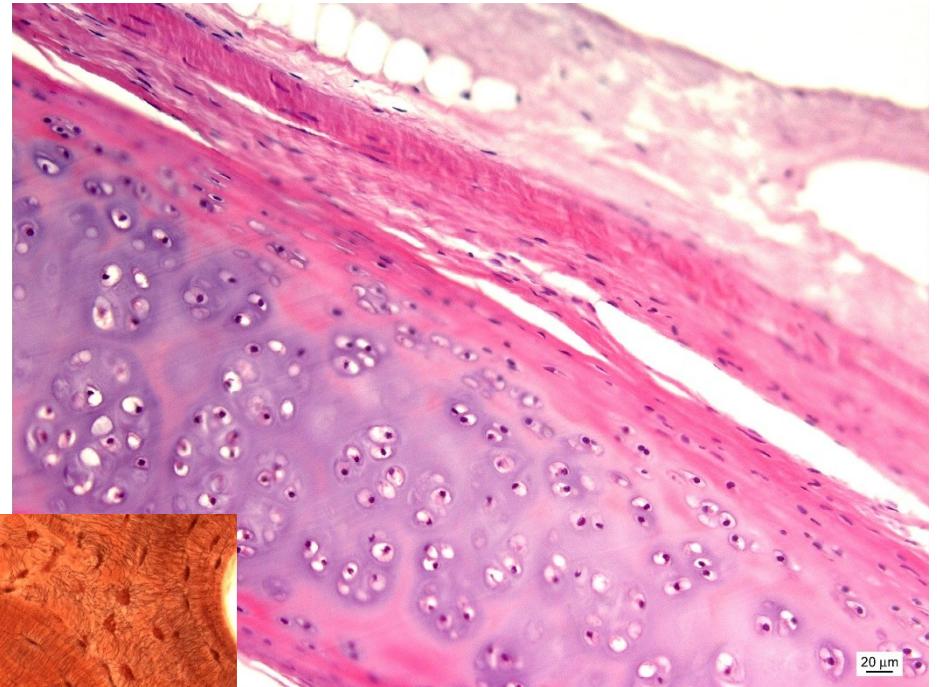
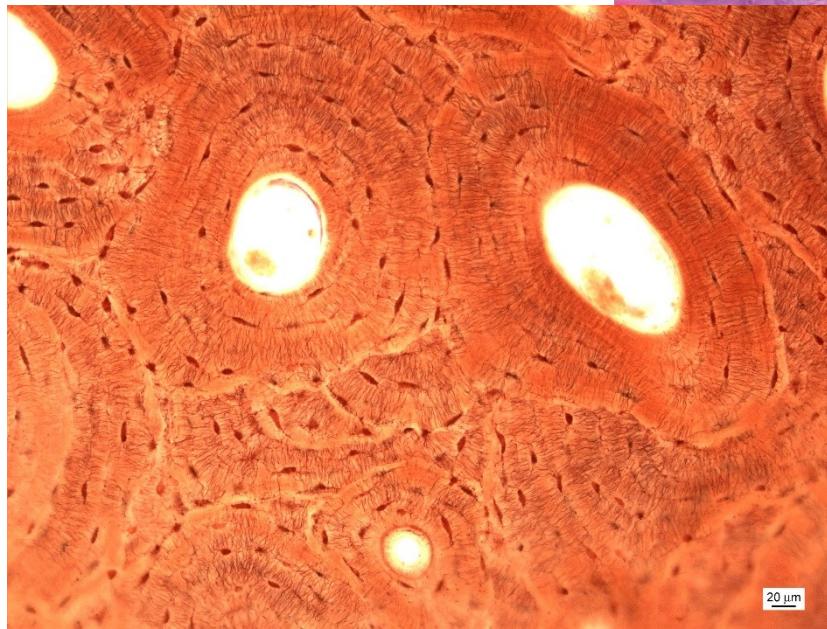
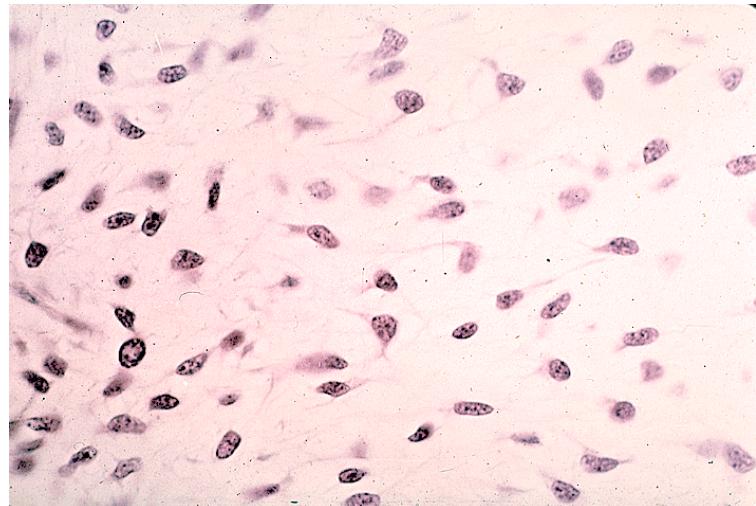


# Bone, Cartilage Ossification

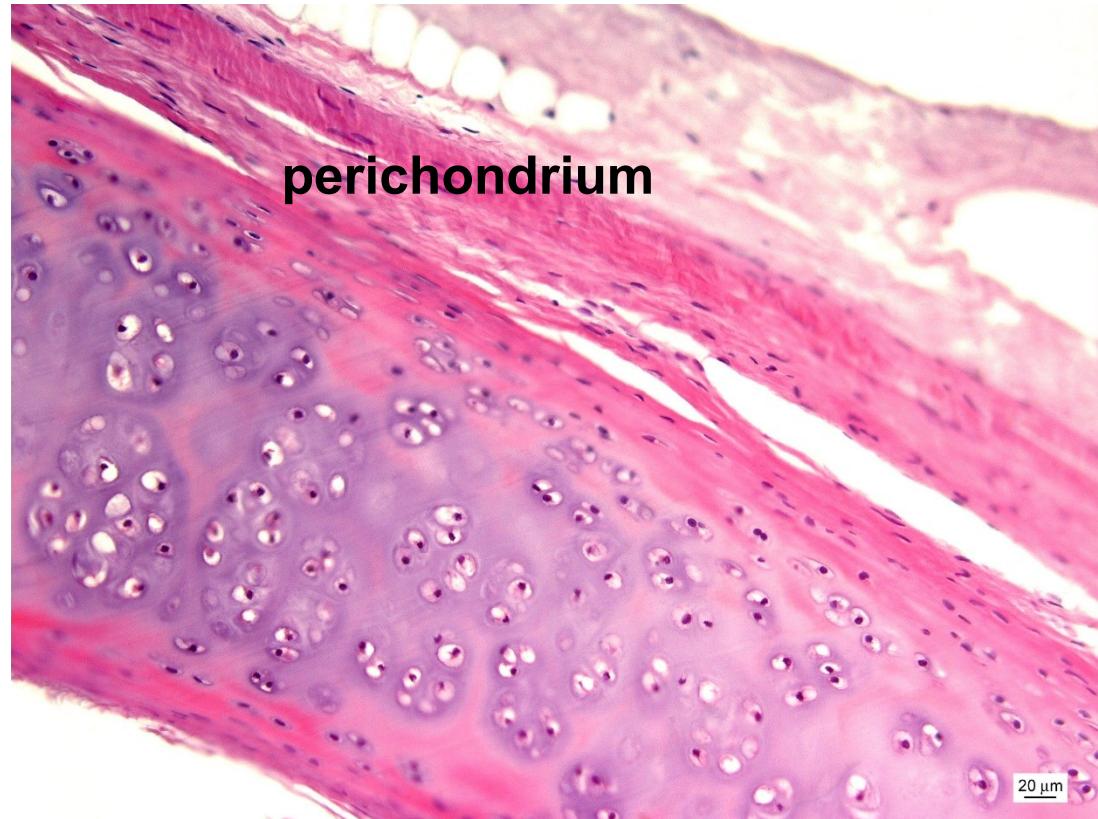
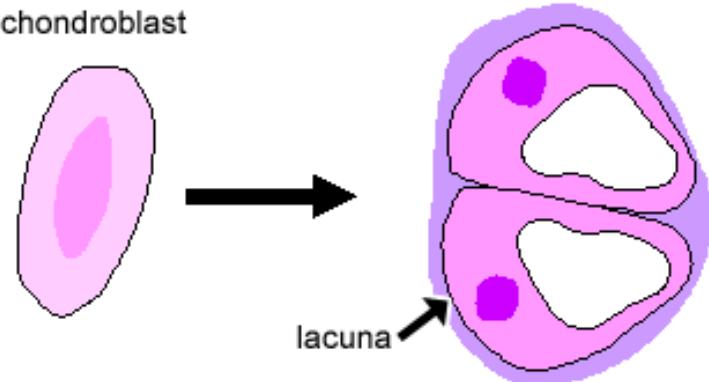


# Cartilage



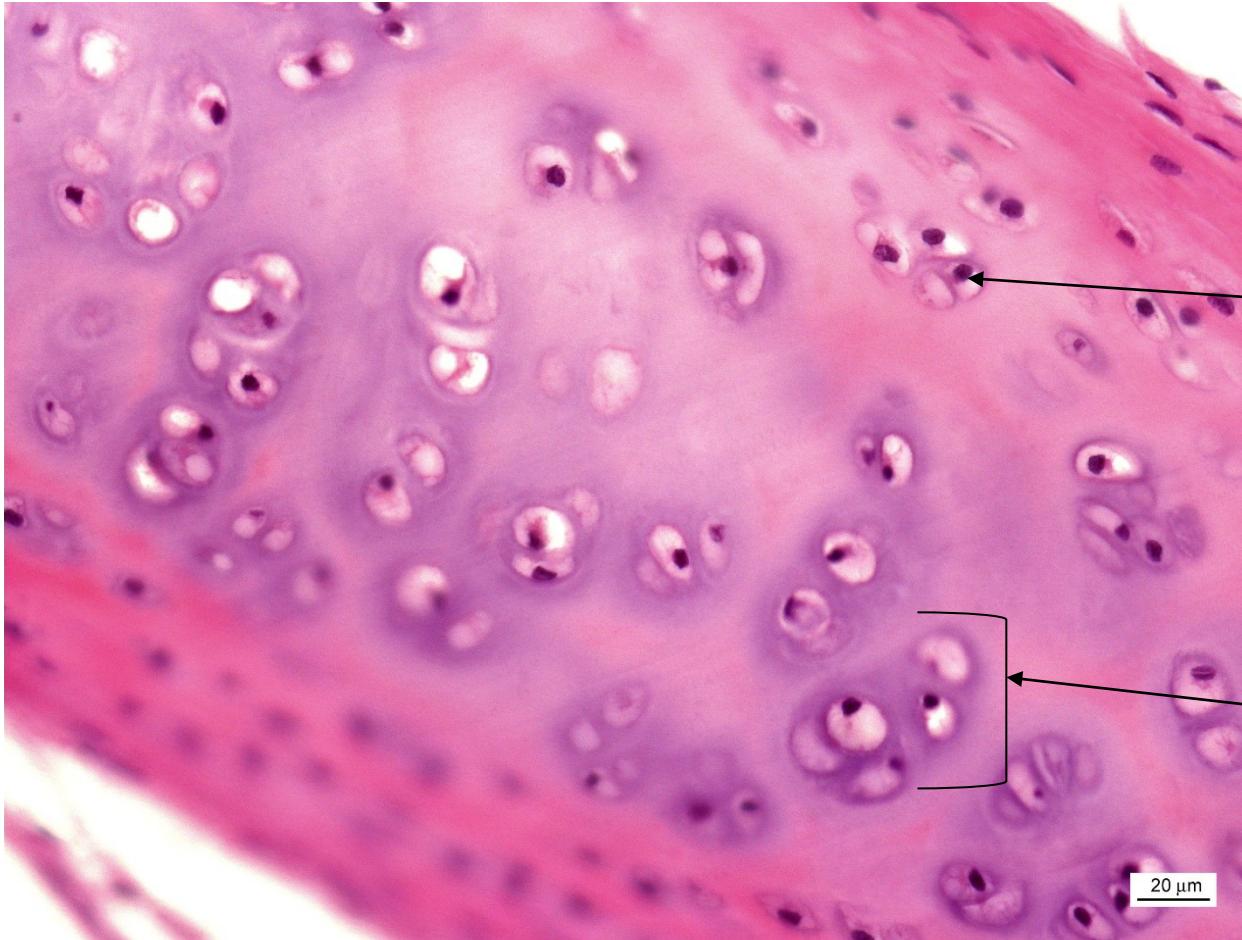
chondrocyte

chondroblast



perichondrium

# Hyaline cartilage



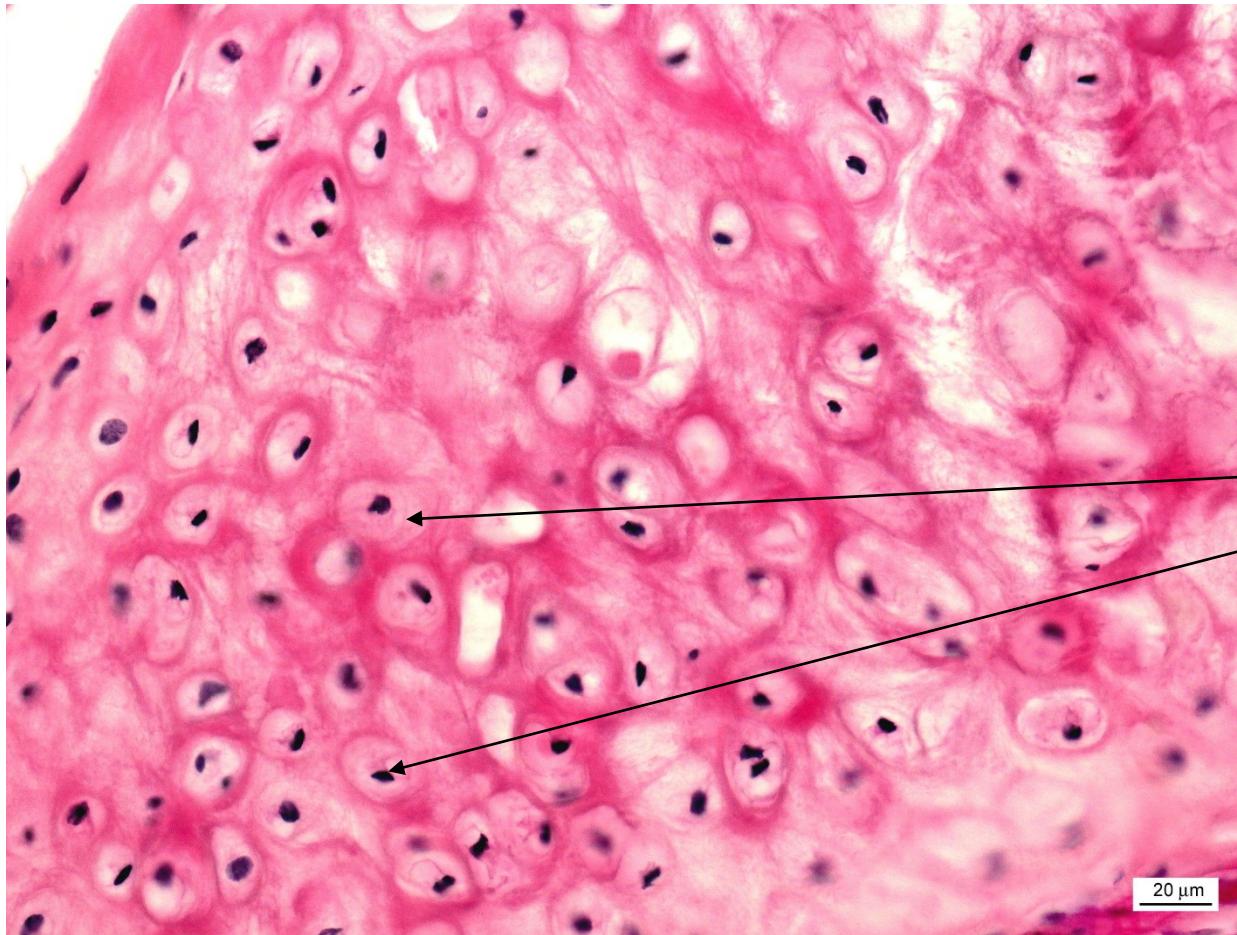
## Isogenous group

Results from mitosis of chondrocyte present in a lacuna.

## Chondron

merged isogenous group

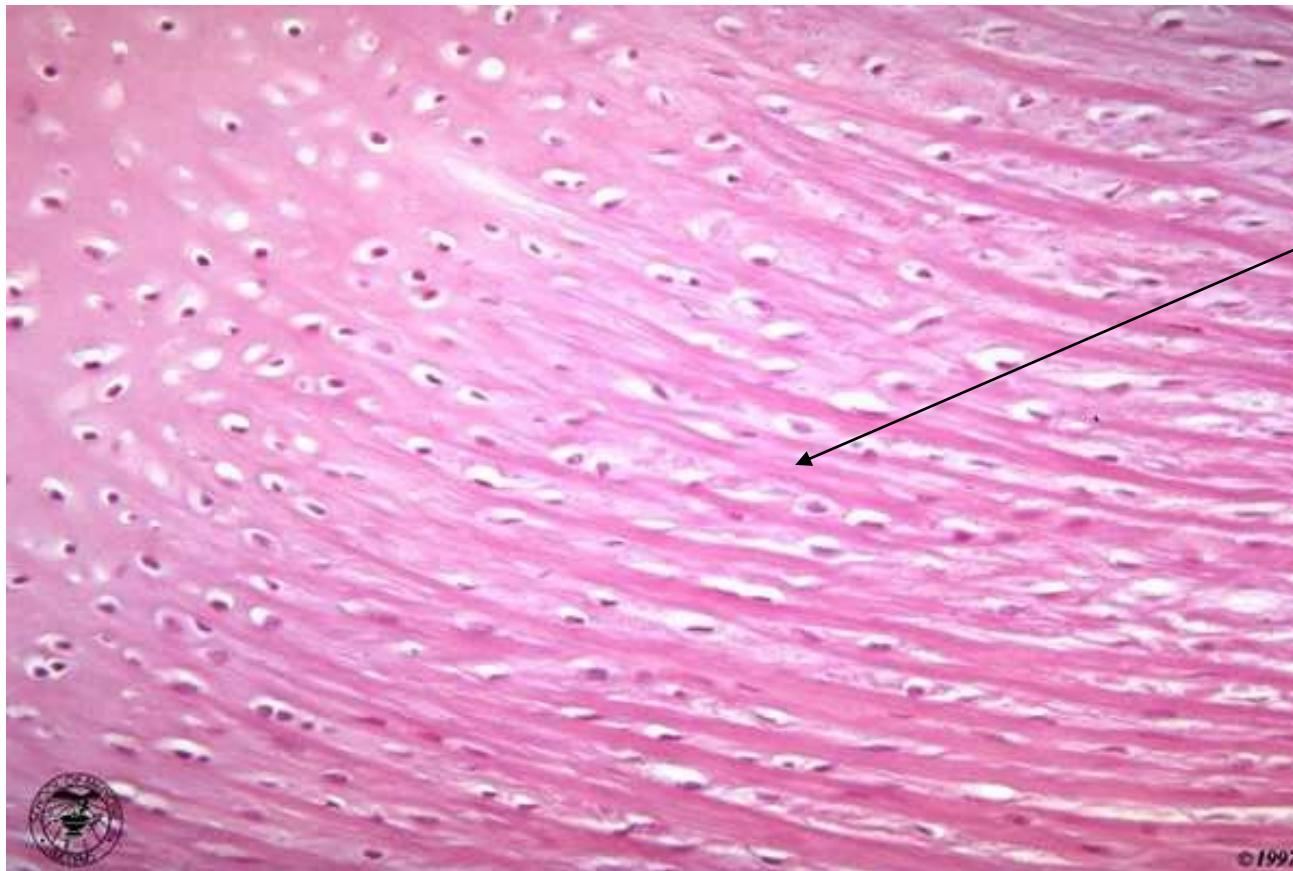
# Elastic cartilage



**Isogenous groups are absent**

**Chondrocytes are isolated**

# Fibrous cartilage



## Chondrocytes

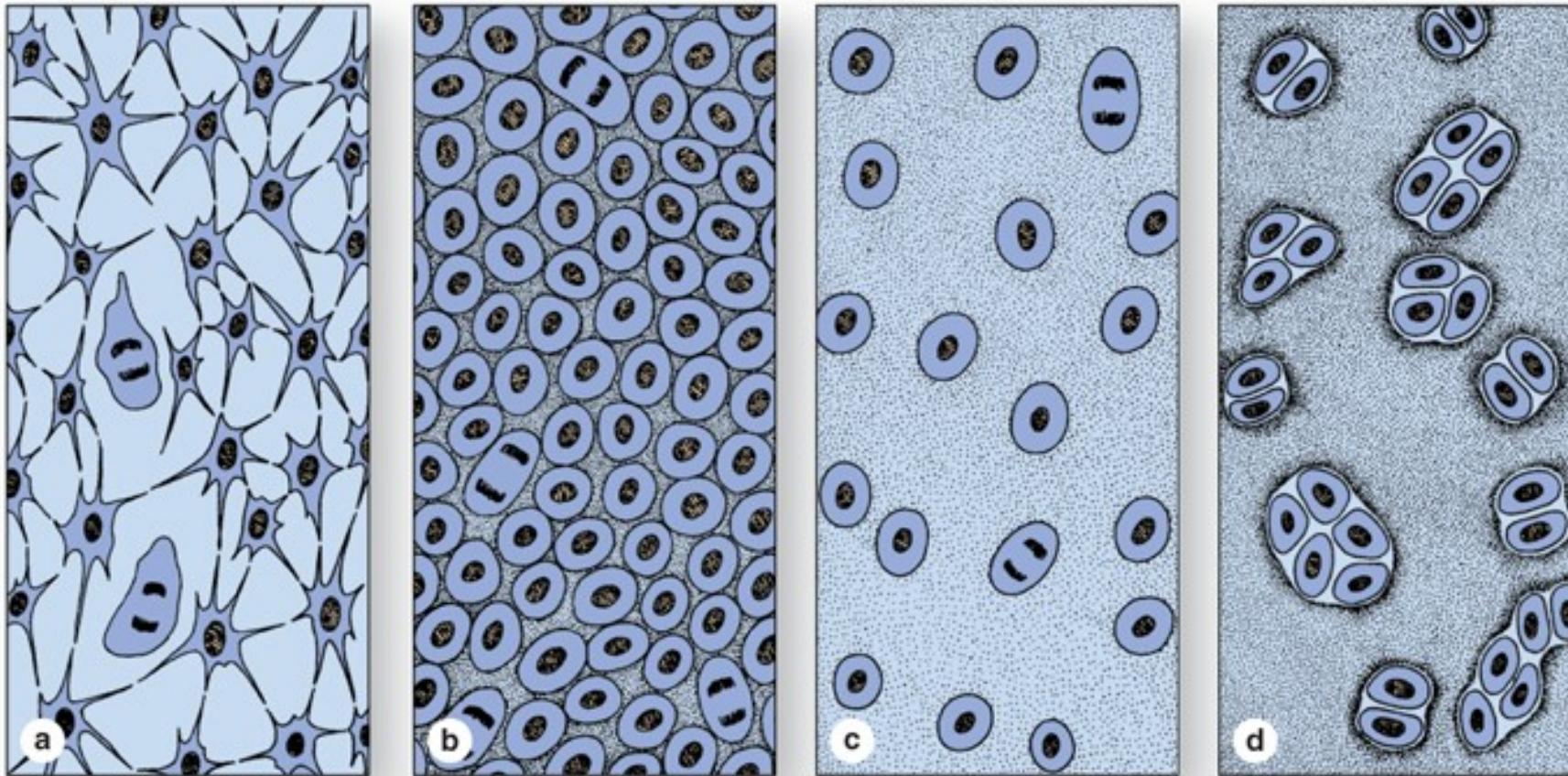
arranged between thick collagen fibers and reduced amorphous ground substance.

**No perichondrium and no isogenous groups**

[https://kejmi.rajce.idnes.cz/Kosti\\_a\\_chrupavka/](https://kejmi.rajce.idnes.cz/Kosti_a_chrupavka/)

MUNI  
MED

# Chondrogenesis

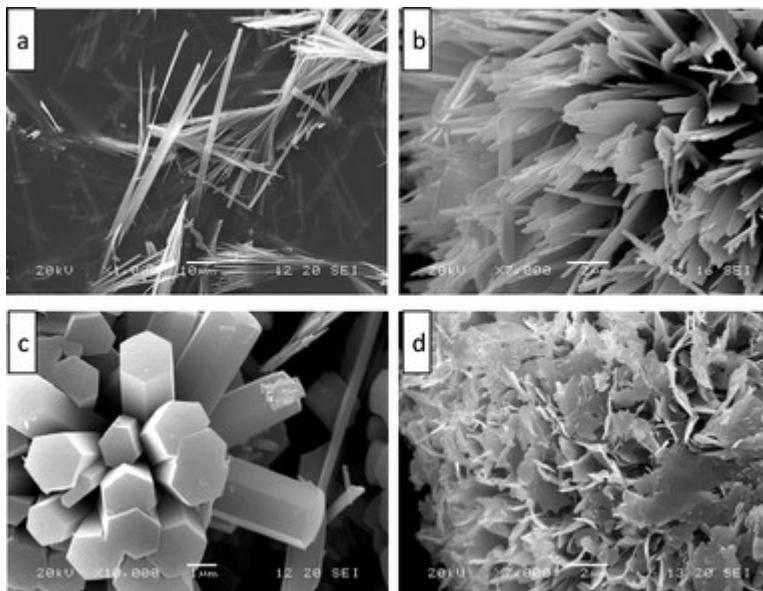


# Bone tissue



(a) Osteogenic cell	(b) Osteoblast	(c) Osteocyte	(d) Osteoclast
Stem cell	Matrix-synthesizing cell responsible for bone growth	Mature bone cell that maintains the bone matrix	Bone-resorbing cell

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## Hydroxyapatite crystals

# **Bone tissue**

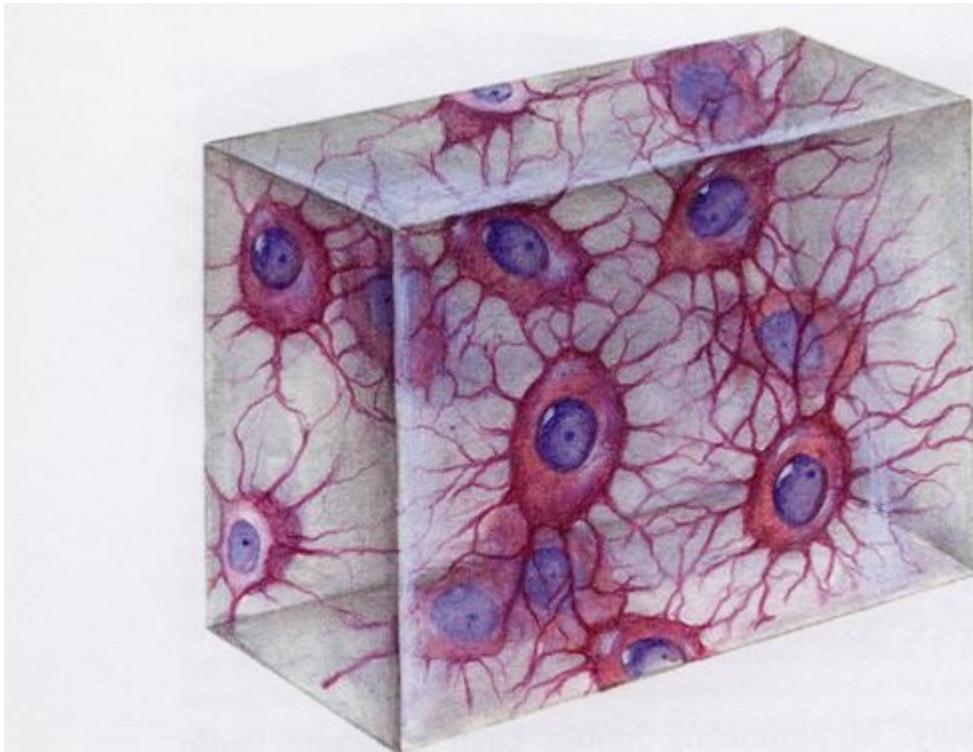
**Primary (woven)**

**Secondary (lamellar)**

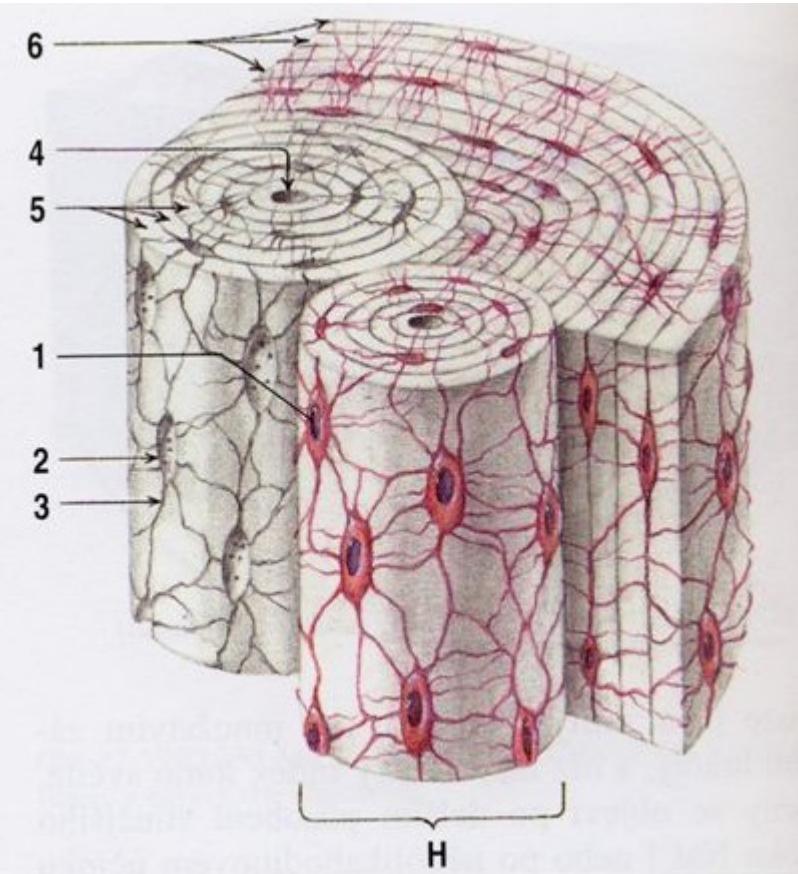
**Compact**

**Spongy**

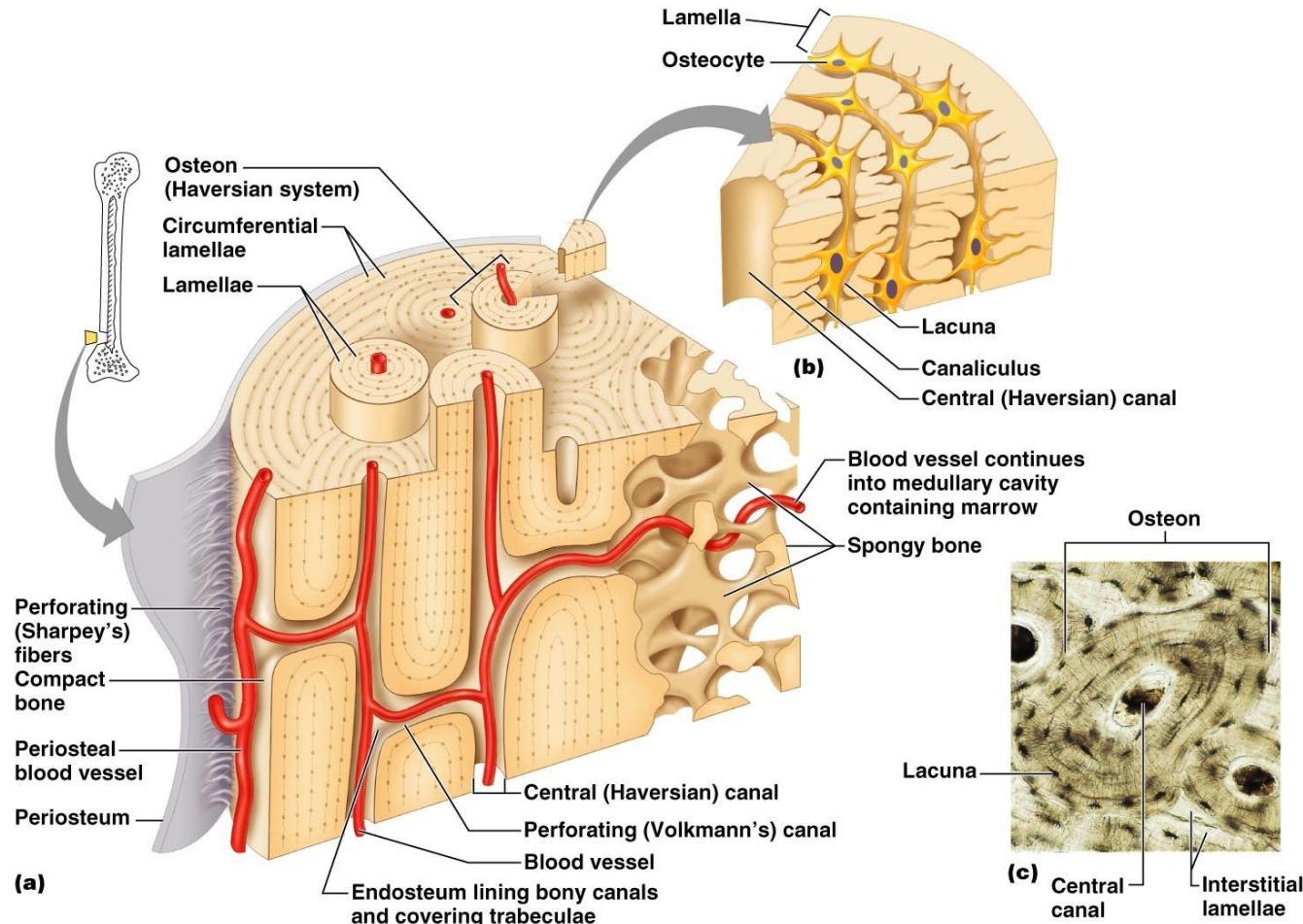
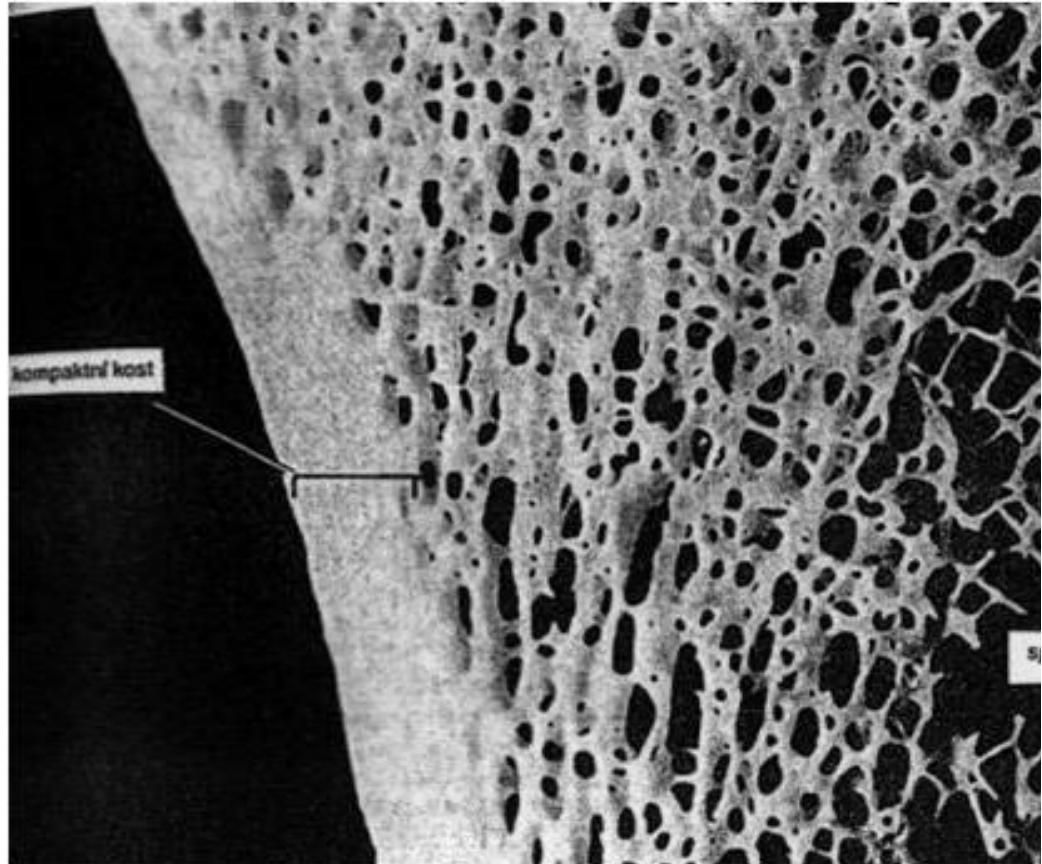
# Woven vs lamellar bone



Obr. 26. KOSTNÍ TKÁŇ FIBRILÁRNÍ (schematický model)



# Compact vs Spongy bone

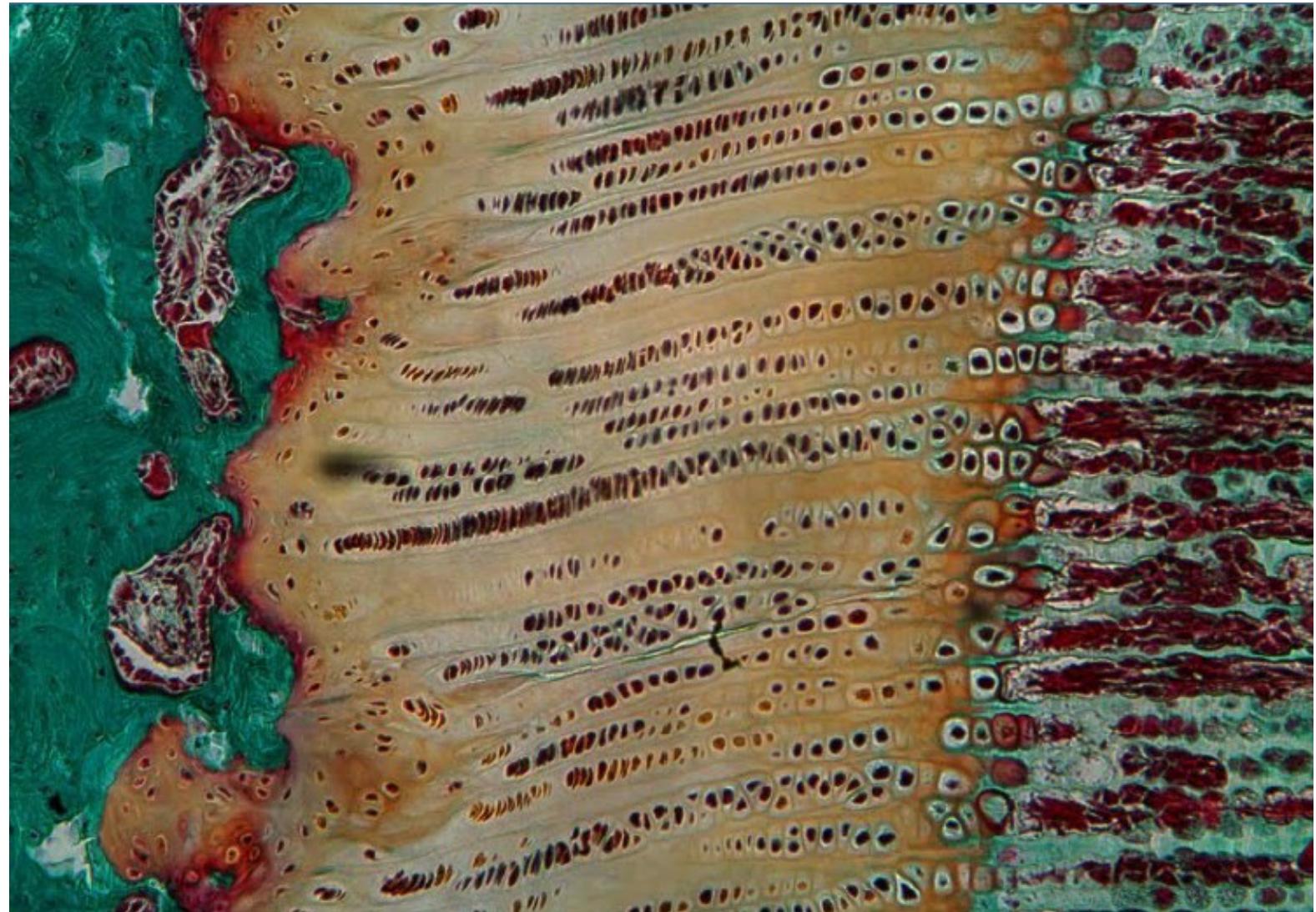


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# Ossification

1. Zone of resting cartilage
2. Zone of proliferation
3. Zone of hypertrophy
4. Zone of calcification
5. Zone of ossification

From right to left – cartilage is on the right, fibrillar bone on the left.





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2020