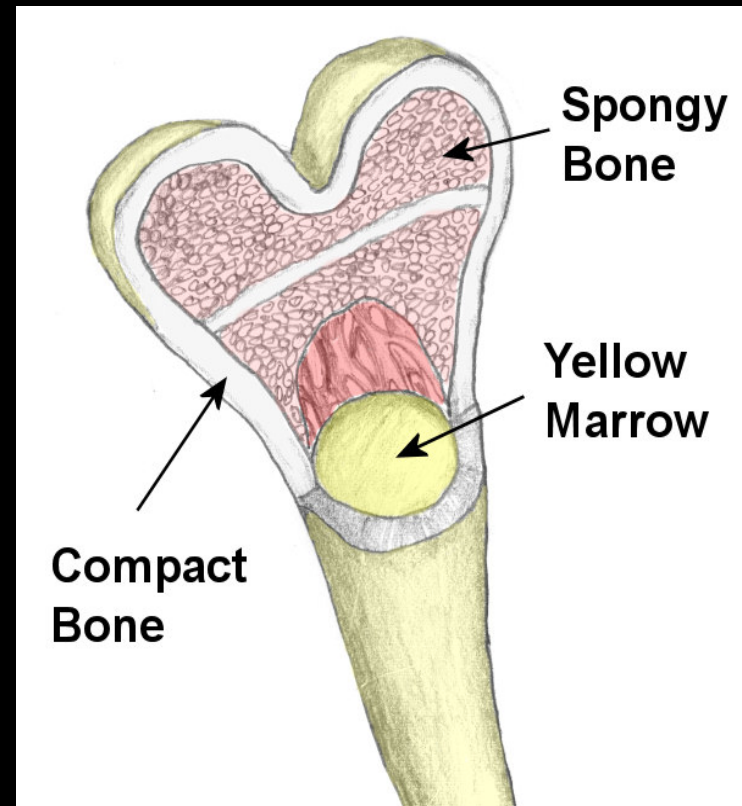


Bones and Joints

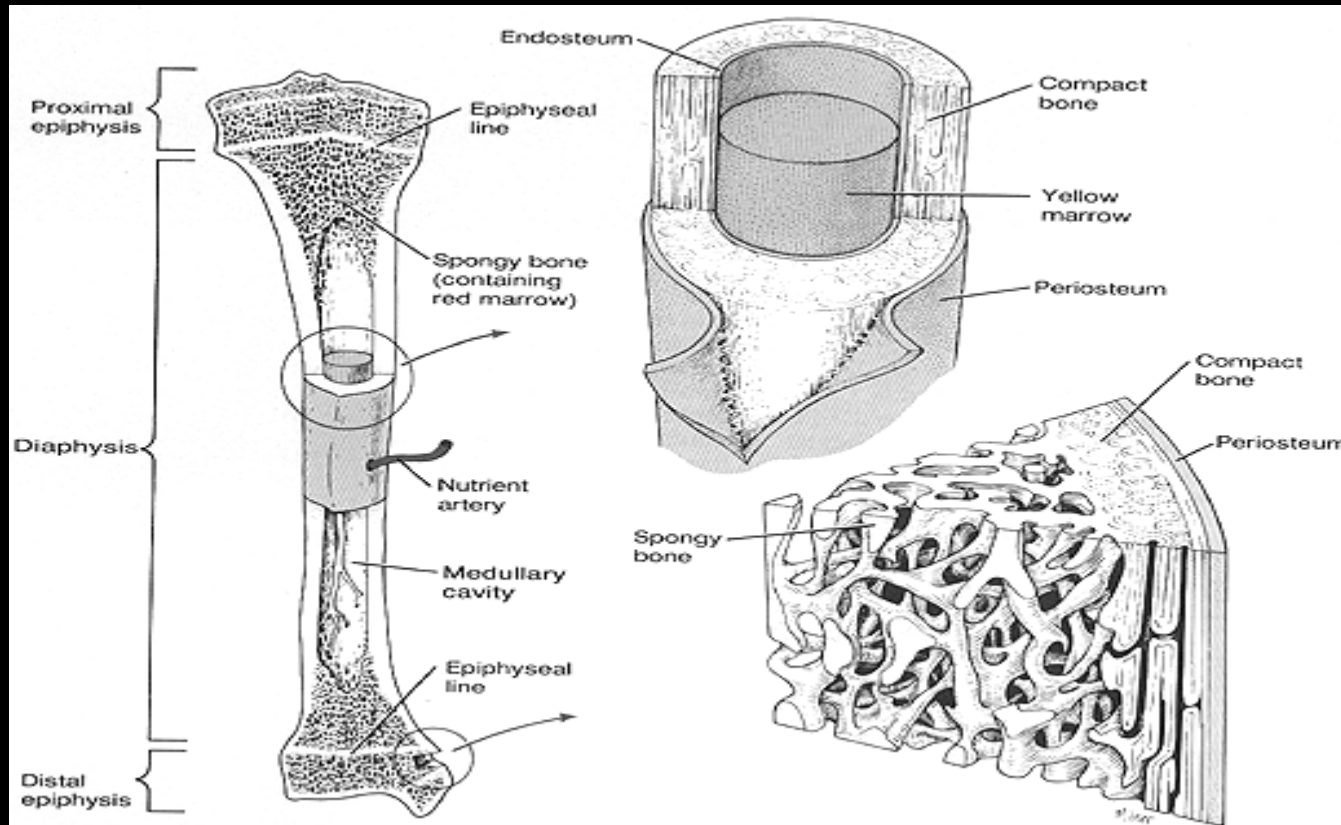
Park Centre Level 2 CYQ
Level 2 Fitness Instructing

Structure of Bone

- Diaphysis – shaft of the bone
- Epiphysis – ends of the bone (spongy bone)
- Periosteum – sheath around bone
- Epiphyseal plates –
- growth plates



Bone structure



Functions of Bone

- Protection – vital organs
- Movement – attachment for muscles (via tendons)
- Production – of blood cells
- Storage – minerals (calcium, magnesium, potassium)
- Shape – structure

Vertebral Column

- Made up of 33 bones
- 7 cervical (neck)
- 12 thoracic (rib cage)
- 5 lumbar (large)
- 5 sacral (part fused)
- 4 coccyx (fused)

Shoulder Girdle

- Clavicle – collar bone
- Scapula – shoulder blade
- Humerus – attaches into the glenoid cavity

Pelvic Girdle

- Ilium – articulates with sacral vertebrae
- Ischium – sitting bones (itchy bum!)
- Pubis – pubic bones (can split during child birth – ouch!!)

Types of Bones

- Long Bones – humerus, femur
- Short Bones – Tarsals, Carpals
- Flat Bones – Sternum, Cranium, Pelvis
- Irregular Bones – Spinal vertebrae

Types of Joint (Articulations)

- **Immovable – Fibrous, eg skull**
- **Slightly Movable – Cartilaginous, eg vertebral column**
- **Freely Moveable – Synovial, eg knee, elbow**

Synovial, Freely Movable Joints

- Articular Cartilage – smooth and slippery buffer where two bones meet
- Synovial Cavity – area that separates two bones
- Ligament – attaches bone to bone
- Synovial Membrane – lubricates the joint, thickens and releases synovial fluid
- Periosteum – outer lining of bones, ligament attachment

Types of Synovial Joint

- Hinge – Knee, elbow, phalanges
- Gliding – Carpals (hand)
- Pivot – Atlas and Axis (neck), Radius and Ulna
- Condylloid – Metacarpals (start of fingers)
- Ball and Socket – Hip, Shoulder
- Saddle - Thumb

Joint Actions (Anatomical Terms)

- Flexion and Extension
- Protraction and Retraction
- Hyper Extension
- Adduction and Abduction
- Elevation and Depression
- Plantar Flexion and Dorsi Flexion
- Horizontal Flexion and Horizontal Extension
- Lateral Flexion and Lateral Extension
- Hyperextension
- Circumduction
- Rotation