LEG

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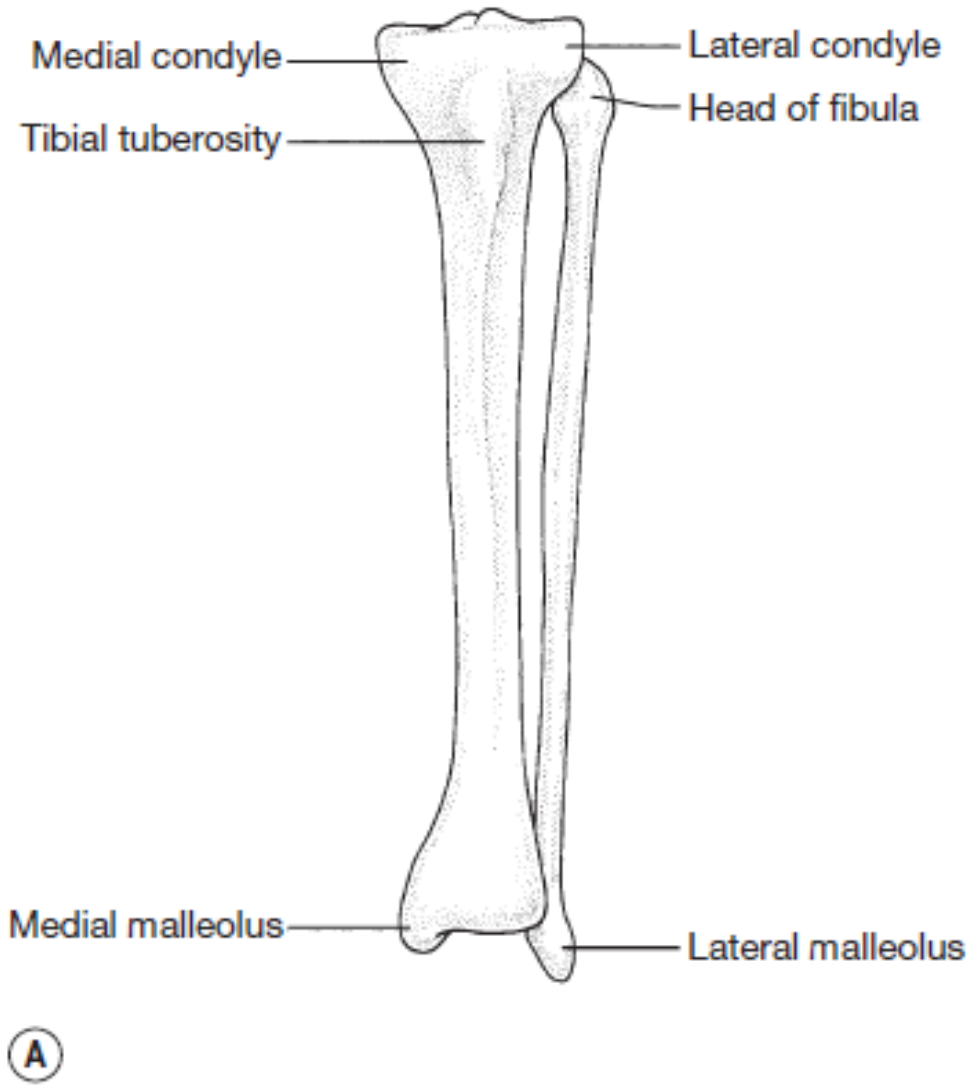
Diphyses

Metaphses

Epiphyses



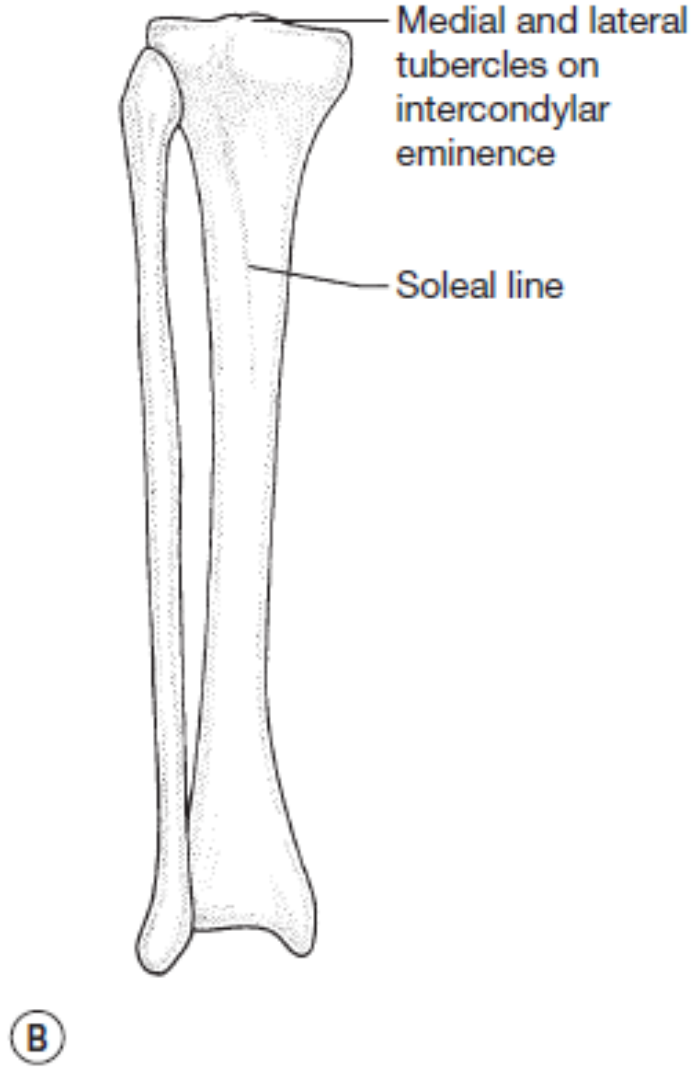


Figure 8.3 • Tibia and fibula: (A) anterior view; (B) posterior view

THE TIBIA

The upper end of the tibia is expanded as the tibial plateau.

This has an articular surface with a large medial and a smaller lateral condyle, which articulate with the condyles of the femur.

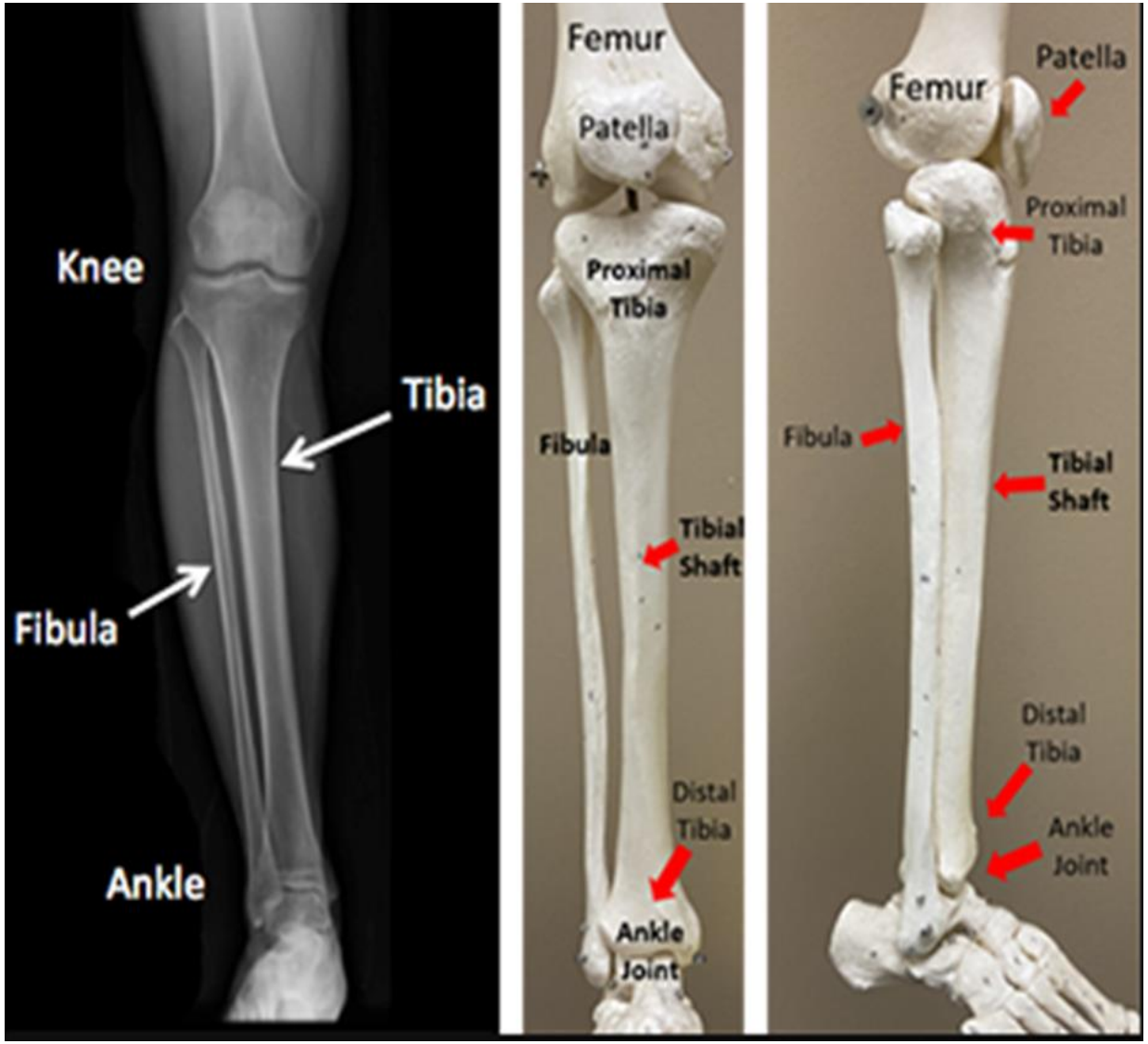
Between the condyles is the intercondylar eminence or the tibial spine. the tibial spine has medial and lateral projections – the medial and lateral intercondylar tubercles.

Anteriorly, at the upper end of the shaft of the tibia is the tibial tubercle into which the ligamentum patellae is inserted.

The anteromedial surface of the shaft of the tibia is subcutaneous.

The posterior surface of the shaft has a prominent oblique ridge – the soleal line.

The lower end of the tibia has the medial malleolus medially and the fibular notch for the inferior tibiofibular joint laterally Its inferior surface is flattened and articulates with the talus in the ankle joint



THE FIBULA

Apart from its role in the ankle joint.

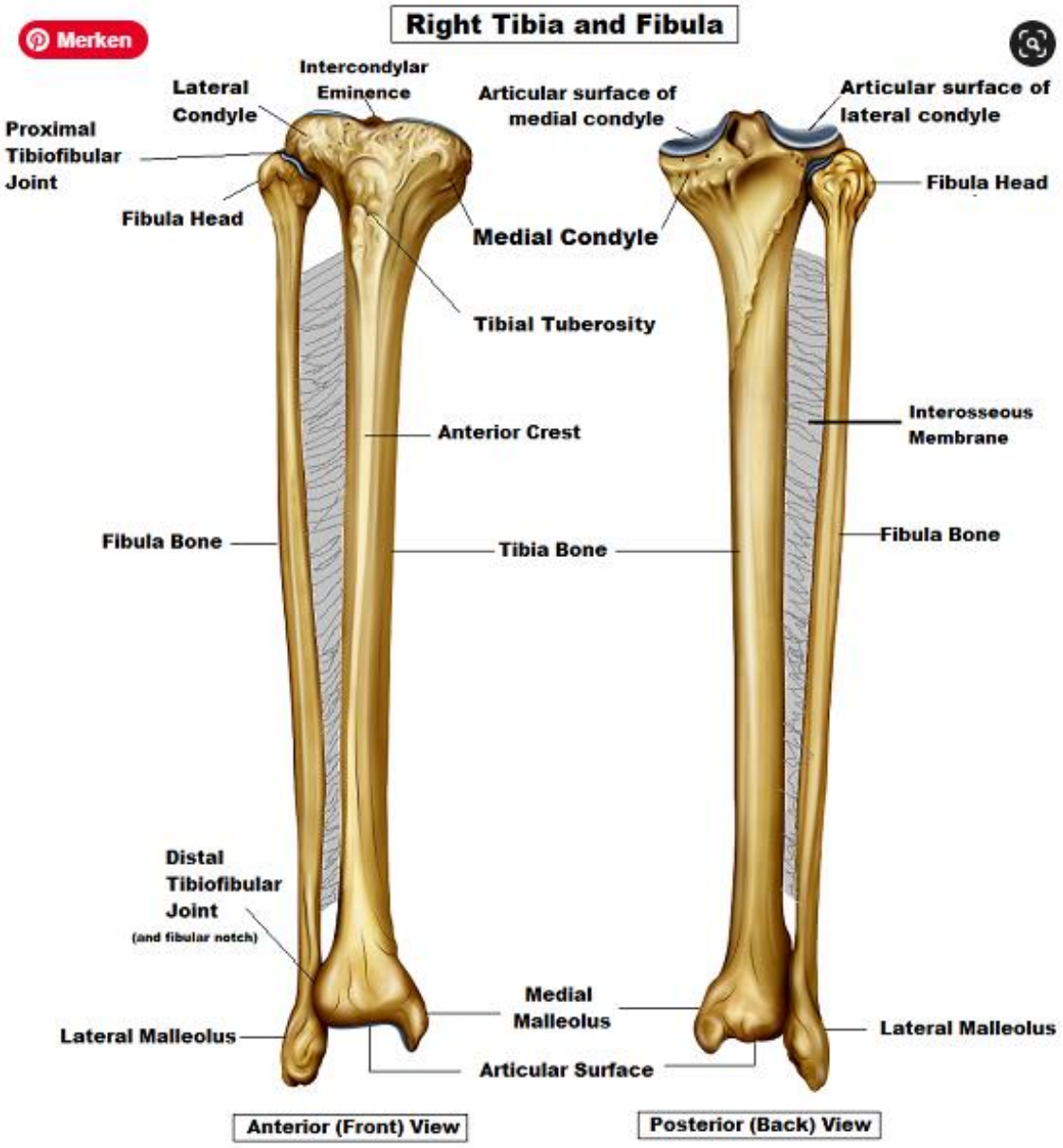
the fibula is mainly a site of origin of muscles and has no weightbearing function.

It has a head with a styloid process into which the biceps femoris is inserted, a neck, a narrow shaft and a lower end expanded as the lateral malleolus.

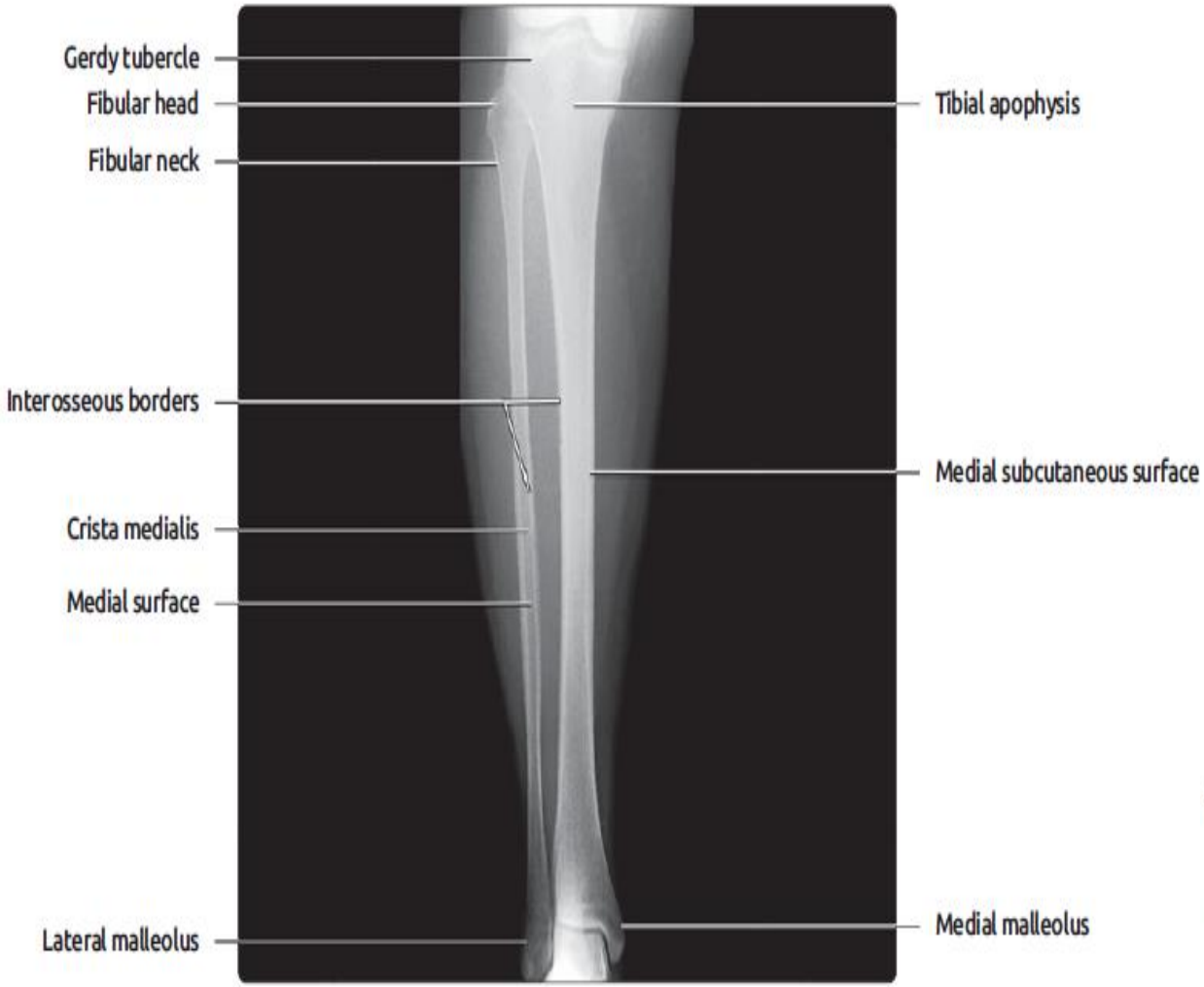
Proximal and distal tibiofibular joints unite it with the tibia and it articulates with the talus in the ankle joint.

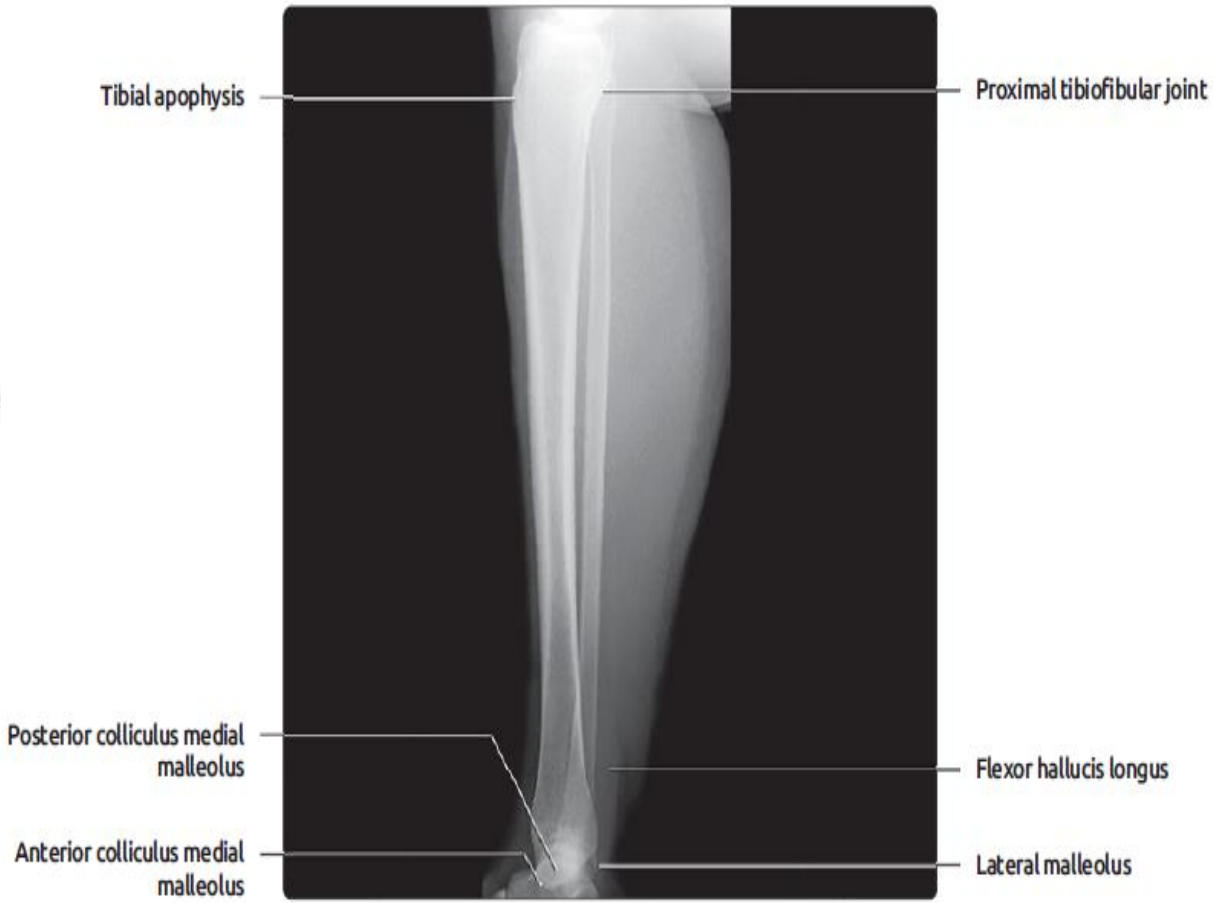
The lateral malleolus is more distal than the medial malleolus The calcaneofibular ligament is attached to its tip This may be damaged in inversion injuries.

The fibula is proportionately thicker in children than in adults



STANDARD RADIOGRAPHS OF LEG





RADIOLOGICAL FEATURES OF THE TIBIA AND FIBULA

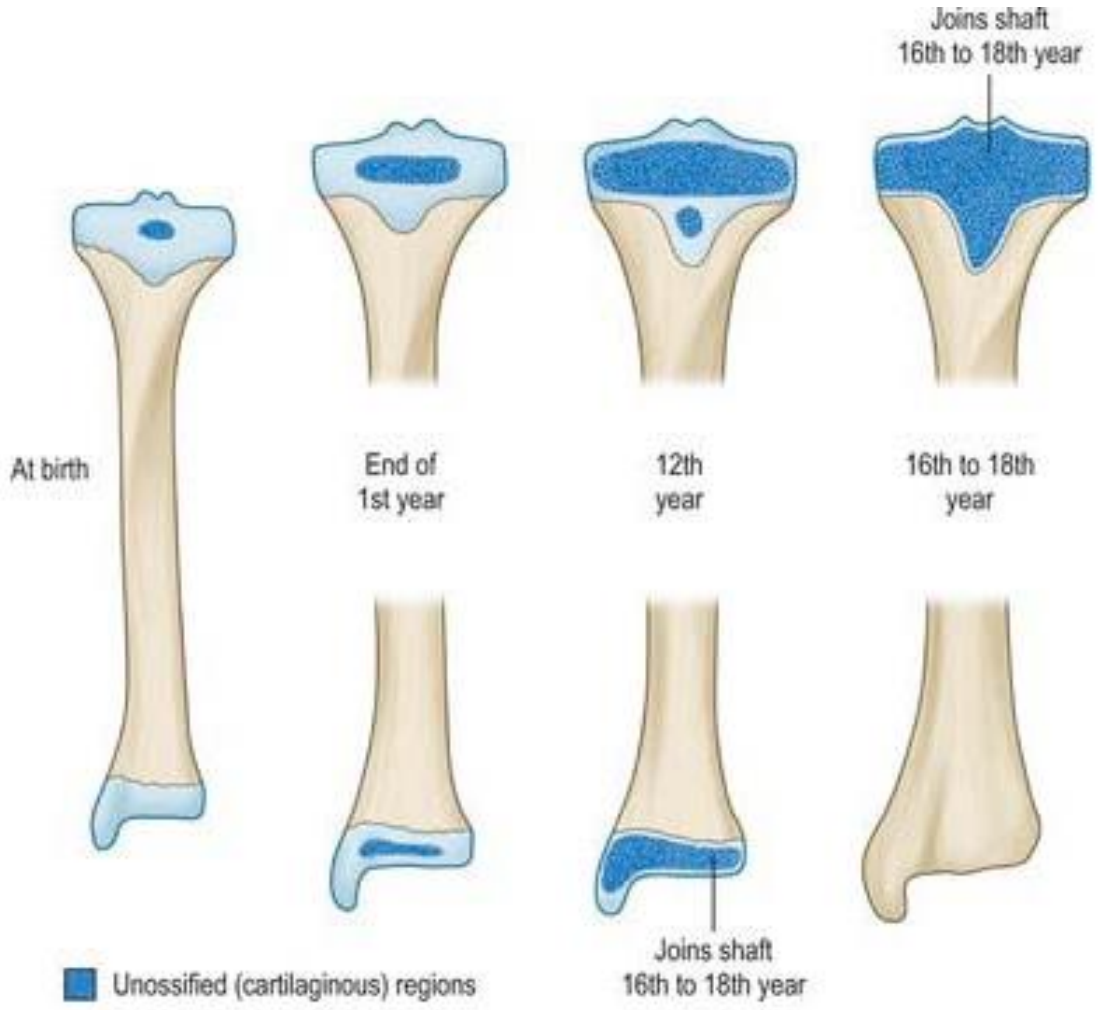
The **tibial tuberosity** is very variable in appearance, particularly during the growth period Asymmetry and irregularity on radiographs may be quite normal Some irregularity of the tibia at the upper part of the **interosseous border** may simulate a periosteal reaction here

OSSIFICATION OF THE TIBIA

The primary ossification centre for the shaft of the tibia appears in the seventh fetal week.

A secondary ossification centre is present in the upper end at birth and in the lower end at 2 years.

The upper centre fuses with the shaft at 20 years, the lower sooner at 18 years



OSSIFICATION OF THE FIBULA

Ossification of the primary centre in the shaft begins in the eighth fetal week.

in the lower secondary centre in the first year and in the upper at 3 years.

The lower epiphysis fuses with the shaft at 16 years and the upper at 18 years

THE PATELLA

This is a sesamoid bone in the quadriceps tendon that continues at its apex as the ligamentum patellae.

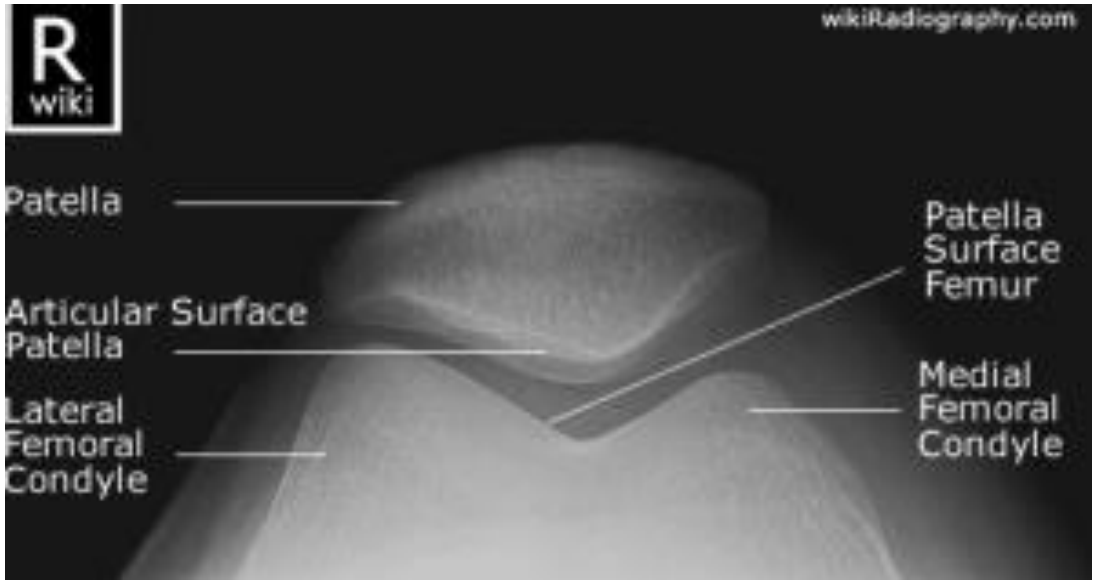
The upper two- thirds of the posterior surface is covered with articular cartilage and is entirely within the knee joint.

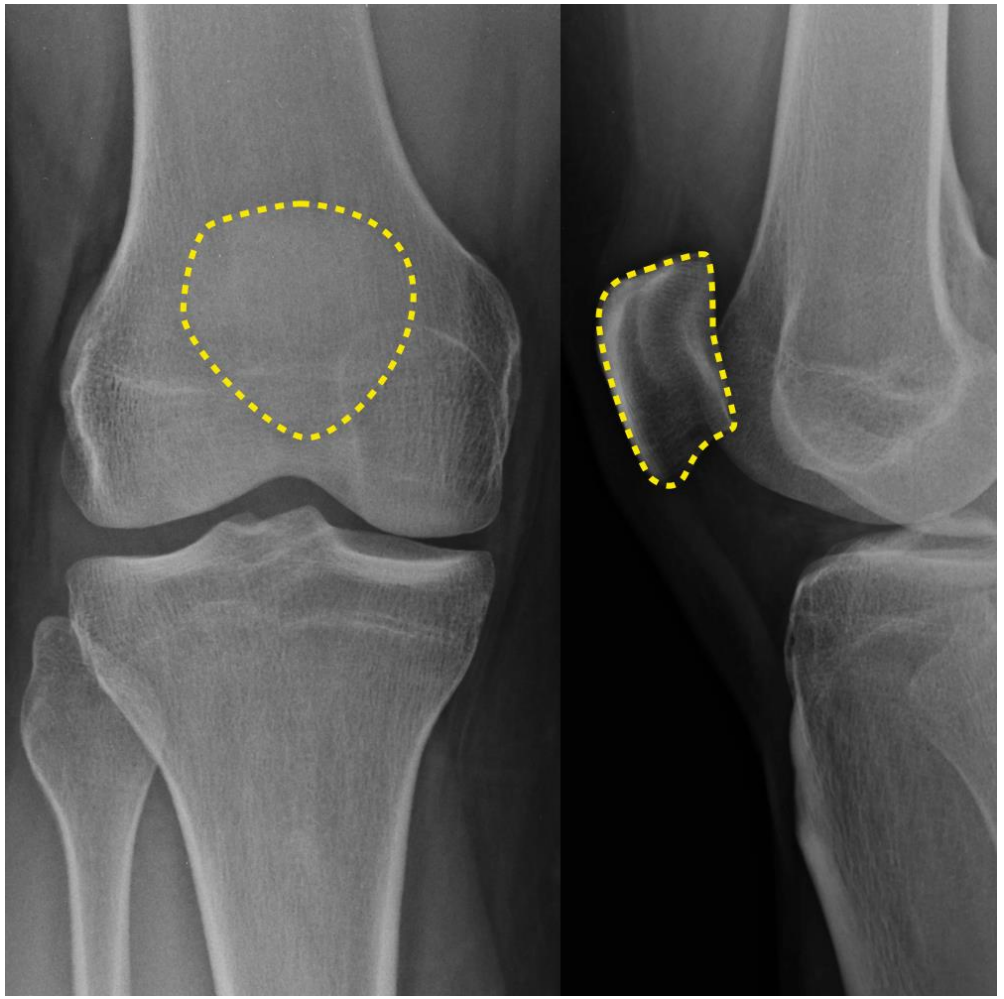
The anterior surface is covered by the prepatellar bursa.

The lateral articular surface is usually larger than the medial surface

RADIOLOGICAL FEATURES OF THE PATELLA

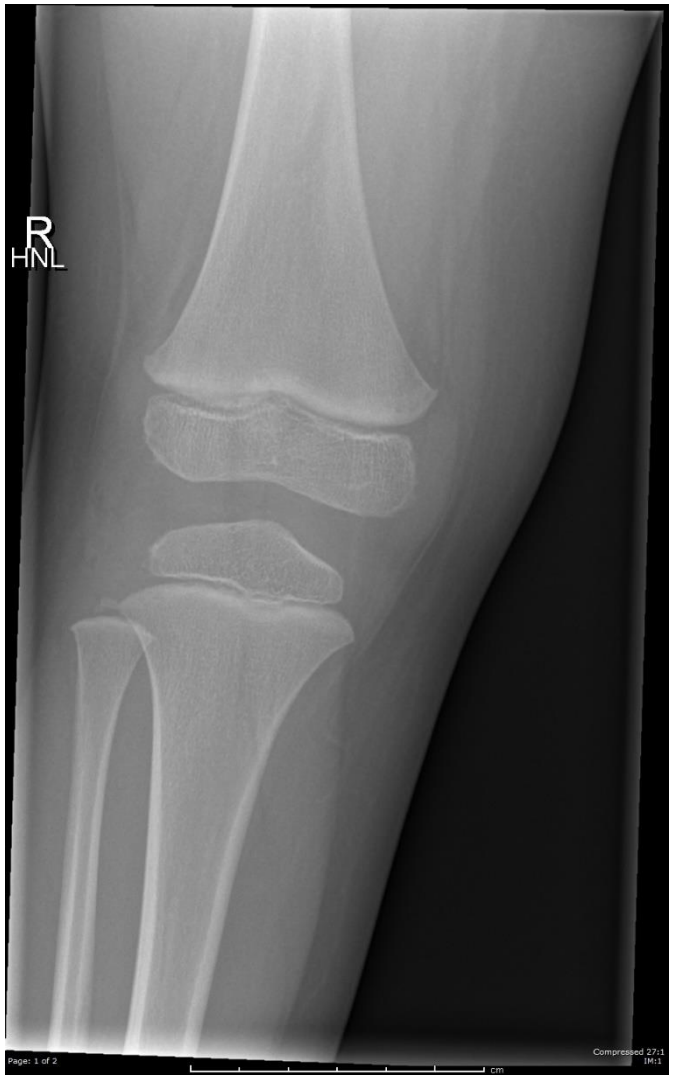
The outer surface of the patella as seen on **tangential (skyline) views** is irregular owing to the entry of nutrient vessels here





OSSIFICATION OF THE PATELLA

This begins at 3 years and is complete by puberty



DISLOCATION OF THE PATELLA

Lateral dislocation of the patella is more common than medial dislocation.

occurs following valgus injury with associated imposed bowstringing of the extensor mechanism over the knee joint

Anatomical structures have evolved to prevent dislocation, including relative hypertrophy of the vastus medialis muscle and overgrowth of the lateral femoral condyle

WHAT IS THE ABNORMALITY?

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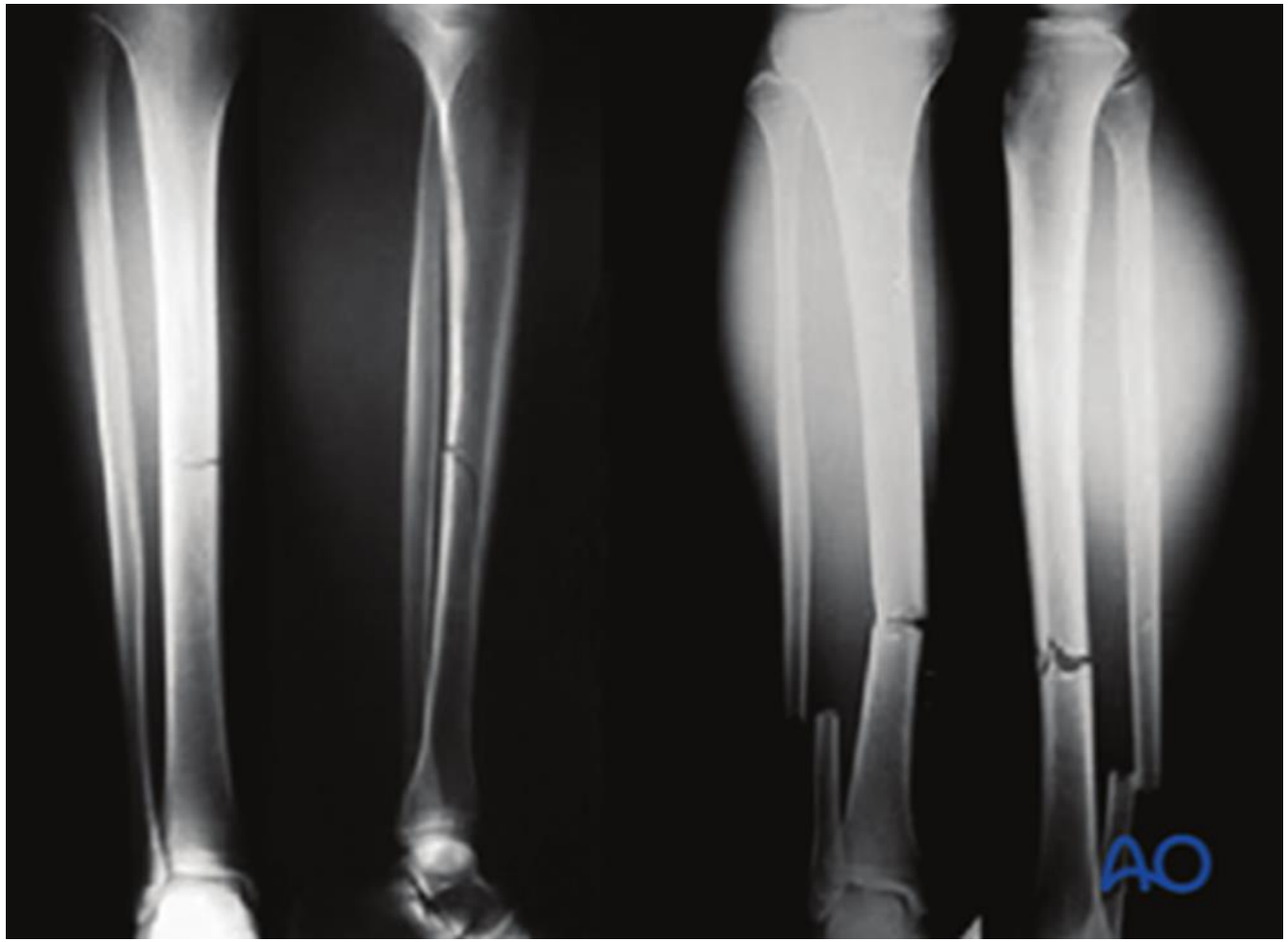
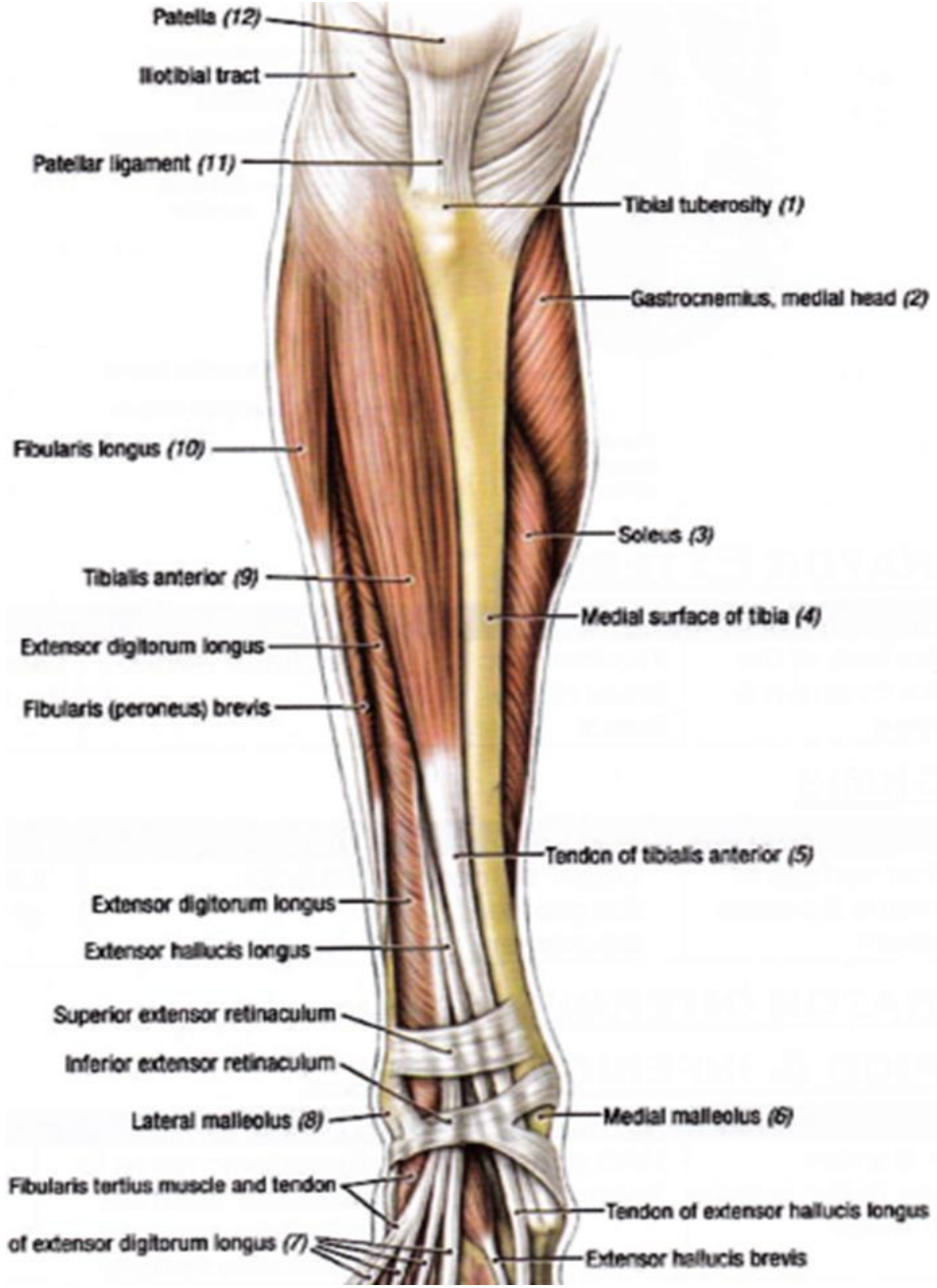


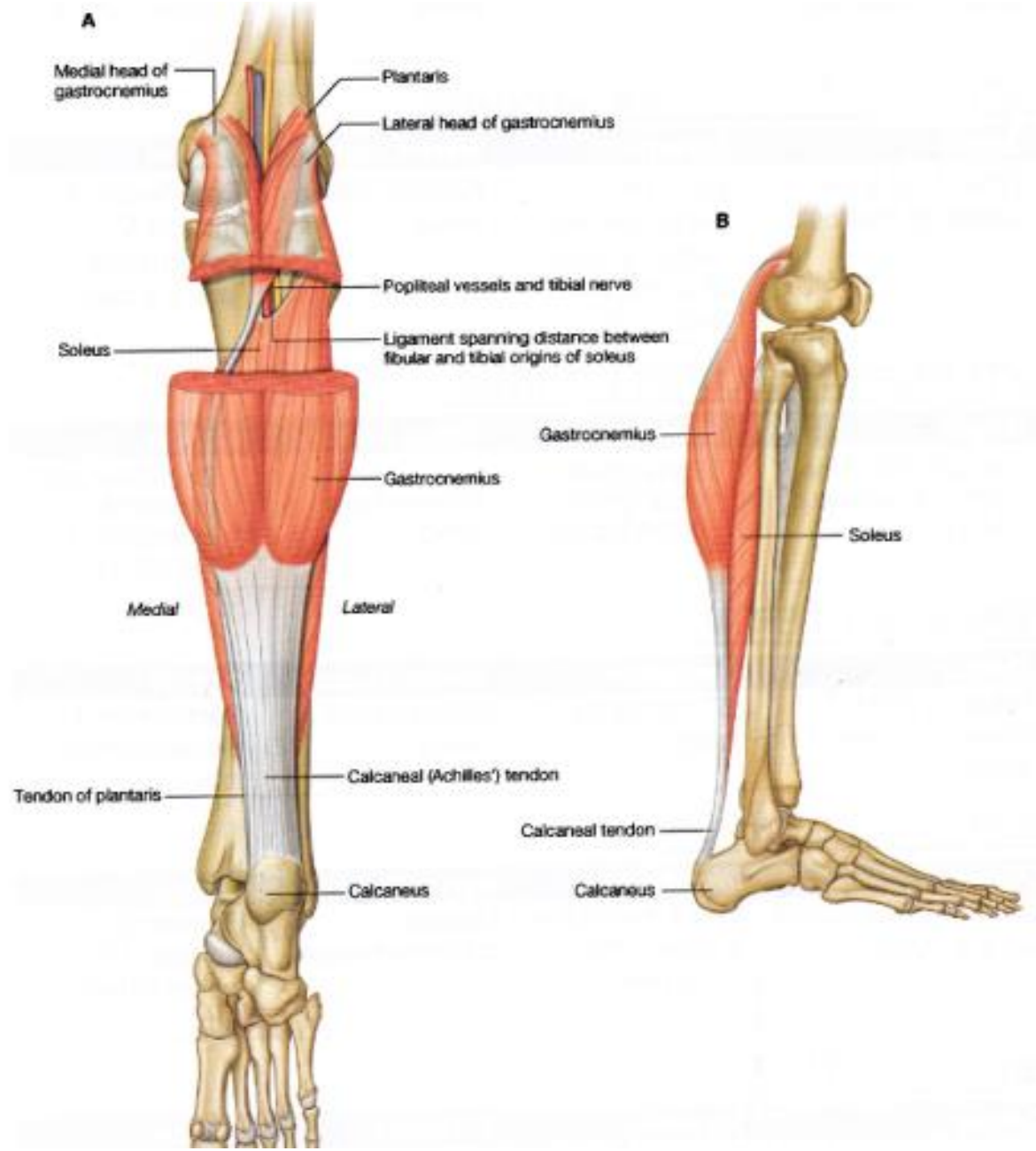
LEG MUSCLES

Anterior Compartment

Posterior Compartment

Lateral Compartment


Patella (12)
Iliotibial tract
Patellar ligament (11)
Tibial tuberosity (1)
Gastrocnemius, medial head (2)
Fibularis longus (10)
Soleus (3)
Tibialis anterior (9)
Medial surface of tibia (4)
Extensor digitorum longus
Fibularis (peroneus) brevis
Tendon of tibialis anterior (5)
Extensor digitorum longus
Extensor hallucis longus
Superior extensor retinaculum
Inferior extensor retinaculum
Lateral malleolus (8)
Medial malleolus (6)
Fibularis tertius muscle and tendon
of extensor digitorum longus (7)
Tendon of extensor hallucis longus
Extensor hallucis brevis


A
Medial head of gastrocnemius
Plantaris
Lateral head of gastrocnemius
Popliteal vessels and tibial nerve
Ligament spanning distance between fibular and tibial origins of soleus
Soleus
Gastrocnemius
Medial
Lateral
Tendon of plantaris
Calcaneal (Achilles') tendon
Calcaneus
B
Gastrocnemius
Soleus
Calcaneal tendon
Calcaneus

MAIN MUSCLES

Tibialis Anterior

Gastrocnemius

Soleus

Extensors!