

Skeletal System

This skeleton and the muscles belong to the same cadaver.



Skeletal System



- consists of 206 bones (in adults)
- joints
- cartilage
- ligaments

Functions of the Skeletal System

- Support of the body - the bones of the lower limbs support the entire body when we are standing and the pelvic girdle supports the abdominal cavity
- Protection of soft body parts - the bones of the skull protect the brain, the rib cage protects the heart and lungs etc.

Functions of the Skeletal System cont.

- Produces blood cells - all bones in the fetus produce red blood cells, only certain bones produce blood cells in adults.
- Stores minerals and fats - all bones have a matrix that contains calcium phosphate (a source of calcium ions and phosphate ions in the blood), fat is stored in yellow bone marrow

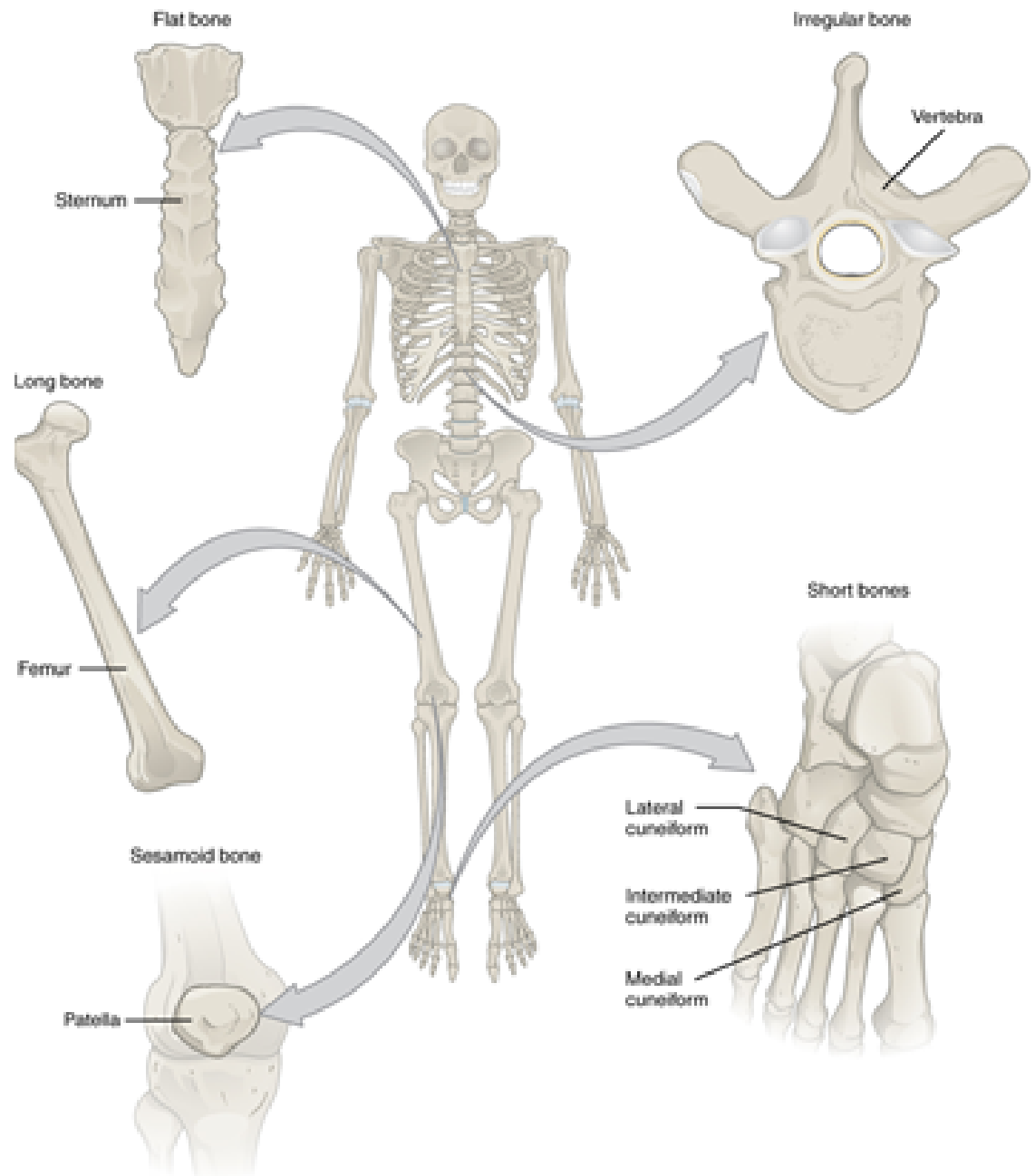
Functions of the Skeletal System cont.

- Permits flexible body - while joints occur between all the bones we associate body movement in particular with the bones of the limbs



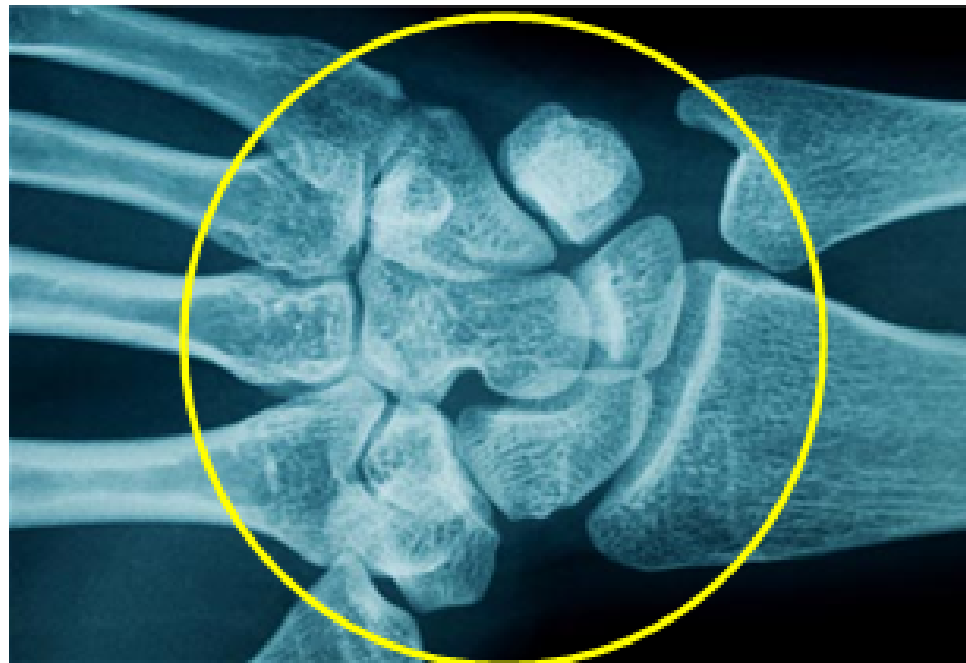
Classifications of Bones

- Bones are classified according to their shape



Classifications of Bones

- Short bones are cube shaped



Classifications of Bones

- Flat bones are platelike with broad surfaces



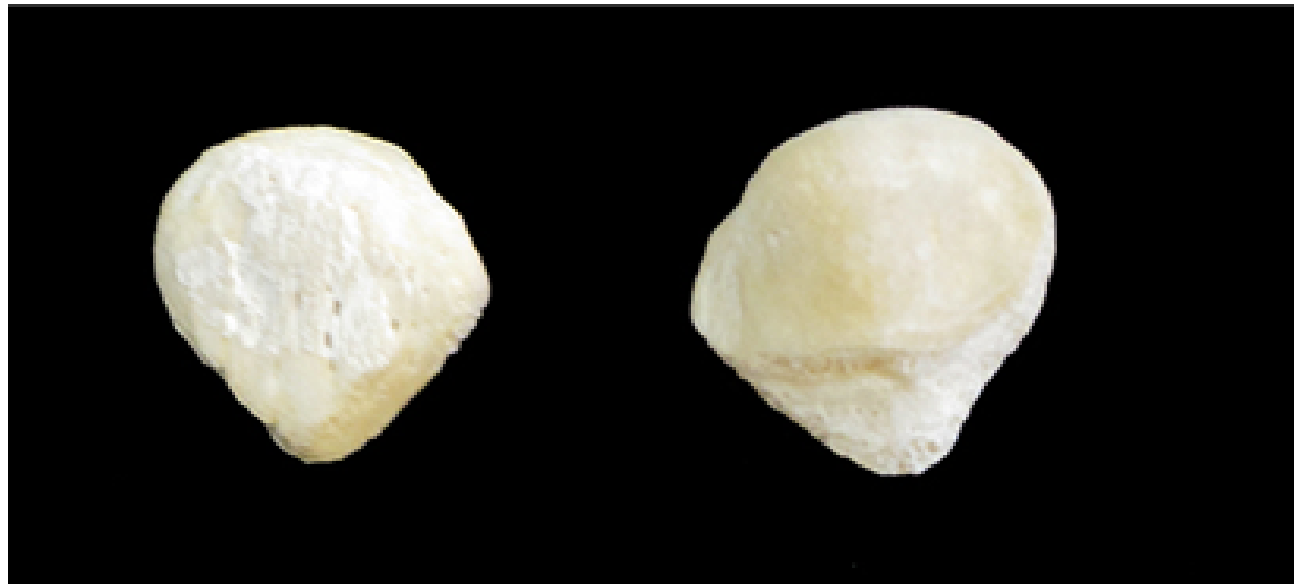
Classifications of Bones

- Irregular bones have varied shapes



Classifications of Bones

- Round bones are circular in shape

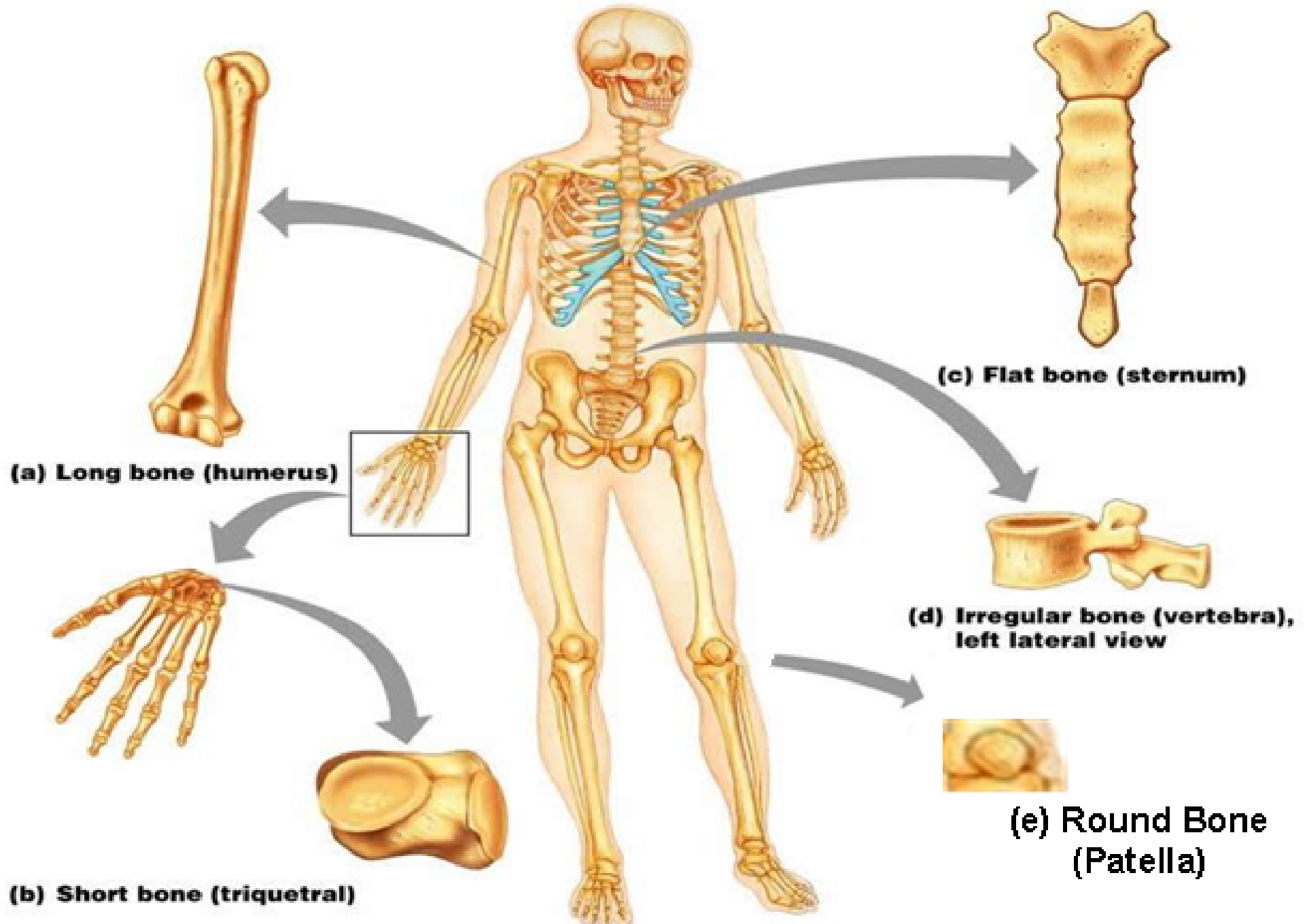


Classifications of Bones

- Long bones are longer than they are wide

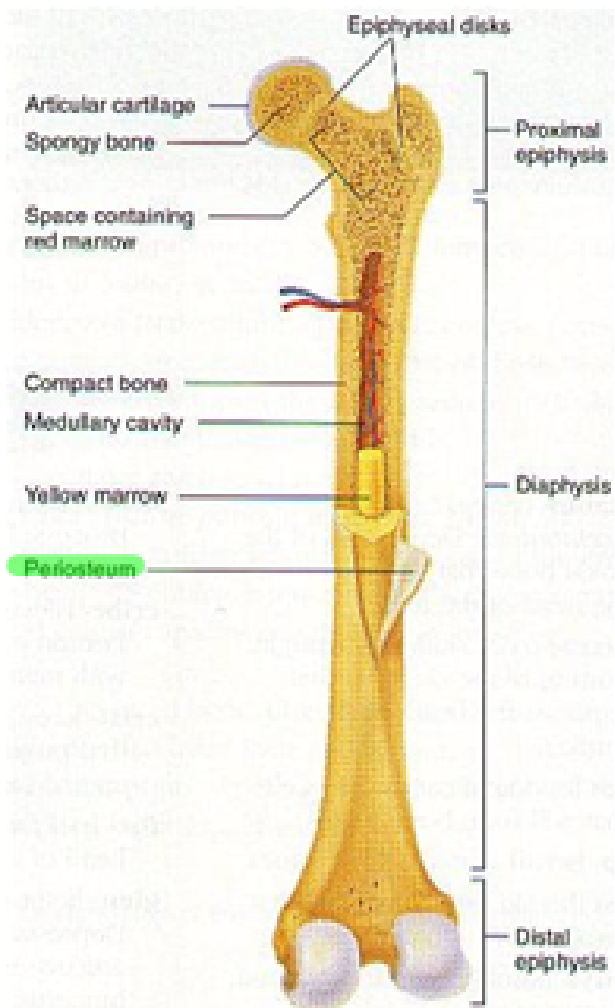


Which classification of Bone?

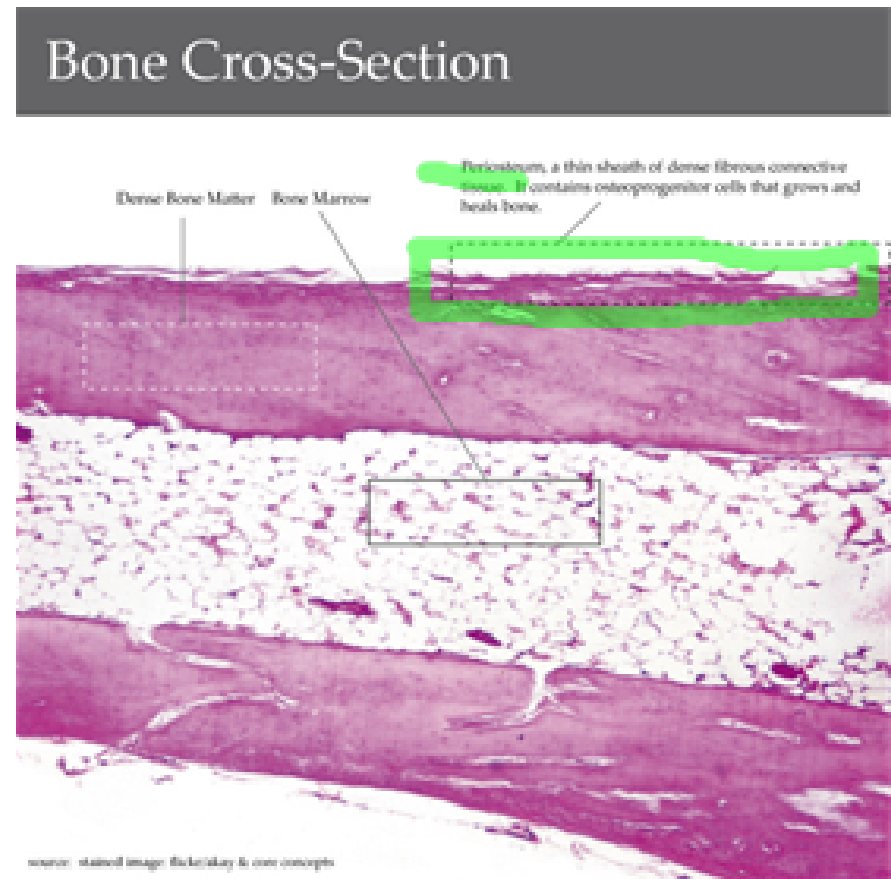


Anatomy of a Long Bone

- Long bones are enclosed in a tough, fibrous, connective tissue covering called the periosteum which is continuous with the ligaments and tendons that anchor bones, the periosteum contains blood vessels that enter the bone and supply its cells

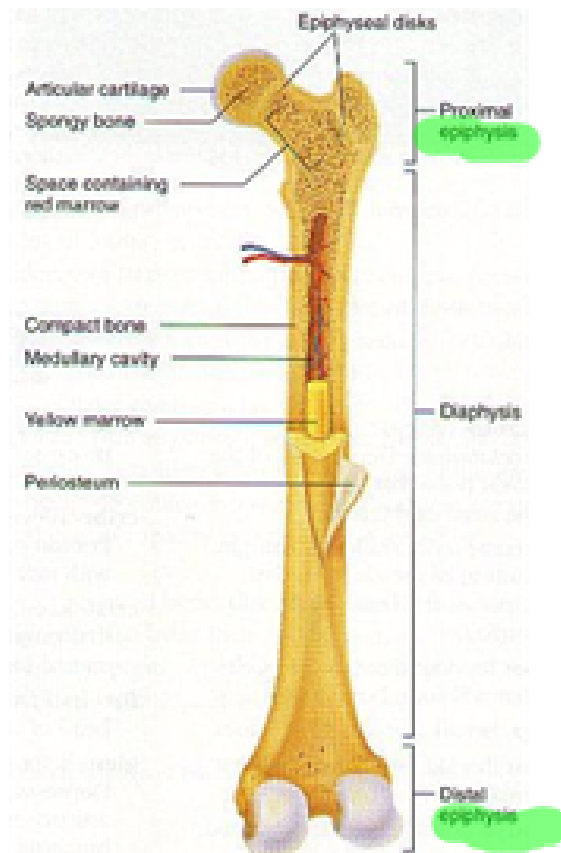
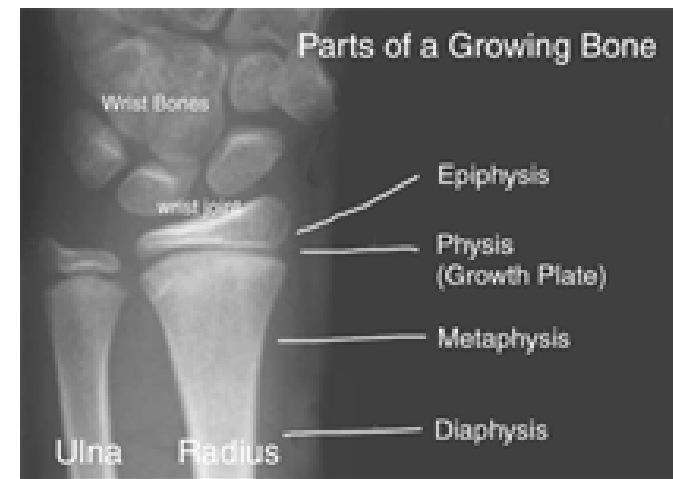


Periosteum - the outer covering of a long bone



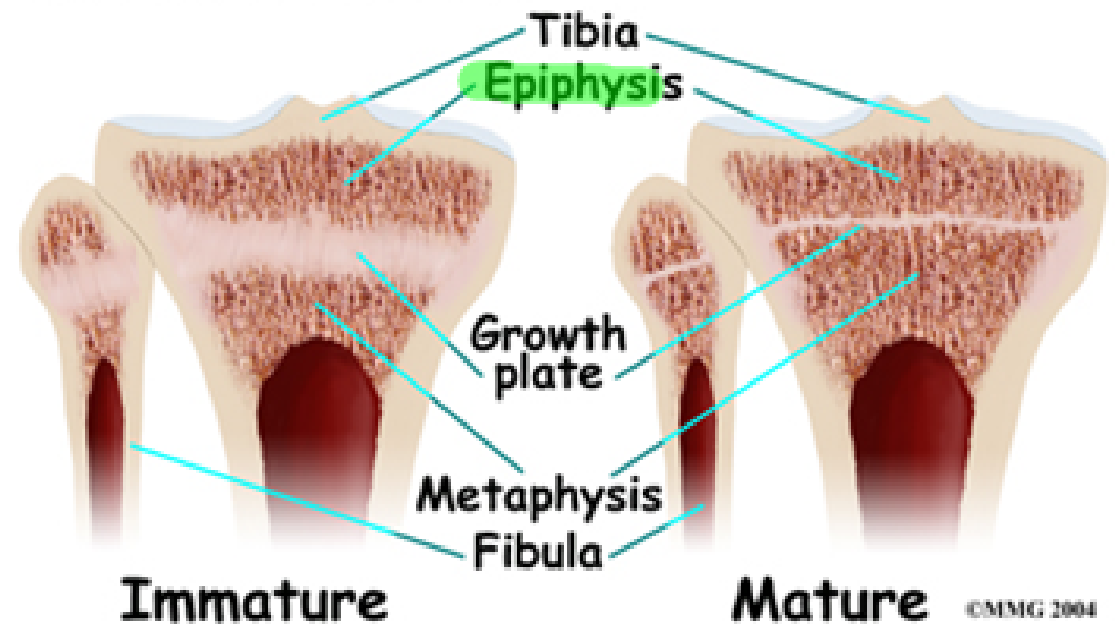
Anatomy of a Long Bone

- At the ends of the long bones is an expanded portion called epiphysis



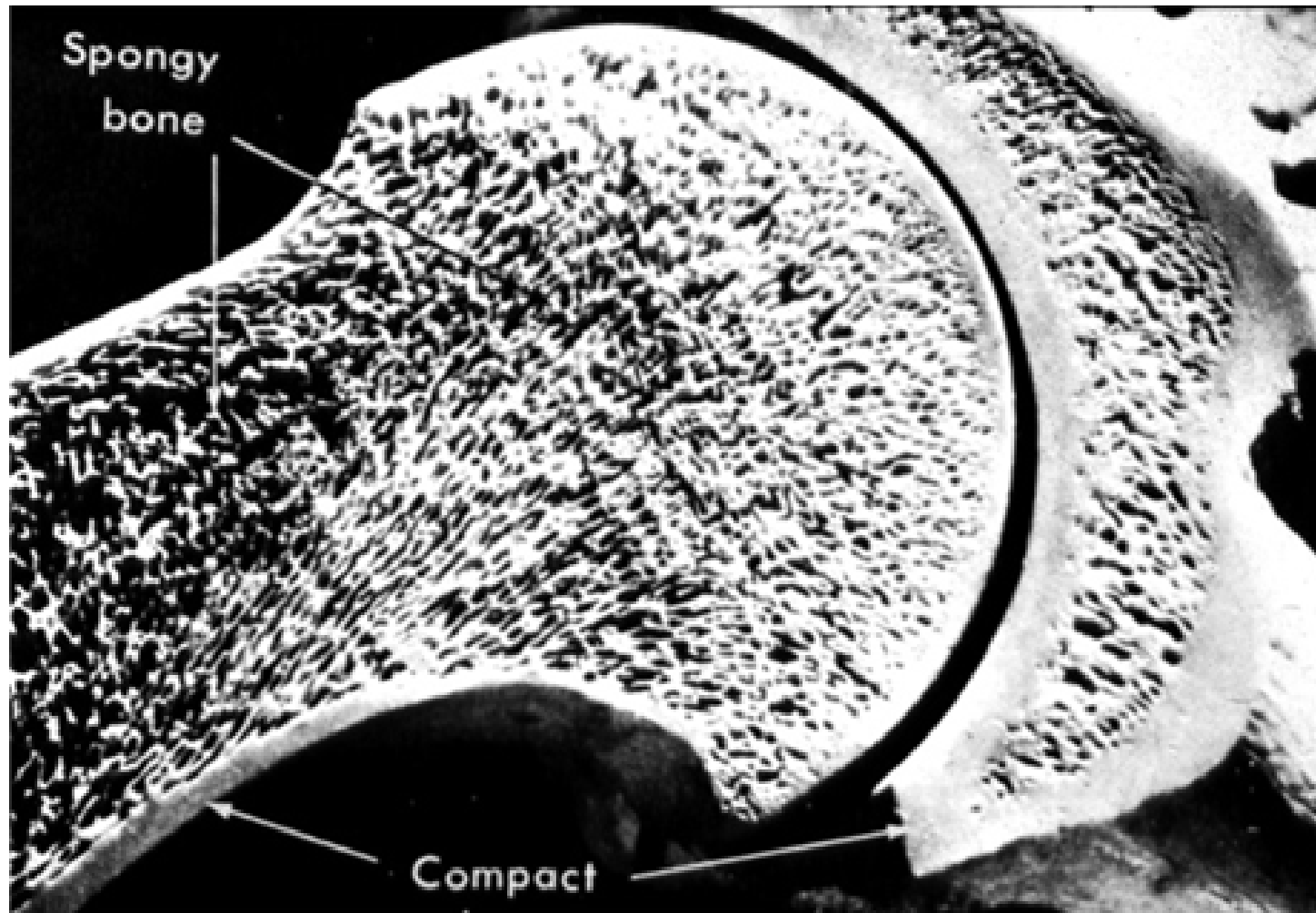
Bone Growth Plate

Cross Section View



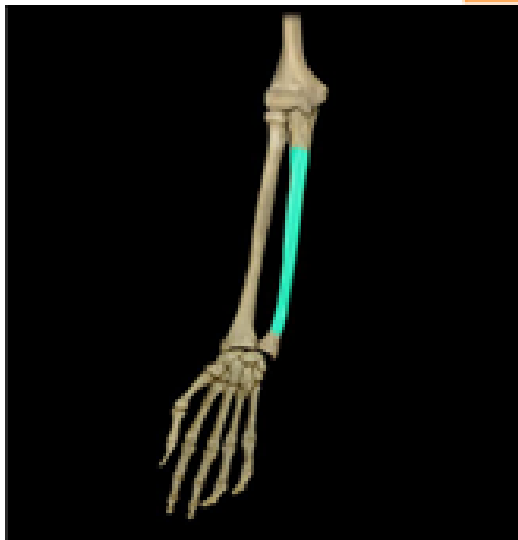
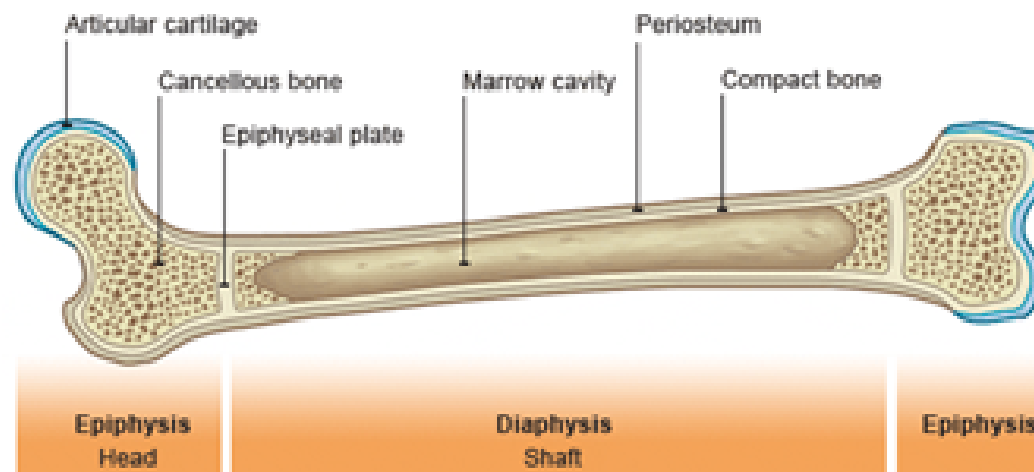
Anatomy of a Long Bone cont.

- The epiphysis contains spongy bone
- Beyond the spongy bone is a thin shell of compact bone
- Finally, a layer of hyaline cartilage called the articular cartilage (articulation is the joining together of bones at a joint)



Anatomy of a Long Bone

- The portion between the epiphysis is called diaphysis



Anatomy of a Long Bone cont.

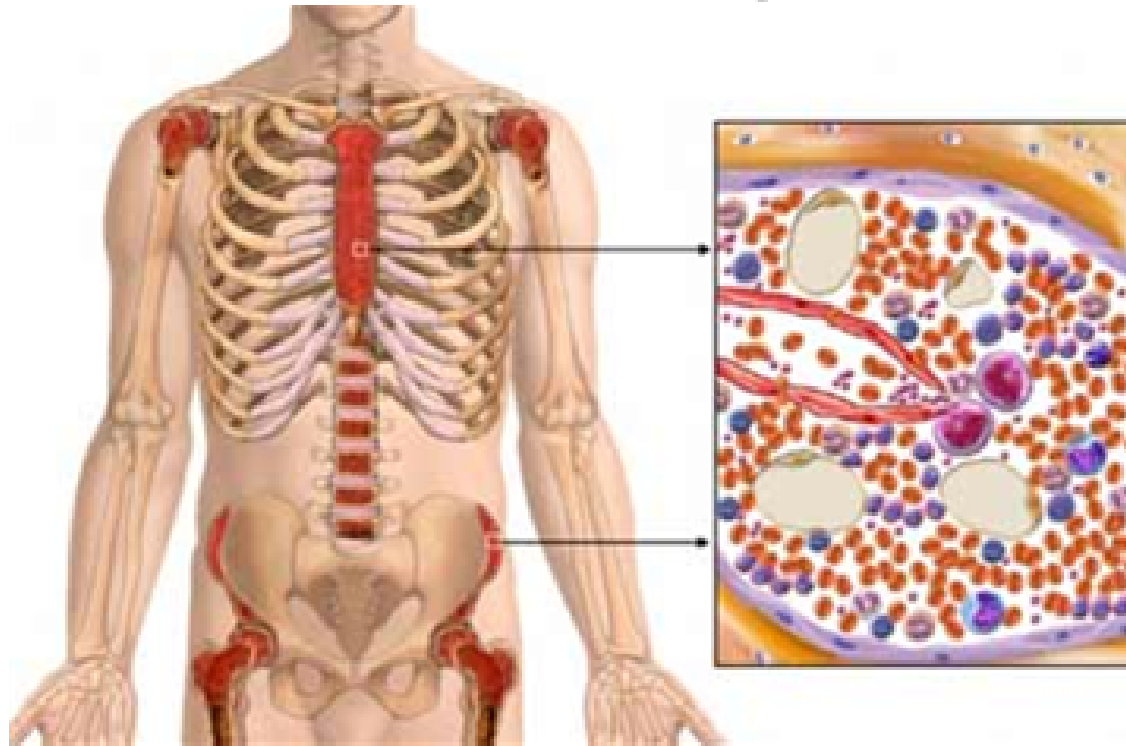
- The diaphysis (or shaft) of a long bone is not solid but has a medullary cavity that is bound by compact bone and containing yellow marrow .
- Yellow marrow contains large amounts of fat



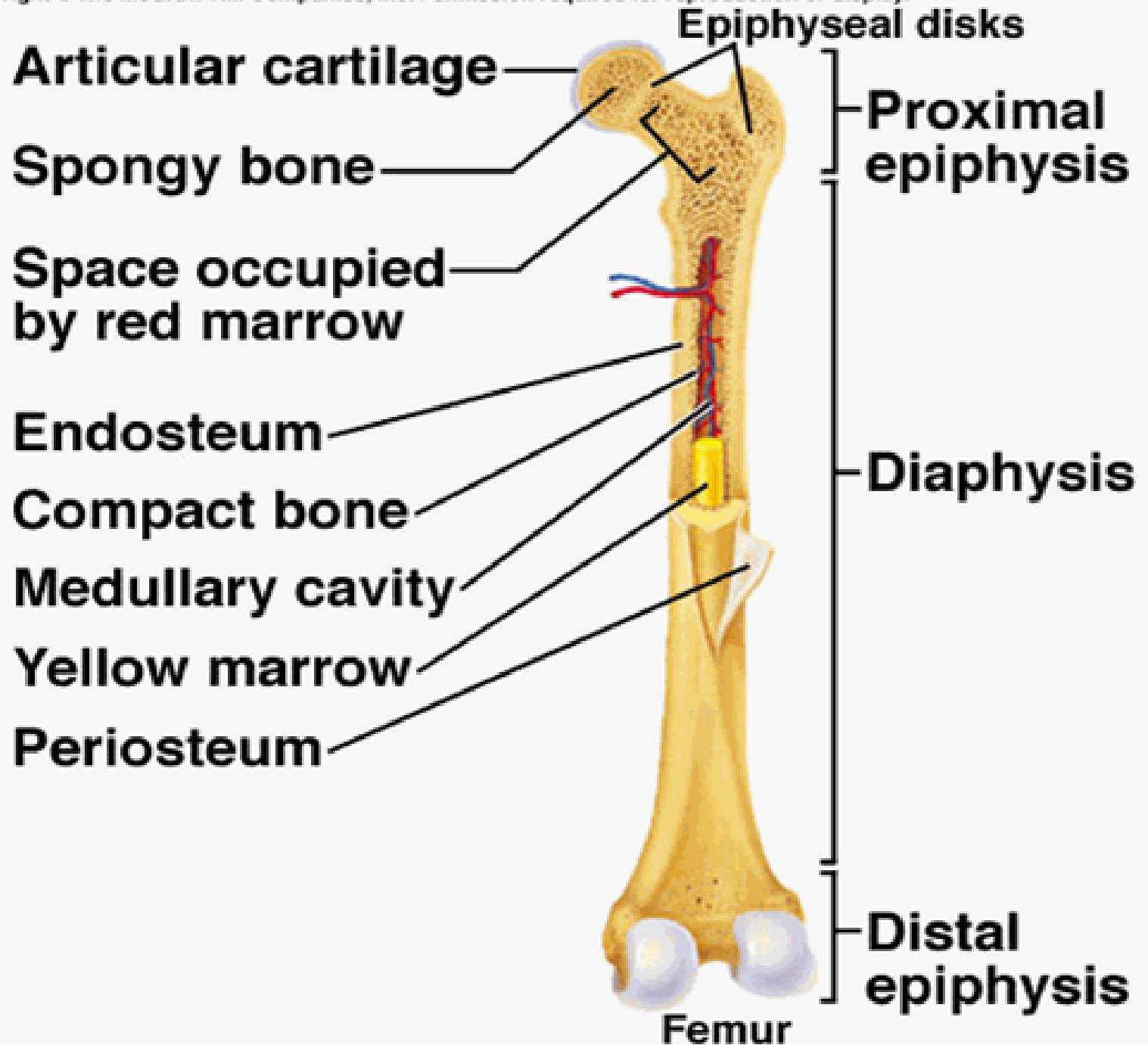
Anatomy of a Long Bone cont.

- Red bone marrow is specialized tissue that produces blood cells (in all bones in fetuses, in some bones as adults)
- Red bone marrow is found also in the medullary cavity in infants

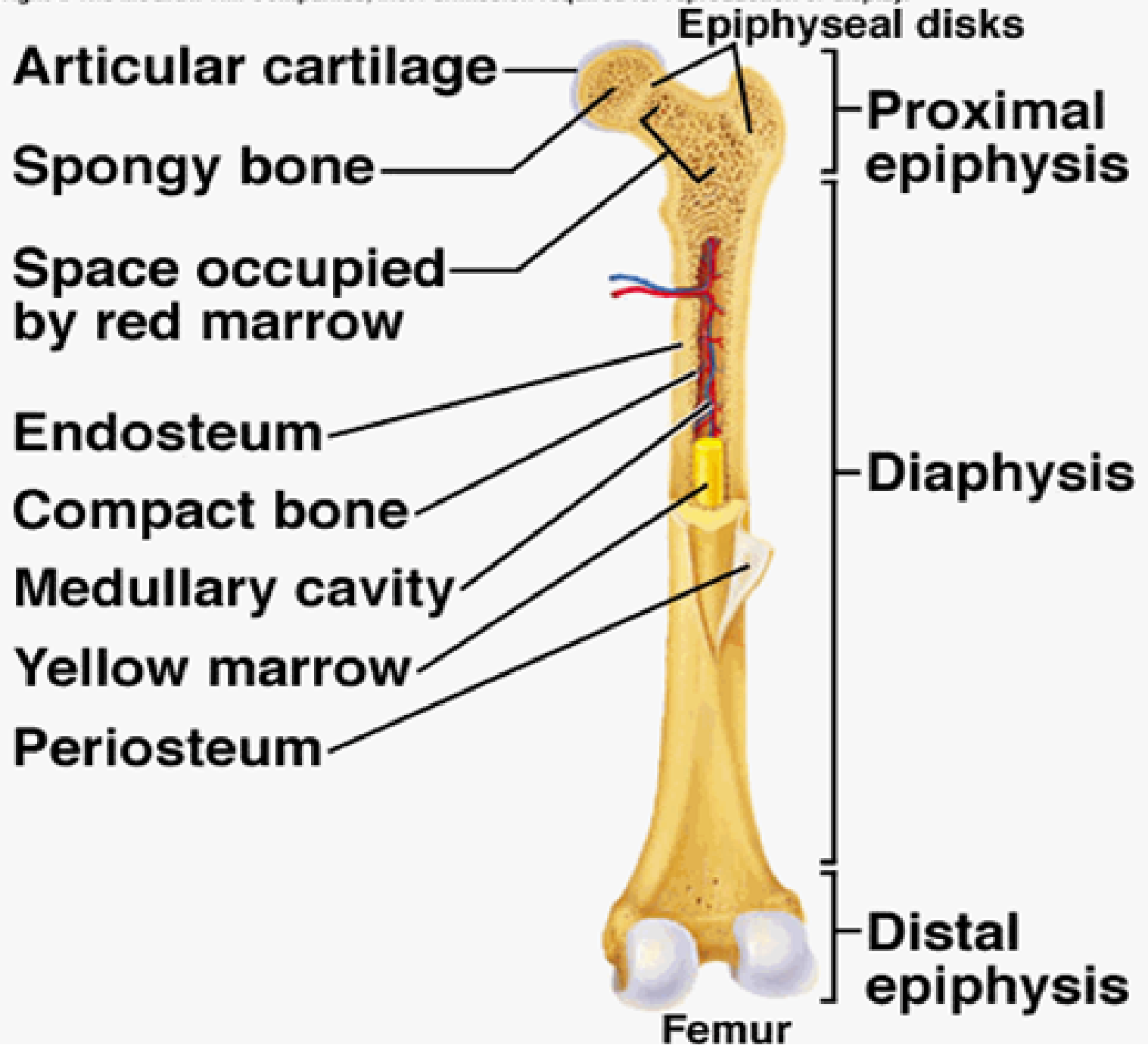
In adults, red blood cell formation is called hematopoiesis and occurs in the spongy bone of the skull, ribs, vertebrae, sternum and the ends of long bones



Long Bone



Long Bone





Articular Cartilage 1

Spongy Bone 2

Compact Bone 3

Medullary Cavity 4

Periosteum 5

Articular Cartilage 1

6a Epiphysis
2a Spongy Bone

3 Compact Bone

4a Medullary Cavity

7 ENDOSTEUM (WE WONT GO THIS FAR)

8 Diaphysis

3 Compact Bone

2a Spongy Bone

6a Epiphysis

9 Epiphyseal Line

Review

1. What are some functions of the skeleton?

Flexibility, Blood Cells Production, Mineral Storage, Support, Protection

2. What are the 5 categories of bones?

Long, Short, Flat, Round, Irregular

3. What are the ends of long bones called?

Epiphysis

4. What is the shaft of a long bone called?

Diaphysis

5. What is the outer covering of long bones called?

Periosteum