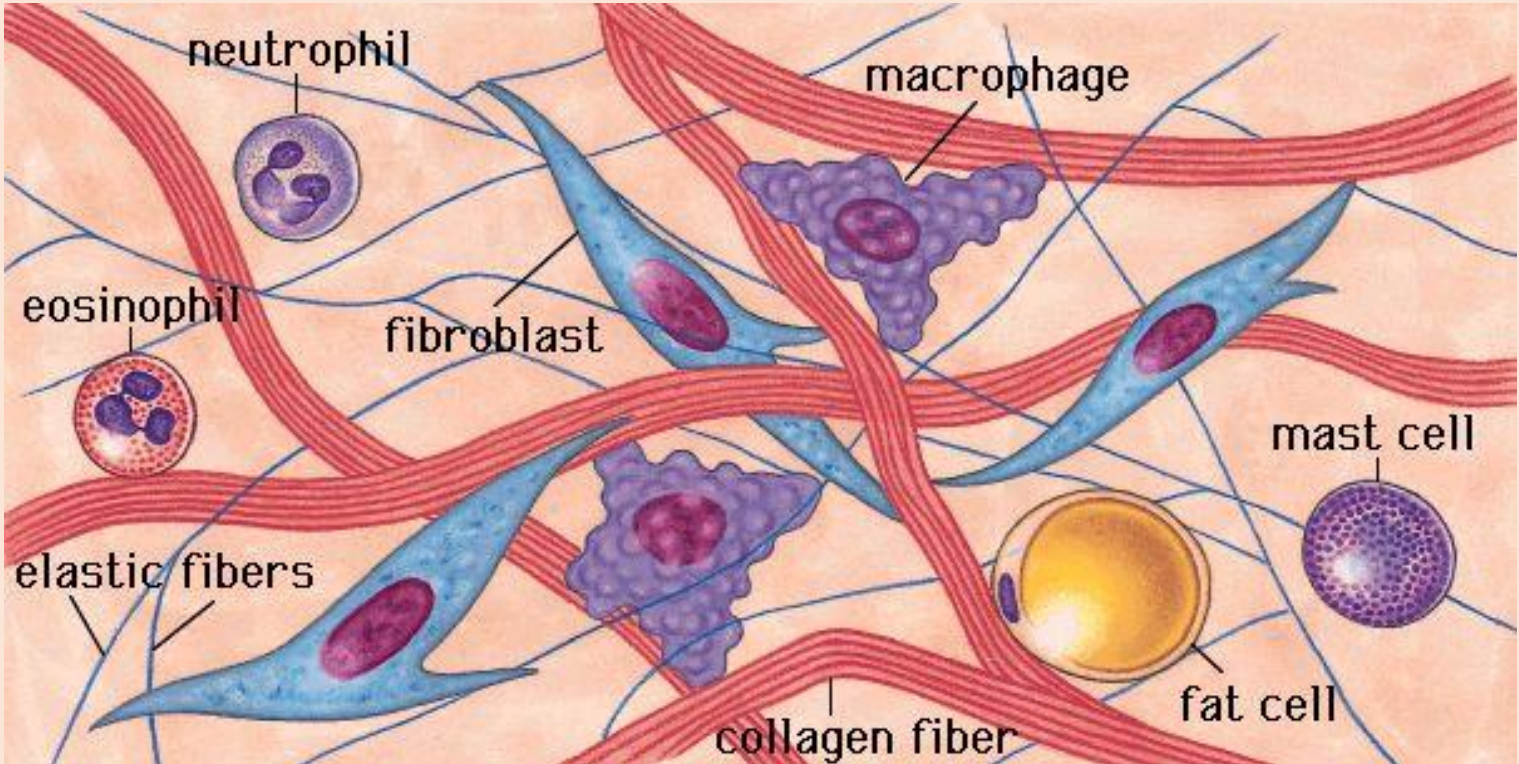
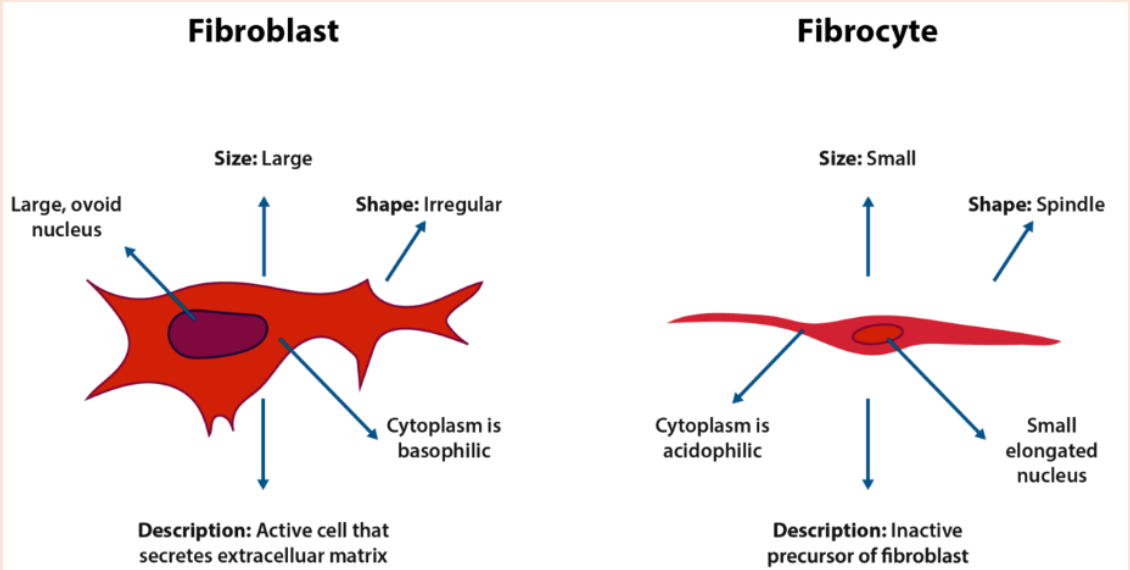


# TKÁNĚ POJIVOVÉ A OPĚRNÉ

## vazivo

vazivo

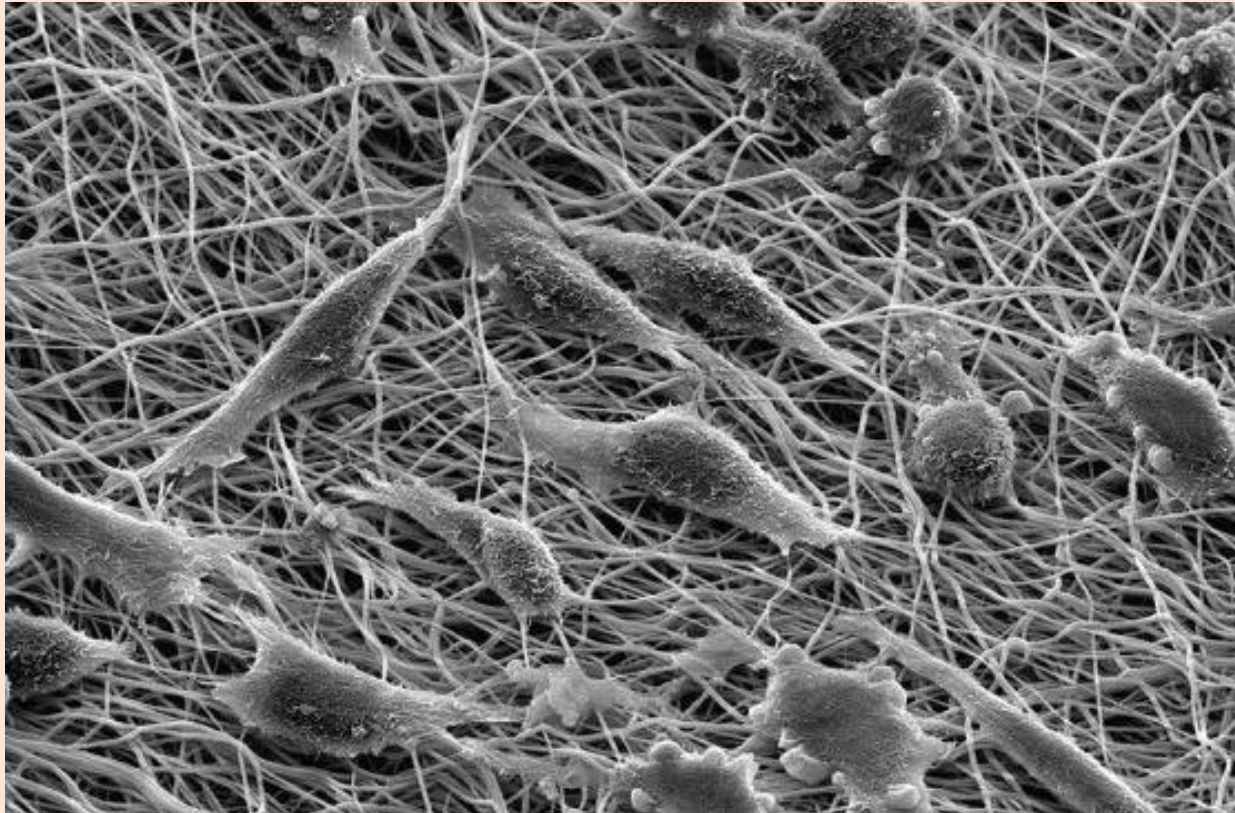
fibroblasty a fibrocyty





# vazivo

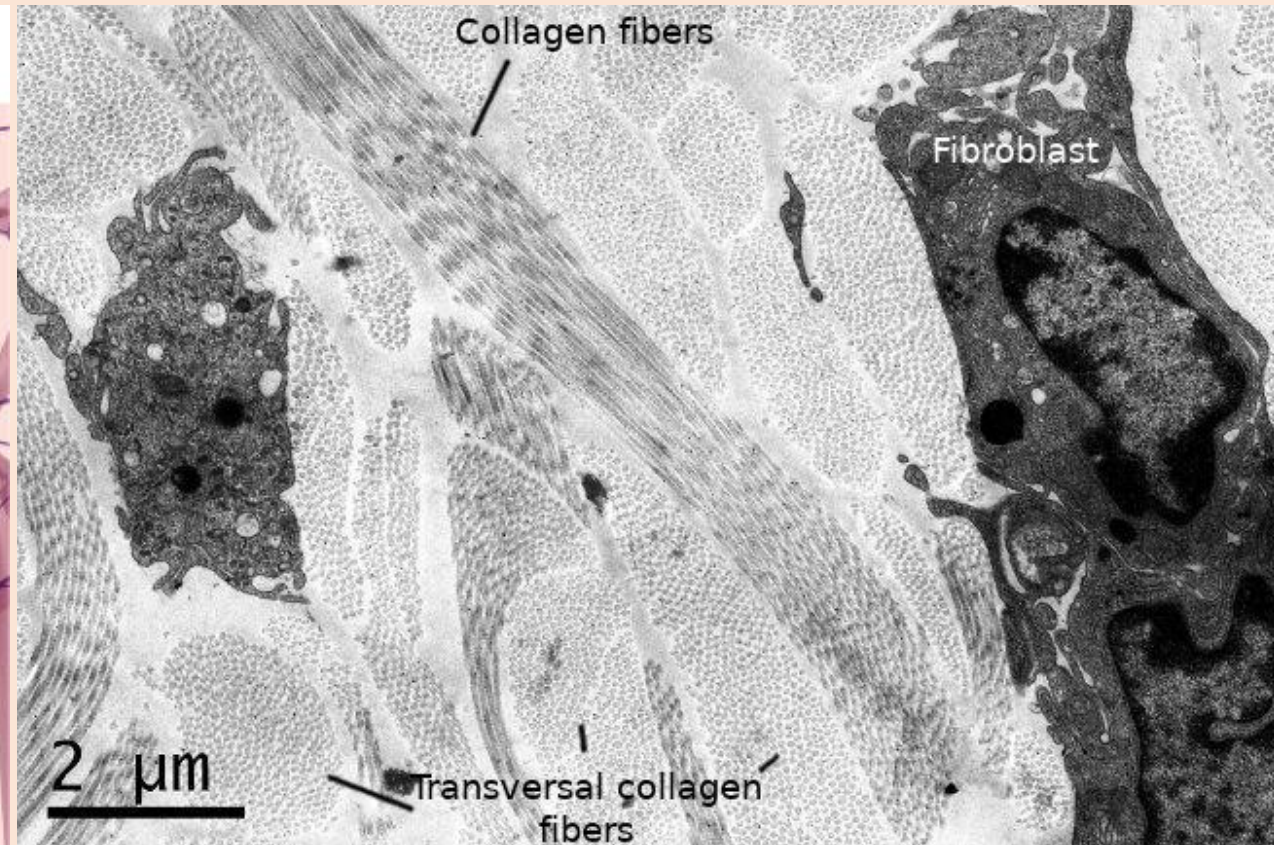
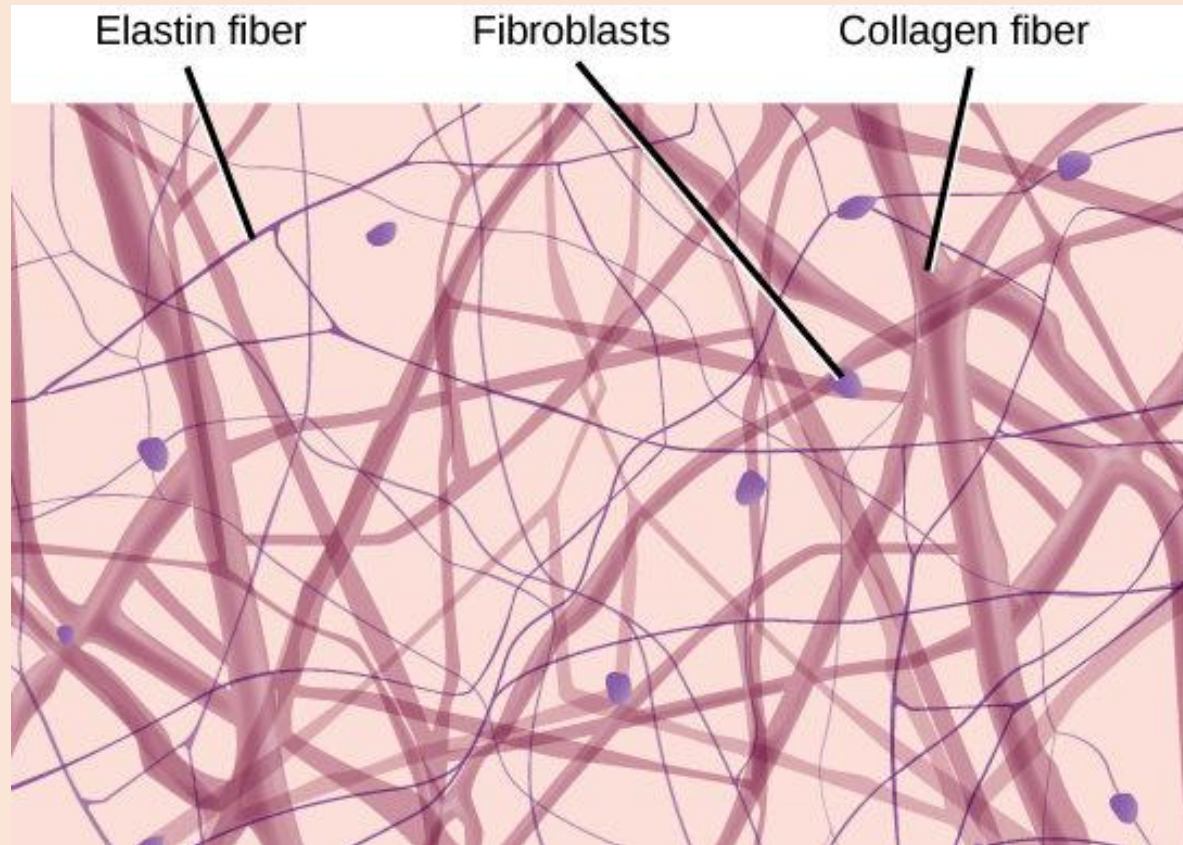
## fibroblasty





**vazivo**

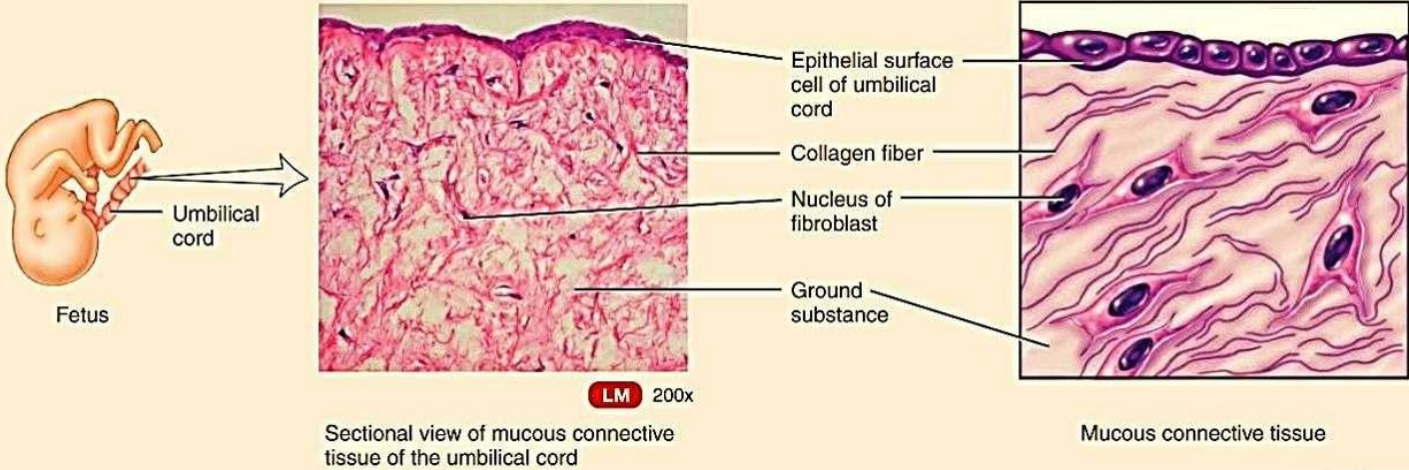
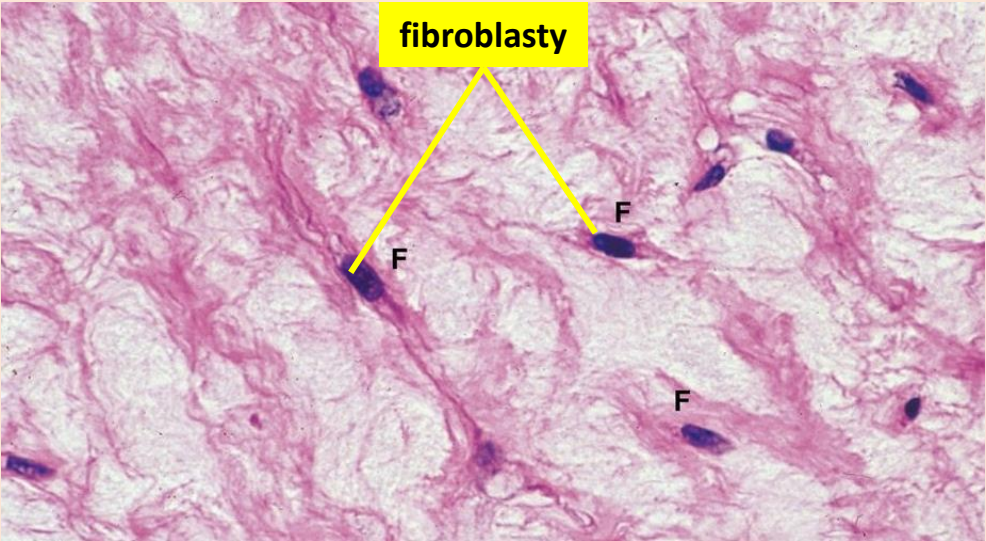
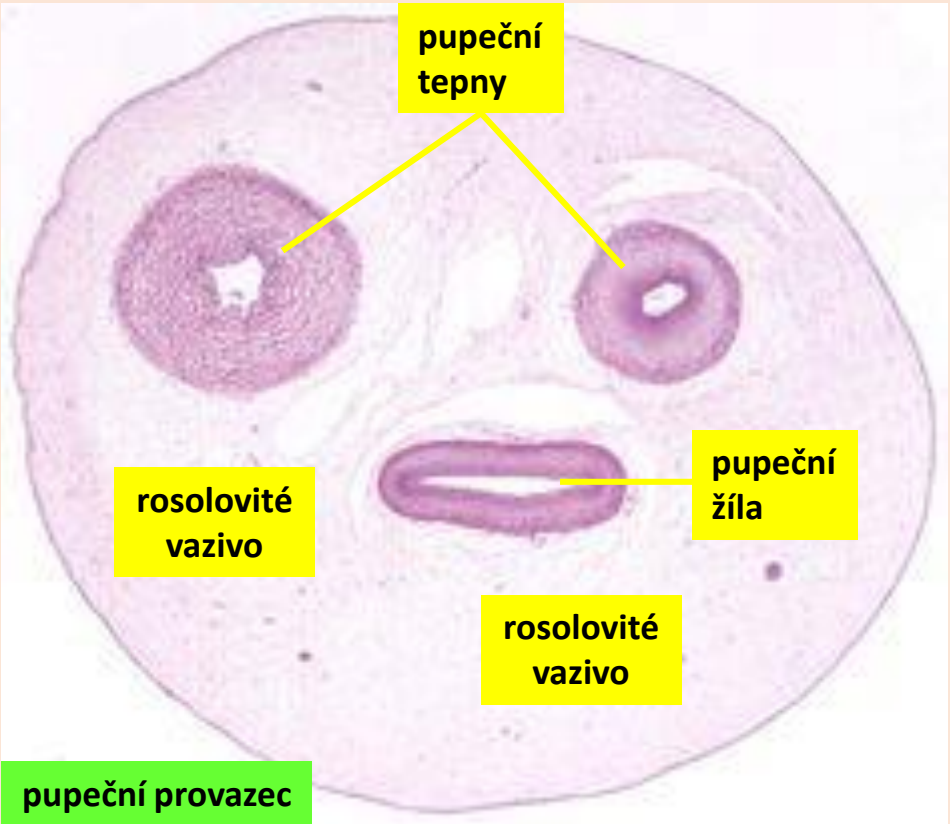
mezibuněčná hmota





# rosolovité vazivo

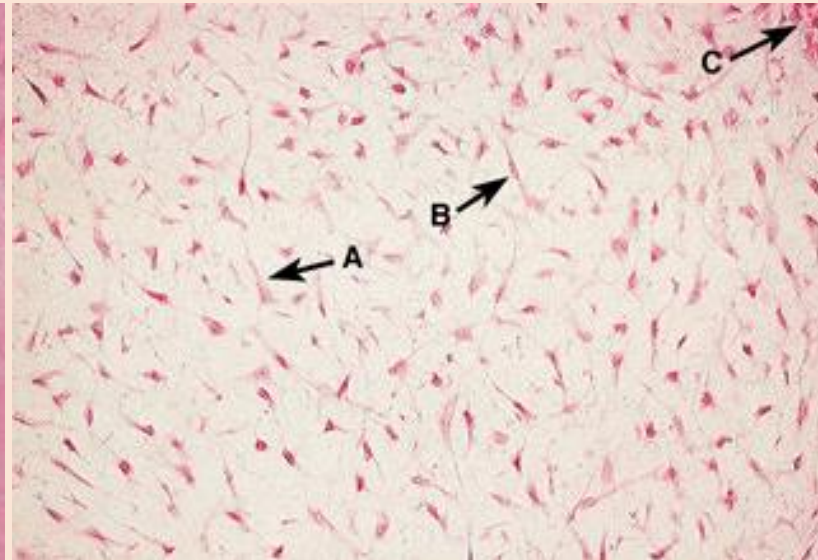
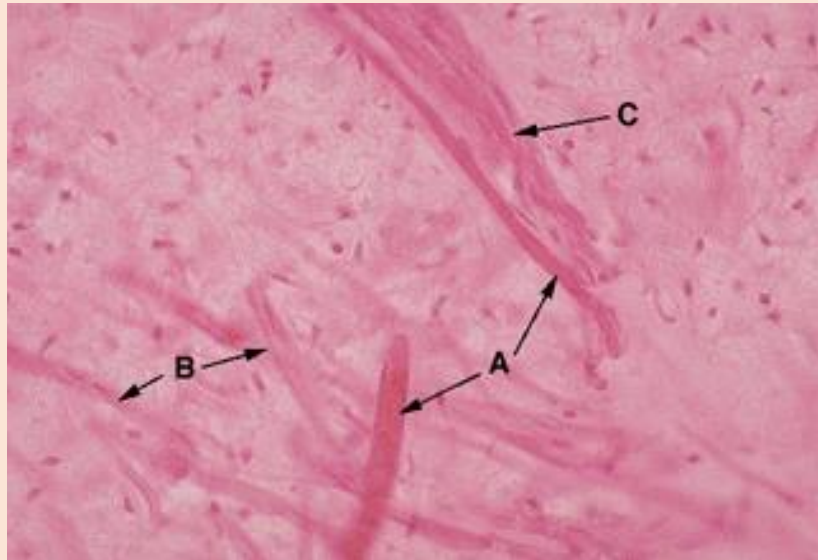
## pupeční provazec



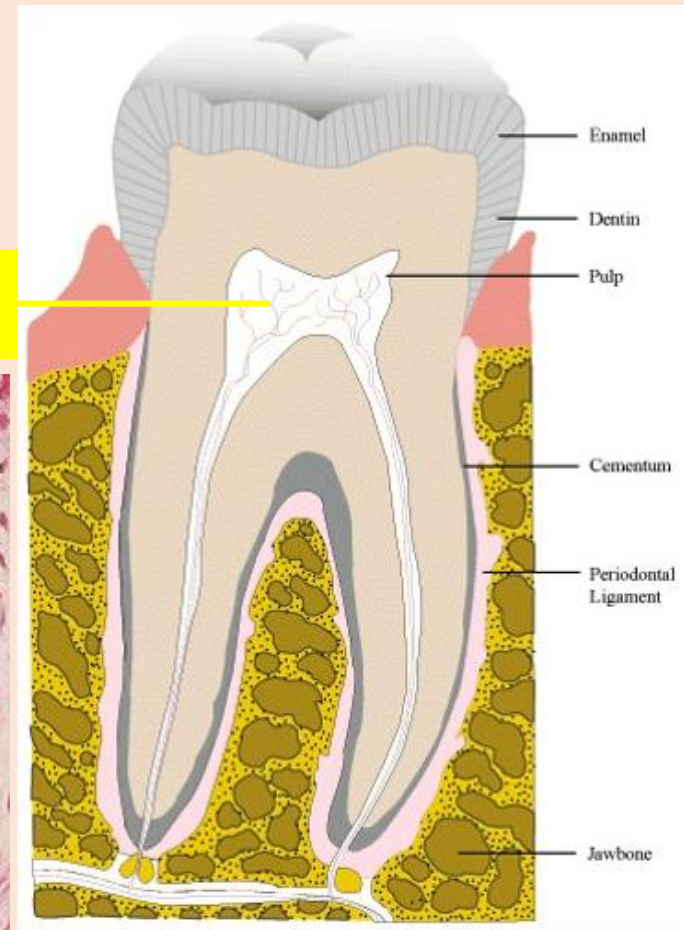


# rosolovité vazivo

## zubní dřeň



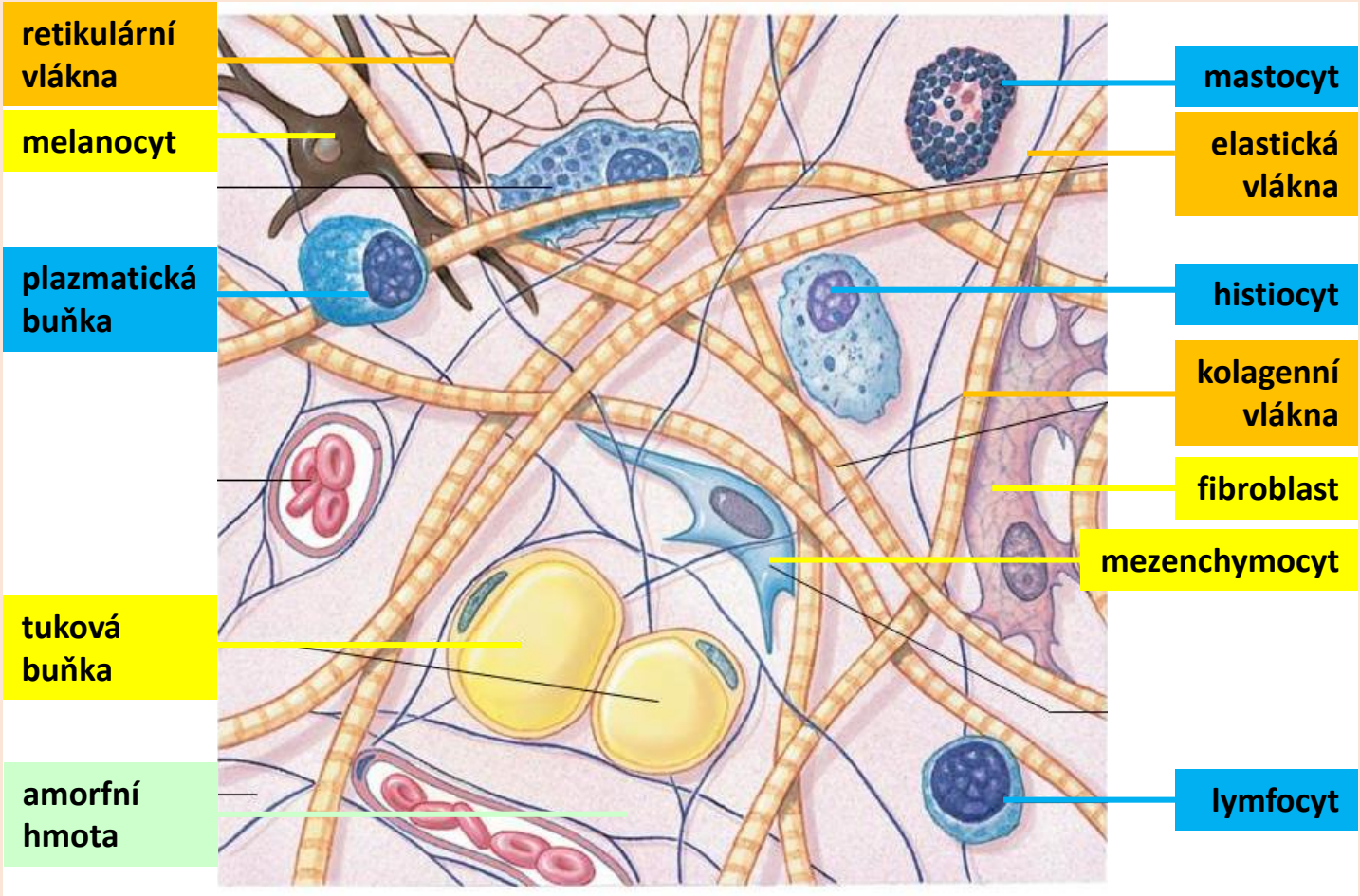
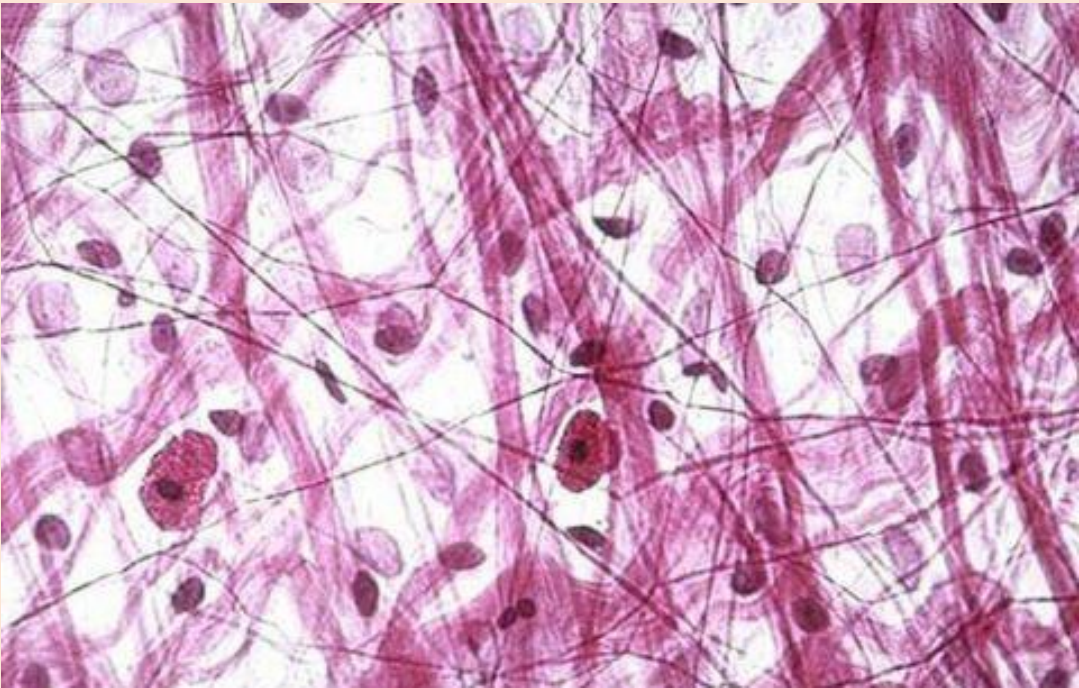
zubní  
dřeň





# řídké kolagenní vazivo

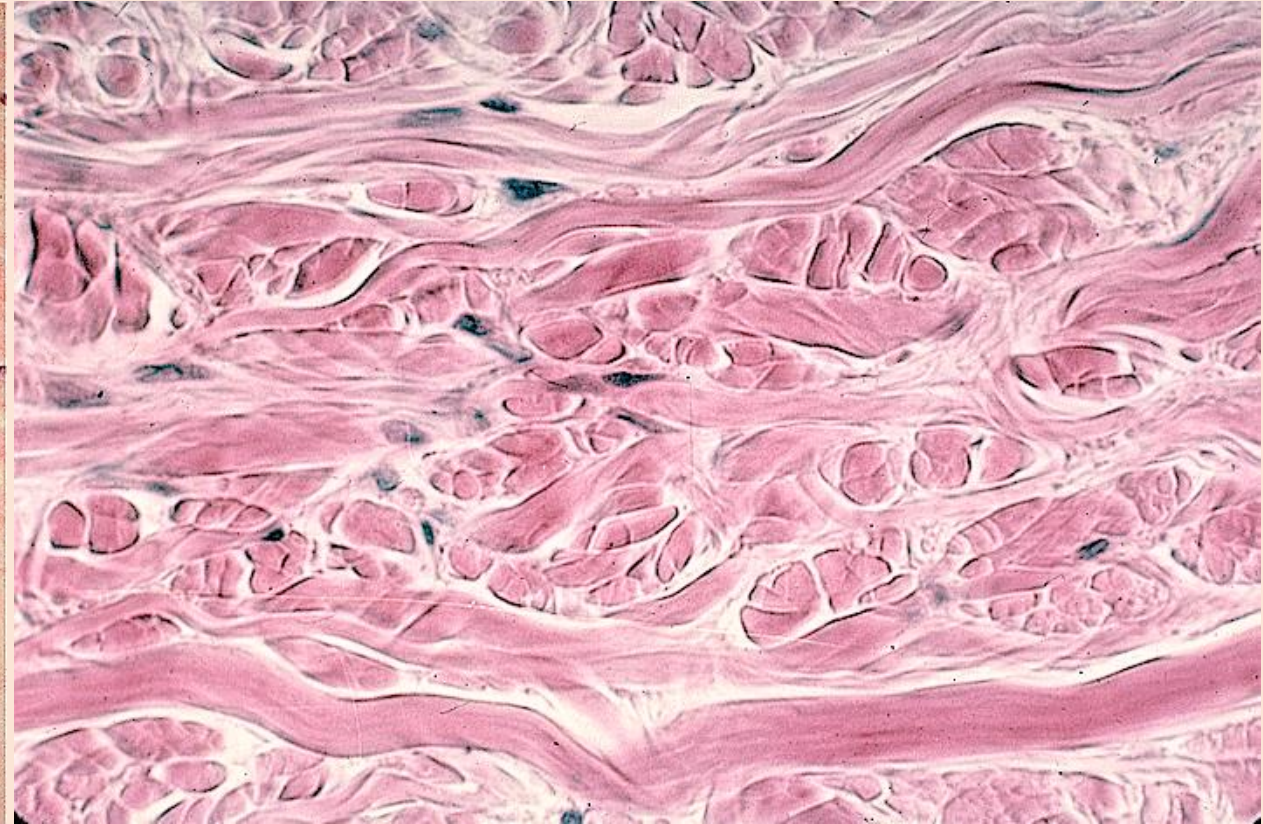
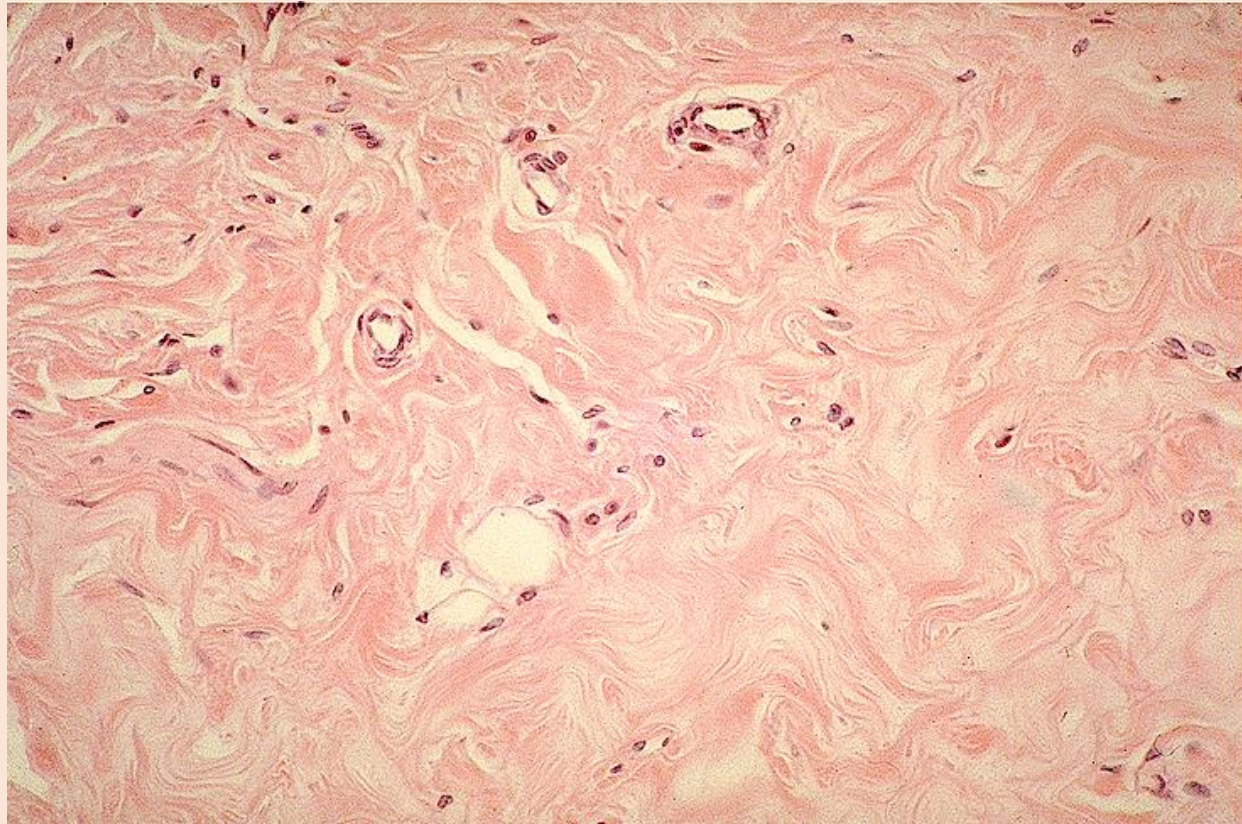
mezibuněčná hmota	buněčná složka
fibrilární složka	fixní buňky
amorfní složka	bloudivé buňky





# **tuhé kolagenní vazivo**

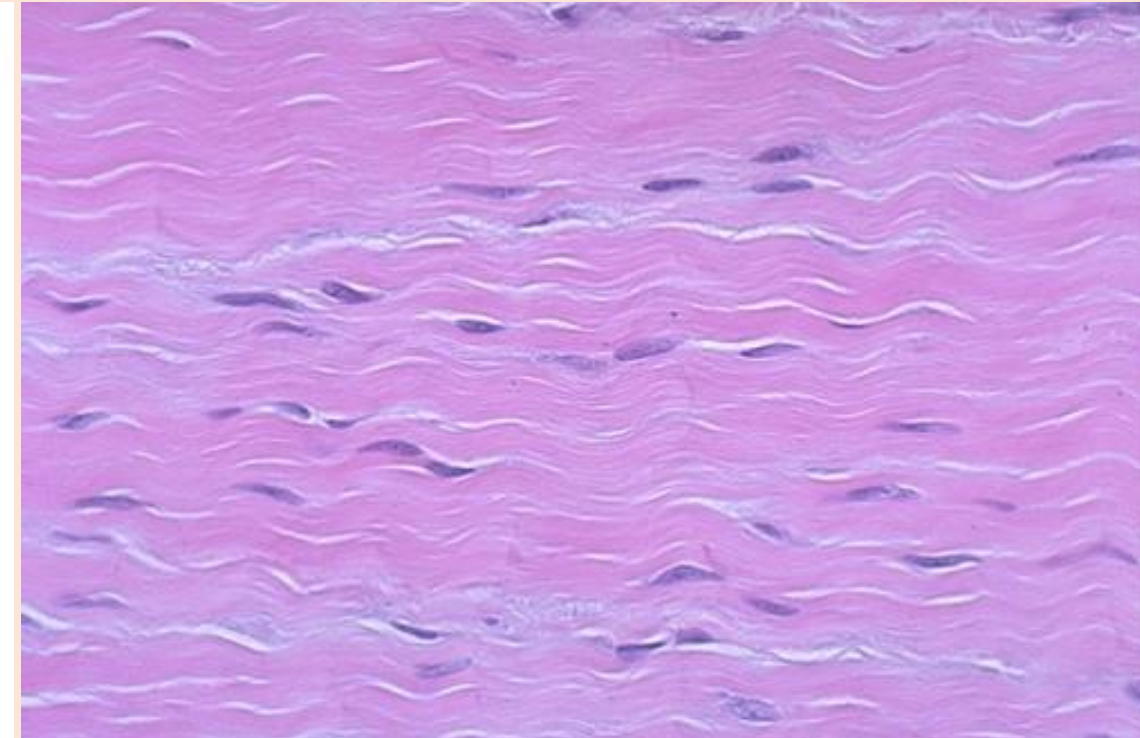
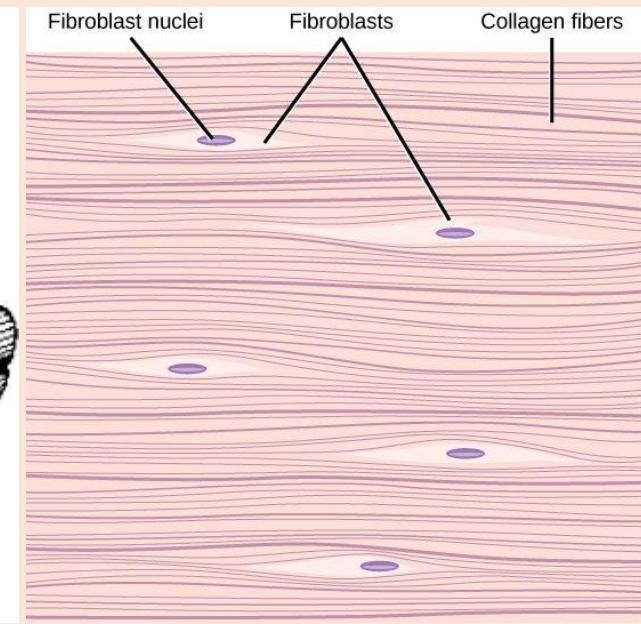
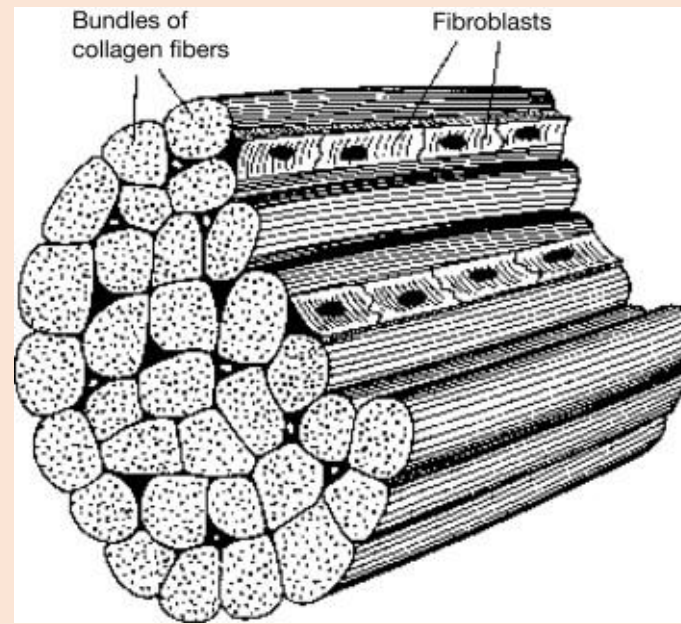
## **nepravidelné (plst'ovité)**





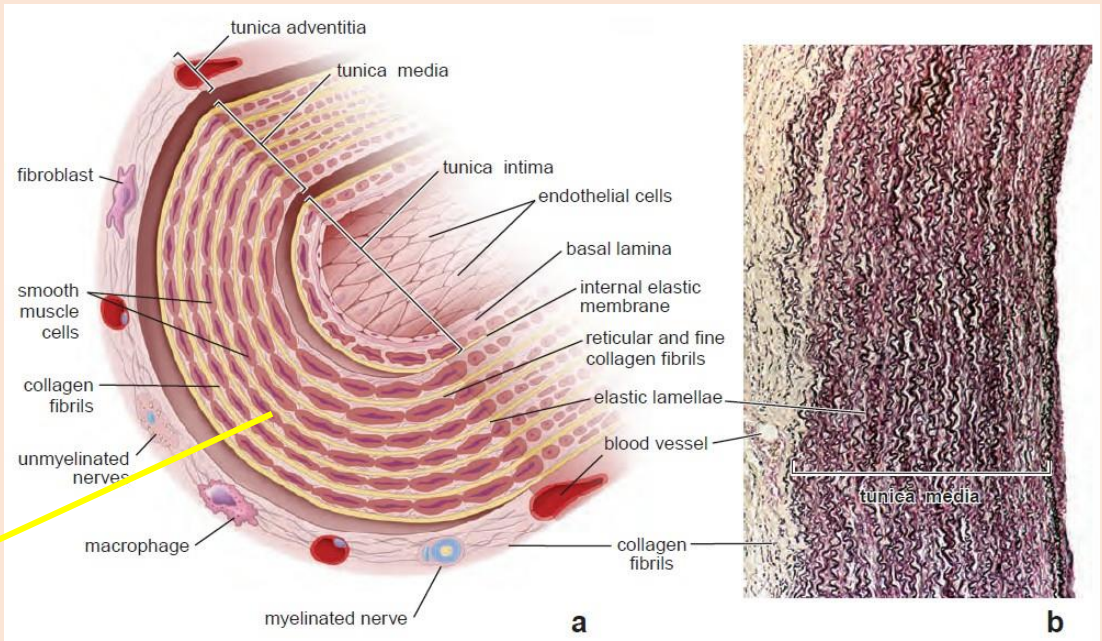
# tuhé kolagenní vazivo

## pravidelné (provazcovité)

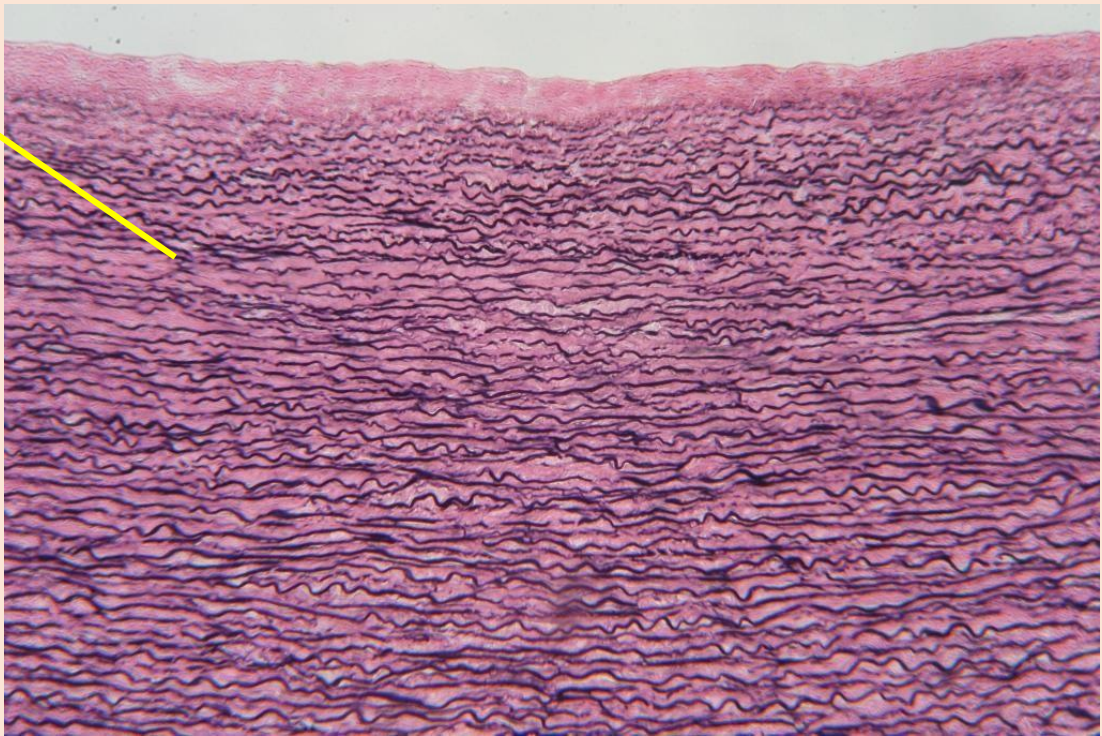
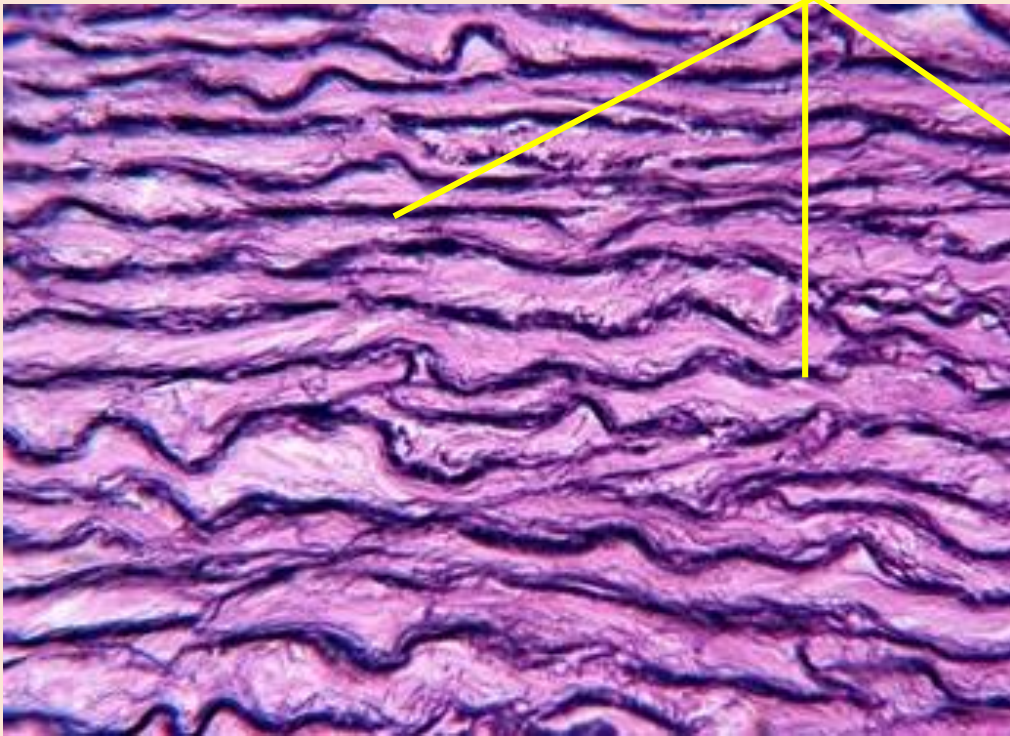




# elastické vazivo

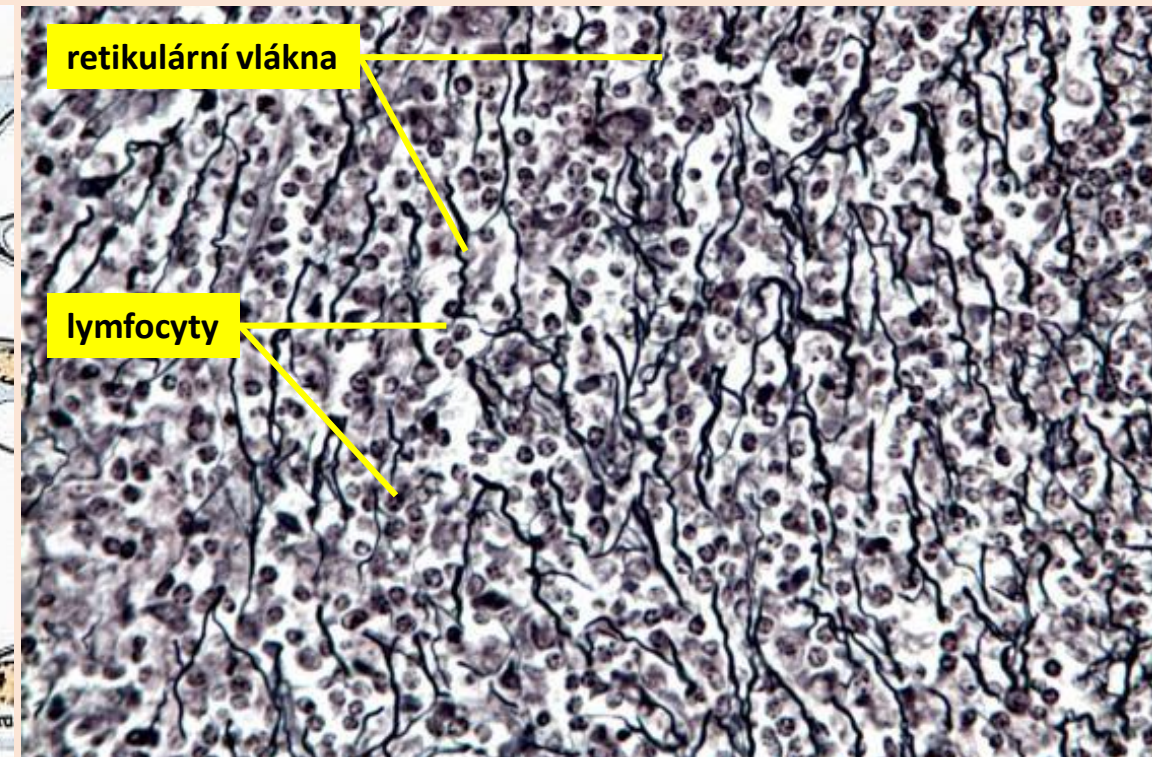
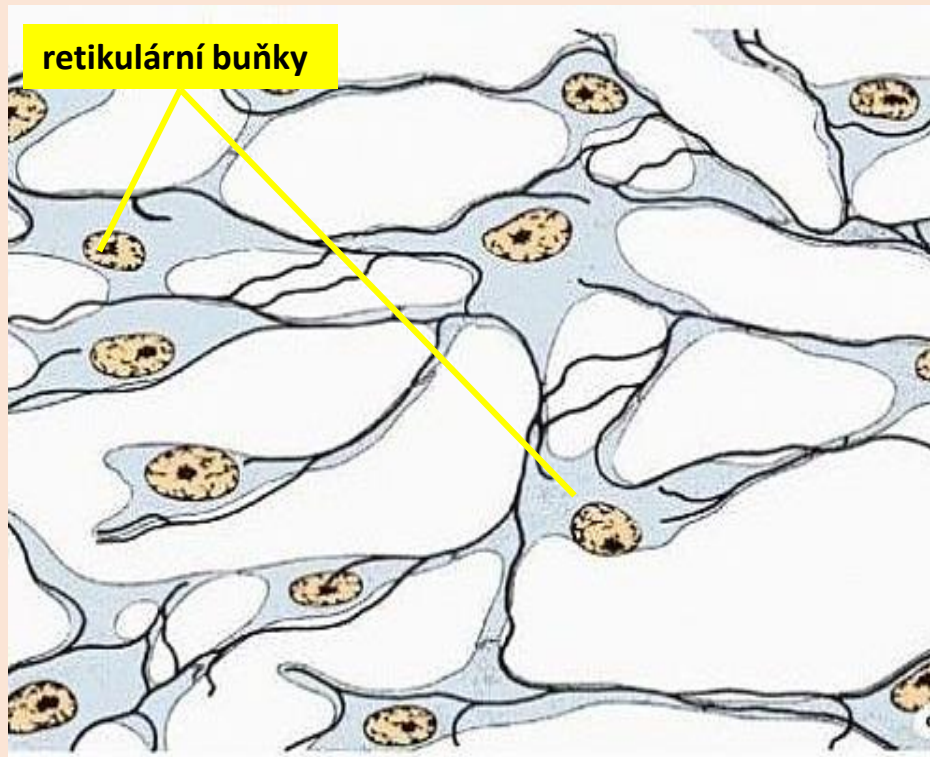


**elastické membrány  
ve stěně velkých tepen**





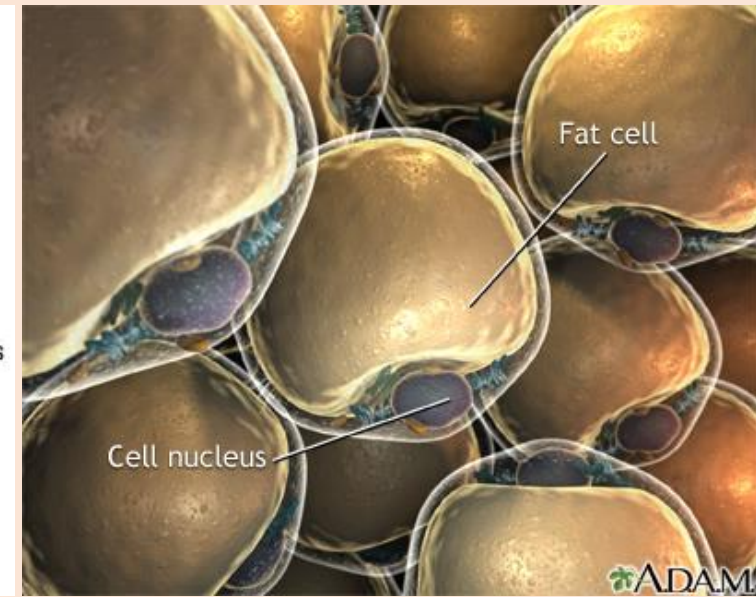
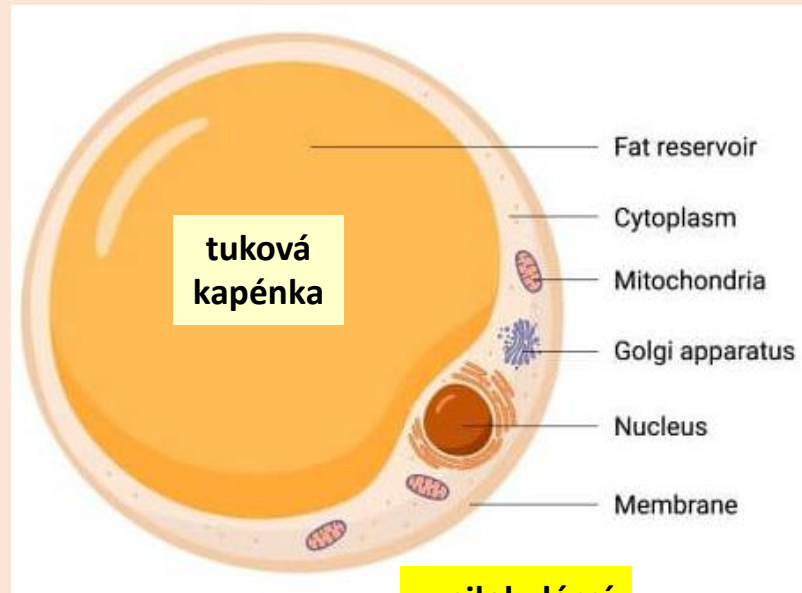
# retikulární vazivo





# tukové vazivo

## bílé



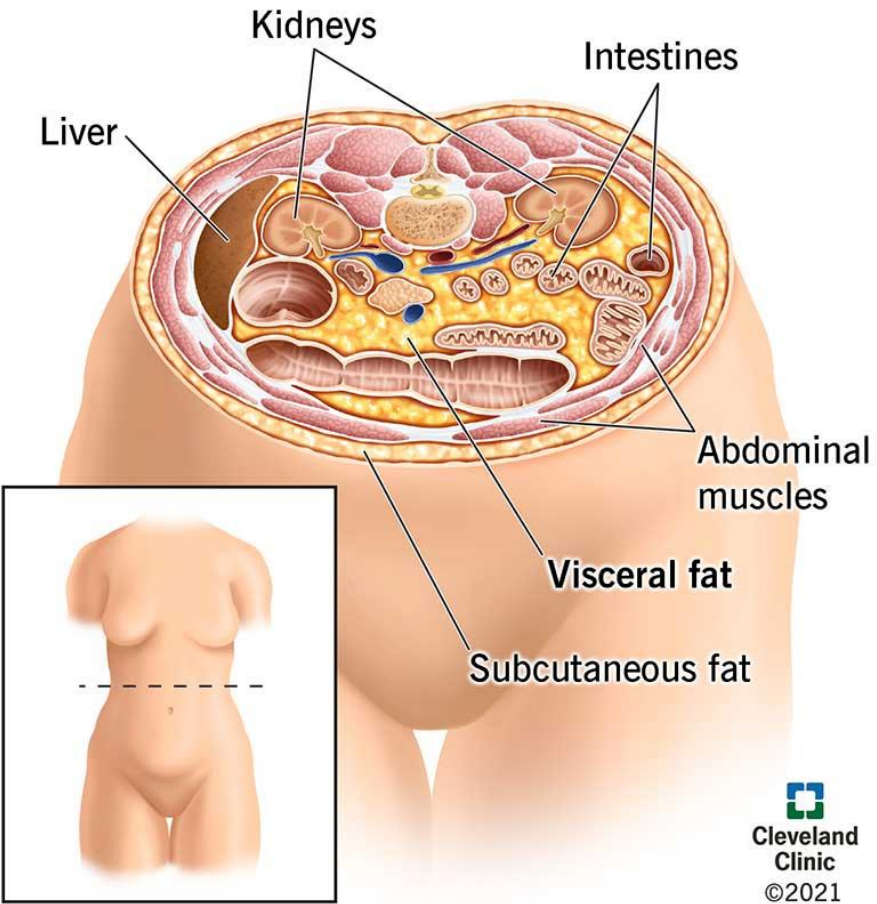
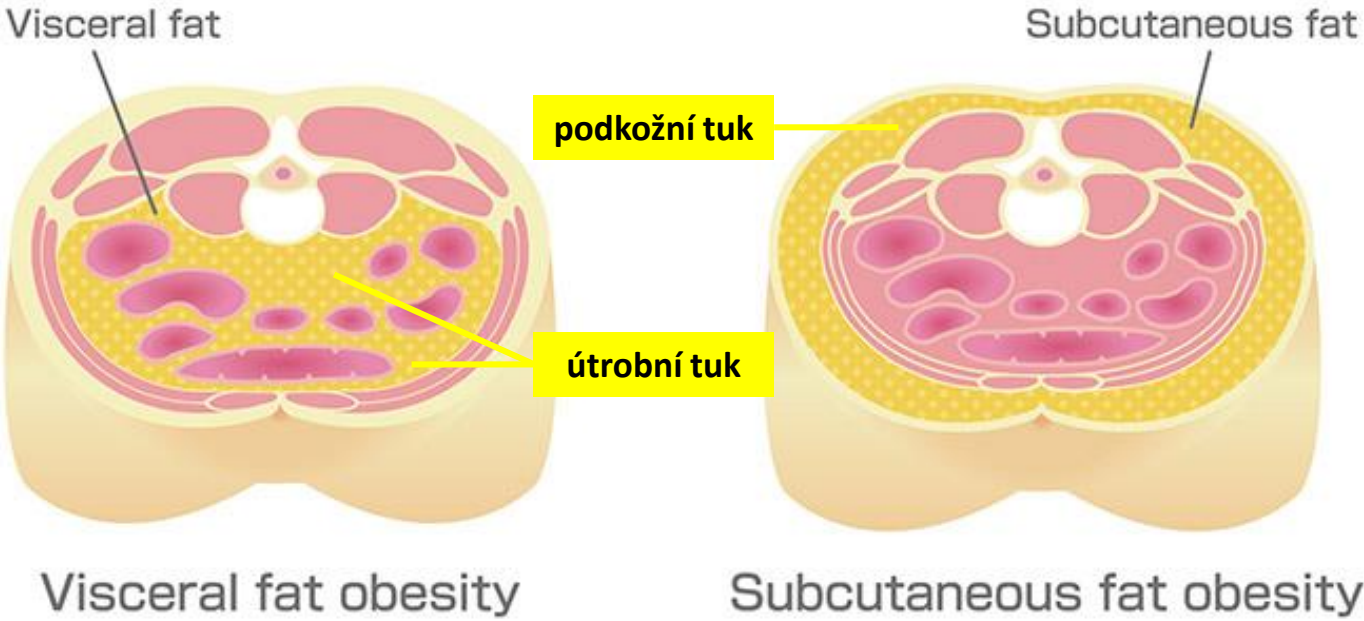
uniloculární  
adipocyty



# tukové vazivo

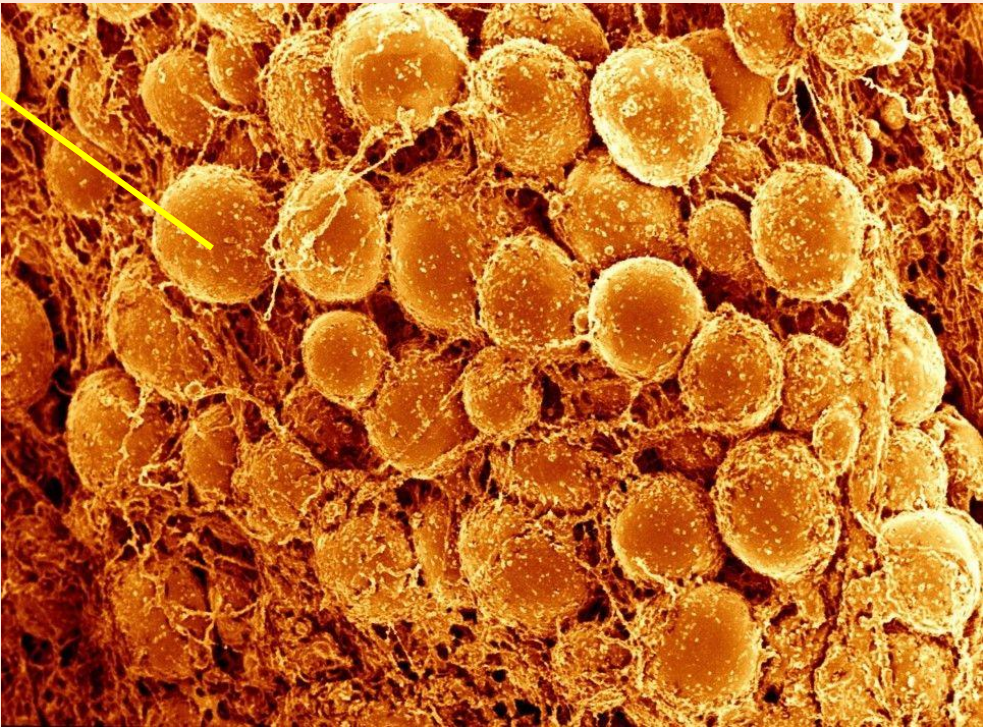
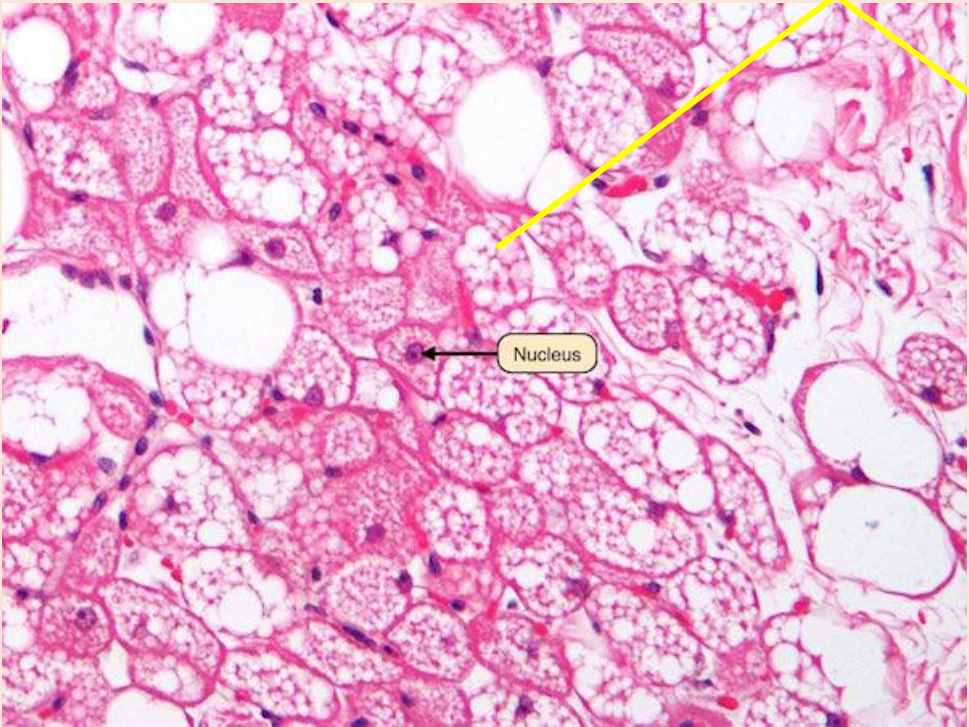
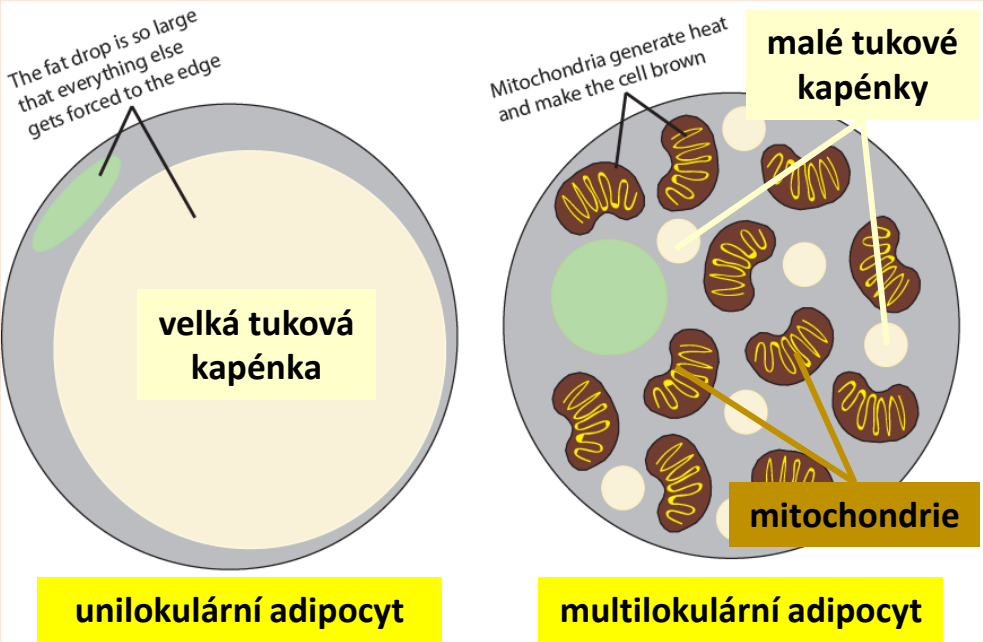
## bílé

### Type of obesity





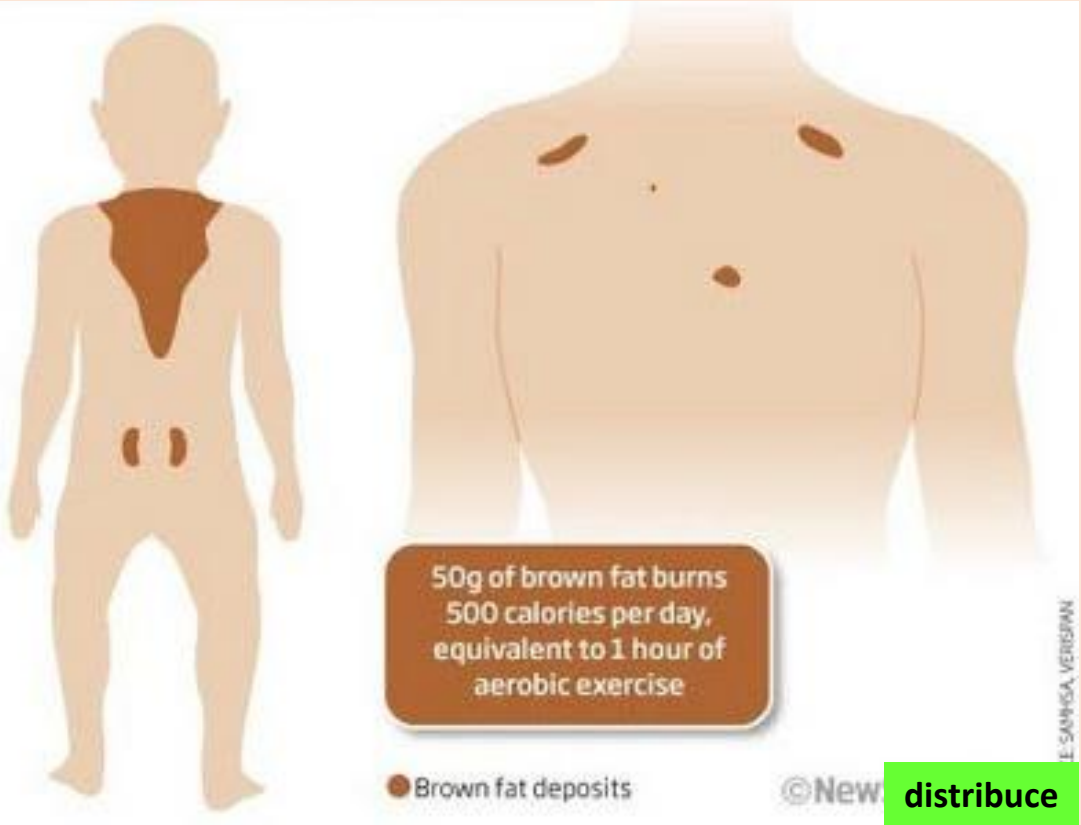
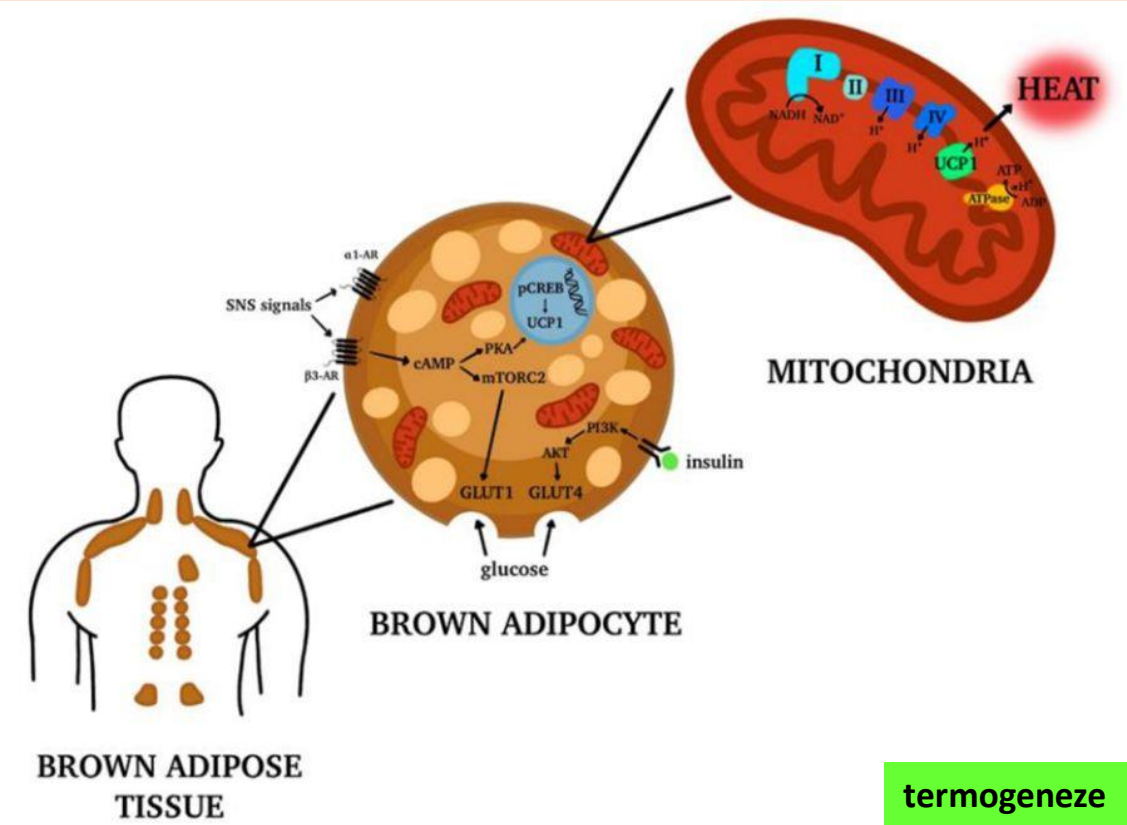
**tukové vazivo**  
**hnědé**





# tukové vazivo

## hnědé

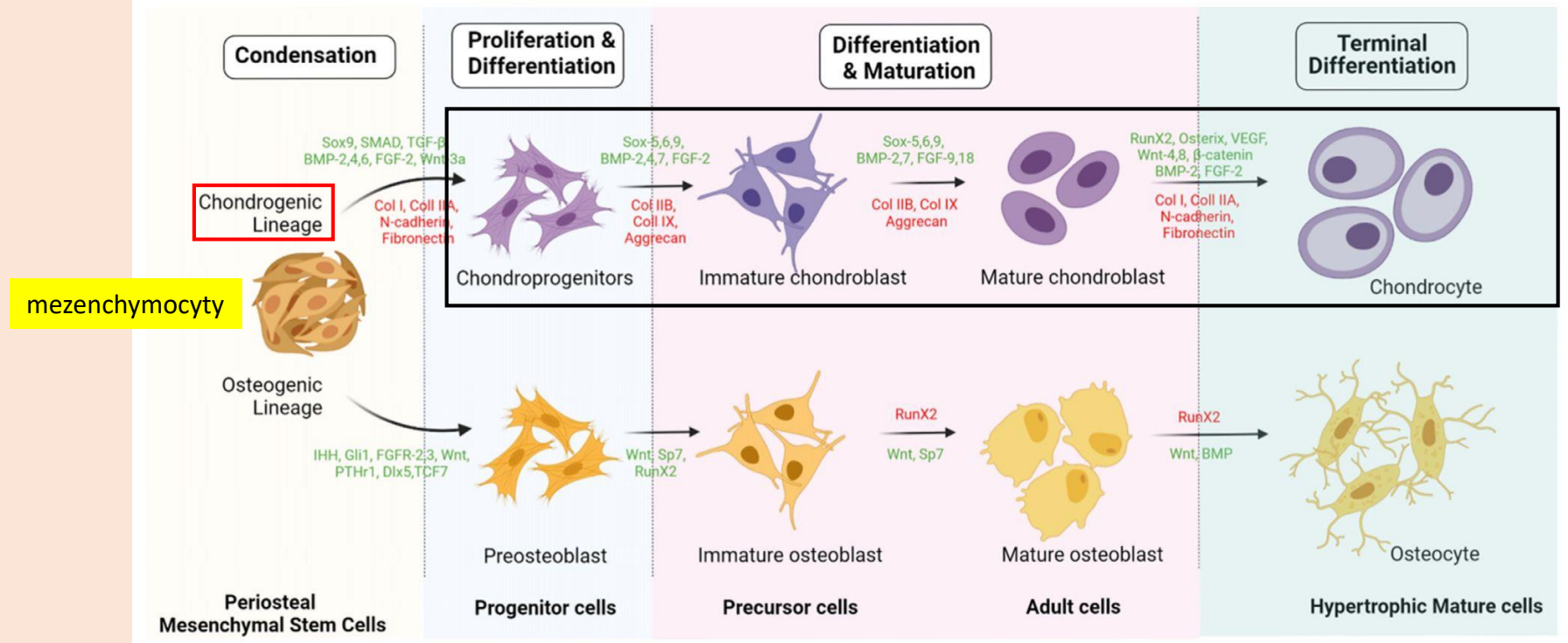
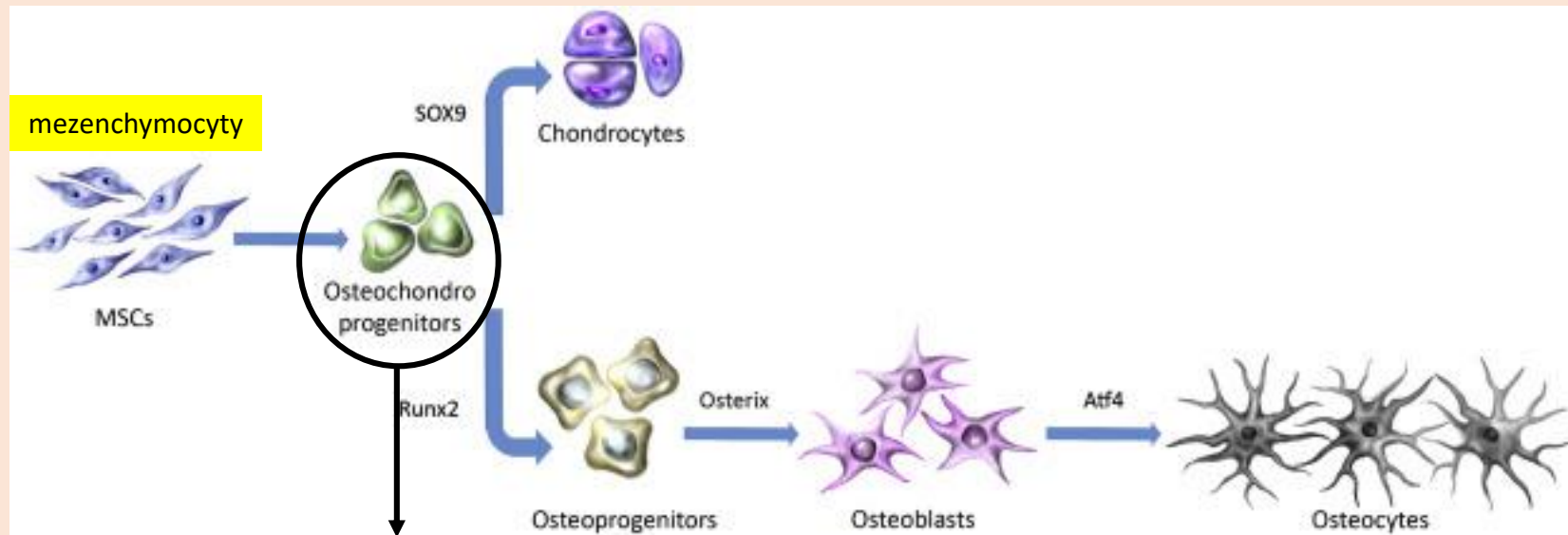


# TKÁNĚ POJIVOVÉ A OPĚRNÉ

## chrupavka

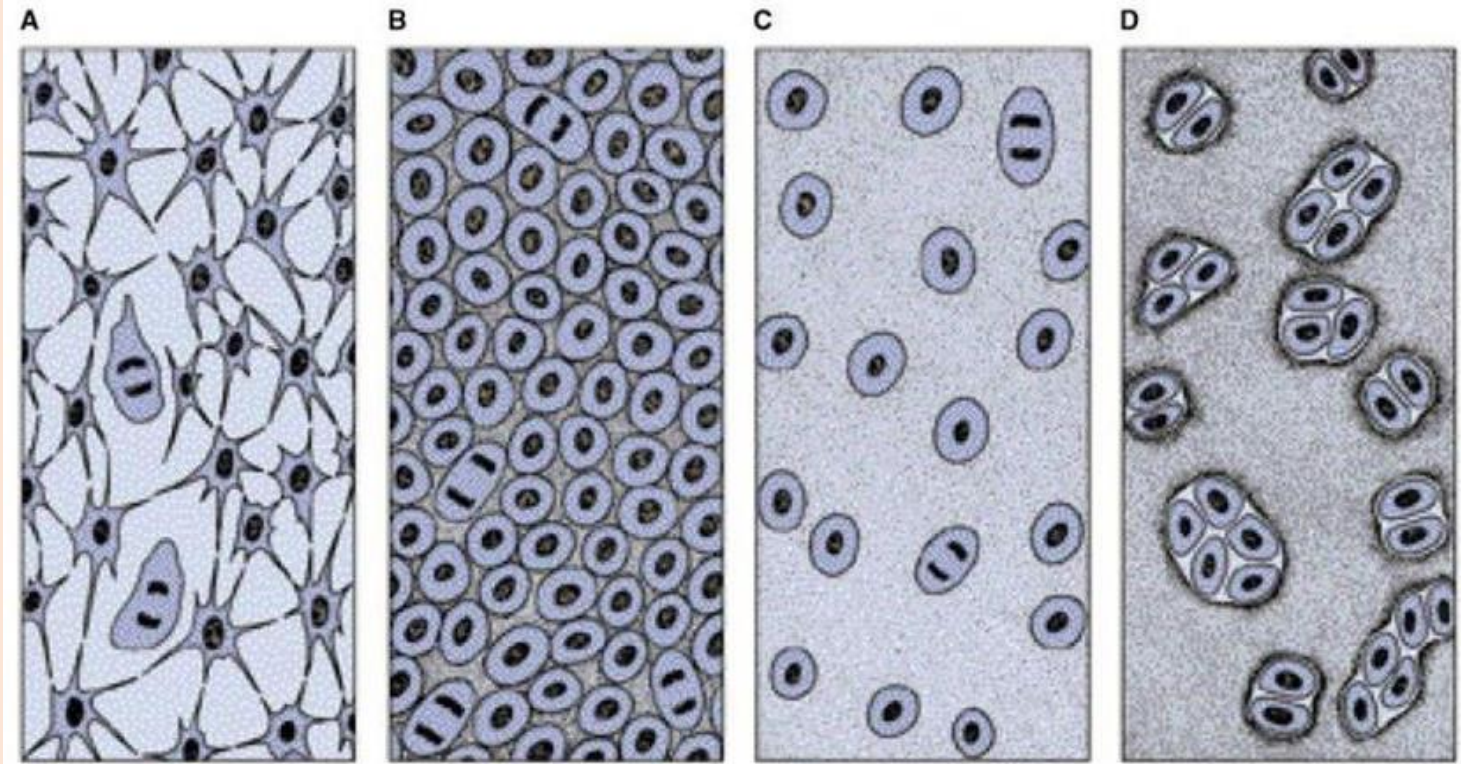


chrupavka  
chondrogeneze



# chrupavka

## chondroblasty



A – zárodečný mezenchym

B – mitotická proliferace mezenchymálních buněk

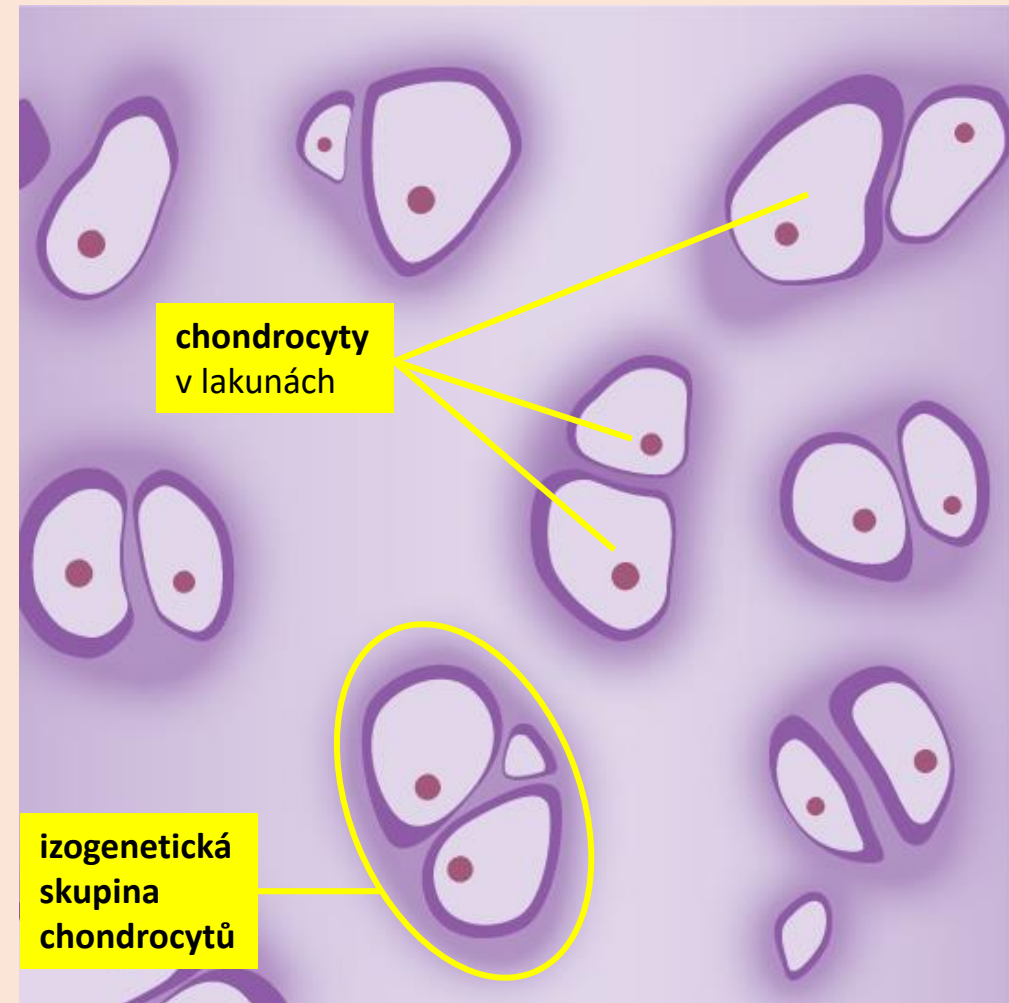
C – chondroblasty produkují matrix a vzdalují se od sebe

D – izogenetické skupiny chondrocytů obklopené teritoriální matrix



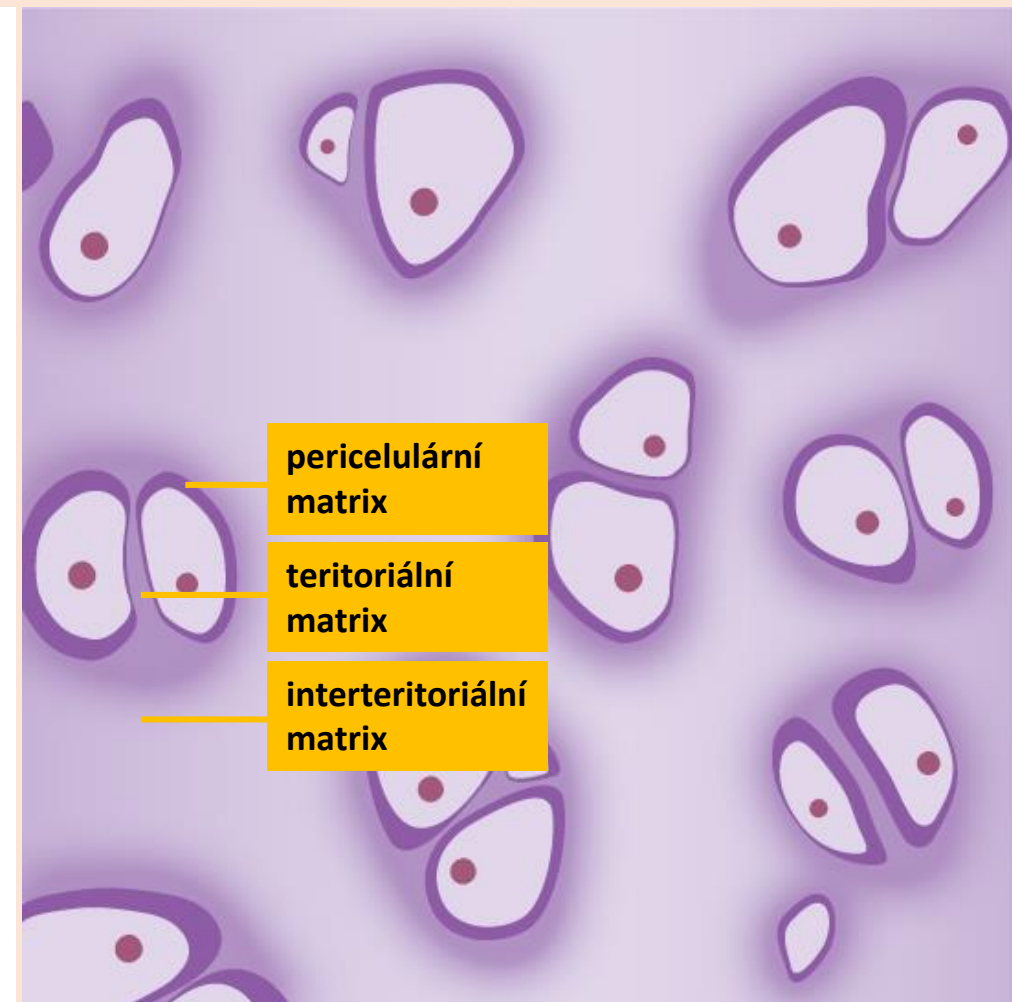
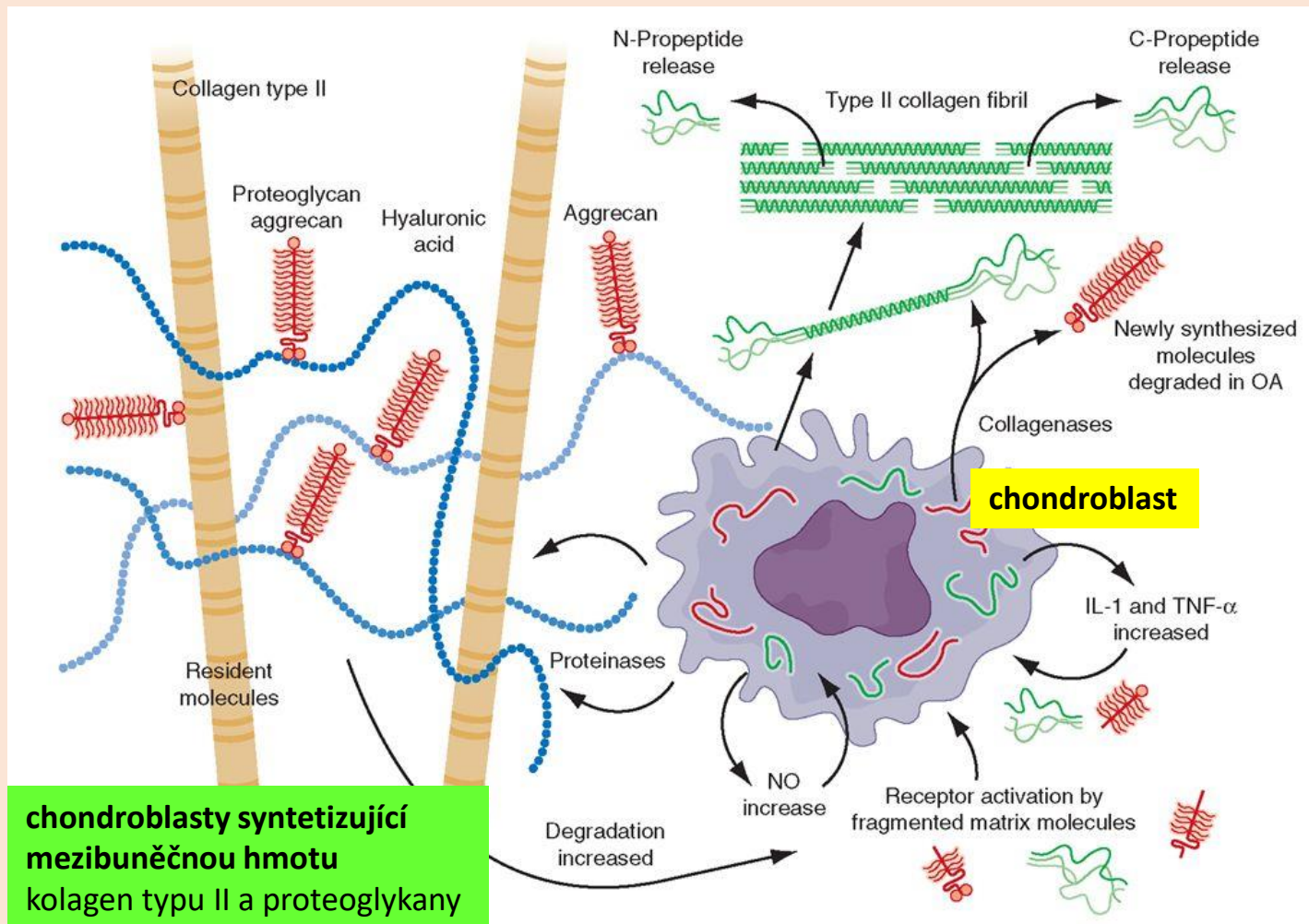
# chrupavka

## chondrocyty



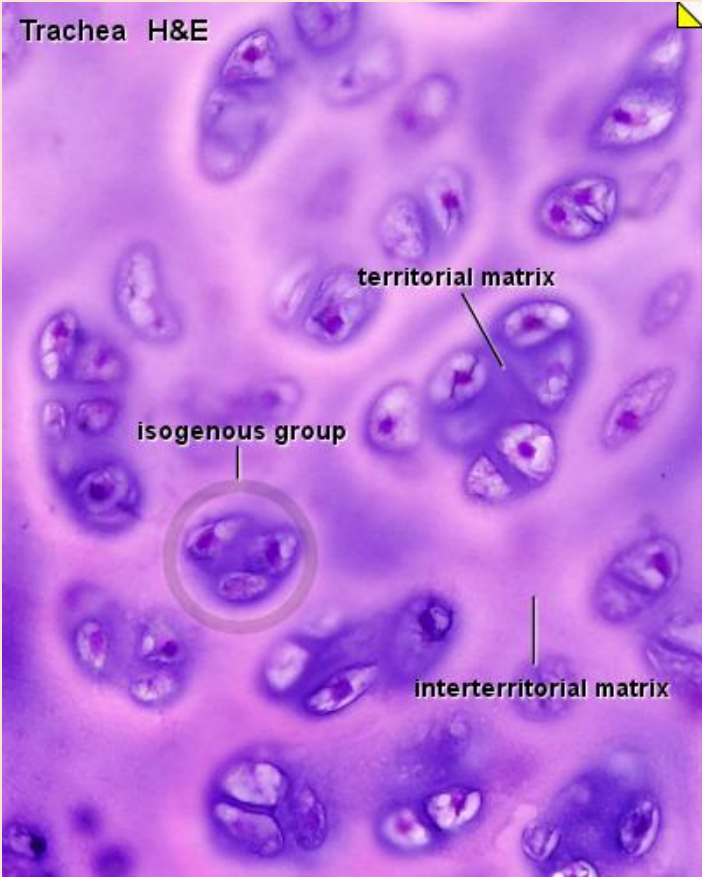
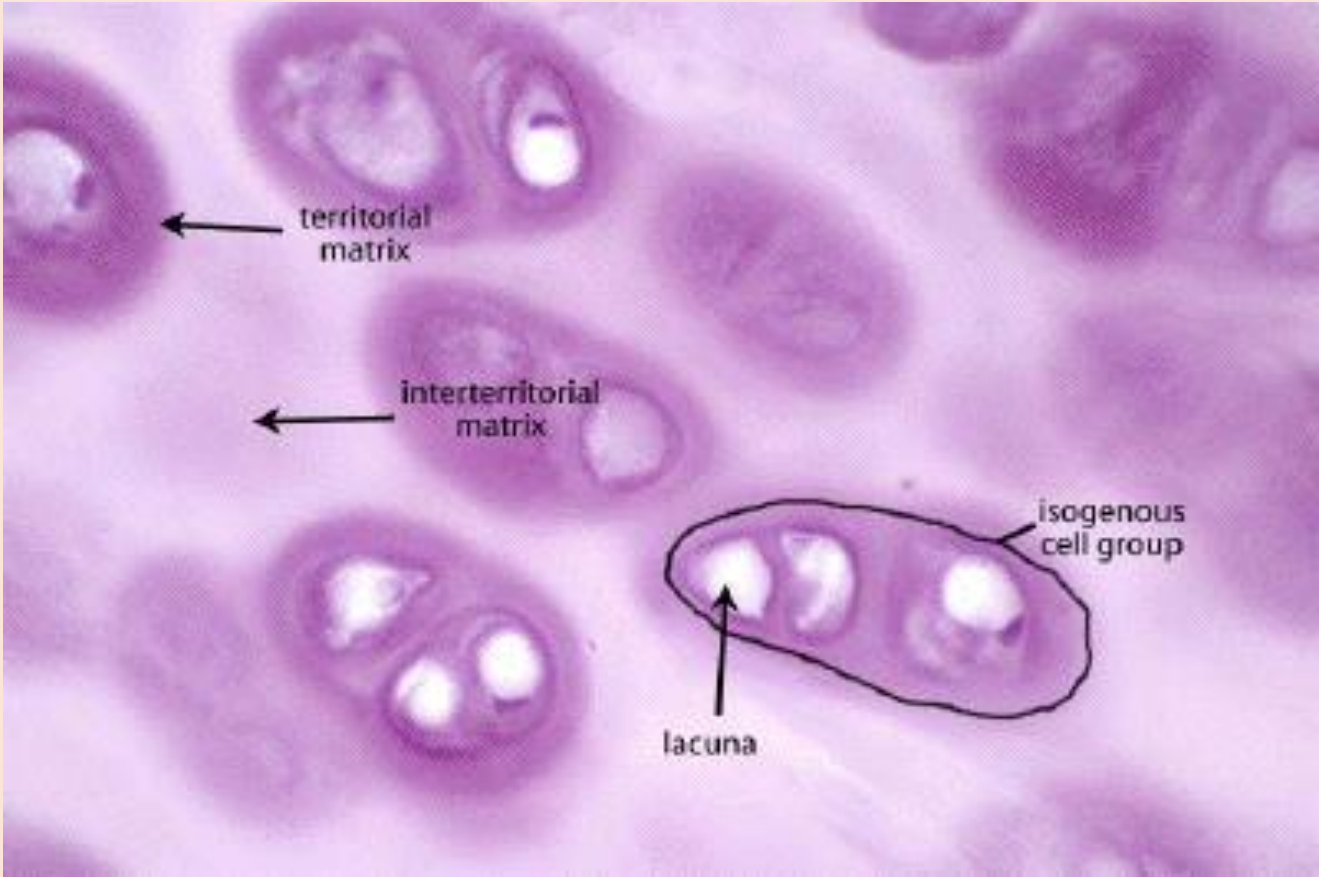
# chrupavka

## mezibuněčná hmota



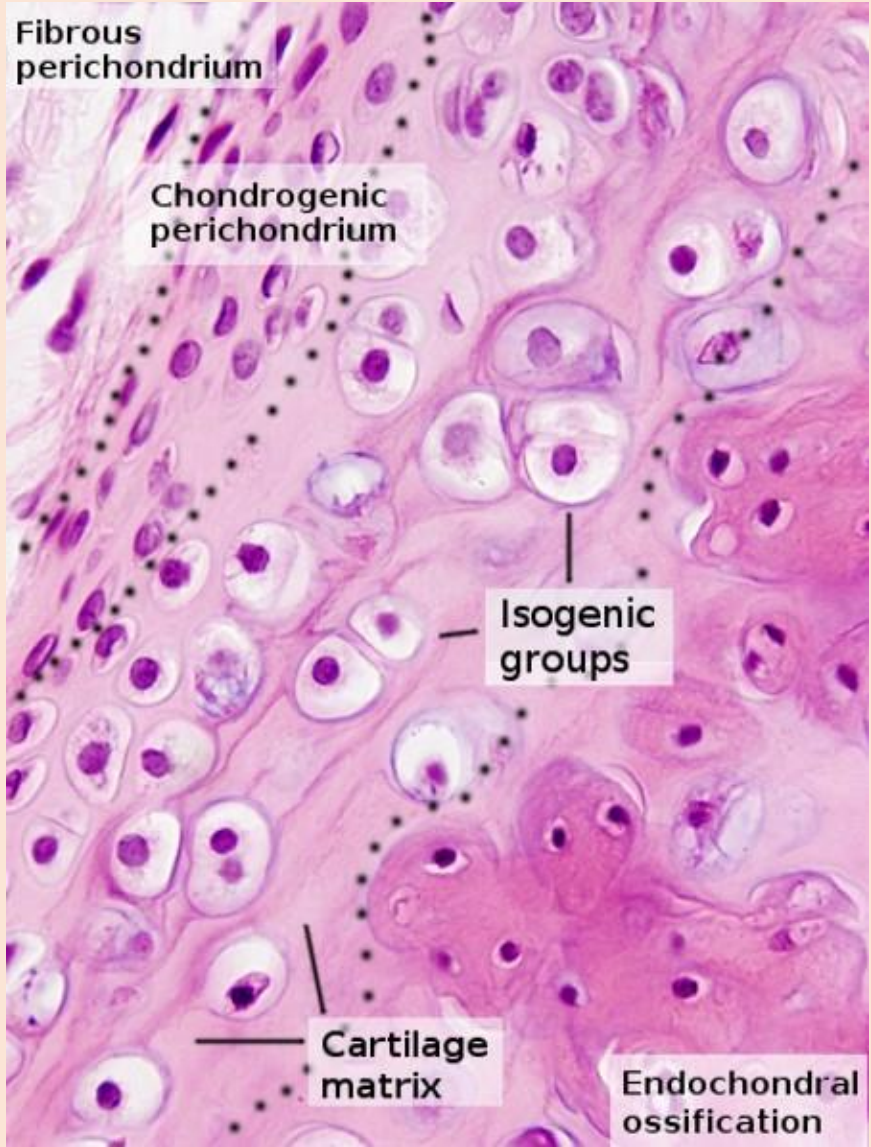
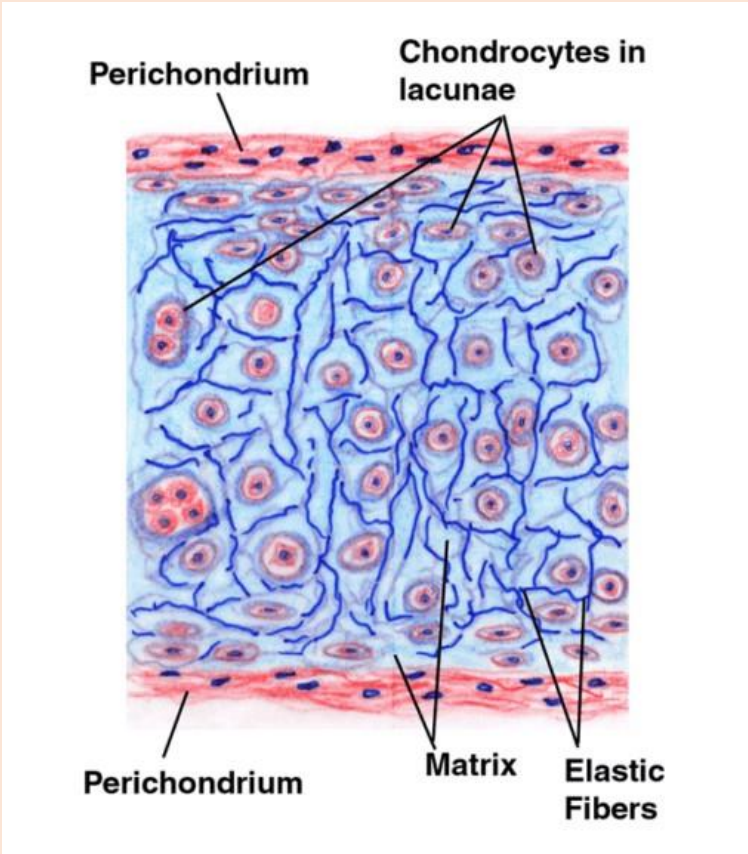


# chrupavka



chrupavka

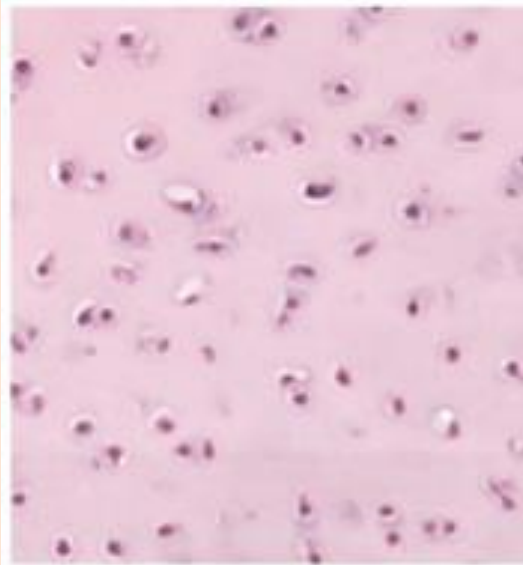
perichondrium



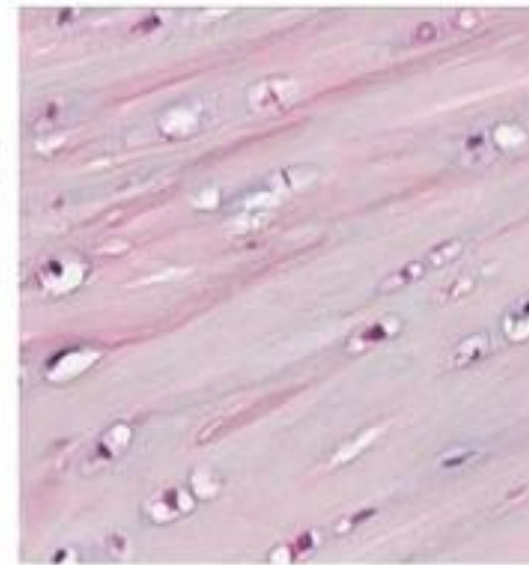


# chrupavka

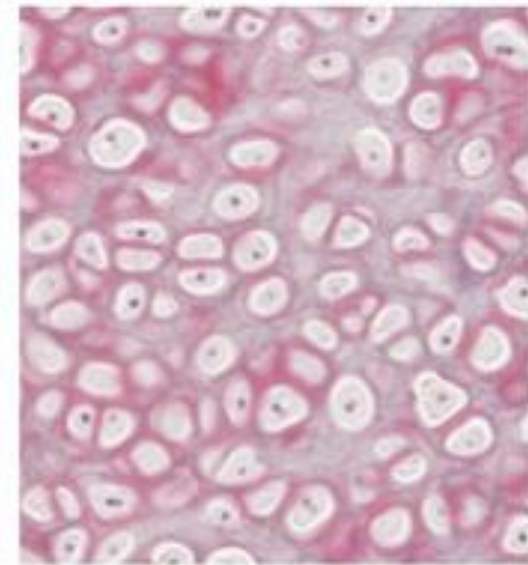
hyalinní  
kolagenní  
elastická



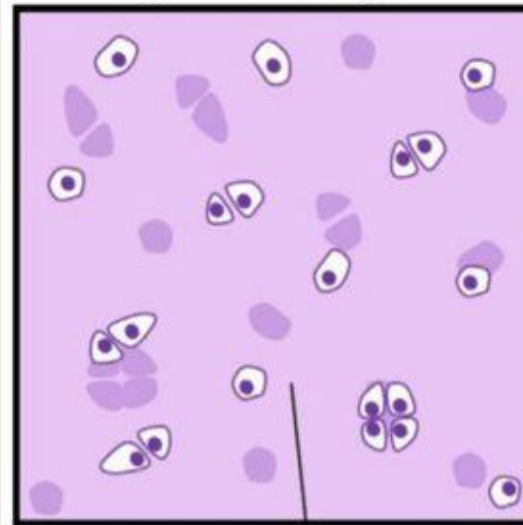
Hyaline cartilage



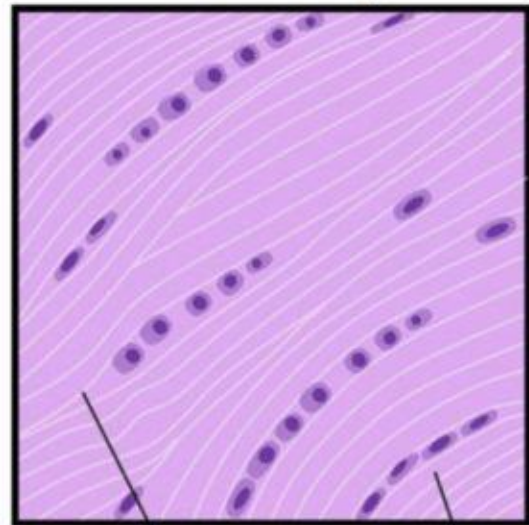
Fibrocartilage



Elastic cartilage

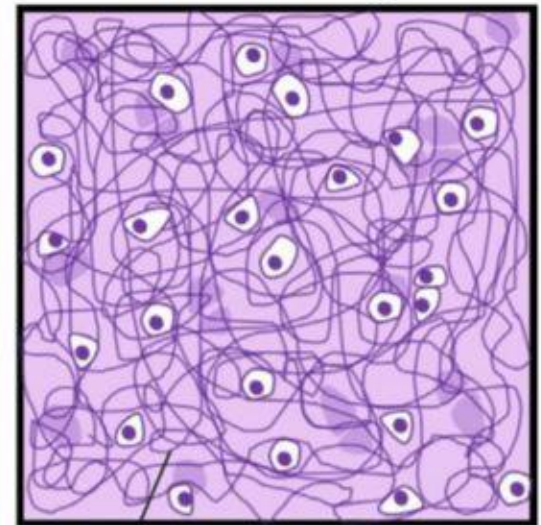


Clearer looking  
ground substance



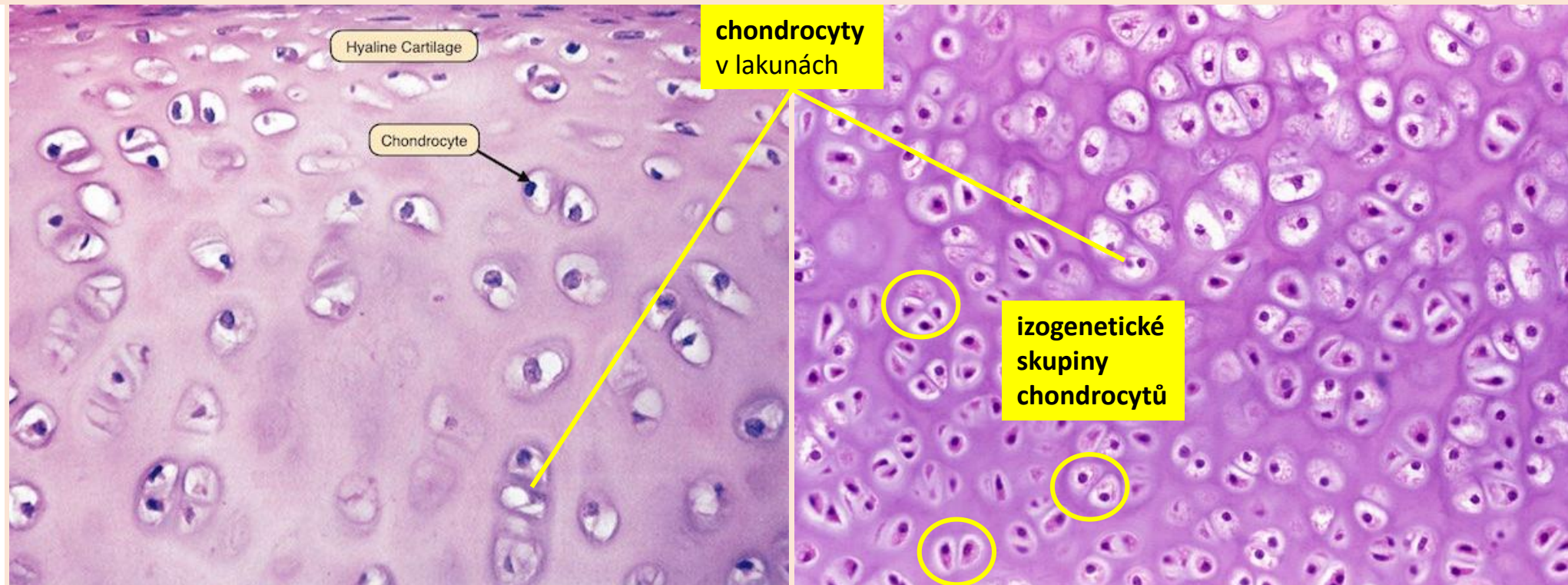
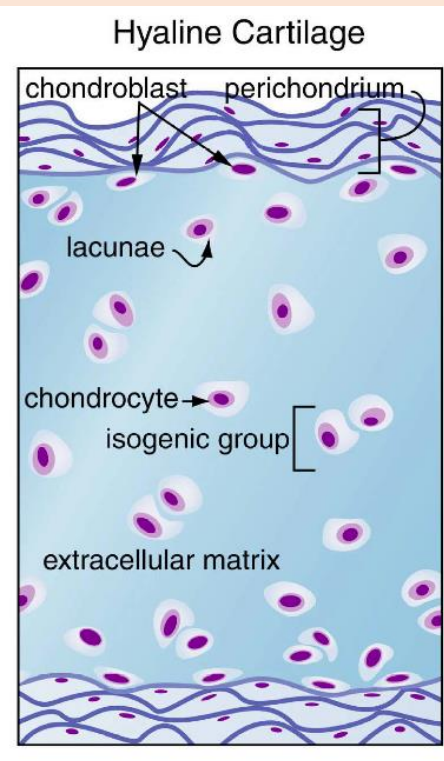
Densely layered  
collagen fibers

More flattened and  
organized cell rows



Visible elastic fibers in matrix

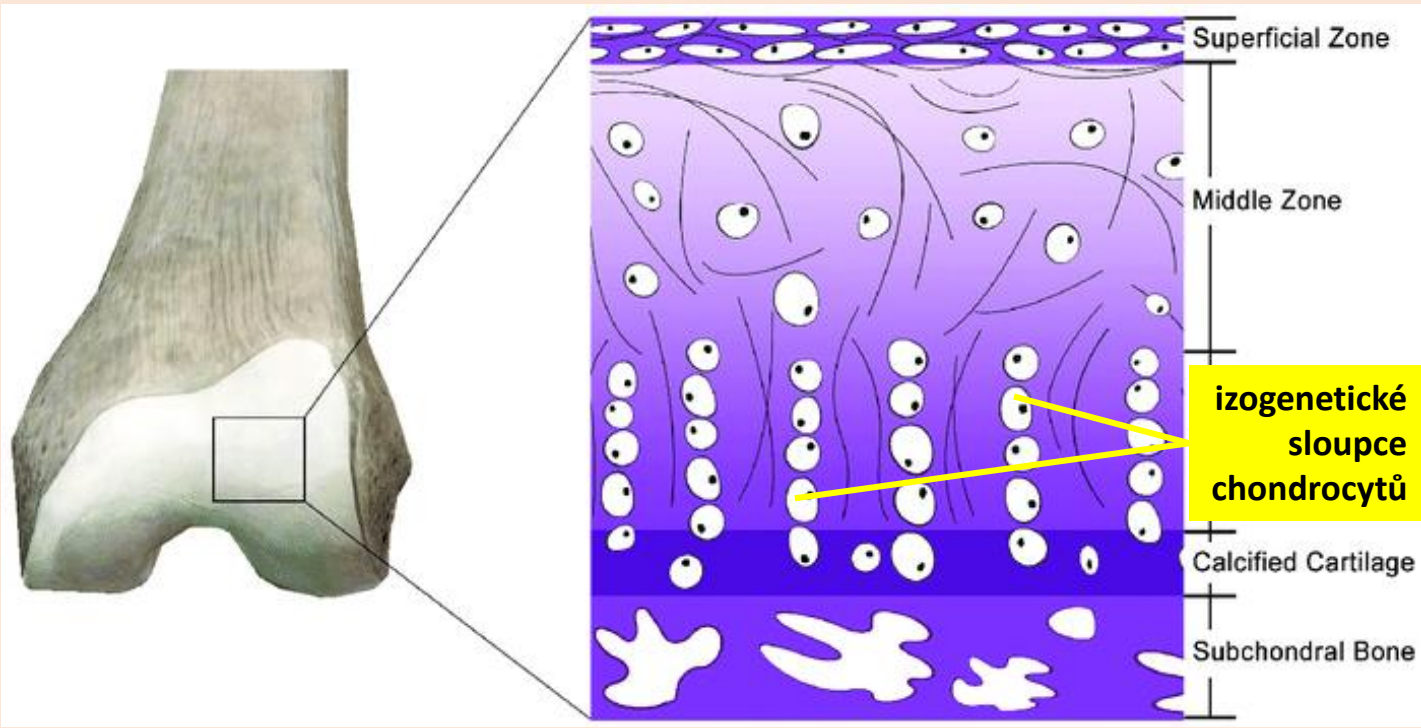
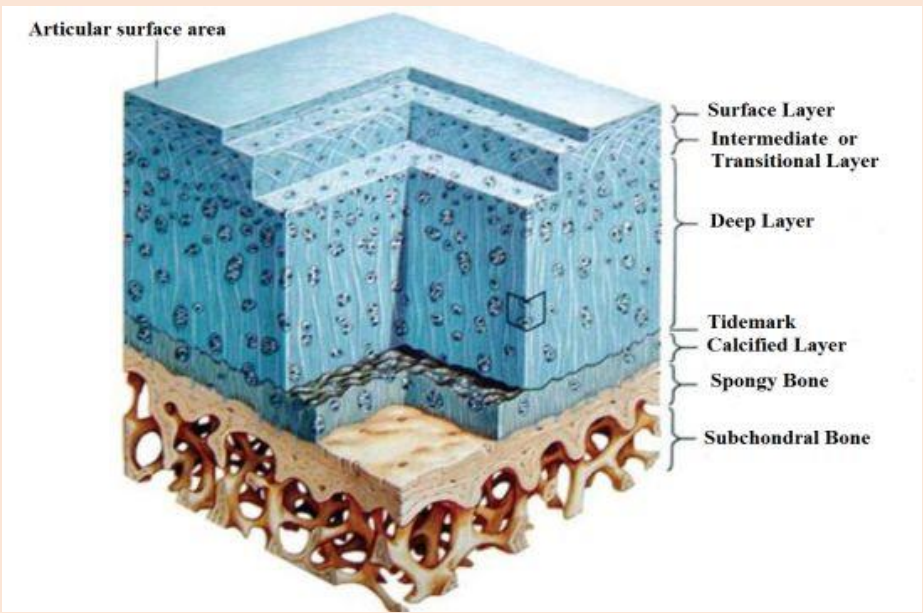
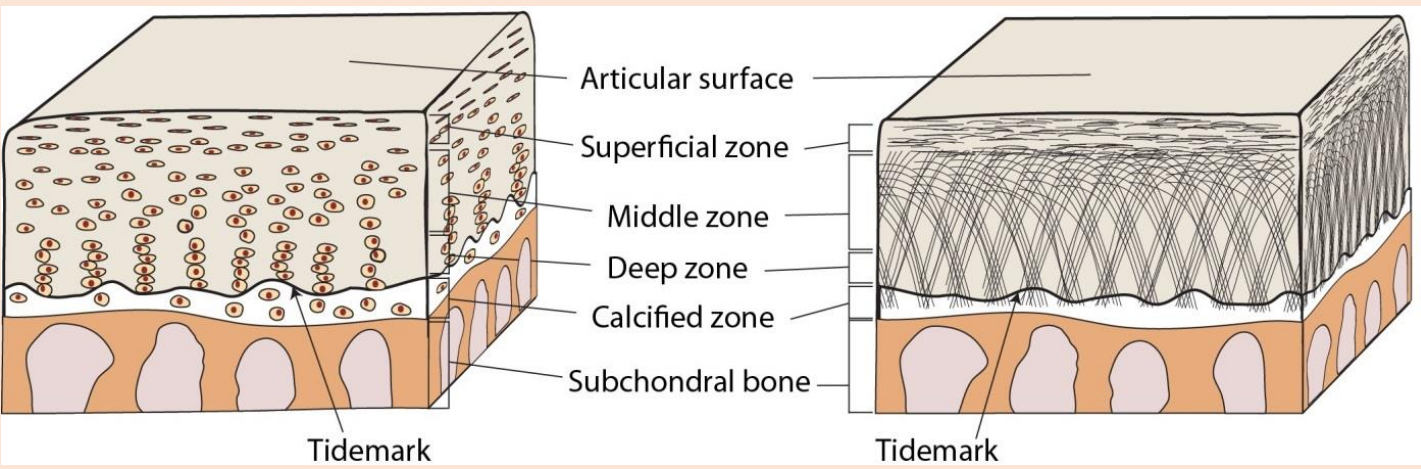
# hyalinní chrupavka





# hyalinní chrupavka

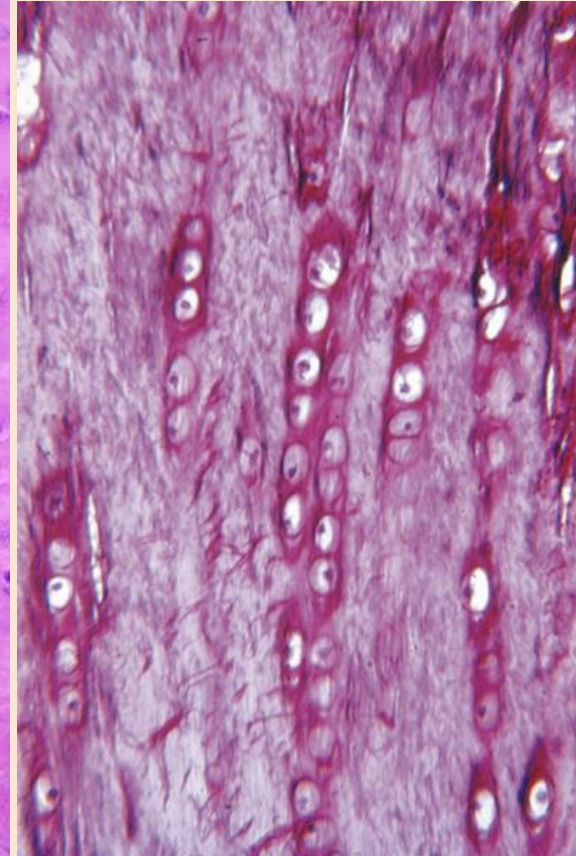
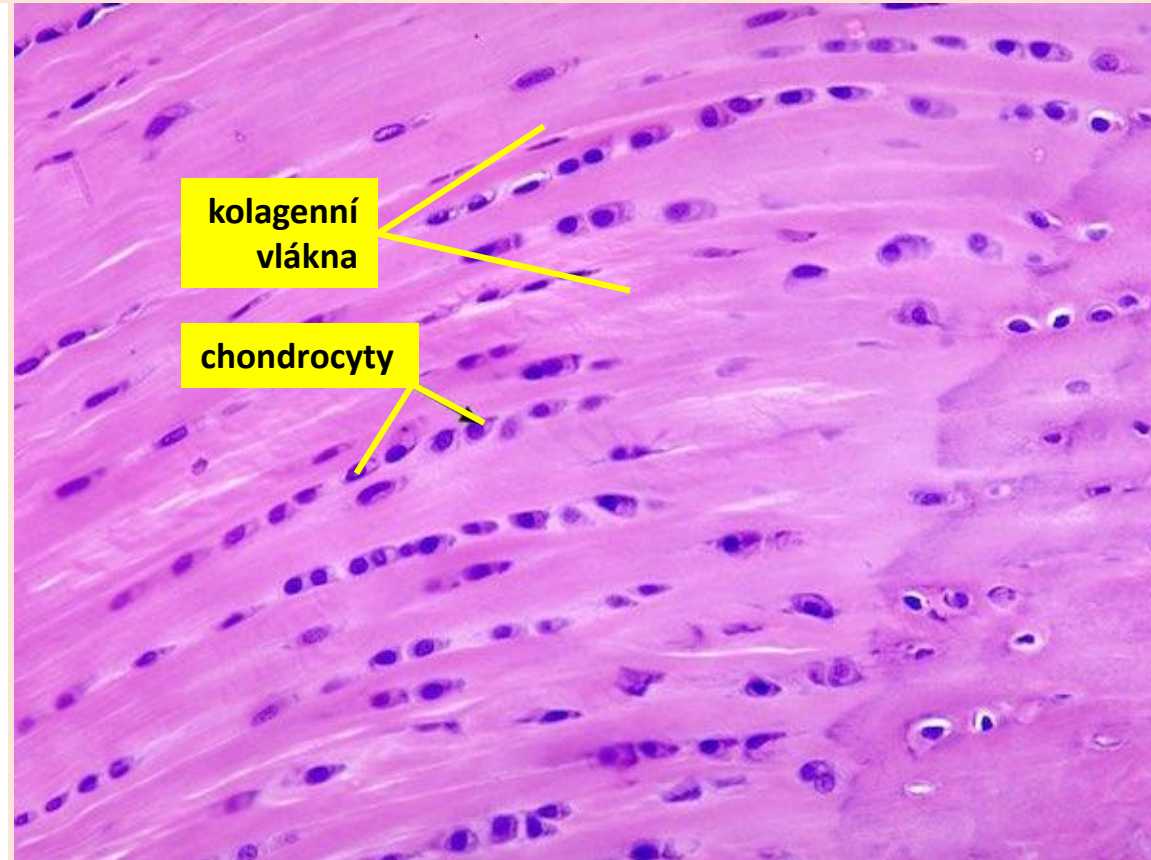
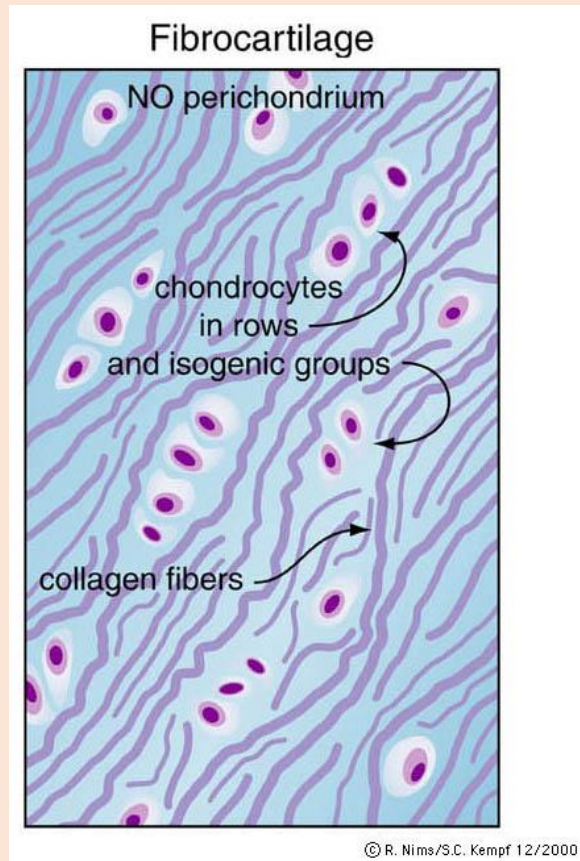
## kloubní chrupavka





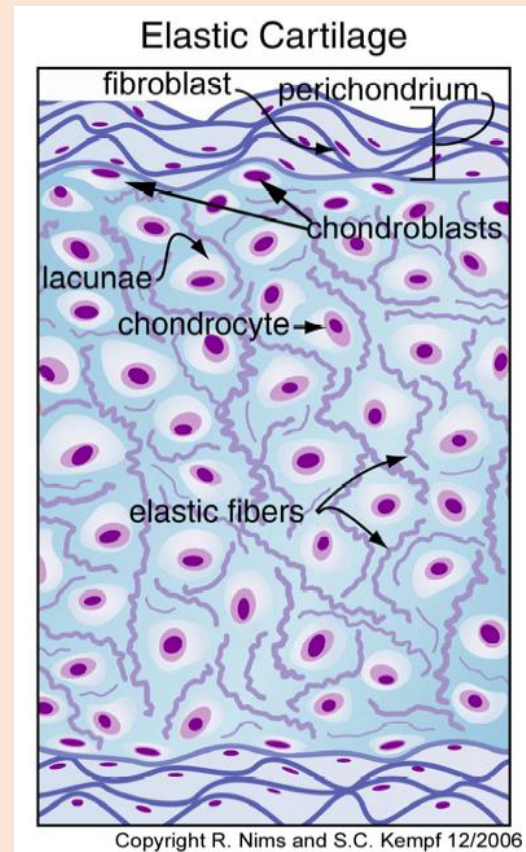
# kolagenní chrupavka

vazivová chrupavka (fibrocartilago)





# elastická chrupavka



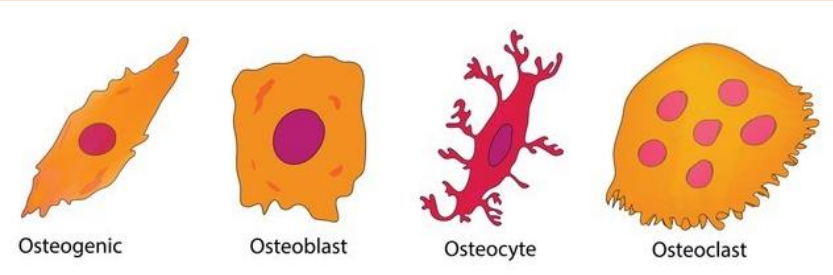
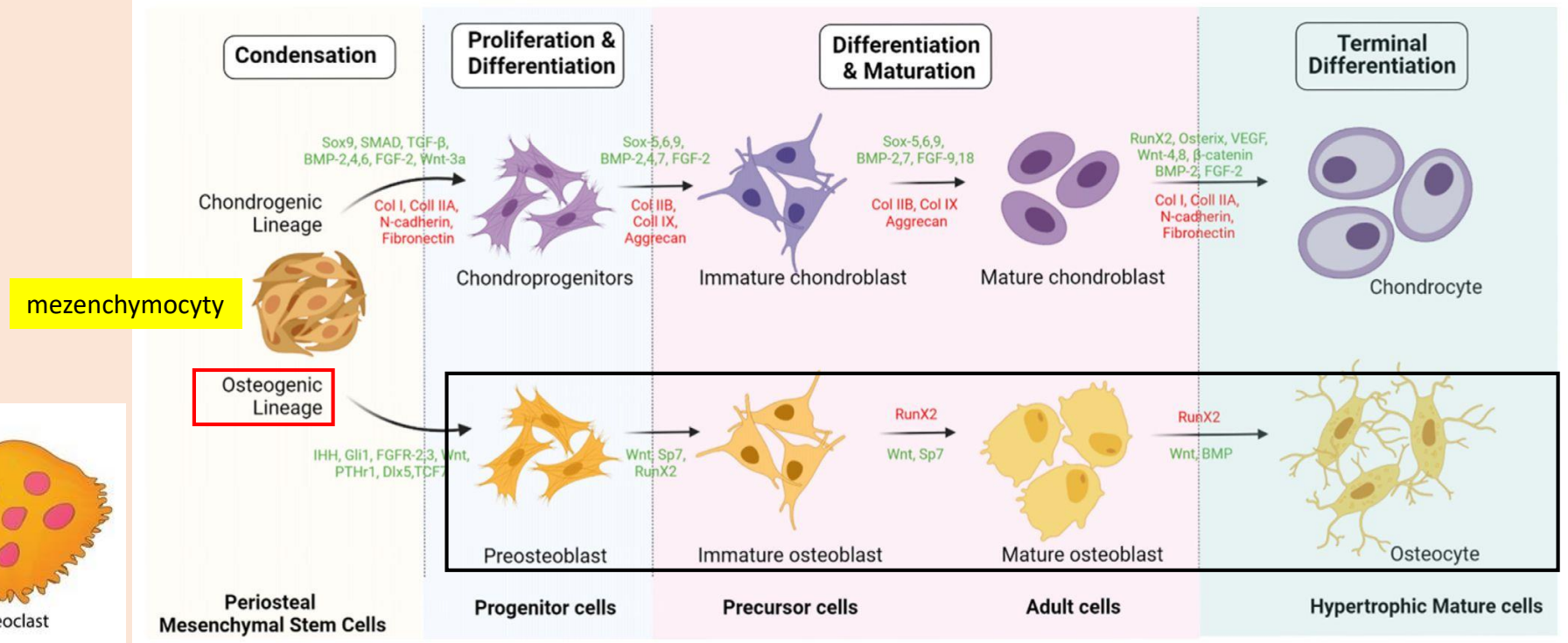
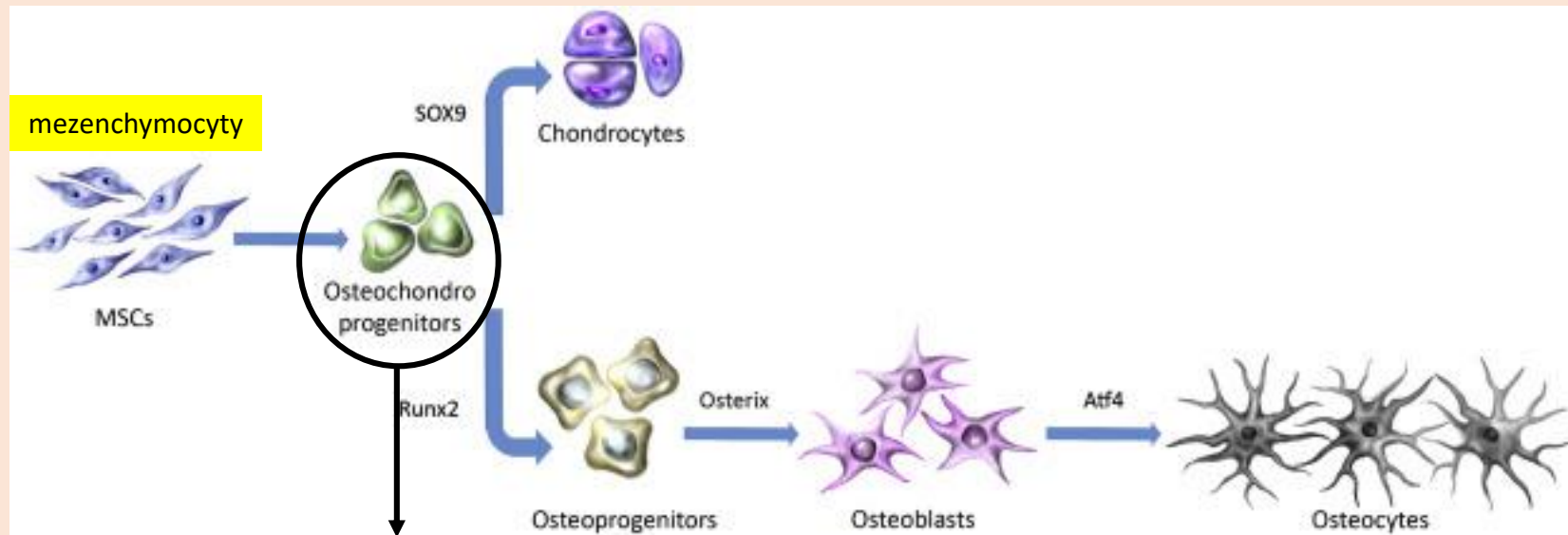
# TKÁNĚ POJIVOVÉ A OPĚRNÉ

## kostní tkáň



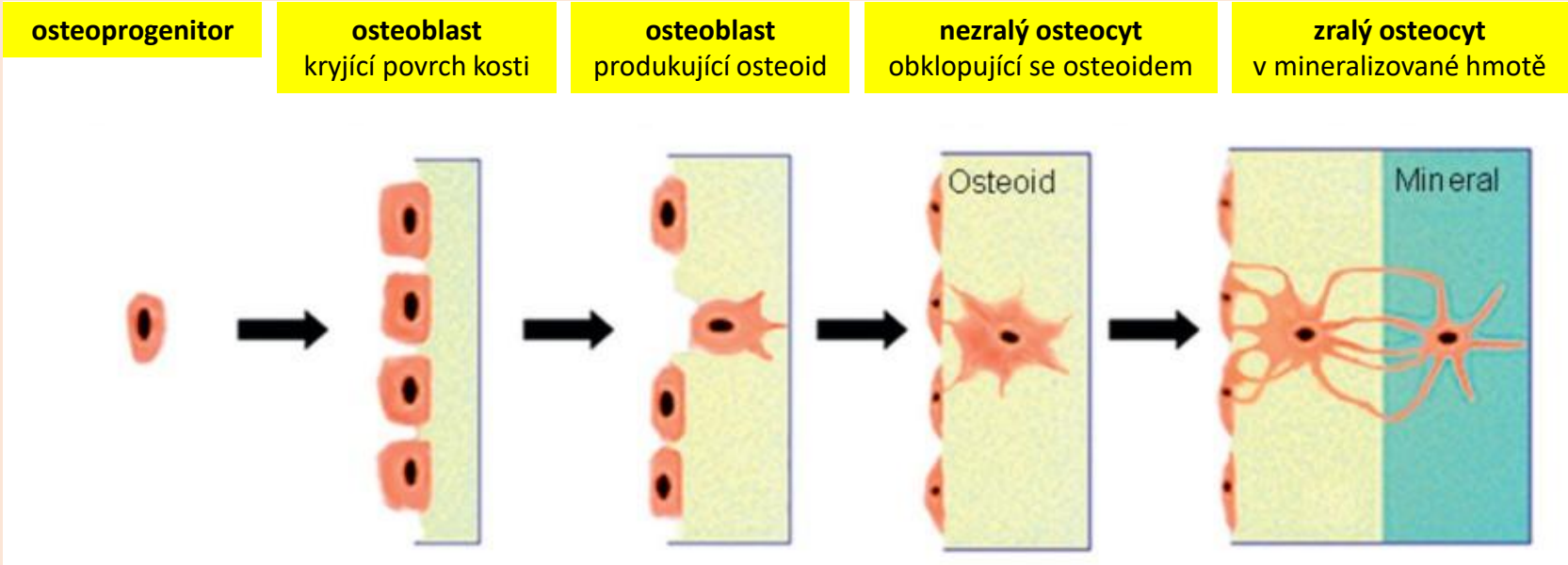
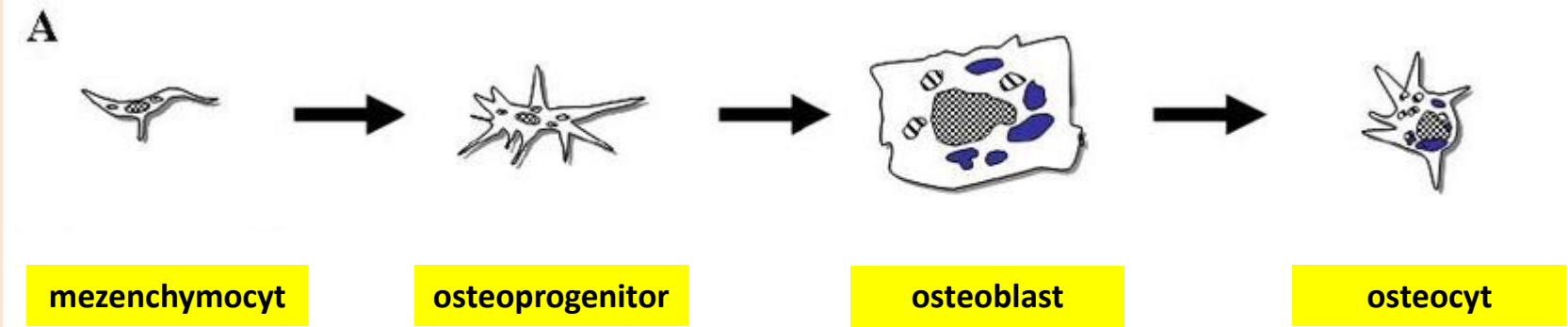
# kostní tkáň

## osteogeneze



# kostní tkáň

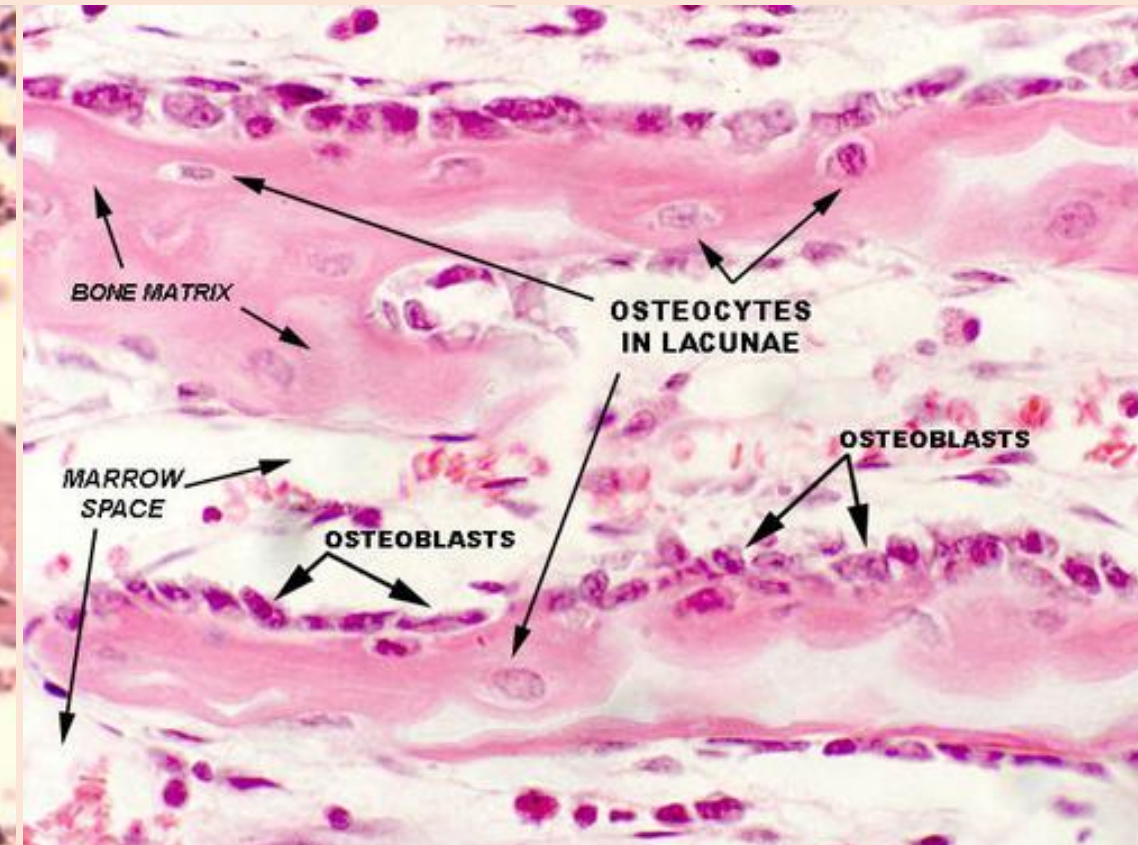
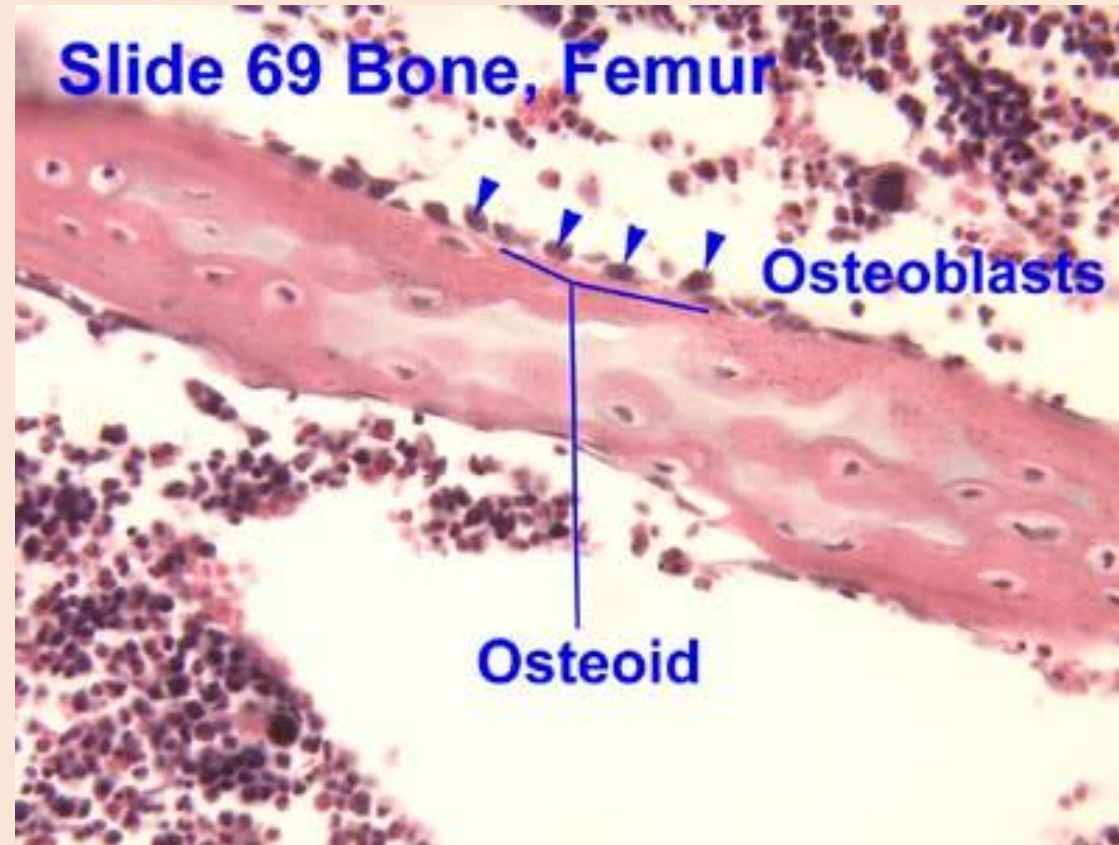
## osteoblasty





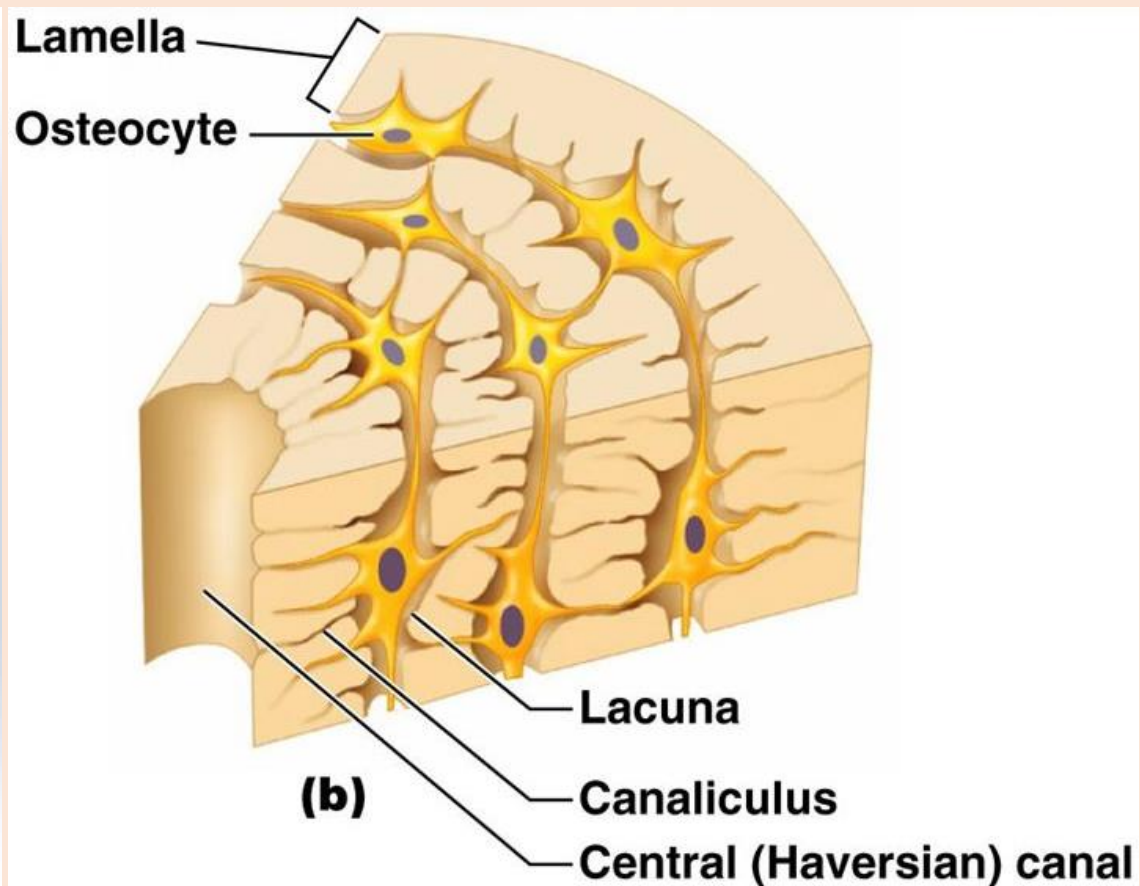
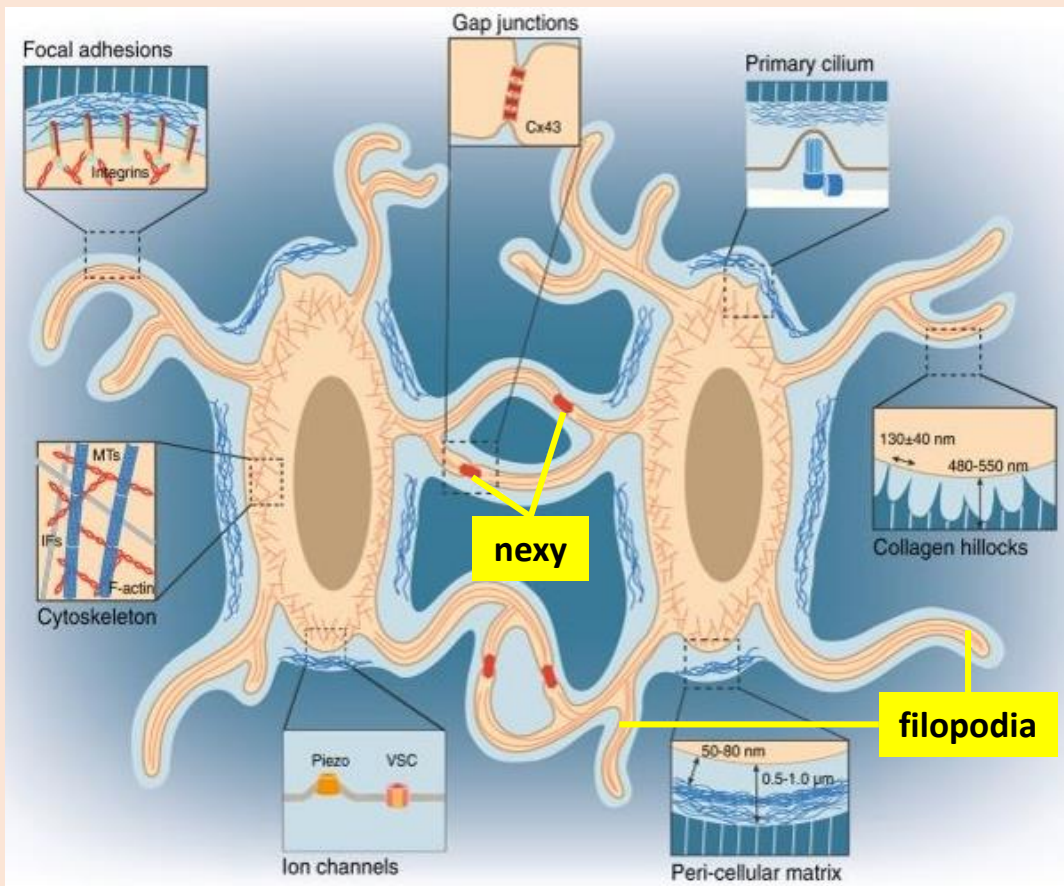
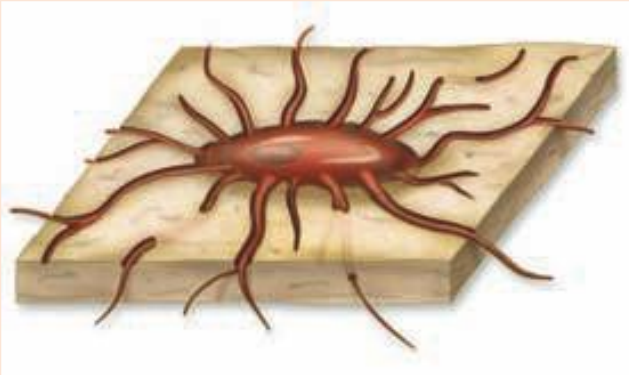
# kostní tkáň

## osteoblasty



# kostní tkáň

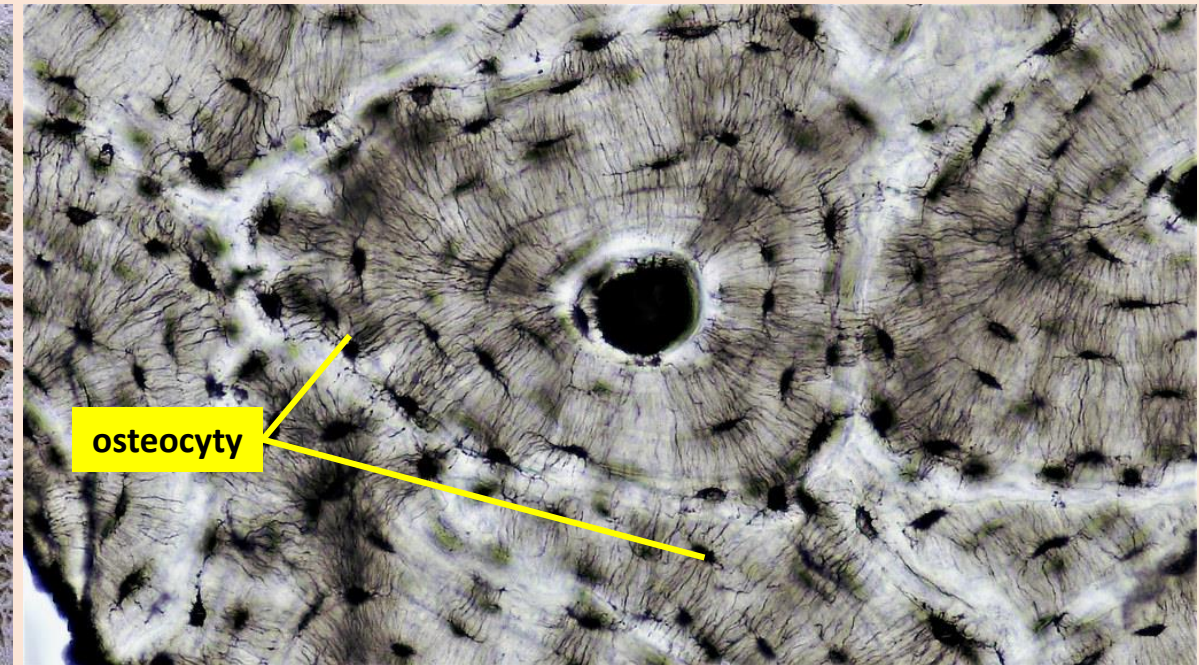
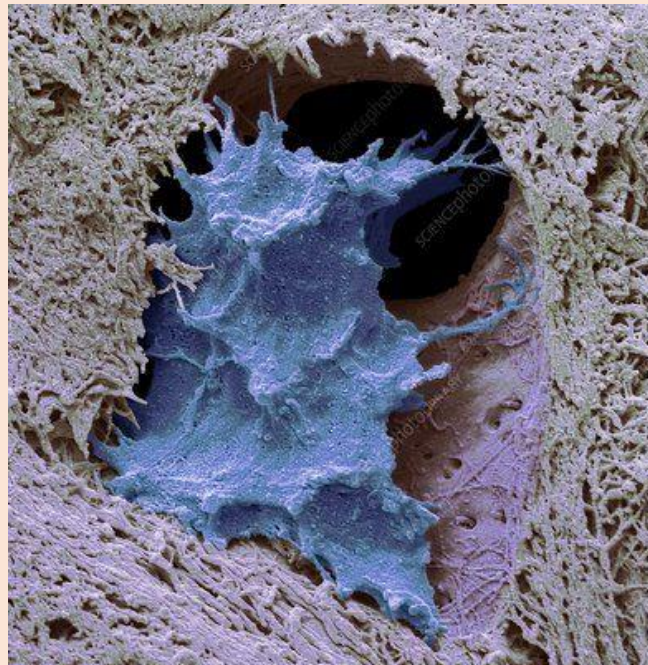
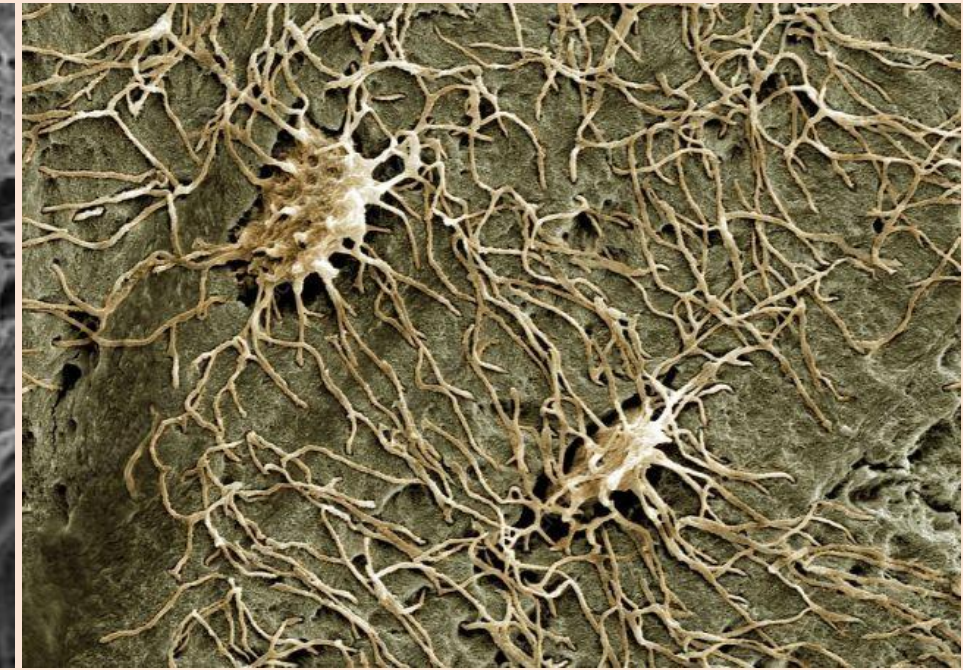
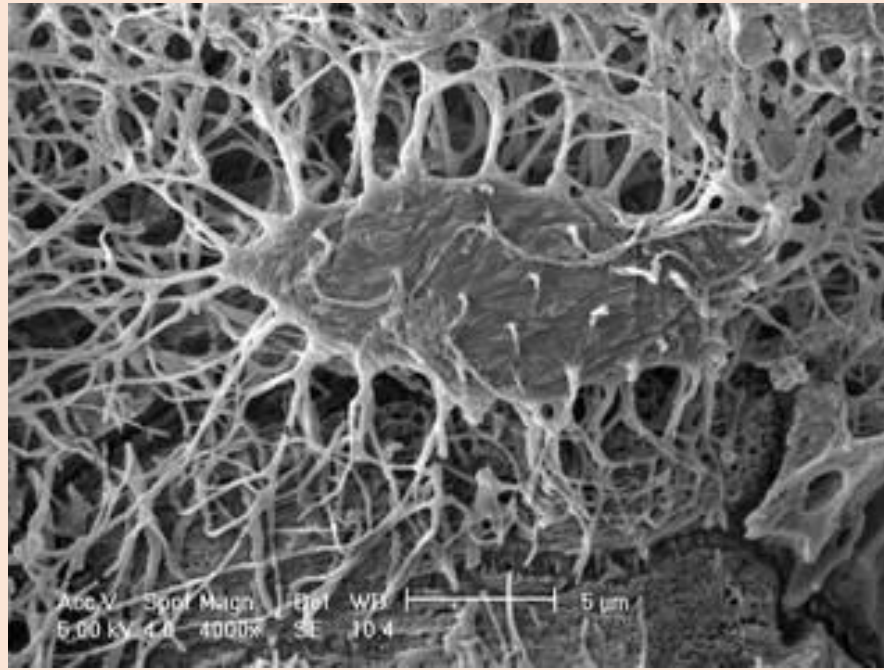
## osteocyty





# kostní tkáň

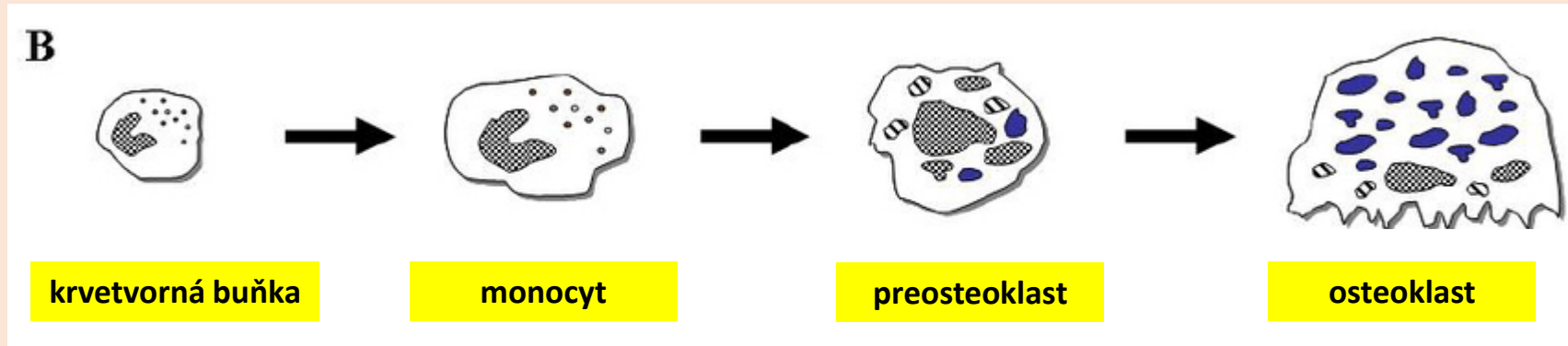
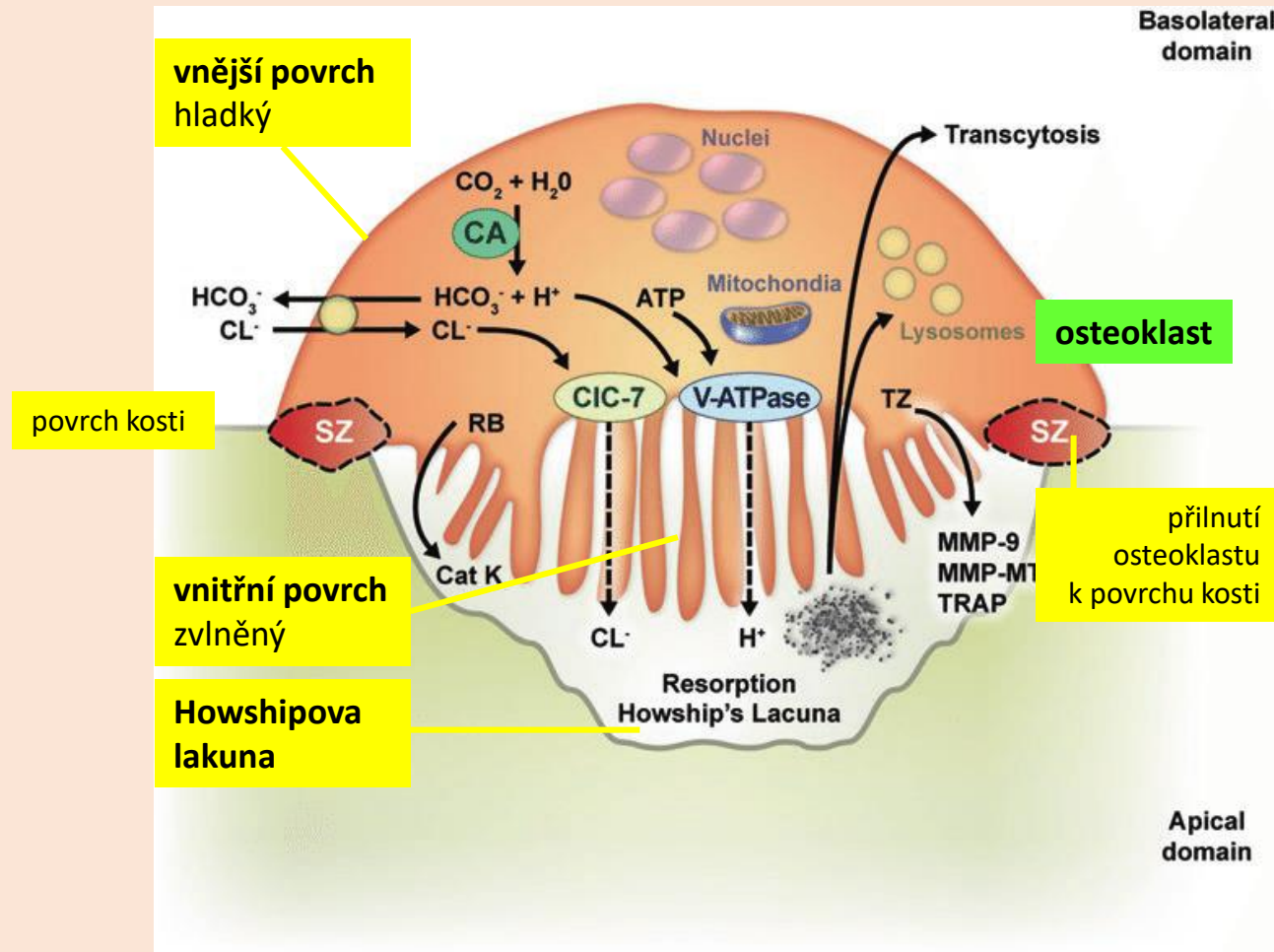
## osteocyty





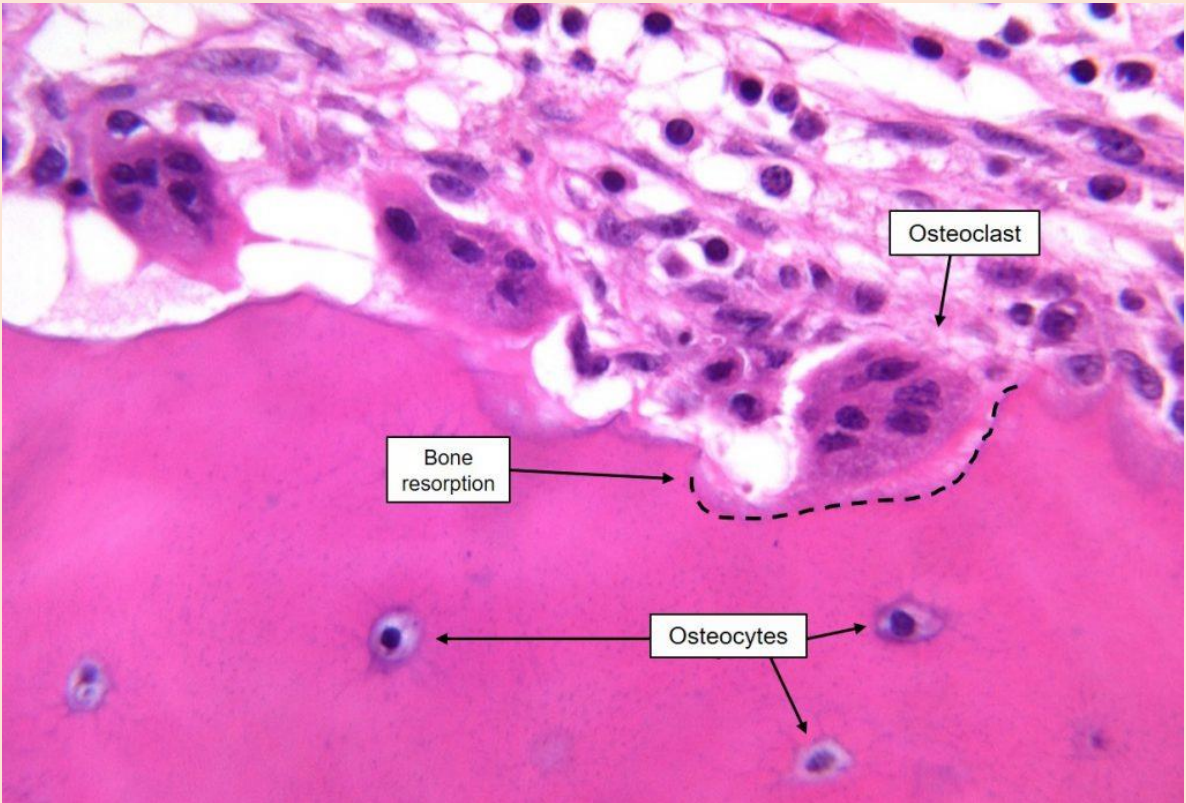
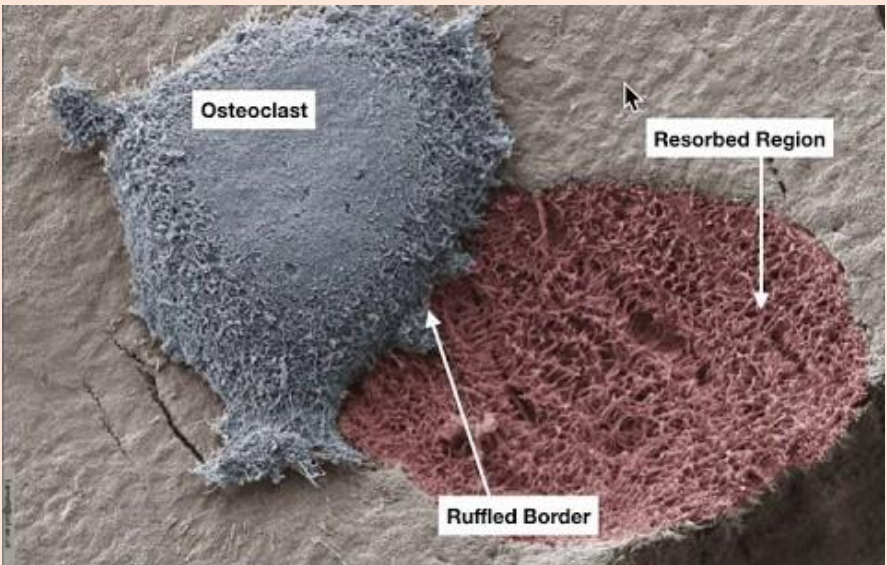
# kostní tkáň

## osteoklasty



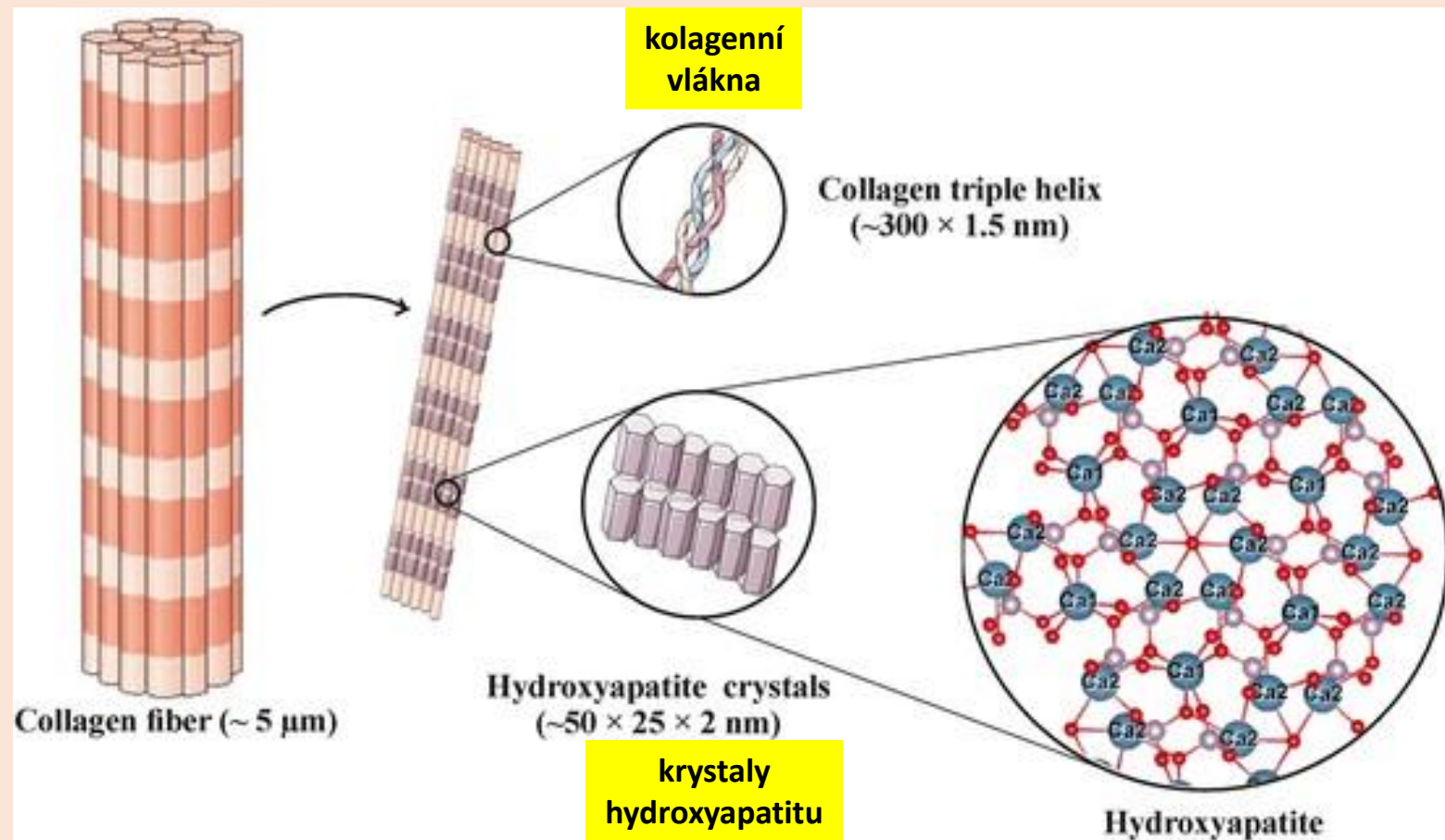


**kostní tkáň**  
**osteoklasty**



# kostní tkáň

## mezibuněčná hmota

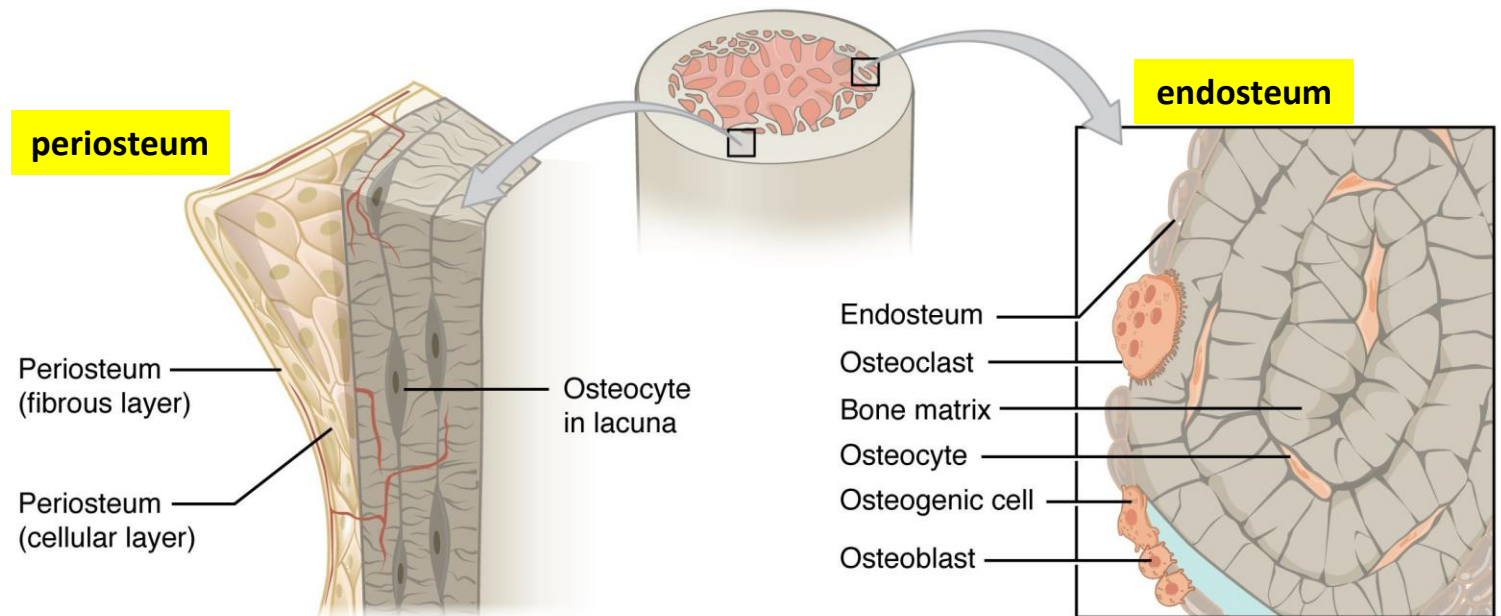
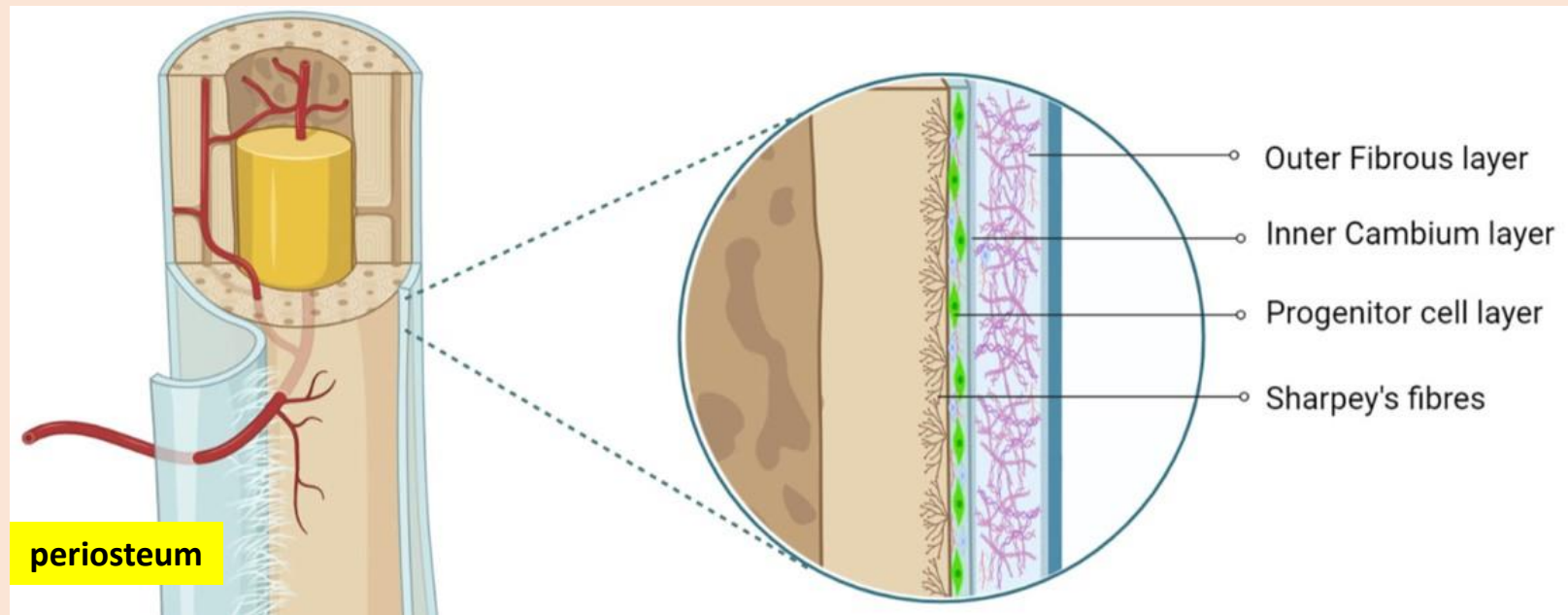




# kostní tkáň

periosteum

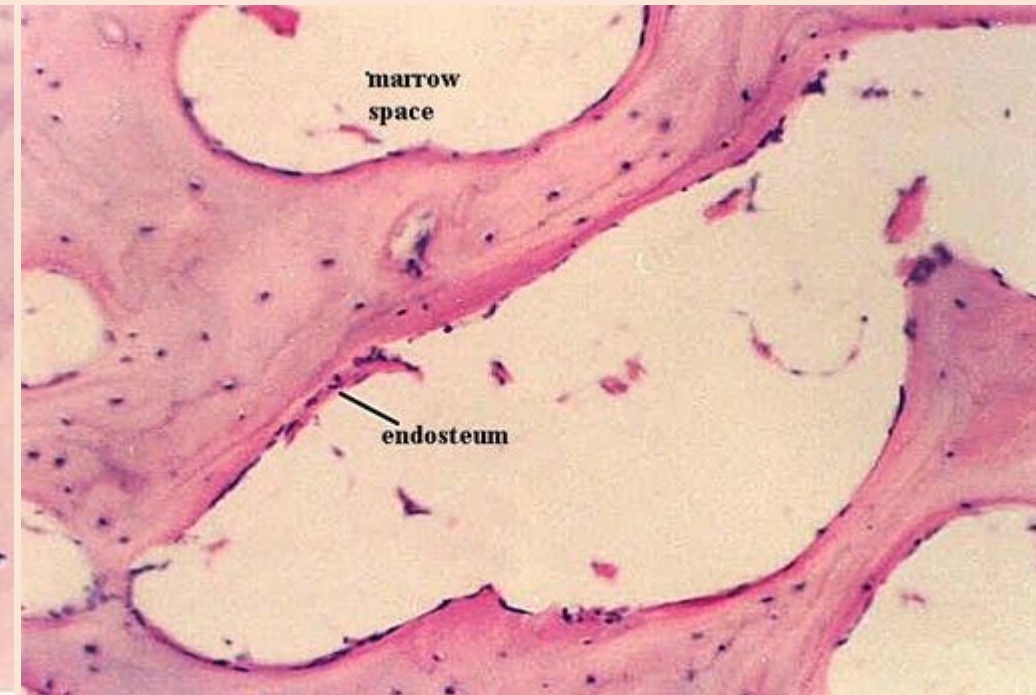
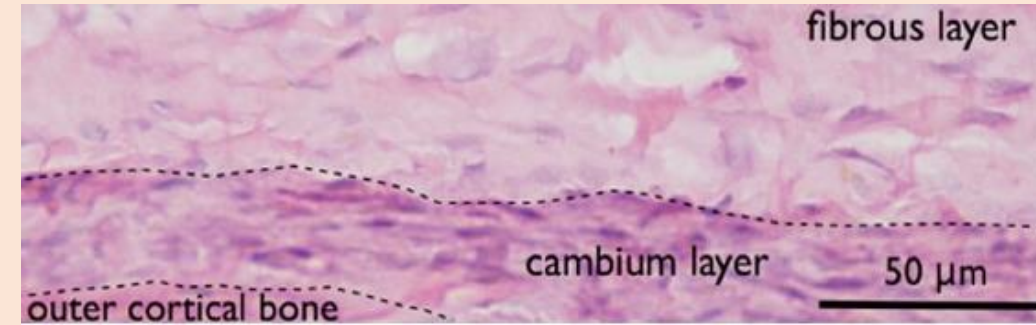
endosteum



# kostní tkáň

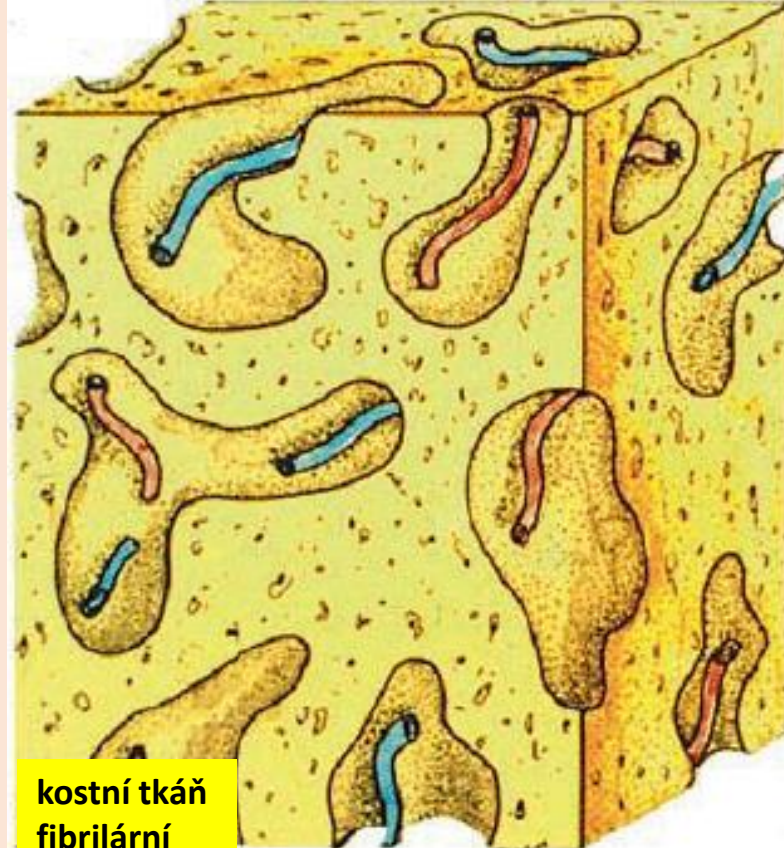
periosteum

endosteum

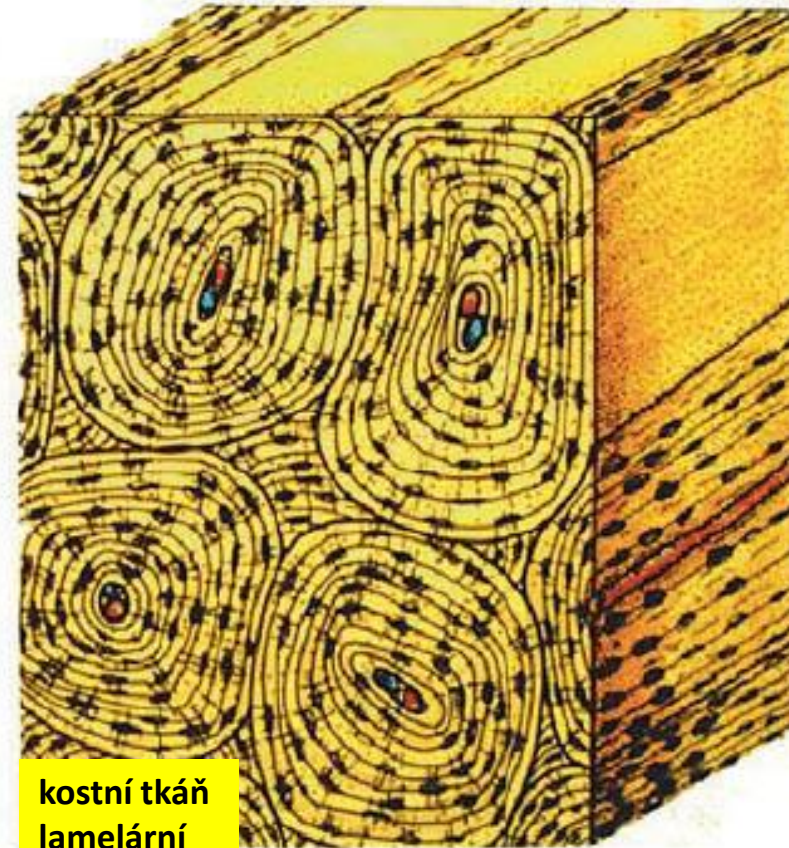




# kostní tkáň fibrilární



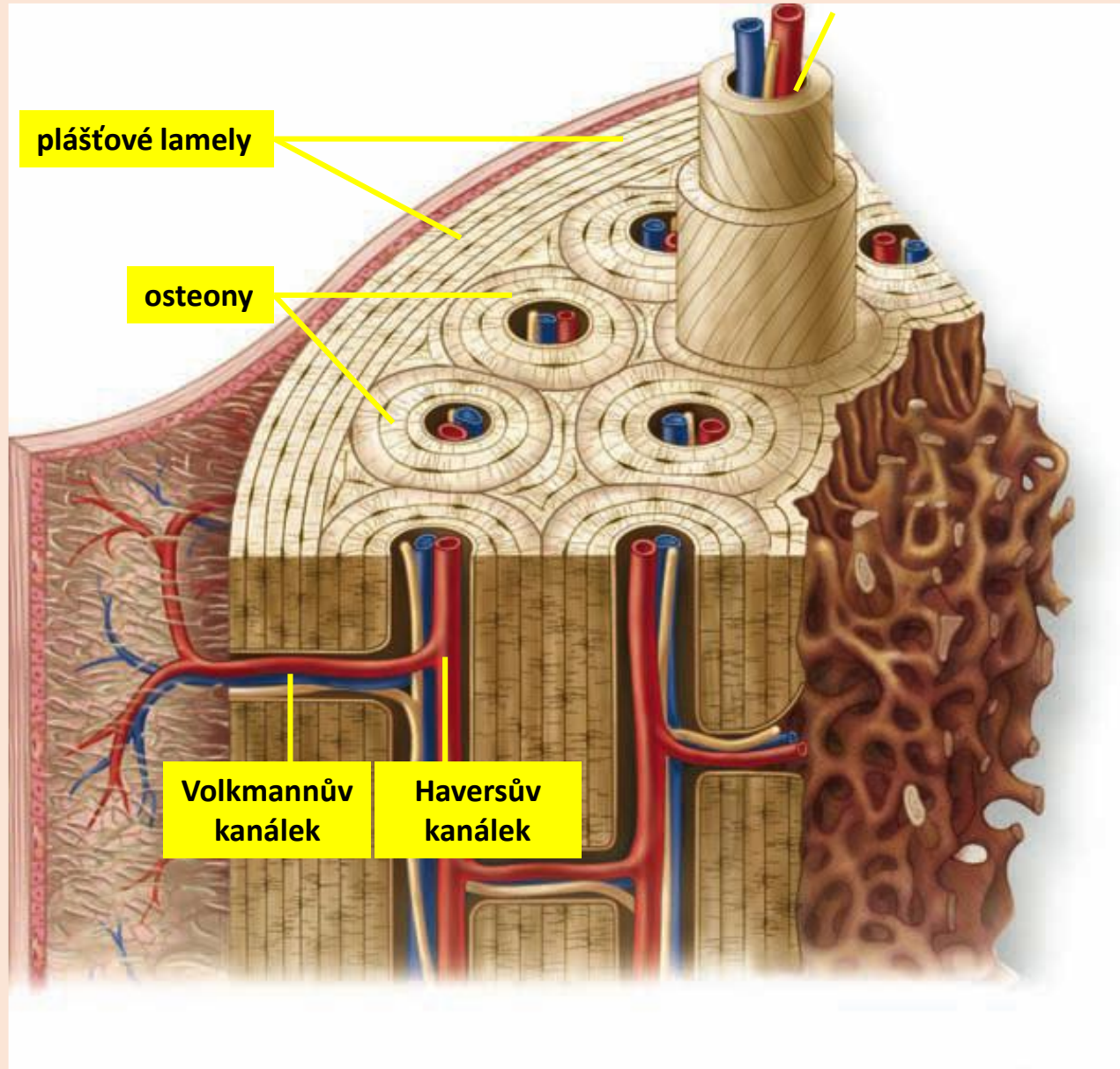
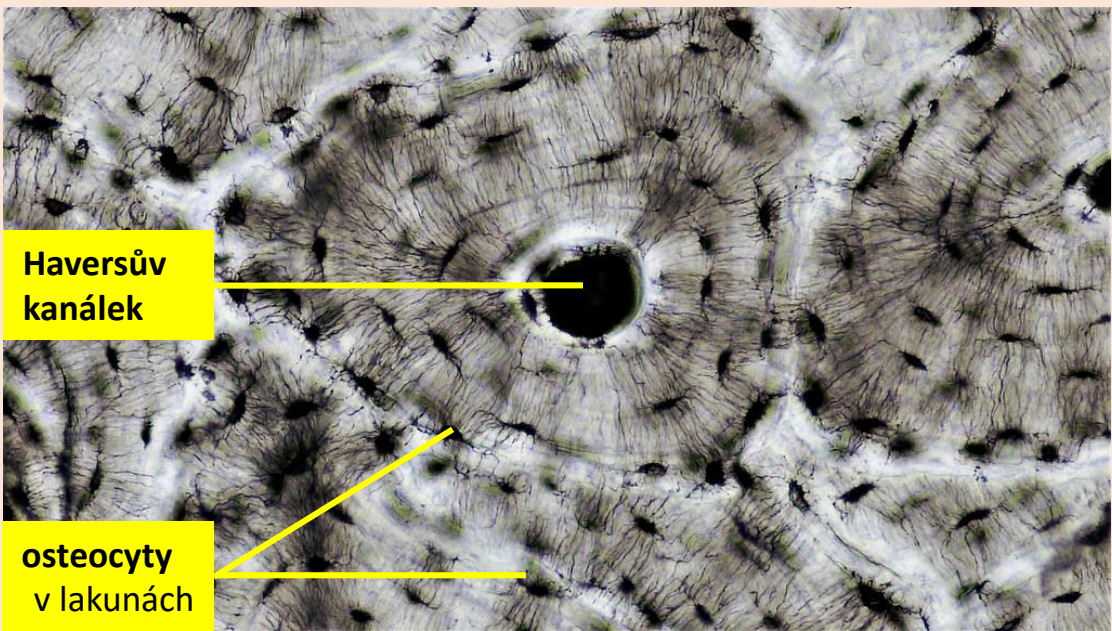
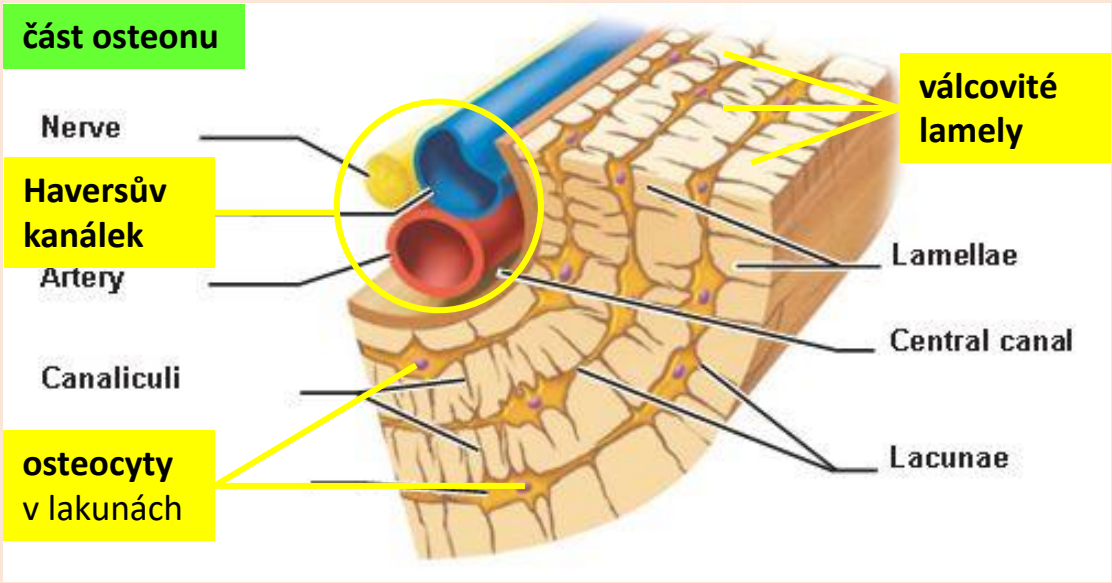
kostní tkáň  
fibrilární



kostní tkáň  
lamelární



# kostní tkáň lamelární

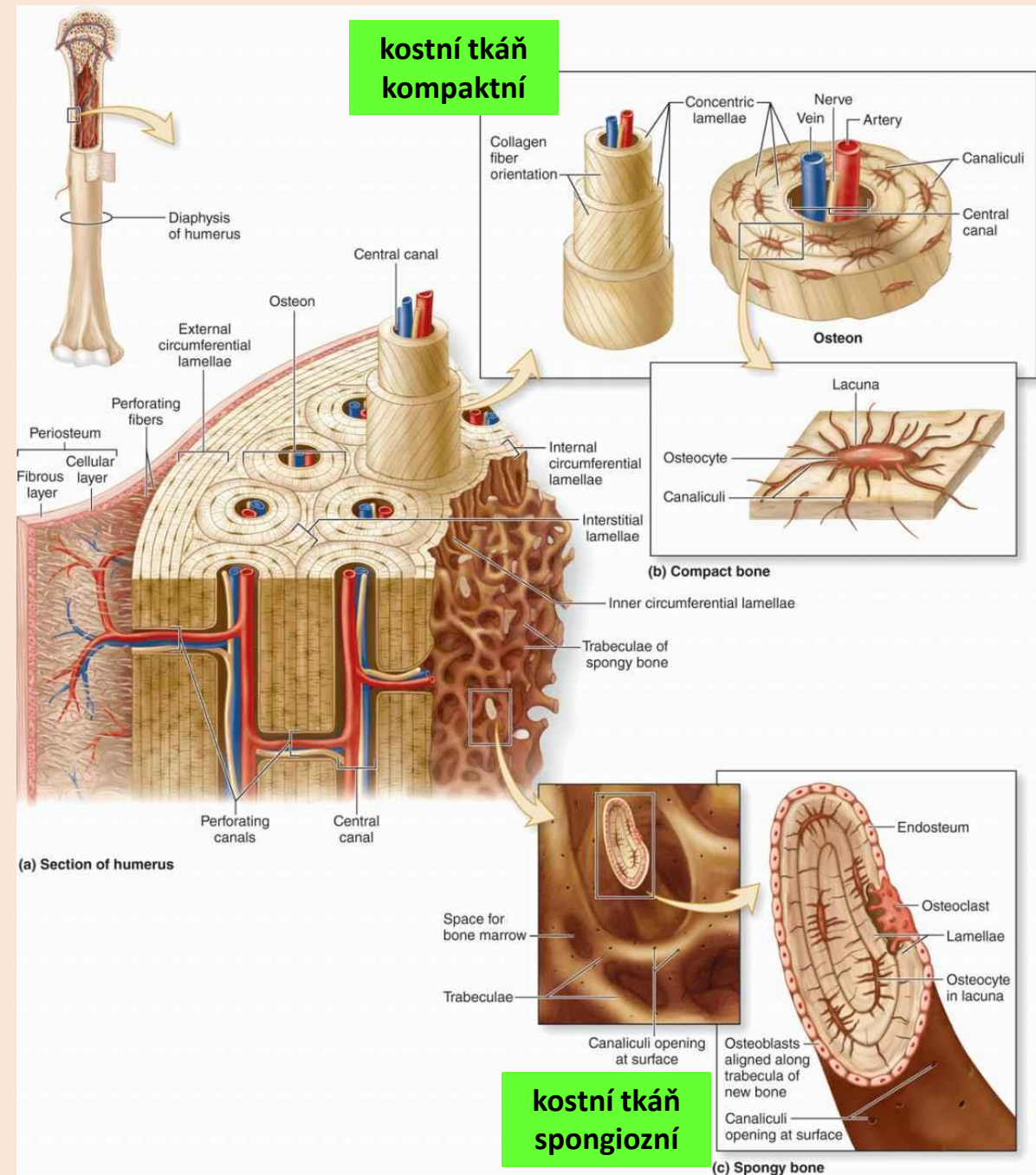




# kostní tkáň lamelární

kostní tkáň kompaktní

kostní tkáň spongiozní

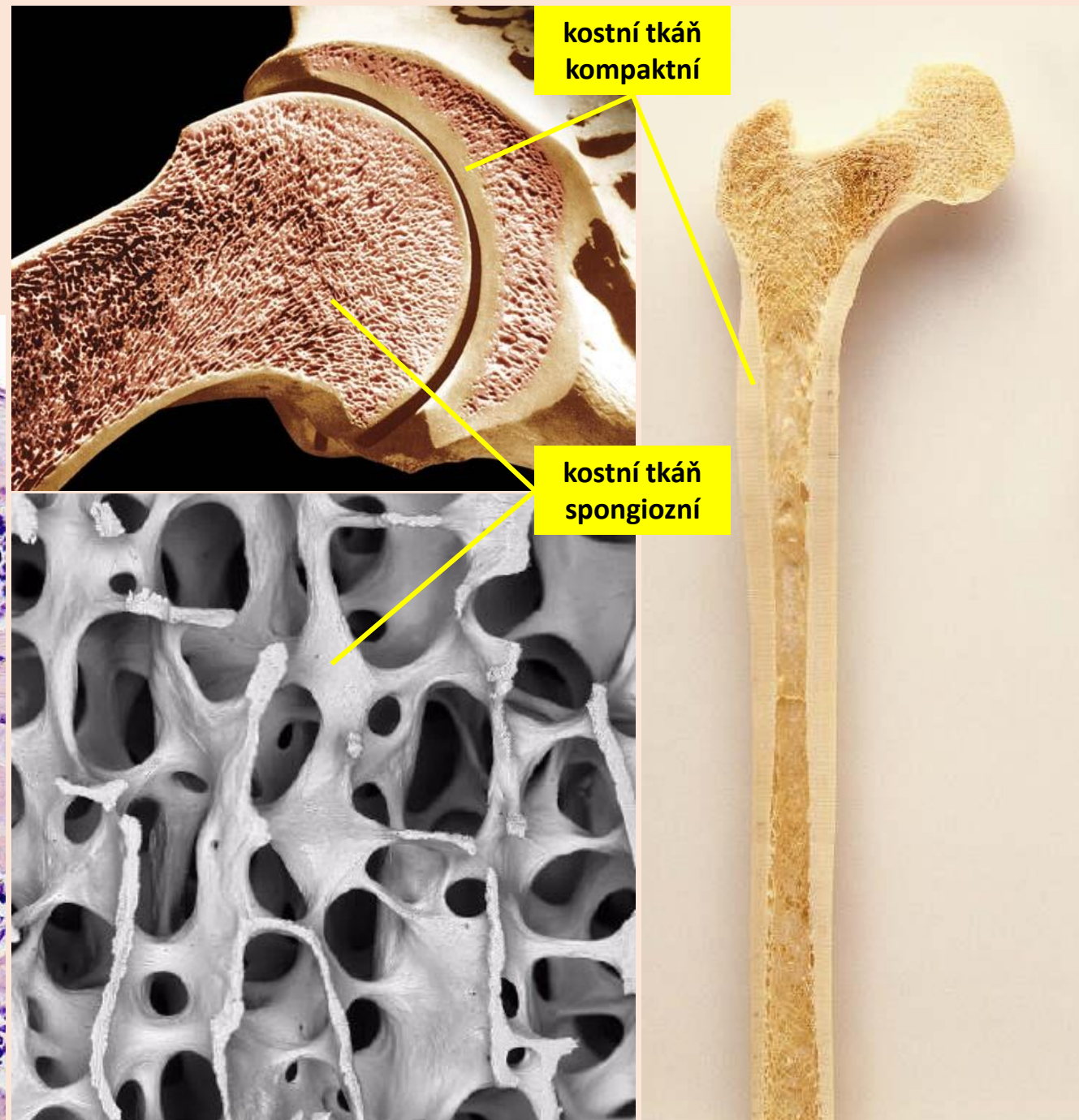
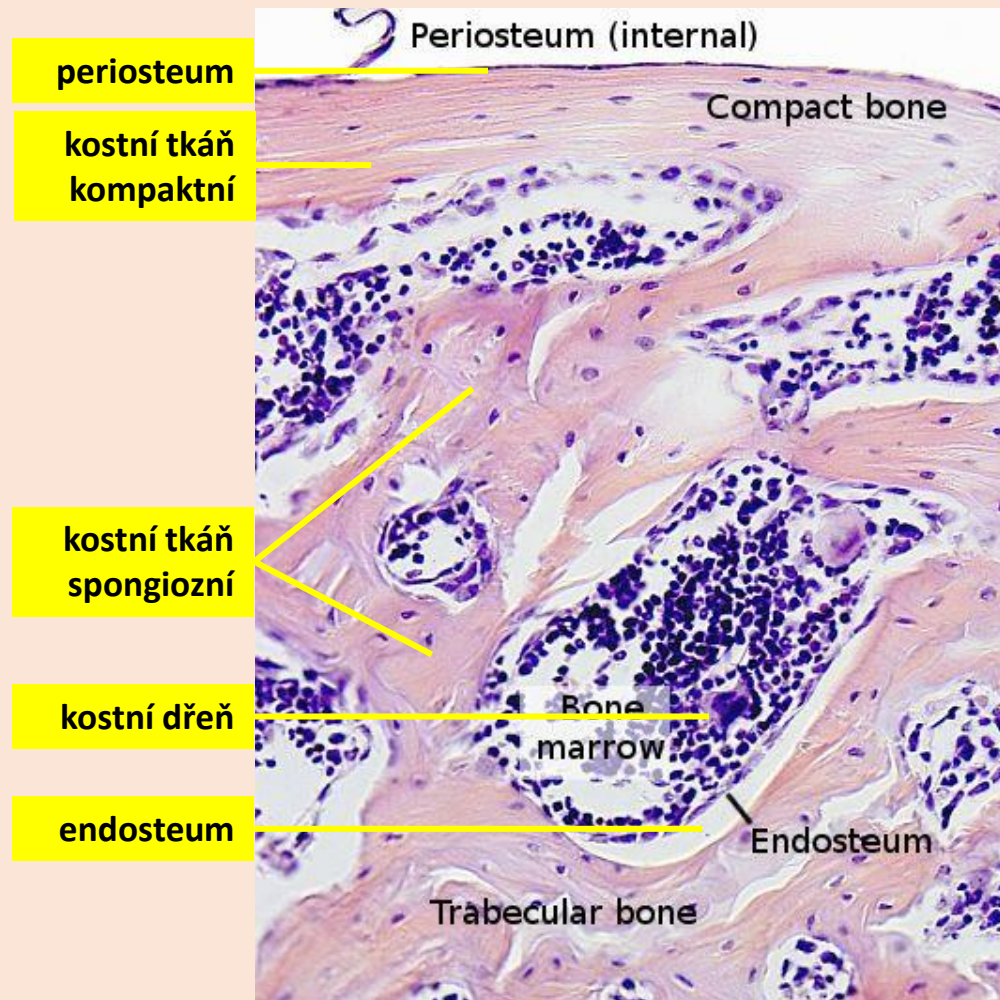




# kostní tkáň lamelární

kostní tkáň kompaktní

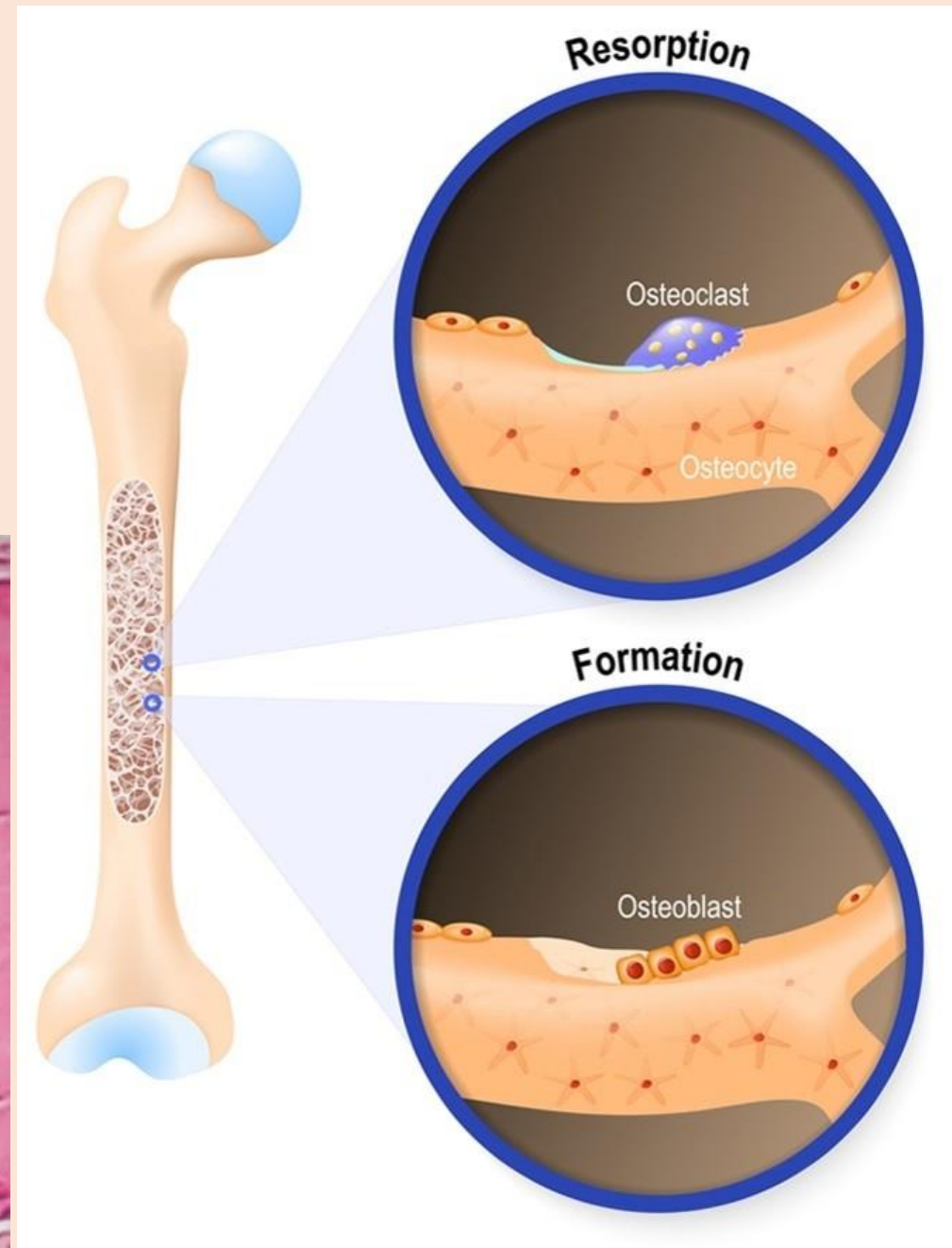
kostní tkáň spongiozní





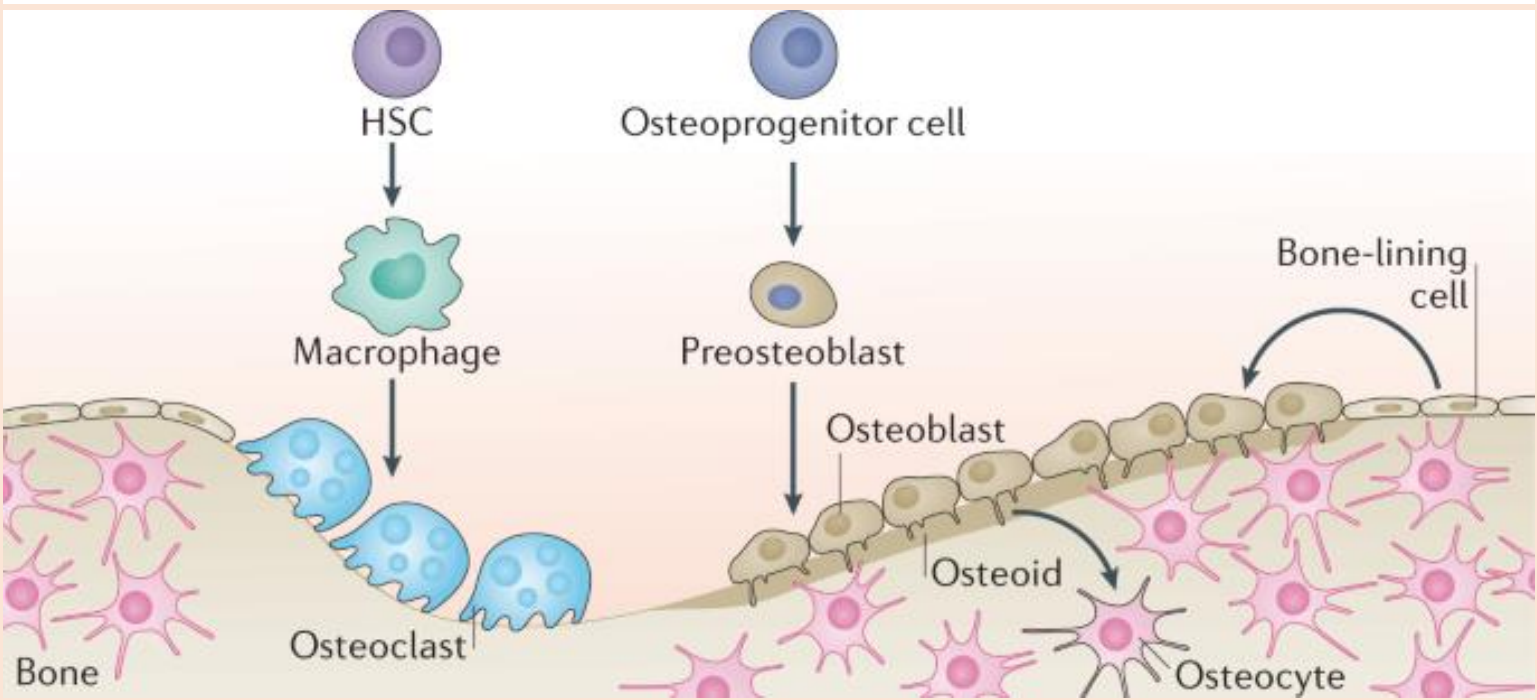
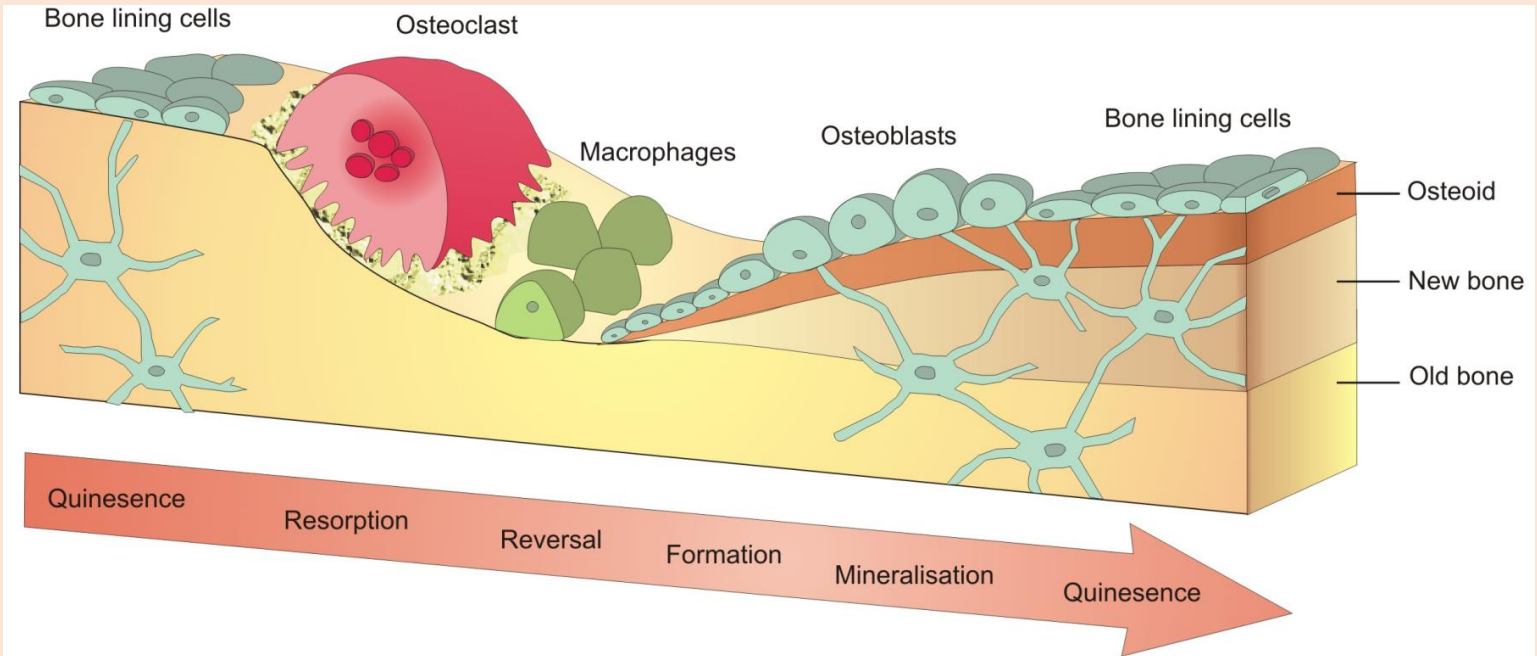
# kostní tkáň

## remodelace



# kostní tkáň

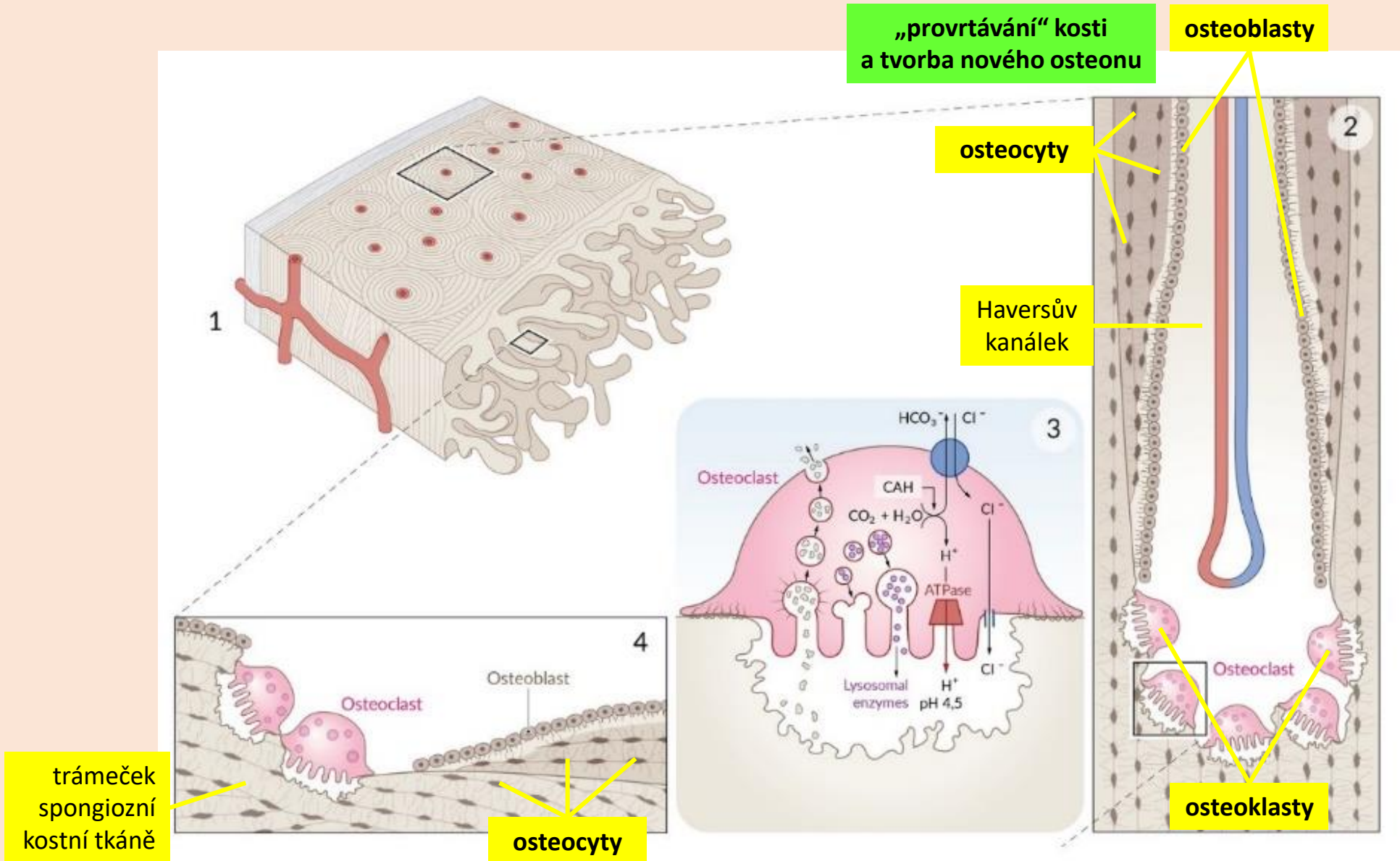
## remodelace





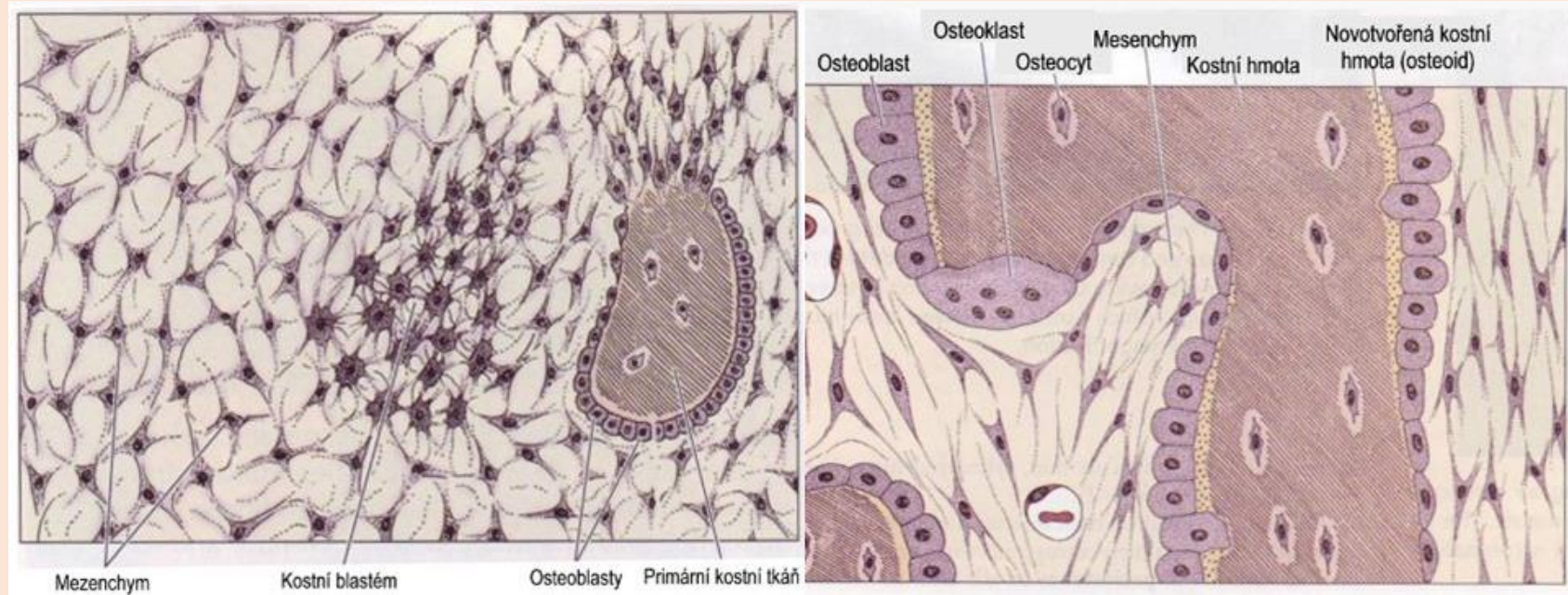
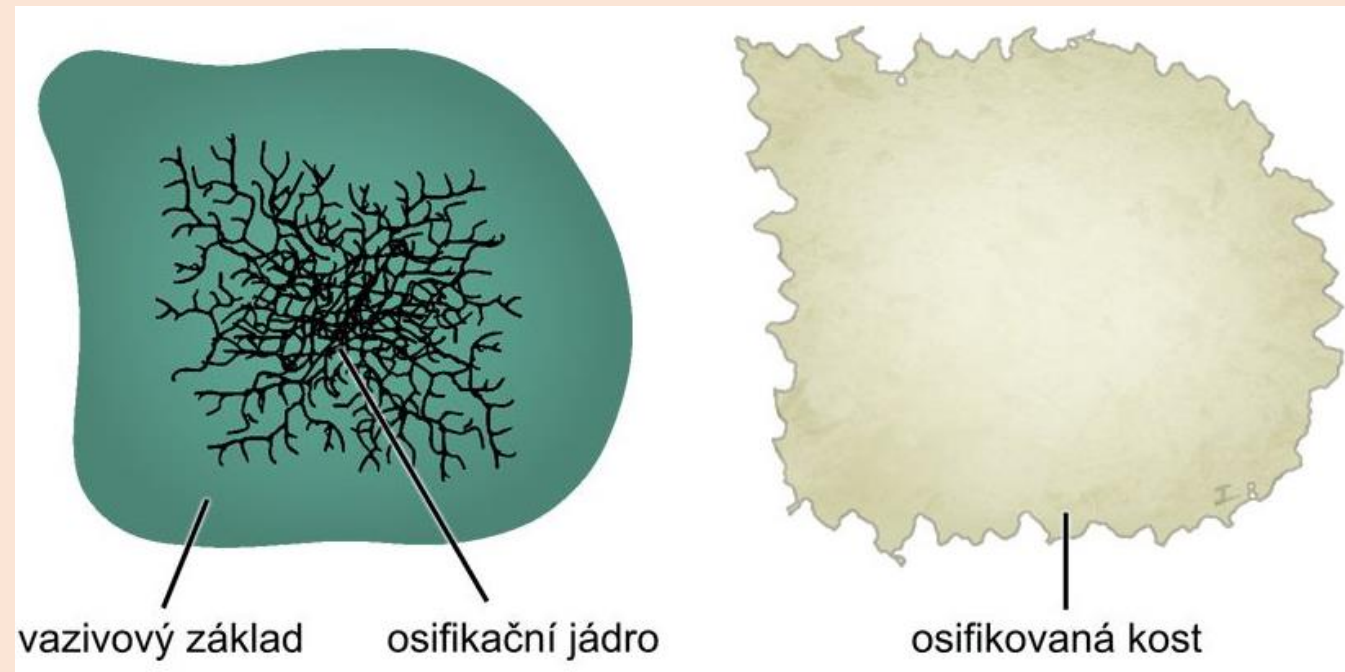
# kostní tkáň

## remodelace



# kostní tkáň

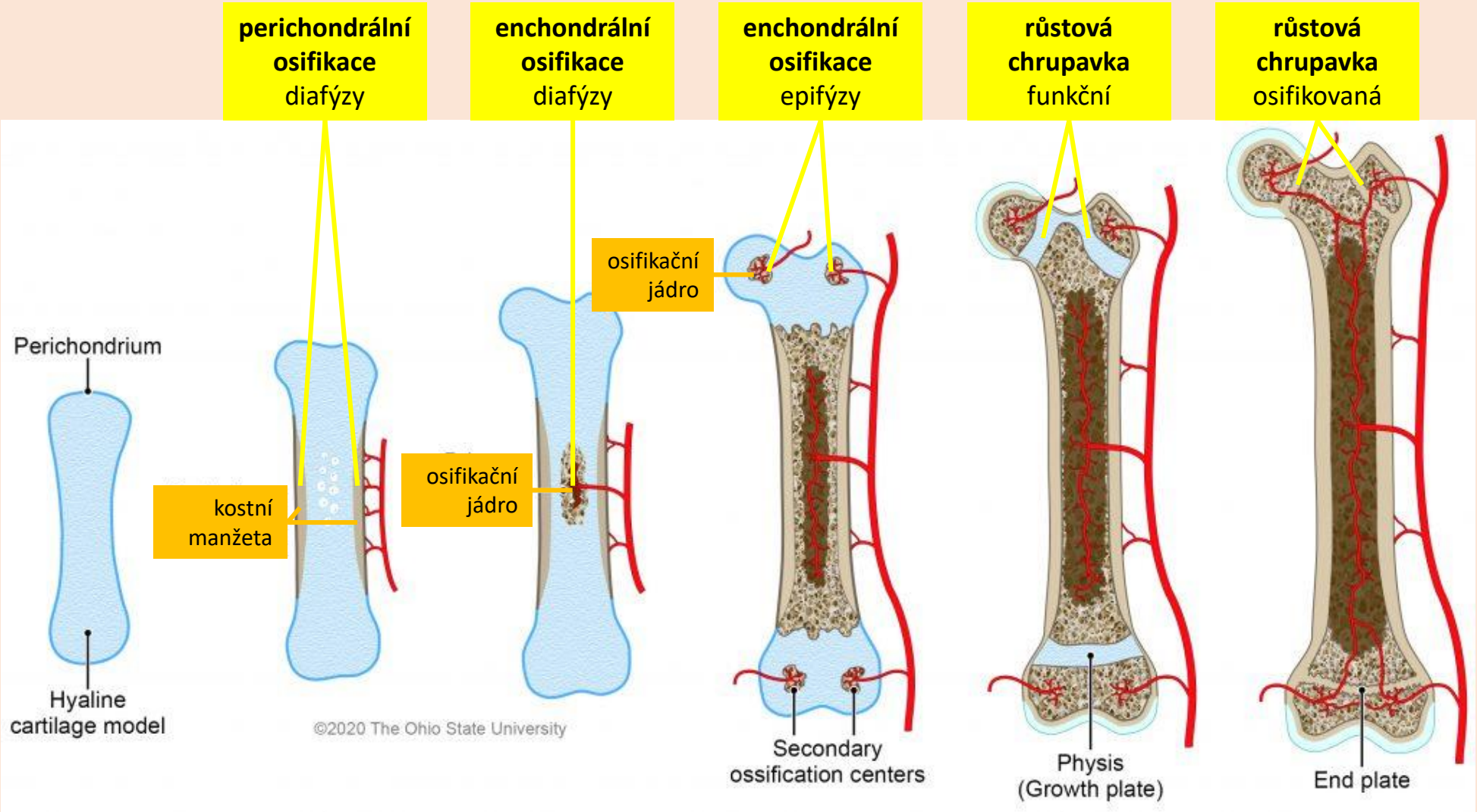
## desmogenní osifikace





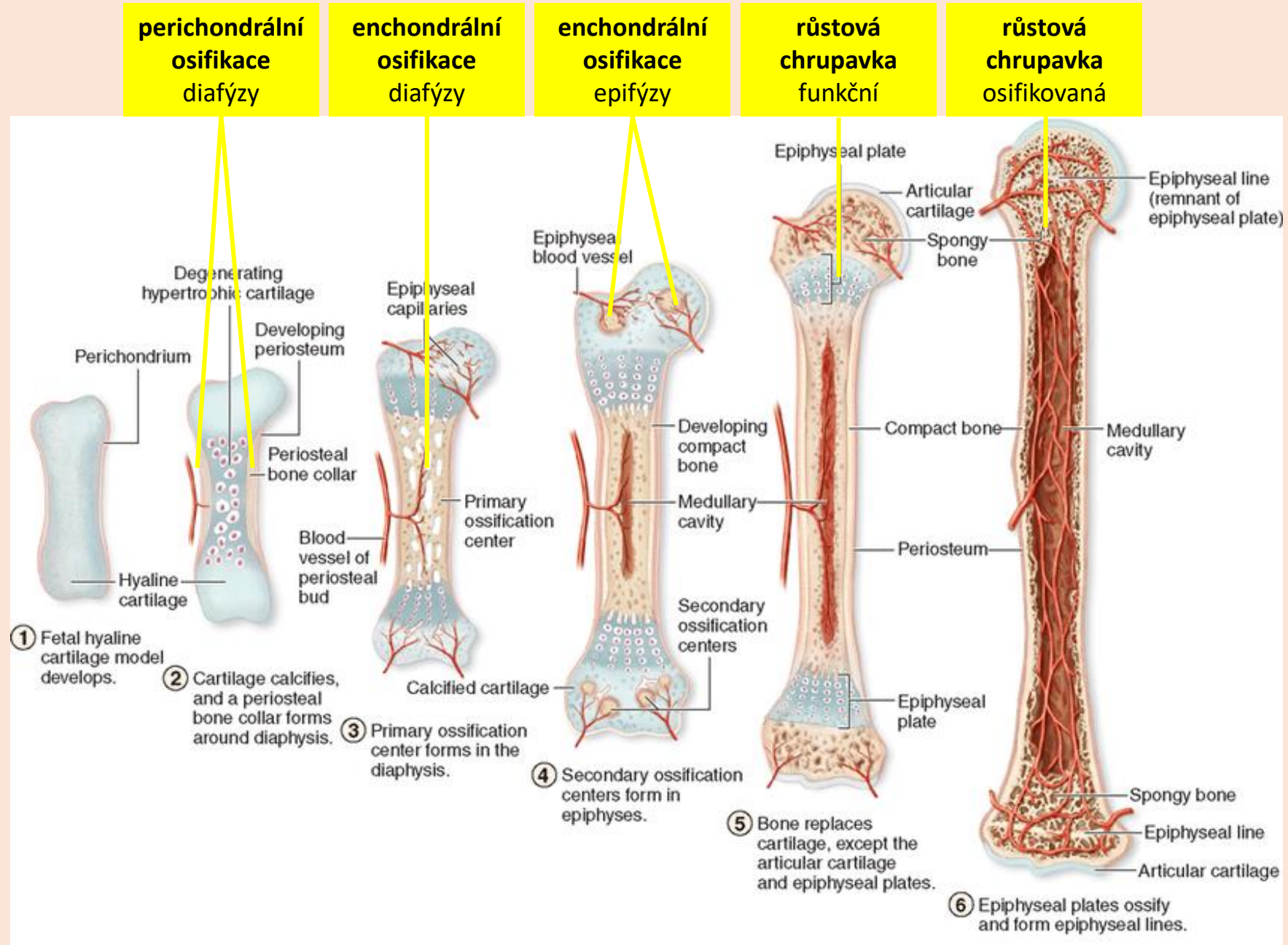
# kostní tkáň

## chondrogenní osifikace



# kostní tkáň

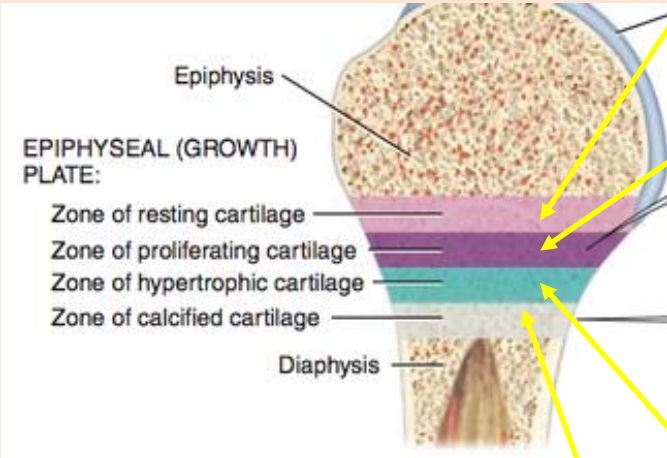
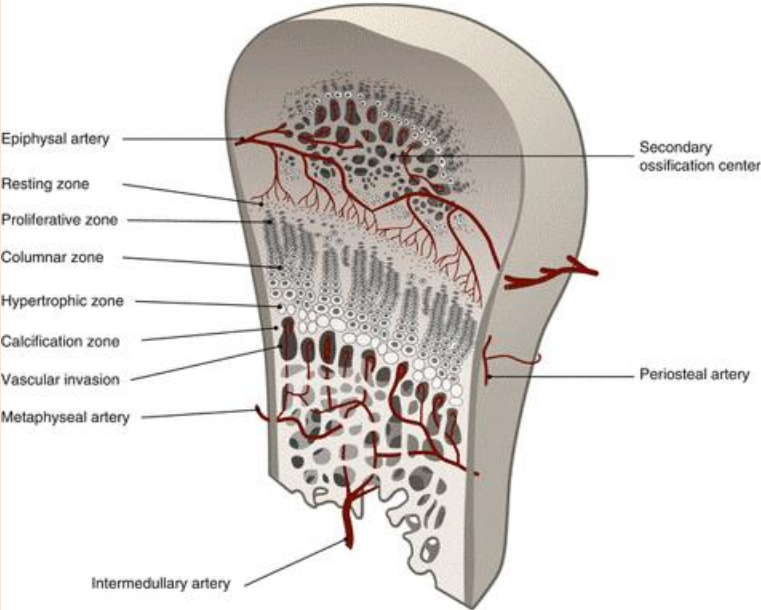
## chondrogenní osifikace





# kostní tkáň

## intersticiální růst



růstová chrupavka

zóna klidu

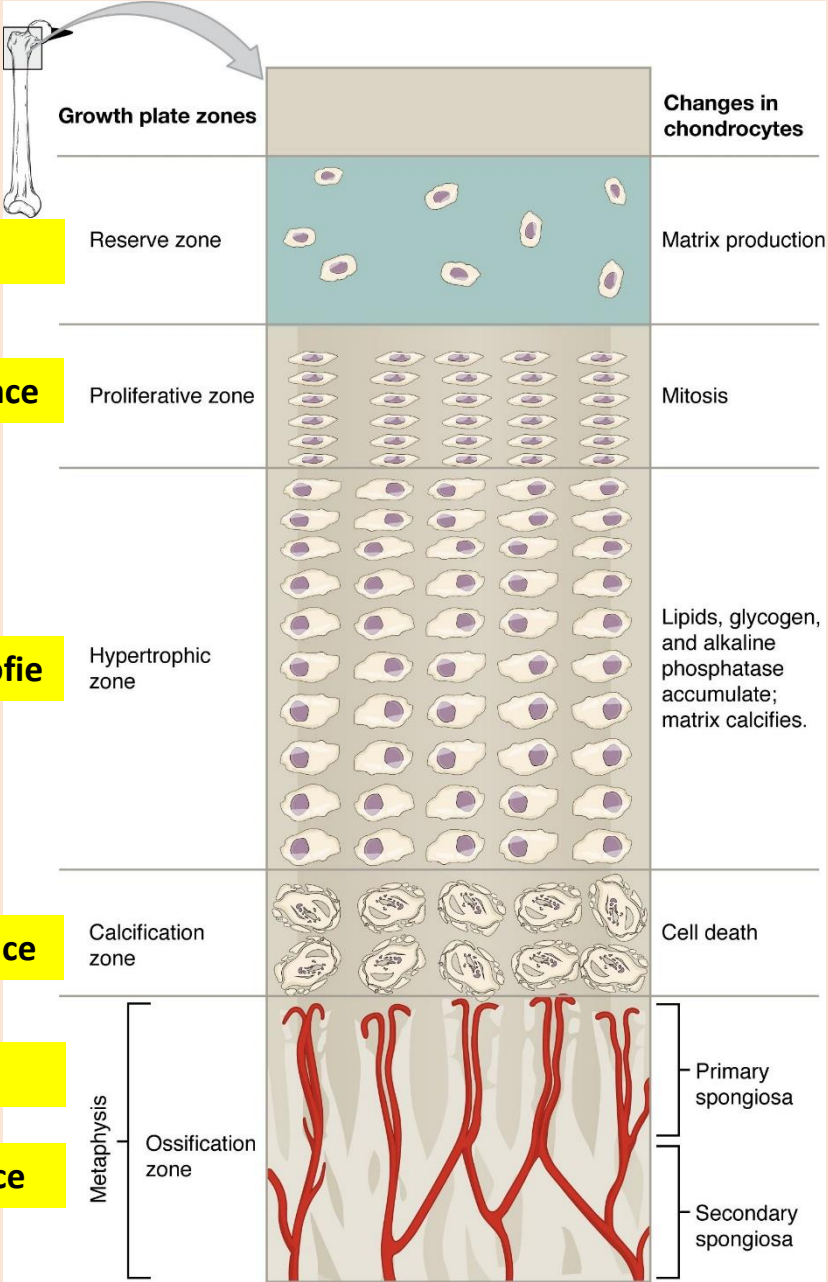
zóna proliferace

zóna hypertrofie

zóna kalcifikace

zóna eroze

zóna osifikace



# kostní tkáň

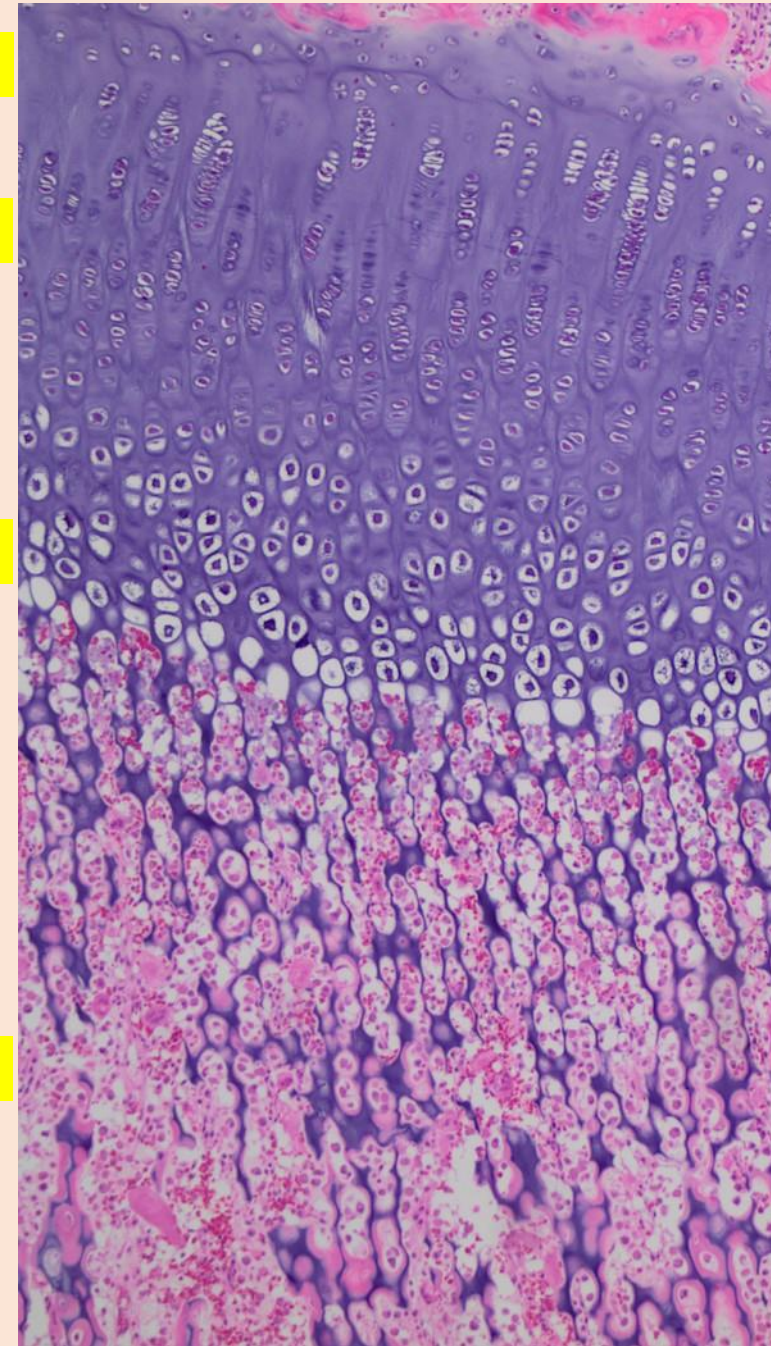
## intersticiální růst

zóna klidu

zóna proliferace

zóna hypertrofie

zóna kalcifikace





# TKÁNĚ POJIVOVÉ A OPĚRNÉ

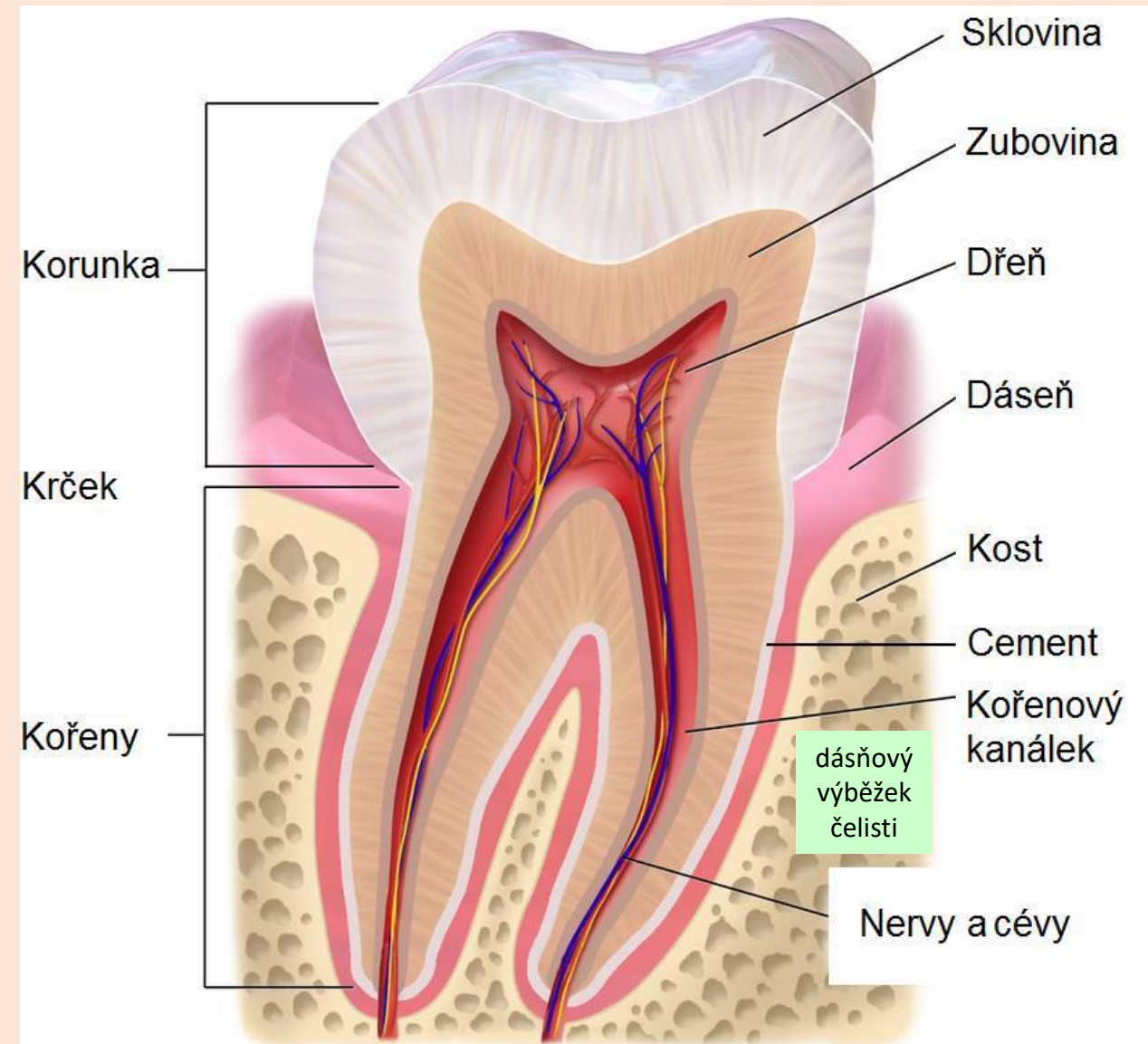
## zubní tkáně

# zubní tkáně

sklovina (*enamelum*)

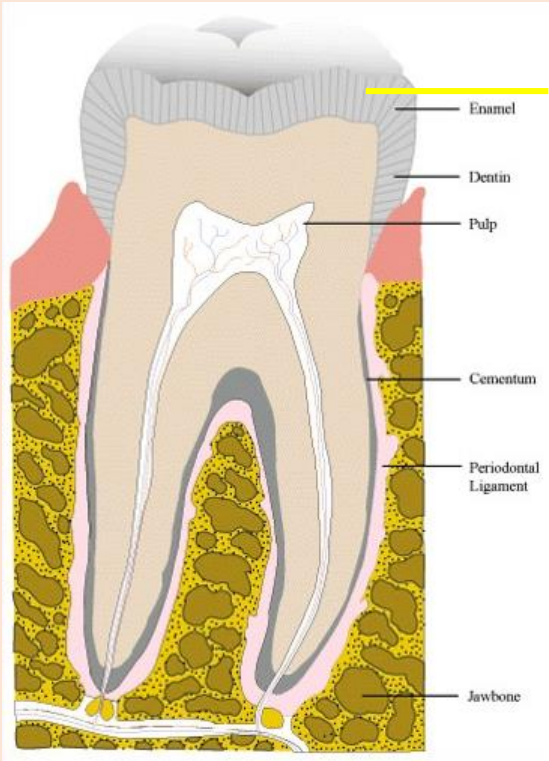
zubovina (*dentinum*)

cement (*cementum*)

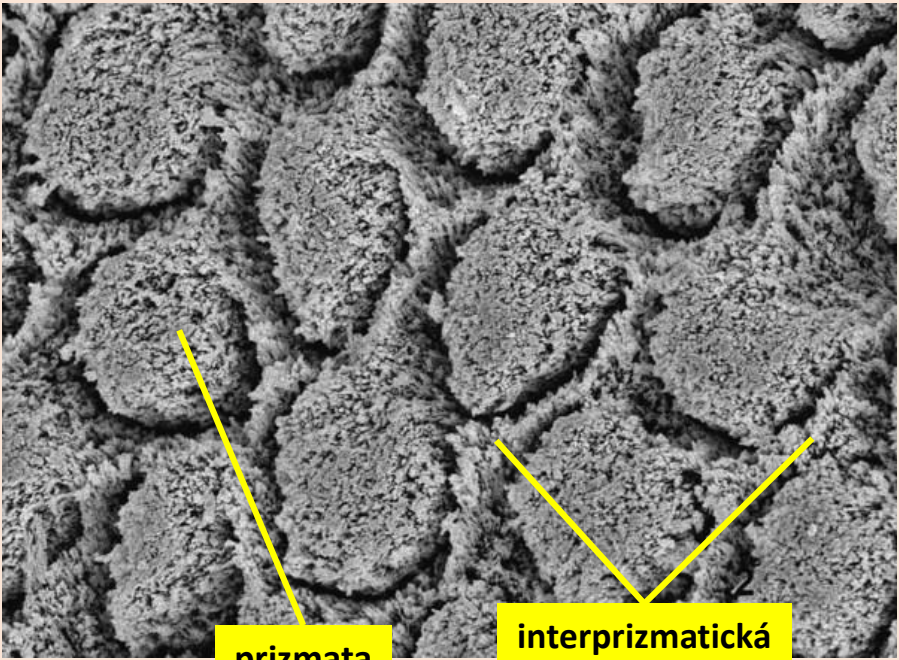
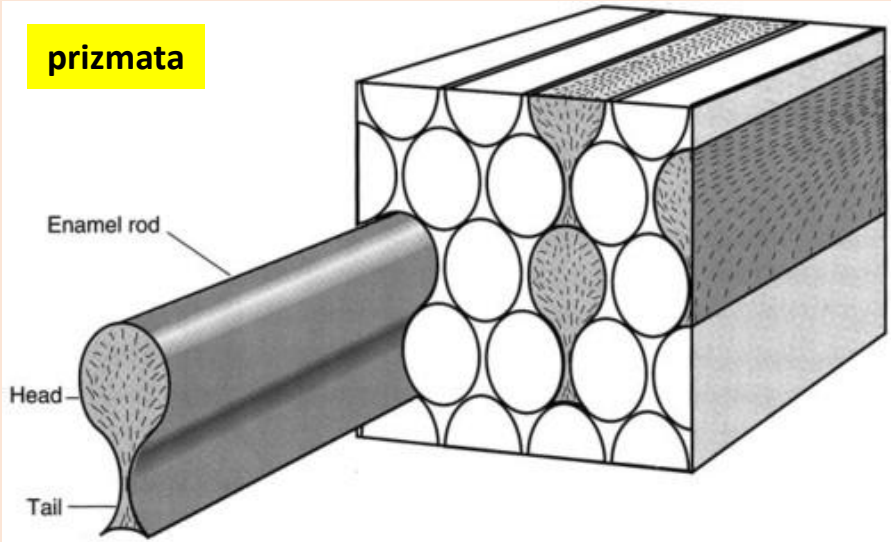




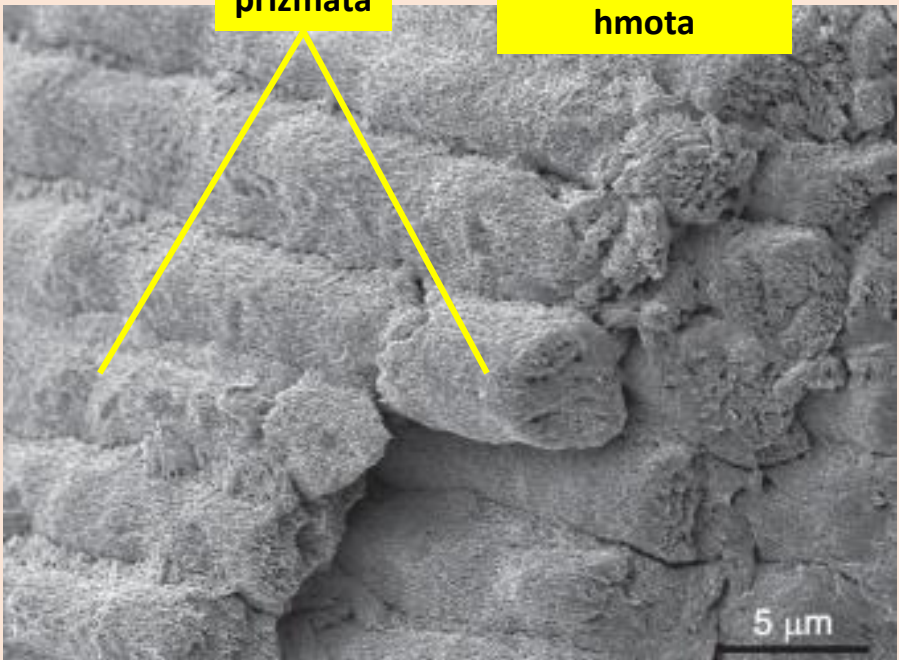
# sklovina (*enamelum*)



sklovina



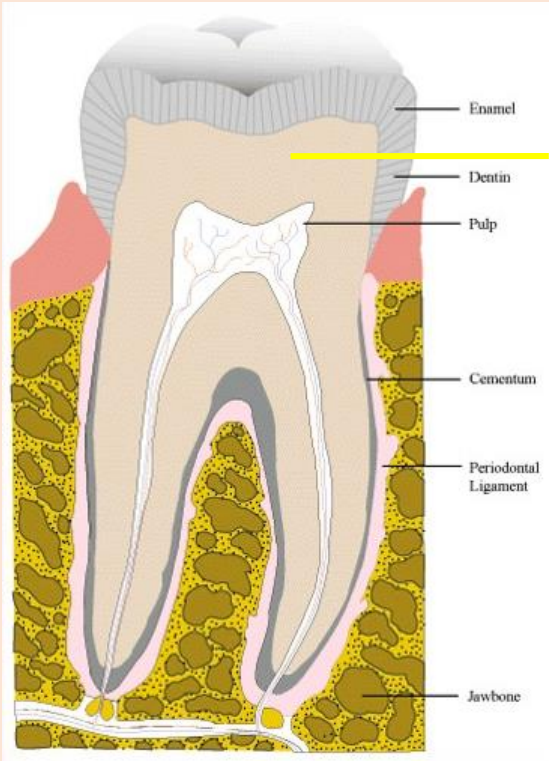
interprizmatická hmota



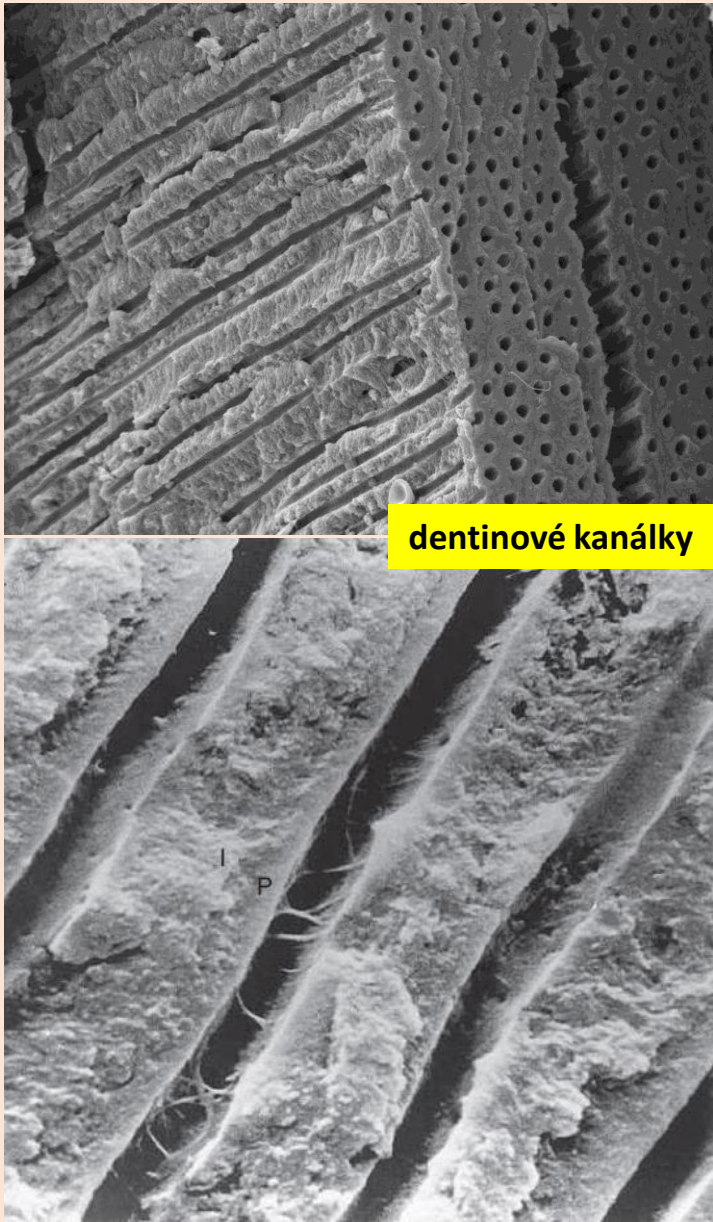
prizmata



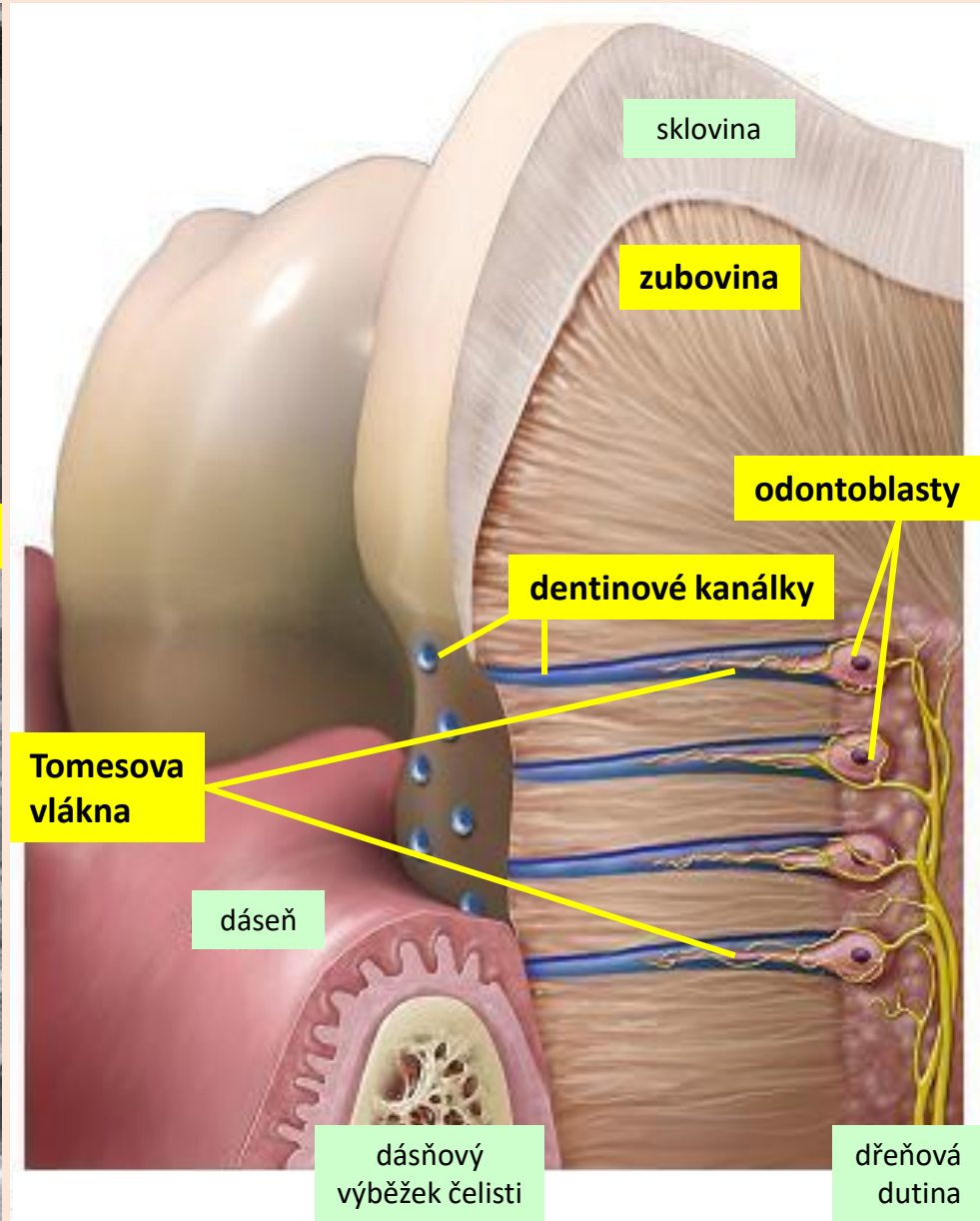
# zubovina (*dentinum*)



zubovina

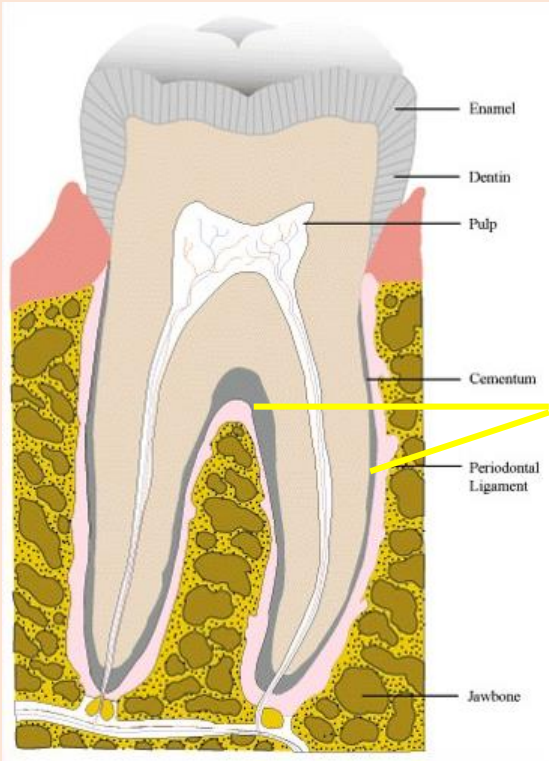
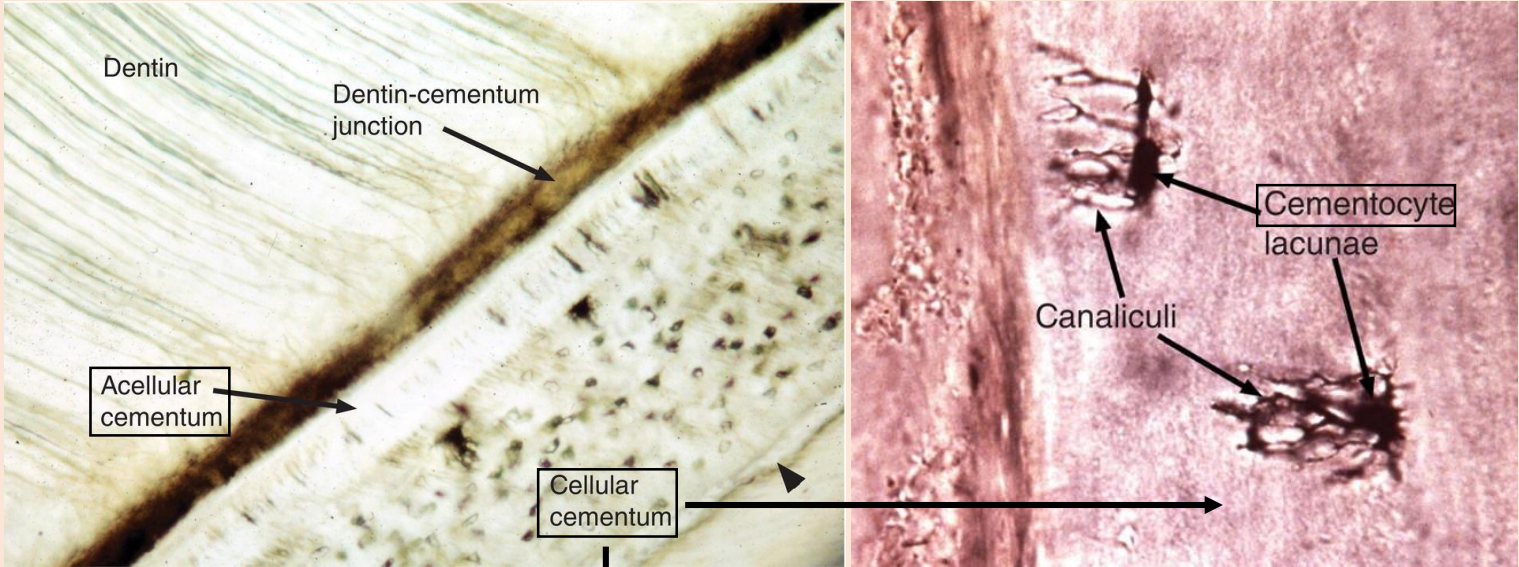


dentinové kanálky

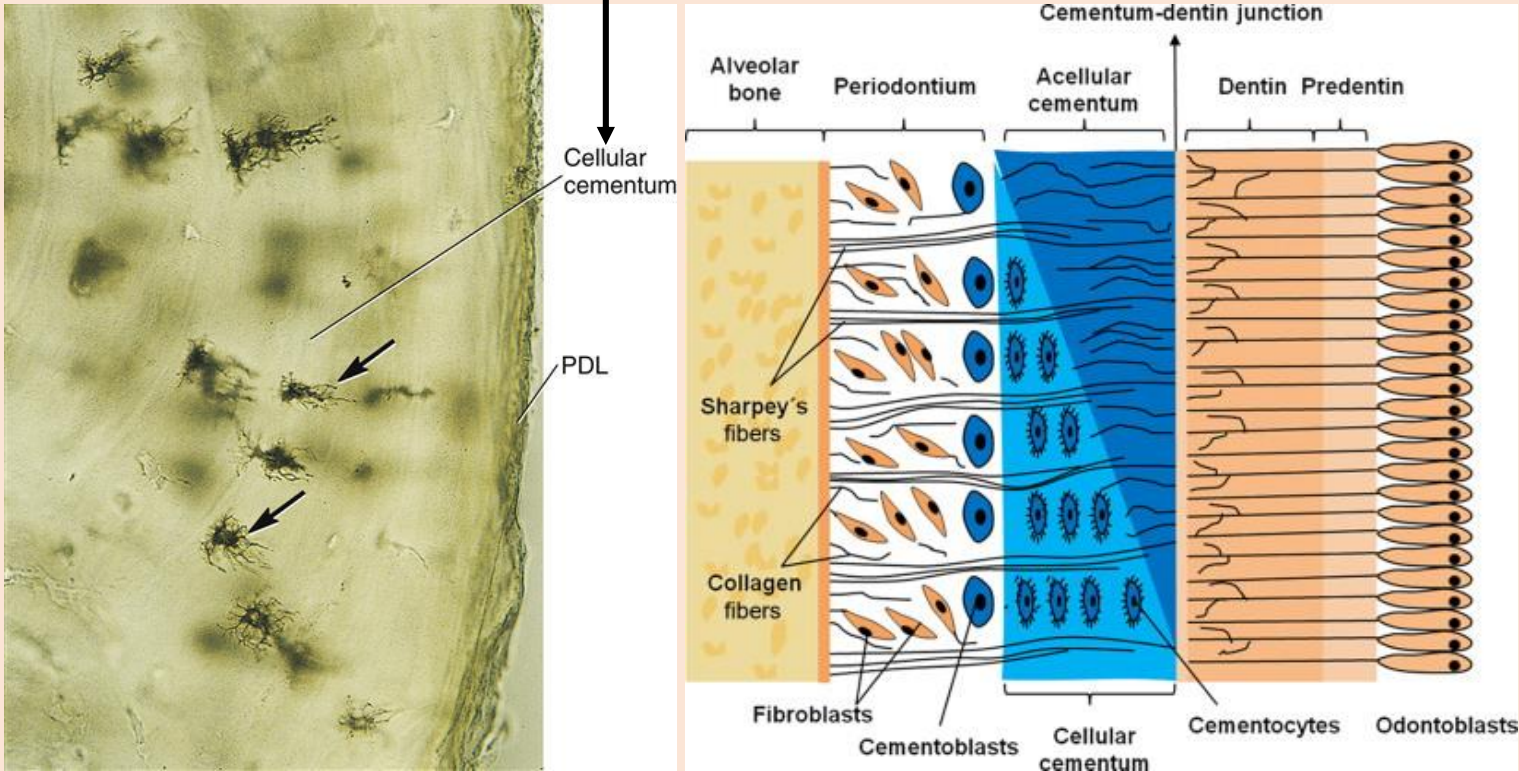




# cement (*cementum*)



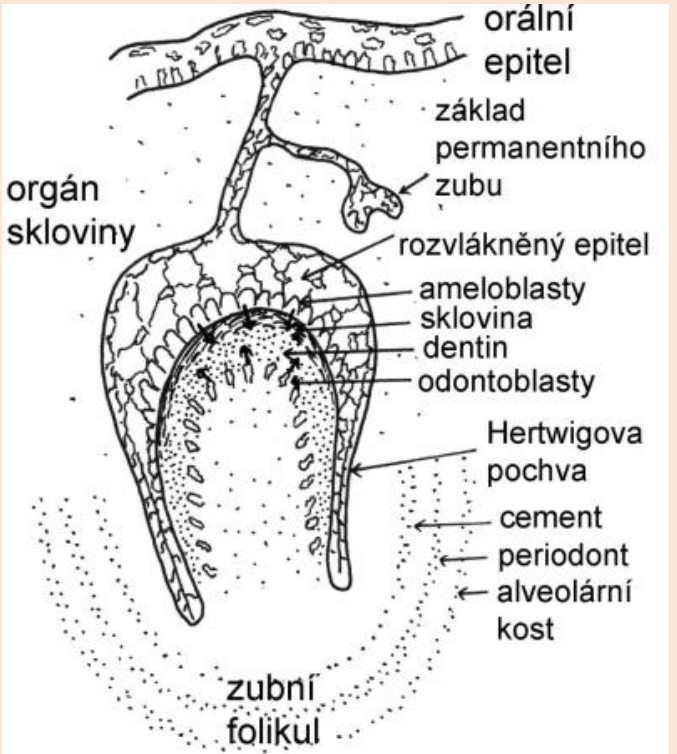
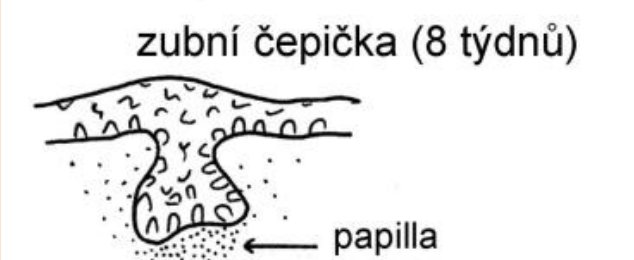
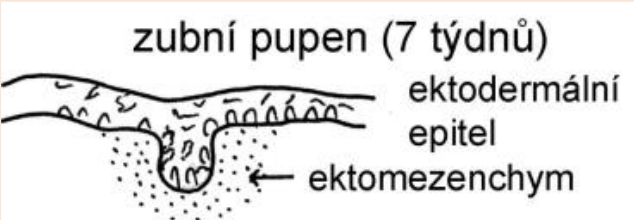
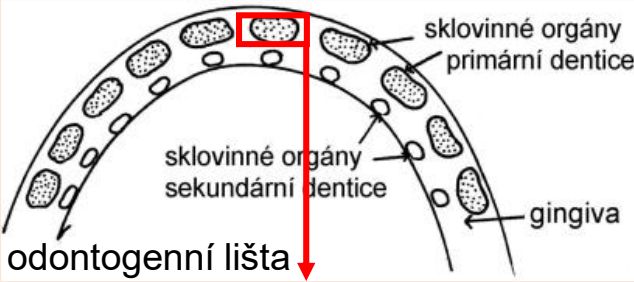
cement





# zubní tkáně

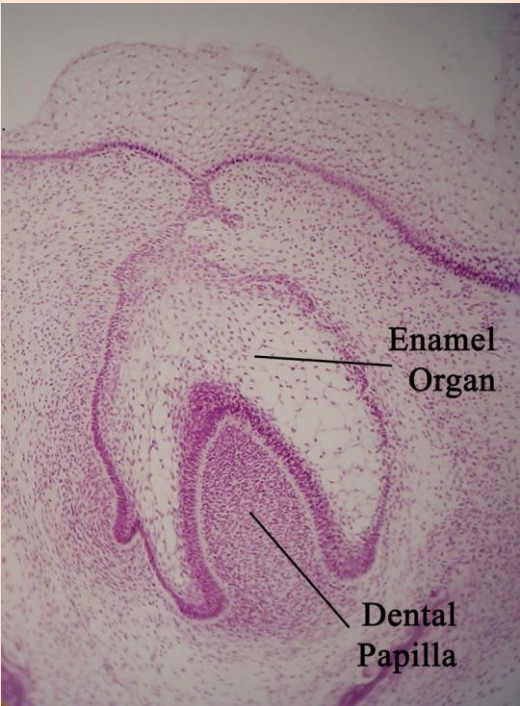
## vývoj



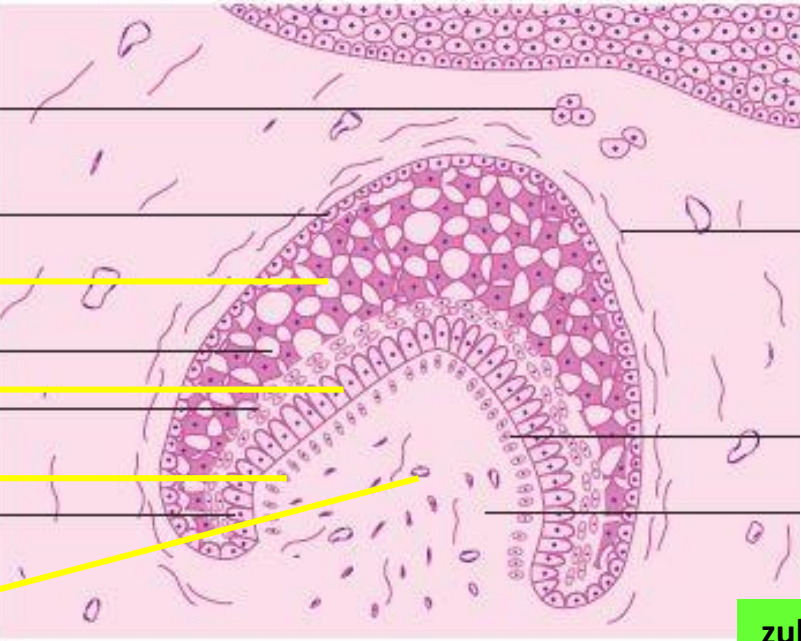


# zubní tkáně

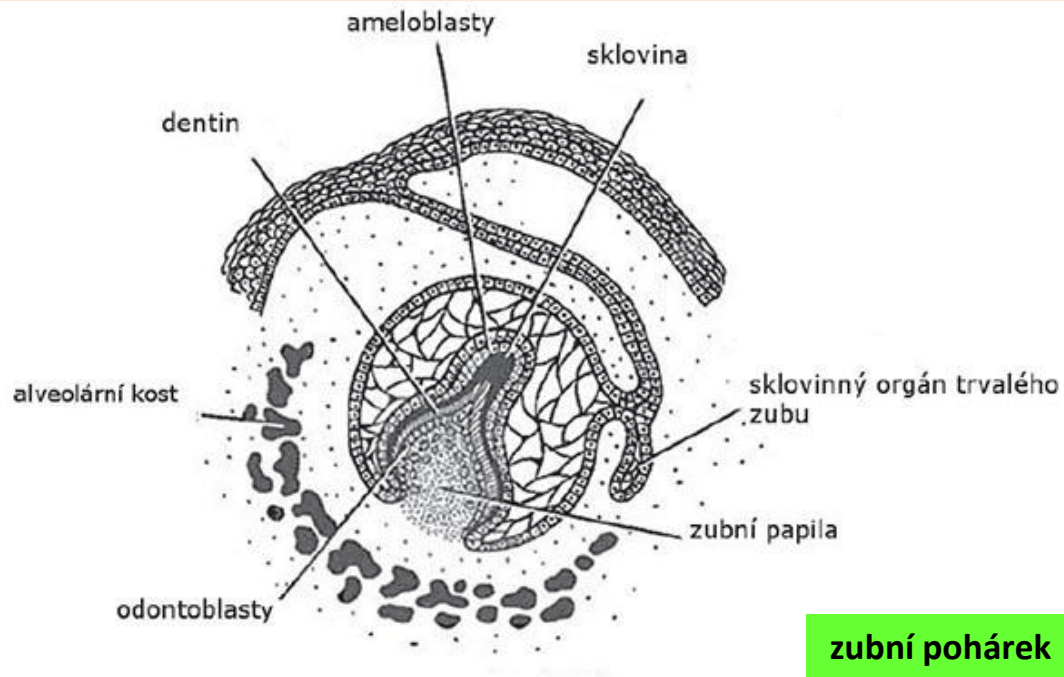
## vývoj



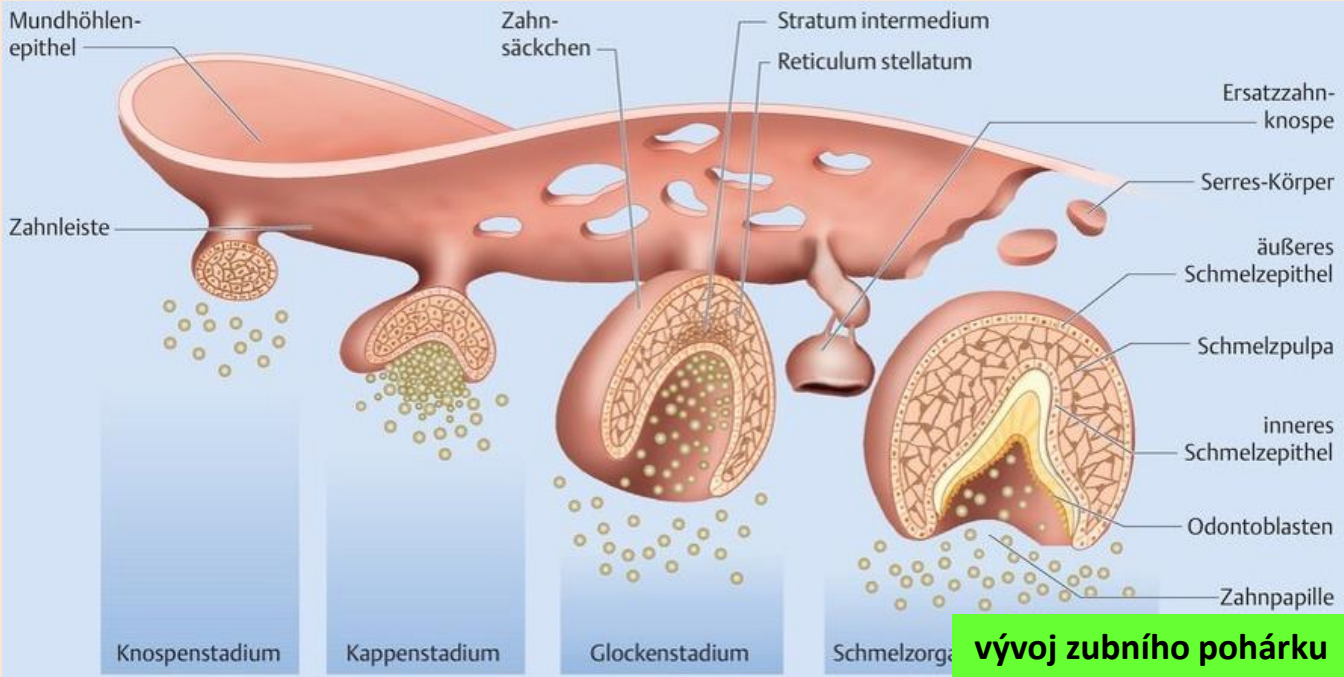
- sklovinný orgán
- ameloblasty
- odontoblasty
- papila mezenchymu



zubní pohárek



zubní pohárek

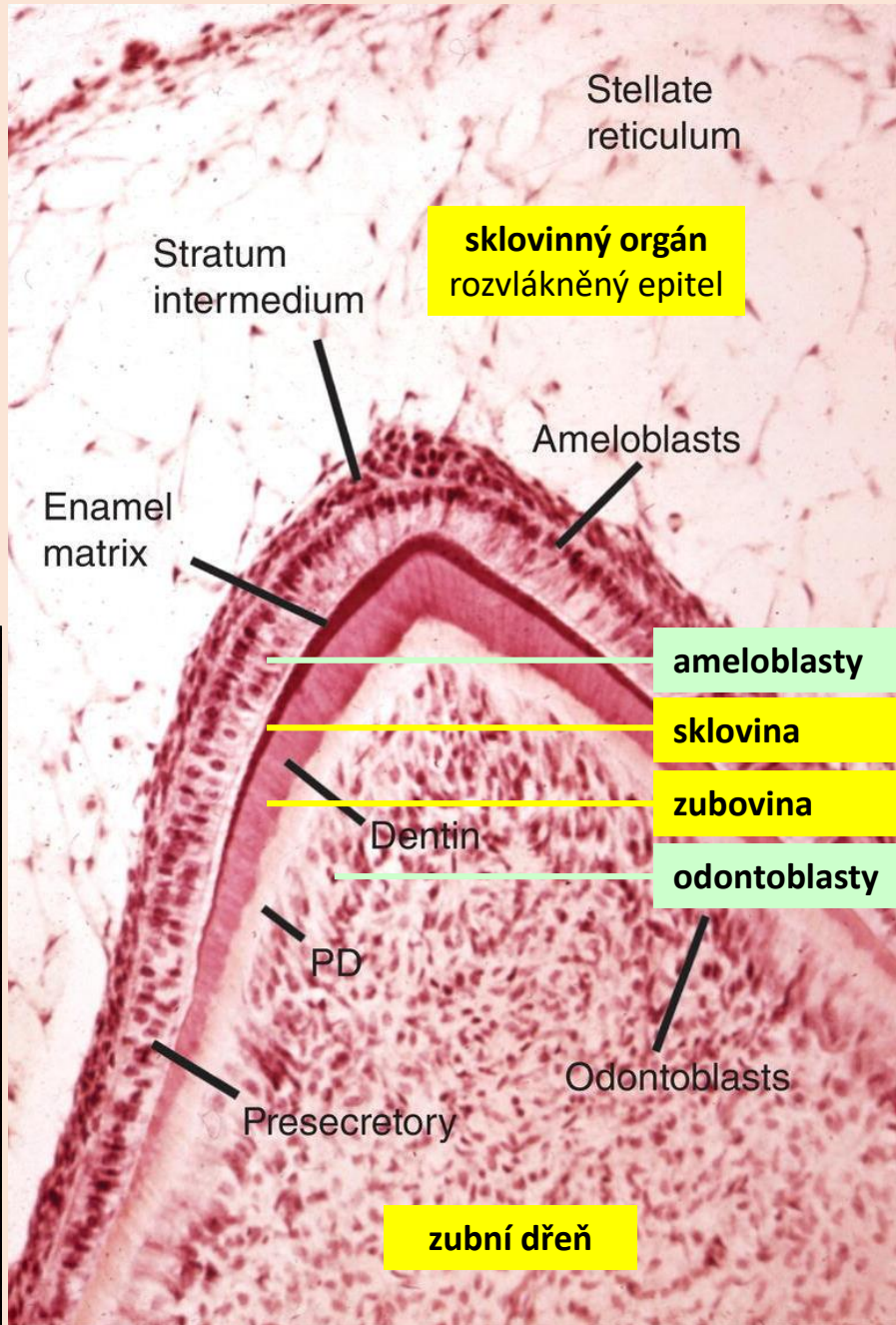
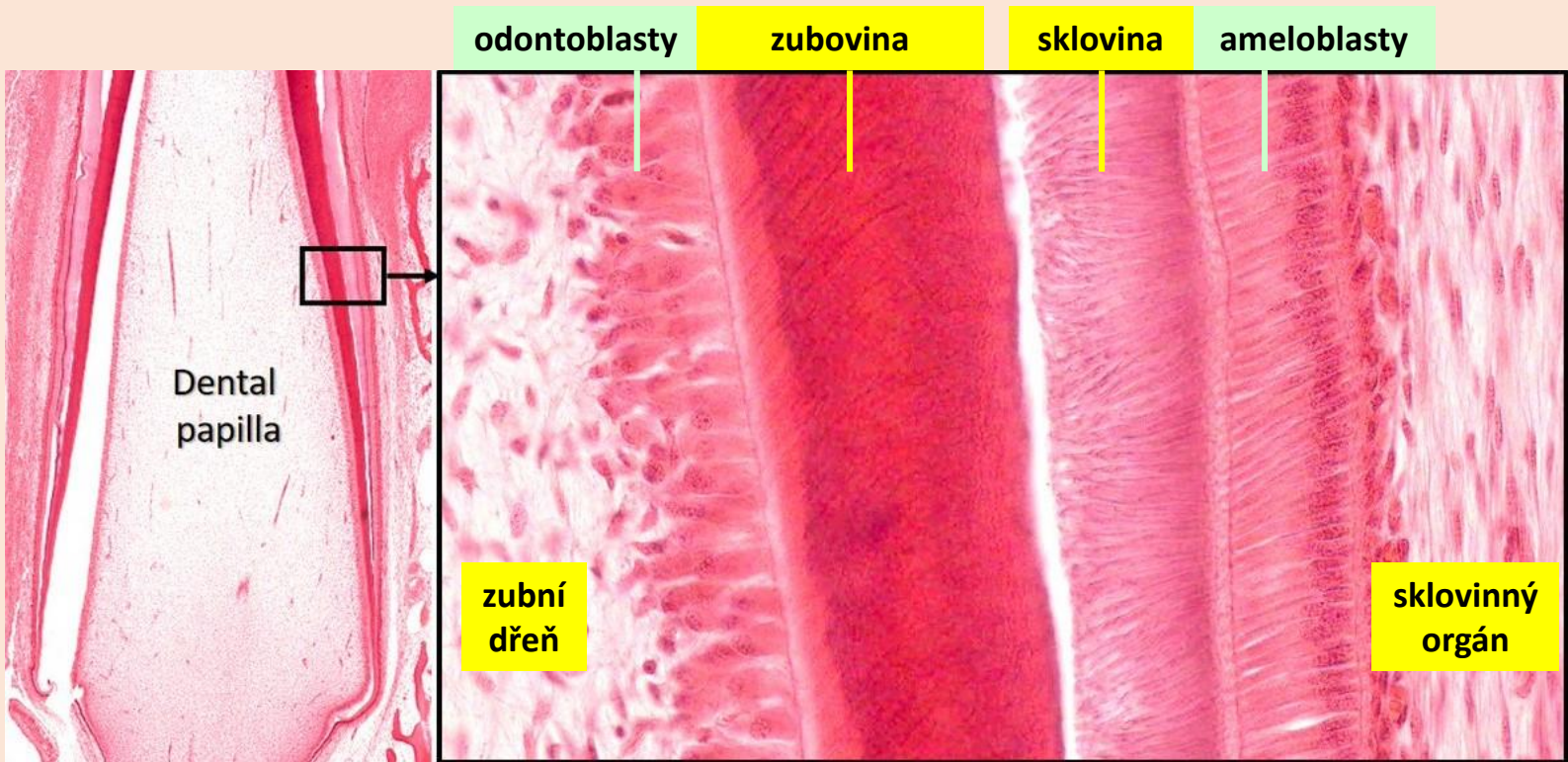


vývoj zubního pohárku



# zubní tkáně

## vývoj

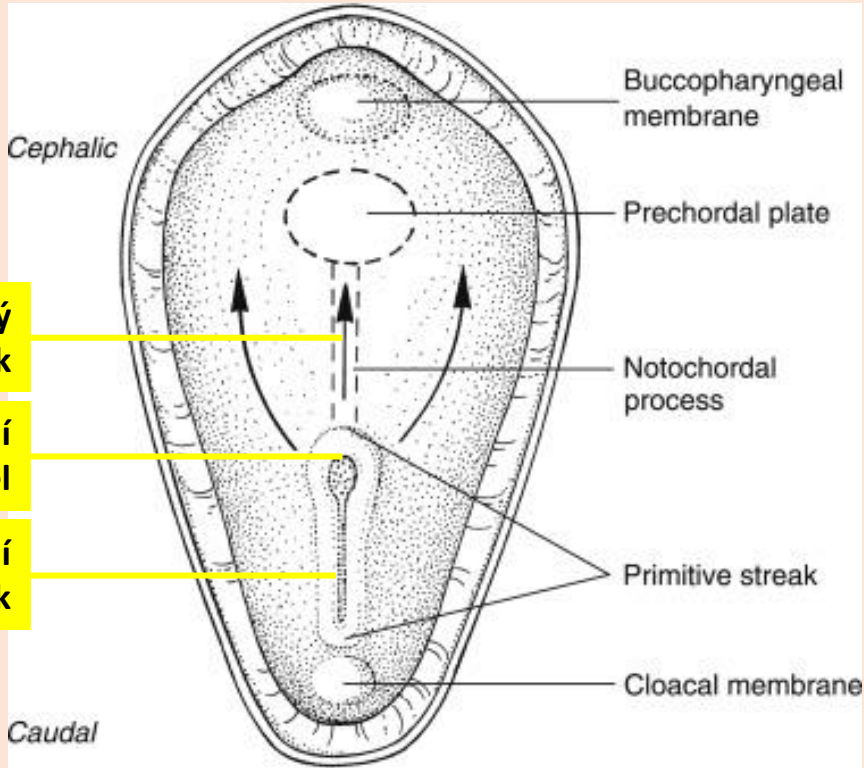
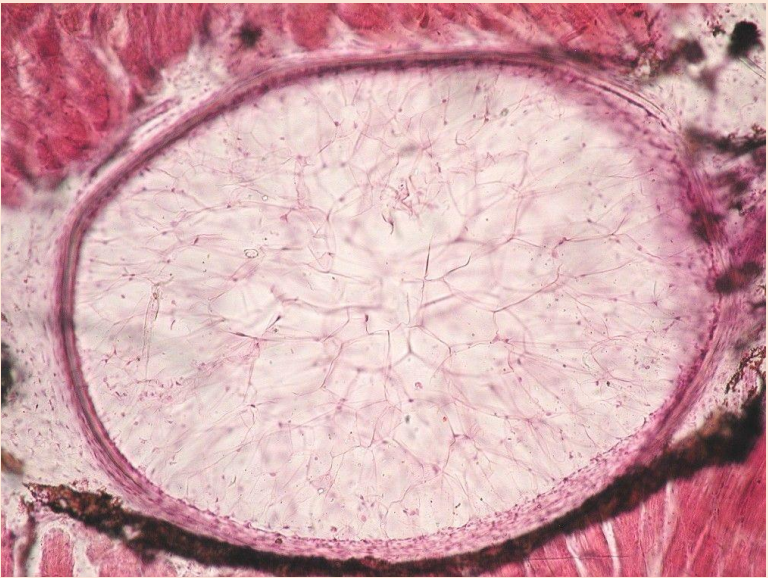




# TKÁNĚ POJIVOVÉ A OPĚRNÉ

pojivové a opěrné tkáně  
u obratlovců

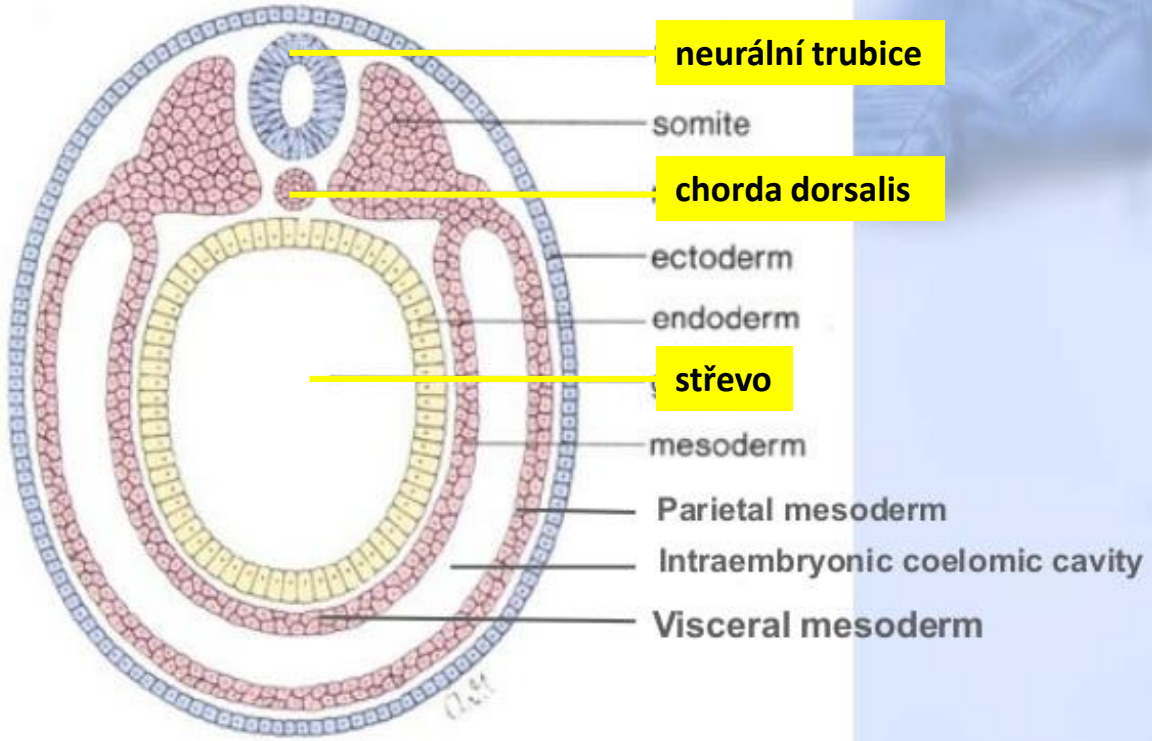
# chorda dorsalis



chordomezodermový  
výběžek

primitivní  
uzel

primitivní  
proužek



neurální trubice

somite

chorda dorsalis

ectoderm

endoderm

střevo

mesoderm

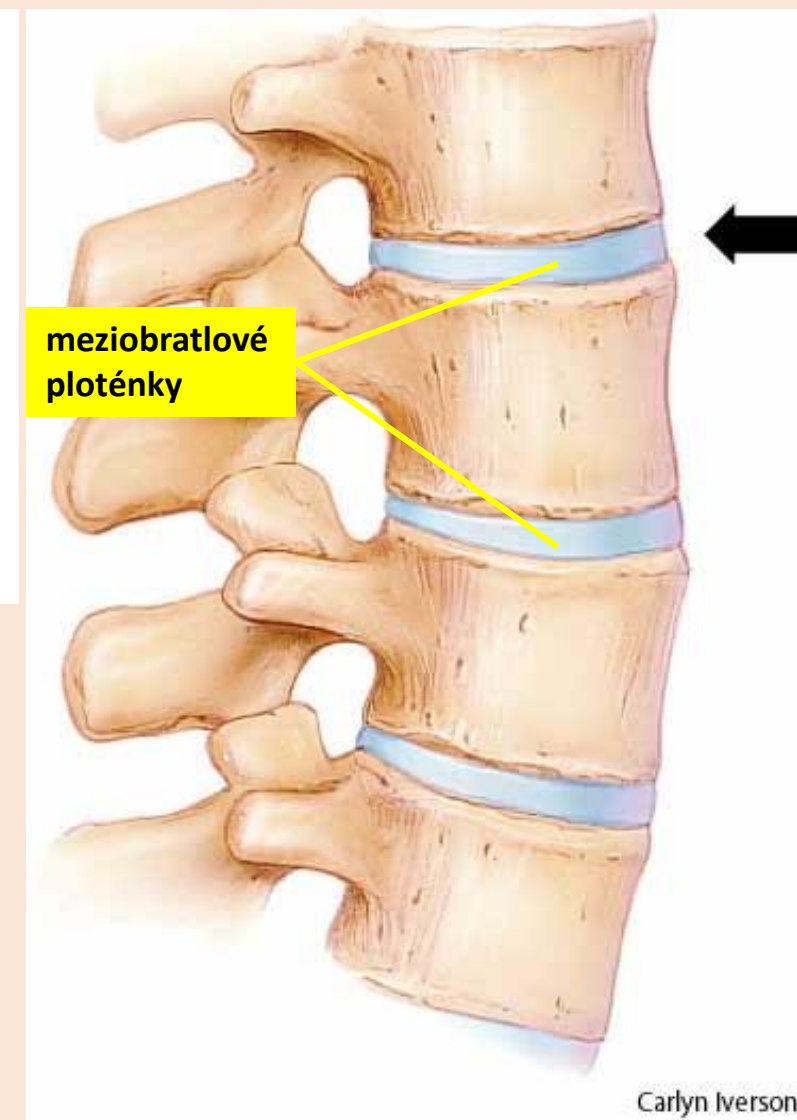
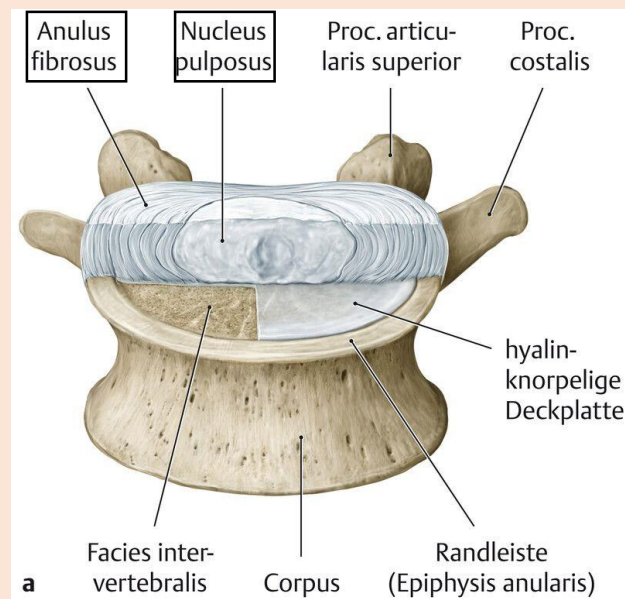
Parietal mesoderm

Intraembryonic coelomic cavity

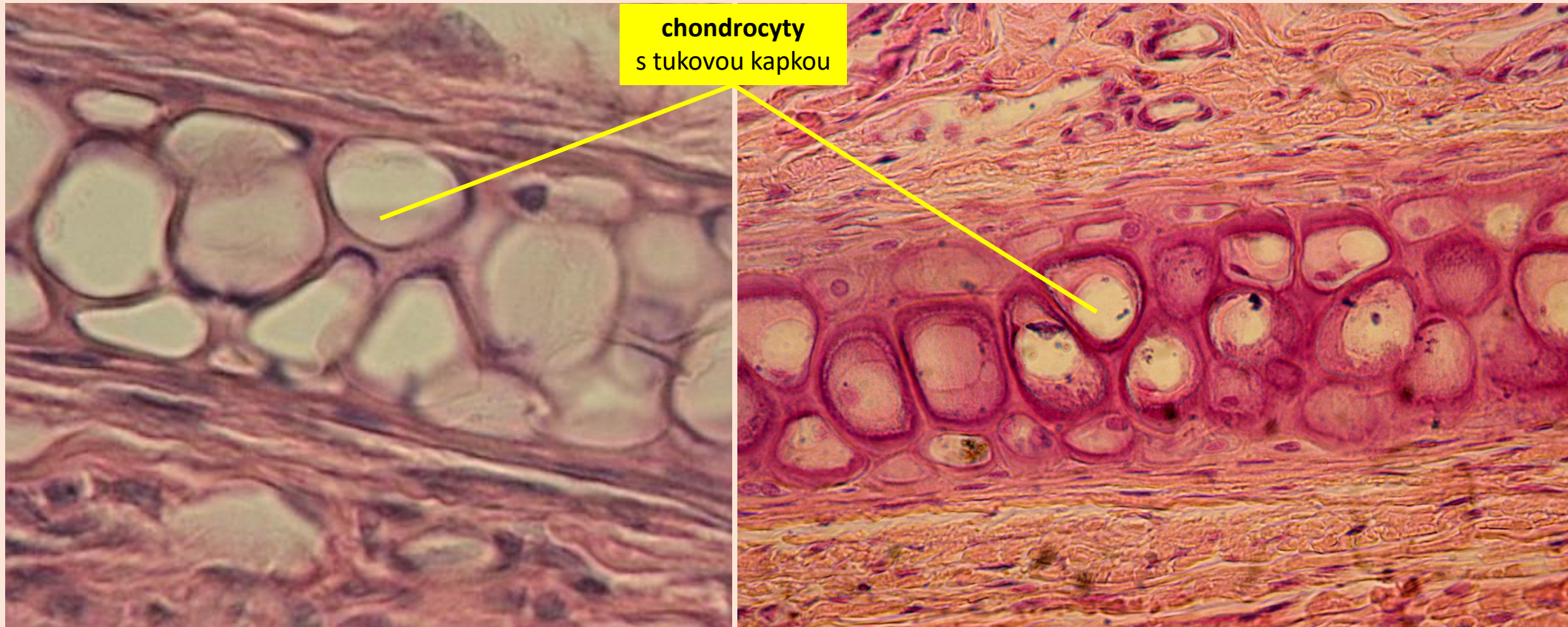
Visceral mesoderm



# chorda dorsalis



# parenchymová chrupavka

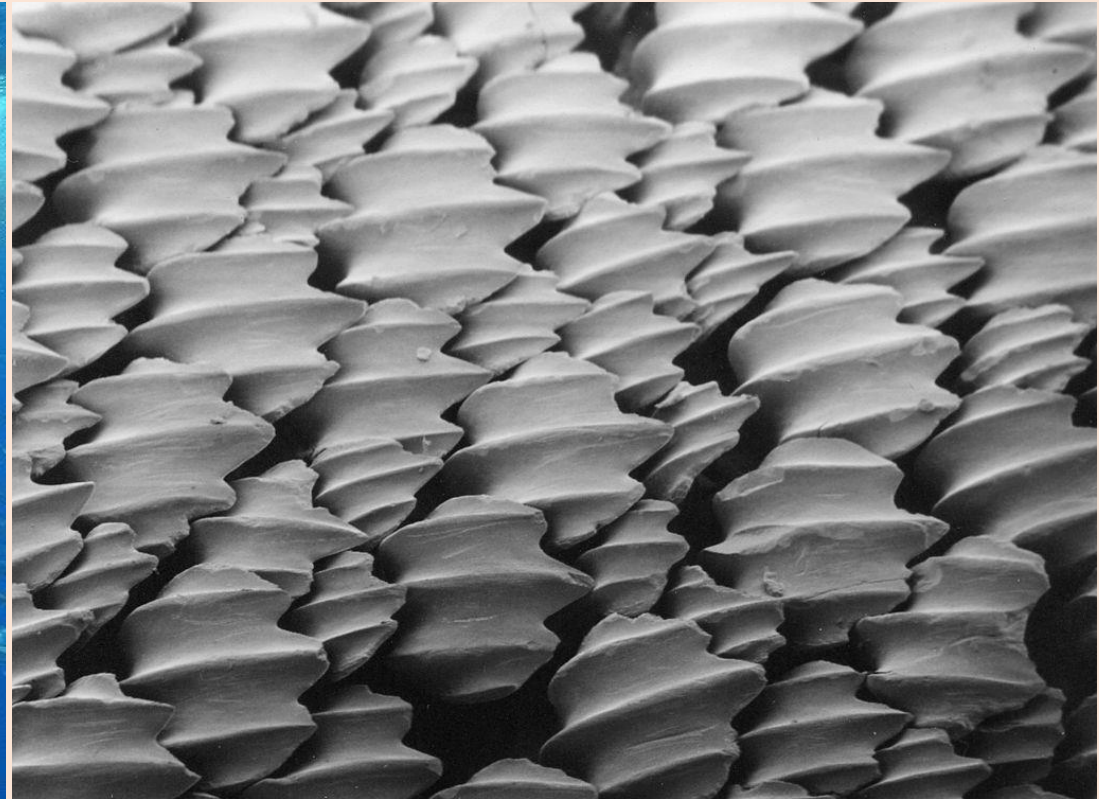
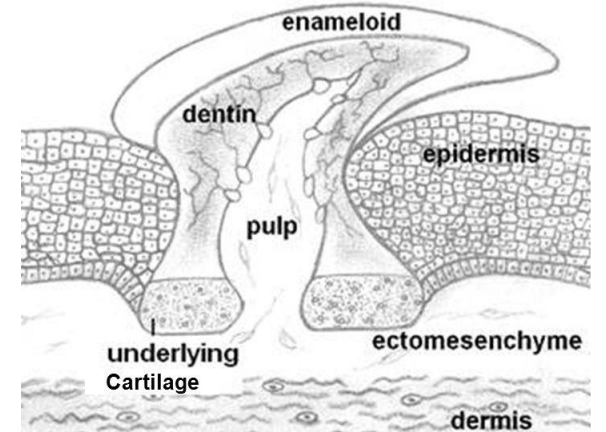




odontody

plakoidní šupiny

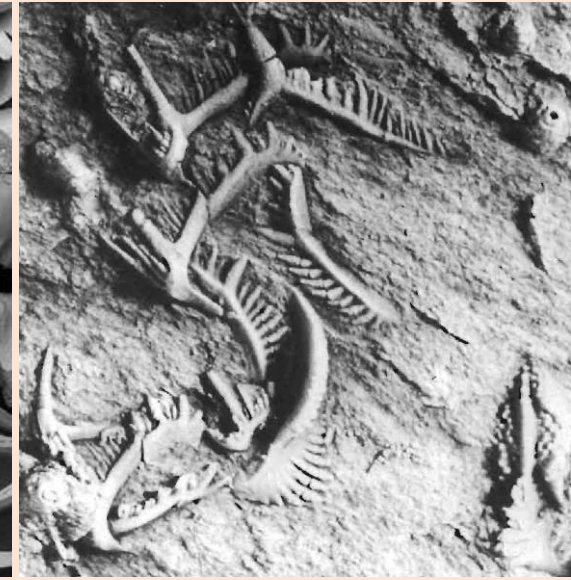
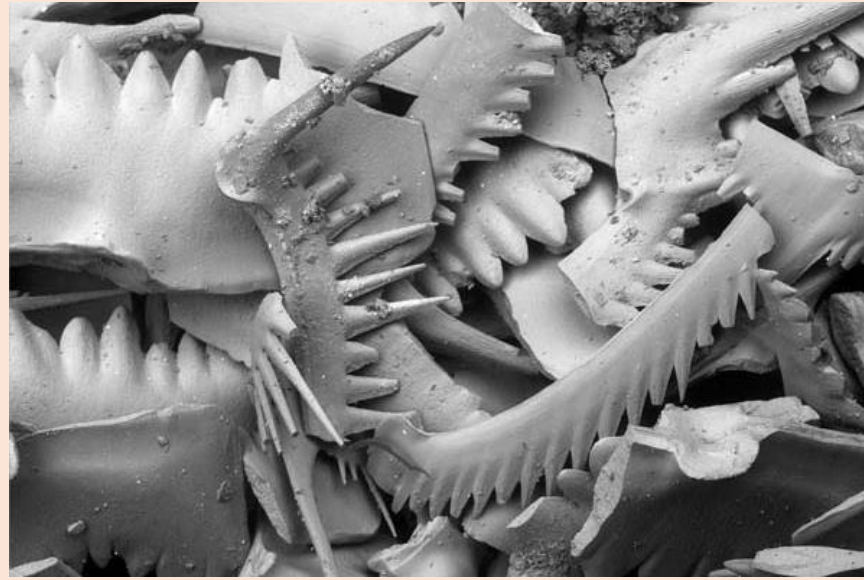
## Placoid Scales





# odontody

faryngeální zoubky konodontů

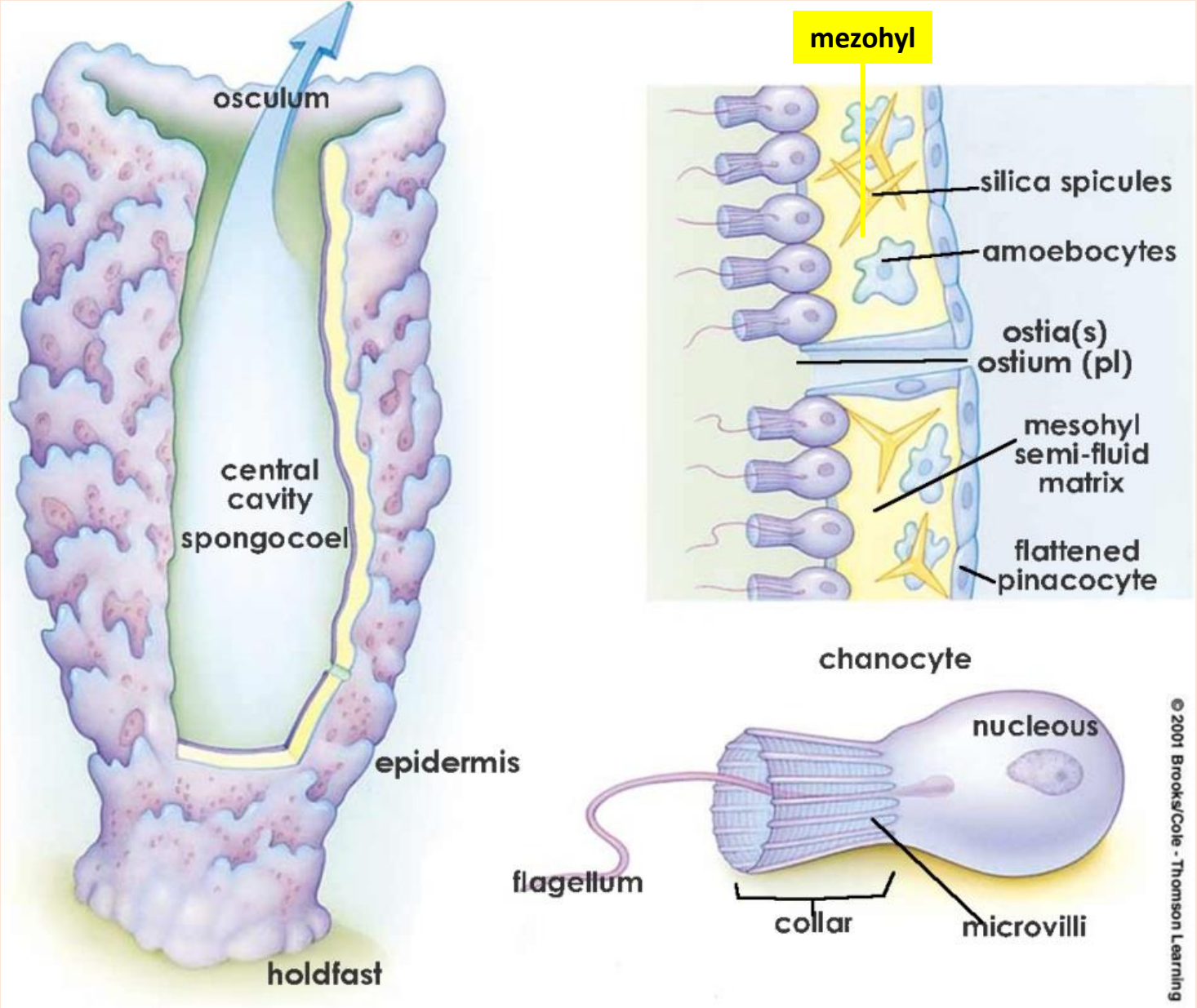




# TKÁNĚ POJIVOVÉ A OPĚRNÉ

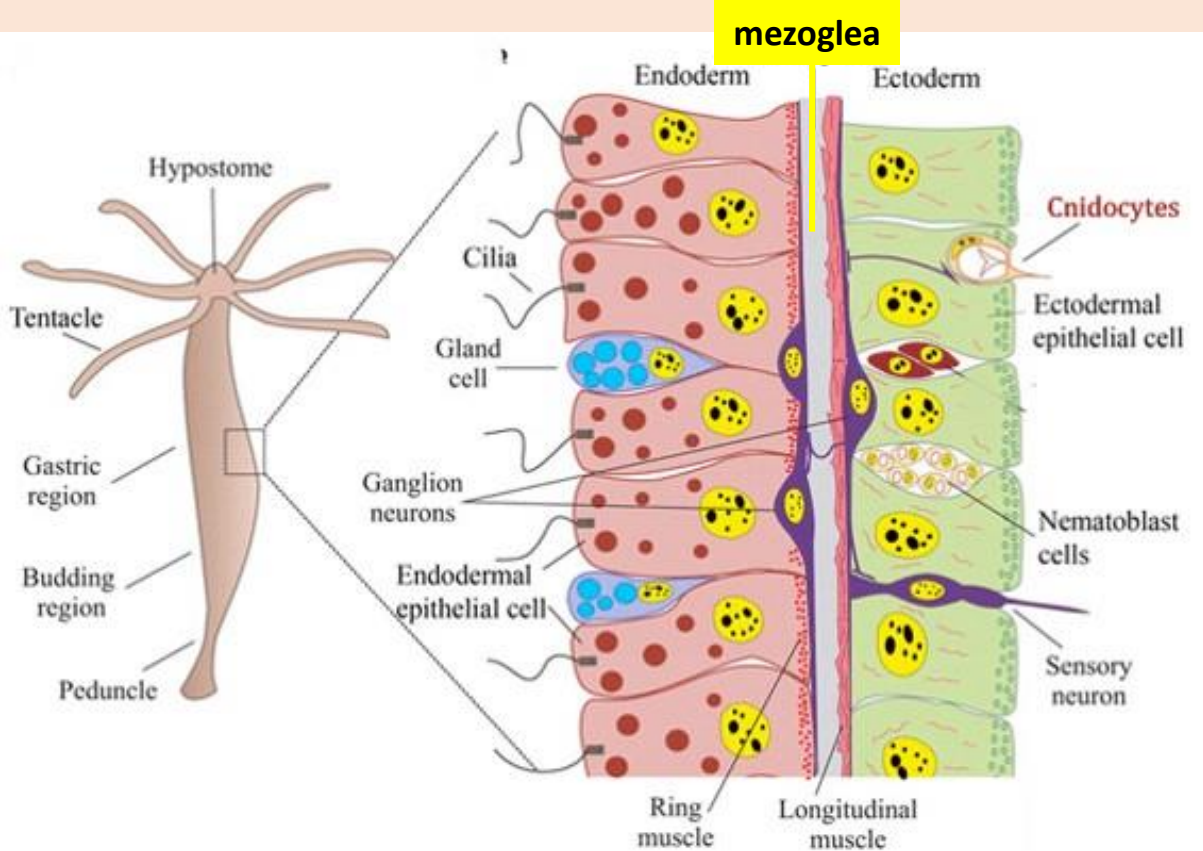
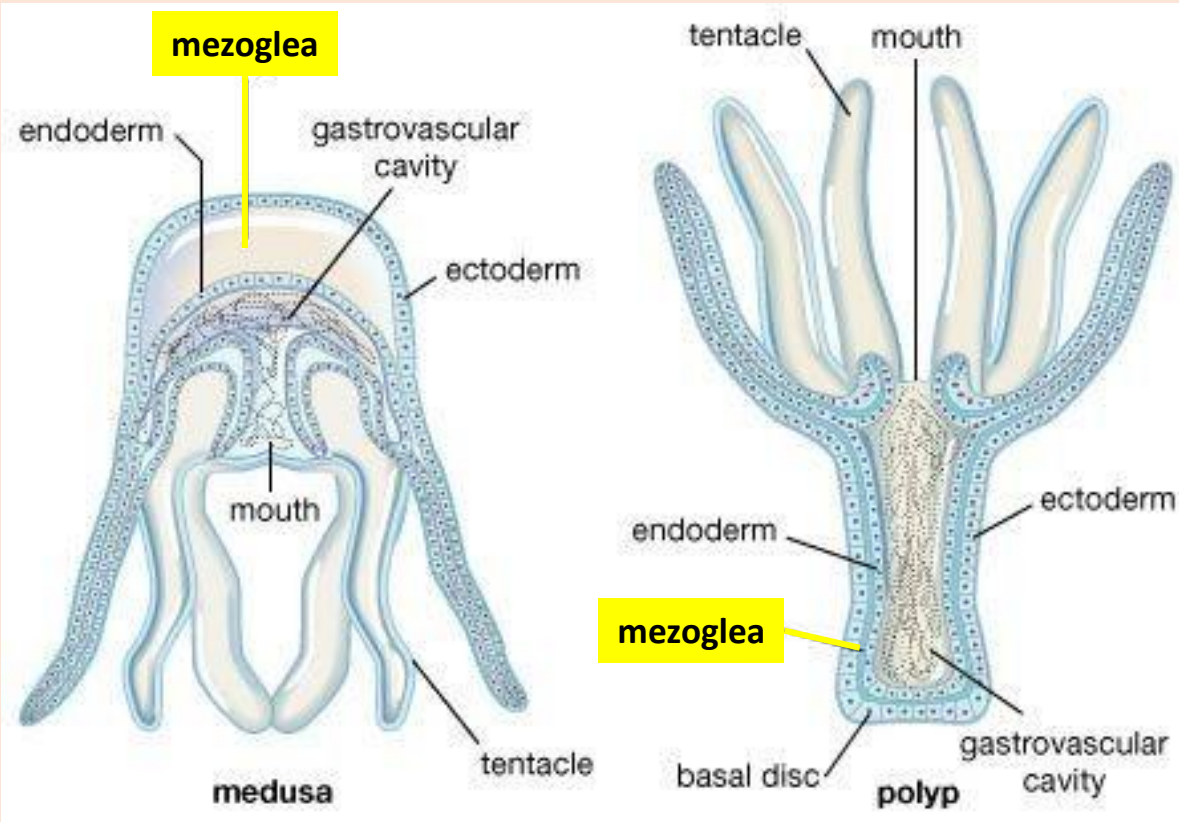
pojivové a opěrné tkáně  
u bezobratlých

# mezohyl

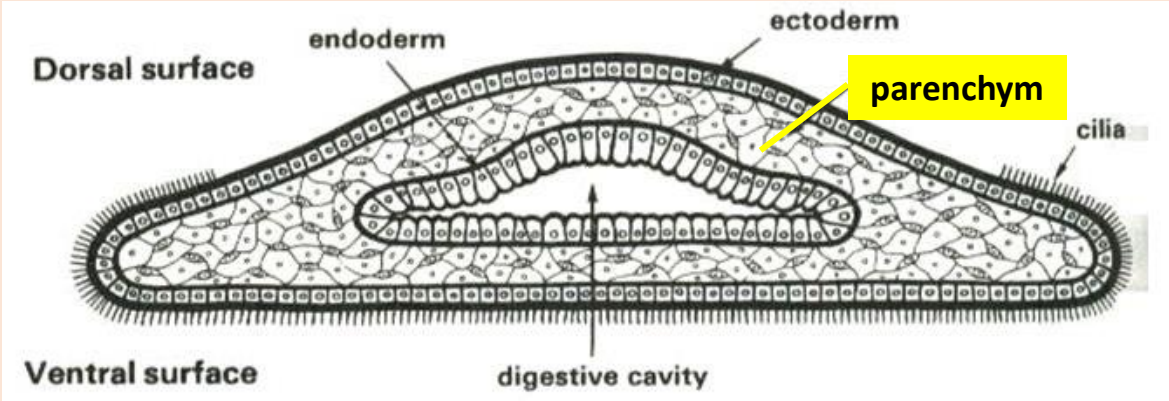
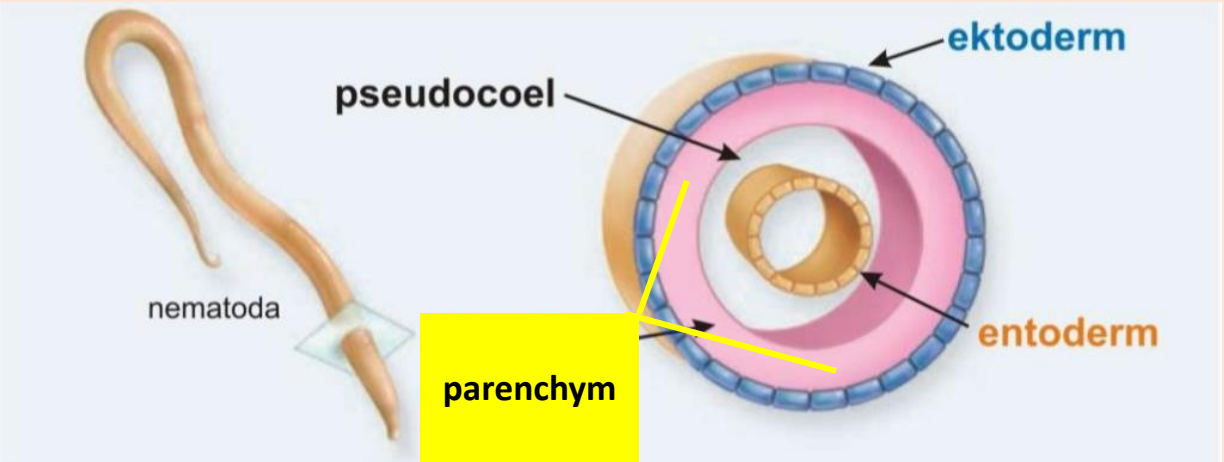
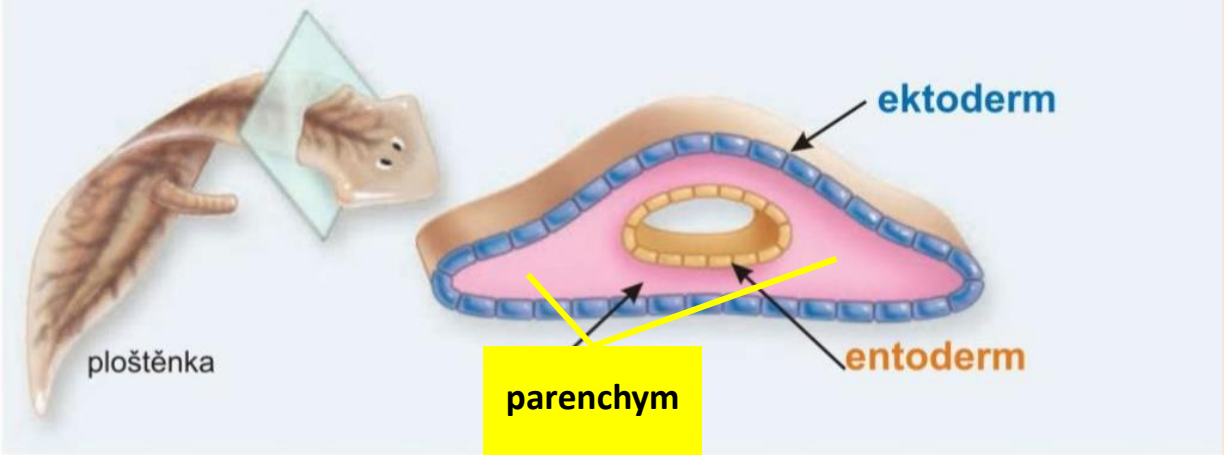




# mezoglea



# parenchym





# buněčné pojivo

