

Taken from [quizlet.com](https://quizlet.com/73474893/74b-endochondral-ossification-flash-cards/), 7.4b Endochondral Ossification, available at <https://quizlet.com/73474893/74b-endochondral-ossification-flash-cards/>

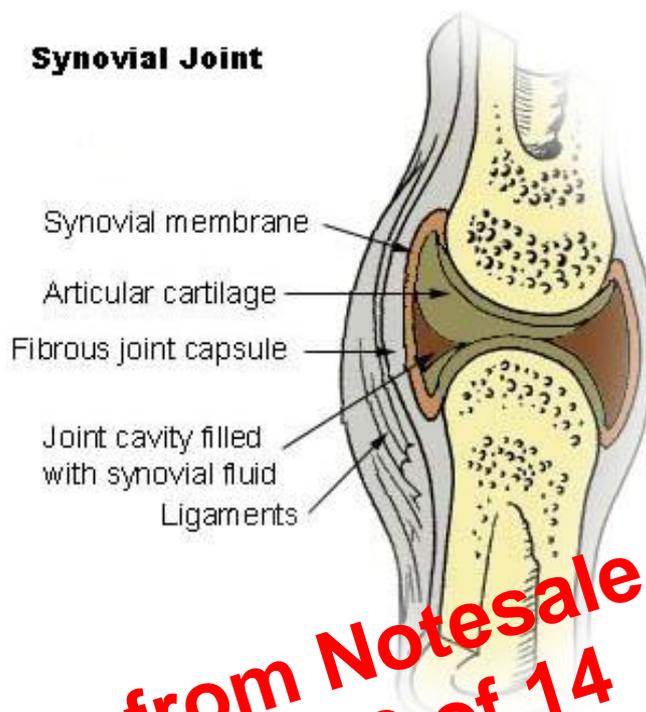
- Epiphyseal cartilage is divided into 5 zones:
 - Resting zone – hyaline cartilage with typical chondrocytes
 - Proliferative zone – chondrocytes divide rapidly forming columns of stacked cells parallel to long axis of bone
 - Hypertrophic cartilage – swollen chondrocytes containing glycogen; hypertrophy compresses matrix into thin septa between chondrocytes
 - Calcified cartilage zone – loss of chondrocytes by apoptosis accompanied by calcification of septa by formation of hydroxyapatite crystals
 - Ossification zone – bone tissue first appears; capillaries and osteoprogenitor cells from periosteum invade cavities left by chondrocytes; osteoprogenitor cells form osteoblasts which deposit osteoid

Bone growth, remodelling and repair

- Osteogenesis and bone growth involve the partial resorption of bone tissue formed earlier, while simultaneously laying down new bone at a rate exceeding that of bone removal
- Osteoblasts and osteoclasts work in tandem to resorb and reform bone tissue; this allows the bone to be a dynamic tissue that is able to adapt to stresses exerted on the bone

The synovial membrane

- The synovial membrane (aka synovium) is the soft tissue found between the joint capsule and the joint cavity of synovial joints (diarthroses)
- The synovial membrane is concerned with the secretion of synovial fluid that must fill the synovial cavity to keep the cartilage of diarthroses joints friction free and lubricated



Taken from [Wikipedia.org](https://en.wikipedia.org/wiki/Synovial_Joint), Synovial Joint, available at https://en.wikipedia.org/wiki/Synovial_fluid

- The synovial membrane has two layers:
 - An outer layer (subintima) that can be made from almost any type of CT- fibrous, fatty or areolar
 - The inner layer (intima) that consists of a sheet of cells thinner than a piece of paper; the intima layer is continuous with the edges of cartilage that surrounds the ends of the bones
- The synovial membrane is characterized by the presence of 2 types of cells:
 - **Type A**
 - Macrophage like synovial cells
 - Derived from blood monocytes and remove wear-and-tear debris from the synovial fluid
 - Constitute about 25% of the cells lining the synovium
 - Regulate inflammatory events within diarthrotic joints