

A large pile of human bones, including a skull, used as a background for a title slide. The bones are scattered and piled together, with a skull prominently visible in the center-right. The lighting is dramatic, highlighting the textures and colors of the bones against a dark background.

Appendicular Skeleton

Distal Elements

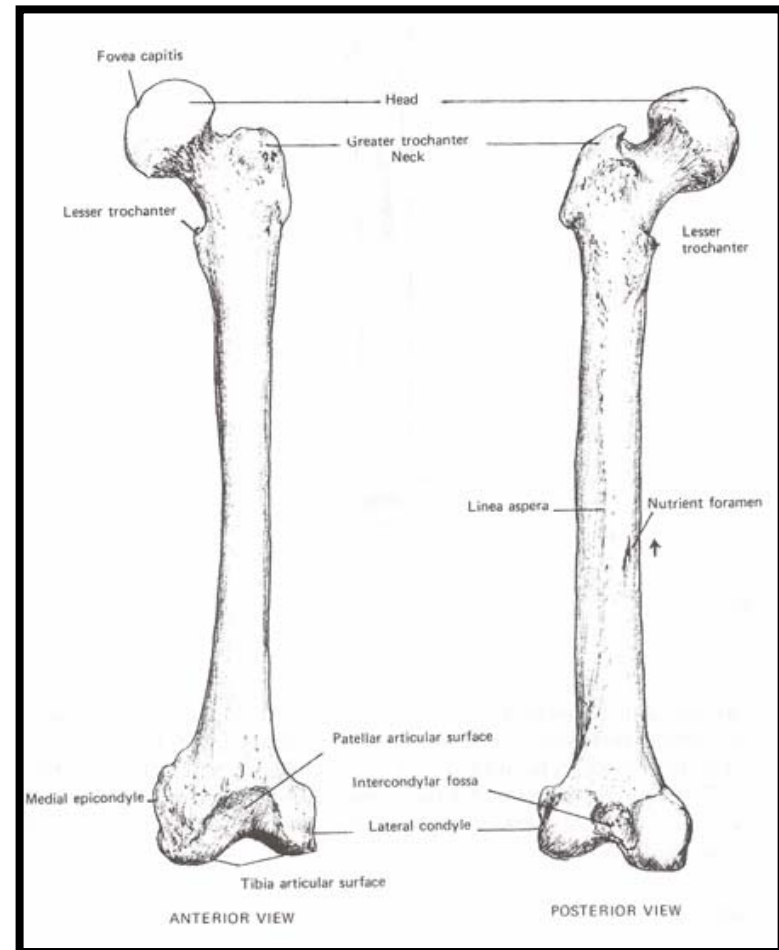
Outline: Long Bones

- Arm (brachium):
 - Humerus
- Forearm (antebrachium):
 - Ulna
 - Radius
- Thigh
 - Femur
- Leg (crus):
 - Tibia
 - Fibula

Femur (femora)

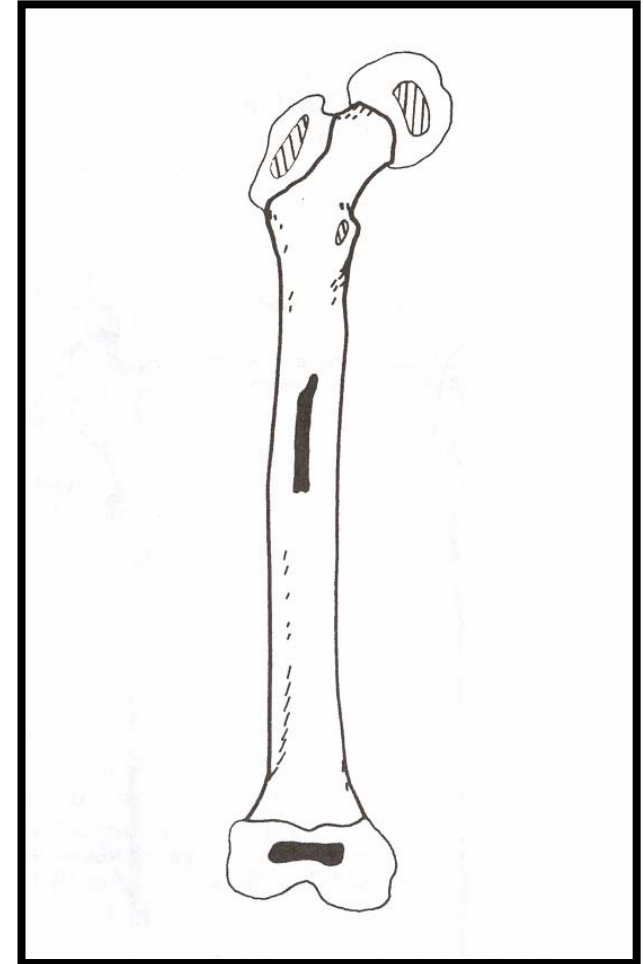


- Proximal
 - Head
 - Fovea capitus
 - Neck
 - Greater trochanter
 - Lesser trochanter
 - Intertrochanteric line
- Shaft
 - Nutrient foramen
 - Linea aspera
- Distal
 - Medial and Lateral Condyles
 - Medial and Lateral Epicondyles
 - Adductor tubercle
 - Patellar surface/ sulcus



Femoral Growth

- First long bone (after the clavicle) to ossify
- Shaft appears 7th week
- Single distal epiphysis appears ~9th fetal month
 - Fuses ~16-18th year
- Head 6th neonatal month
 - Fuses ~14-17th year
- Greater trochanter 4th year
- Lesser trochanter ~12th-14th year
- Trochanters fuse prior to head



Identification of the Femur

- Size, larger than all other bones
- Humeral head lacks fovea capitis, and is only a $\frac{1}{2}$ sphere
- Femoral shaft is larger, more circular and has the linea aspera when compared to humeral shaft fragments

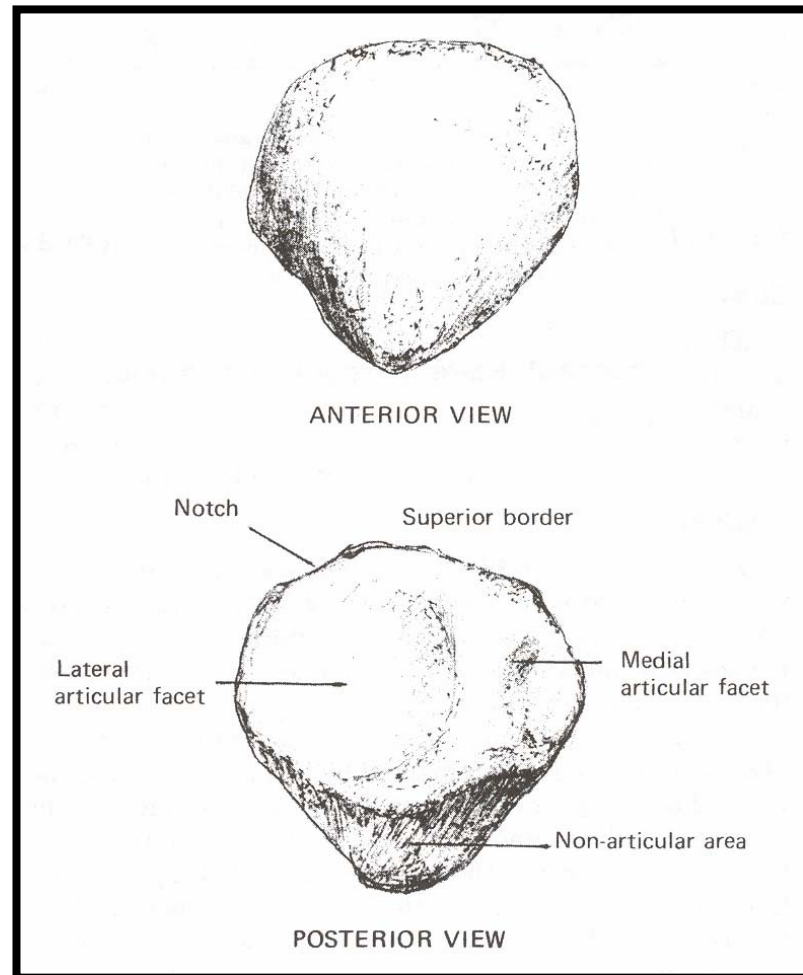
Siding of the Femur

- Proximal: Head is medial, gluteal fossa posterior, lesser trochanter is posterior and medial
- Shaft: shaft is curved so concave posteriorly, linea aspera is posterior, nutrient foramen opens distally and is posterior
- Distal: medial condyle extends distally beyond the lateral (valgus knee), adductor tubercle is medial

Patella (e)



- Base
- Apex
- Medial facet
- Lateral facet
- **Growth:** anlage is present prenatally, several centers appear and unite during ~3-6th years



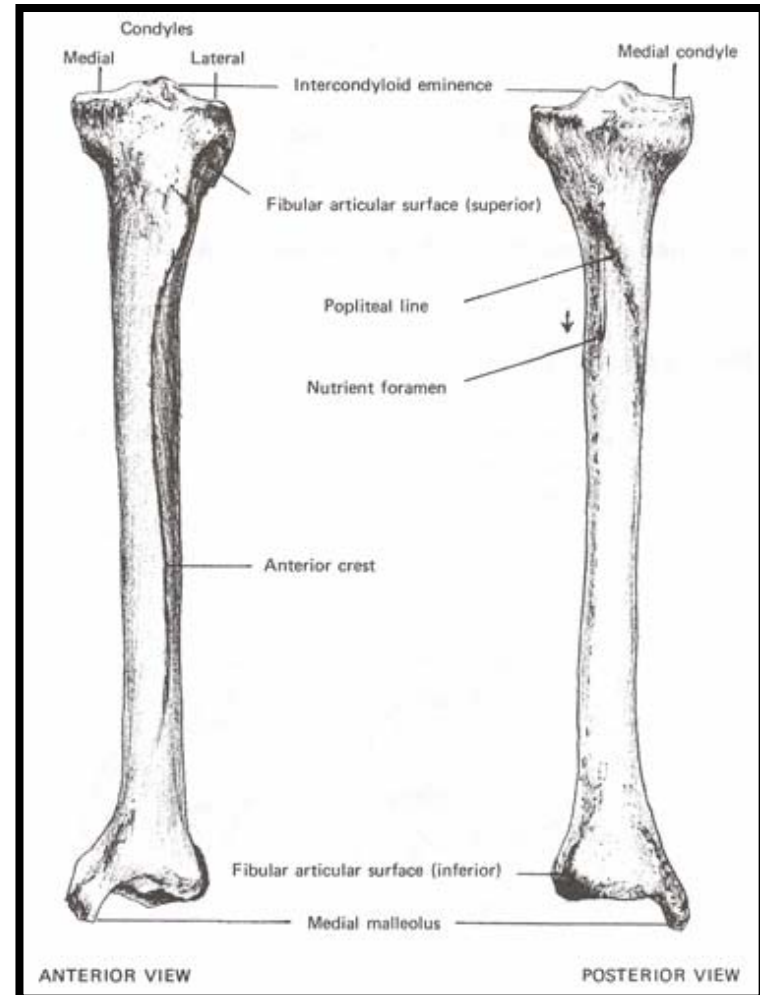
Identification and Siding of the Patella

- Fragments may be mistaken for tarsals
- **Siding:** lateral articular facet is larger
 - Place the patella on a flat surface with the pointed apex toward you, the side that sticks up is the side of the body from which the patella comes

Tibia (e)



- Proximal
 - Medial and Lateral condyles
 - Intercondyloid tubercles
 - Superior fibular facet
 - Tibial tuberosity
- Shaft
 - Anterior crest
 - Interosseous crest
 - Popliteal (Soleal) line
 - Nutrient foramen
- Distal
 - Medial malleolus
 - Fibular notch



Tibial Growth

- Shaft appears 7th week
- Proximal center appears ~birth
 - Unites with shaft 16th-18th year
 - Secondary center on tuberosity variably present ~12th year
- Distal center appears during 1st year
 - Unites with shaft ~15-17th year
 - Medial malleolus may have separate center



Identification

- Larger than bones of the upper limb and fibula, but smaller than femur
- Tibial has a distinctive triangular cross-section
- Distally the malleolus is unique

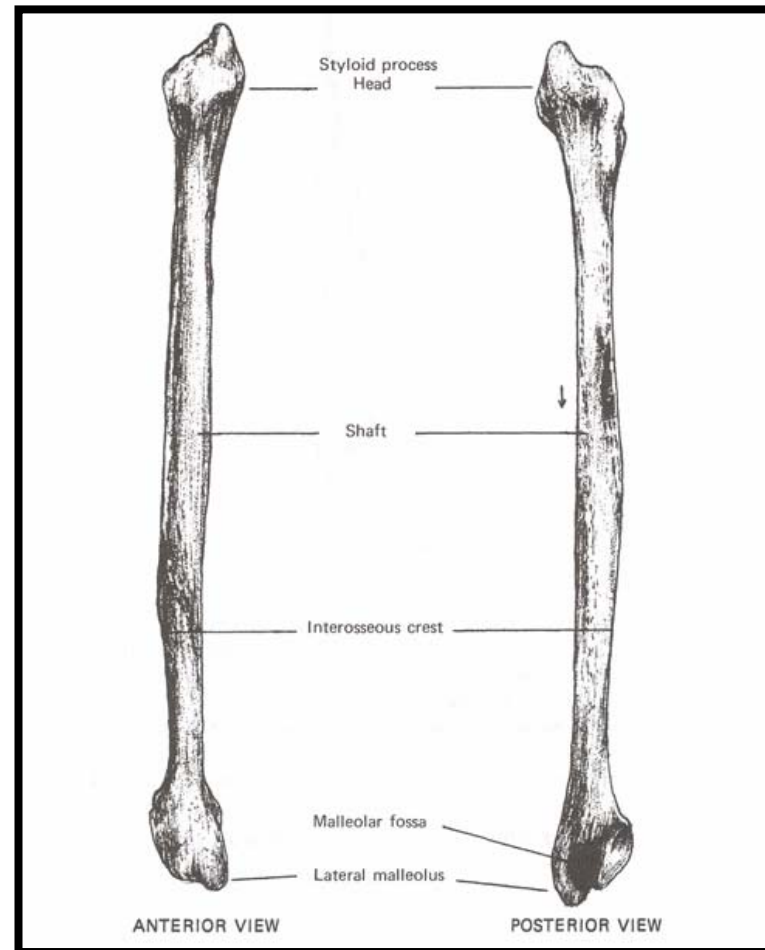
Siding

- Proximal: fibular articulation is posterior and lateral; tuberosity is anterior; lateral articular surface is smaller and rounder than medial
- Shaft: shaft tapers distally; nutrient foramen is posterior and exits proximally; interosseous crest is lateral
- Distal: malleolus is medial; fibular notch is lateral; anterior surface is smooth; posterior surface exhibits grooves for long foot flexors

Fibula (e)

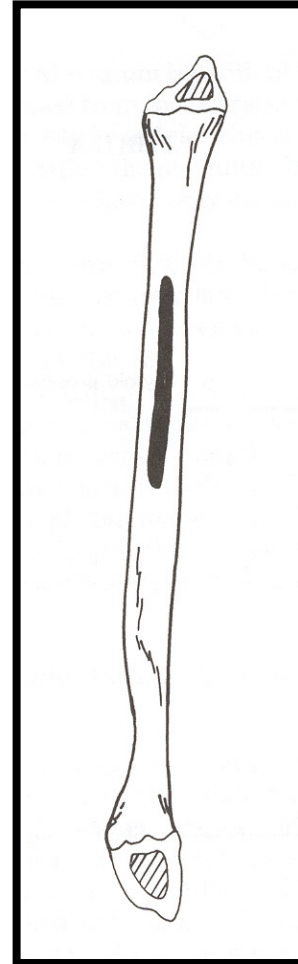


- Proximal
 - Capitulum (head)
 - Styloid process
- Shaft
 - Four Crests
 - Interosseous crest
 - Anterior crest
 - Medial crest
 - Lateral crest
- Distal
 - Lateral malleolus
 - Malleolar articular surface



Fibular Growth

- Shaft appears 8th week
- Proximal end 3-4th year
 - Unites with shaft 17-19th year
- Distal end 1st year
 - Unites with shaft ~14-17th year



Identification

- Shaft fragments are commonly misidentified
- More multifaceted and angular than similarly sized bones, e.g. the radius and ulna
- **Siding:** None required