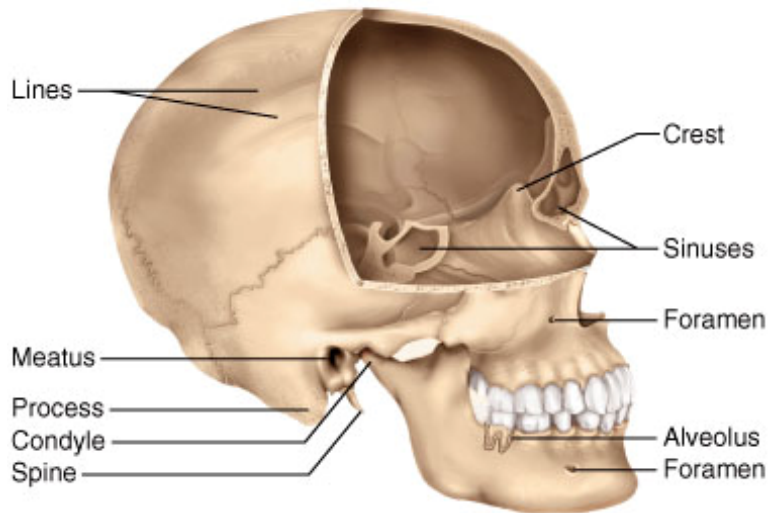


A/P Lab Unit 1

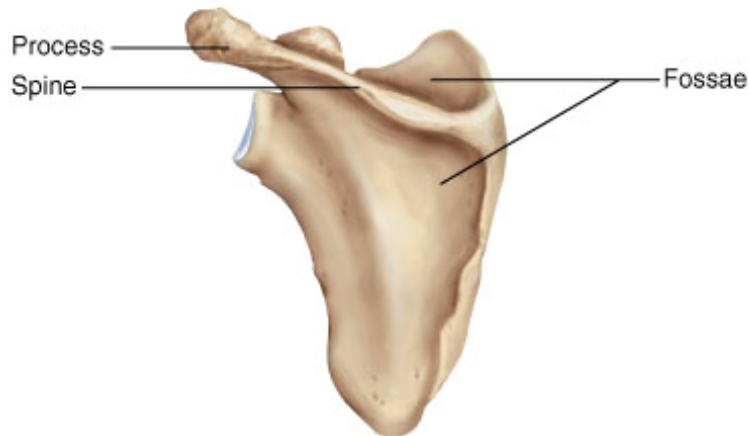
Pelvic Girdle & Lower Extremity

Surface Features of Bones

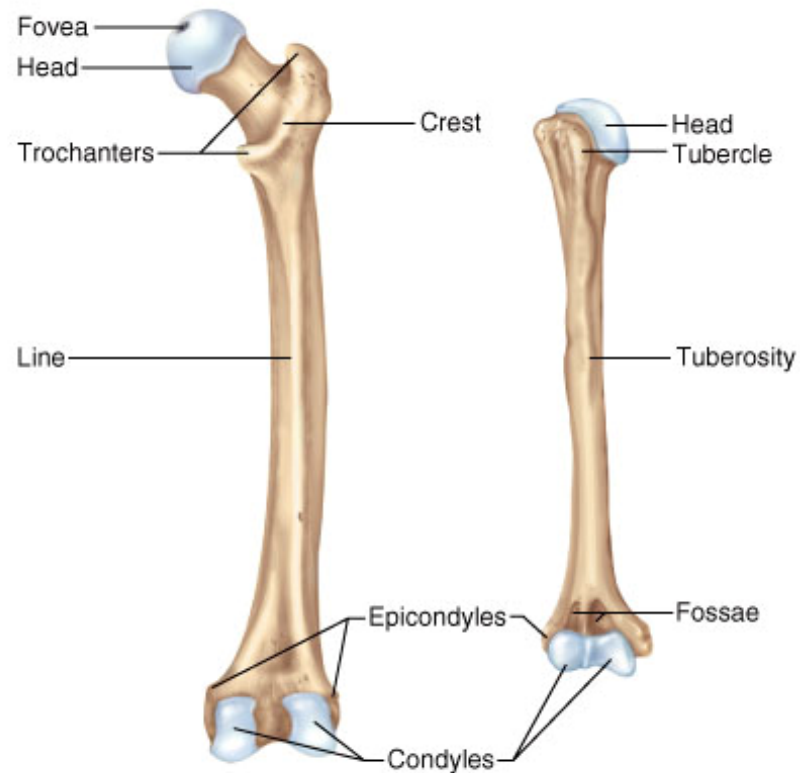
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(a) Skull (lateral view)



(b) Scapula (posterior view)

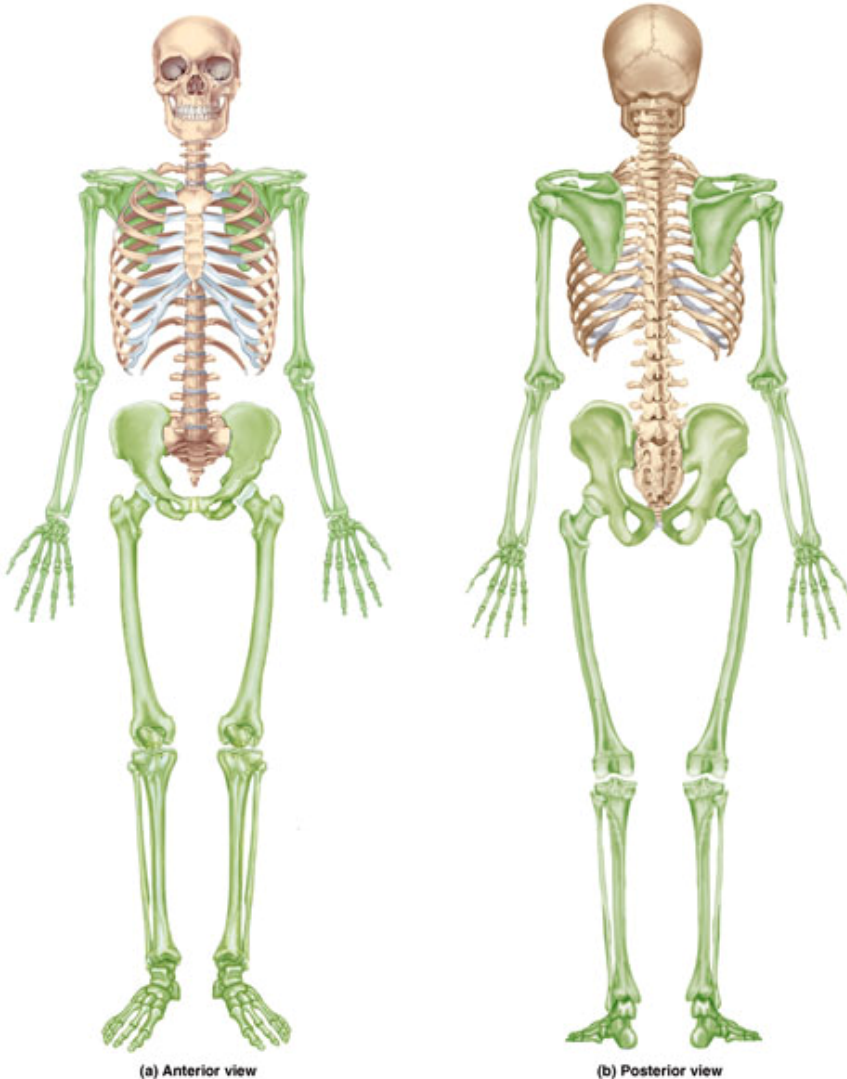


(c) Femur (posterior view)

(d) Humerus (anterior view)

Axial and Appendicular Skeleton

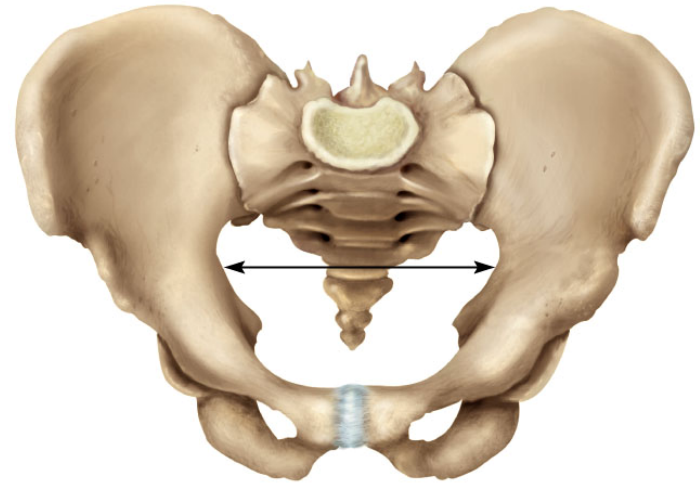
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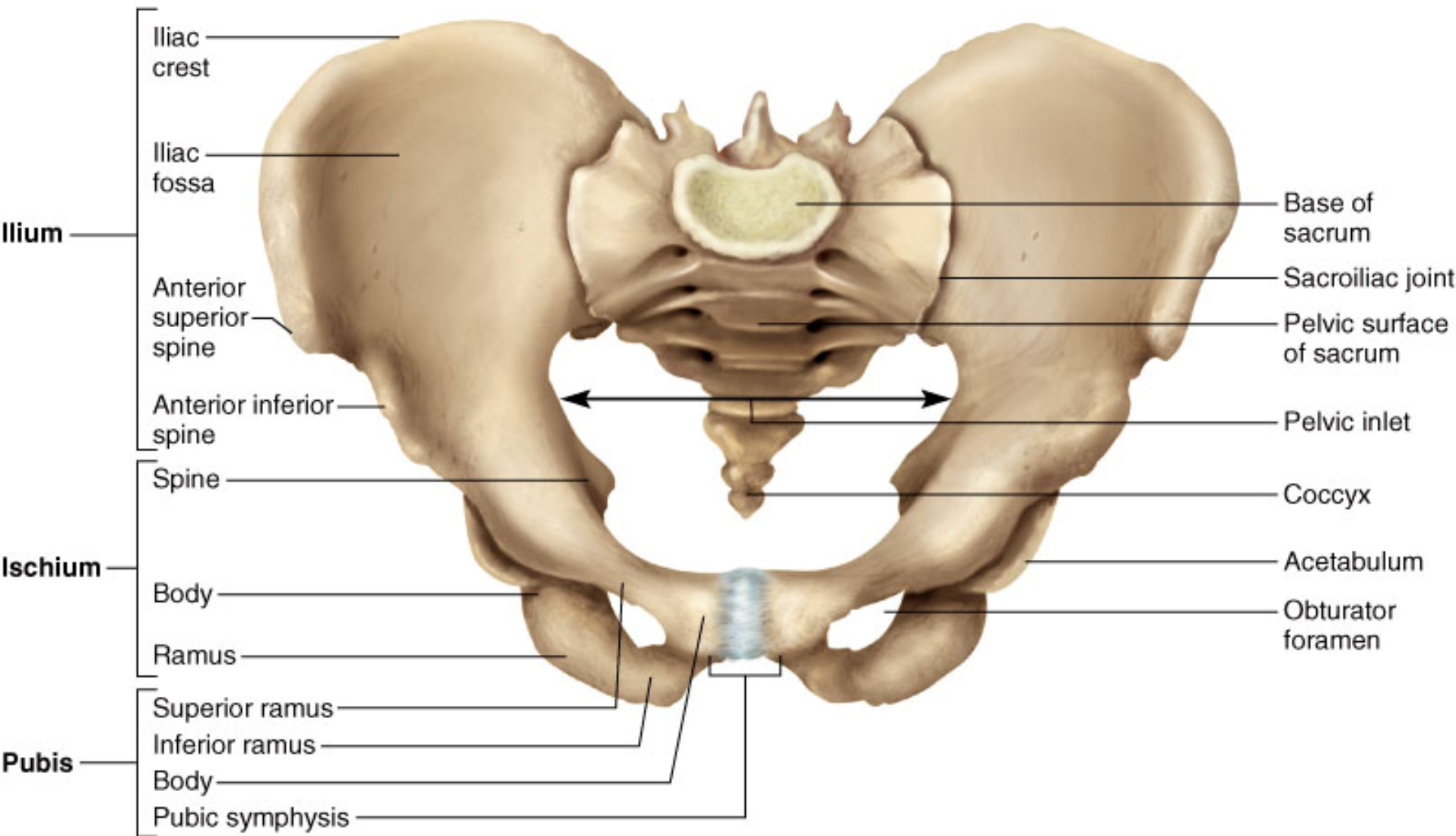
- Axial skeleton in tan
 - skull, vertebrae, sternum, ribs, sacrum and hyoid
- Appendicular skeleton in green
 - pectoral girdle
 - upper extremity
 - pelvic girdle
 - lower extremity

Pelvic Girdle

- Girdle = 2 hip bones
- Pelvis = girdle and sacrum
- Supports trunk on the legs and protects viscera
- Each os coxae is joined to the vertebral column at the sacroiliac joint
- Anteriorly, pubic bones are joined by pad of fibrocartilage to form pubic symphysis

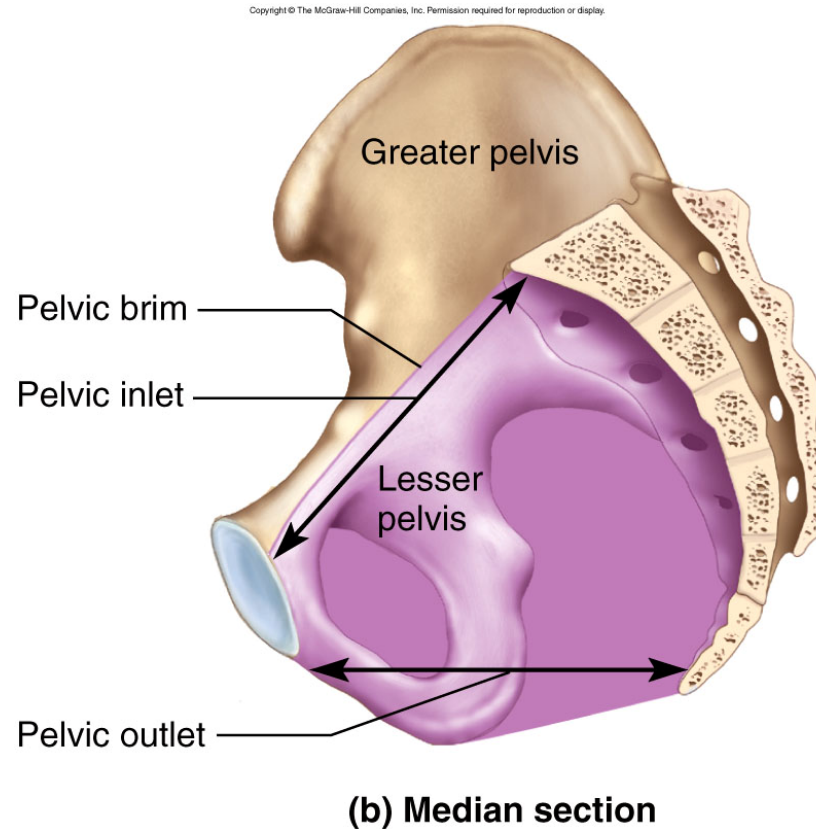


(a) Anterosuperior view



(a) Anterosuperior view

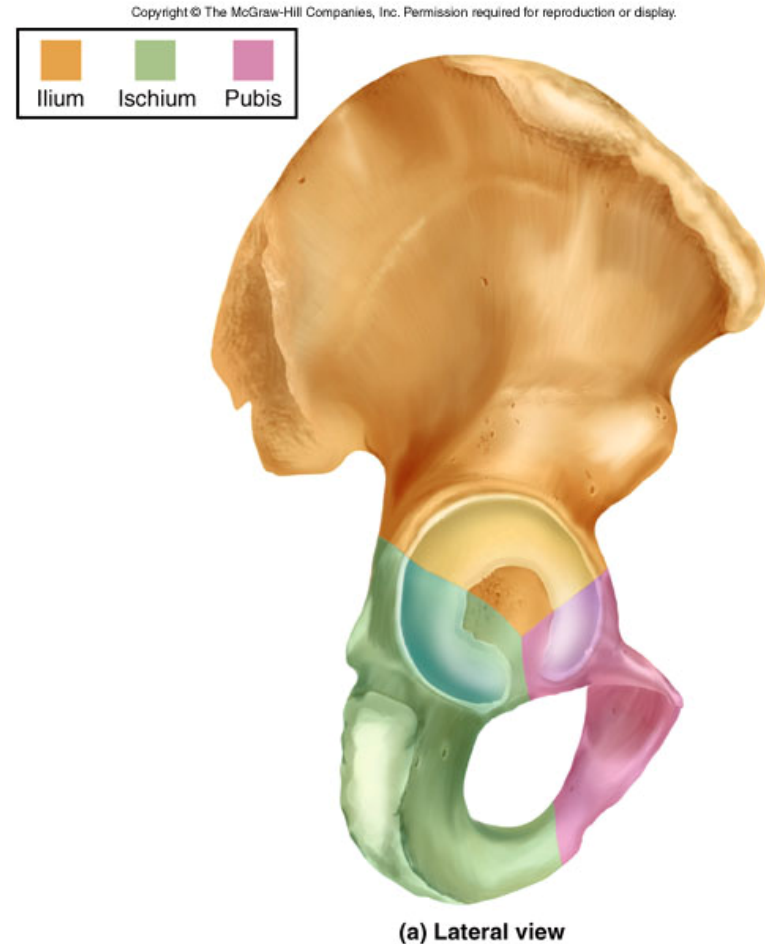
Pelvic Inlet and Outlet



- False and true pelvis separated at pelvic brim
- Infant's head passes through pelvic inlet and outlet

Os Coxae (Hip Bone)

- Acetabulum is hip joint socket
- Ilium
 - iliac crest and iliac fossa
 - greater sciatic notch contains sciatic nerve
- Pubis
 - body, superior and inferior ramus
- Ischium
 - ischial tuberosity bears body weight
 - ischial spine
 - lesser sciatic notch between ischial spine and tuberosity
 - ischial ramus joins inferior pubic ramus

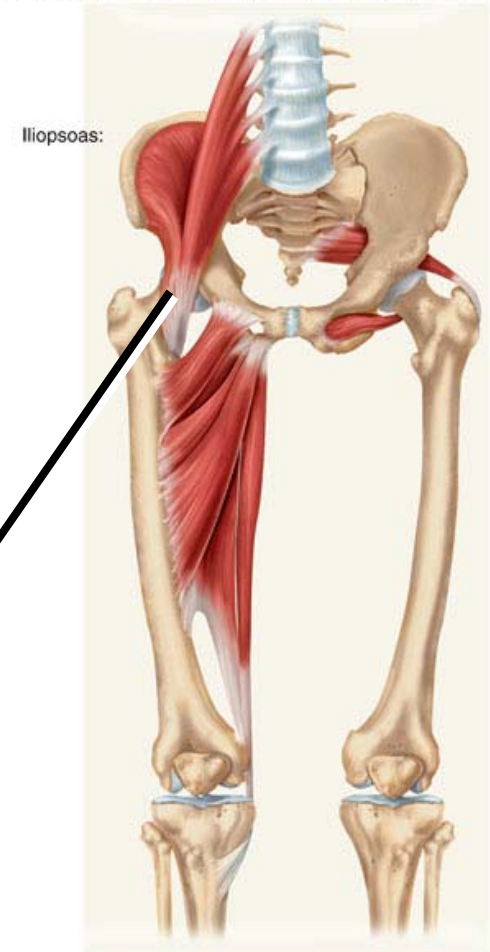


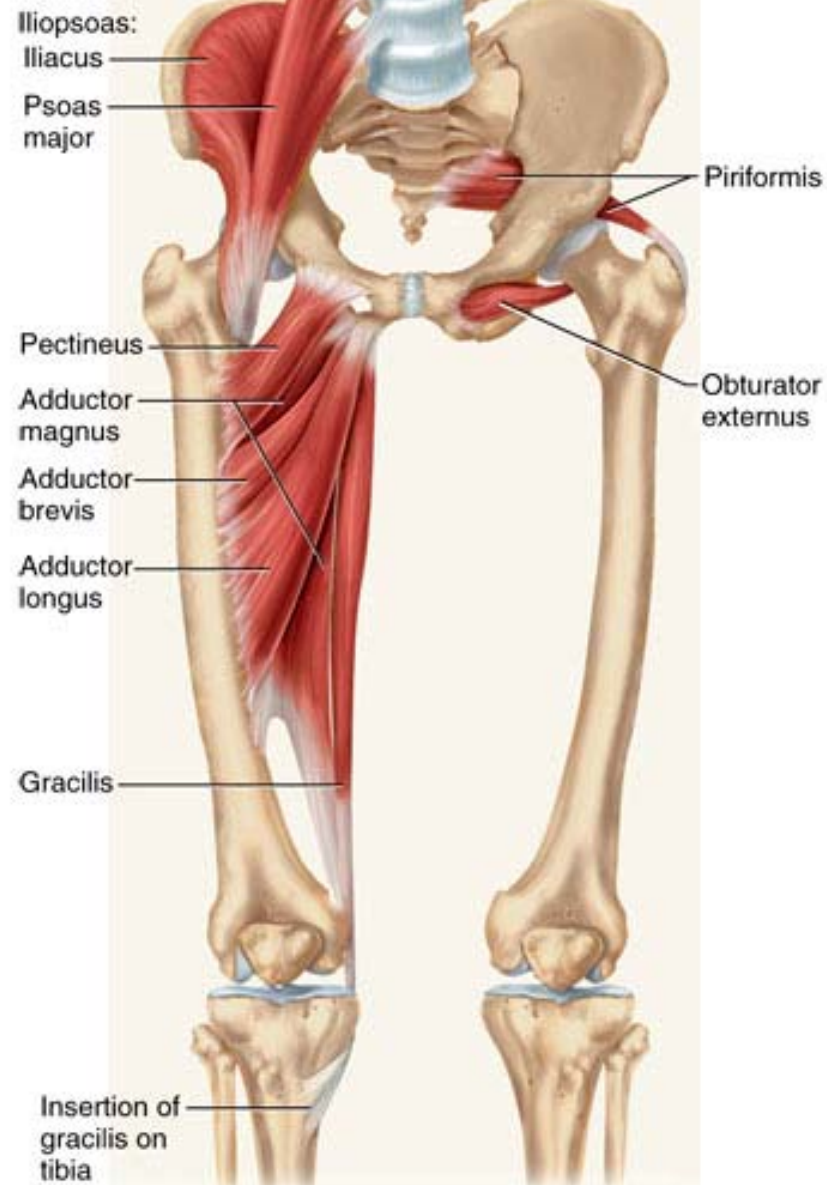
Anterior Muscles Acting on the Hip

- Iliopsoas muscle
 - crosses anterior surface of hip joint and inserts on femur
 - iliacus portion arises from iliac fossa
 - psoas portion arises from lumbar vertebrae
 - major hip flexor

Iliopsoas

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Posterior Muscles Acting on Hip

- Gluteus maximus
 - forms mass of the buttock
 - prime hip extensor
 - provides most of lift when you climb stairs
- Iliotibial band
 - band of fascia lata attached to the **tibia**

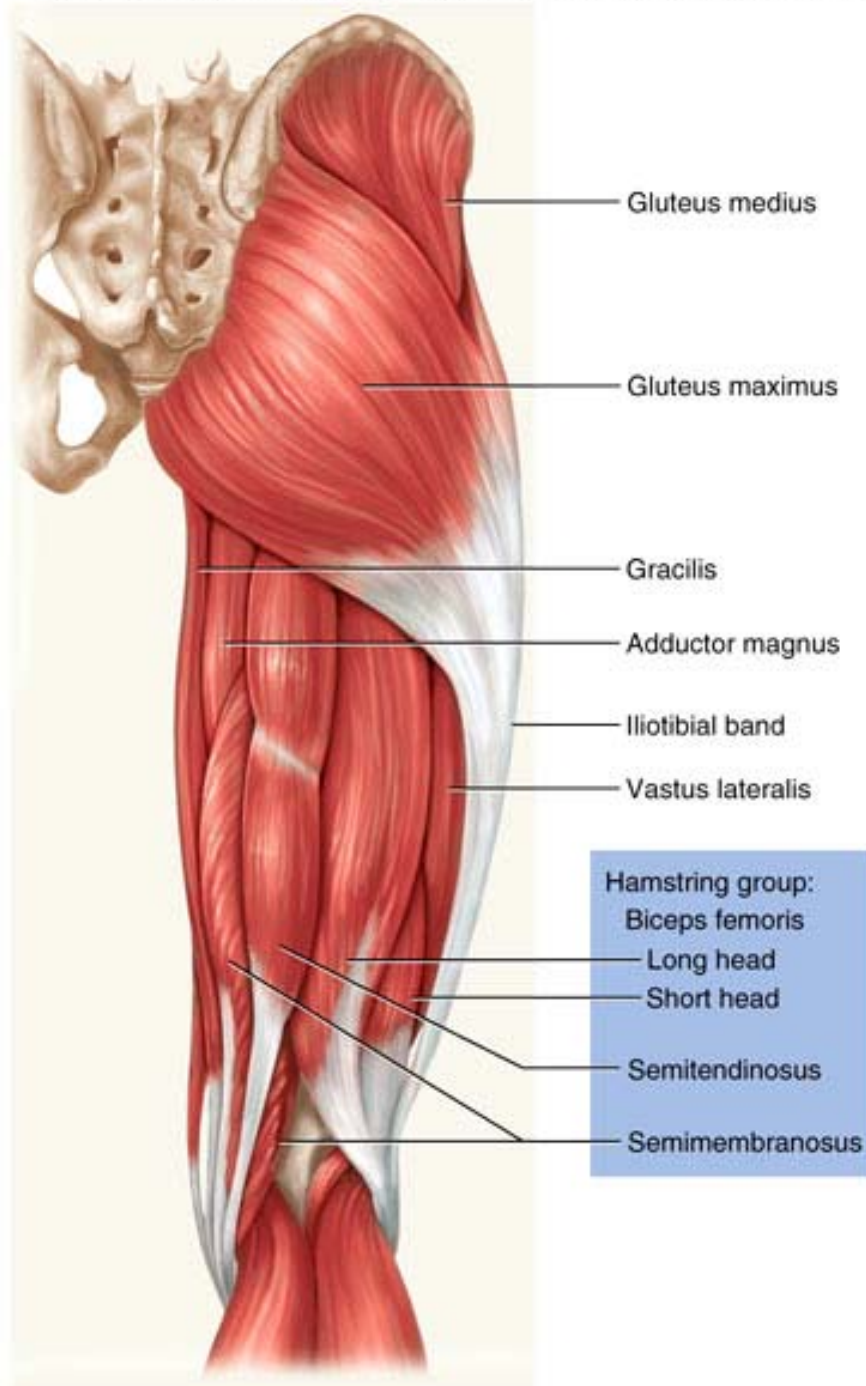
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Gluteus medius

Gluteus maximus

**Iliotibial
band**



Iliac crest—

Posterior
superior
iliac spines

Sacrum—

Coccyx—

Ischial
tuberosity

Gluteus
minimus

Lateral rotators:
Piriformis

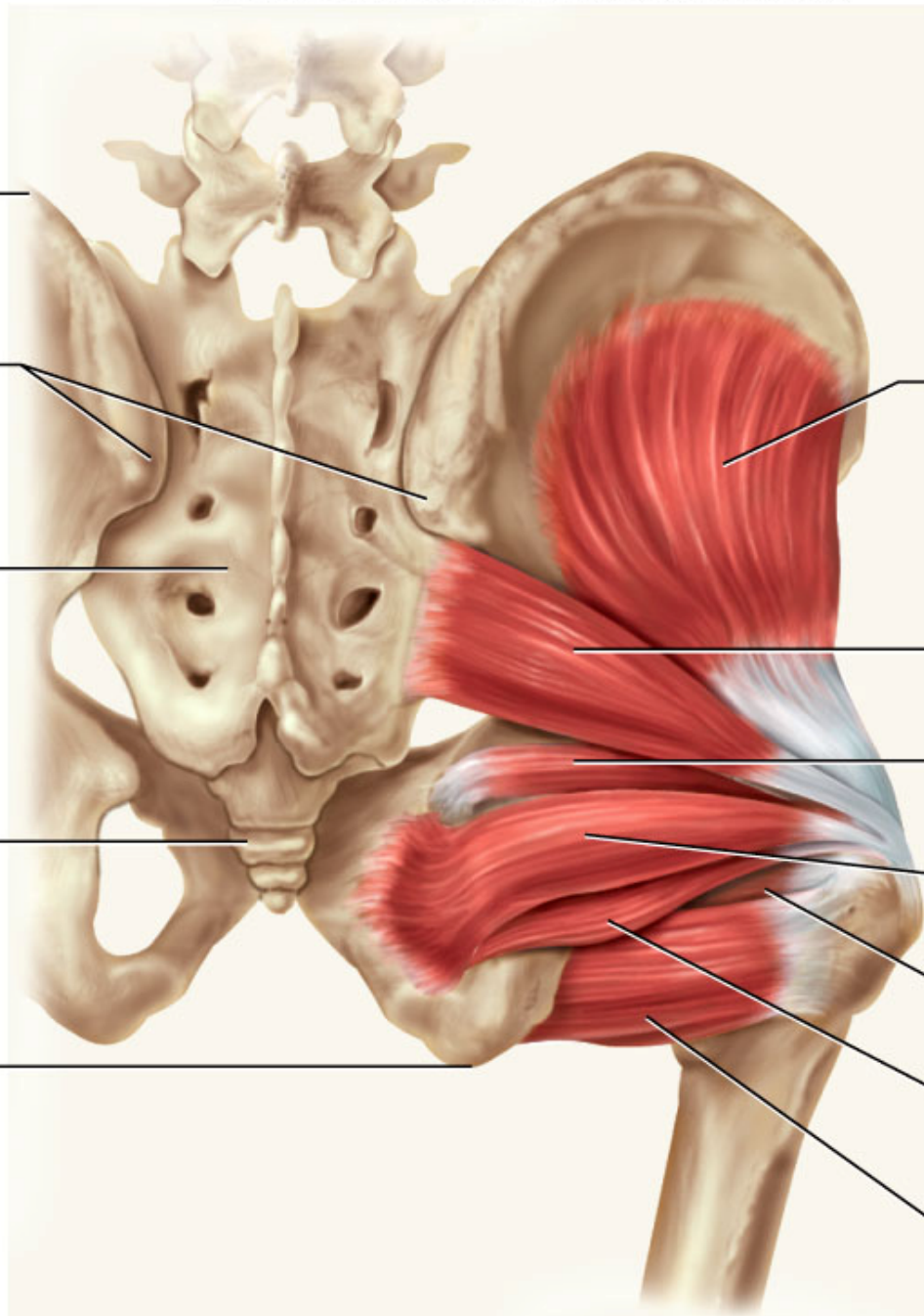
Gemellus
superior

Obturator
internus

Obturator
externus

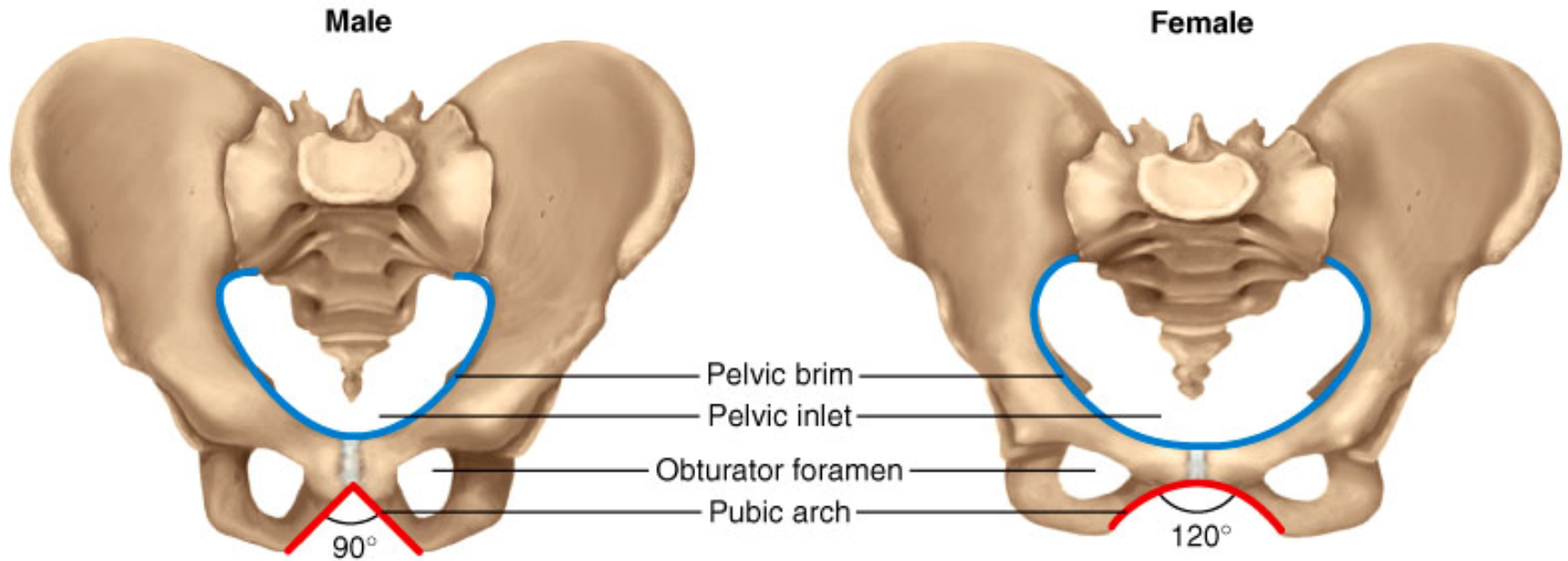
Gemellus
inferior

Quadratus
femoris



Comparison of Male and Female

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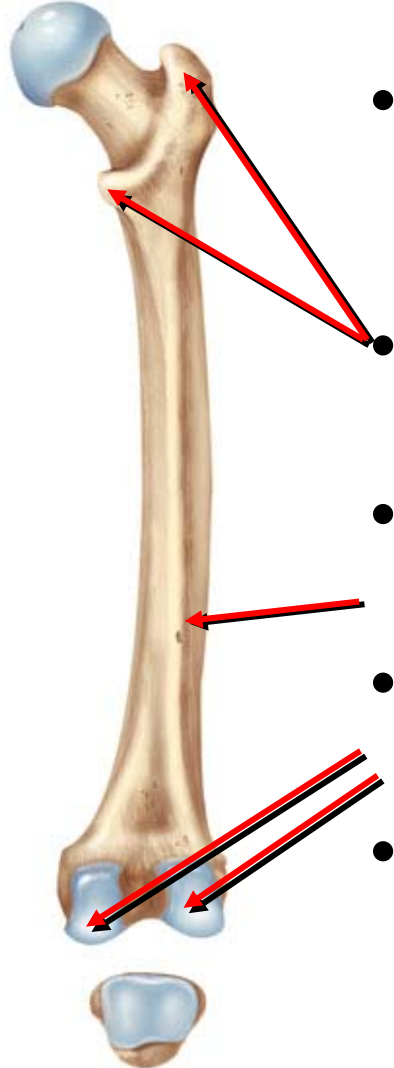
- Female lighter, shallower pubic arch(>100 degrees), and pubic inlet round or oval
- Male heavier, upper pelvis nearly vertical, coccyx more vertical, and pelvic inlet heart-shaped

Femur and Patella (Kneecap)

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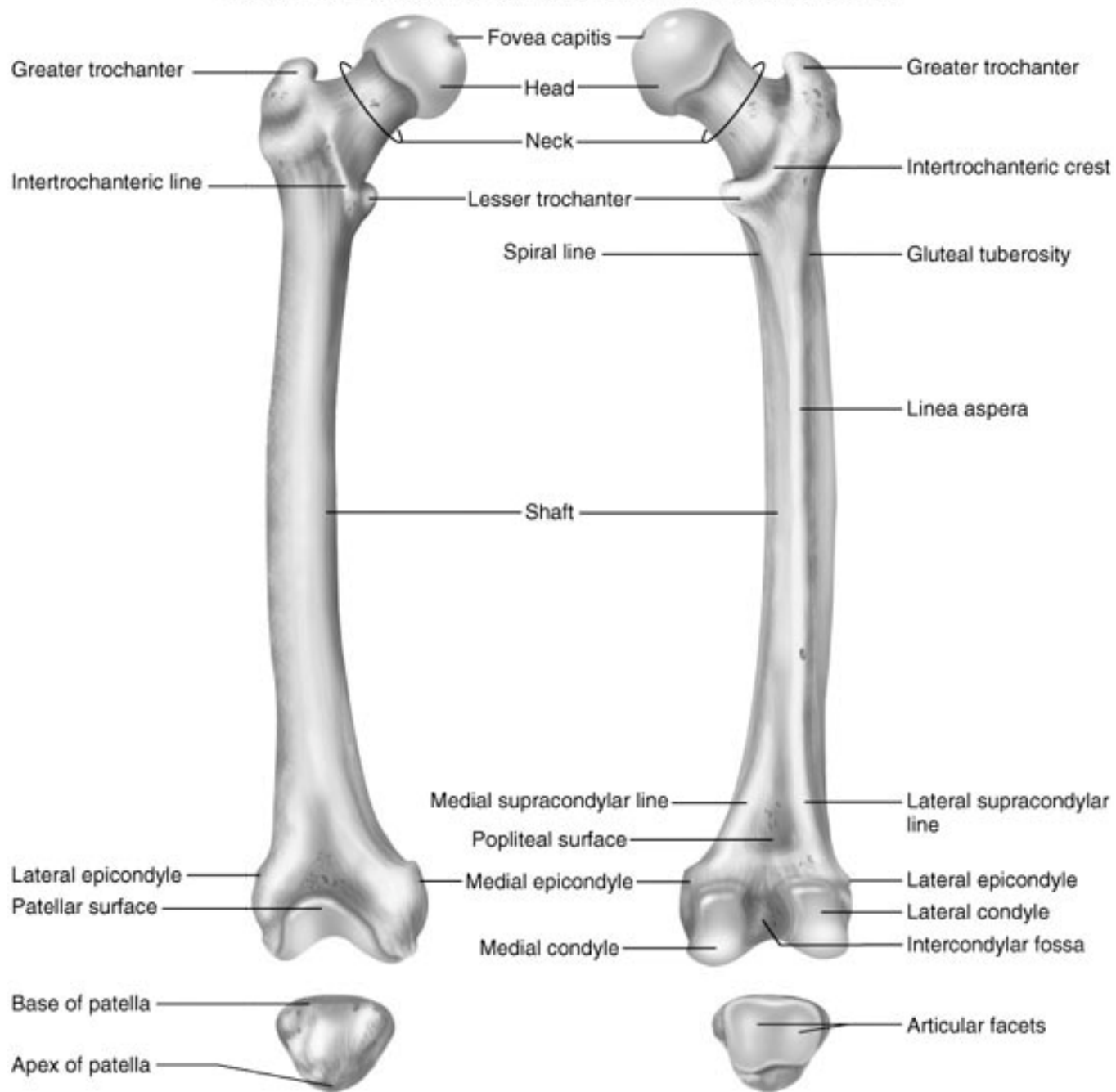


(a) Anterior view



(b) Posterior view

- Nearly spherical head and constricted neck
 - ligament to fovea capitis
- Greater and lesser trochanters for muscle attachment
- Posterior ridge called linea aspera
- Medial and lateral condyles and epicondyles found distally
- Patella = triangular sesamoid



(a) Anterior view

(b) Posterior view

Quadriceps femoris:

Vastus

intermedius

Rectus femoris

Vastus lateralis

Vastus medialis

Quadriceps femoris
tendon

Patella

Patellar ligament



(b) Deep

Tibia

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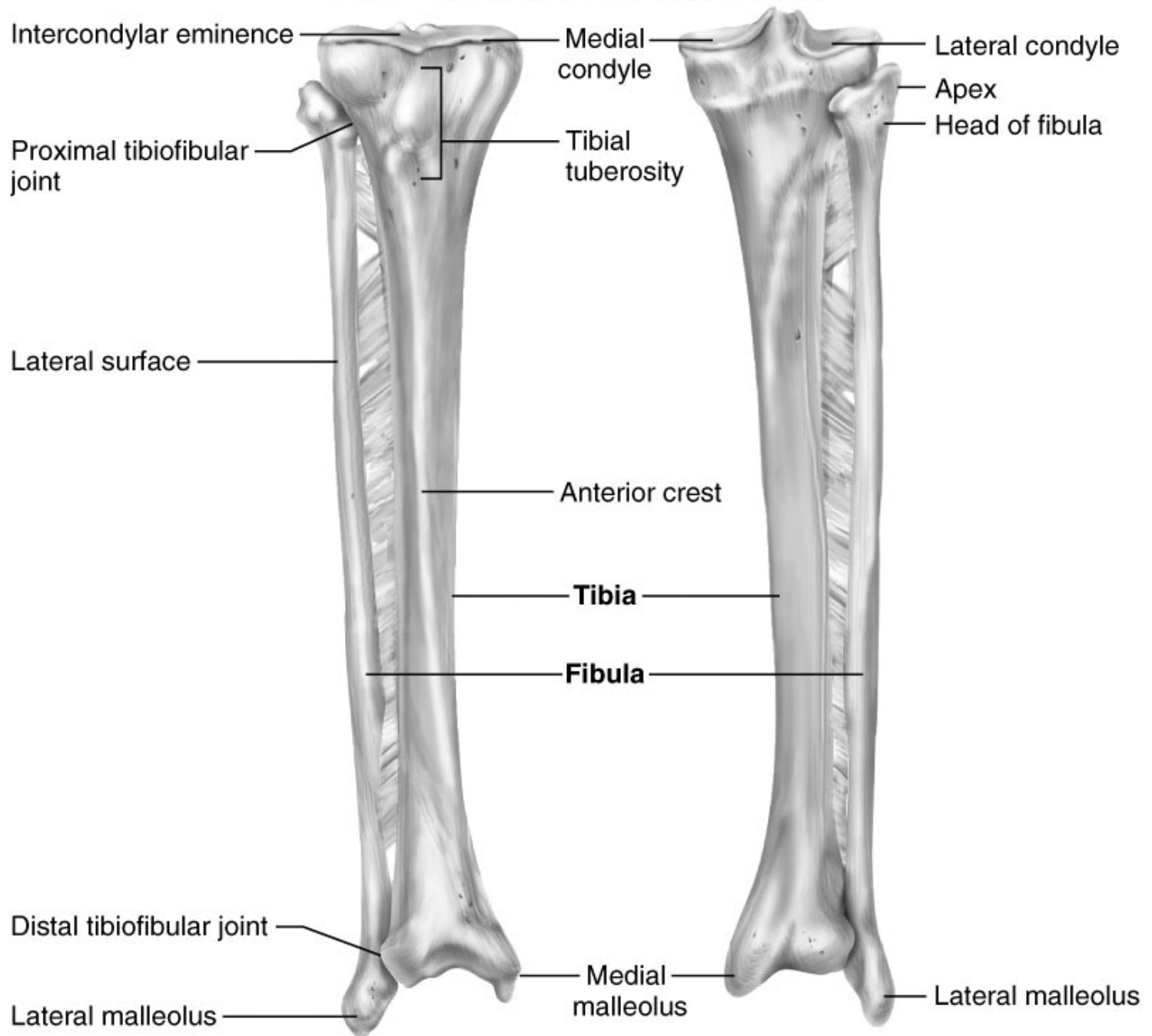


(a) Anterior view



(b) Posterior view

- Tibia is thick, weight-bearing bone (medial)
- Broad superior head with 2 flat articular surfaces
 - medial and lateral condyles
 - roughened anterior surface palpated below patella (tibial tuberosity)
 - distal expansion = medial malleolus



(a) Anterior view

(b) Posterior view

Fibula

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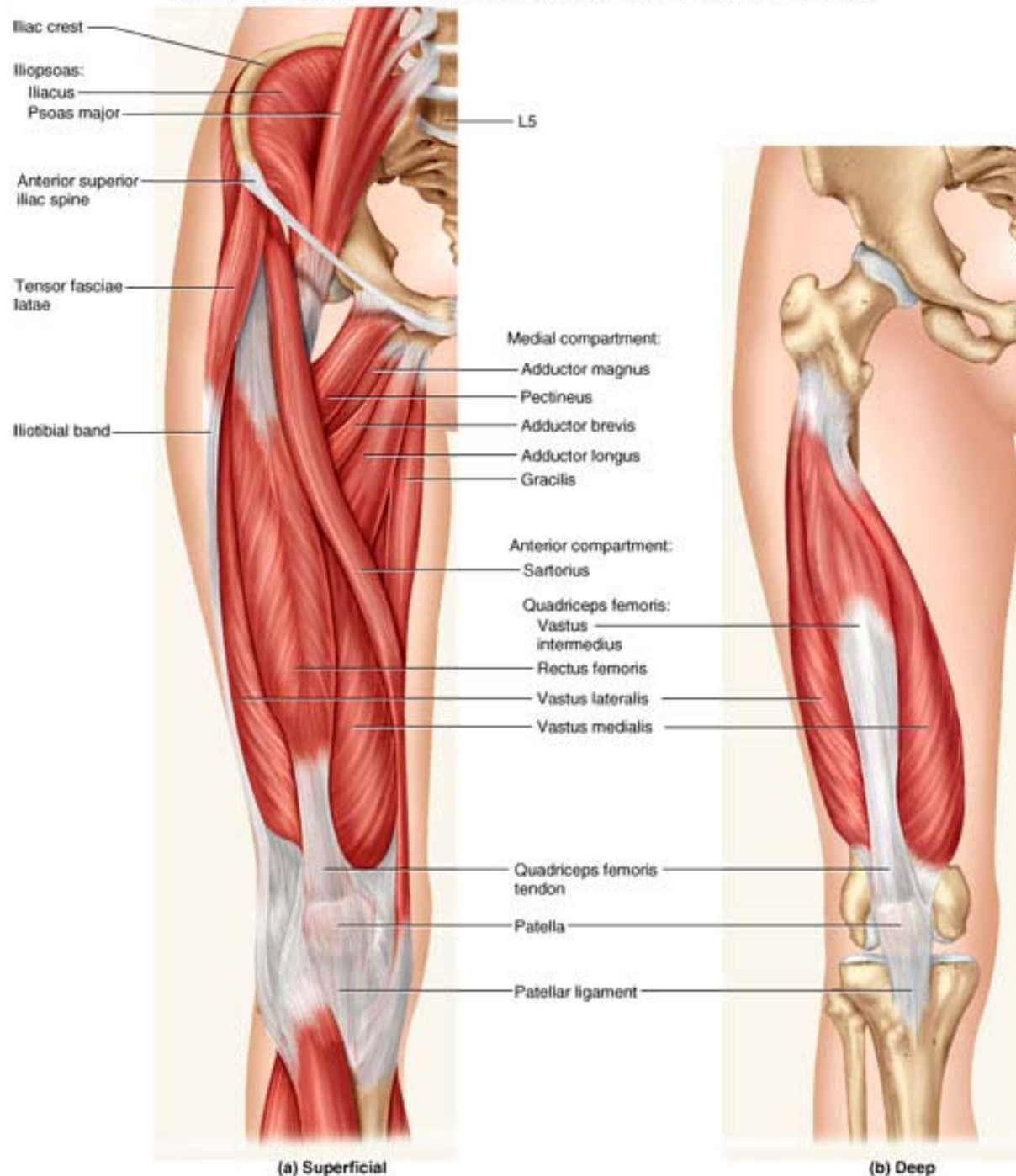


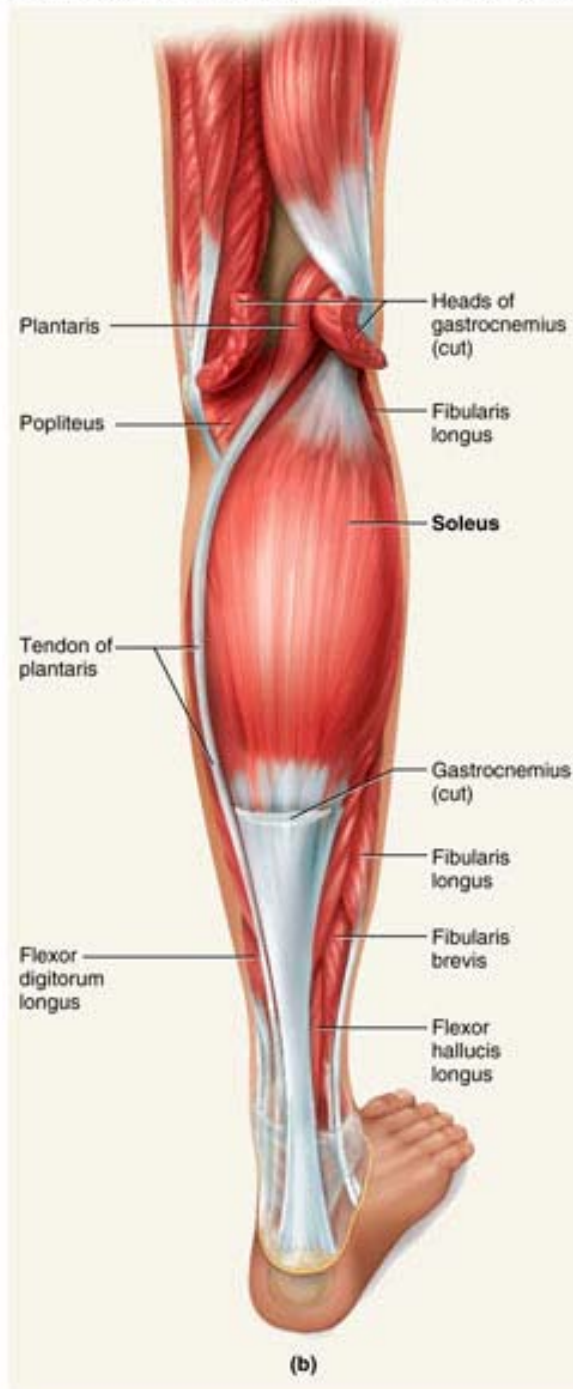
(a) Anterior view



(b) Posterior view

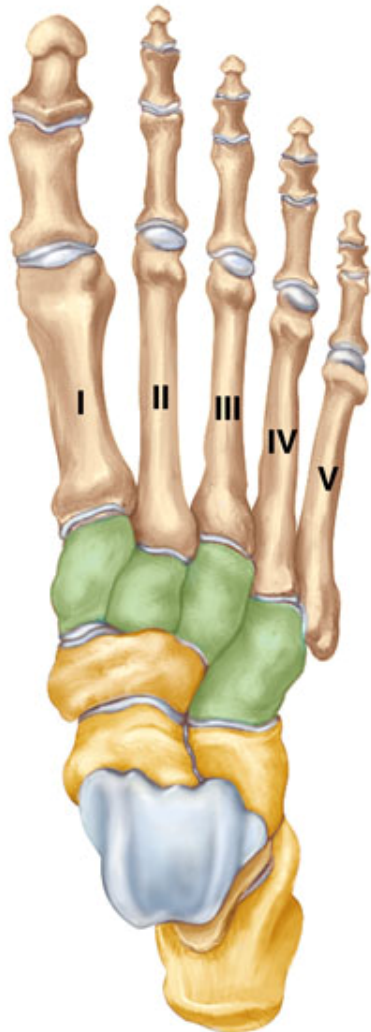
- Slender lateral strut stabilizes ankle
- Does not bear any body weight
 - spare bone tissue
- Head = proximal end
- Lateral malleolus = distal expansion
- Joined to tibia by interosseous membrane





The Ankle and Foot

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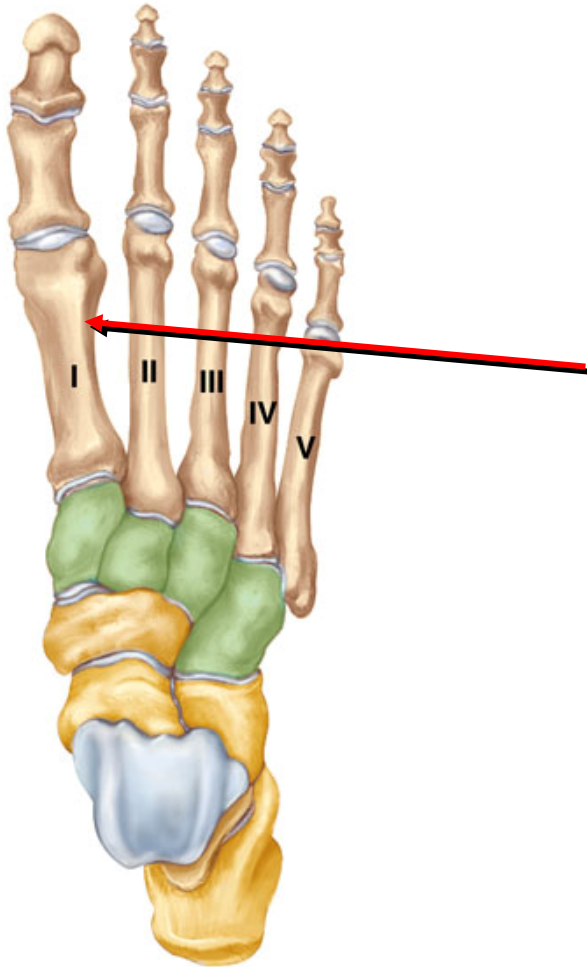


(a) Superior (dorsal) view

- Tarsal bones are shaped and arranged differently from carpal bones due to load-bearing role of the ankle
- Talus is most superior tarsal bone
 - forms ankle joint with tibia and fibula
 - sits upon calcaneus and articulates with navicular
- Calcaneus forms heel (achilles tendon)
- Distal row of tarsal bones
 - cuboid, medial, intermediate and lateral cuneiforms

The Foot

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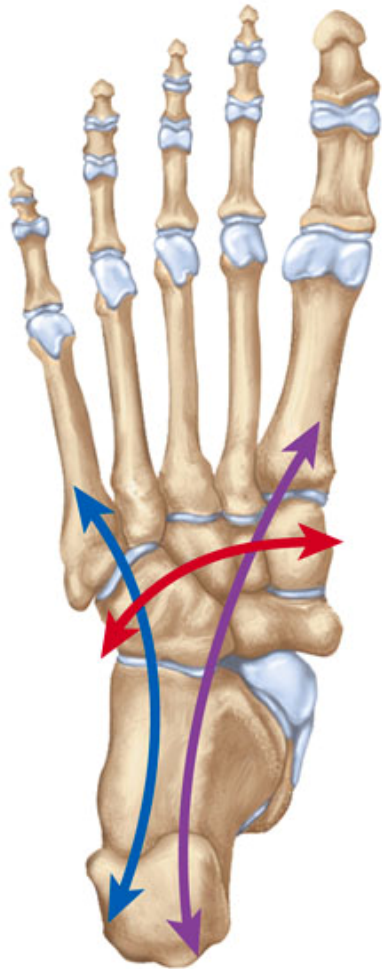


(a) Superior (dorsal) view

- Remaining bones of foot are similar in name and arrangement to the hand
- Metatarsal I is proximal to the great toe (hallux)
 - base, shaft and head
- Phalanges
 - 2 in great toe
 - proximal and distal
 - 3 in all other toes
 - proximal, middle and distal

Foot Arches

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(a) Inferior (plantar) view

- Sole of foot not flat on ground
- 3 springy arches absorb stress
 - medial longitudinal arch from heel to hallux
 - lateral longitudinal arch from heel to little toe
 - transverse arch across middle of foot
- Arches held together by short, strong ligaments
 - **pes planis** (flat feet)