

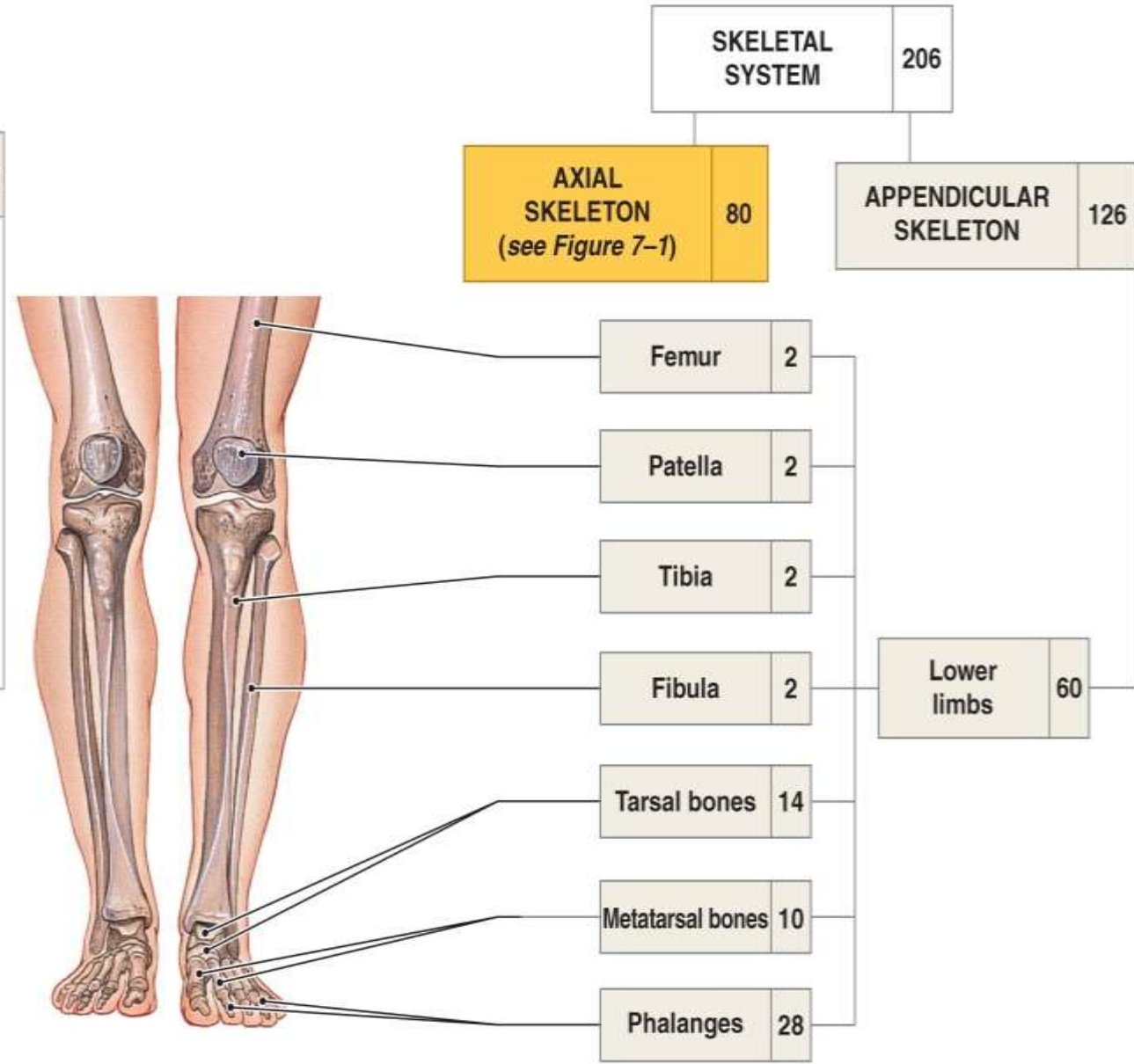
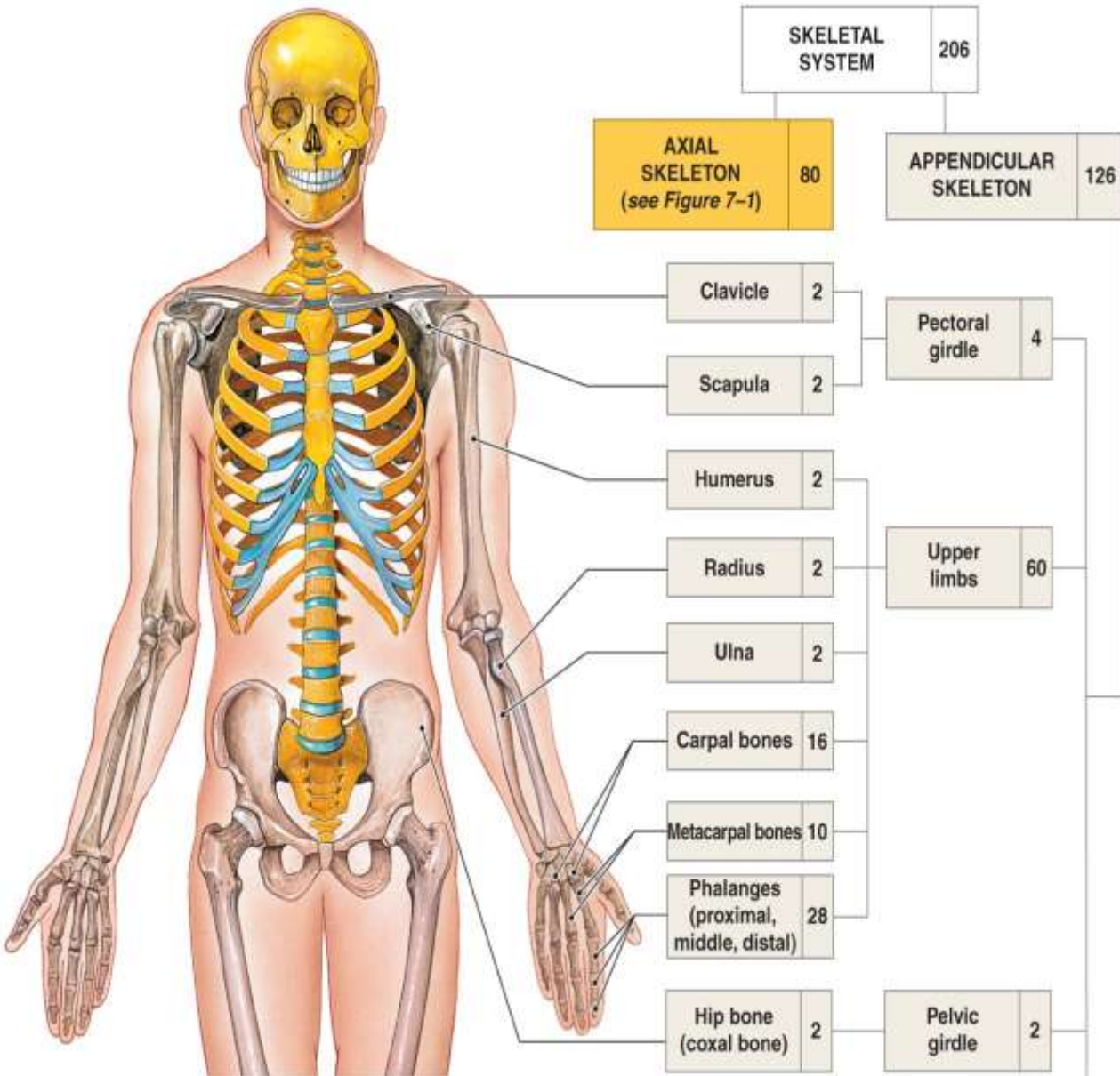
# APPENDICULAR SKELETON

Prepared by,  
Abhay Shripad Joshi  
Assistant Professor  
Yash Institute of Pharmacy, Aurangabad  
[abhay.joshirss@gmail.com](mailto:abhay.joshirss@gmail.com)

# APPENDICULAR SKELETON

- **The appendicular skeleton consists of :**
  - 126 bones
  - Allows us to move and manipulate objects
  - Includes all bones besides axial skeleton
    - The **limbs**
    - The supportive **girdles**
- The **Pectoral girdle** with the upper limbs and the **Pelvic girdle** with the lower limb.

# APPENDICULAR SKELETON



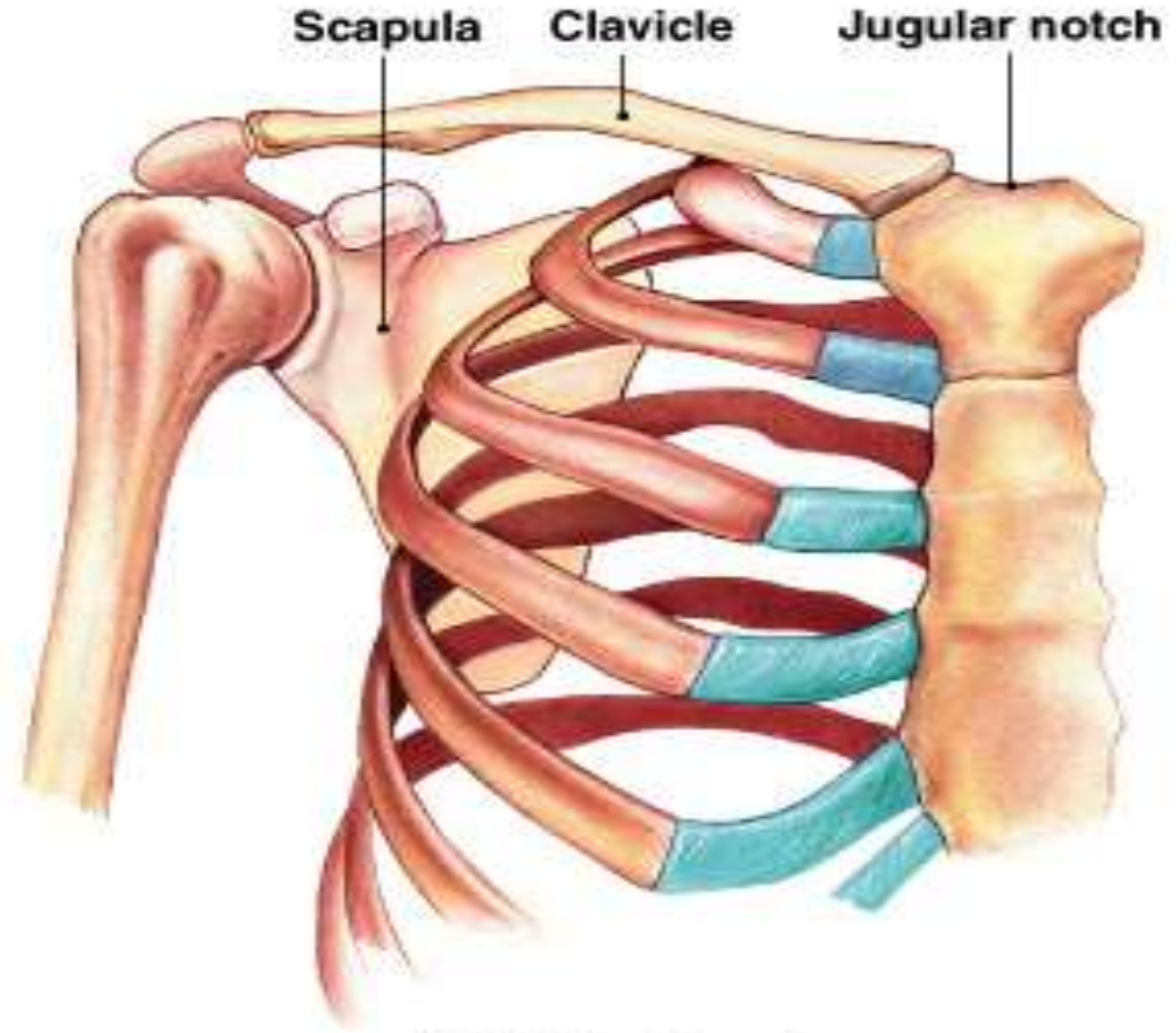
# APPENDICULAR SKELETON

## Pectoral Girdle

- The human body has two pectoral girdles that attach the bones of the upper limbs to the axial skeleton.
- The pectoral girdle consists of :
  1. **2 Clavicle ( Collar bone)**
  2. **2 Scapula (Shoulder blade)**

# PECTORAL GIRDLE

- Also called the shoulder *girdle*
- Connects the arms to the body
- Positions the shoulders
- Provides a base for arm movement
- Consists of
  - Two **clavicles**
  - Two **scapulae**
- Connects with the axial skeleton only at the manubrium



(a) Anterior view

# PECTORAL GIRDLE

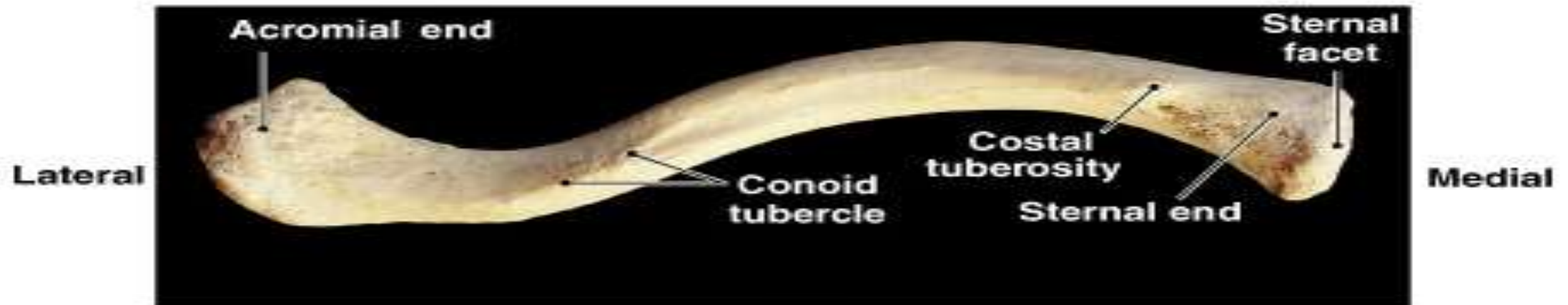
- **The Clavicles**

- Also called *collarbones*
- Long, S-shaped bones
- Originate at the **manubrium** (sternal end)
- Articulate with the **scapulae** (acromial end)

# PECTORAL GIRDLE



**(b) Superior view**



**(c) Inferior view**

# PECTORAL GIRDLE

- The **Scapulae**
  - Also called *shoulder blades*
  - Broad, flat triangles
  - Articulate with arm and collarbone
  - Anterior surface: the **subscapular fossa**



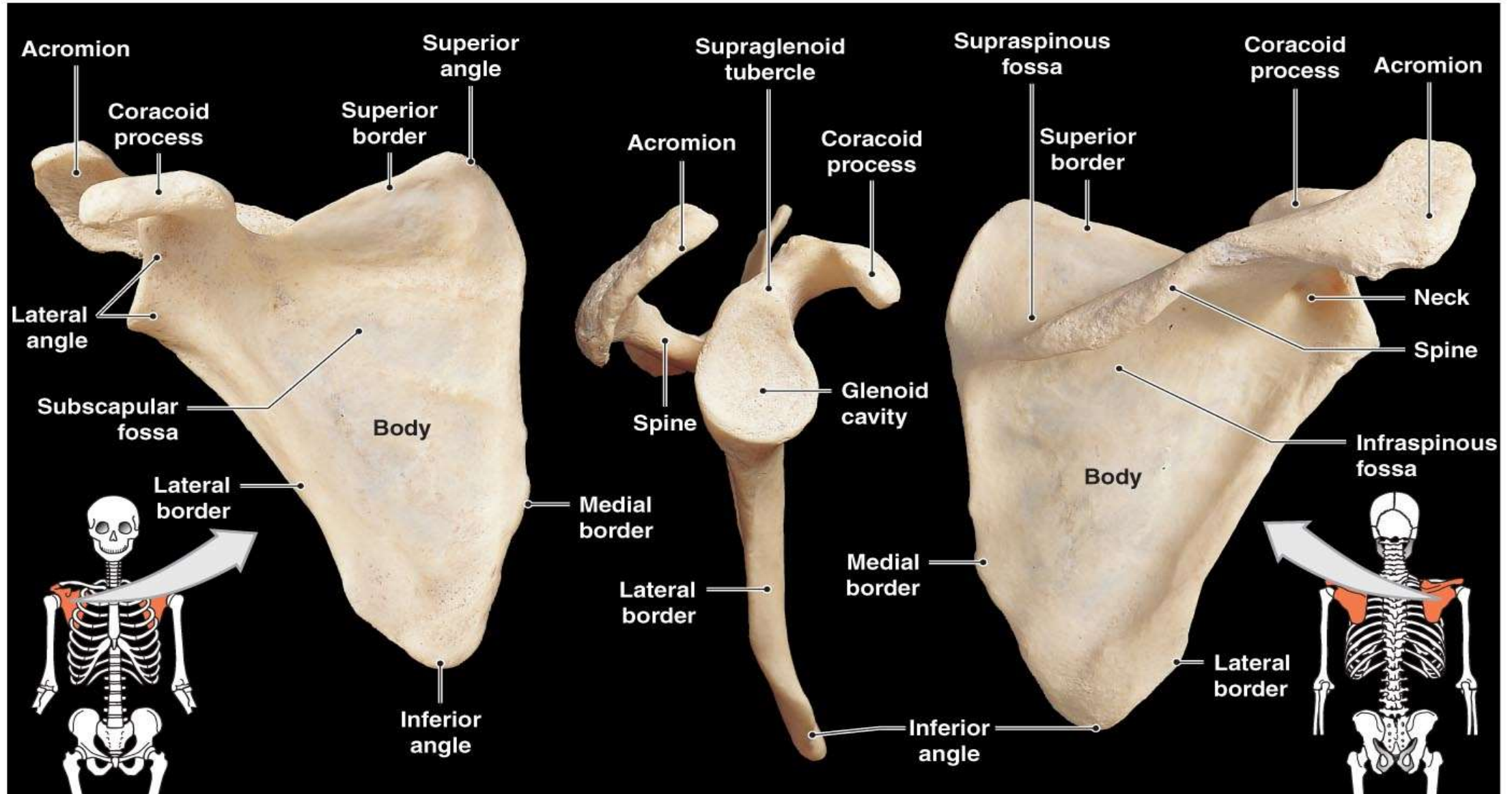
# PECTORAL GIRDLE

- The Scapulae
  - Structures of the scapula
    - **Body** has three sides:
      - **superior border**
      - **medial border** (vertebral border)
      - **lateral border** (axillary border)
    - Body has three corners:
      - superior angle
      - inferior angle
      - lateral angle

# PECTORAL GIRDLE

- The **Scapulae**
  - The scapular head
    - Holds **glenoid cavity**
    - Which articulates with humerus
    - To form shoulder joint
  - Processes of the glenoid cavity
    - **Coracoid process:**
      - anterior, smaller
    - **Acromion:**
      - posterior, larger
      - articulates with clavicle
      - at the **acromioclavicular joint**

# PECTORAL GIRDLE



(a) Anterior view

(b) Lateral view

(c) Posterior view

# THE UPPER LIMB

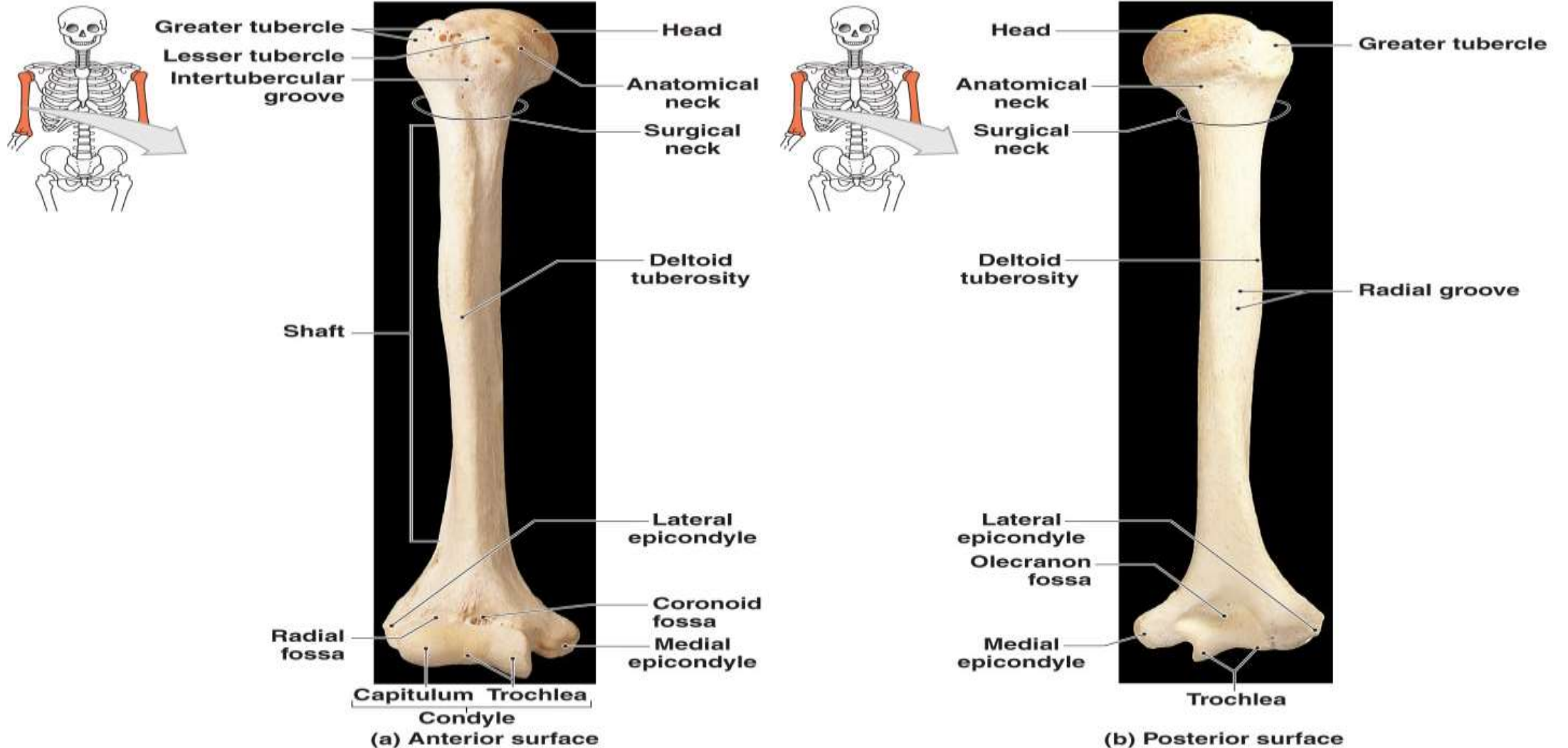
- The upper limbs consist of the arms, forearms, wrists, and hands

*Note:* **arm** (*brachium*) = 1 bone, the **humerus**

# THE UPPER LIMB

- The Humerus
  - The Shaft
    - **Deltoid tuberosity:**
      - a bulge in the shaft
      - attaches deltoid muscle
    - **Radial groove:**
      - for radial nerve
      - posterior to deltoid tuberosity

# THE UPPER LIMB



# THE UPPER LIMB

- The Forearm (also called the *antebrachium*)
  - Consists of two long bones
    - **Ulna** (medial)
    - **Radius** (lateral)

# THE UPPER LIMB

- **The Ulna**

- The olecranon

- Superior end of ulna
    - Point of elbow
    - Superior lip of **trochlear notch**
    - Articulates with trochlea of humerus

- The coronoid process

- Inferior lip of trochlear notch



# THE UPPER LIMB

- **Eight carpal bones**
  - Four proximal carpal bones
  - Four distal carpal bones
  - Allow wrist to bend and twist

# THE UPPER LIMB

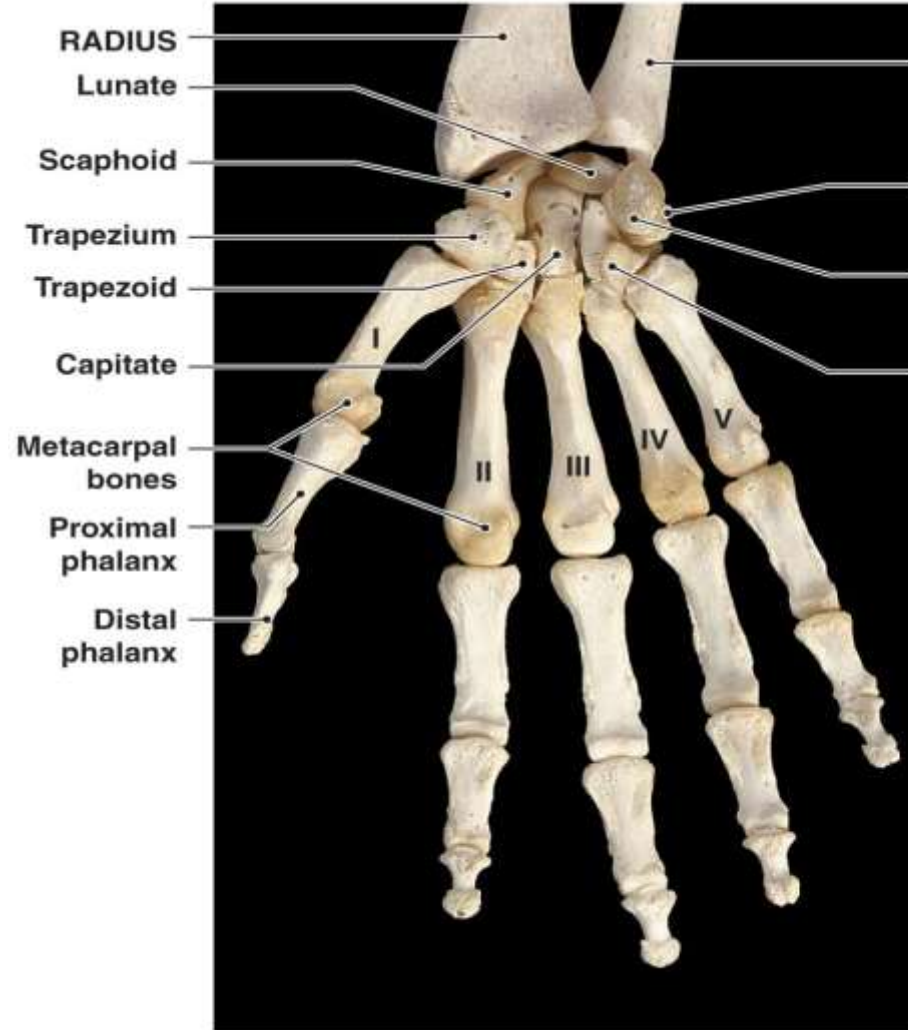
- **Metacarpal Bones**

- The five long bones of the hand
- Numbered I–V from lateral (thumb) to medial
- Articulate with proximal phalanges

- **Phalanges of the Hands (14 total finger bones)**

- **Pollex (thumb)**
  - Two phalanges (proximal, distal)
- **Fingers**
  - Three phalanges (proximal, middle, distal)

# THE UPPER LIMB



(a) Anterior view

ULNA

Triquetrum

Pisiform

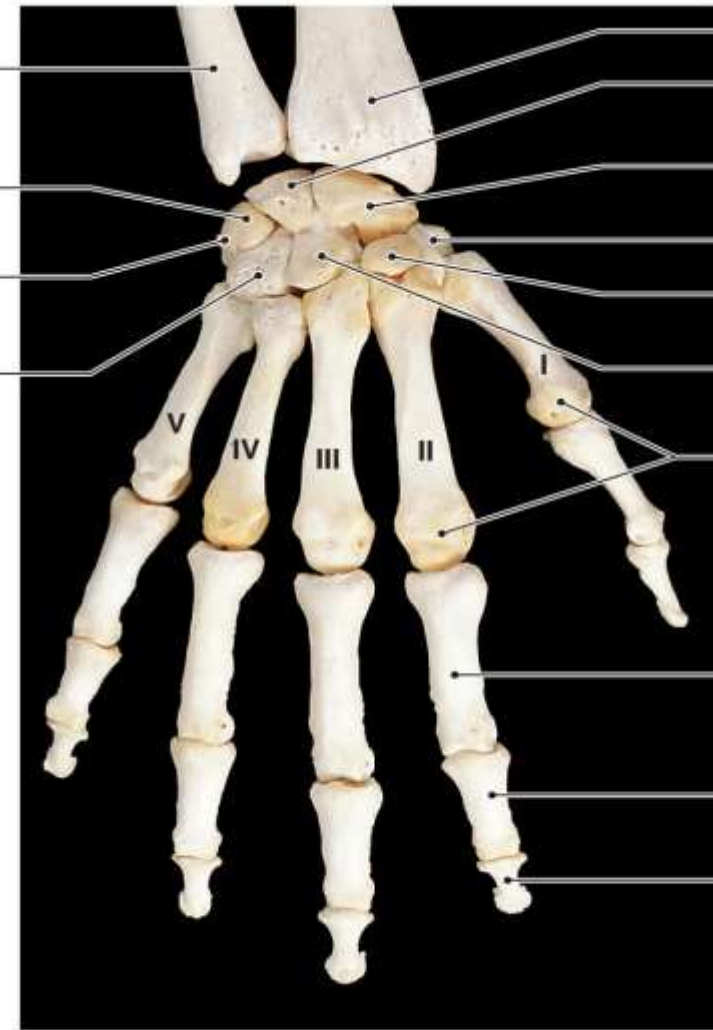
Hamate

ULNA

Triquetrum

Pisiform

Hamate

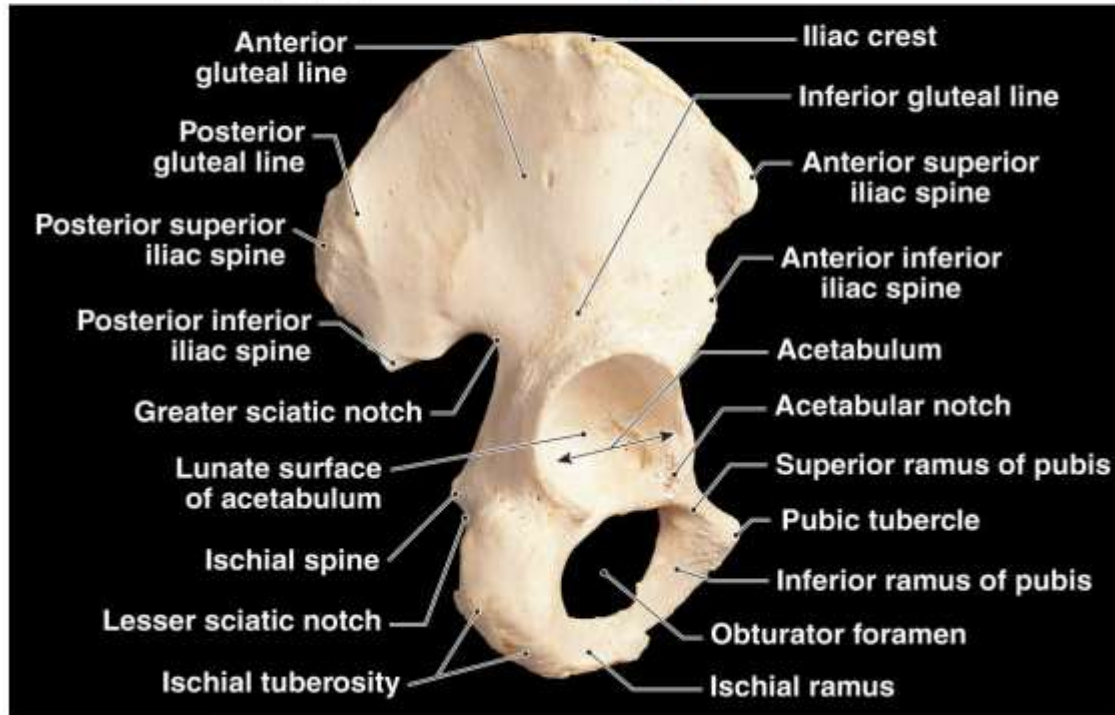
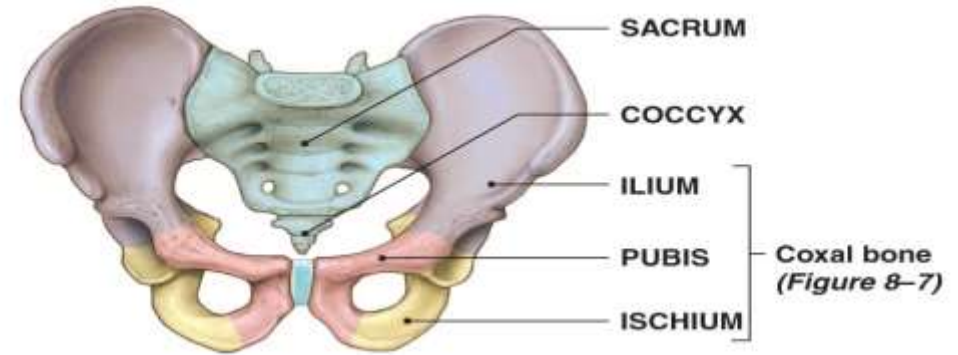
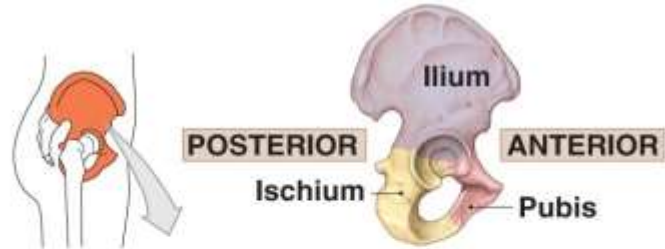


(b) Posterior view

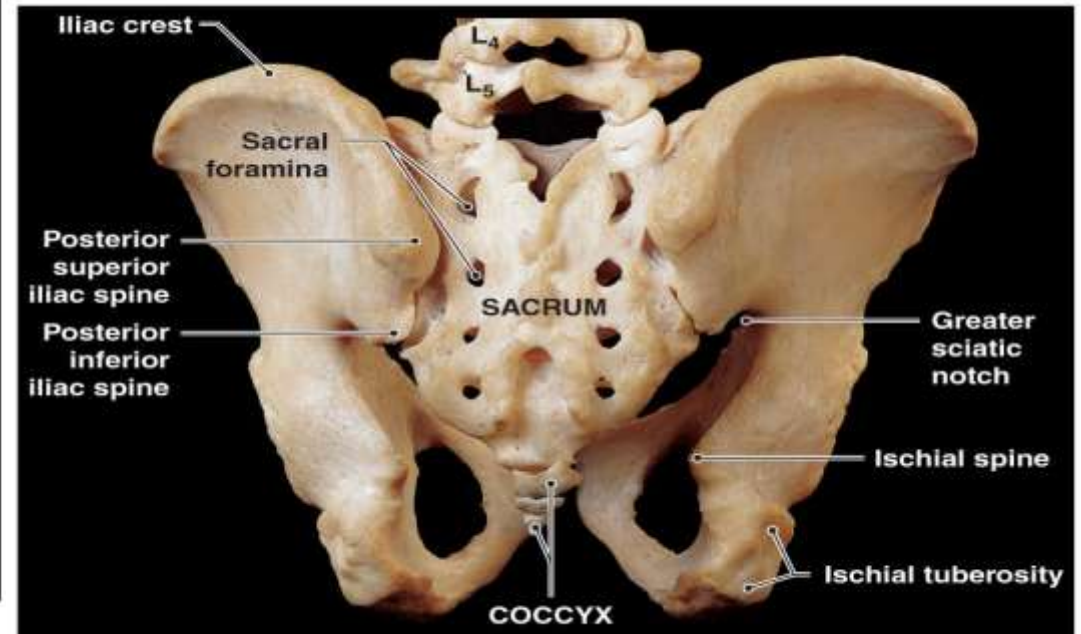
# THE PELVIC GIRDLE

- Made up of two hip bones (**coxal bones**)
- Strong to bear body weight, stress of movement
- Part of the *pelvis*
- Coxal bones
  - Made up of three fused bones
    - **Ilium** (articulates with sacrum)
    - **Ischium**
    - **Pubis**

# THE PELVIC GIRDLE



(a) Right coxal bone, lateral view

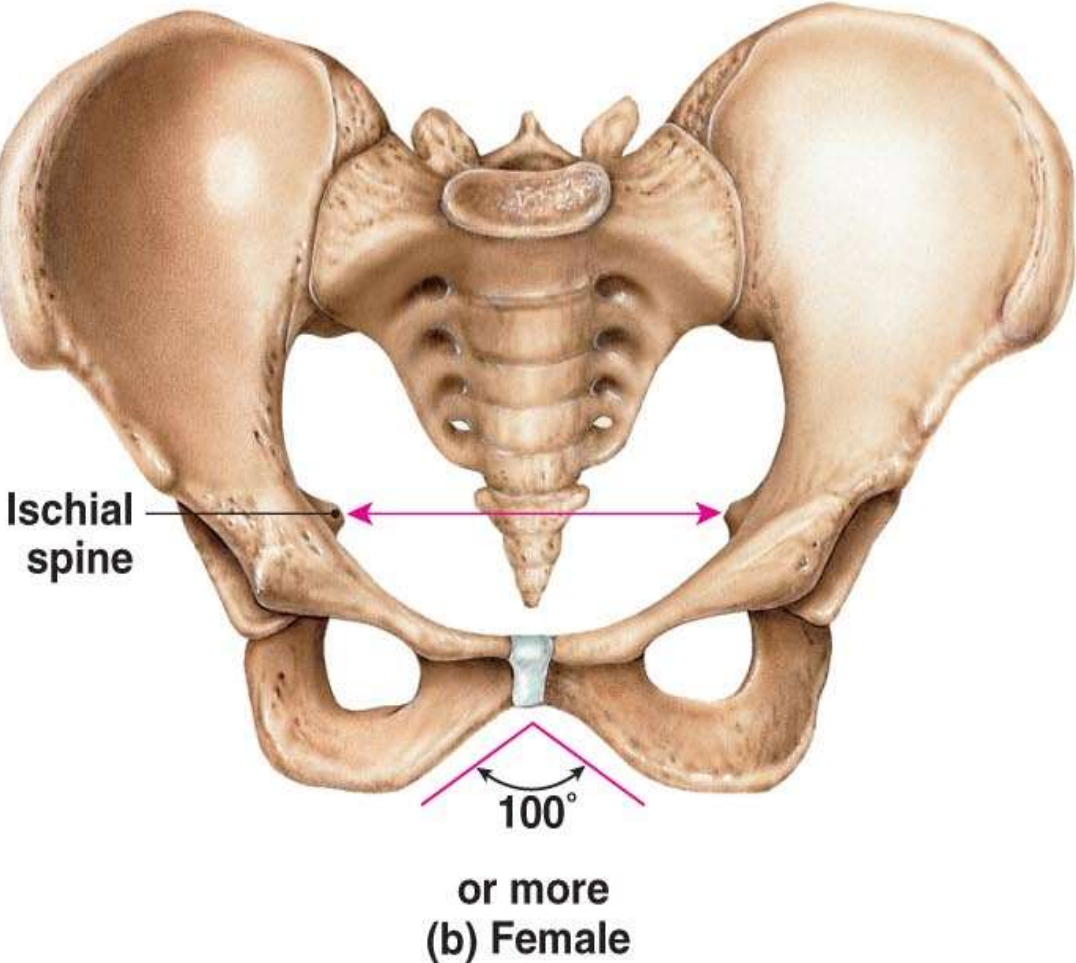
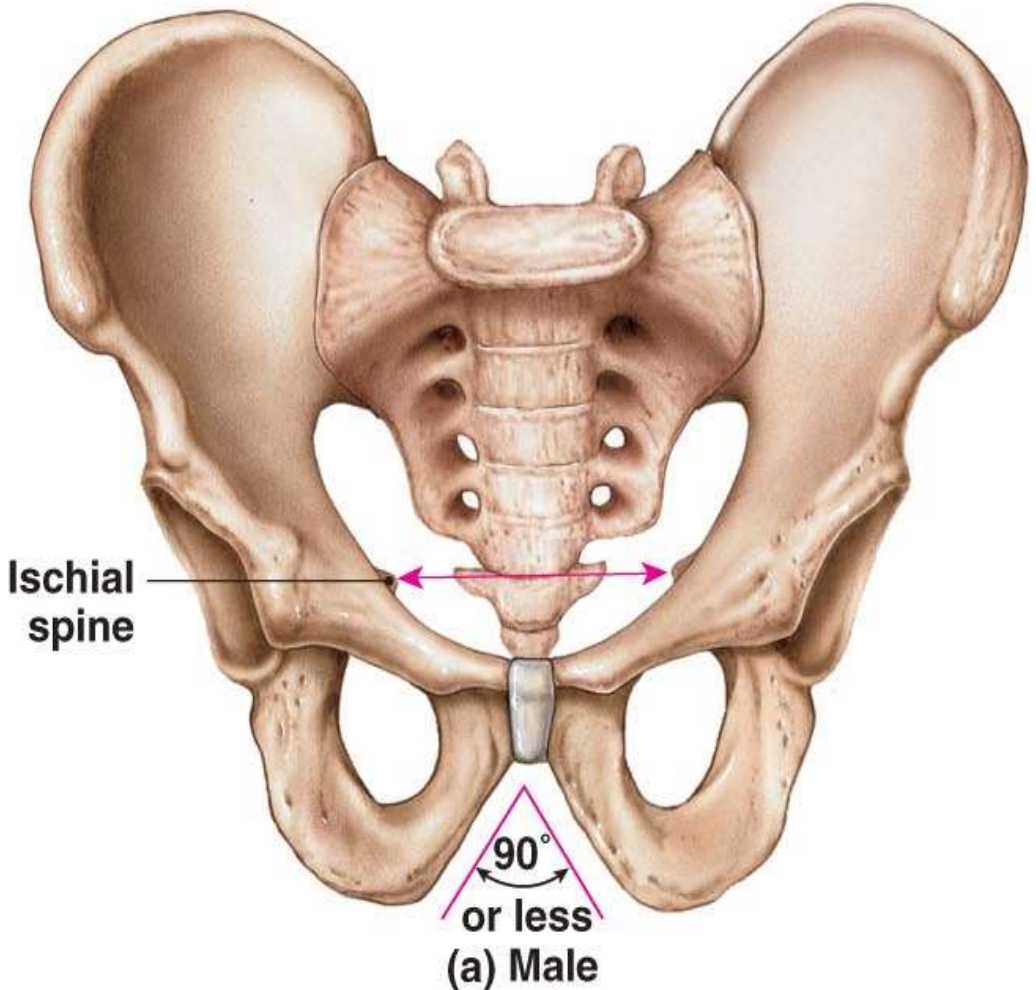


(b) Posterior view

# THE PELVIC GIRDLE

- Comparing the Male Pelvis and Female Pelvis
  - Female pelvis
    - Smoother and lighter
    - Less prominent muscle and ligament attachments
    - Pelvis modifications for Childbearing
      - enlarged pelvic outlet
      - broad pubic angle ( $>100^\circ$ )
      - less curvature of sacrum and coccyx
      - wide, circular pelvic inlet
      - broad, low pelvis
      - ilia project laterally, not upwards

# THE PELVIC GIRDLE



# THE LOWER LIMB

- Functions of the lower limbs
  - Weight bearing
  - Motion

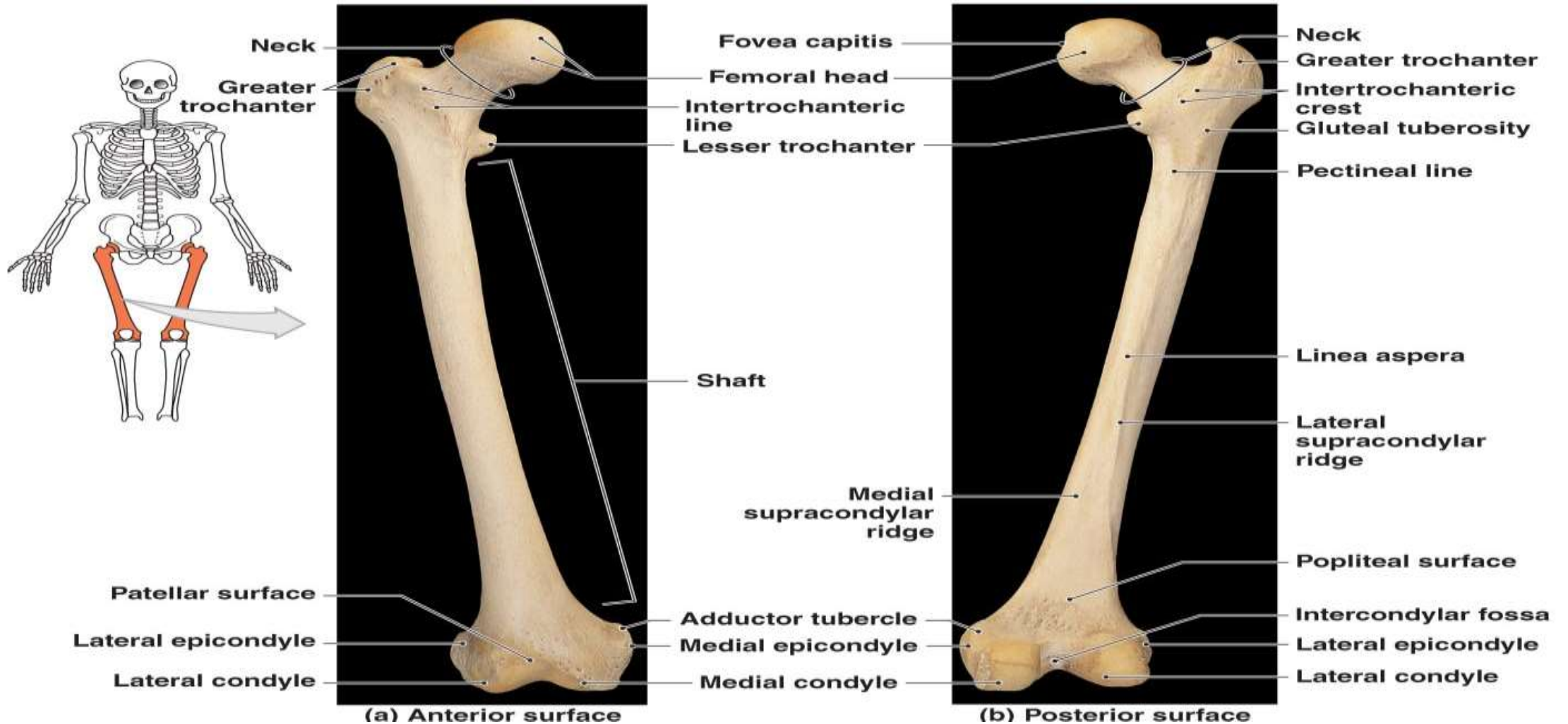
*Note:* **leg** = lower leg; **thigh** = upper leg



# THE LOWER LIMB

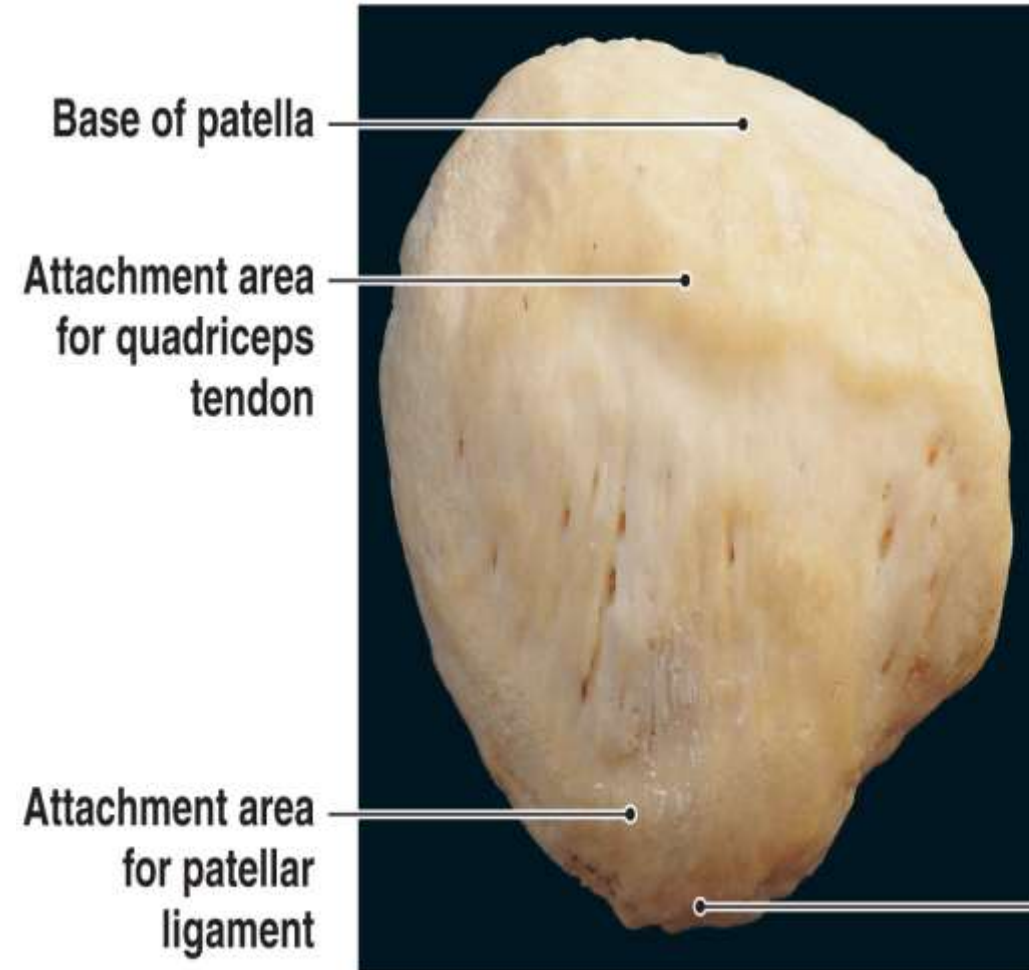
- Bones of the Lower Limbs
  - Femur (thigh)
  - Patella (kneecap)
  - Tibia and fibula (leg)
  - Tarsals (ankle)
  - Metatarsals (foot)
  - Phalanges (toes)

# THE LOWER LIMB



# THE LOWER LIMB

- The Patella
  - Also called the *kneecap*
  - A sesamoid bone
  - Formed within tendon of *quadriceps femoris*
  - **Base** attaches *quadriceps femoris*
  - **Apex** attaches *patellar ligament*



(a) Anterior view

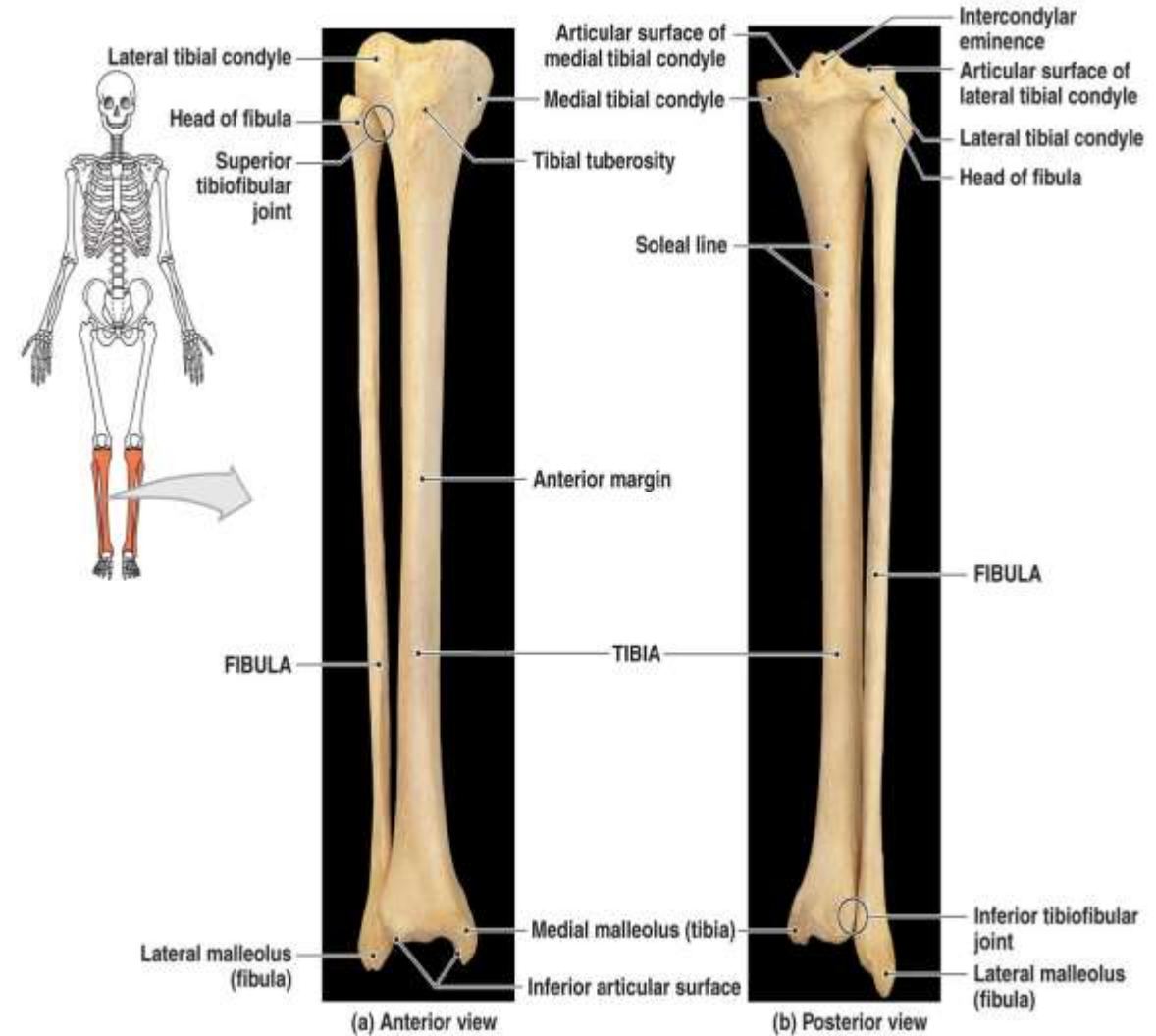
# THE LOWER LIMB

- The **Tibia**
  - Also called the *shinbone*
  - Supports body weight
  - Larger than fibula
  - Medial to fibula

# THE LOWER LIMB

- The **Fibula**

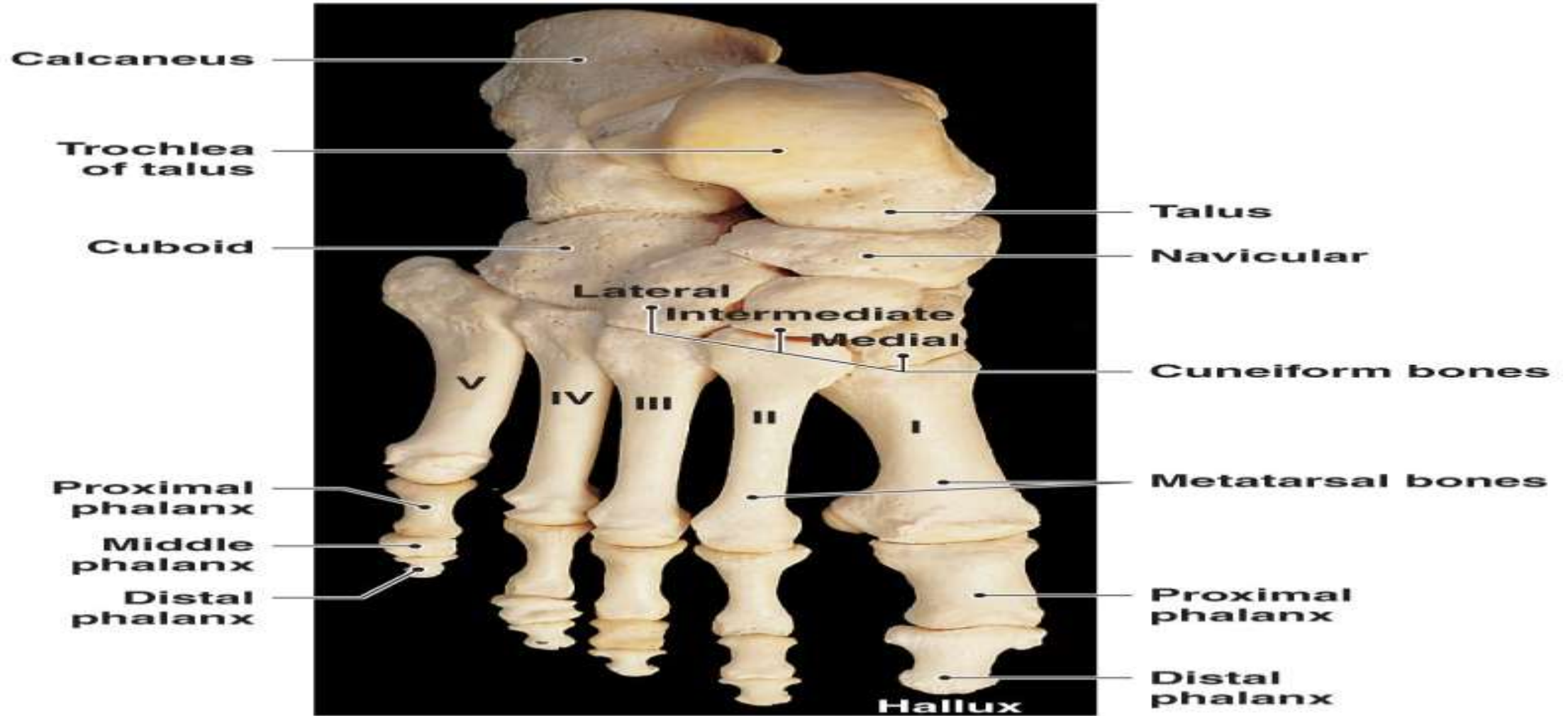
- Attaches muscles of feet and toes
- Smaller than tibia
- Lateral to tibia



# THE LOWER LIMB

- The Ankle
  - Also called the *tarsus*
    - Consists of seven **tarsal bones**
  - Bones of the ankle
    - **Talus:**
      - carries weight from tibia across trochlea
    - **Calcaneus** (heel bone):
      - transfers weight from talus to ground
      - attaches calcaneal (Achilles) tendon
    - **Cuboid:**
      - articulates with calcaneus

# THE LOWER LIMB



(a) Superior view, right foot

# THE LOWER LIMB

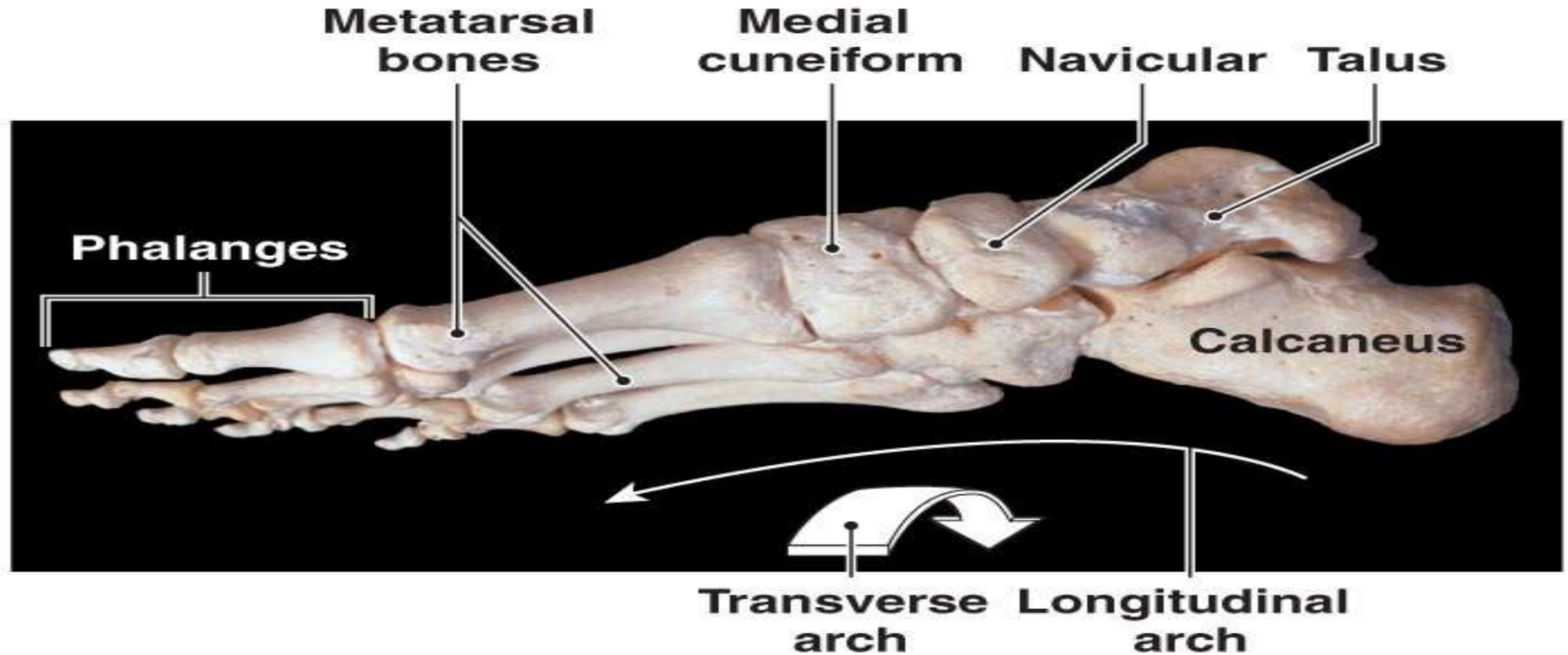
- **Metatarsal Bones of the Foot**
  - Five long bones of foot
  - Numbered I–V, medial to lateral
  - Articulate with toes



# THE LOWER LIMB

- Phalanges of the foot
  - **Phalanges**
    - 14 bones of the toes
  - **Hallux**
    - *Big toe or great toe*, two phalanges (distal, proximal)
  - **Other four toes**
    - Three phalanges (distal, medial, proximal)

# THE LOWER LIMB



(b) Medial view, right foot

**THANK YOU**