



Skeletal System

Chapter 3

Terms

Ankylosis

Arthralgia

Arthrocentesis

Arthrography

Arthroplasty

Arthroscopy

Brachial

Chondrectomy

Chondromalacia

Hematopoiesis

Intercostal

Osteoarthritis

Osteoblast

Osteoclast

Osteoma

Osteomalacia

Osteomyelitis

Osteoporosis

Spondylosis

Ambidextrous

Abbreviations:

amb

CXR

Fx

Tx

**** define all terms and abbreviations in your notebook**



Functions of Skeletal System

- **Supports** and gives the shape to the body
- **Protects** internal organs
- Makes **movement** possible
- **Storage** - Calcium is stored in bones and used for nerve and bone function
- **Produces** blood cells



Osteoblast
Osteoclast
Osteoma
Osteomalacia
Osteomyelitis
Osteoporosis

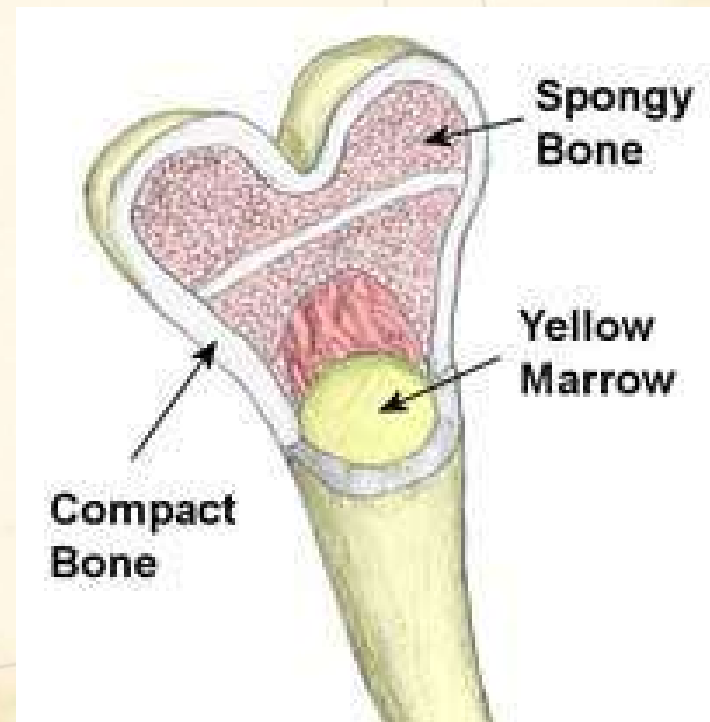
Bones

- Skeleton is made of organs called bones
- Adult has 206 bones, infant has more with 270
- Related Word Roots
 - oss/e, oss/i
 - oste/o, ost/o
- Longest bone: femur
- Smallest Bones are in the: ear



Anatomy of Bone

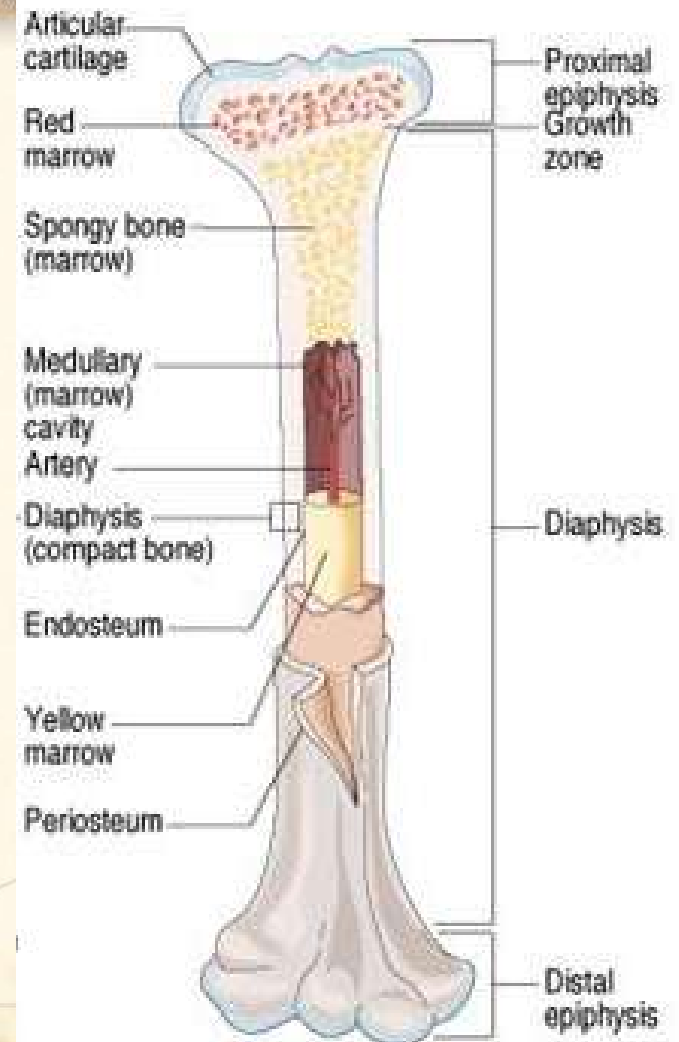
- **Periosteum** (**peri-**, **oste**, -**um**) – outer most covering
- **Compact Bone** – strong, hard outer layer
- **Spongy Bone** – Lighter; contains red bone marrow
- **Marrow** – see next slide

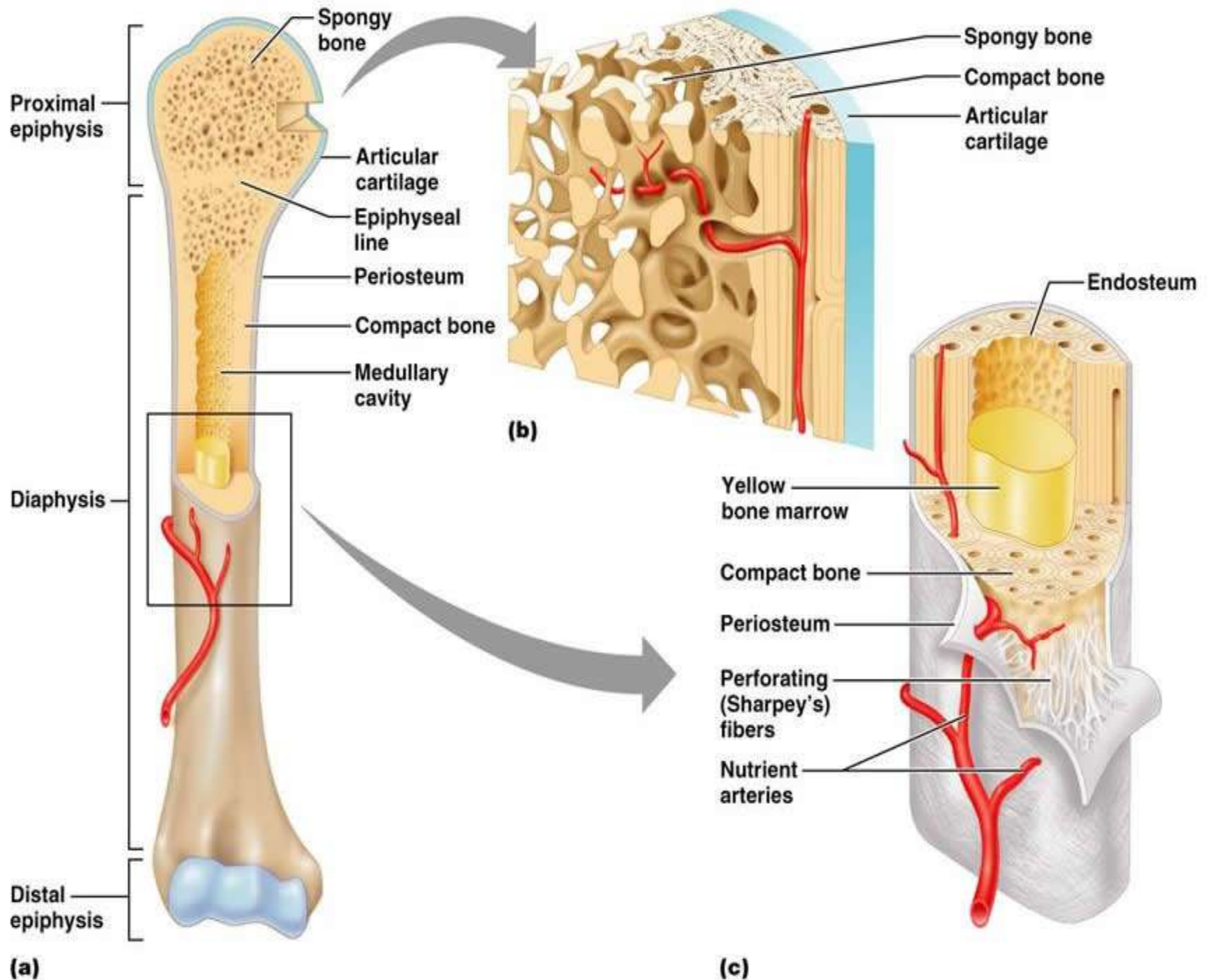




Bone Marrow

- Primary Functions
 - **Red** bone marrow manufactures some blood cells.
 - **Yellow** bone marrow stores fat.
- Related Combining Form
 - **myel/o** (also means spinal cord, pay attention to your context)



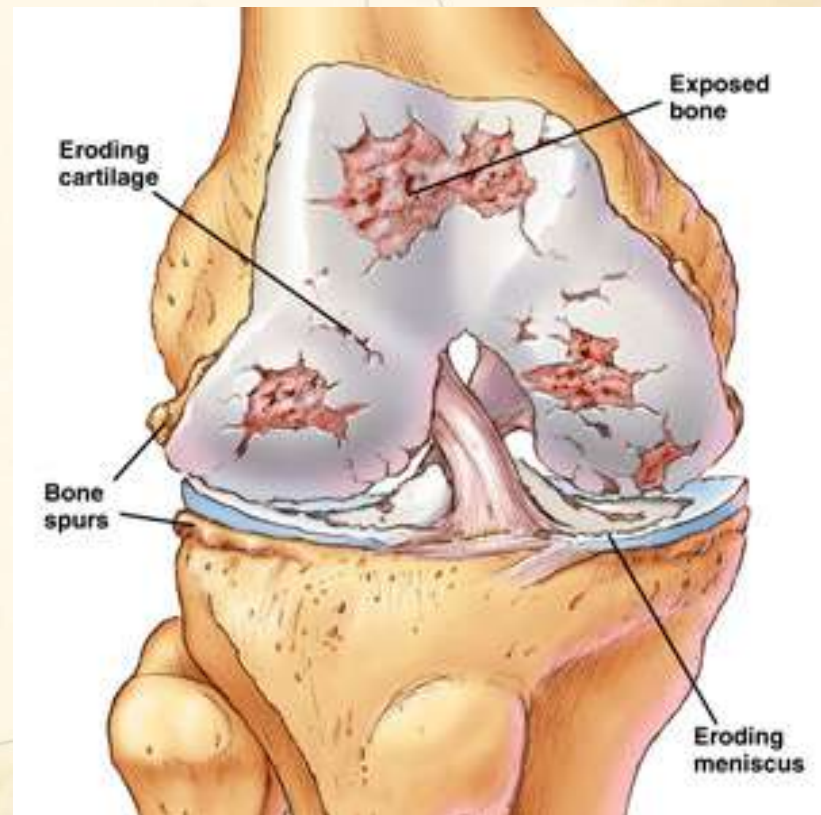




Cartilage

Chondrectomy
Chondromalacia

- Related Combining Form
 - **chondr/o**
 - Primary Functions
 - Creates a smooth surface for motion within the joints.
 - **Protects** the ends of the bones.
- ***Articular** cartilage is located on the surfaces of bones that form joints





Joints (articulations)

Arthralgia
Arthrocentesis
Arthritis
Arthrography
Arthroplasty
Osteoarthritis

- Related Combining Form
 - **arthr/o**
- Primary Function
 - Work with the muscles to make a variety of motions possible.
- Types of Joints
 - Sutures
 - Symphysis
 - Synovial

Table 5.1

Bone Markings

Name of bone marking

Description

Illustration

Projections that are sites of muscle and ligament attachment

Tuberosity

Large, rounded projection;
may be roughened

Crest

Narrow ridge of bone;
usually prominent

Trochanter (tro-kan'ter)

Very large, blunt,
irregularly shaped
process (the only
examples are on the
femur)

Line

Narrow ridge of bone;
less prominent than a crest

Tubercle (too'ber-kl)

Small, rounded projection or process

Epicondyle

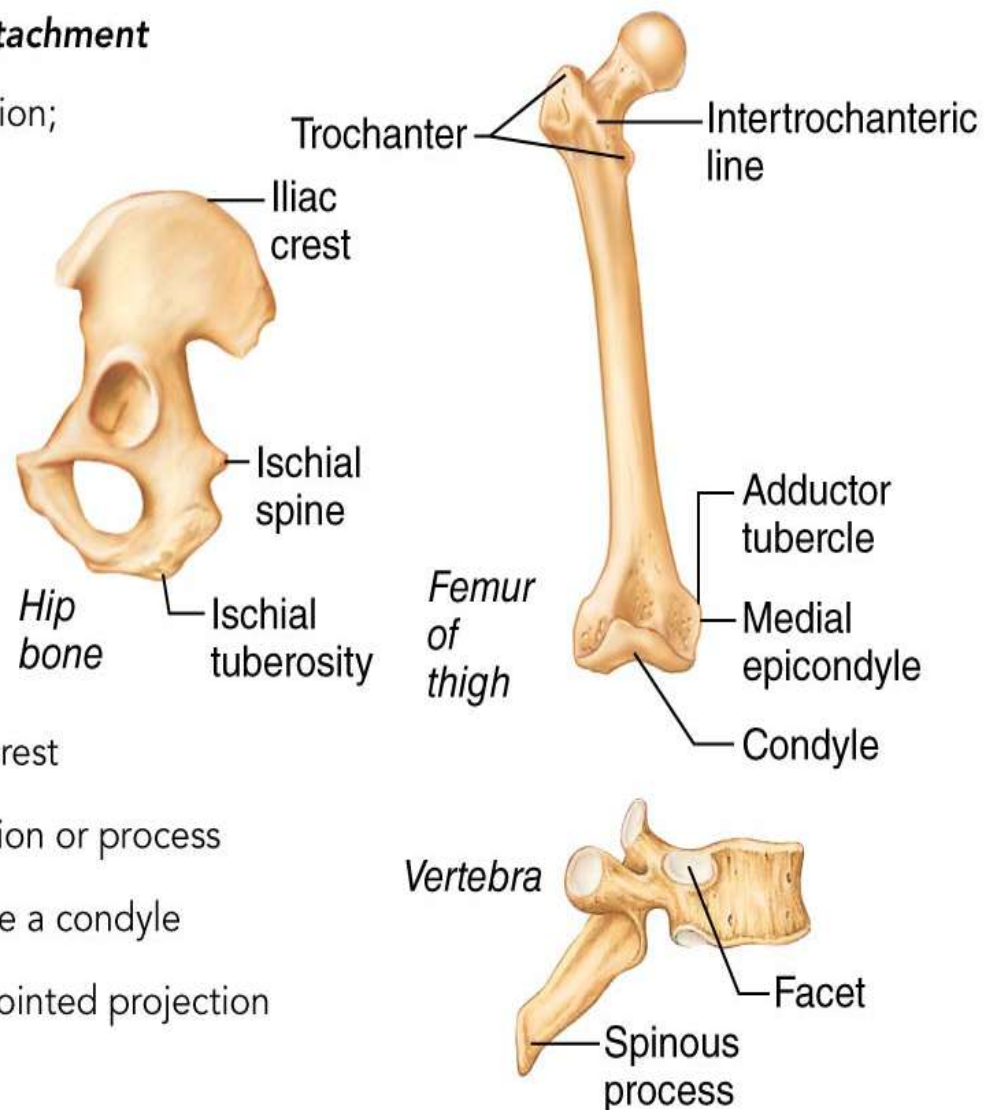
Raised area on or above a condyle

Spine

Sharp, slender, often pointed projection

Process

Any bony prominence



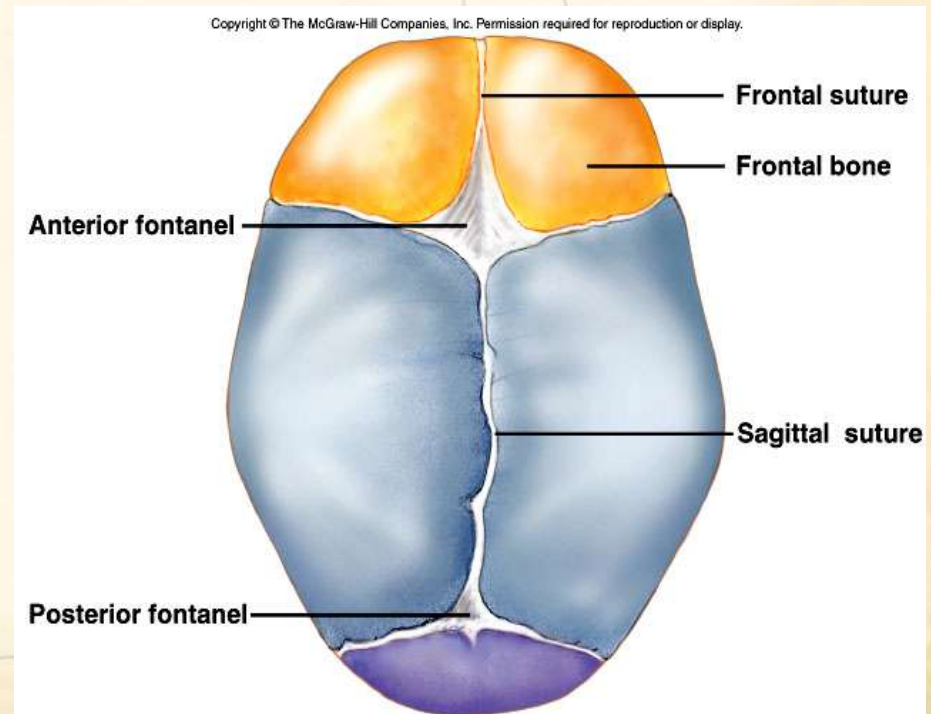
The Skeletal System

Major Structures	Related Combining Forms or Medical Term	Primary Functions
Bones		
Bone Marrow		
Cartilage		
Joints		
Ligaments		
Synovial		
Membrane		



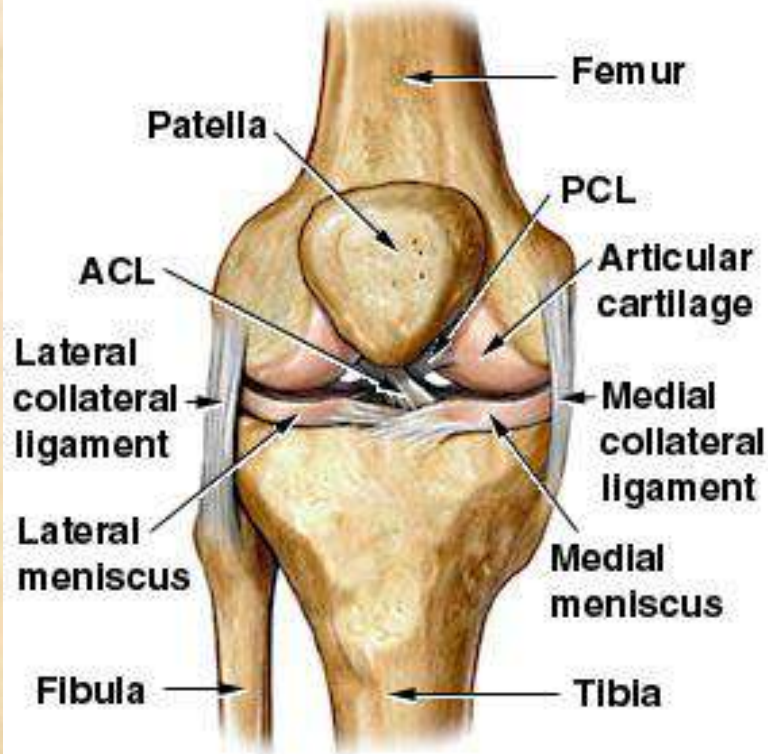
Sutures

- A **suture** is a joint where bones join together and form a joint that does not move.
- A **fontanel** is where the sutures between the frontal and parietal bones have not yet closed





Structures of Synovial Joints

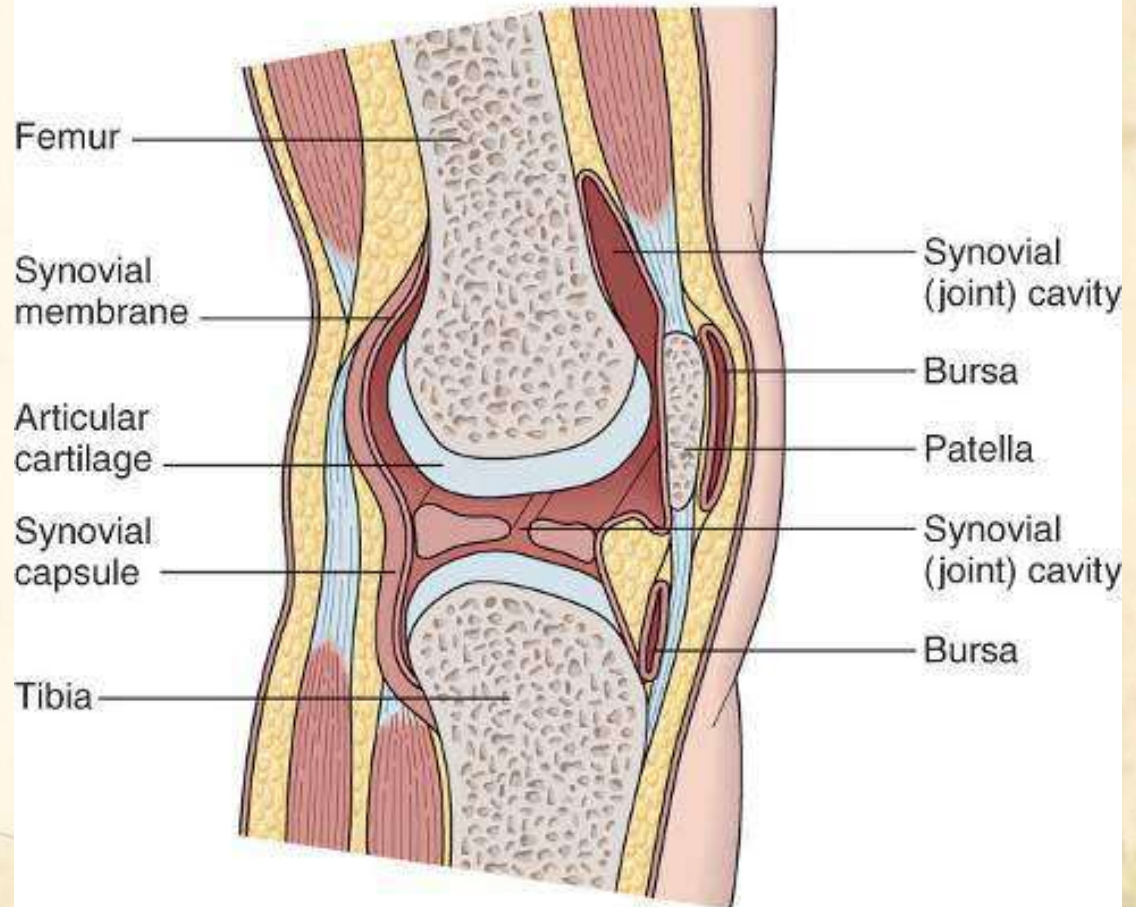


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- **Ligaments**
 - Connect one bone to another.
- **Synovial Membrane**
 - Forms the lining of synovial joints.
 - Secretes synovial fluid
- **Synovial Fluid**
 - Lubricant that makes smooth joint movements possible.
- **Bursa**
 - Cushions areas of joints that are subject to friction during movement.



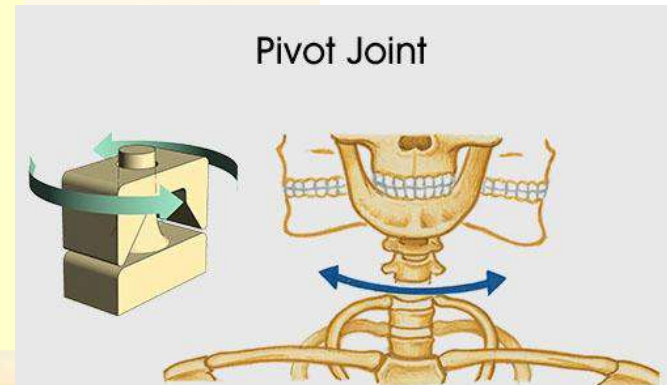
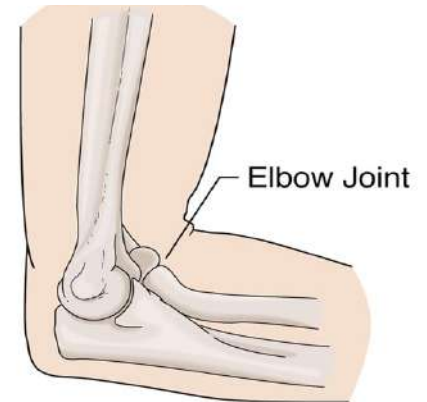
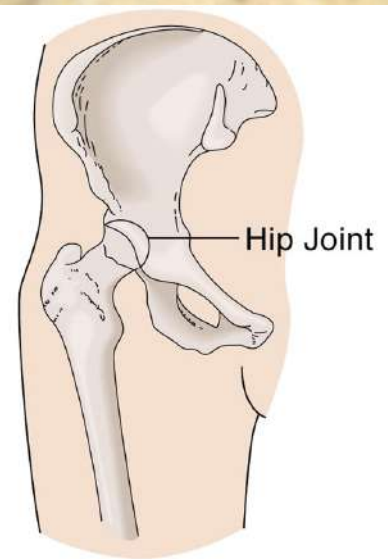
Structures of Synovial Joints





Synovial Joints

- The **movable** joints in the body
- **Ball and socket** joints allow a wide range of movement in many directions
- **Hinge joints** allow movement primarily in one direction or plane
- **Pivot Joints** allow movement on an axis

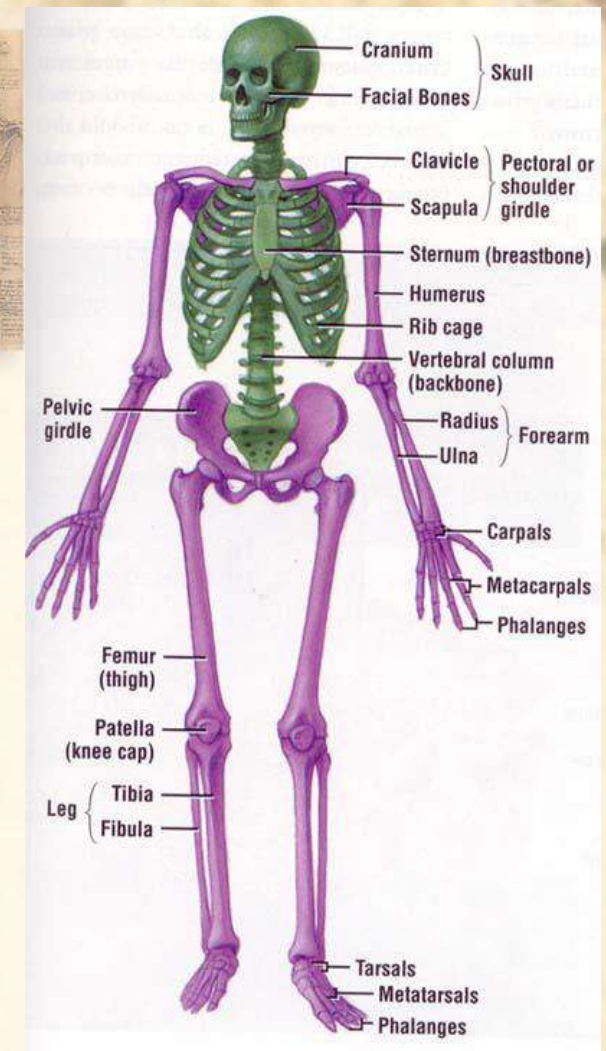






The Skeleton

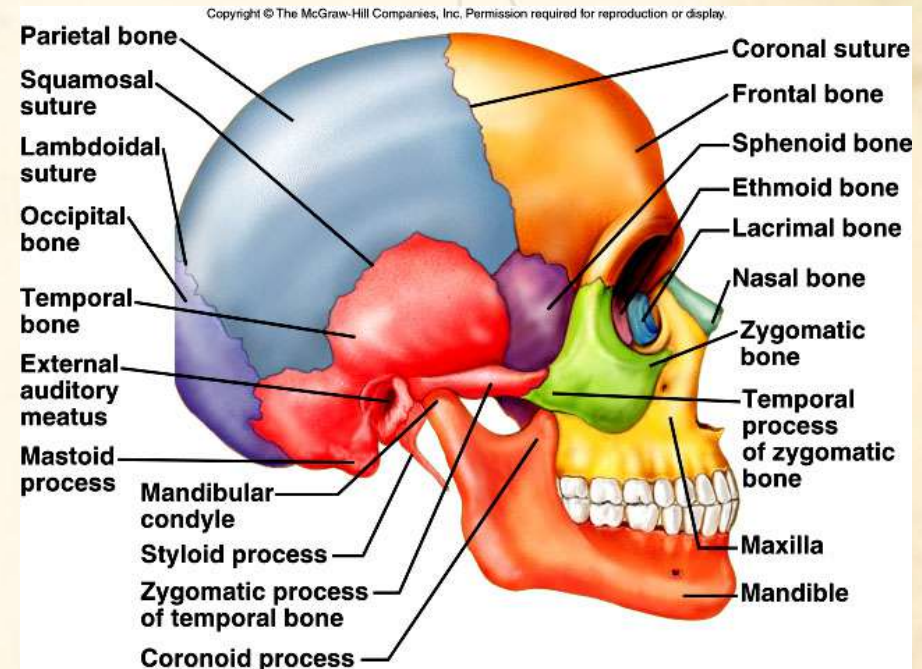
- **Axial**
 - Main trunk of body
 - Skull, spinal column, ribs, and sternum
- **Appendicular**
 - Extremities
 - Shoulder girdle, arm bones, pelvic girdle, and leg bones





Skull

- Cranial and facial bones
- **Sutures**-jagged line where bones are joined.
- **Foramina**- openings in the bone
- Skull surrounds and protects the brain (8)
 - Frontal-forehead
 - Parietal (2)
 - Temporal (2)
 - Occipital-back of head
 - Sphenoid (2)





Facial Bones

- **14 bones** of skull **that form facial features**
- Mandible – lower jaw
- Maxilla (2) – upper jaw
- Zygomatic (2) – cheek
- Nasal (5) – upper part of nose
- Lacrimal (2) – inner aspect of eye
- Palatine (2) – hard palate (roof of mouth)



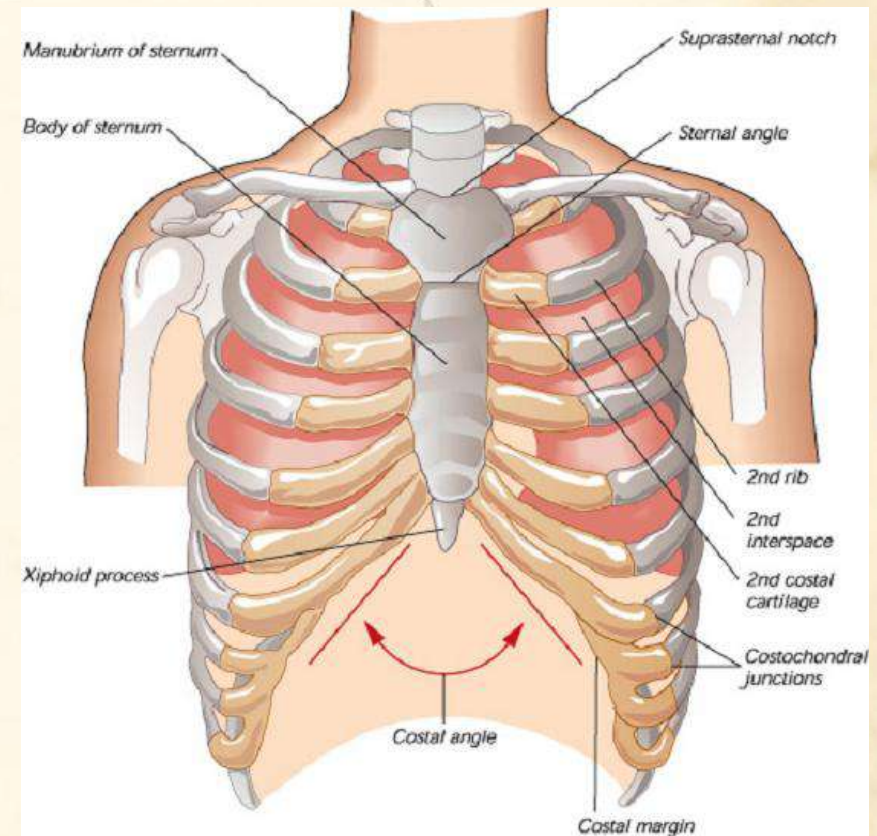
Thoracic Cavity

- **Ribs (costals)**

- 12 pairs of long slender bones
- Attach to thoracic vertebrae
- True ribs – first 7 pairs; attach to sternum
- False ribs – last 5 pairs, includes the floating ribs which do not attach to the anterior.

- **Sternum**

- Breastbone
- Consists of 3 parts-manubrium, the body and the xiphoid process.
- Two clavicles attach (collarbones)
- Ribs attach with cartilage



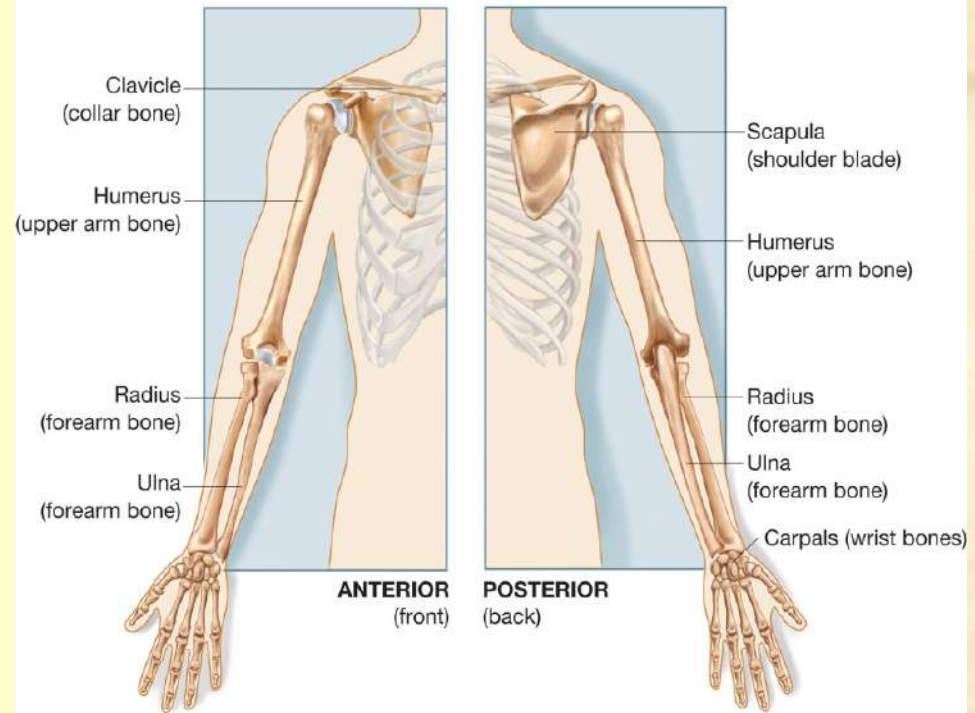
Pg. 42

(written description)



Shoulders

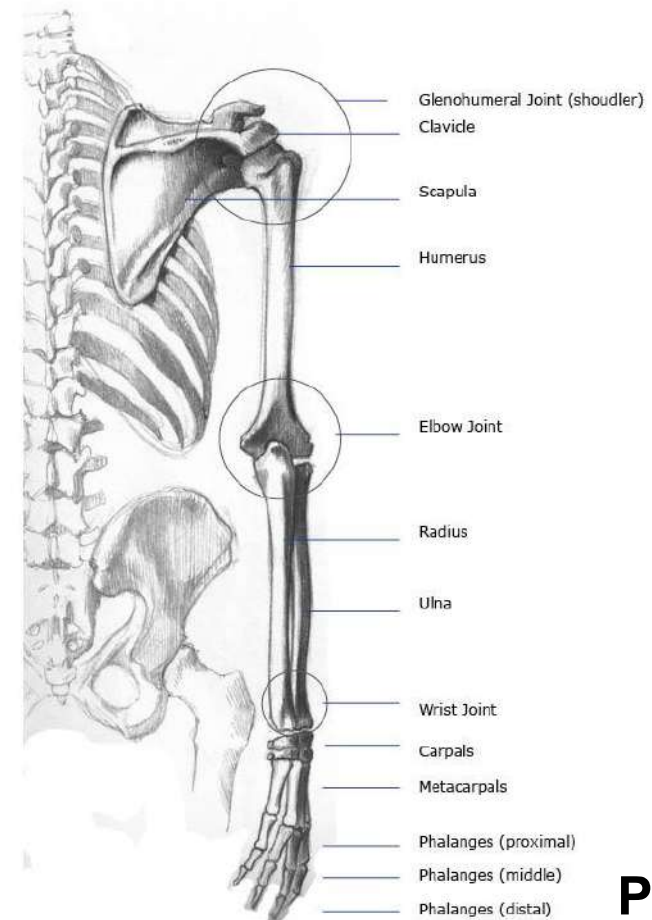
- **2 clavicles**
(collarbones)
- **2 scapula**
(shoulder bones)
- Upper arm bones
attach to scapula





Arms

- **Humerus** – upper arm
- **Radius-** goes to thumb side
- **Ulna-** * little name, little finger
- **Carpals**-wrist
- **Metacarpals**-palm of the hand
- **Phalanges** - fingers

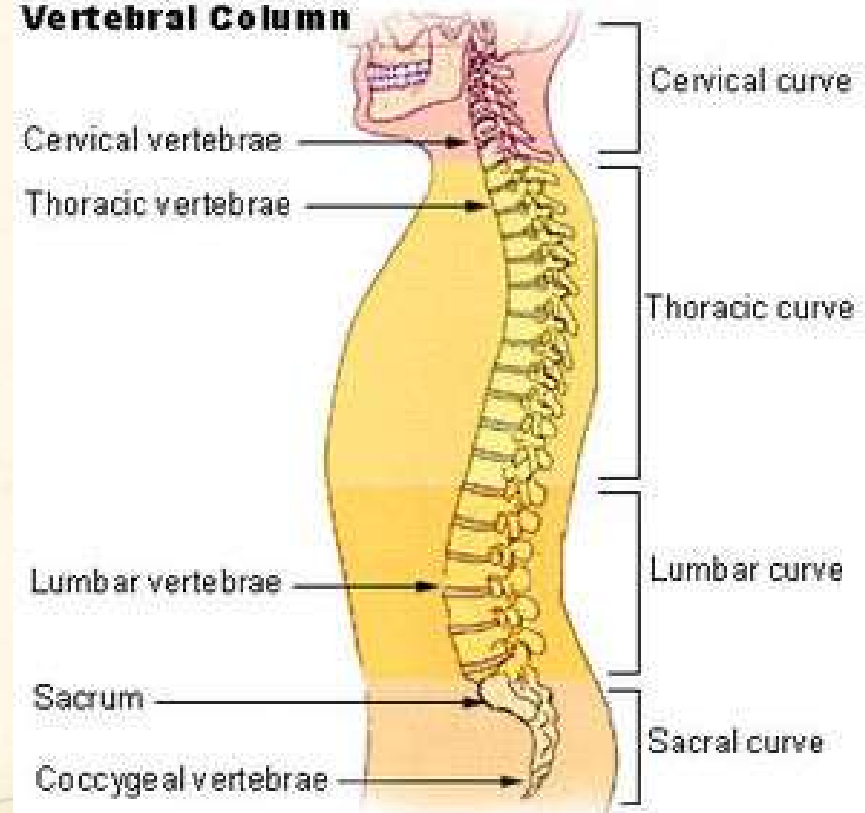




Spinal Column

- **26 bones**
- Protects the spinal cord
- Supports head and trunk
 - Cervical (7) – neck
 - Thoracic (12) – chest, attach to ribs
 - Lumbar (5) – waist
 - Sacrum (1) – back of pelvic girdle
 - Coccyx (1) – tailbone

Vertebral Column





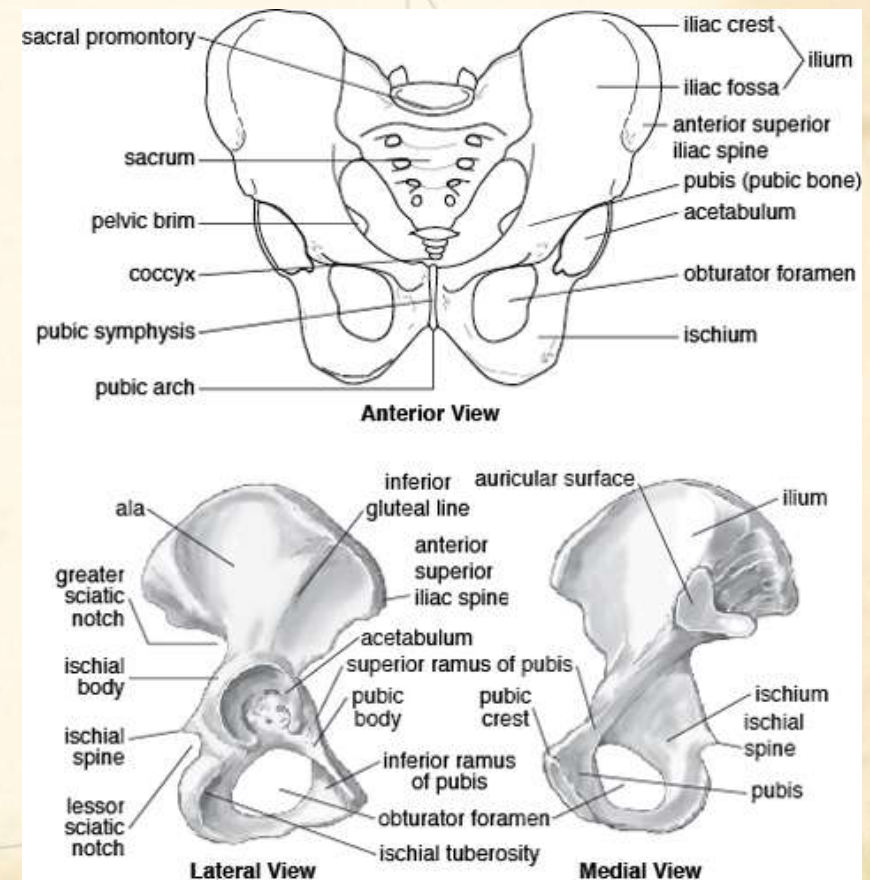
Intervertebral Disks

- Pads of cartilage tissue separating vertebrae
- Act as shock absorbers
- Permit bending and twisting movements



Bones of Pelvic Girdle

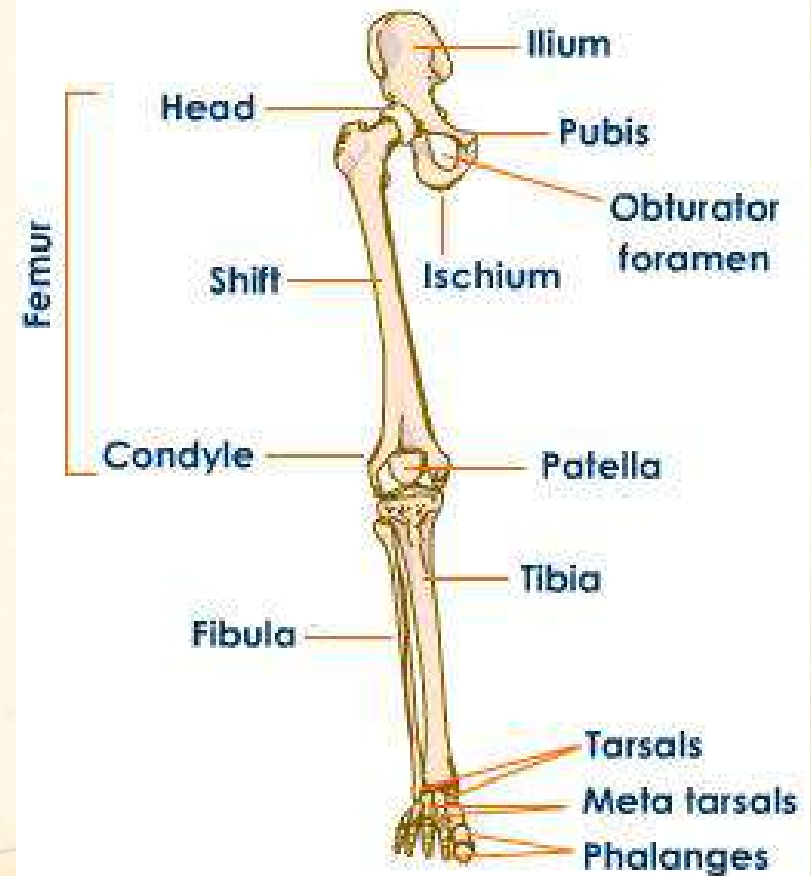
- Consists of 2 coxal or hip bones
- **Symphysis pubis**
- **Ilium**
- **Ischium**
- **Pubis**
- **Acetabula-** hip socket
- **Obturator foramen**





Legs

- **Femur** – upper leg
- **Patella** – knee cap
- **Tibia**- shinbone
- **Fibula**-***l**ateral bone
- **Tarsals**-ankles
- **Metatarsals**-foot bones
- **Phalanges**-toes





Diseases and Abnormal Conditions

- Arthritis-RA, JRA OA,
- Bursitis
- Fractures
- Dislocation
- Sprain
- Osteomyelitis-

- Osteoporosis
- Ruptured disk
- Abnormal curvature of spine
 - Kyphosis
 - Scoliosis
 - Lordosis

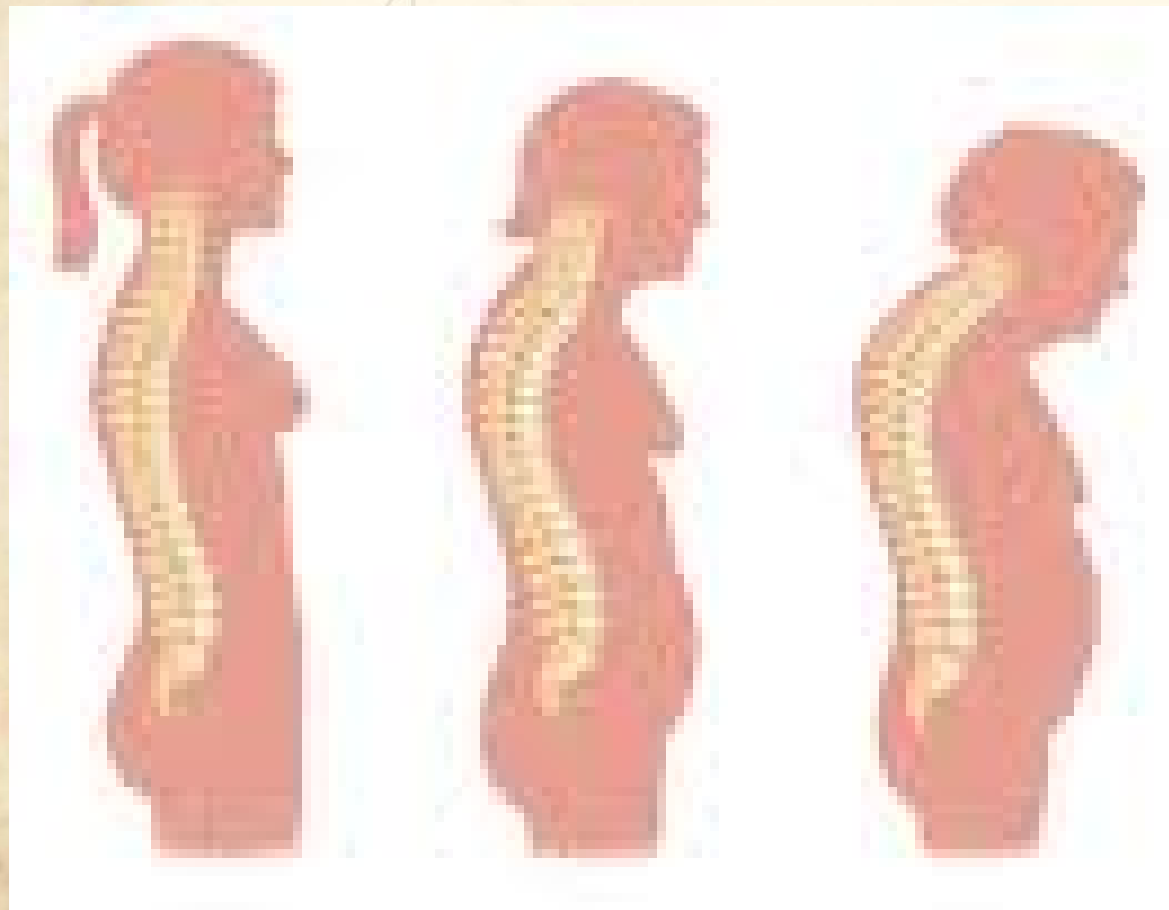


Scoliosis- before/after





**Kyphosis-
humpback
often due to
osteoporosis**





Lordosis- swayback



Fractures (Fx)

- Greenstick- incomplete, common in children
- Complete- bone is broken, but no wound to skin.
- Compound-bone breaks & skin is wounded
- Comminuted-bone crushed to pieces
- Spiral-twisting injury (sports)
- Colles fracture of wrist



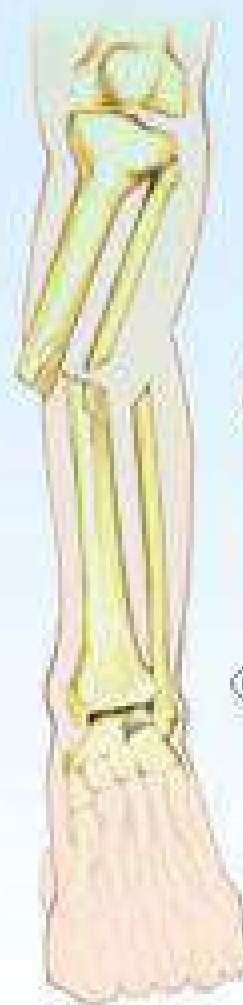
Greenstick

Spiral

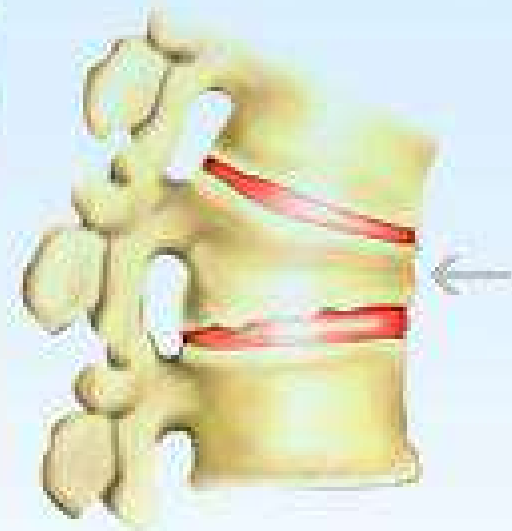
Comminuted

Transverse

Compound



Vertebral
Compression



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Spiral fracture of little finger





Complete Fx





Treatment of fractures

- Traction- pull on limb externally
- Immobilization-cast,sling
- External fixation- pins placed through the skin, then removed
- ORIF- open reduction, internal fixation
- Pins or plates placed directly on the bones, not usually removed.



Medical Specialties: Pg. 47

- There are 5 medical specialists described on pg. 47-48.
- List these specialists. Define them and show combining forms (word parts)