

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

BONE

Function of bone:

1. Protect
2. A rigid framework to support the body
3. Acts as a lever
4. Storage area for calcium, phosphate and magnesium salts and fats in in yellow bone marrow which can be used as source of energy and synthesis of important chemical substances.
5. Houses bone marrow

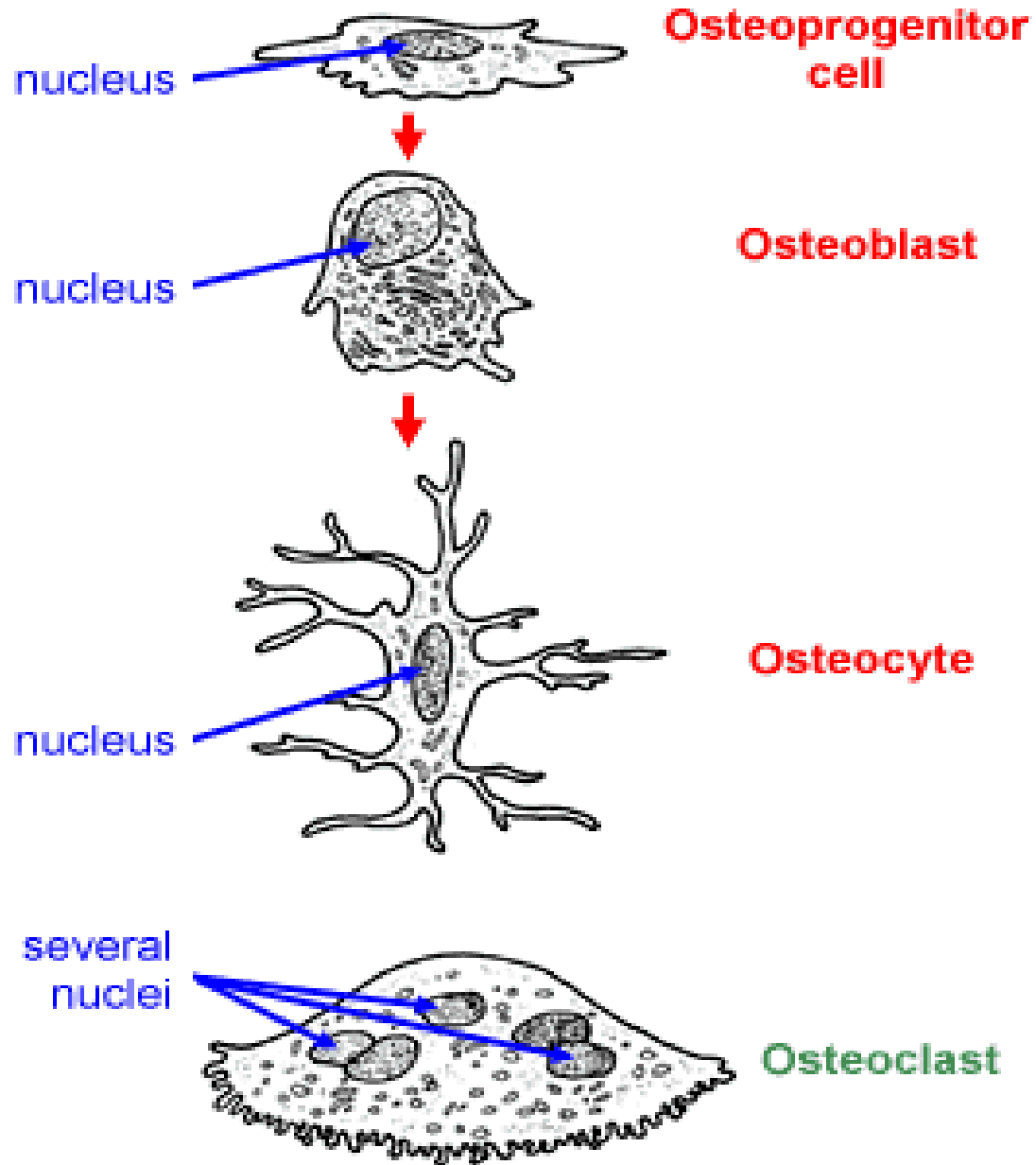
Living tissue .

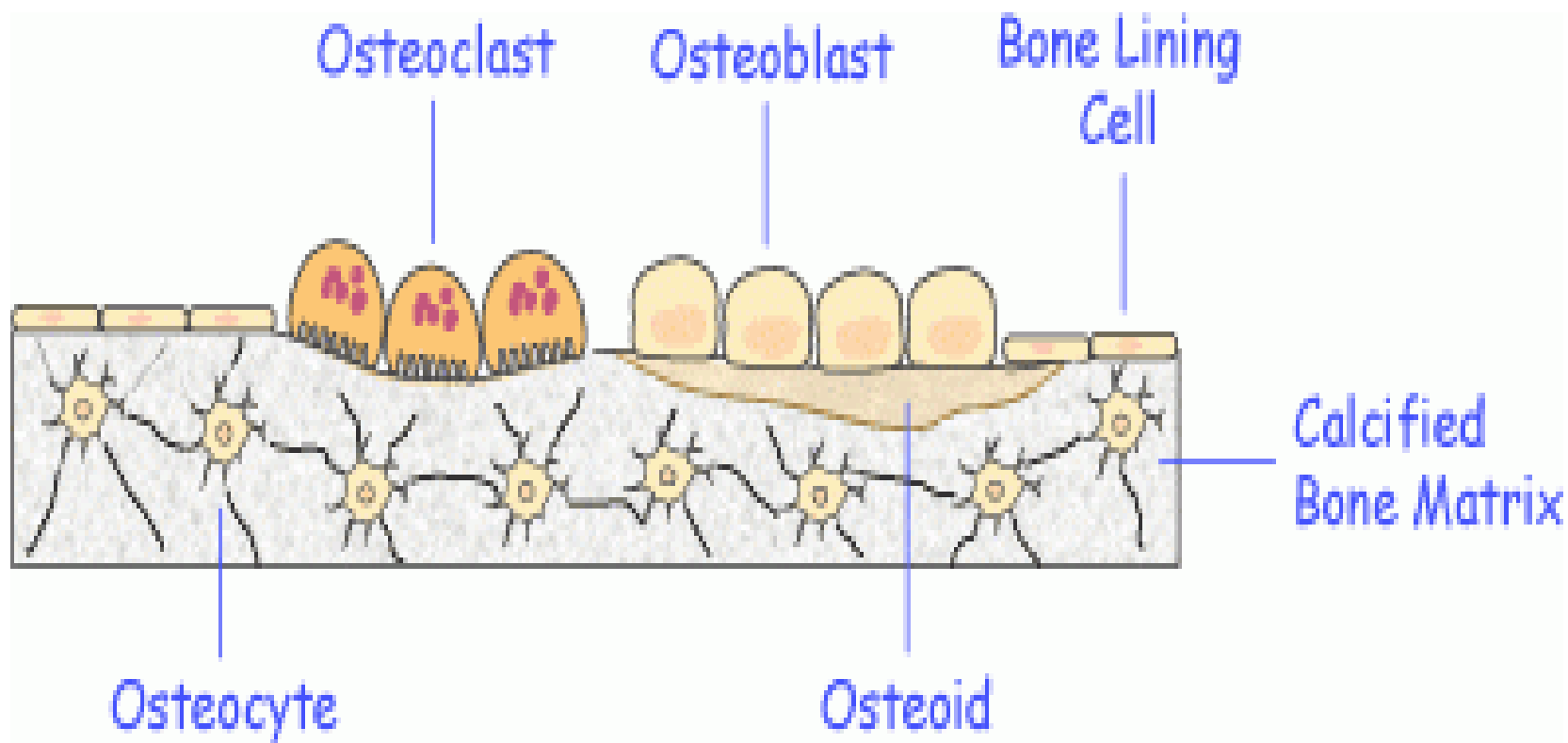
Bone quickly changes

Bone is connective tissues which consist of cells, fibers, and matrix.

It is stony hard because of calcification of its extracellular matrix.

Bone also possesses some degree of elasticity due to presence of organic fibers.

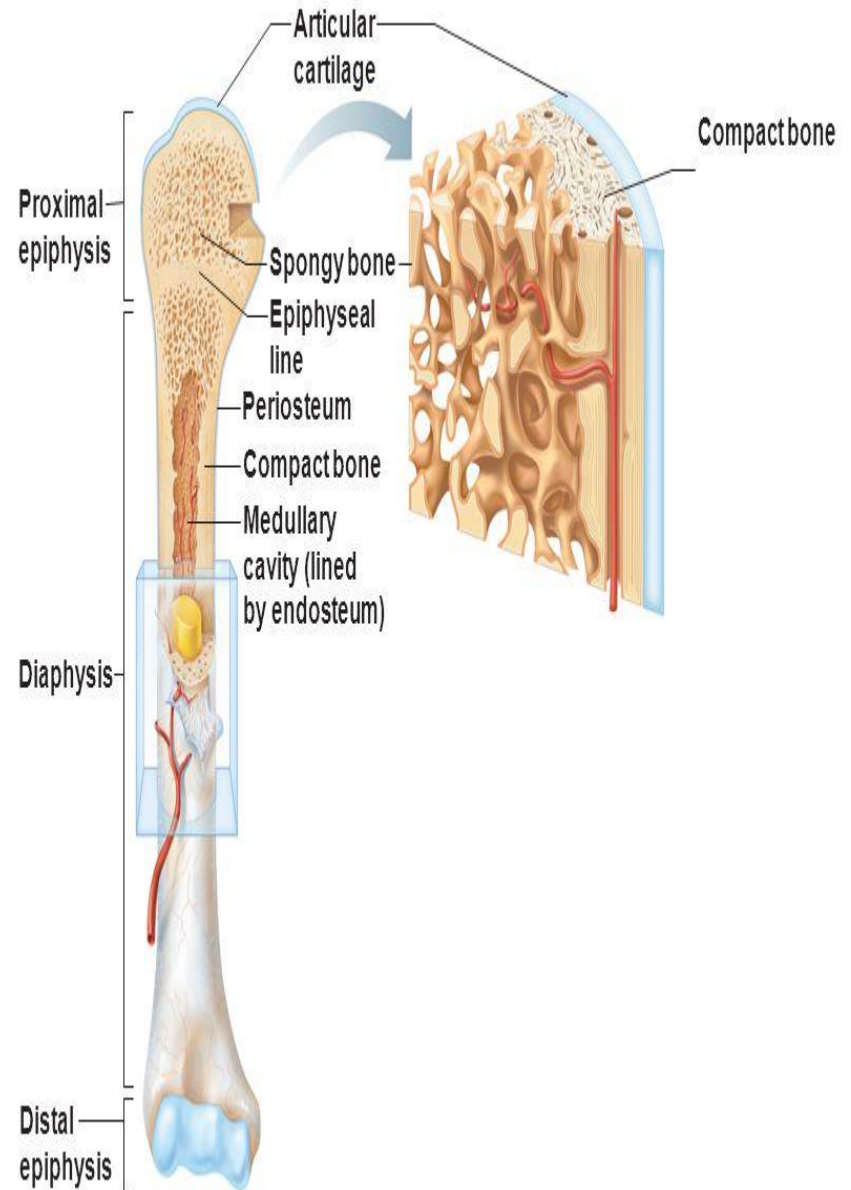




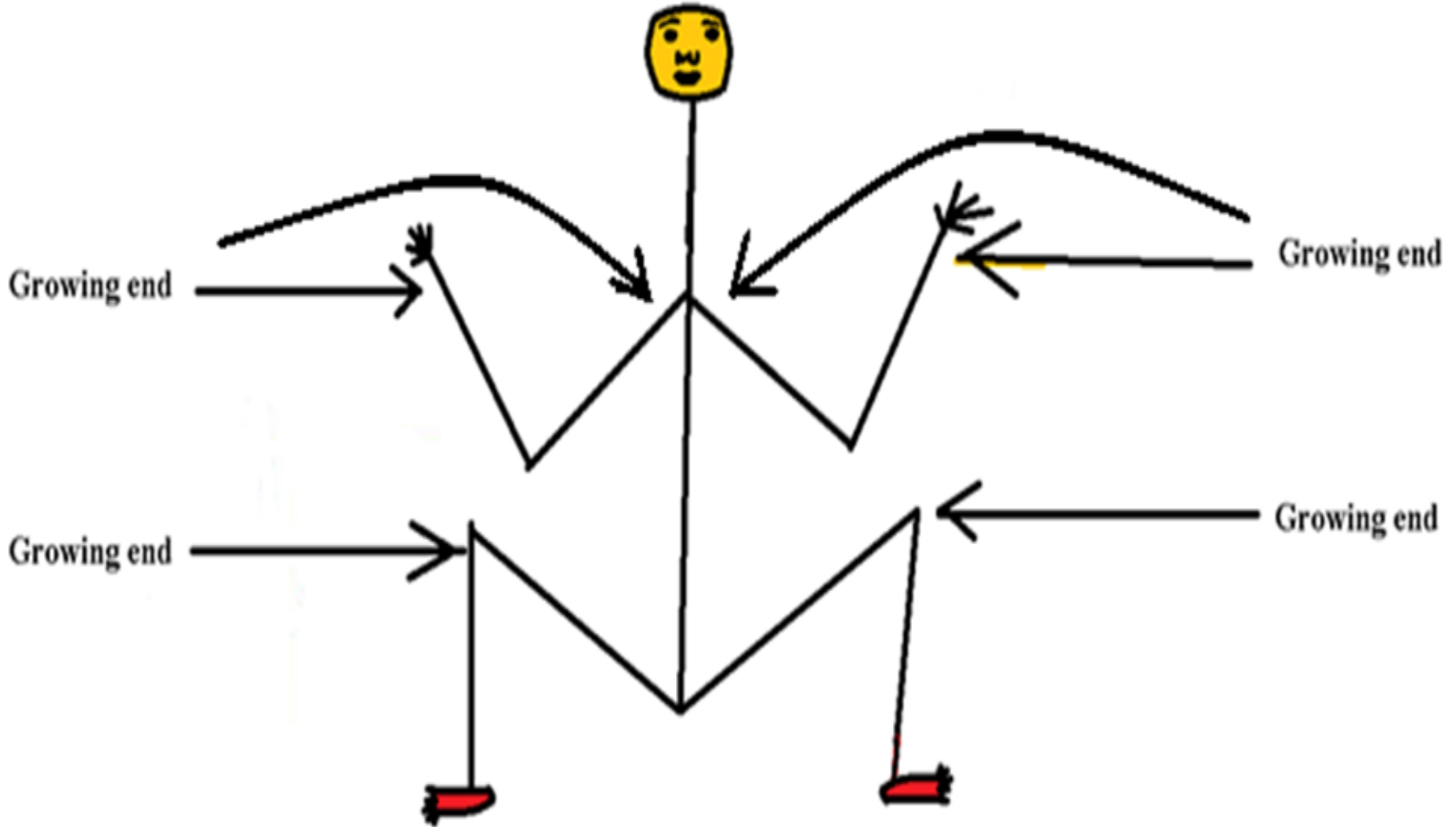
Bone may be of two types

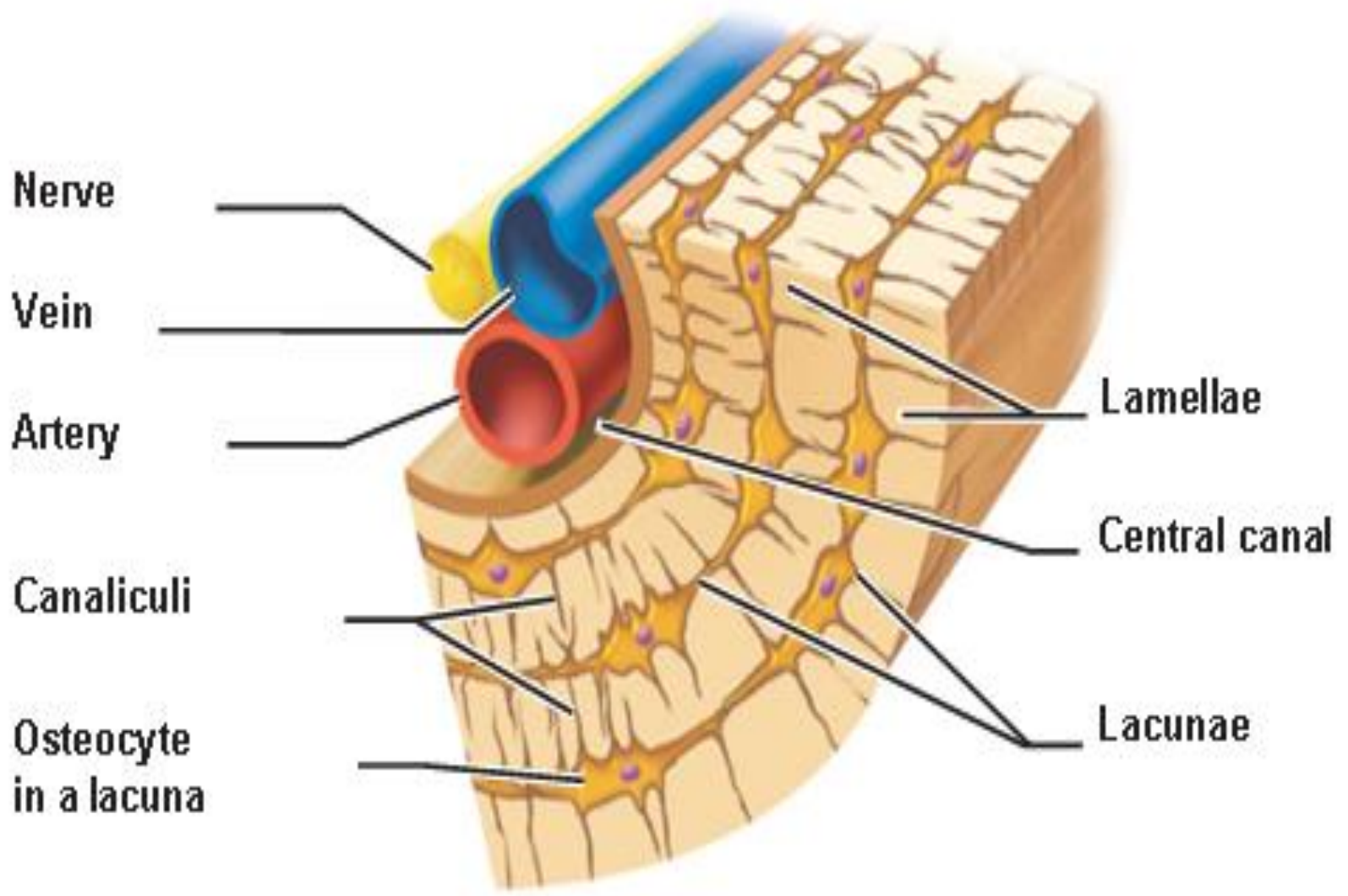
The compact and cancellous

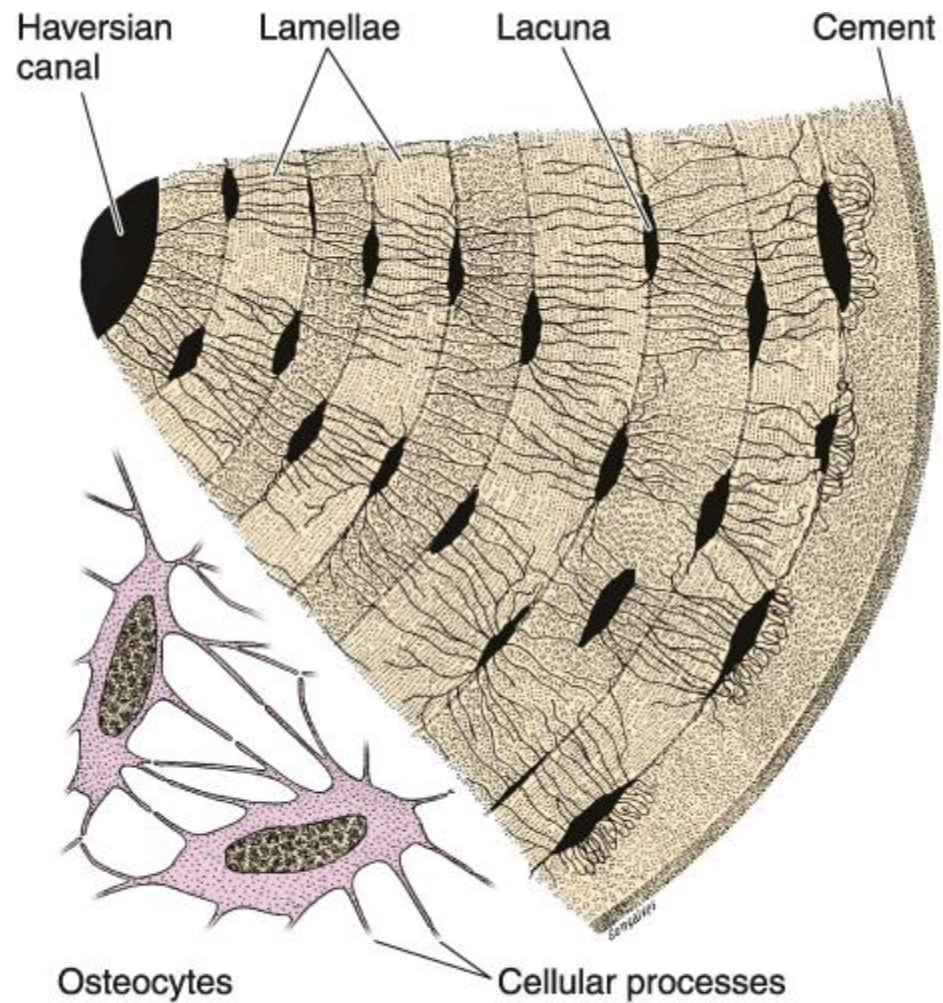
The compact bone forming shaft of long bones appears as a solid mass while the cancellous bone consists of a branching network of trabeculae which are arranged in such a manner as to resist the stresses and strains.



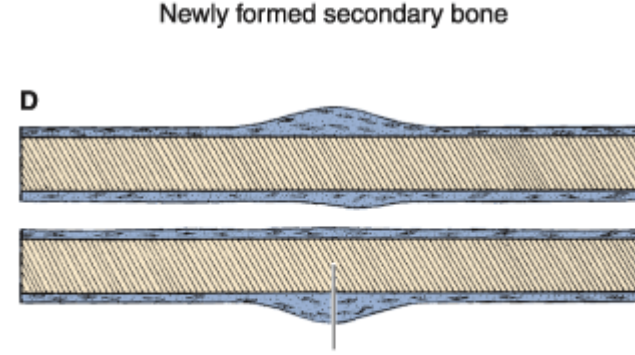
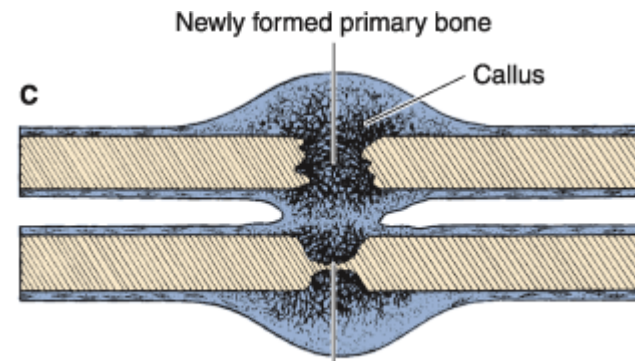
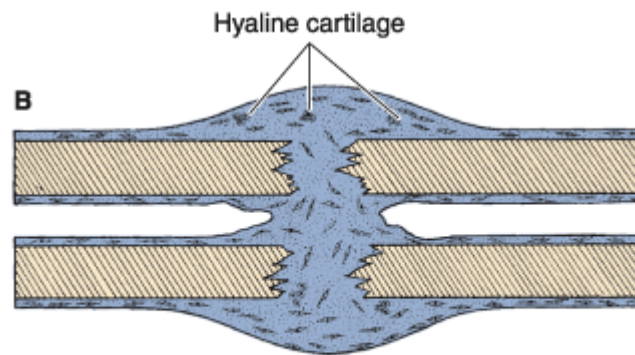
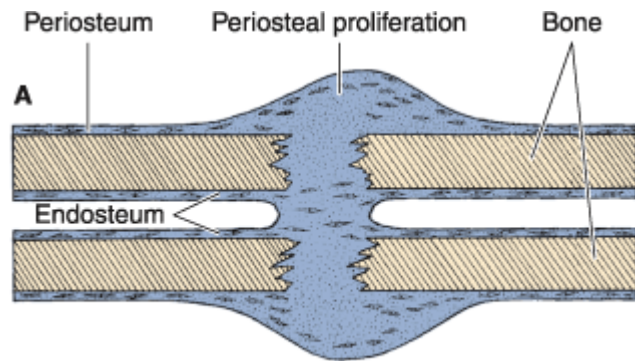
Growing ends



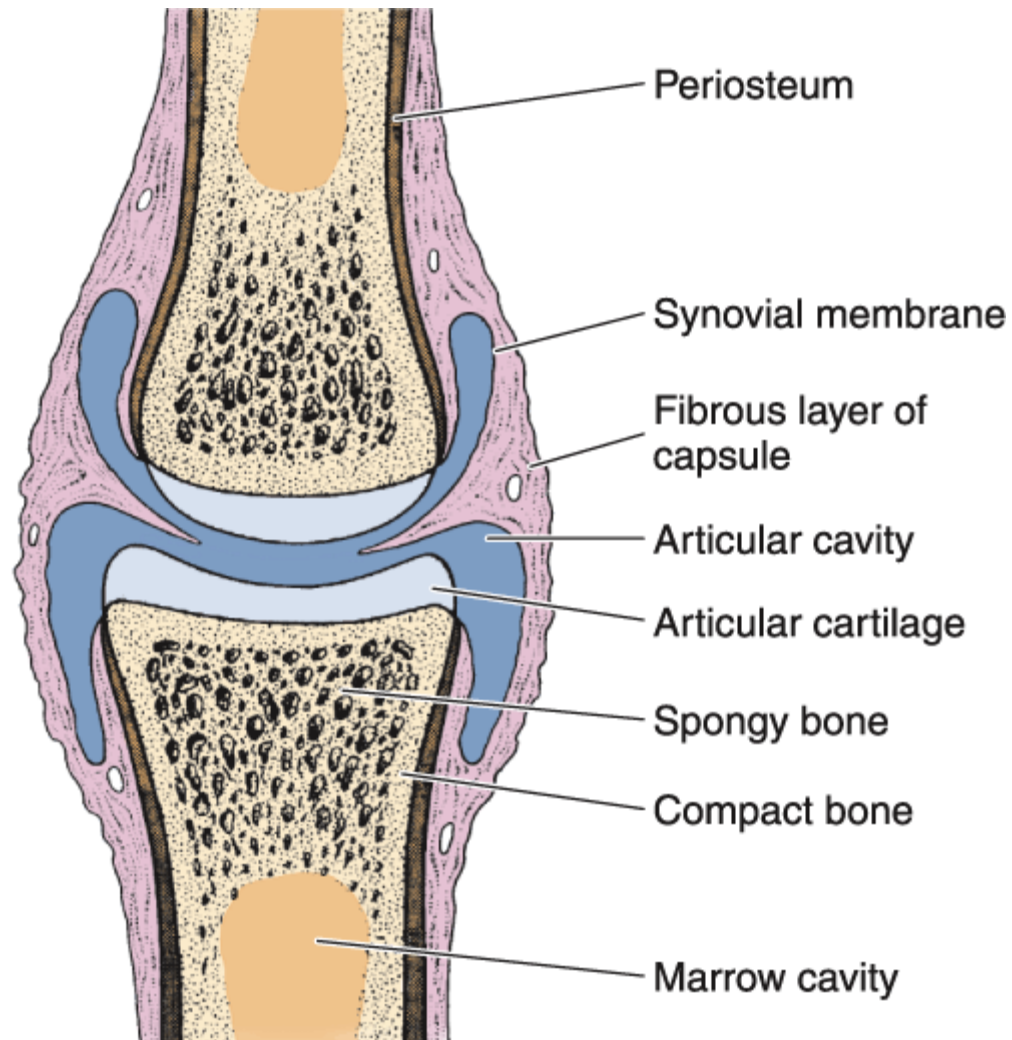




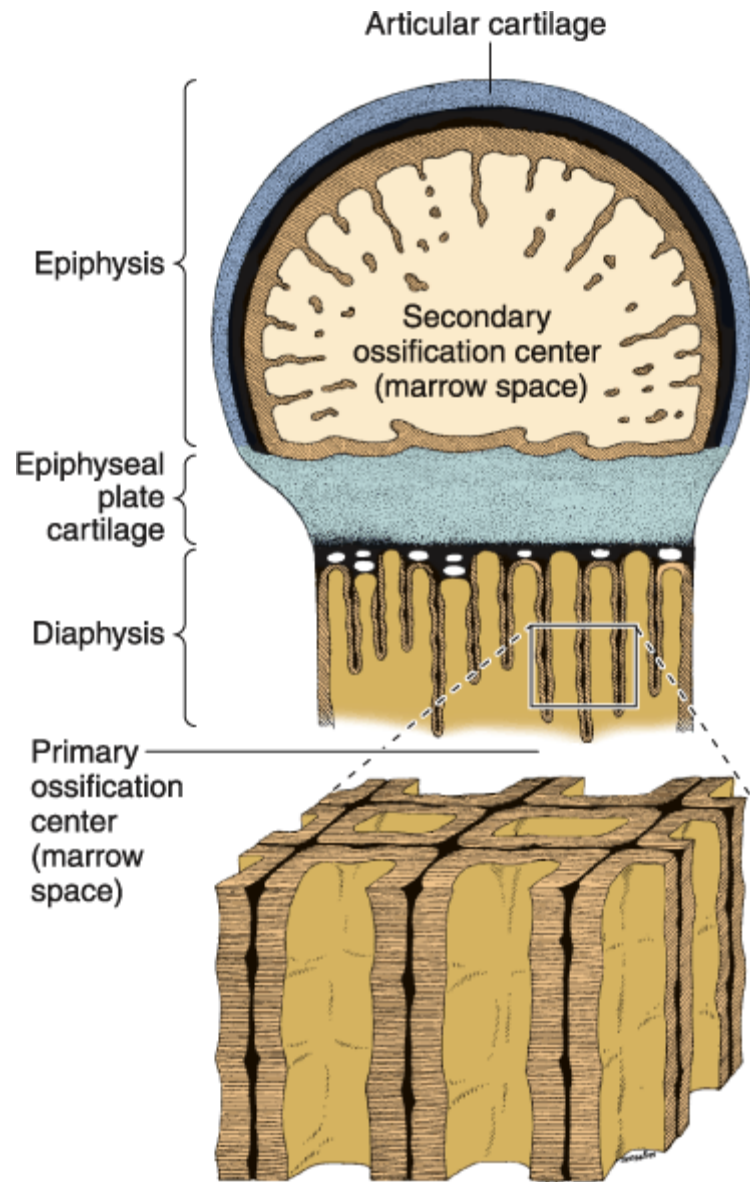
Copyright ©2006 by The McGraw-Hill Companies, Inc.
All rights reserved.

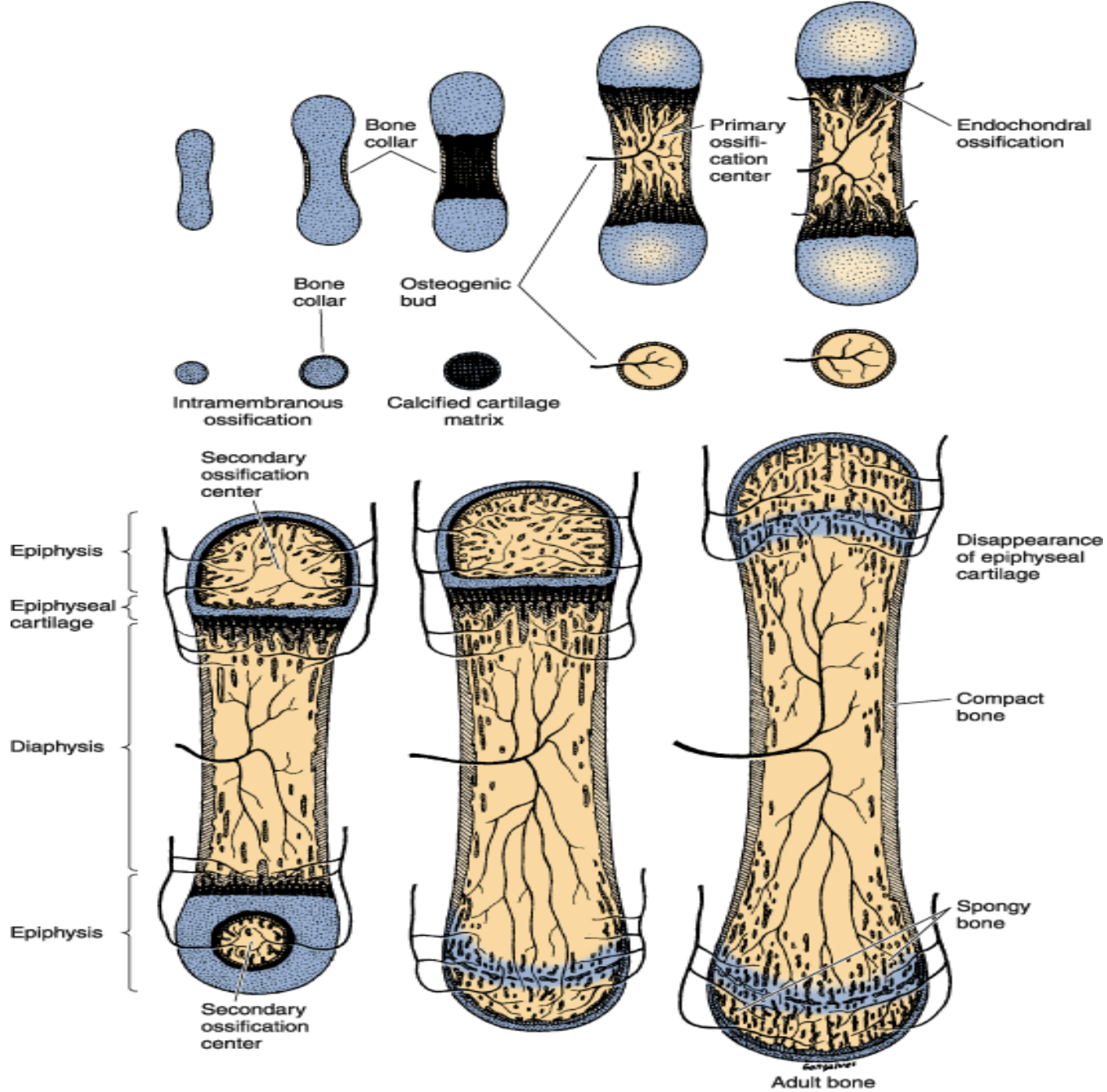


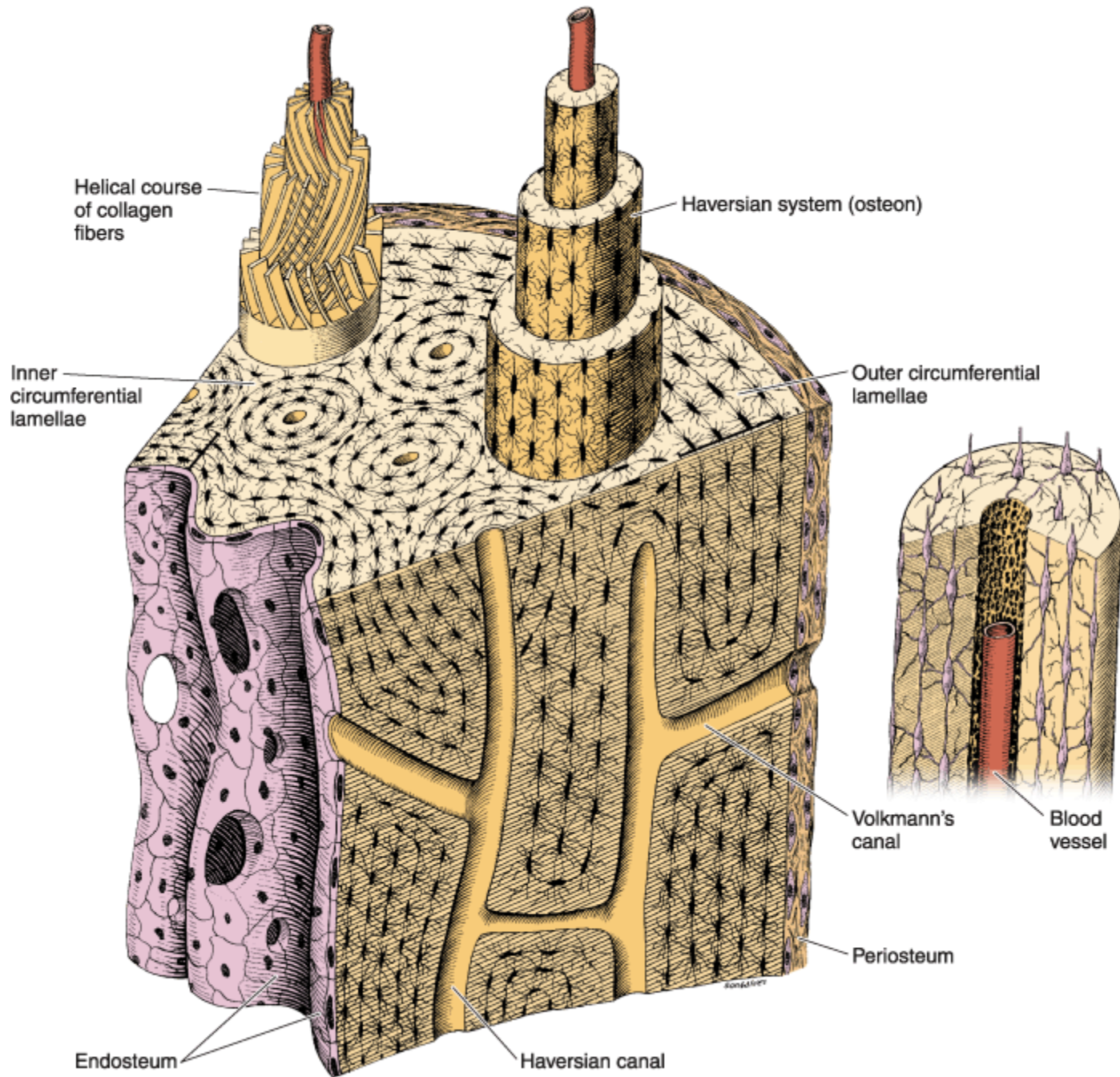
Copyright ©2006 by The McGraw-Hill Companies, Inc.
All rights reserved.

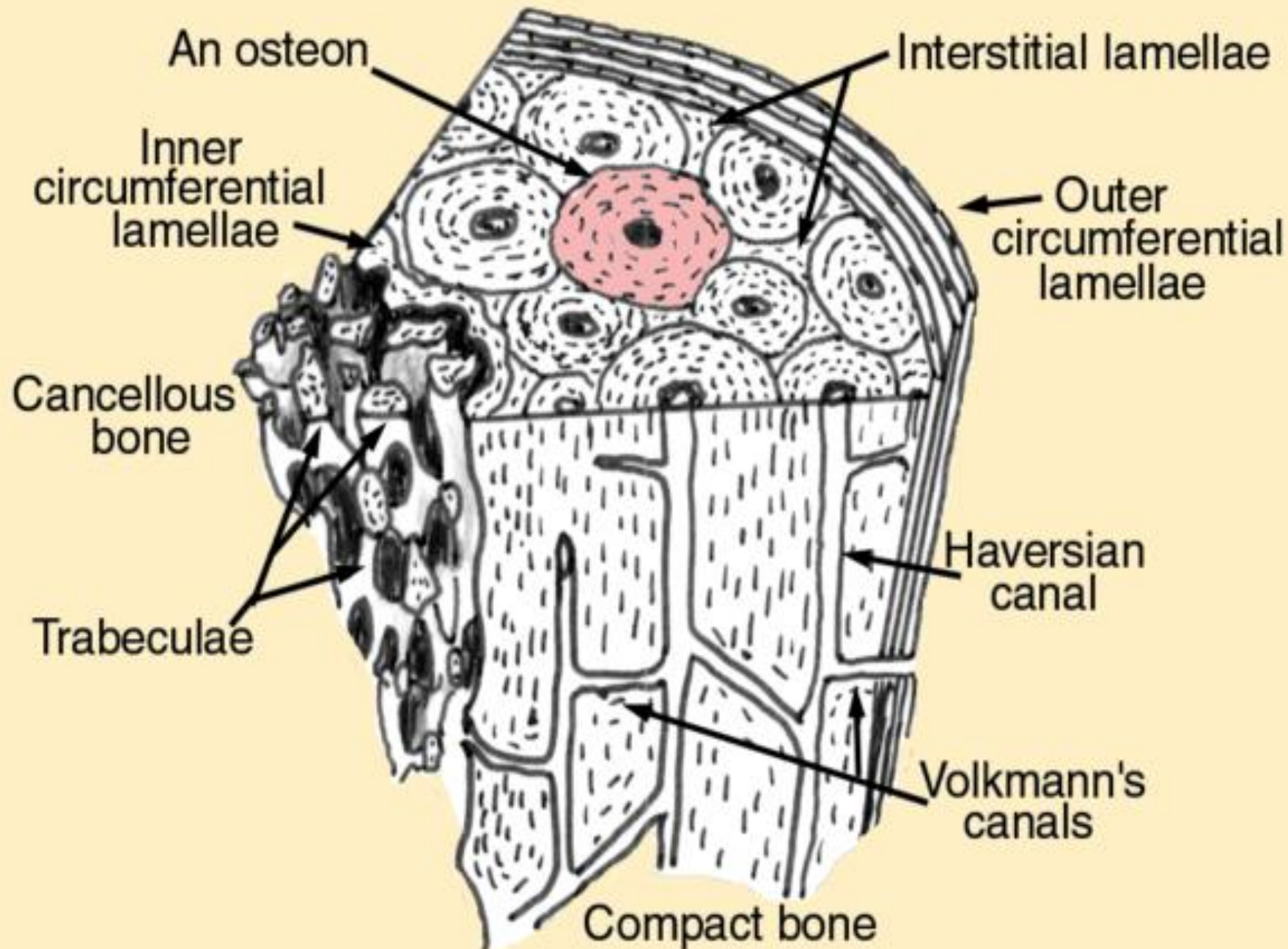


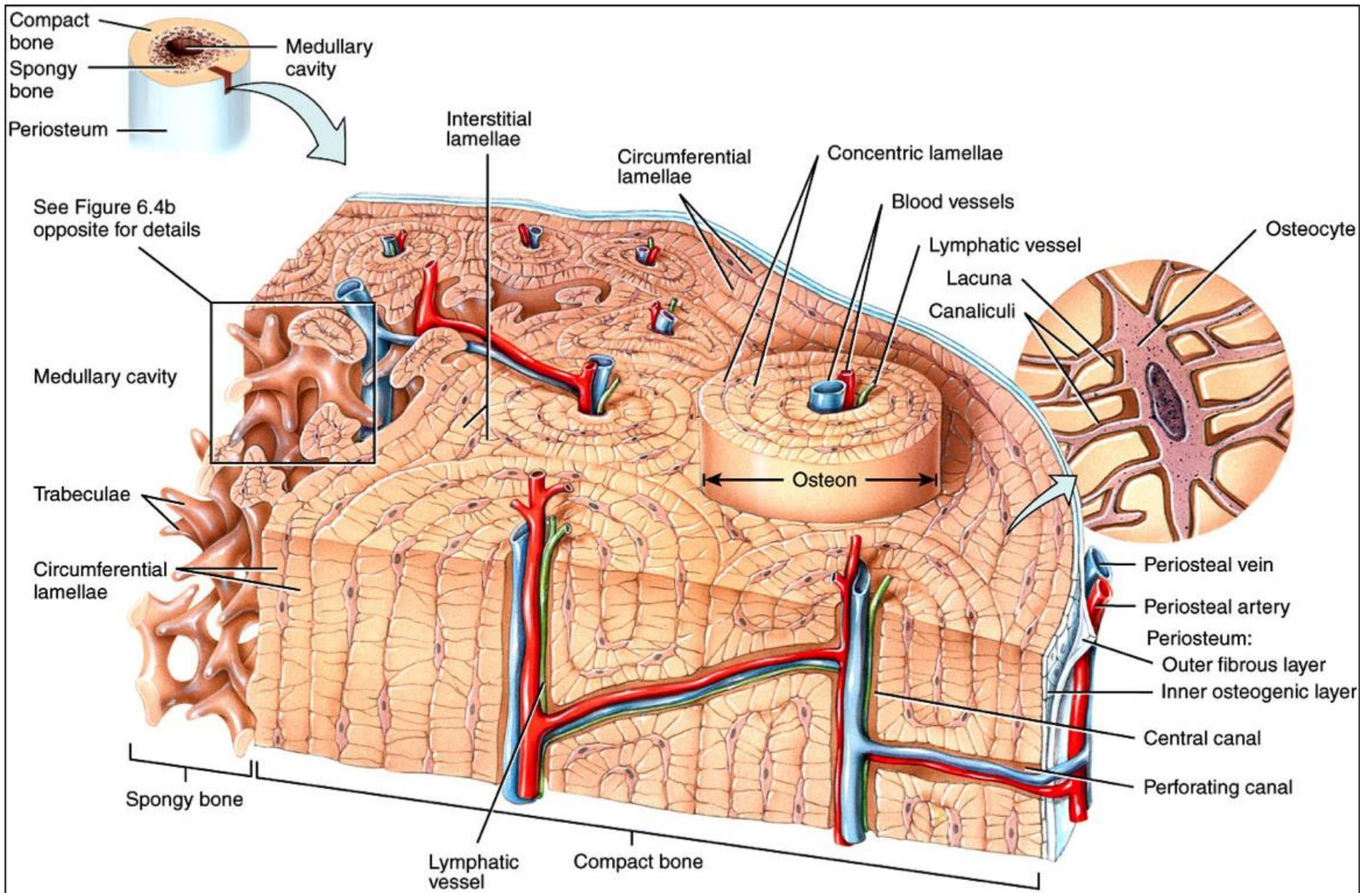
Copyright ©2006 by The McGraw-Hill Companies, Inc.
All rights reserved.



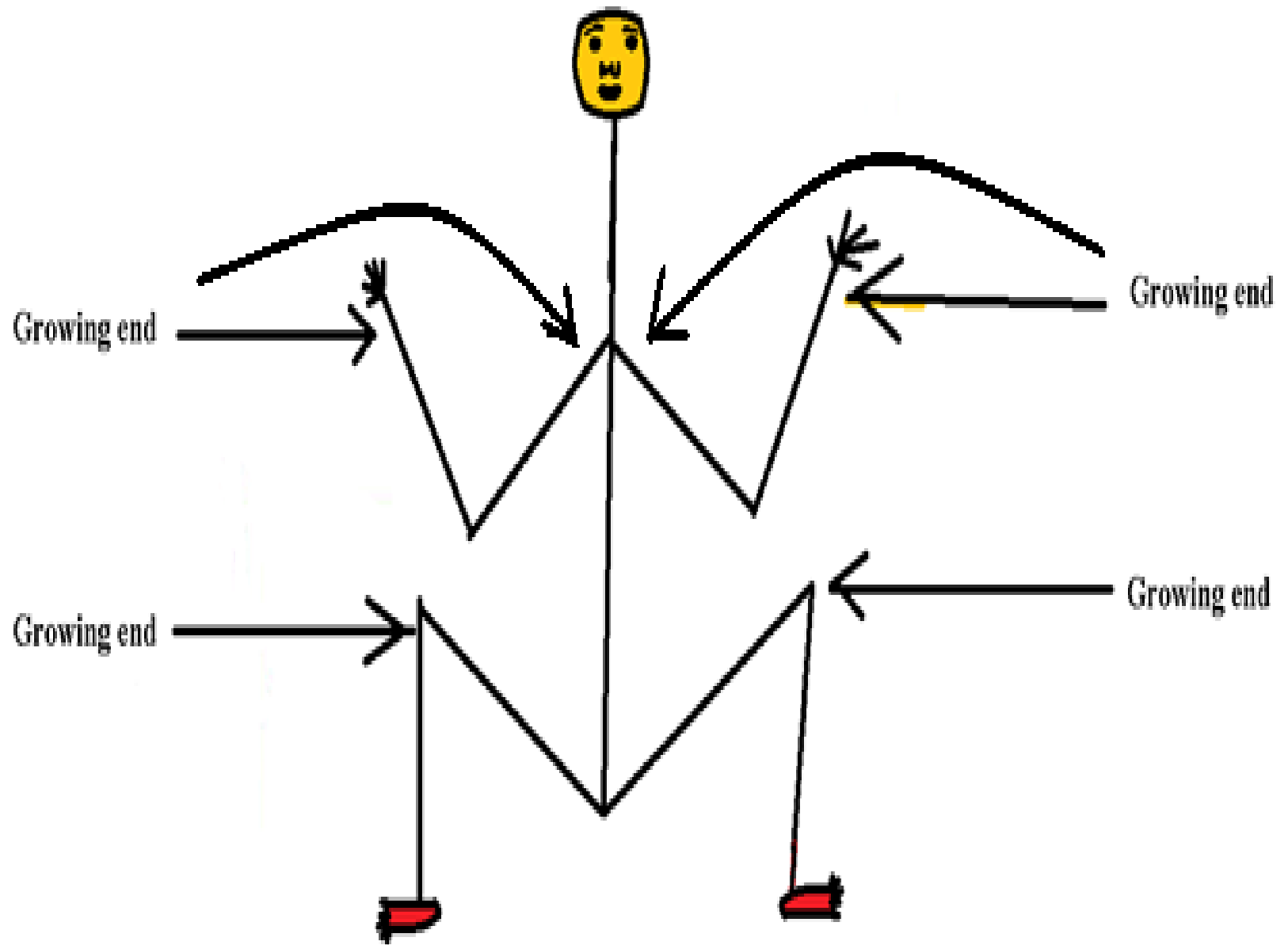








(a) Osteons (haversian systems) in compact bone and trabeculae in spongy bone



6. Paranasal sinuses

7. Conduction of sound waves

8..Blood pH within normal limits.

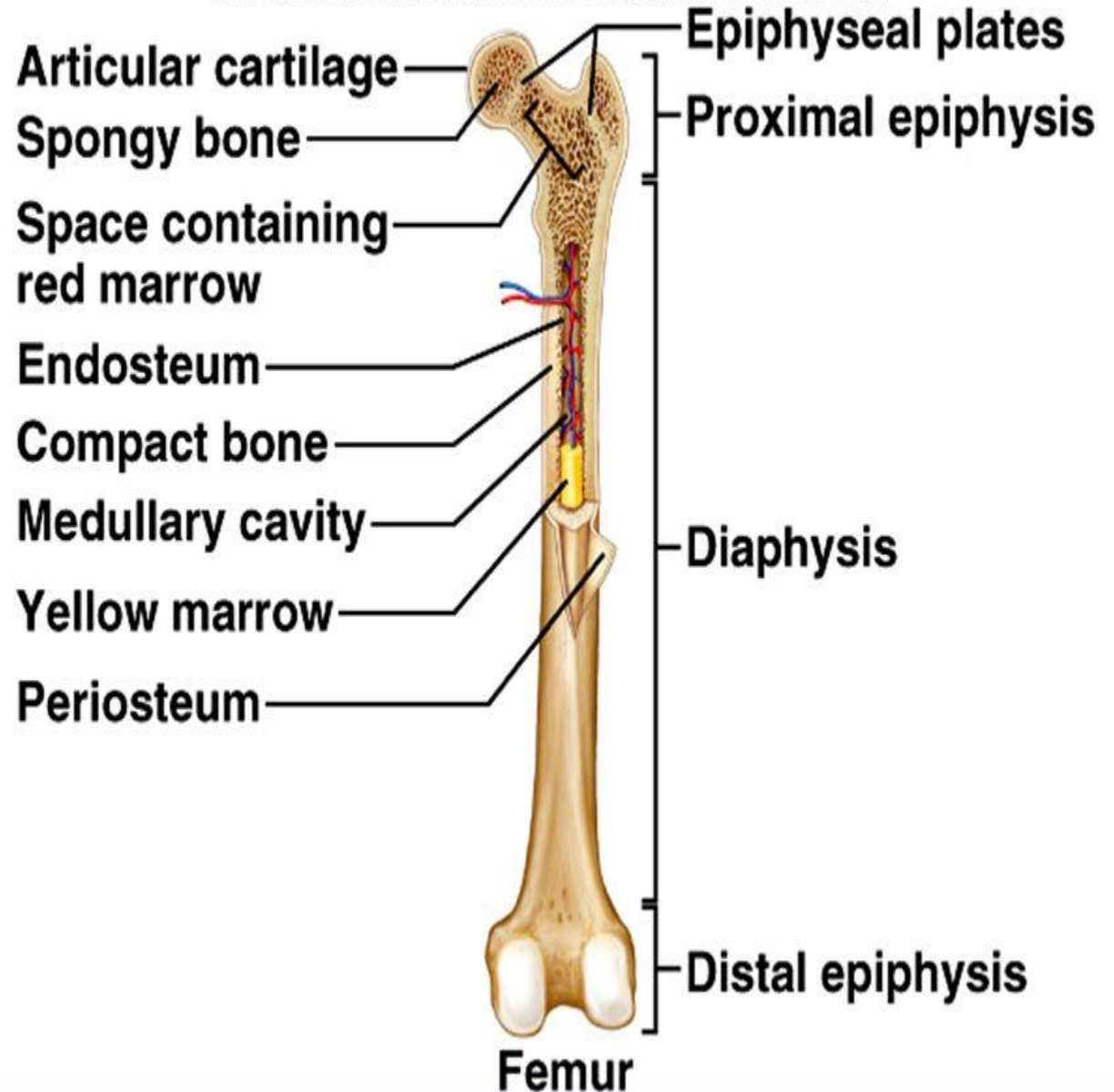
9. Removing heavy metal

10. Bone also releases hormone which contributes to the regulation of blood sugar level and fat deposition in the body.

1. Parts of bone,

Major parts of long bone

Copyright © The McGraw-Hill Companies, Inc. Permission required for reproduction or display.



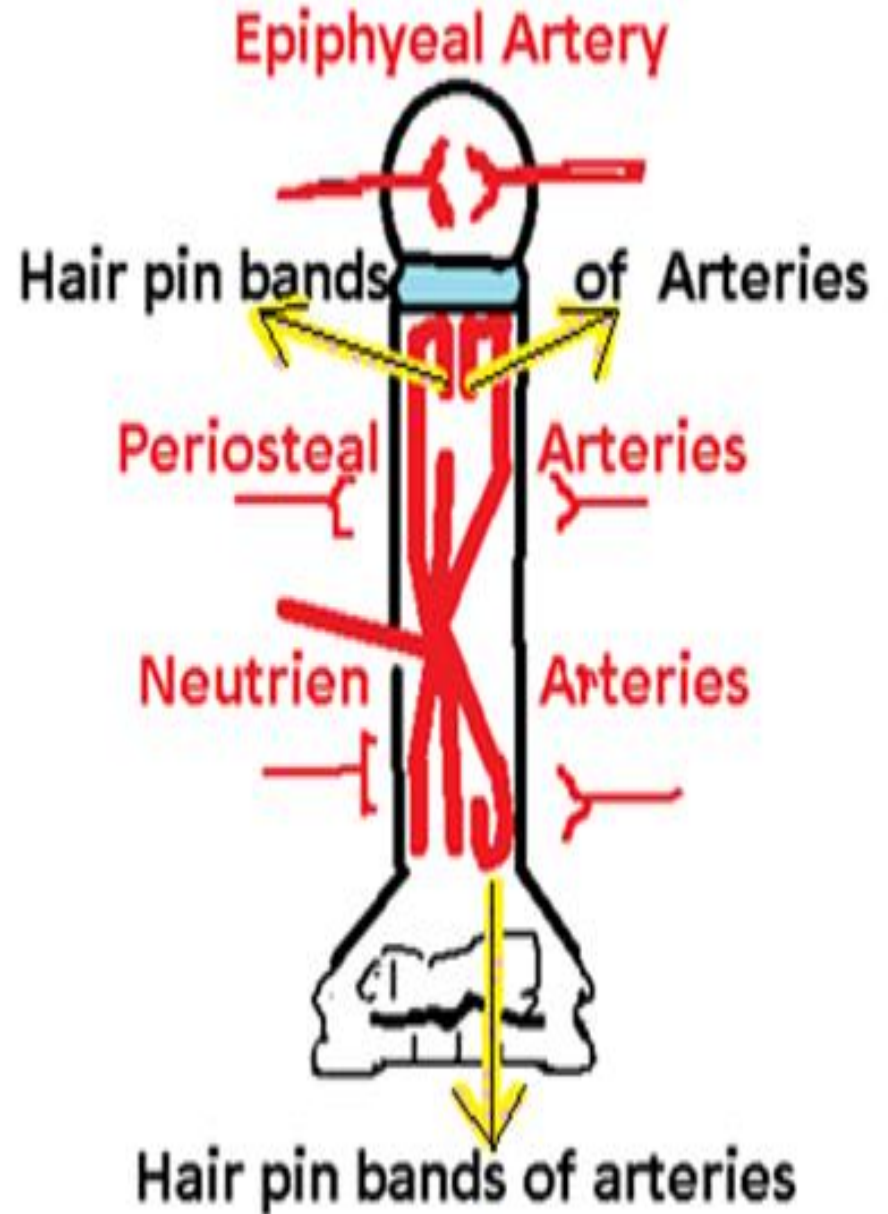
1. Blood and Venous drainage is via central venous sinus which drains through nutrient foramen.

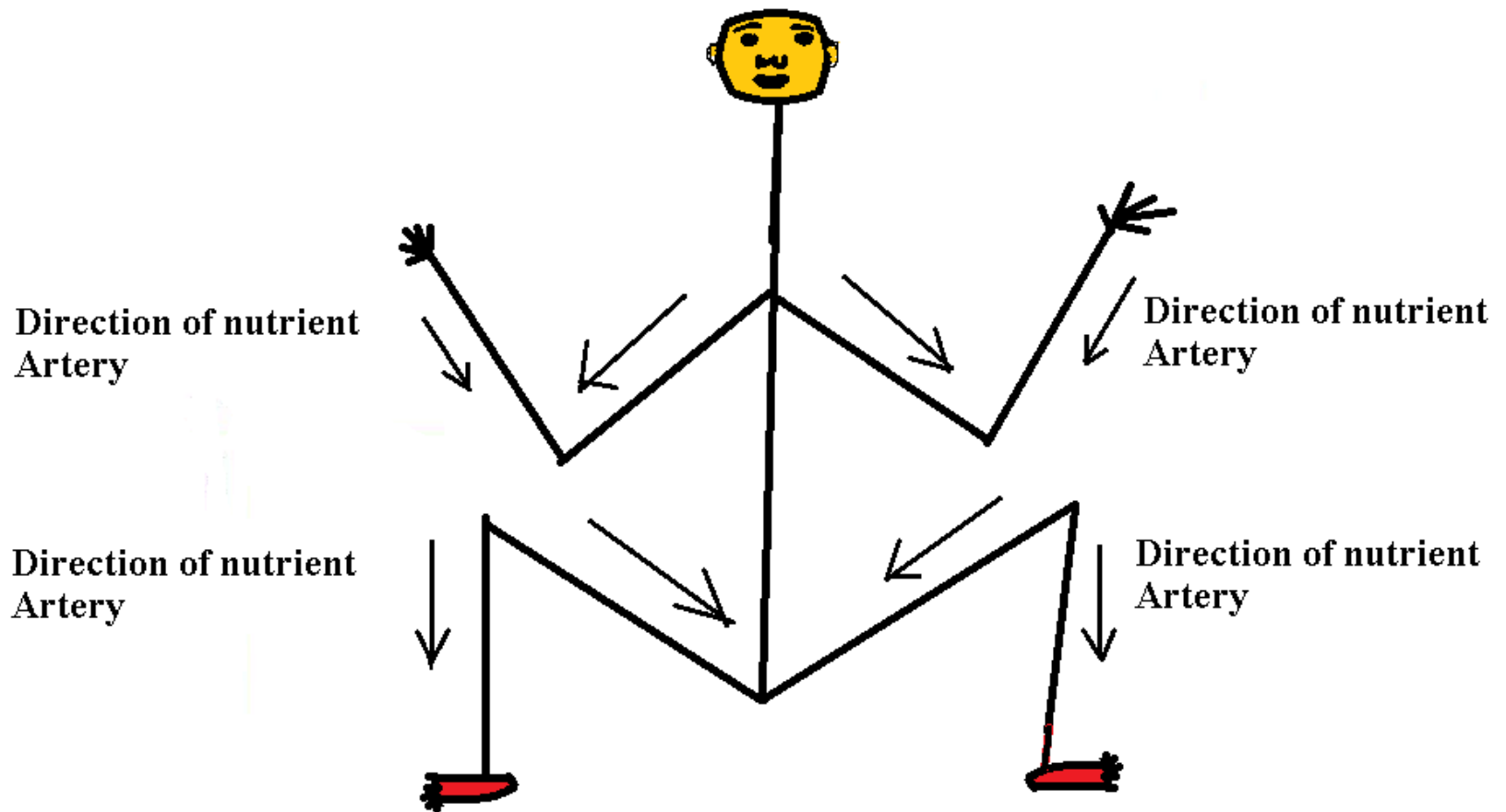
The periosteal venous plexus drain the corresponding areas of bone.

1. Nerve supply:

Sympathetic along the vessels which has vasomotor function.

The sensory to the periosteum





CLASSIFICATION OF BONES

1. The developmental classification

2. Macroscopically

3. Microscopically. The mature bone and immature bone

4. Regional classification:

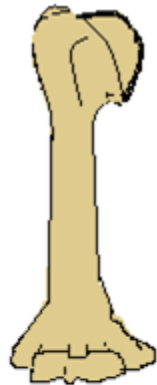
Axial skeleton which includes skull, vertebral column and thoracic cage having 80 bones.

The appendicular skeleton includes the upper & lower limb bones having 126 bones.

5. Classification according to shape of bones:

Table 5.1 : classification according to shape

Type of bone	Main features of bones	Examples
Typical long bones	Typical long shaft	Humerus, Radius and Ulna
Miniature long bone	Smaller in length, One epiphysis	Metacarpal, Metatarsal
Modified long bones	No medullary cavity	Clavicle
Short bones	Small cuboid or scaphoid shaped	Cuboid, scaphoid
Flat bones	Resemble plate	Scapula, Sternum
Irregular bones	Irregular in shape	Vertebra, hip bone
Pneumatic bones	Epithelial lined airspaces	Maxilla, Sphenoid, Ethmoid,
Sesamoid bones	Oval structure developed in tendon	Patella, Pisiform, Fabella
Accessory bones	Developmentally ununited epiphysis	Accessory talus & Navicular
Heterotopic bones	Bone in soft tissue called Rider bone	Bone in adductor muscle



Long bone



Short bone



Flat bone



Irrigular bone



Sesamoid bone

THANKS