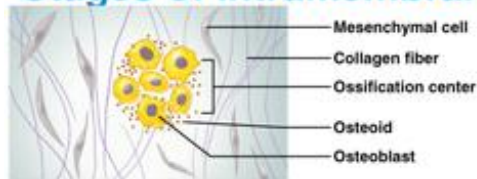


## Stages of Intramembranous Ossification



### ① An ossification center appears in the fibrous connective tissue membrane.

- Selected centrally located mesenchymal cells cluster and differentiate into osteoblasts, forming an ossification center.



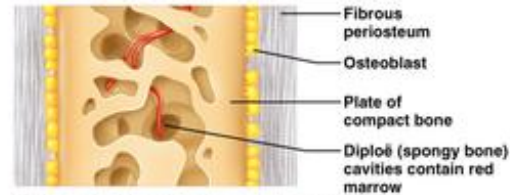
### ③ Woven bone and periosteum form.

- Accumulating osteoid is laid down between embryonic blood vessels, which form a random network. The result is a network (instead of lamellae) of trabeculae.
- Vascularized mesenchyme condenses on the external face of the woven bone and becomes the periosteum.



### ② Bone matrix (osteoid) is secreted within the fibrous membrane.

- Osteoblasts begin to secrete osteoid, which is mineralized within a few days.
- Trapped osteoblasts become osteocytes.



### ④ Bone collar of compact bone forms and red marrow appears.

- Trabeculae just deep to the periosteum thicken, forming a woven bone collar that is later replaced with mature lamellar bone.
- Spongy bone (diploë), consisting of distinct trabeculae, persists internally and its vascular tissue becomes red marrow.

## Stages of Endochondral Ossification

