

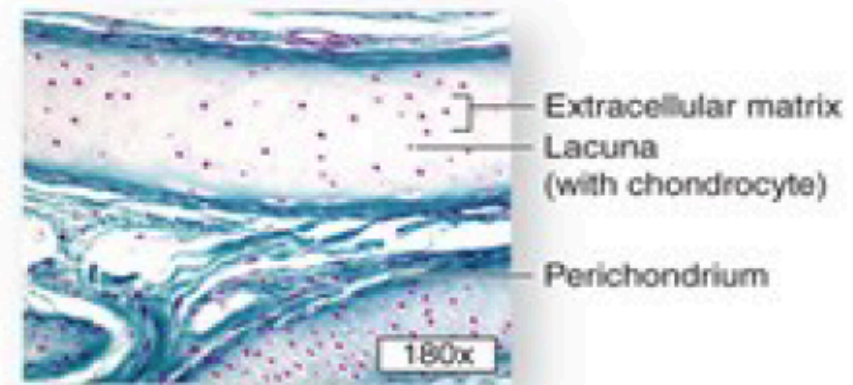
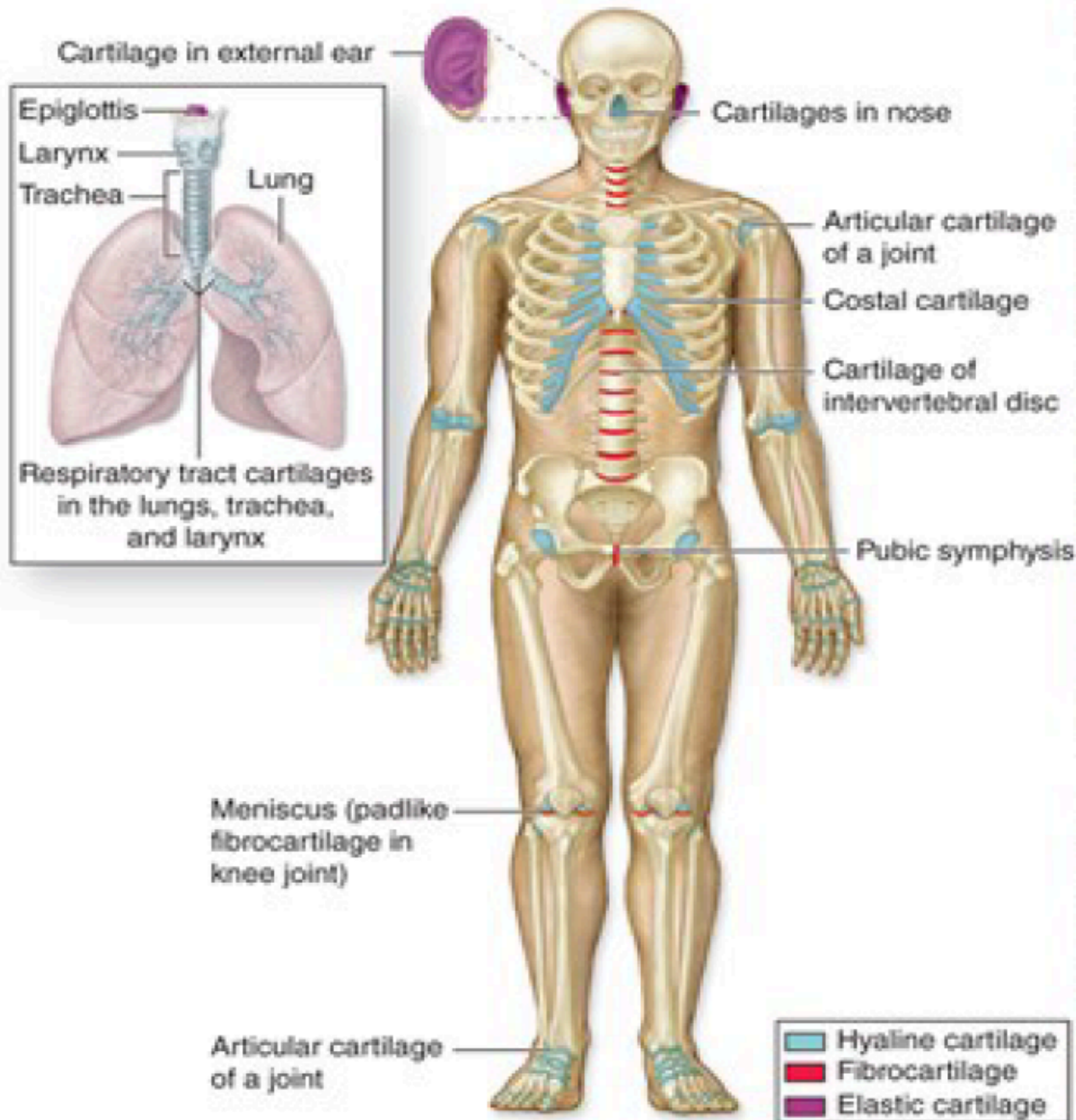
The background of the slide is a light gray gradient with several realistic water droplets of various sizes scattered across it. The droplets have highlights and shadows, giving them a three-dimensional appearance. The word "CARTILAGE" is centered in the middle of the slide in a bold, black, sans-serif font.

CARTILAGE

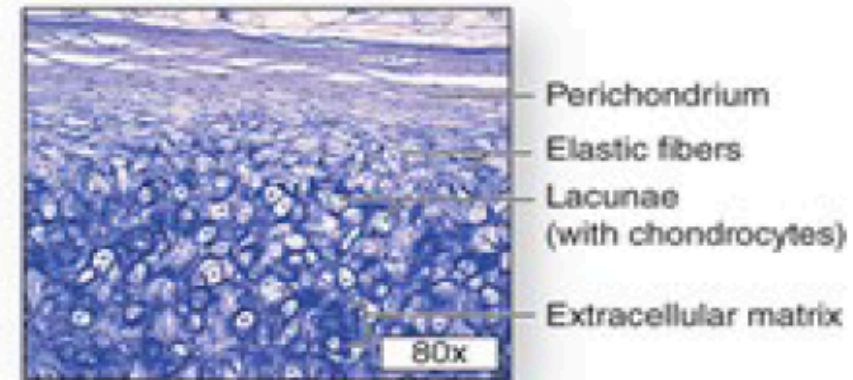
CARTILAGE

- CARTILAGE IS A TOUGH AND DURABLE CT.
- RICH EXTRACELLULAR MATRIX (ECM) WITH HIGH CONCENTRATIONS OF GAGS AND PROTEOGLYCANS
- CONTAINS COLLAGEN AND ELASTIC FIBERS.

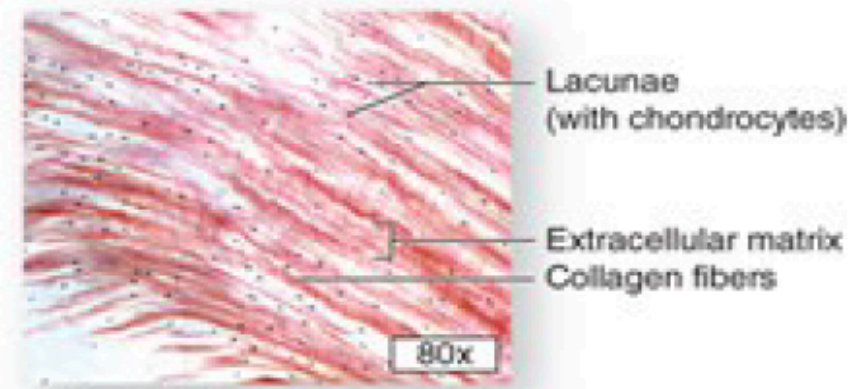
DISTRIBUTION



b Hyaline cartilage



c Elastic cartilage



d Fibrocartilage




STRUCTURE

CELLS

- CONSISTS OF ONLY CHONDROCYTES EMBEDDED IN THE ECM
- CHONDROCYTES SYNTHESIZE AND MAINTAIN ALL ECM
- LOCATED IN MATRIX CAVITIES CALLED LACUNAE.

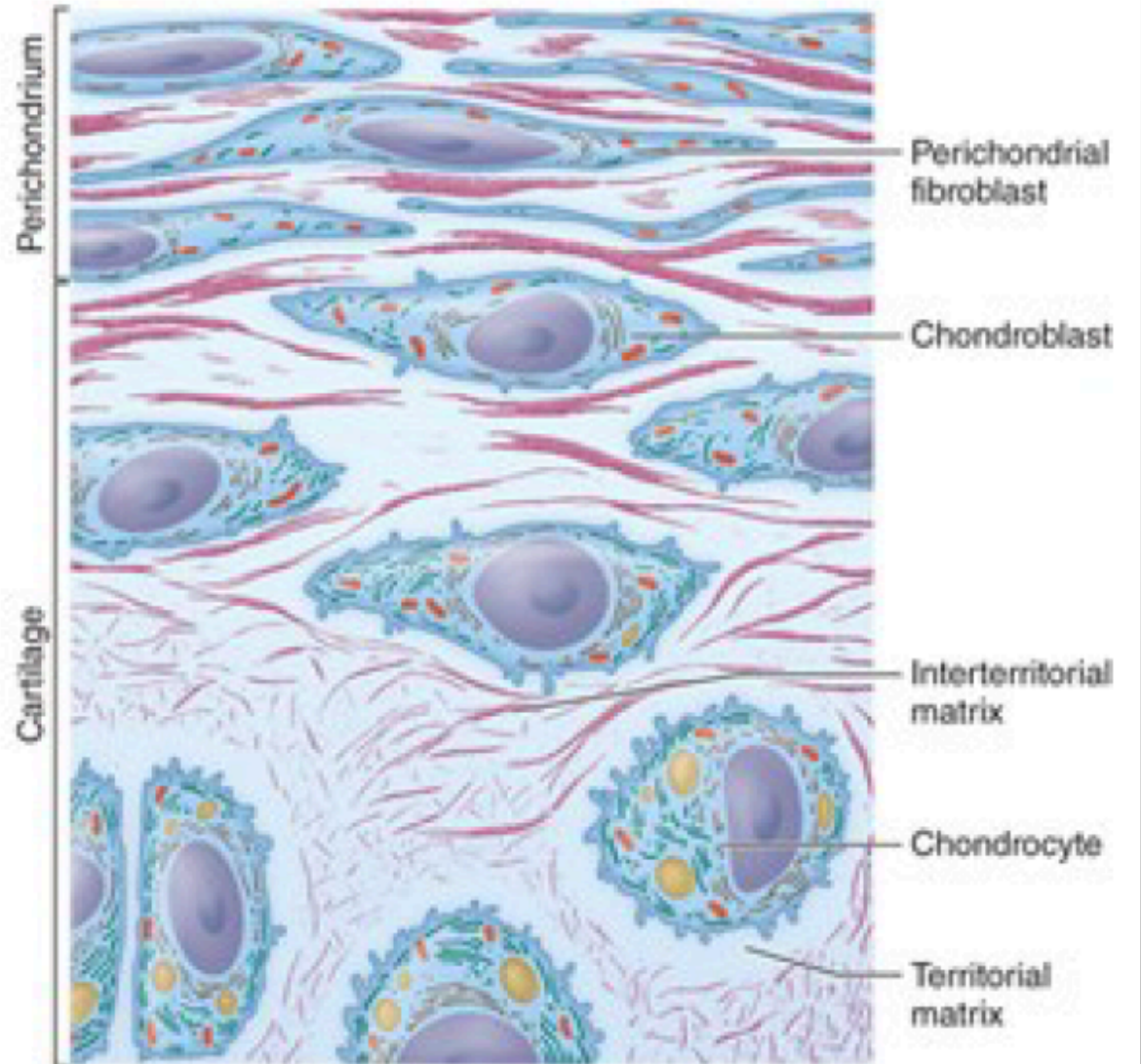
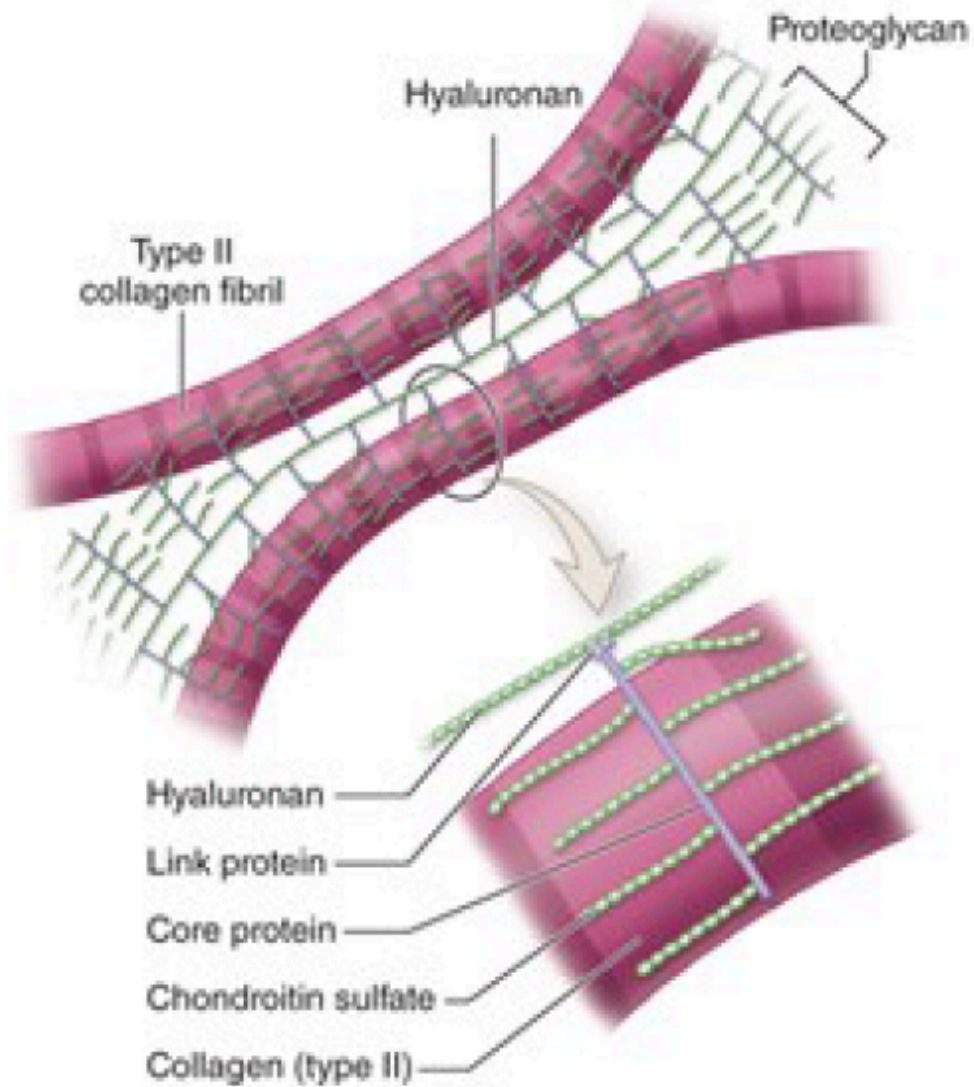
ECM

- TYPE II COLLAGEN FIBRILS
 - HYALURONAN
 - SULFATED GAGS
 - PROTEOGLYCANS
- 

PERICHONDRIUM

- THE PERICHONDRIUM IS A SHEATH OF DENSE CONNECTIVE TISSUE THAT SURROUNDS CARTILAGE IN MOST PLACES.
- THE PERICHONDRIUM HARBORS THE BLOOD SUPPLY AND A SMALL NEURAL COMPONENT.

ECM

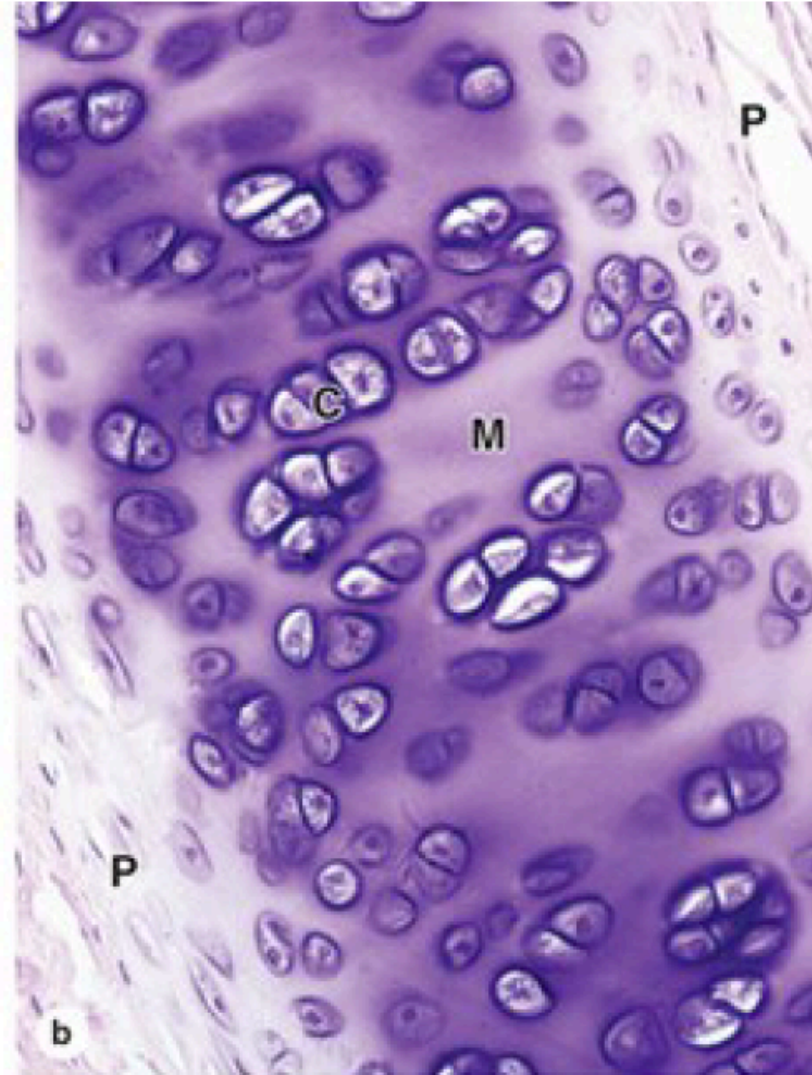
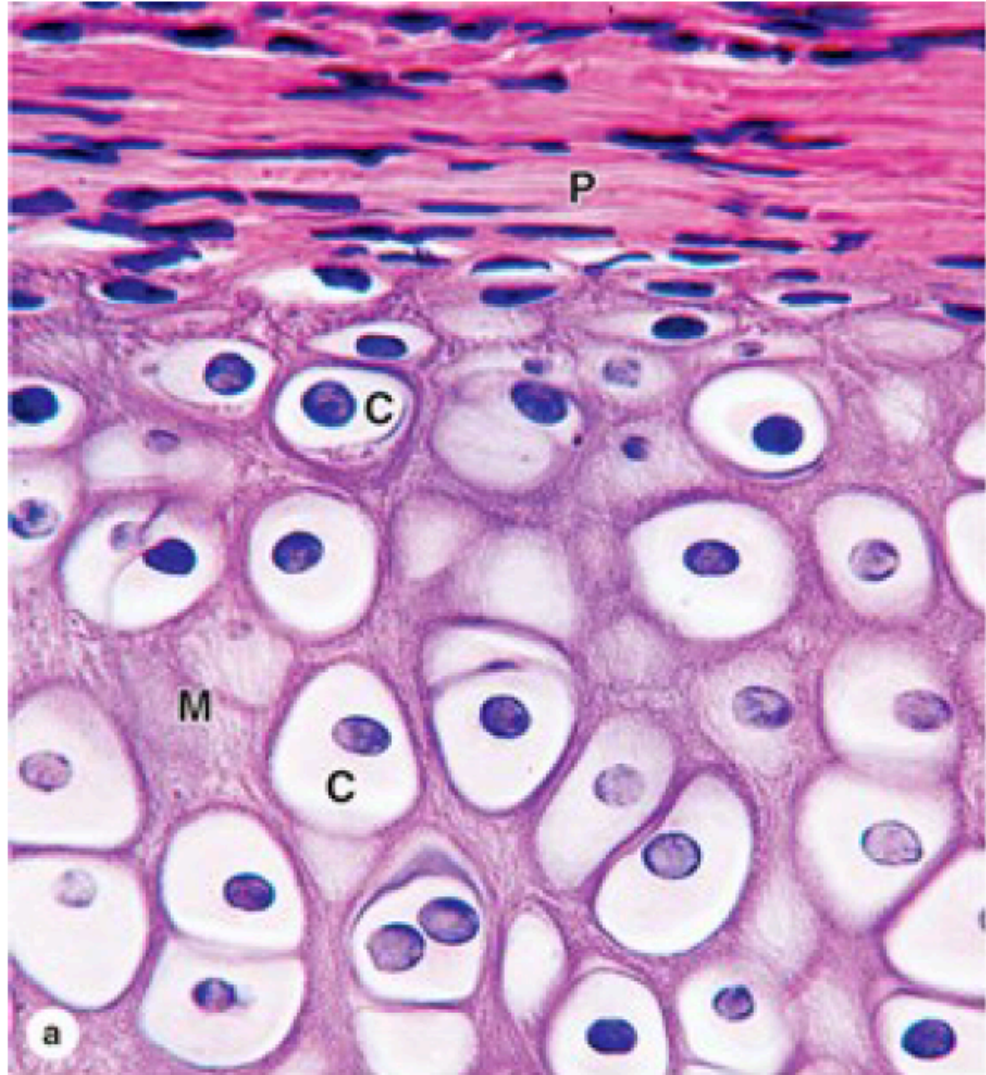


TYPES

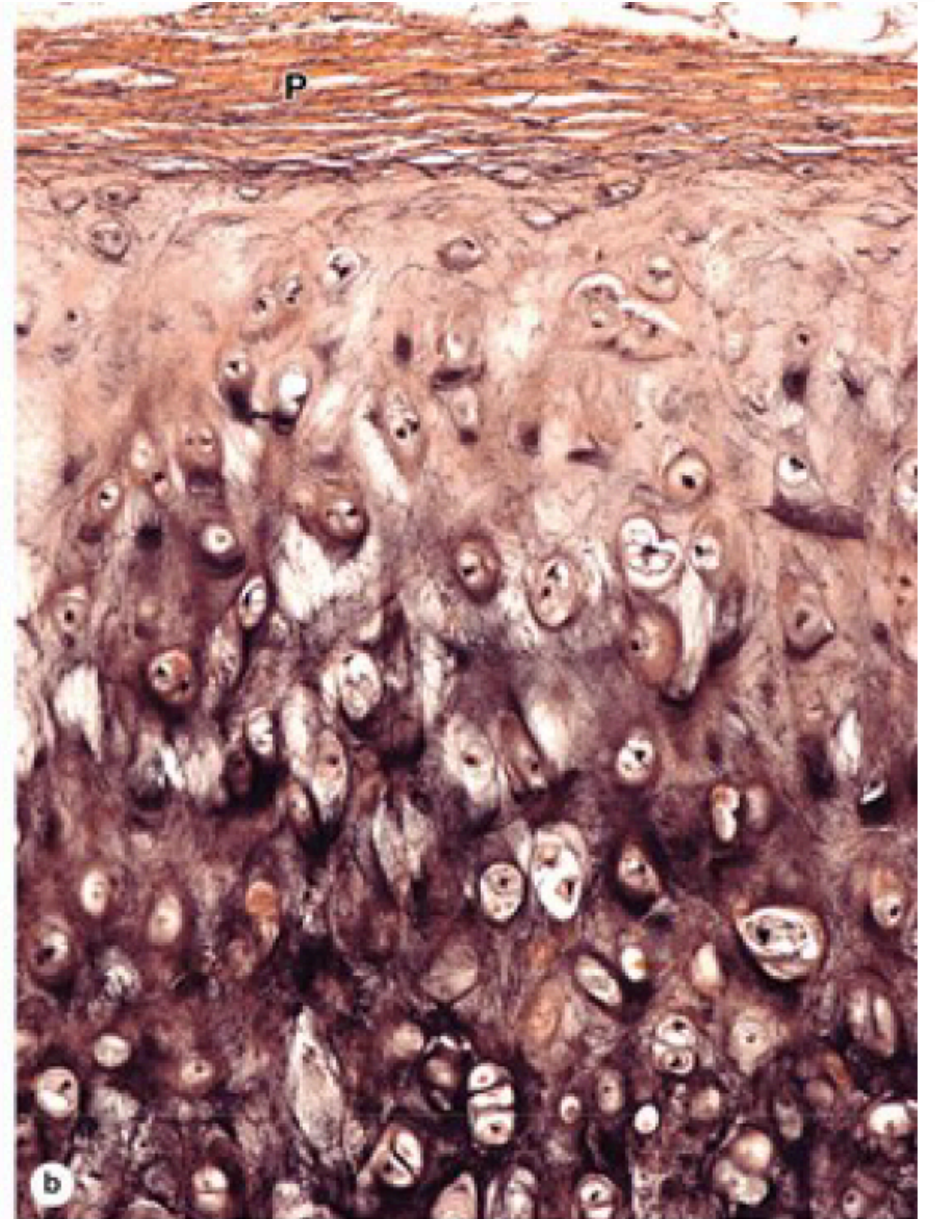
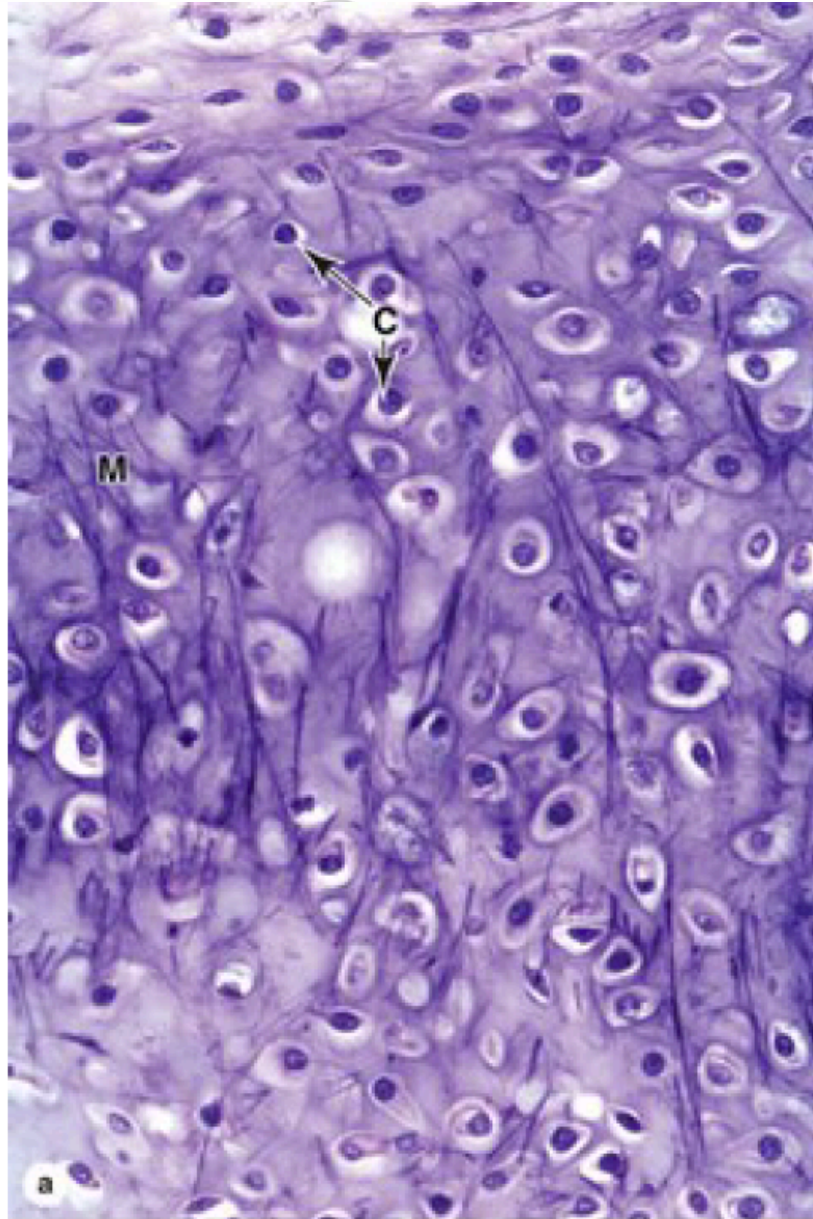
- HYALINE CARTILAGE
- ELASTIC CARTILAGE
- FIBROCARILAGE

	Hyaline Cartilage	Elastic Cartilage	Fibrocartilage
Main features of the extracellular matrix	Homogeneous, with type II collagen and aggrecan	Type II collagen, aggrecan, and darker elastic fibers	Type II collagen and large areas of dense connective tissue with type I collagen
Major cells	Chondrocytes, chondroblasts	Chondrocytes, chondroblasts	Chondrocytes, fibroblasts
Typical arrangement of chondrocytes	Isolated or in small isogenous groups	Usually in small isogenous groups	Isolated or in isogenous groups arranged axially
Presence of perichondrium	Yes (except at epiphyses and articular cartilage)	Yes	No
Main locations or examples	Many components of upper respiratory tract; articular ends and epiphyseal plates of long bones; fetal skeleton	External ear, external acoustic meatus, auditory tube; epiglottis and certain other laryngeal cartilages	Intervertebral discs, pubic symphysis, meniscus, and certain other joints; insertions of tendons
Main functions	Provides smooth, low-friction surfaces in joints; structural support for respiratory tract	Provides flexible shape and support of soft tissues	Provides cushioning, tensile strength, and resistance to tearing and compression

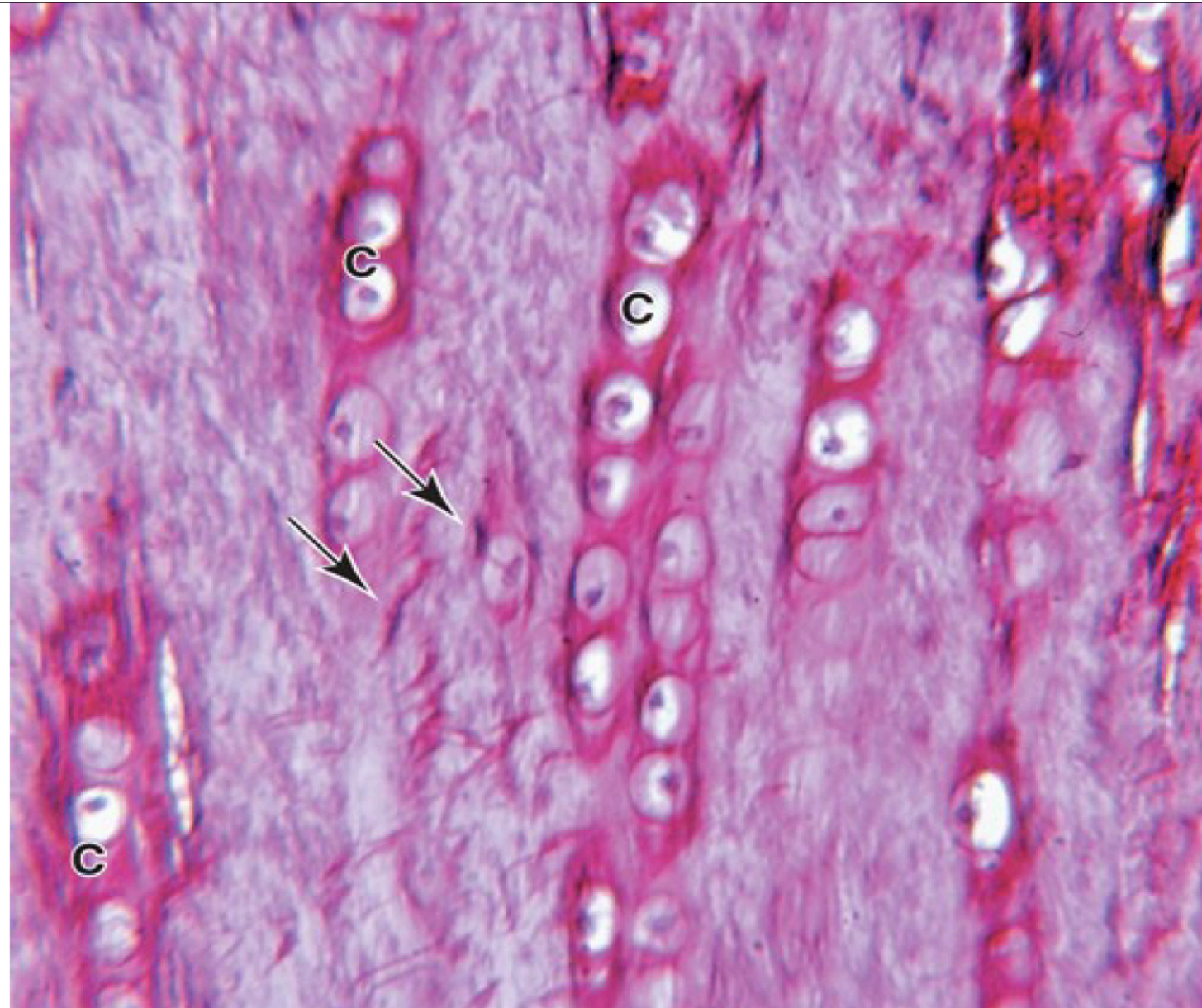
HYALINE CARTILAGE



ELASTIC CARTILAGE



FIBROCARILAGE



CHONDROGENESIS

- MESENCHYME IS THE PRECURSOR FOR ALL TYPES OF CARTILAGE
- MITOSIS AND INITIAL CELL DIFFERENTIATION (CHONDROBLASTS)
- CHONDROBLASTS PRODUCES VARIOUS MATRIX COMPONENTS
- MULTIPLICATION OF CHONDROBLASTS GIVES RISE TO ISOGENOUS CELL

CHONDROGENESIS

