The Appendicular Skeleton

Why are articulations so important to you?

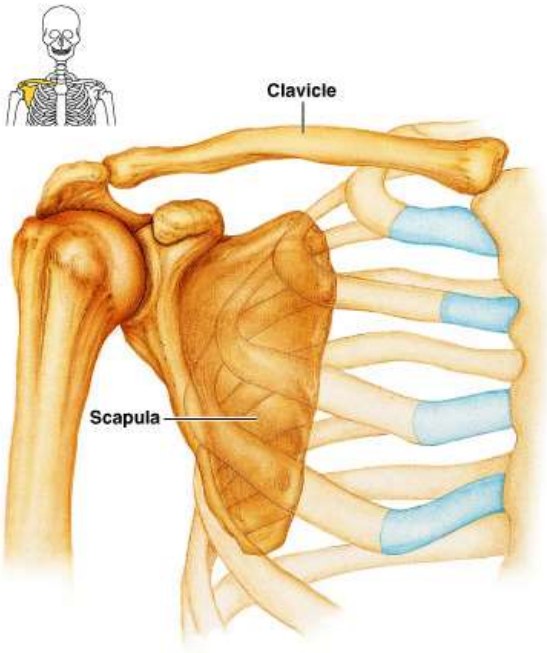
THE SKELETAL SYSTEM

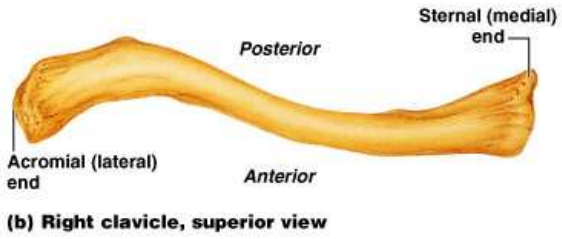
The Appendicular Skeleton

- 2 pairs of limbs and 2 girdles
- Pectoral (shoulder) girdle attaches upper limbs
- Pelvic (hip) girdle secures lower limbs
- This is approximately 126 bones

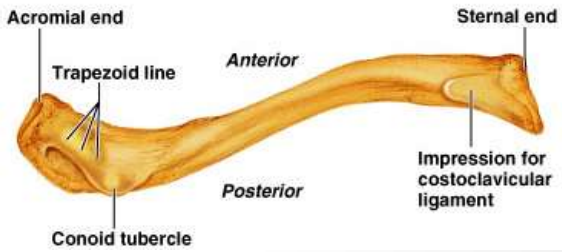
Pectoral Girdle

(Shoulder Girdle)





(b) Right clavicle, superior view

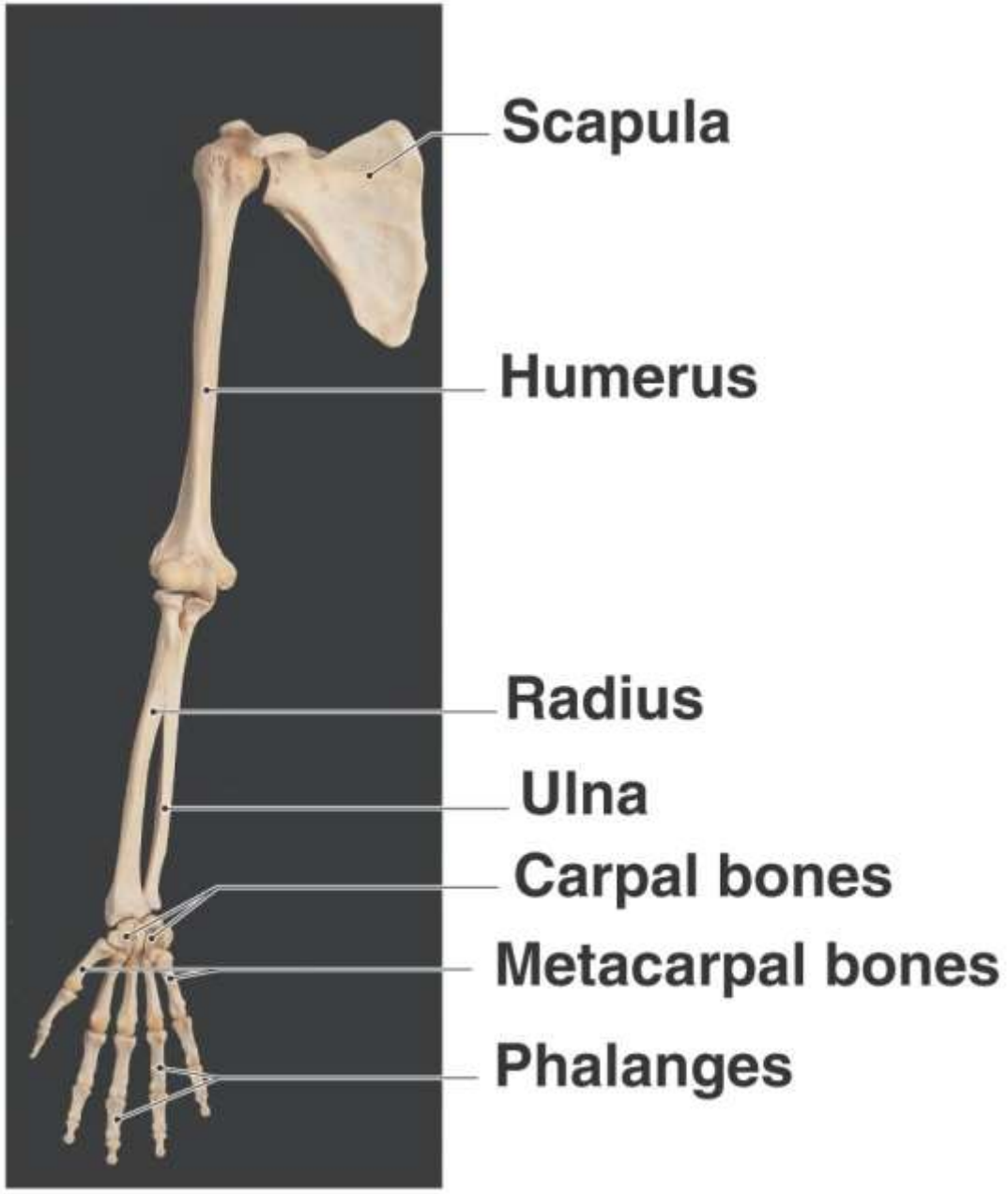


- Clavicle – anterior: collar bone
  - "S" shaped
  - The medial end articulates with the sternum forming the sternoclavicular joint
  - The lateral end articulates with the scapula forming the acromioclavicular joint
  - Most commonly broken bone in the body
- Scapula – posterior: shoulder blade
  - Triangular in shape

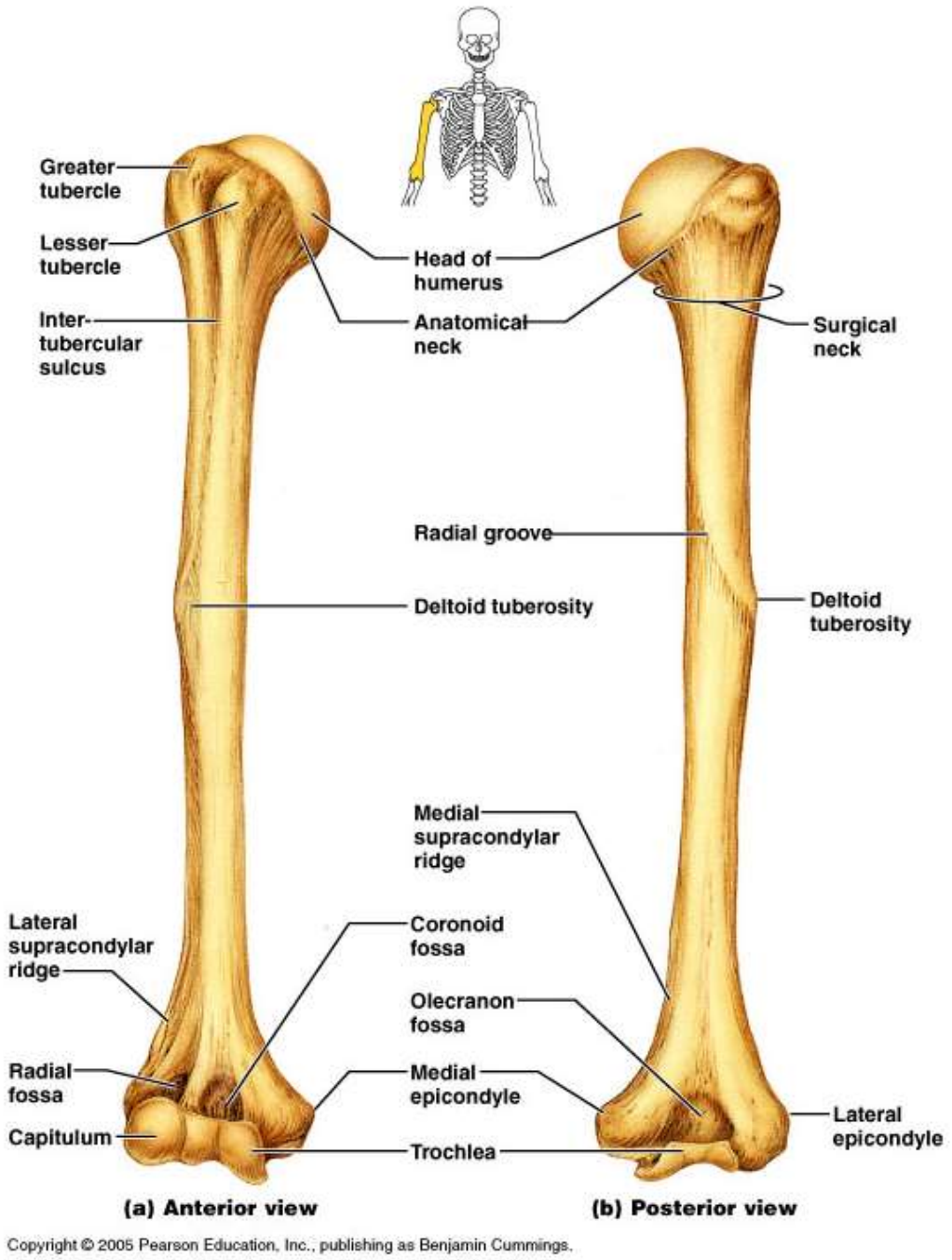
Upper Extremity

30 Bones

- ***Arm*** or ***Brachium*** = upper arm
  - Between shoulder and elbow *(humerus)*
- ***Forearm*** or ***Antebrachium***
  - *Radius & ulna*
- ***Hand*** includes:
  - Wrist *(carpus)*
  - Palm *(metacarpus)*
  - Fingers *(phalanges)*

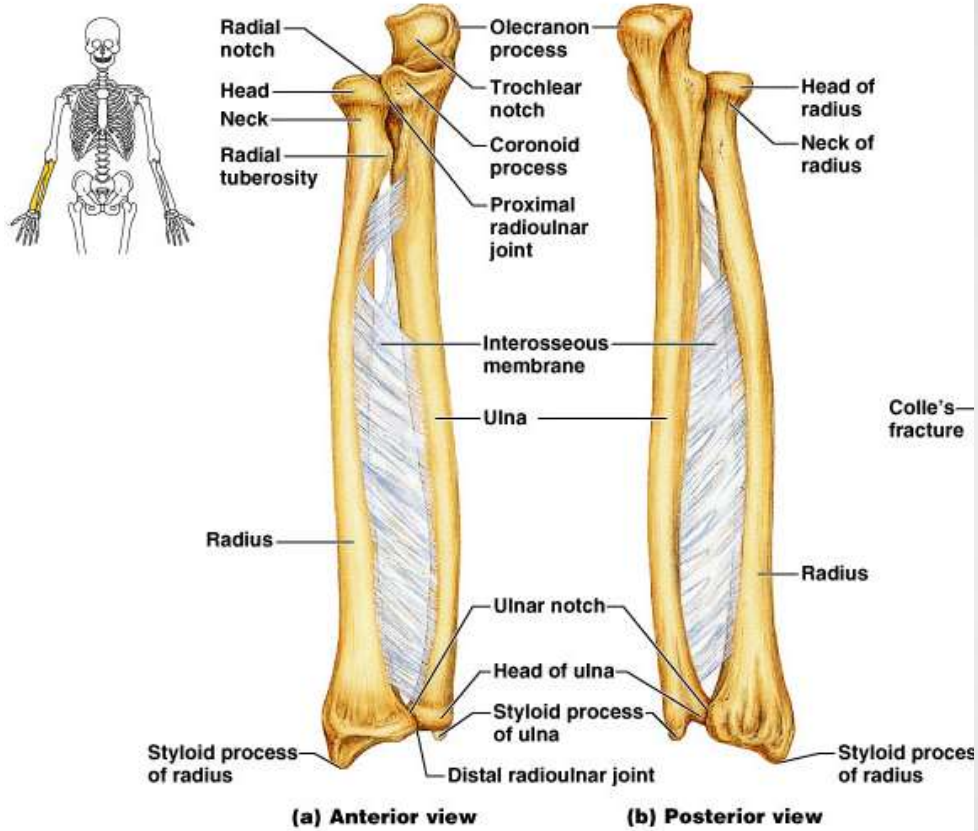


- ***Humerus***: longest and biggest bone of the upper limbs
- The proximal ball-shaped end articulates with the scapula
- The distal end articulates at the elbow with the radius and ulna



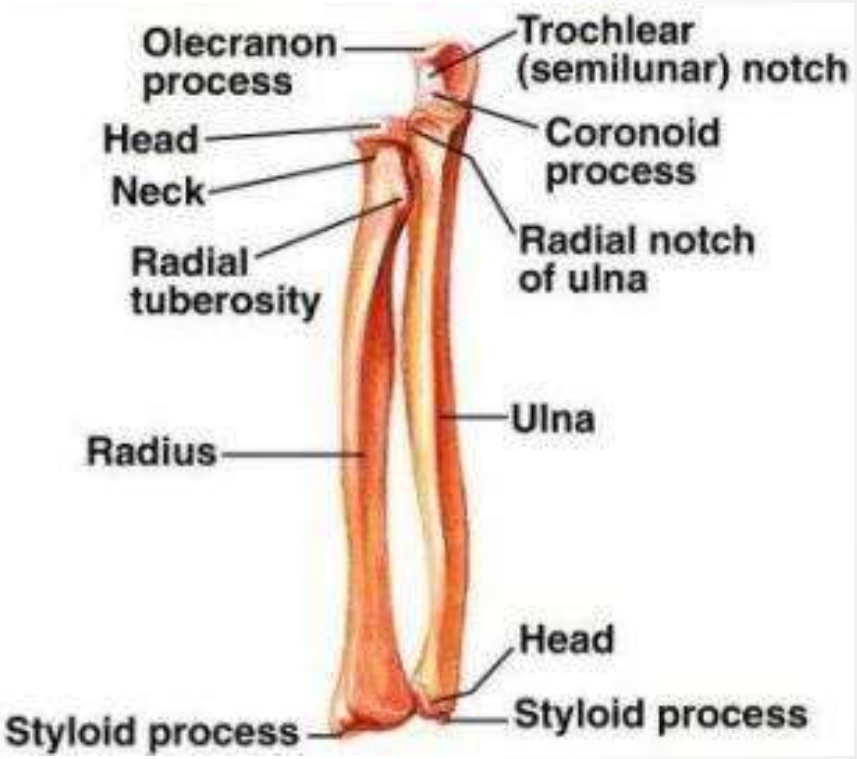
Forearm

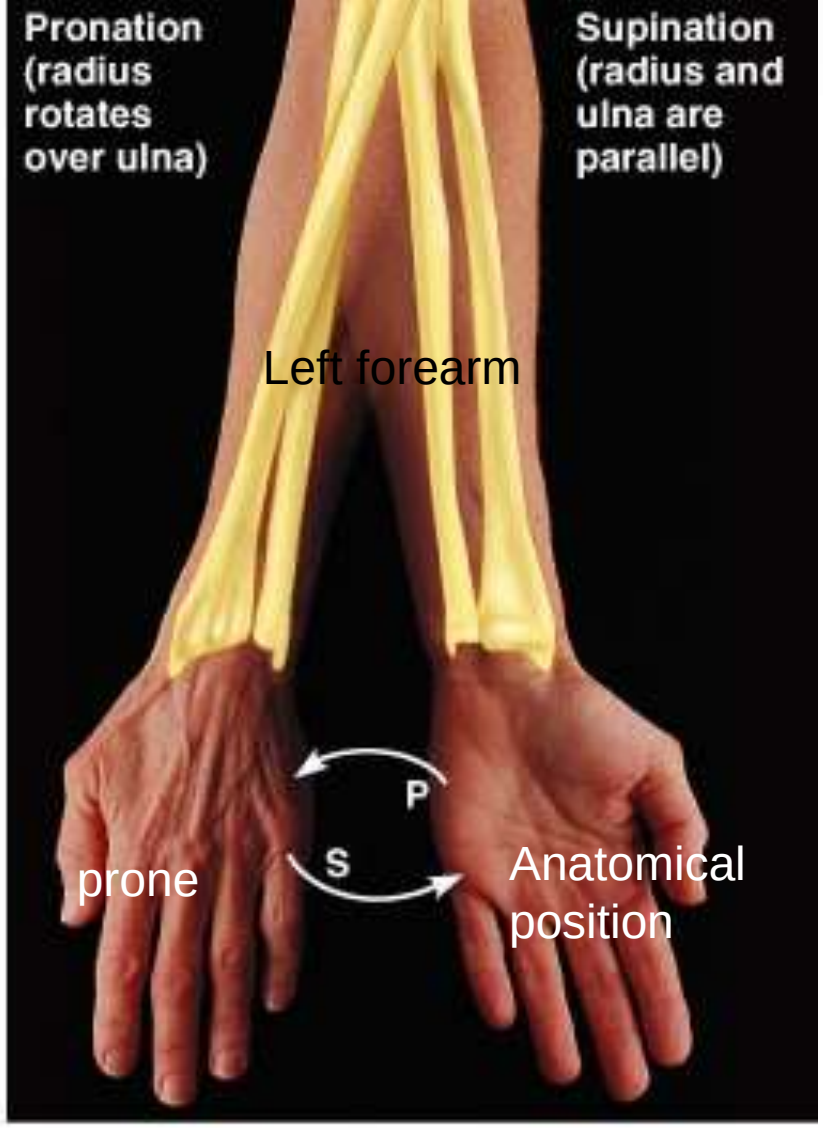
- 2 bones: articulate with each other proximally and distally: Radius & Ulna
- Interosseous membrane between them
- ***Ulna***
  - The longer of the two forearm bones
  - Located medial to the radius
  - Hinges with the humerus forming elbow



Radius

- Lies lateral to the ulna (thumb side of the forearm)
- The head (disc-shaped) and neck are at the proximal end
- The head articulates with the capitulum of the humerus and the radial notch of the ulna





In the anatomical position, the radius is lateral (thumb side); with pronation the palm faces posteriorly and the bones cross

Prone: body lying face down
Suppine: body lying face up

(you can remember prone if you think about how you would fall forward onto your face if you passed out)

pronation moves the forearm into the prone position and ***supination*** moves it back to the anatomical position

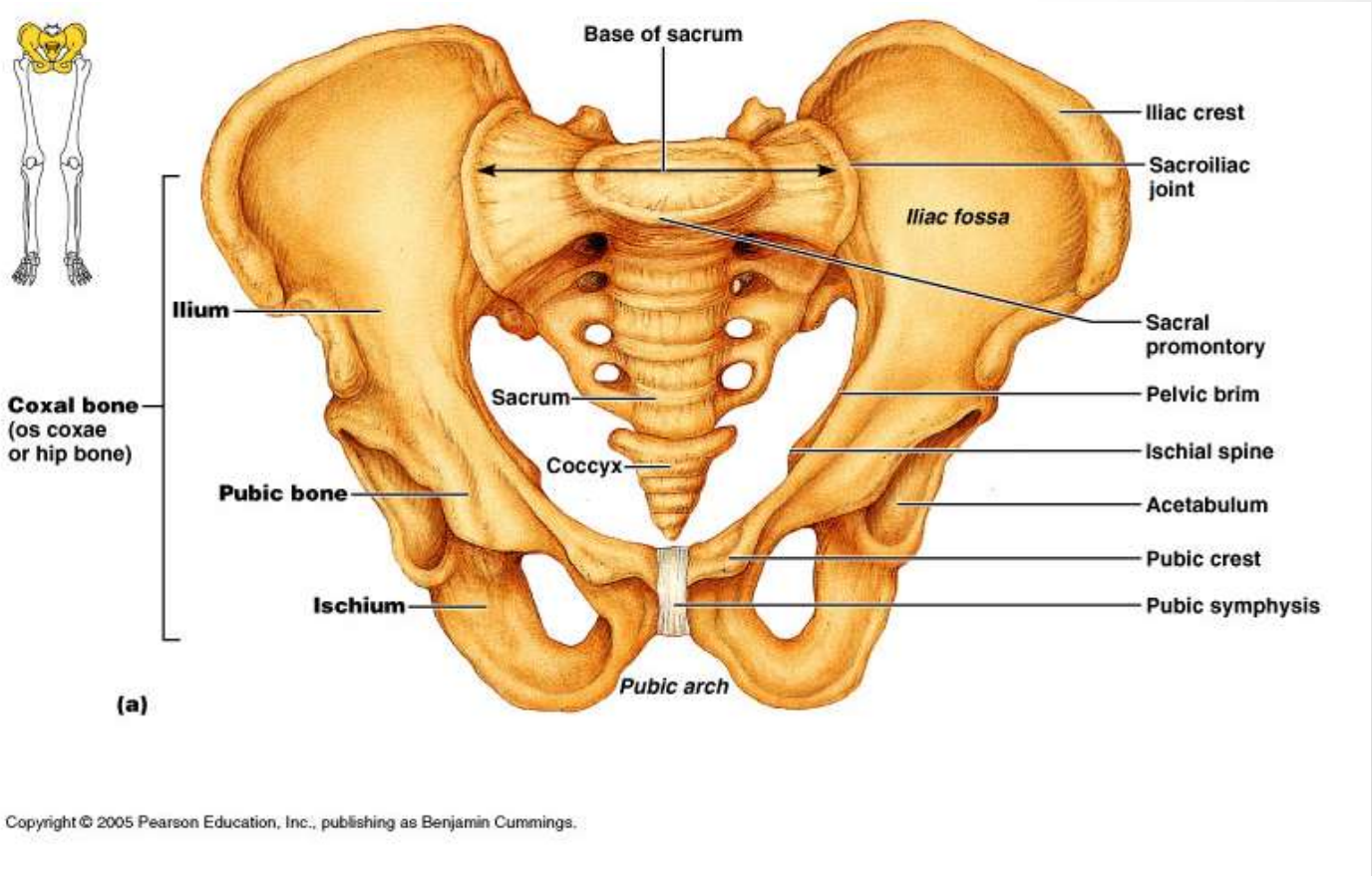
Pelvic Girdle

(Hip Girdle)

- Strongly attached to axial skeleton (sacrum)
- Deep sockets
- More stable than pectoral (shoulder) girdle
- Made up of the paired hip bones

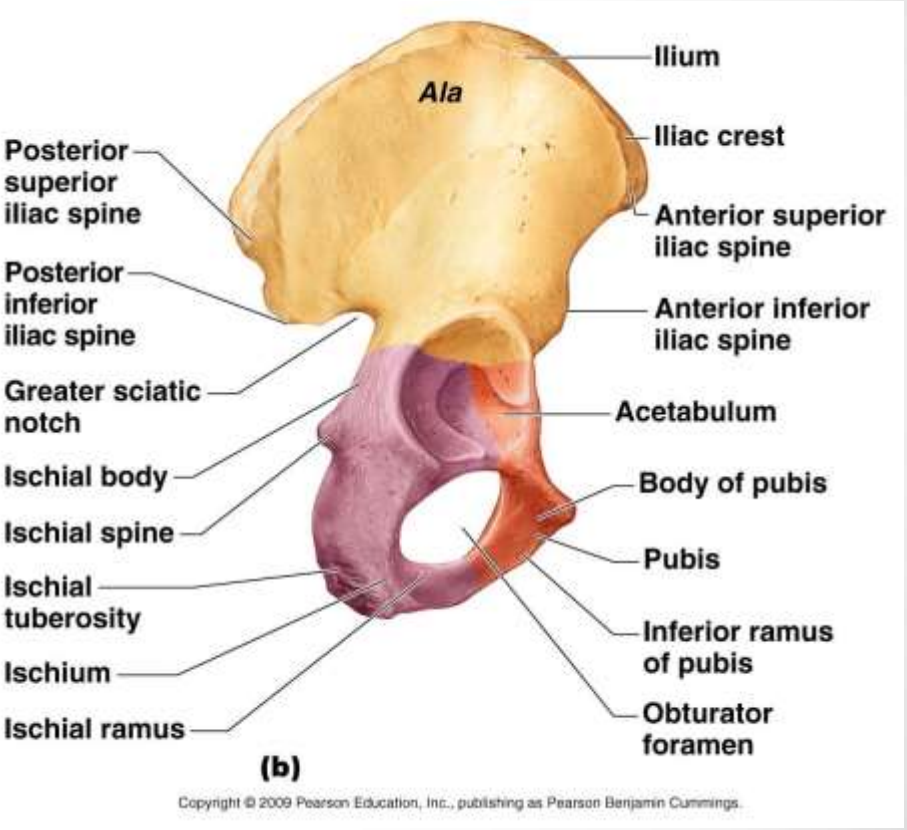
Hip bone (*os coxae*): 3 separate bones in childhood which fuse

- *Ilium*
- *Ischium*
- *Pubis*



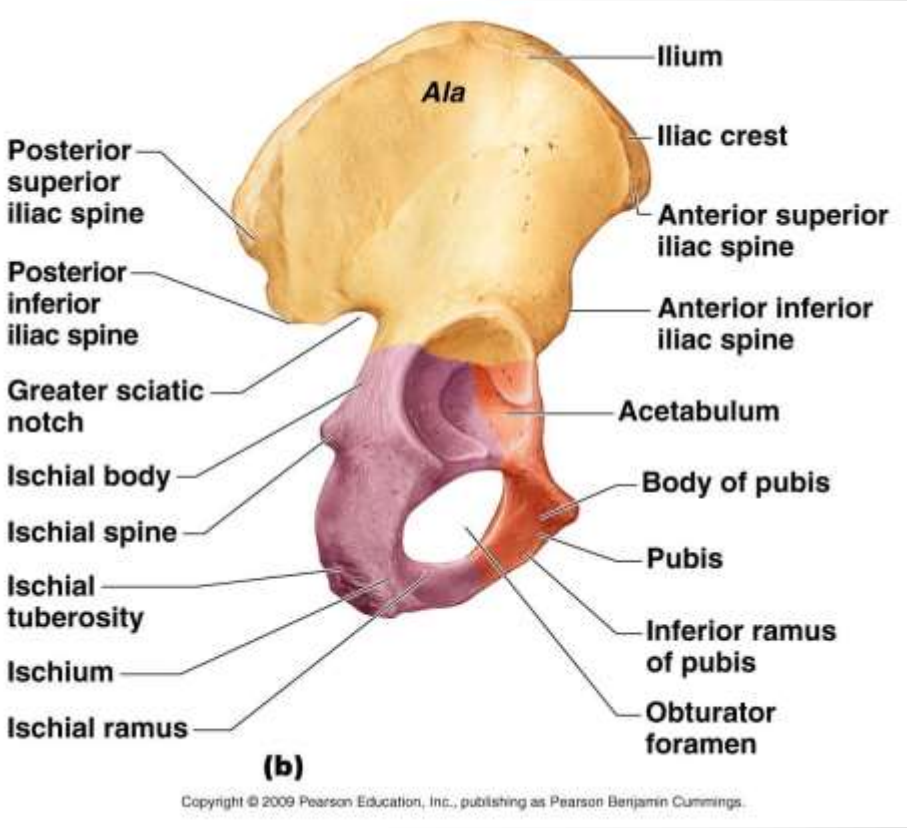
Ilium

- Largest of the three hip bones
- Ilium is the superior part of the hip bone
- Consists of a superior *ala* and inferior *body* which forms the acetabulum (the socket for the head of the femur)
- Superior border - iliac crest



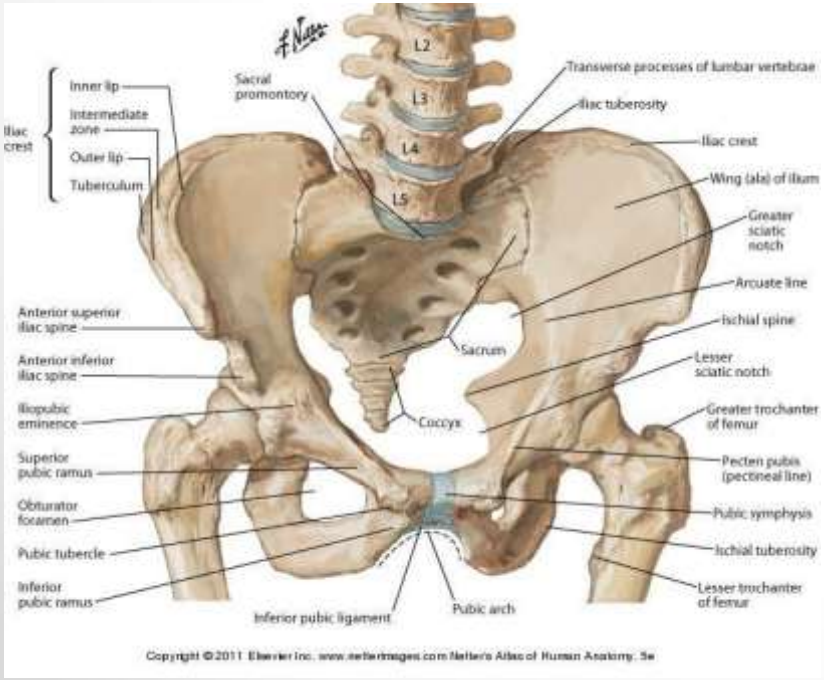
Ischium

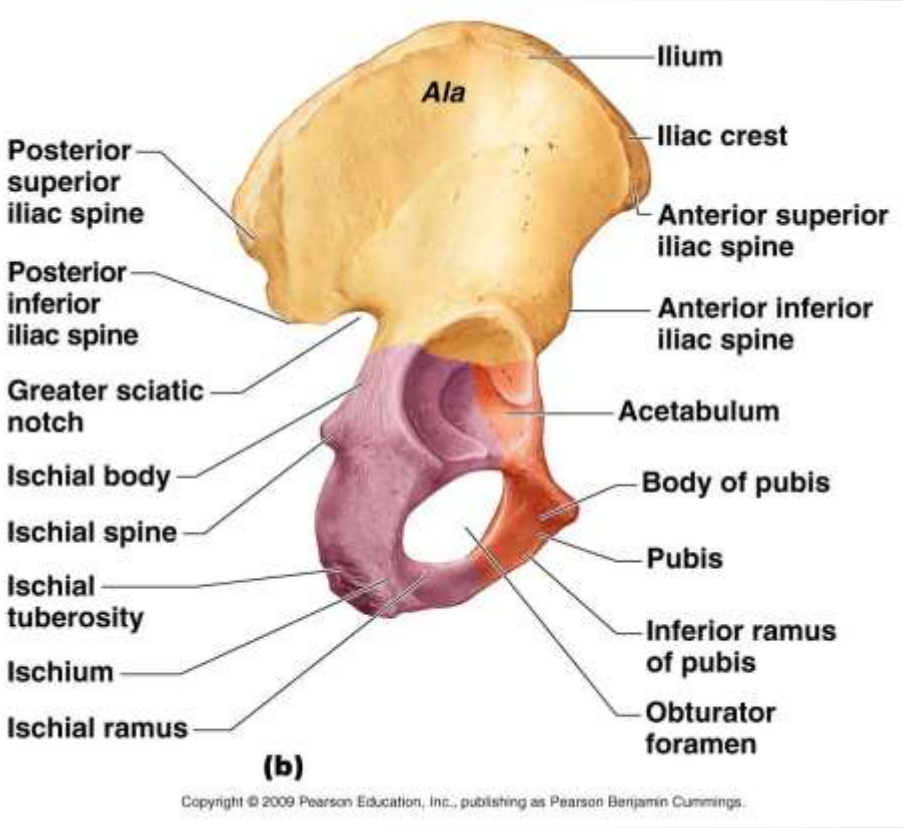
- You are sitting on your Ischium
- inferior and posterior part of the hip bone



Pubis

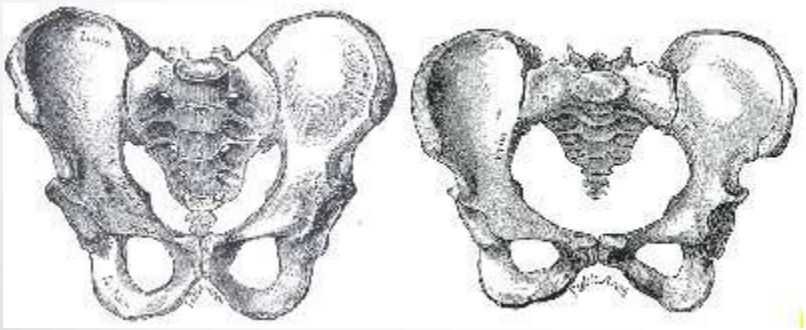
- inferior and anterior part of the hip bone

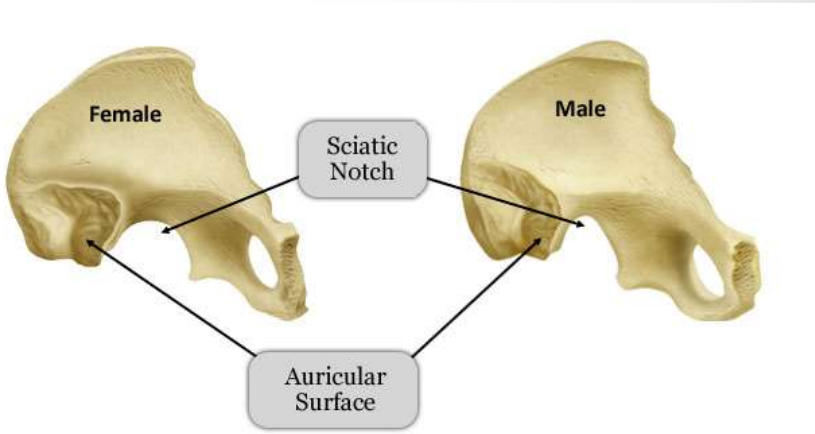


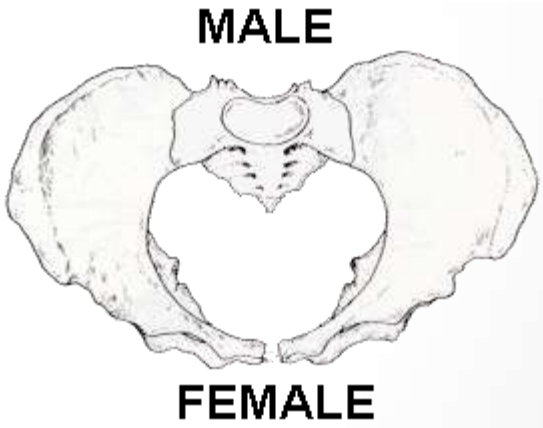


Male/female differences

- Males:
  - Large & heavy
  - Narrow Sciatic Notch
  - Heart shaped pelvic inlet
- Females:
  - light & delicate
  - Wider, Shallower
  - Wide Outlet
  - Wide Sciatic Notch



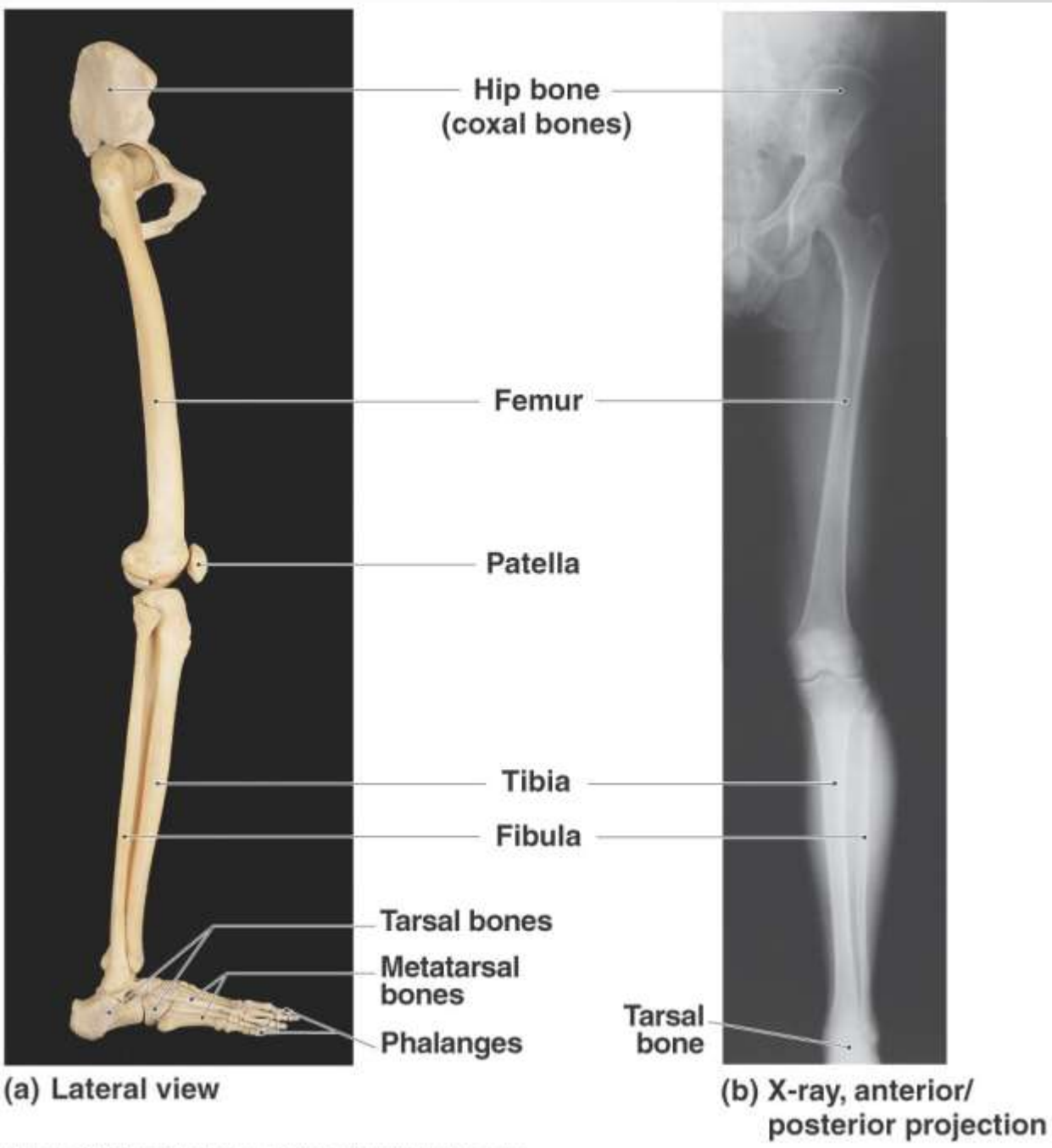




superior view of pelvis
(scanned from Bass 1987:206)

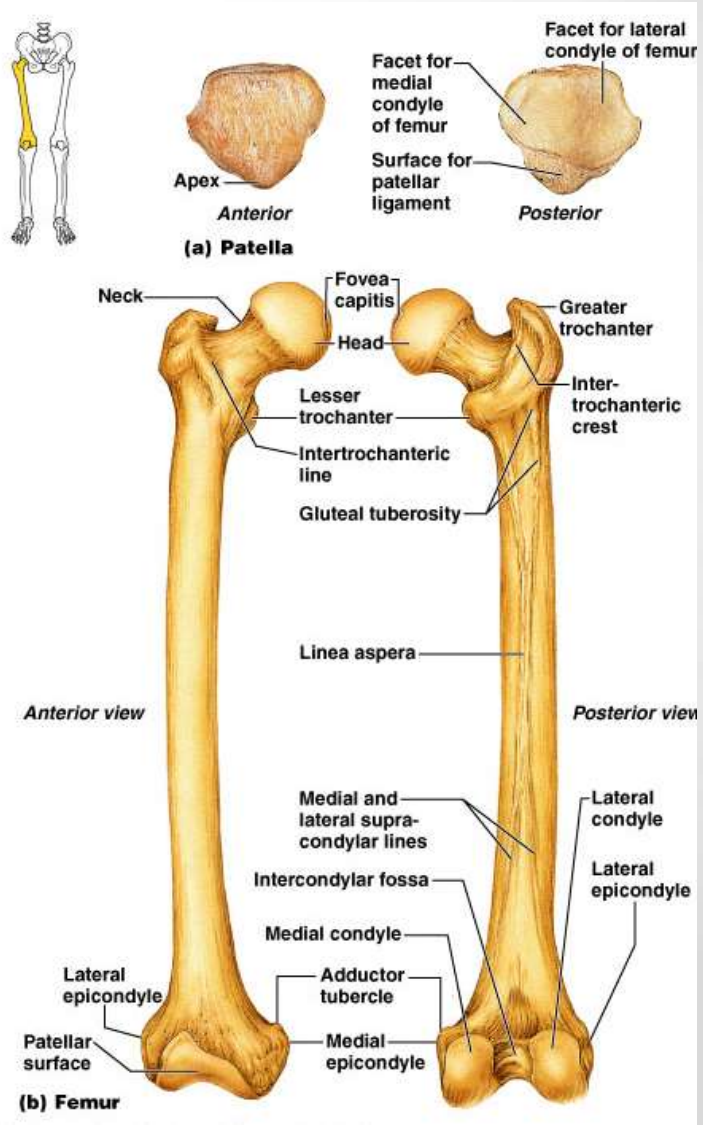
Lower limb (30 bones)

- Thigh: ***femur***
- Leg (lower leg)
  - ***Tibia***
  - ***Fibula***
- Foot

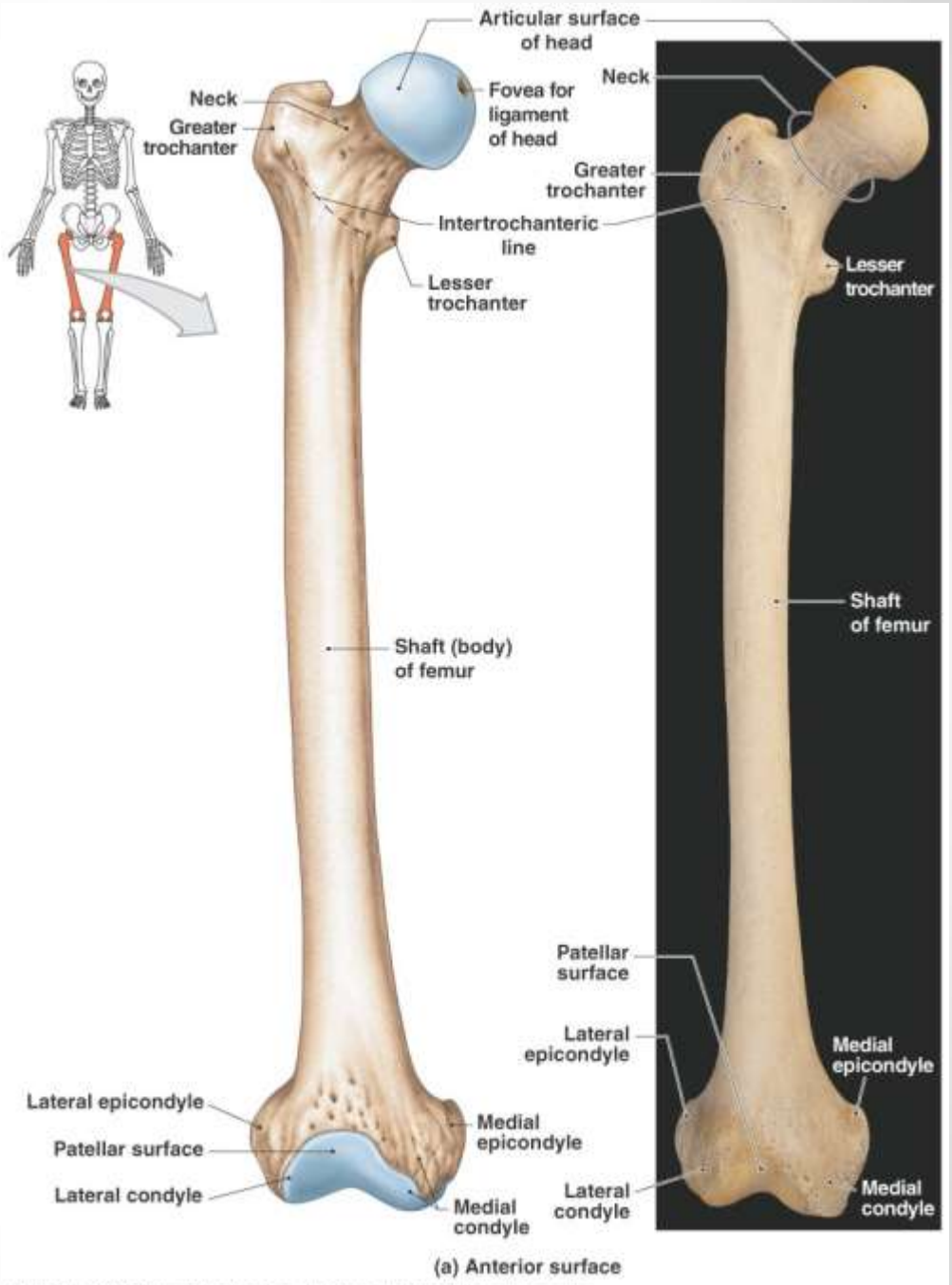


Thigh

- ***Femur*** is largest, longest and strongest bone in the body

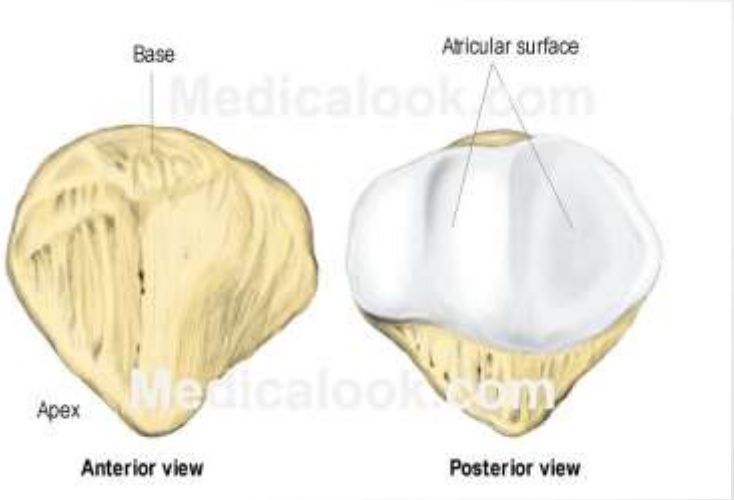


- *Proximally, the head articulates with the acetabulum of the hip bone forming the hip (**coxal**) joint*
- *Neck - distal to head, common site of fracture*
- *Distally articulates with the tibia forming the knee joint*
- *Also articulates with patella*



Patella

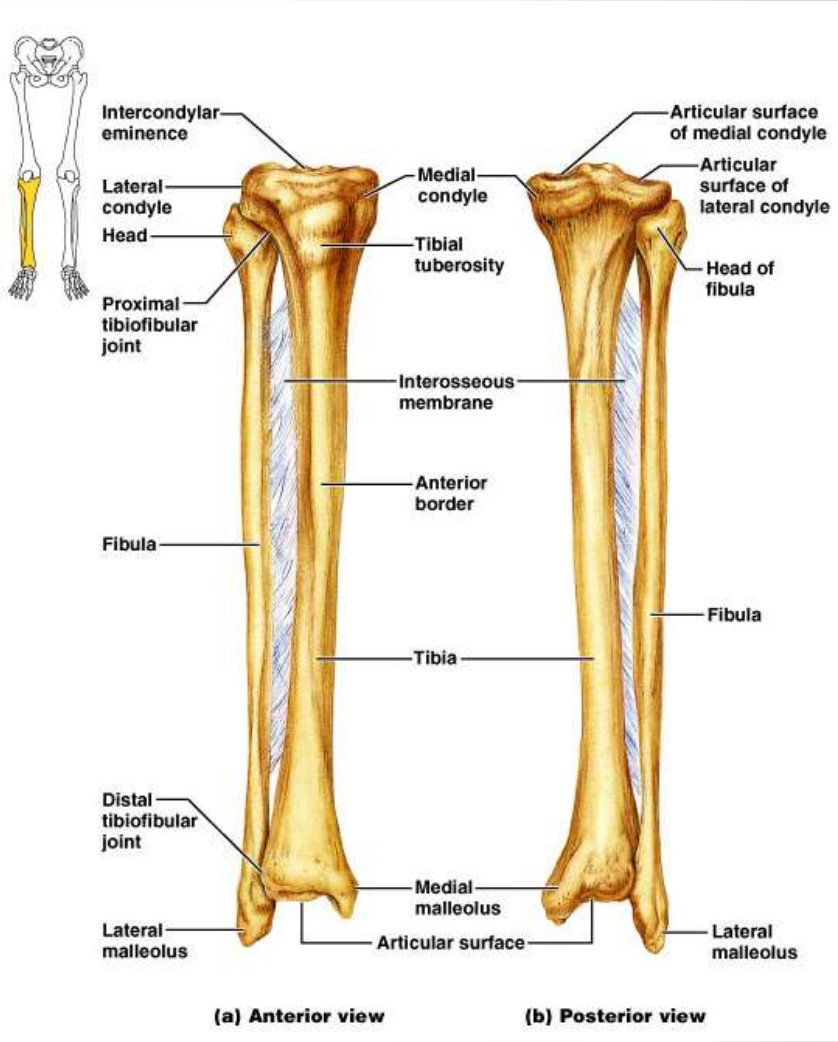
- Bone forms within the tendon of the quadriceps muscles
- Babies are born without a patella



Lower Leg

- ***Tibia***: shin bone
  - The larger, medial weight-bearing bone of the leg
  - At the proximal end articulate with the femur
  - It articulates distally with the talus and fibula

- ***Fibula***
  - The smaller, laterally placed bone of the leg
  - Non-weight bearing



Carpal Tunnel Syndrome

- Any condition that causes swelling or a change in position of the tissue within the carpal tunnel can squeeze and irritate the median nerve.
- Irritation of the median nerve in this manner causes tingling and numbness of the thumb, index, and the middle fingers, a condition known as "carpal tunnel syndrome."