

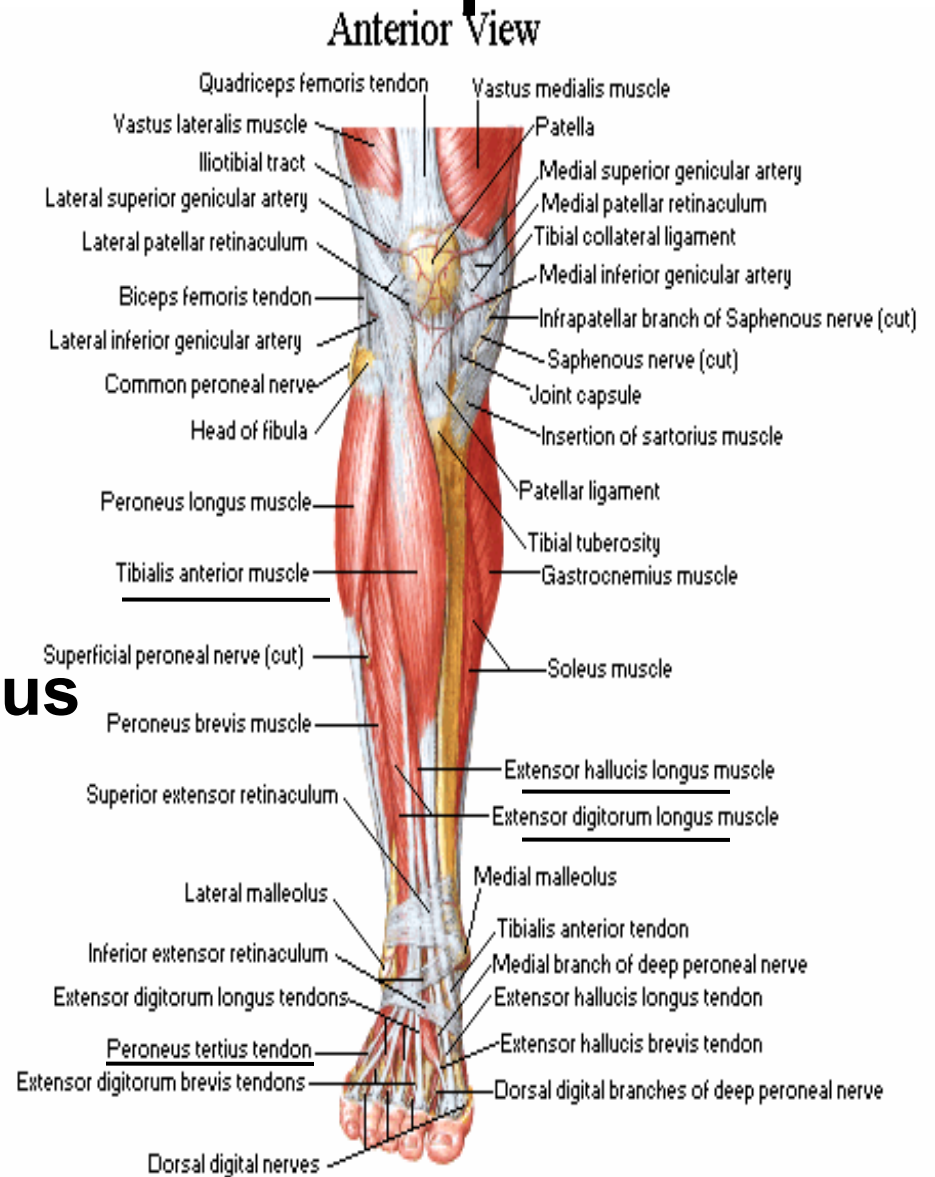
Contents of the anterior compartment

○ Muscles:

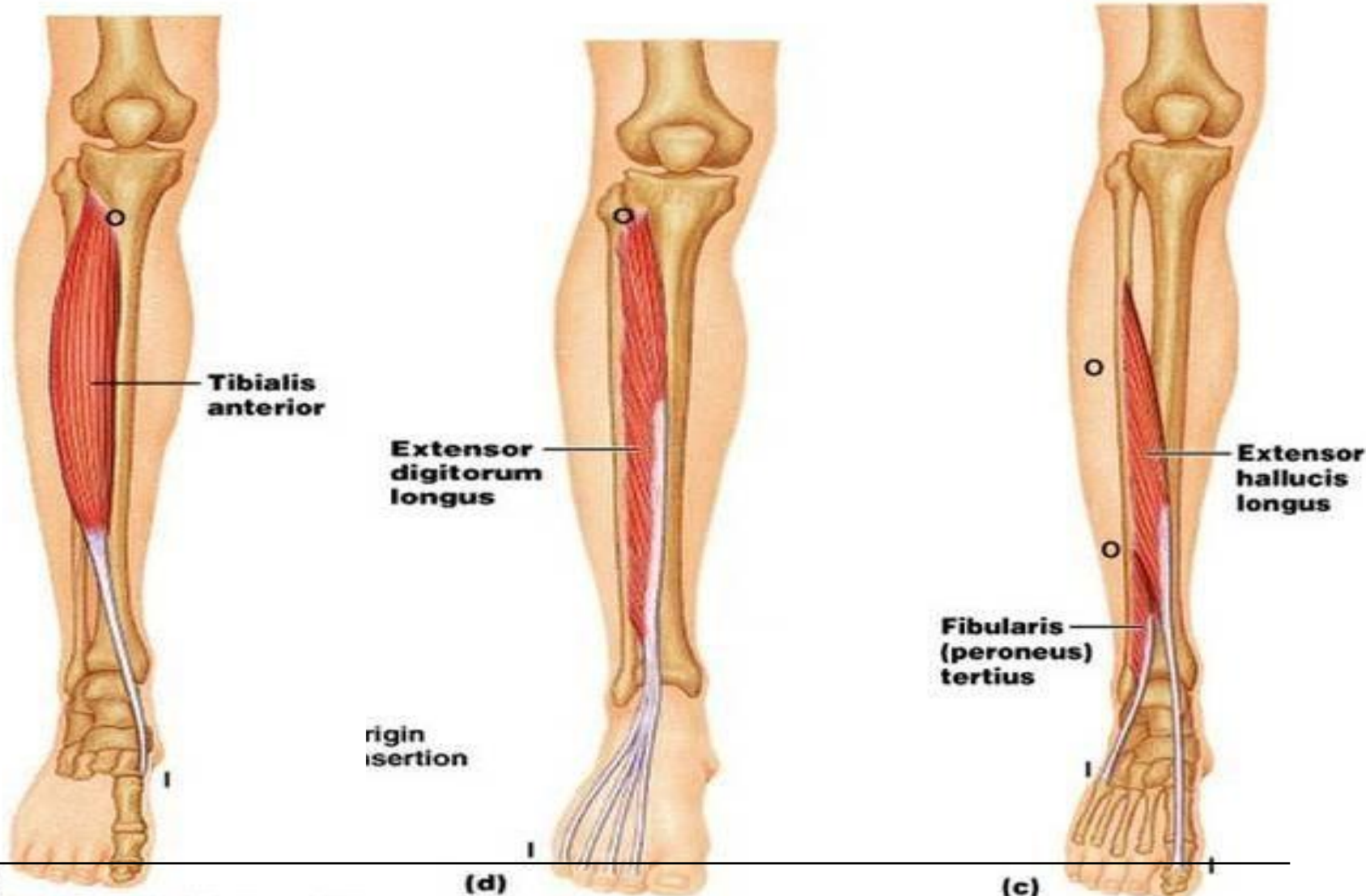
1. Tibialis anterior
2. Extensor digitorum longus
3. Extensor hallucis longus
4. Peroneus tertius

○ Anterior tibial artery

○ Deep peroneal nerve.



Muscles of the anterior compartment

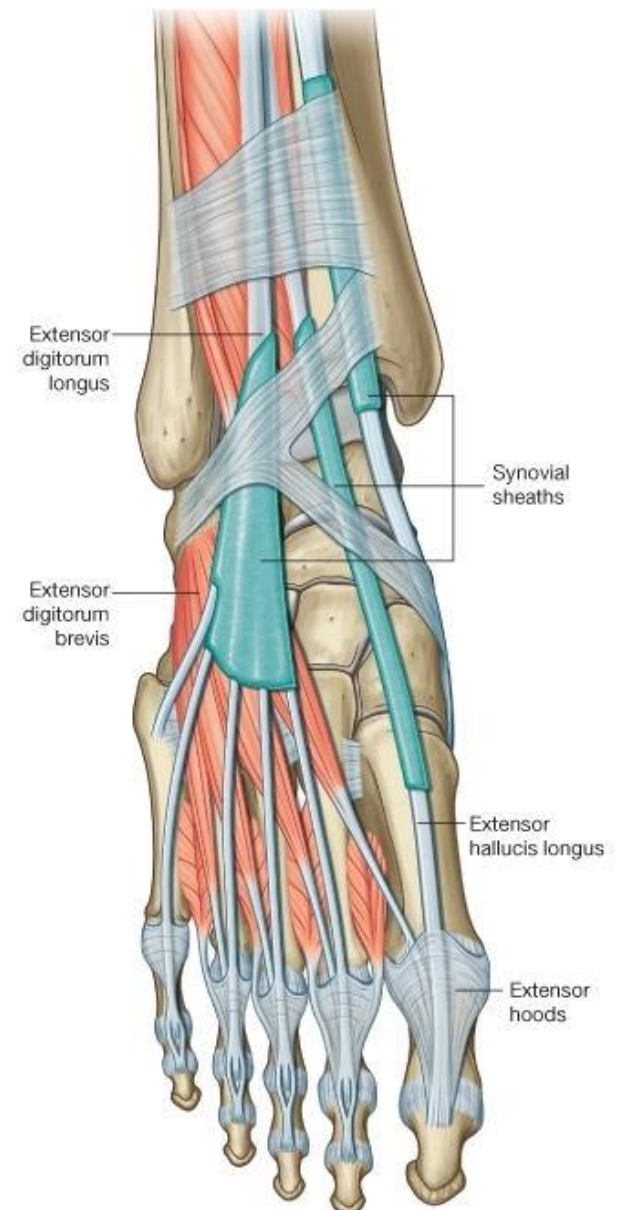


Retinacula

Deep fascia is thickened to form bands.

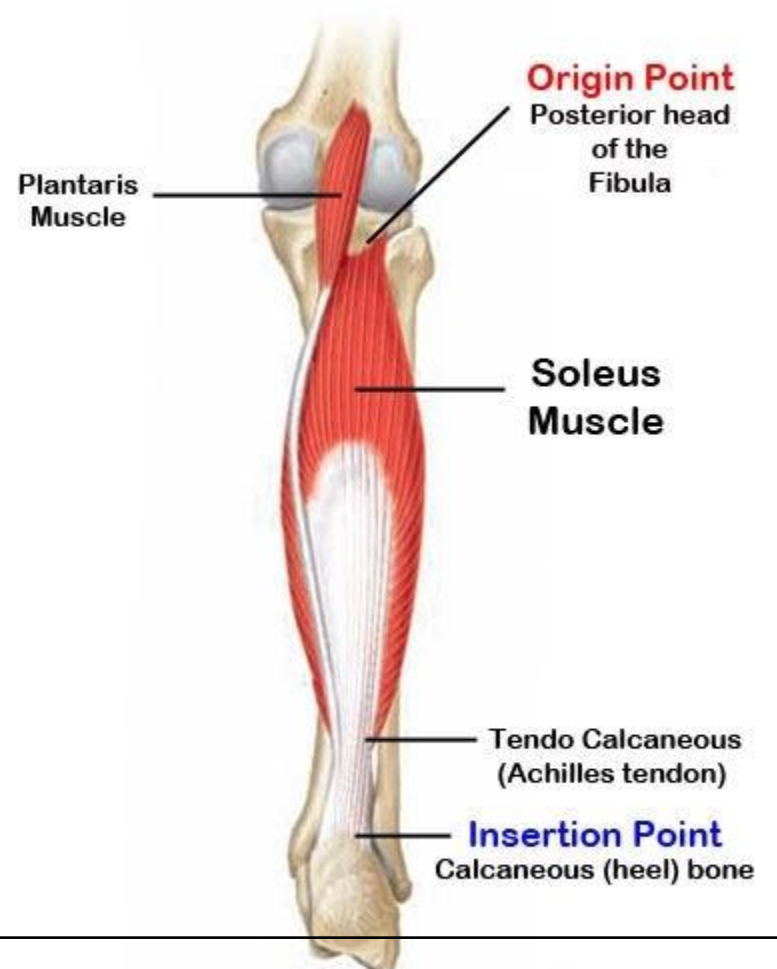
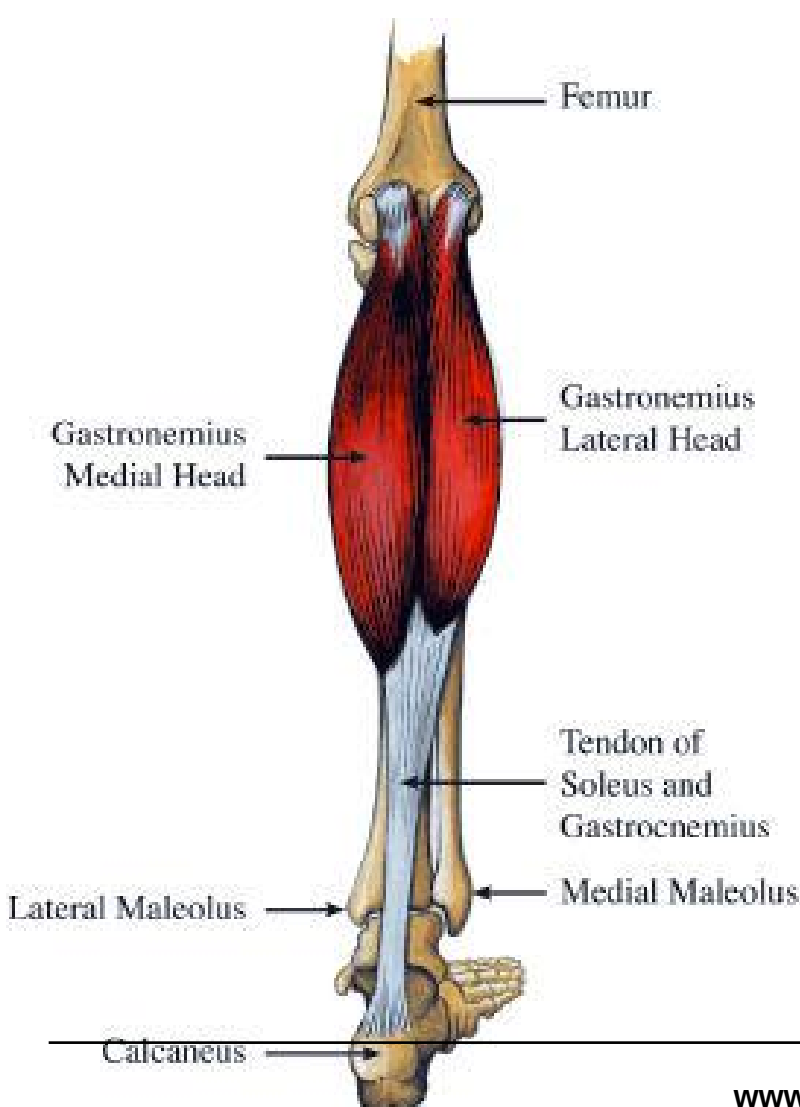
Retain tendons in place.

- Superior Extensor Retinaculum
- Inferior Extensor Retinaculum
- Superior Peroneal Retinaculum
- Inferior Peroneal Retinaculum



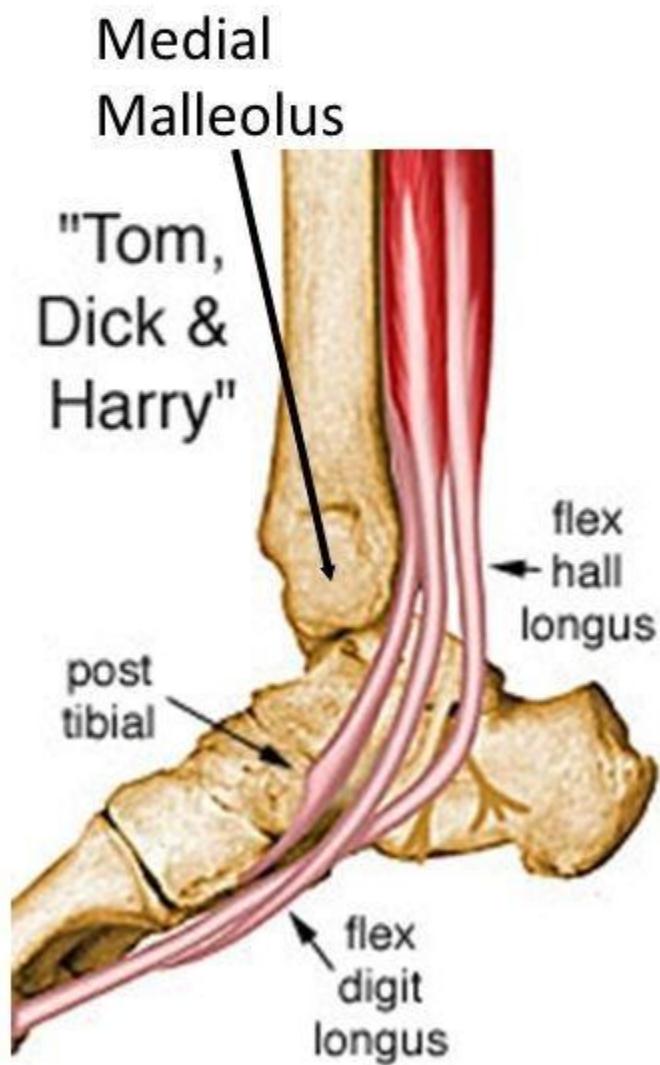
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Muscles of the back



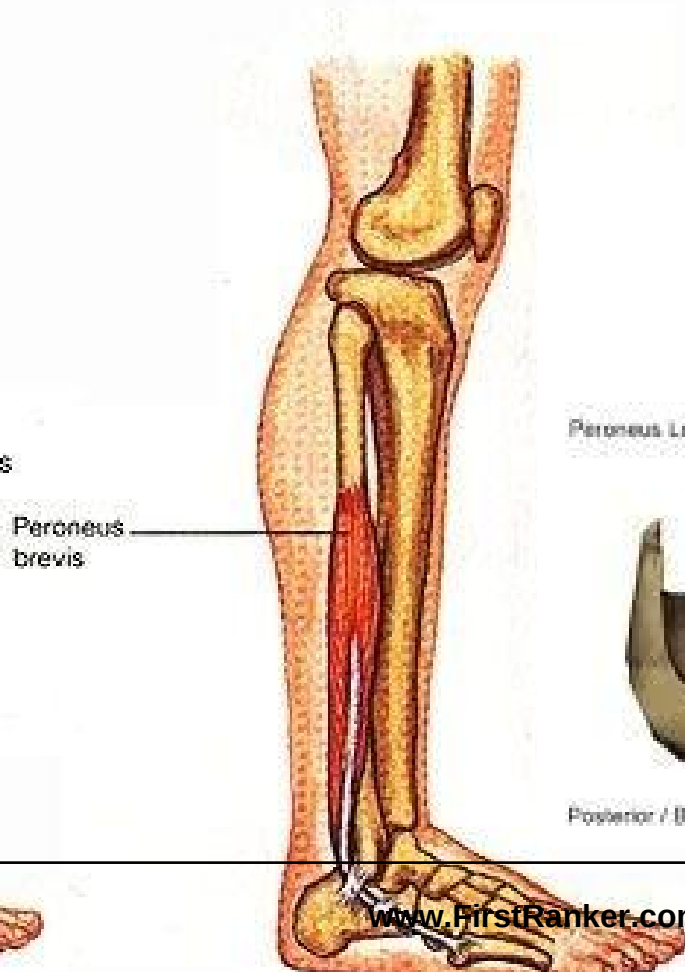
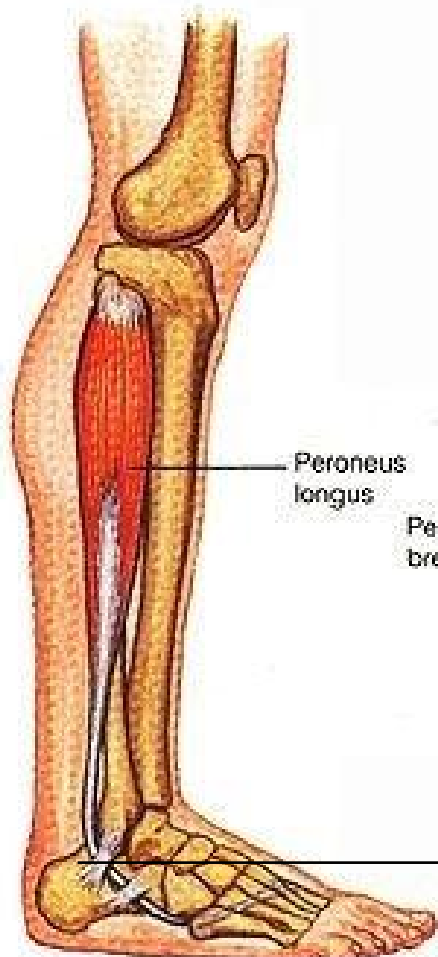
Tibialis Posterior

Flexor Hallucis Longus



Flexor Digitorum Longus

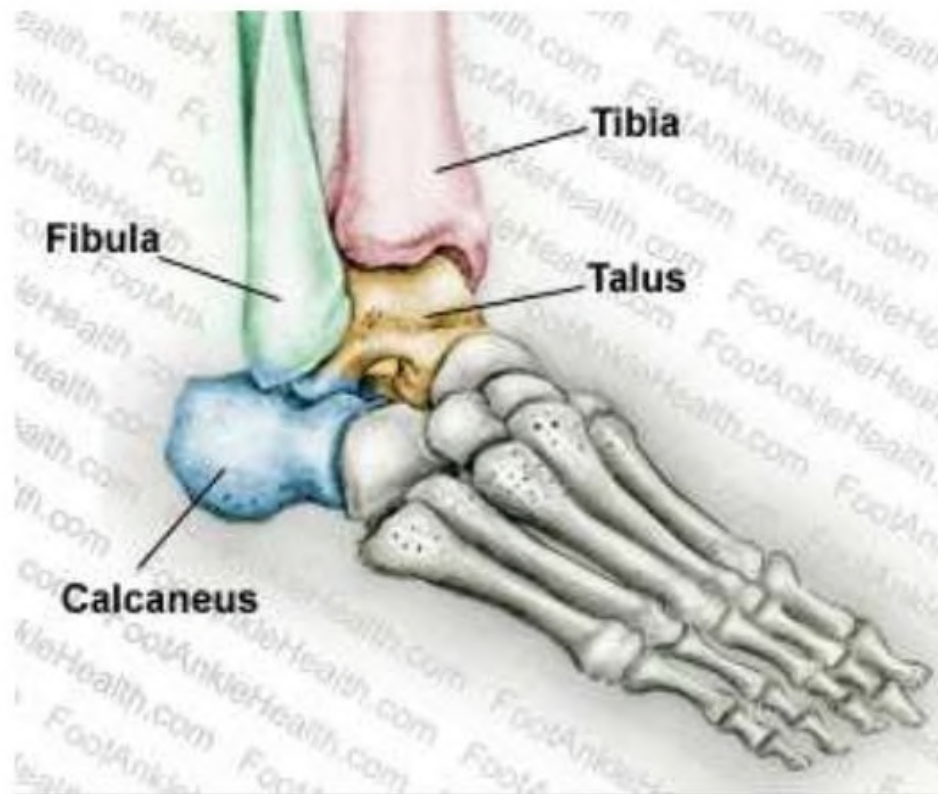
Muscles of lateral side



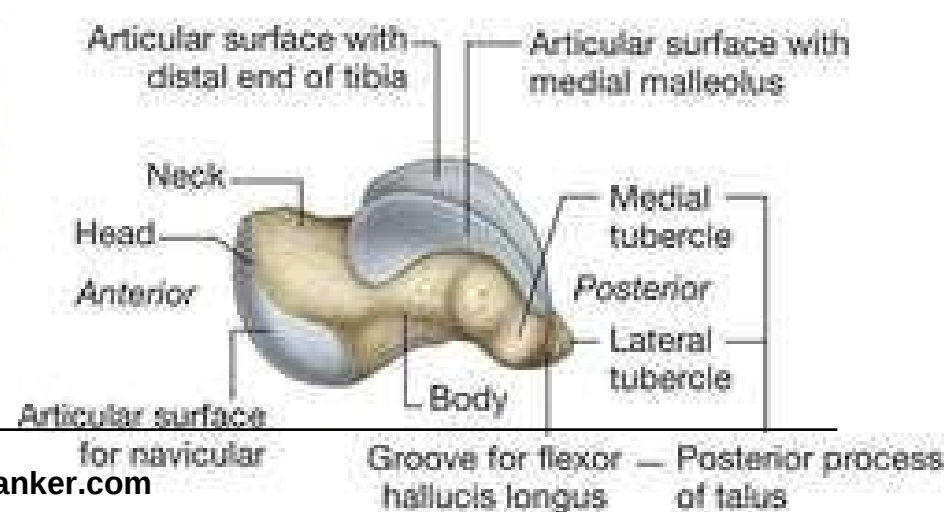
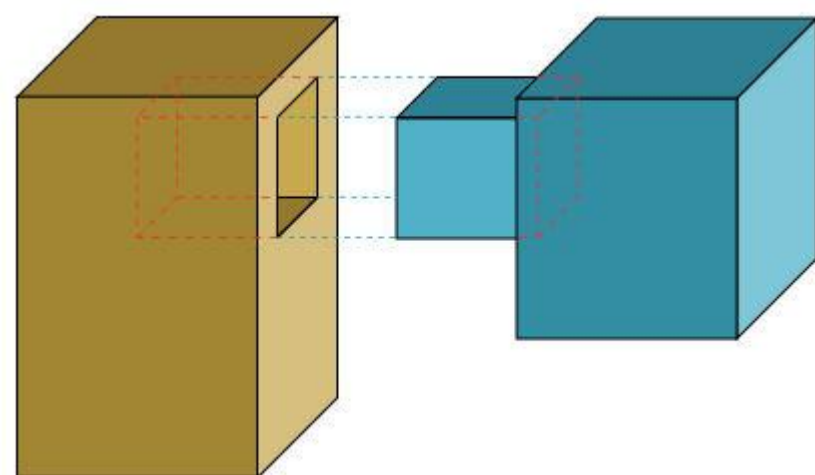
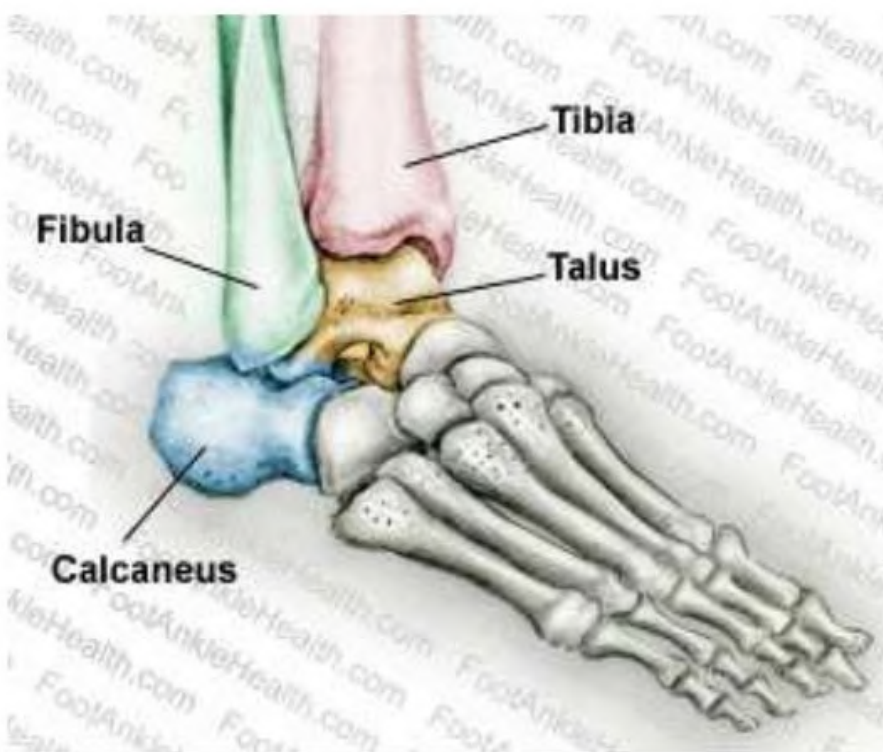
ANKLE or TALO-CRURAL JOINT

Uni-axial synovial joint

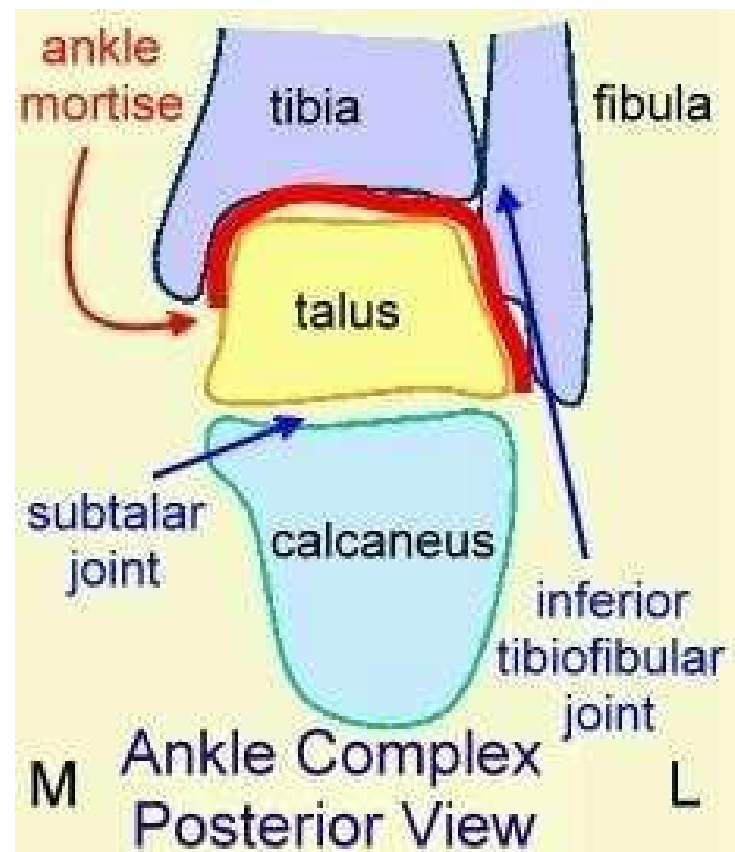
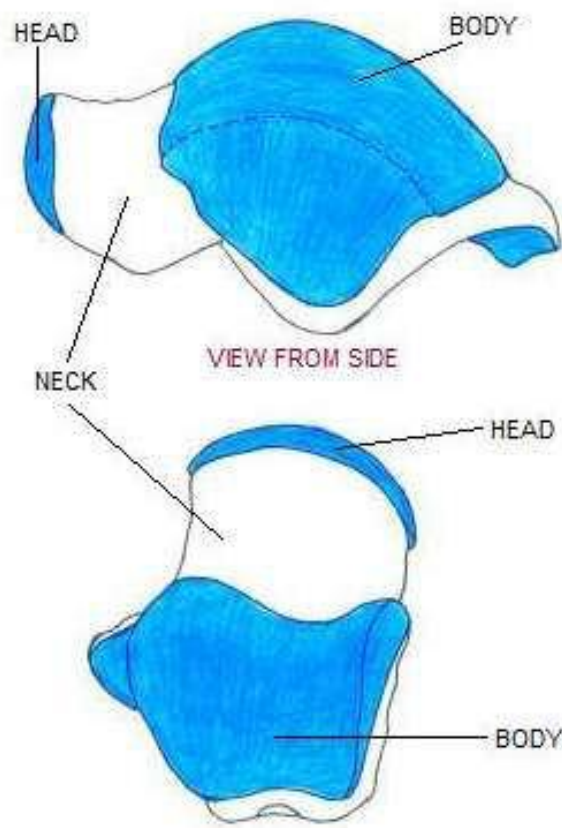
Modified hinge joint



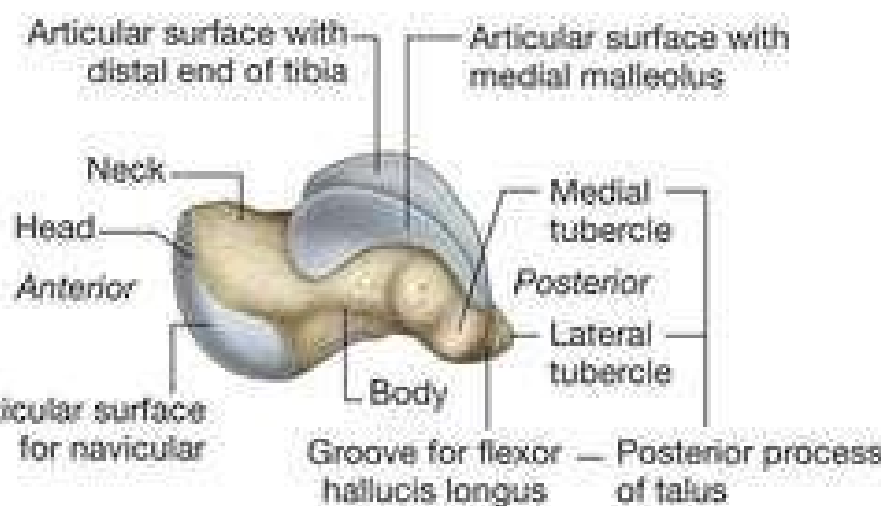
Tibio-fibular mortise



Trochlea tali



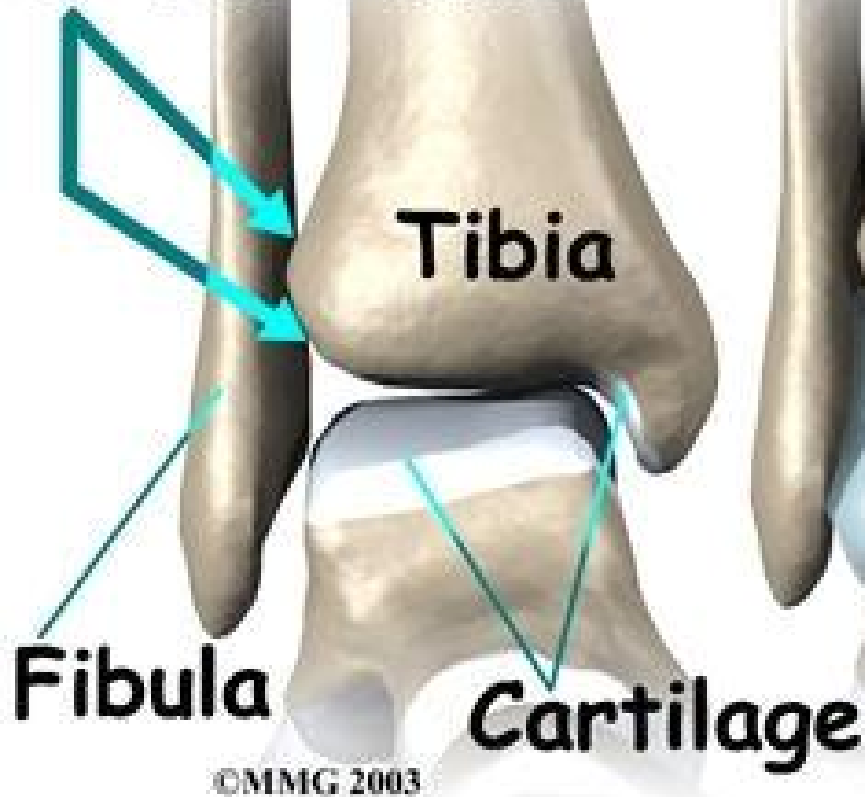
Inferior transverse
Tibiofibular ligament



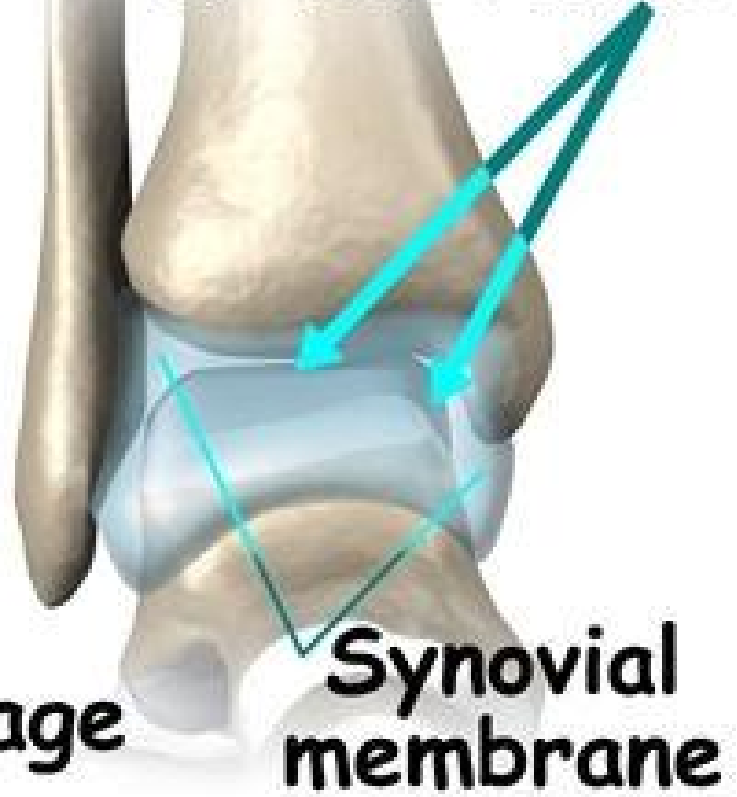
Ligaments

- Capsule
- Synovial membrane
- The ankle joint is bound medially by the strong **Deltoid ligament**
- Three lateral ligaments
 - Anterior talofibular ligament
 - Posterior talofibular ligament
 - Calcaneofibular ligament

Syndesmosis Joint of the Ankle



Synovial Joint of the Ankle

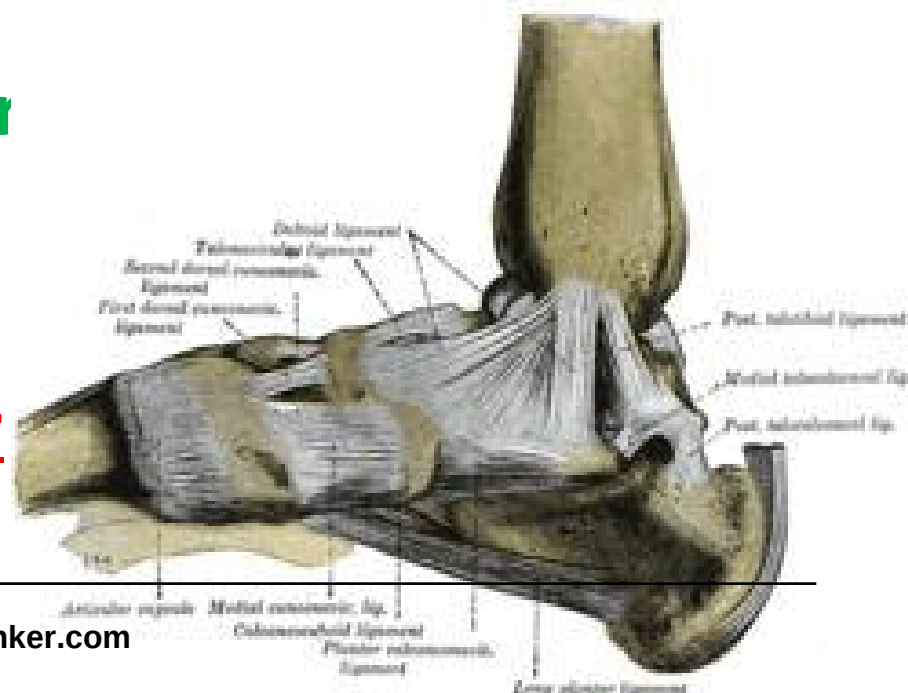


Deltoid ligament or Medial ligament

Superficial part:

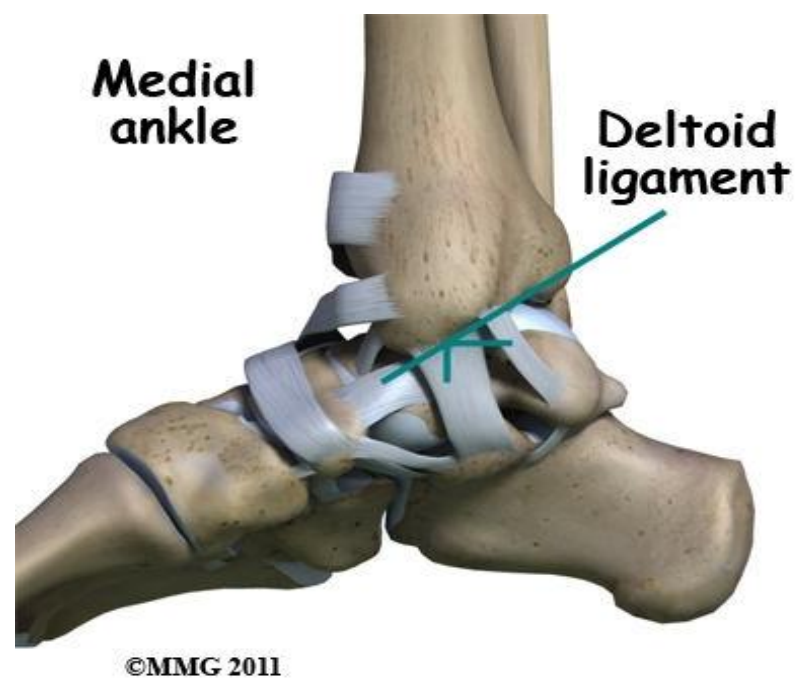
- Anterior part or Tibio - navicular part
- Intermediate part or Tibio - calcanean part
- Posterior part or Posterior tibio - talar part

Deep part/Anterior Tibiotalar

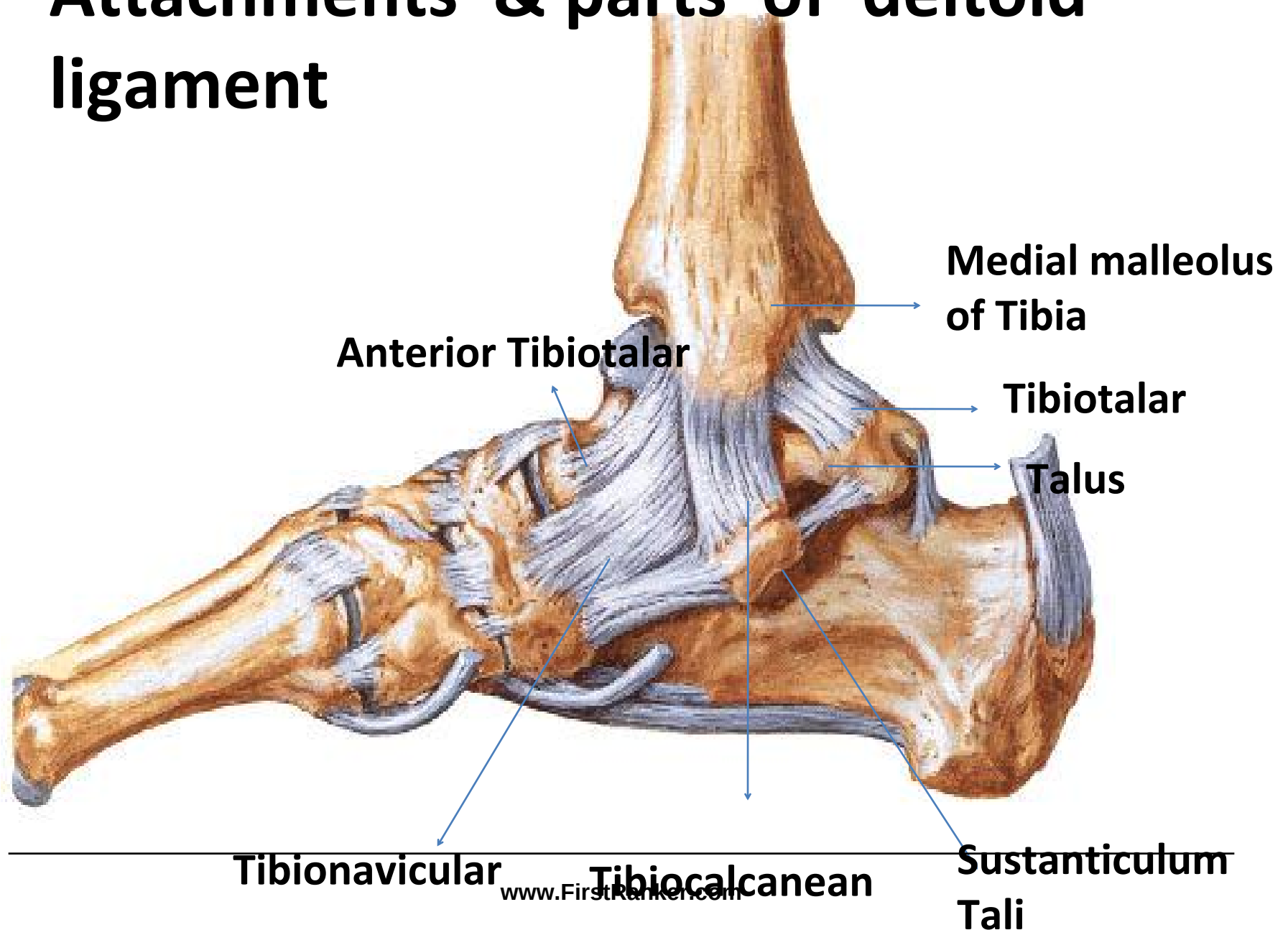


Deltoid ligament

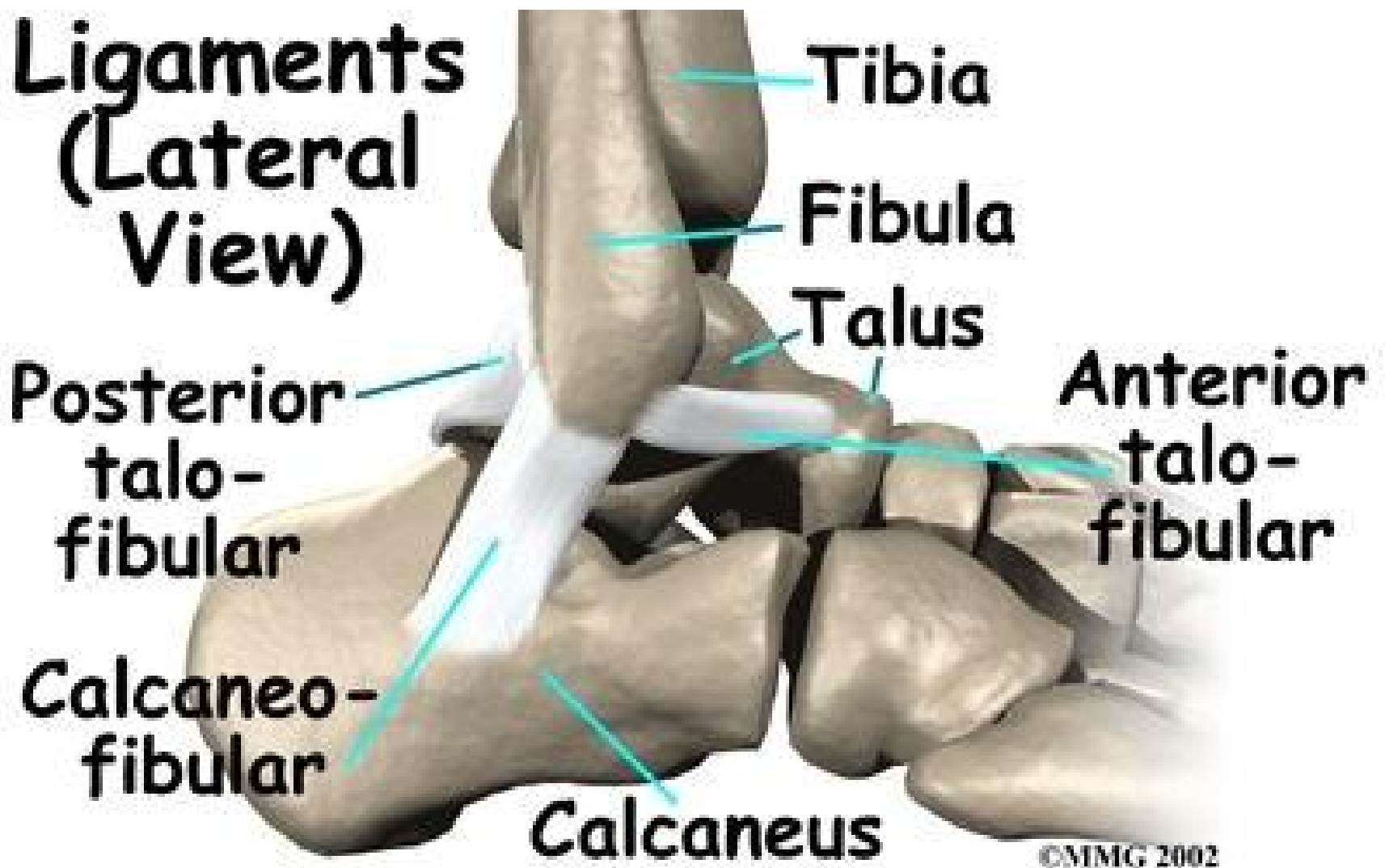
- Supports the medial side of joint
- **Proximally**, it is attached to the medial malleolus
- **Distally**, it is attached to four places
 - Sustentaculum tali of calcaneus
 - Calcaneonavicular ligament
 - Navicular tuberosity
 - Medial surface of talus



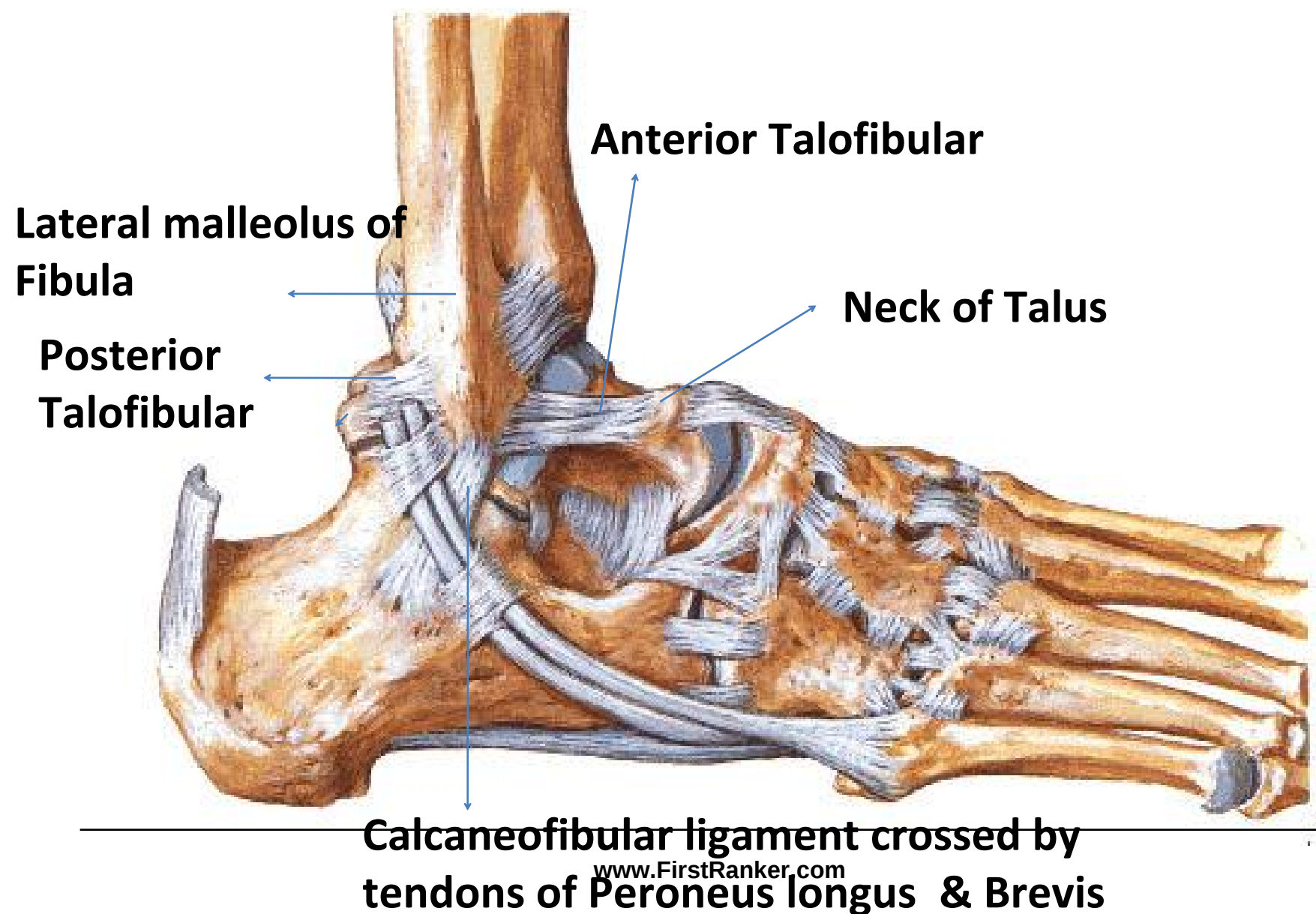
Attachments & parts of deltoid ligament



Ligaments (Lateral View)



Lateral ligaments



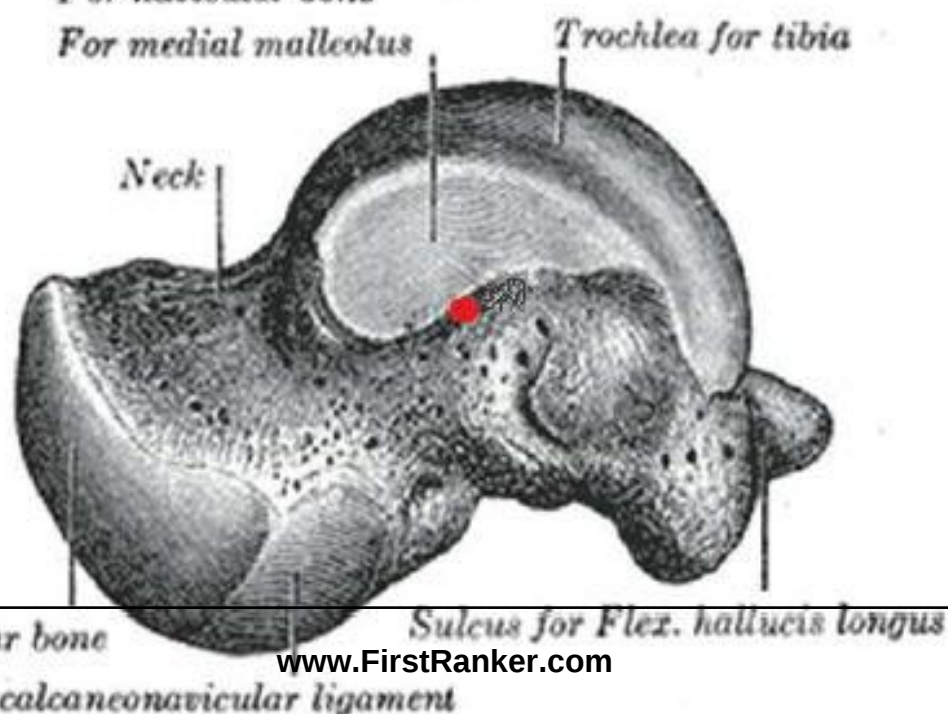
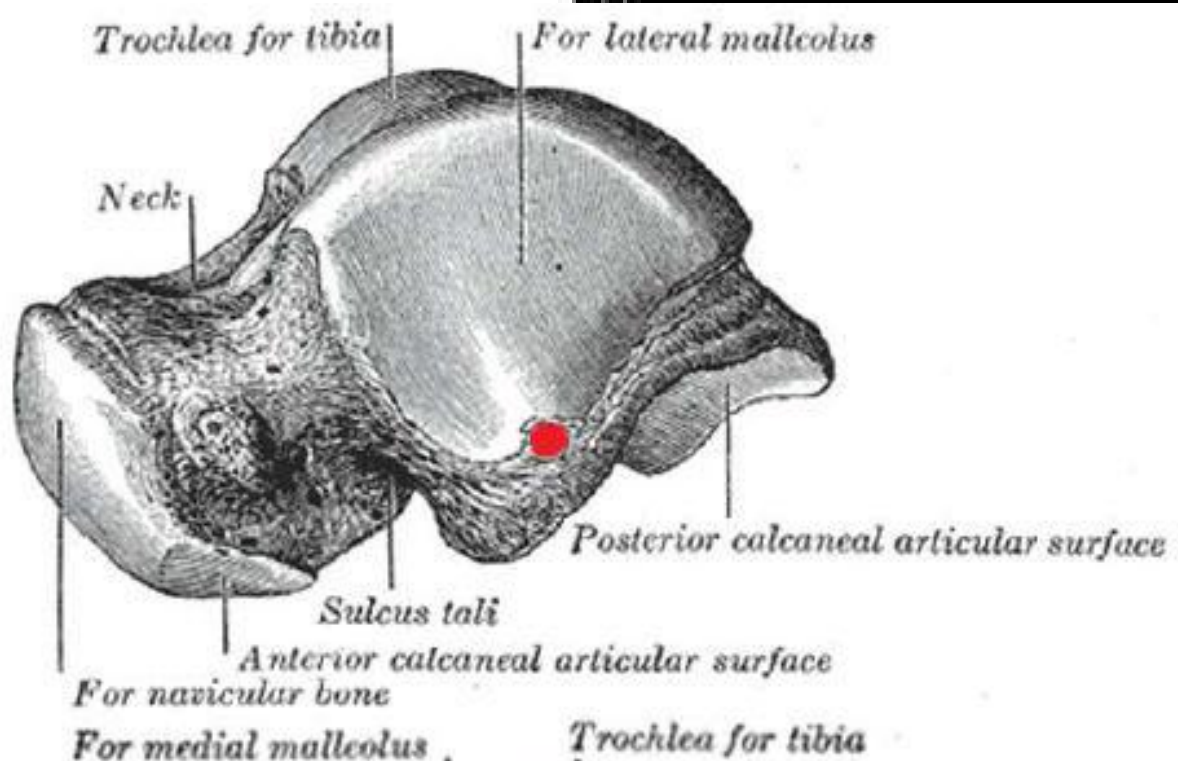
Movements of ankle joint

Dorsiflexion:

Close packed state. Position more stable.

Plantar flexion:

Loosely packed state of joint. Joint is less stable.



Movements

Plantar Flexion: S1, S2

Gastrocnemius

Soleus

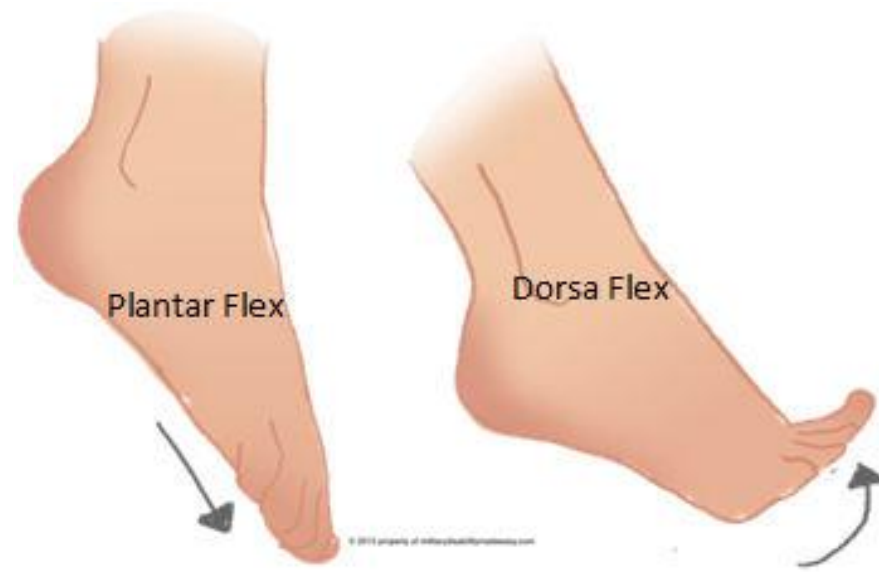
Assisted by

Tibialis posterior,

Flexor Digitorum longus,

Flexor Hallucis longus,

Peroneus longus and brevis in extreme plantar flexion



Dorsiflexion: L4, L5

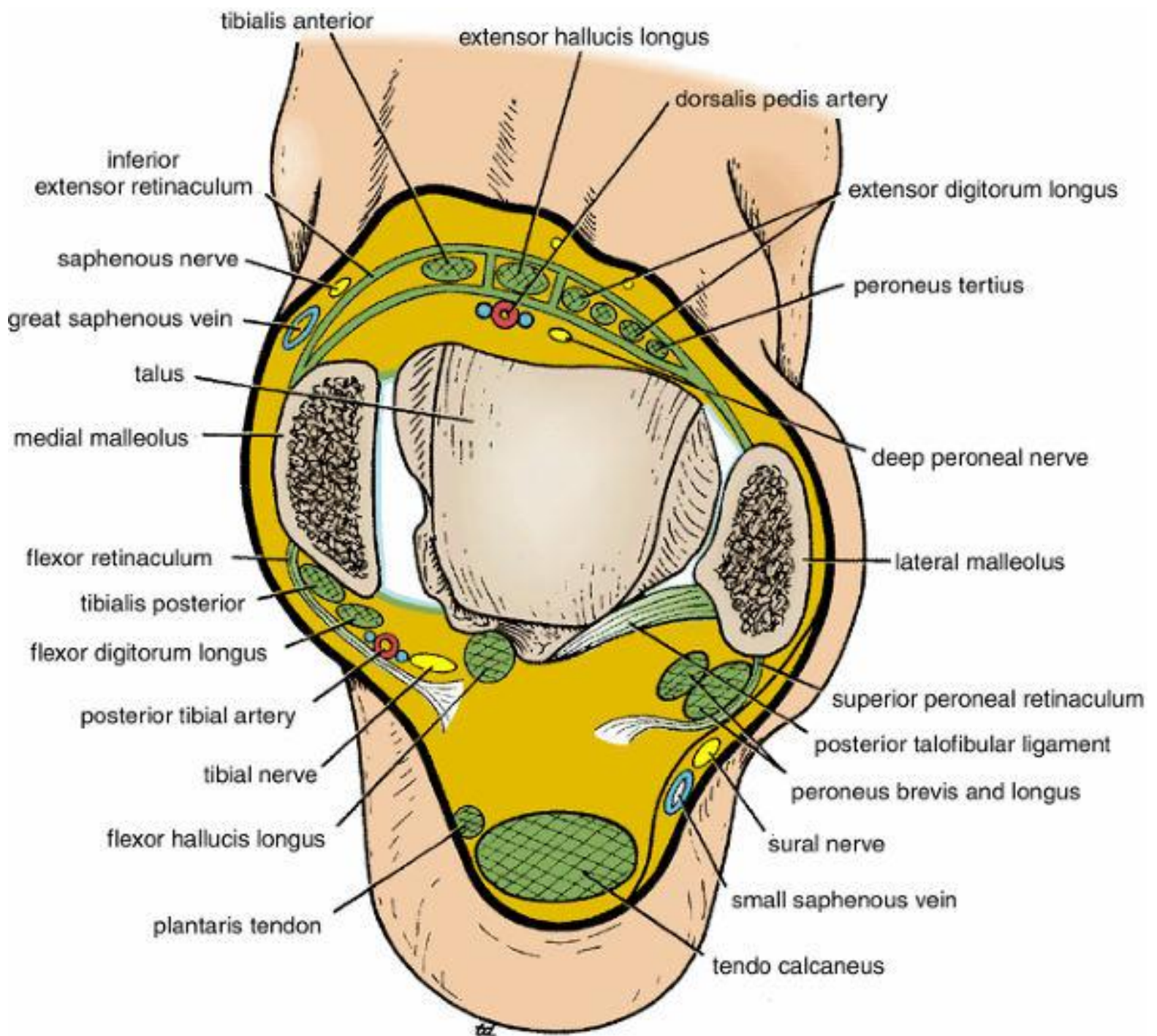
Tibialis anterior

Extensor Digitorum longus,

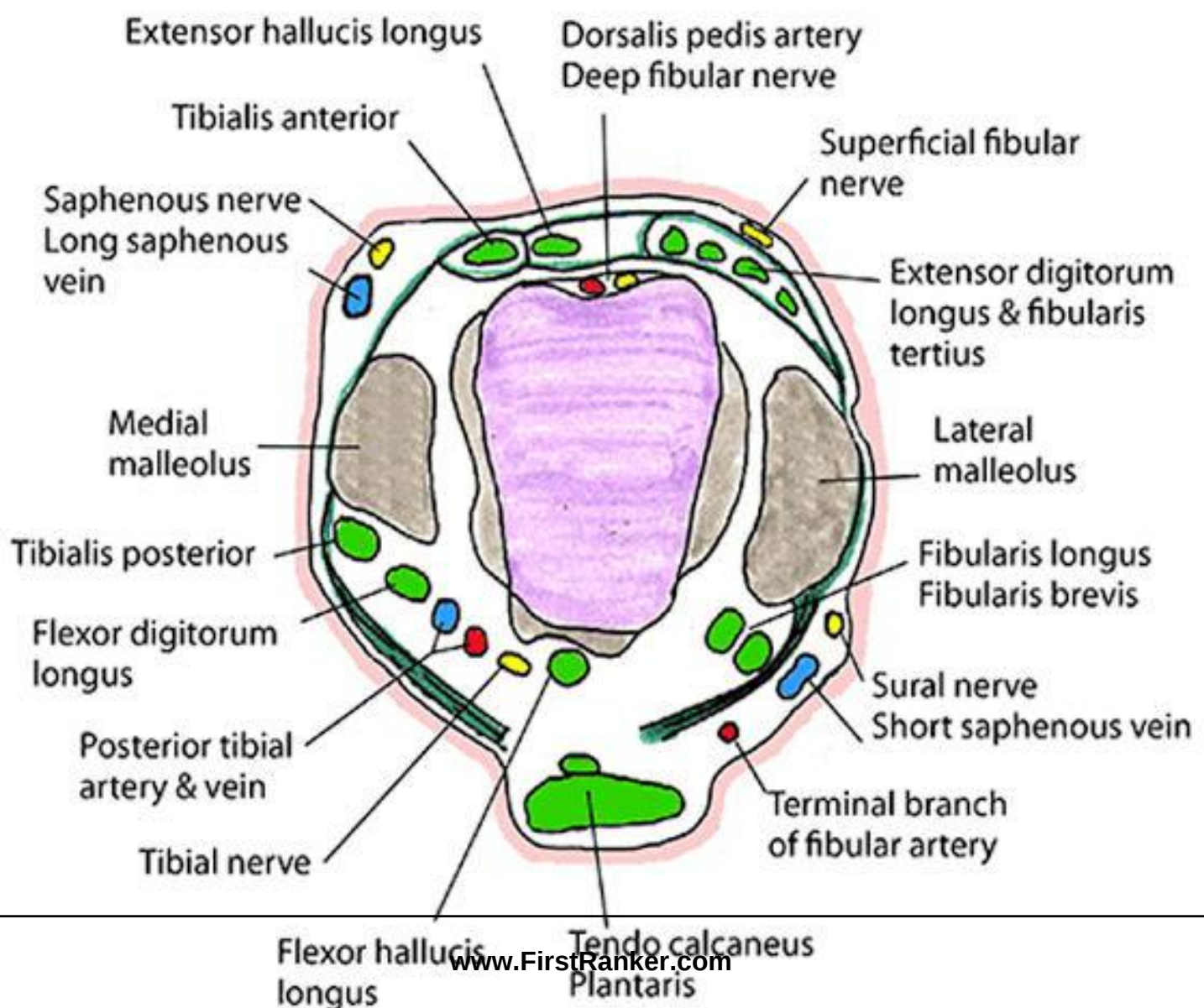
Extensor Hallucis longus,

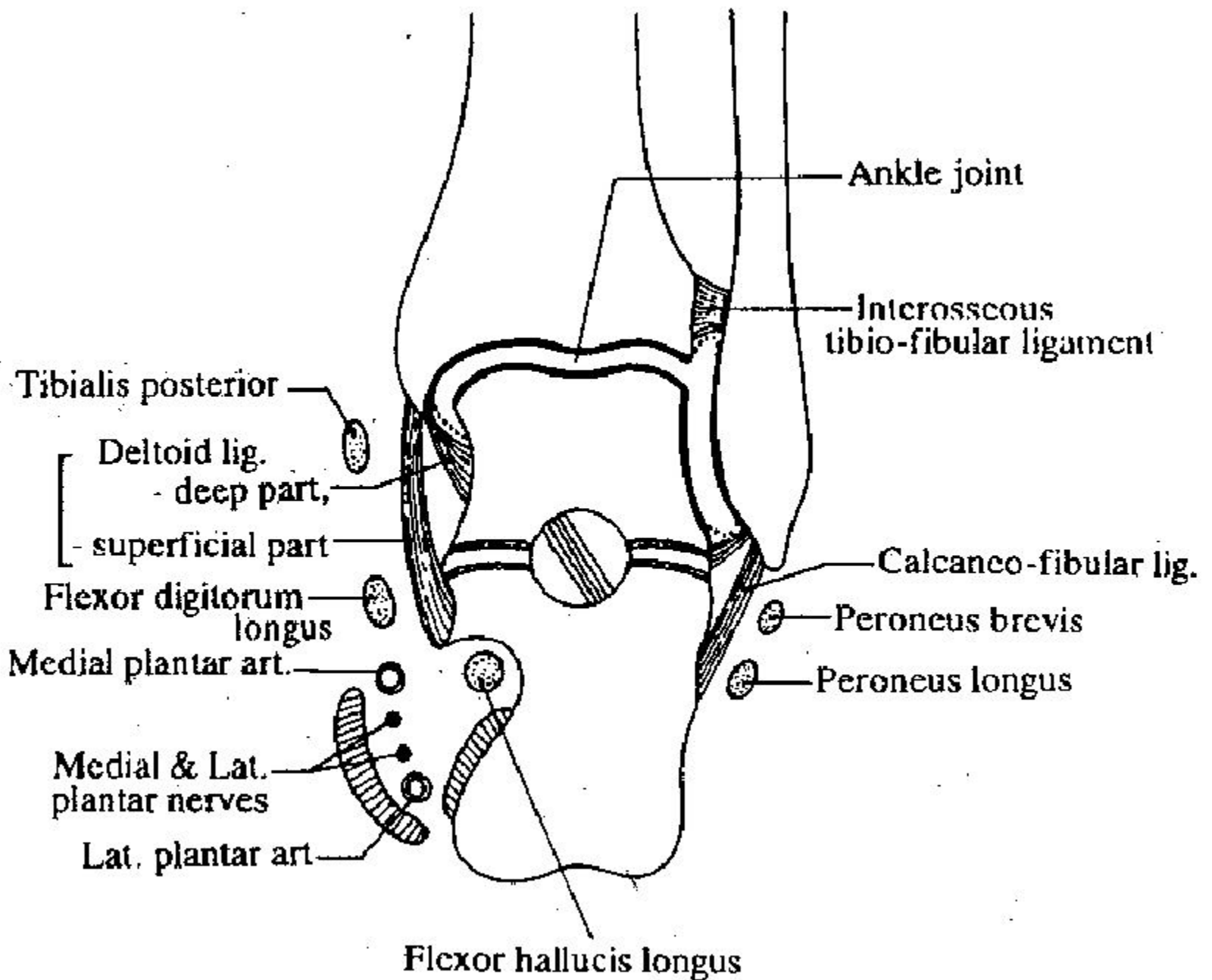
Peroneus tertius





AXIAL (CROSS) SECTION THROUGH ANKLE RIGHT ANKLE





Arterial supply

- *Malleolar branches of Anterior Tibial Artery.*
- *Malleolar branches of Peroneal Artery.*

NERVE SUPPLY

- *Branches from Deep Peroneal Nerve.*
- *Branches from Tibial Nerve.*

Interphalangeal joints

Typical hinge joint

Permit plantar flexion and dorsiflexion



Metatarso - phalangeal joints

Ellipsoidal type of synovial joint.

Ligaments:

- Capsule.
- Collateral ligaments.
- Deep metatarsal ligaments.

Movements:

- Dorsi & plantar flexion.
- Adduction & abduction.

Tarso-metatarsal joints

Plane synovial joints

Gliding movements



Intertarsal joints

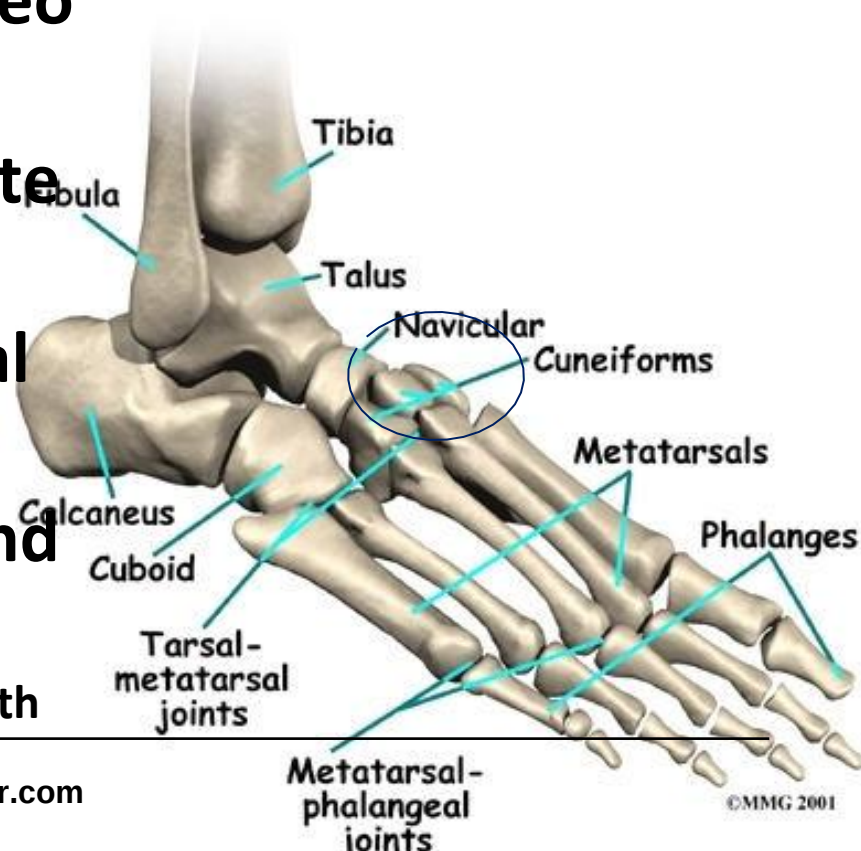
SIX synovial cavities between tarsus and metatarsus :

- a) Sub-talar
 - b) Talo-calcaneo-navicular
 - c) Calcaneo-cuboid
- } Mid-tarsal / Transverse tarsal

d) A joint cavity comprising cuneo-navicular, intercuneiform, cuneo-cuboid and intermediate and lateral cuneiform with bases of 2nd and 3rd metatarsal bone.

e) Between medial cuneiform and base of 1st metacarpal.

f) Between cuboid and 4th and 5th metacarpal



SUBTALAR JOINT /Posterior talo-calcanean joint

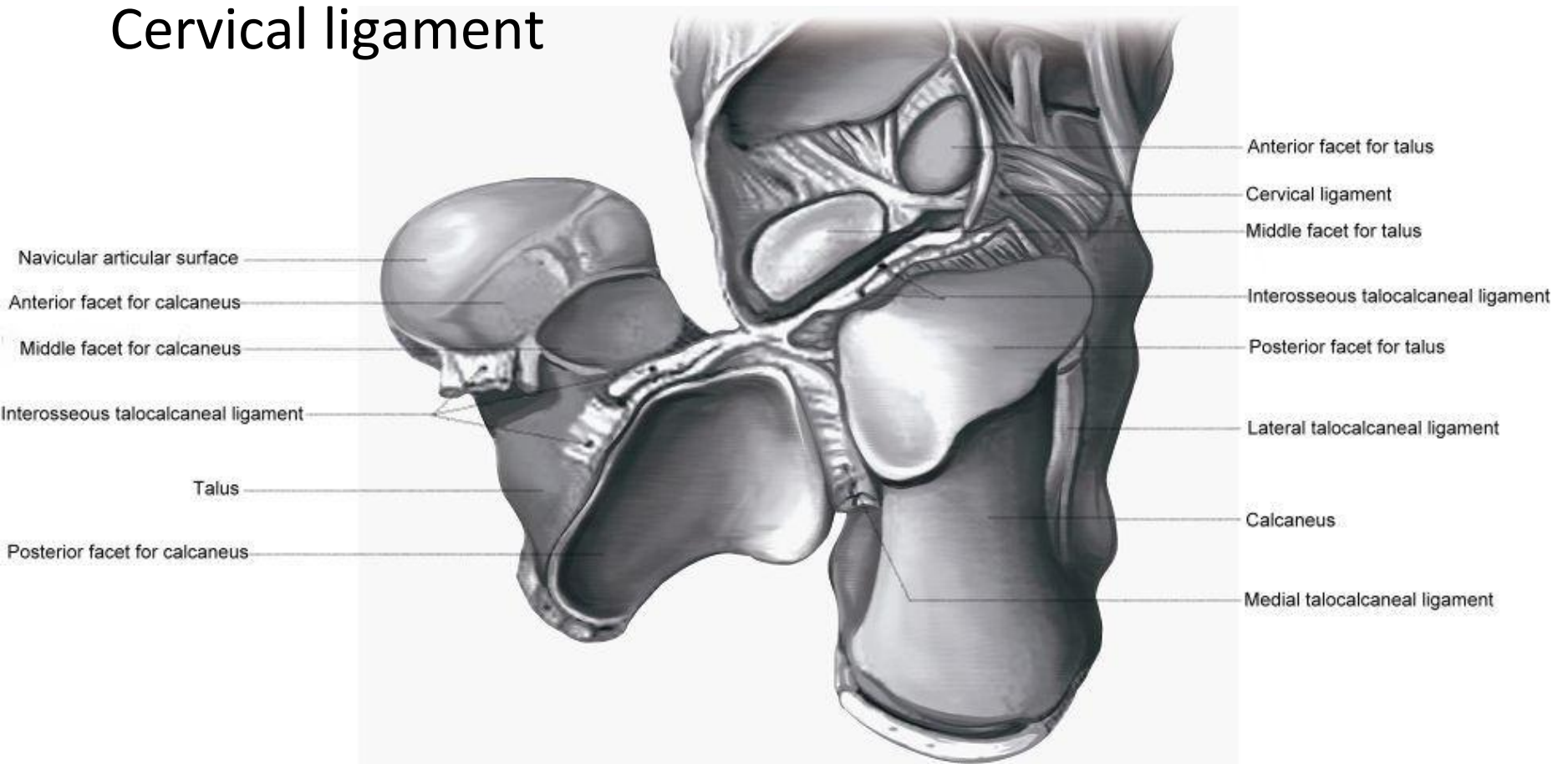
Ligaments

Capsule

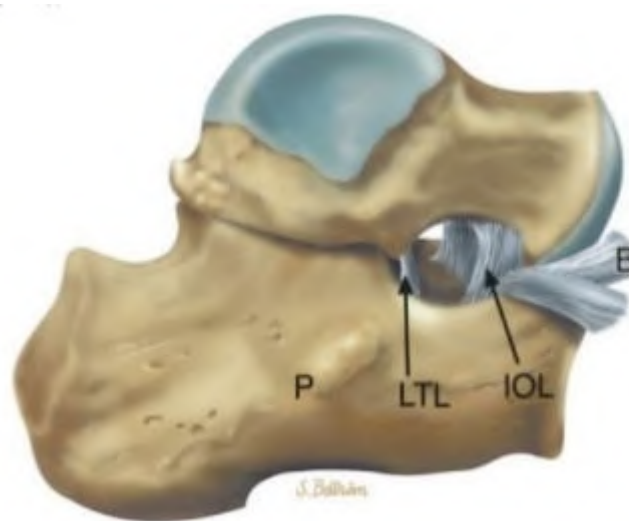
Medial and lateral talo-calcanean ligaments

Interosseous talo-calcaneanligament

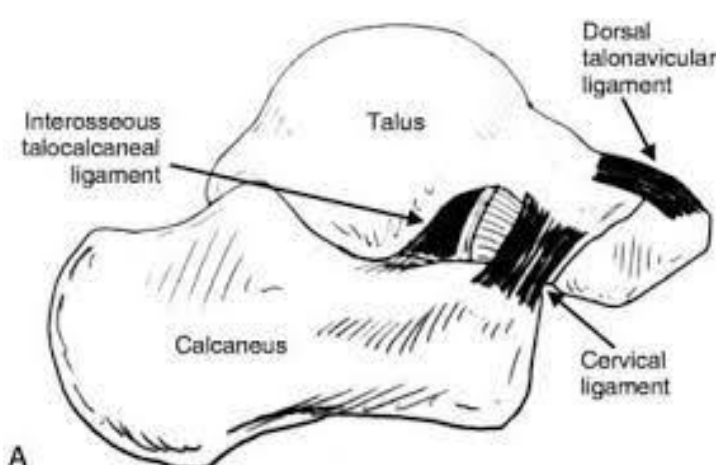
Cervical ligament



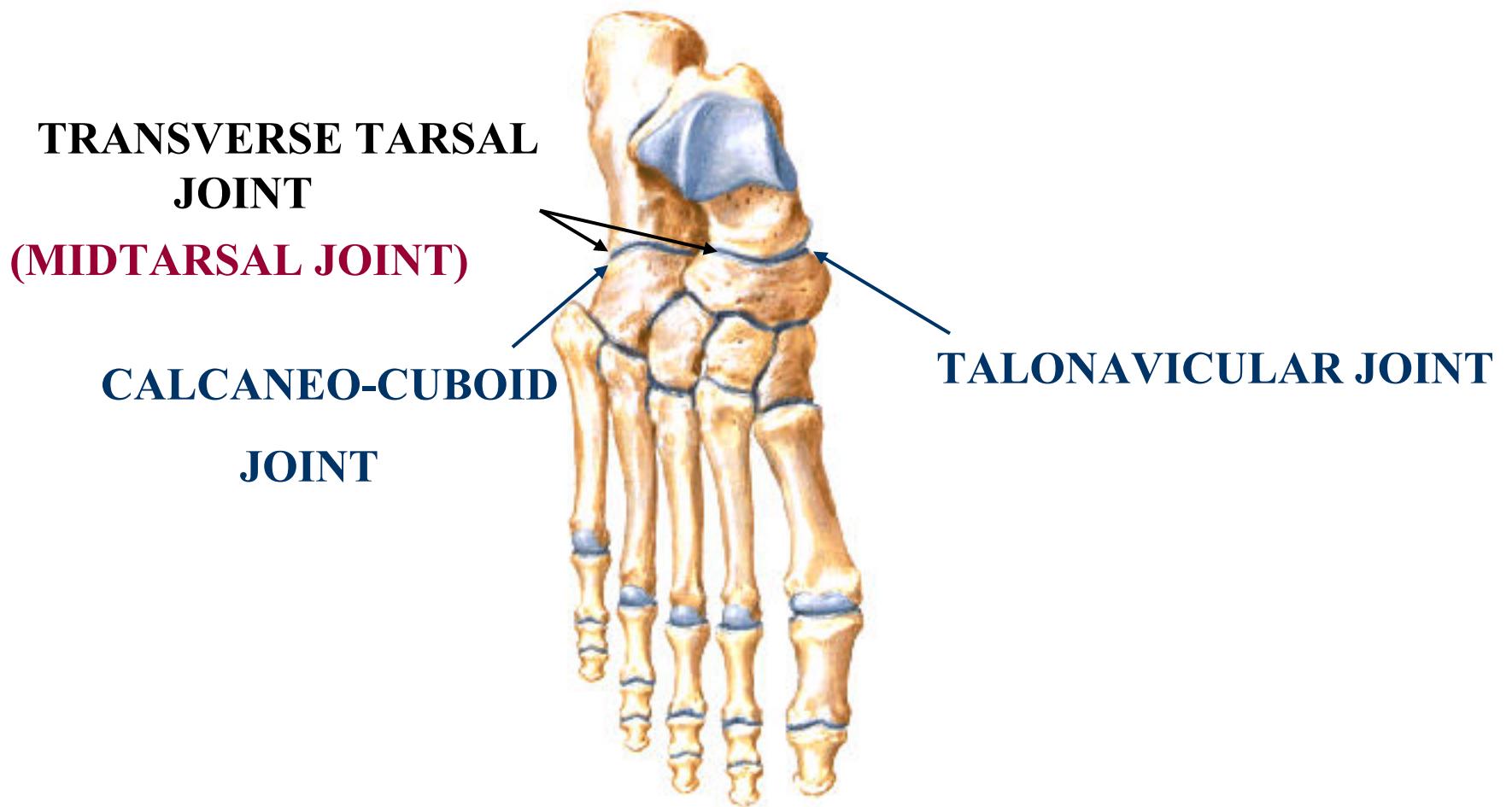
Interosseous talo-calcanean ligament



Cervical ligament

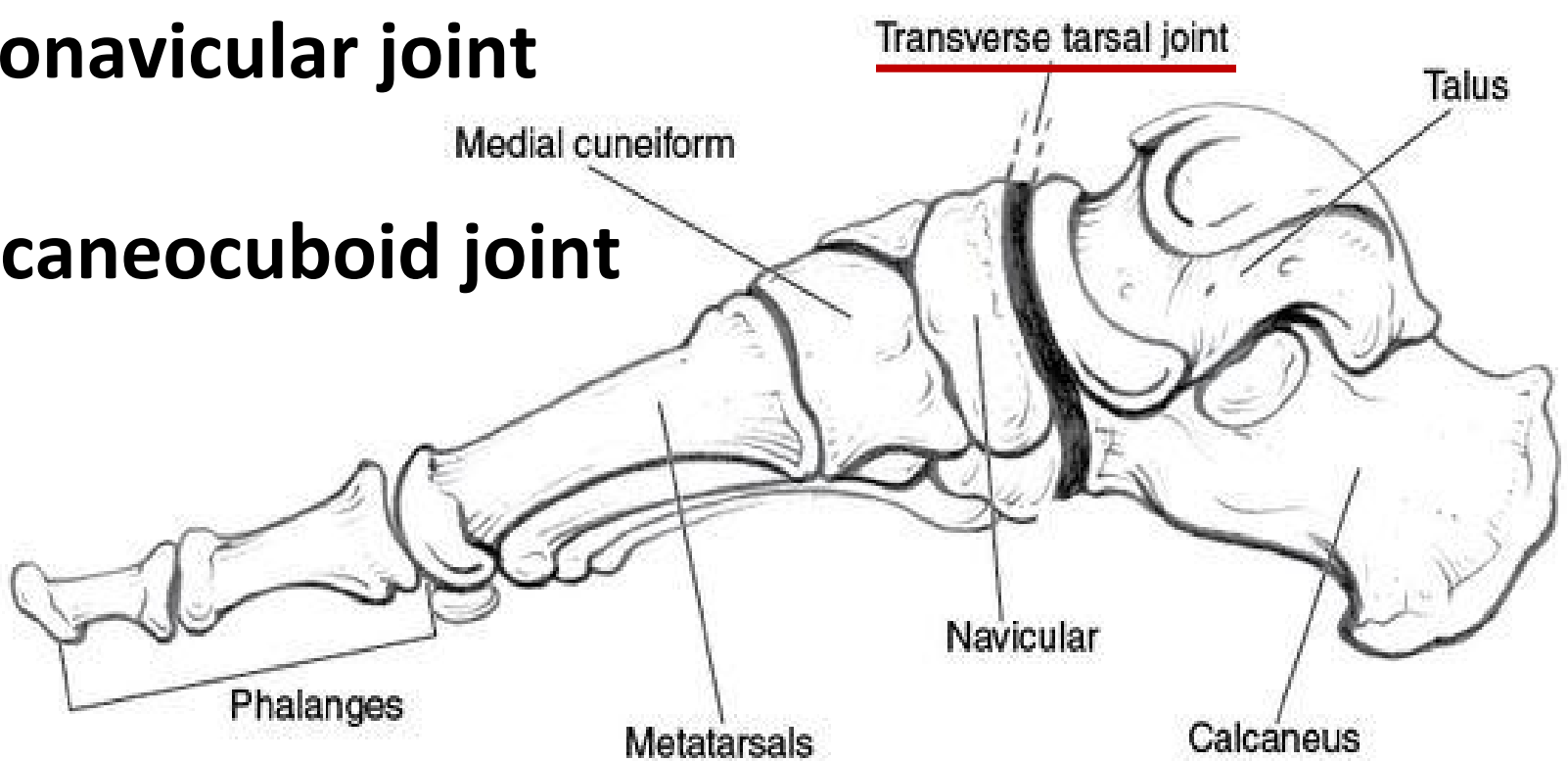


Midtarsal or transverse tarsal joints



Midtarsal or transverse tarsal joint

- Talonavicular joint
- Calcaneocuboid joint



Medial view of foot

Talo-calcaneo-navicular joint

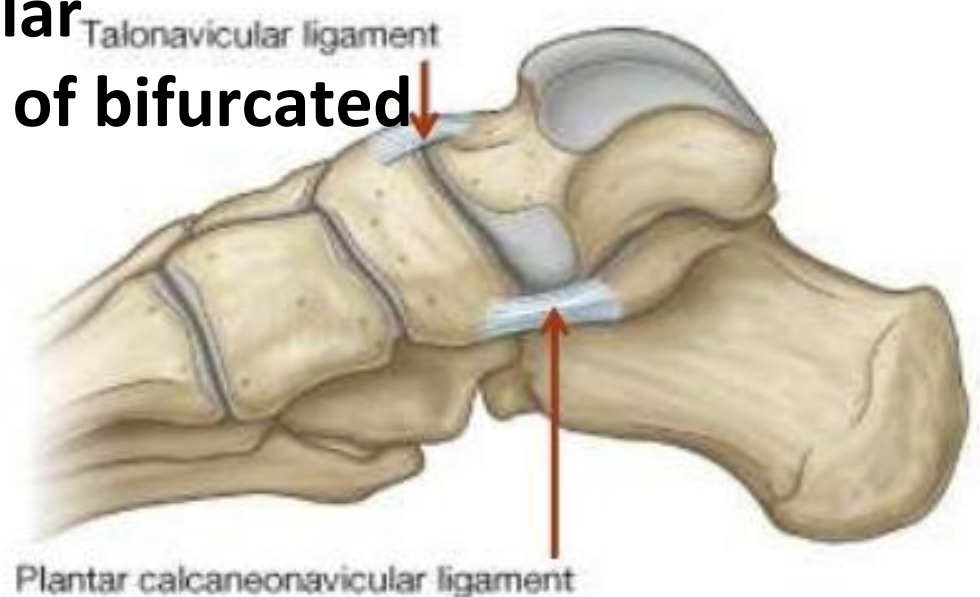
Restricted ball and socket type of joint

Ligaments

Talo-navicular ligament

Plantar calcaneo-navicular

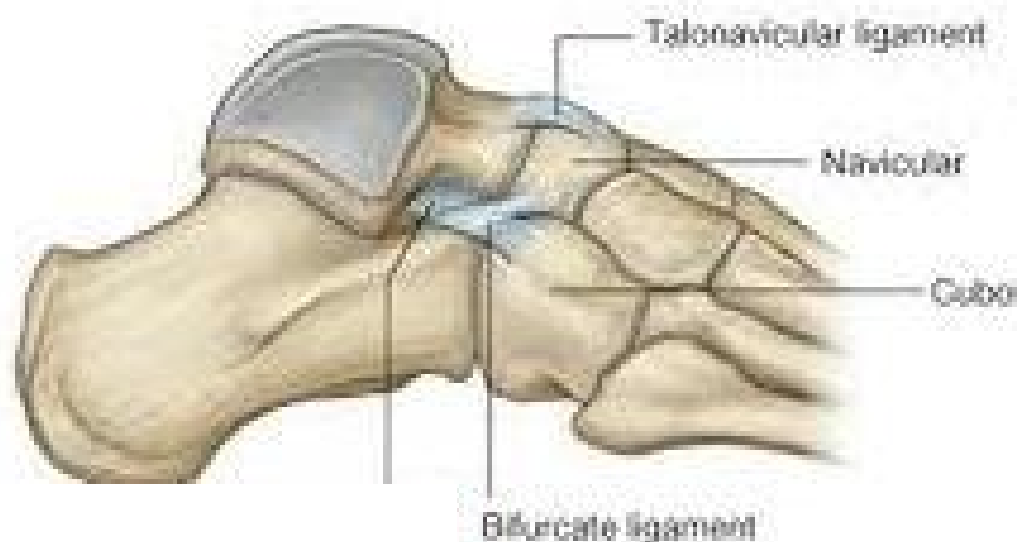
Calcaneo-navicular part of bifurcated ligaments



The bifurcated ligament

Y-shaped band.

Its stem attached proximally to the anterior part of the upper calcaneal surface



Distally it divides into 2 limbs - calcaneocuboid and calcaneonavicular parts.

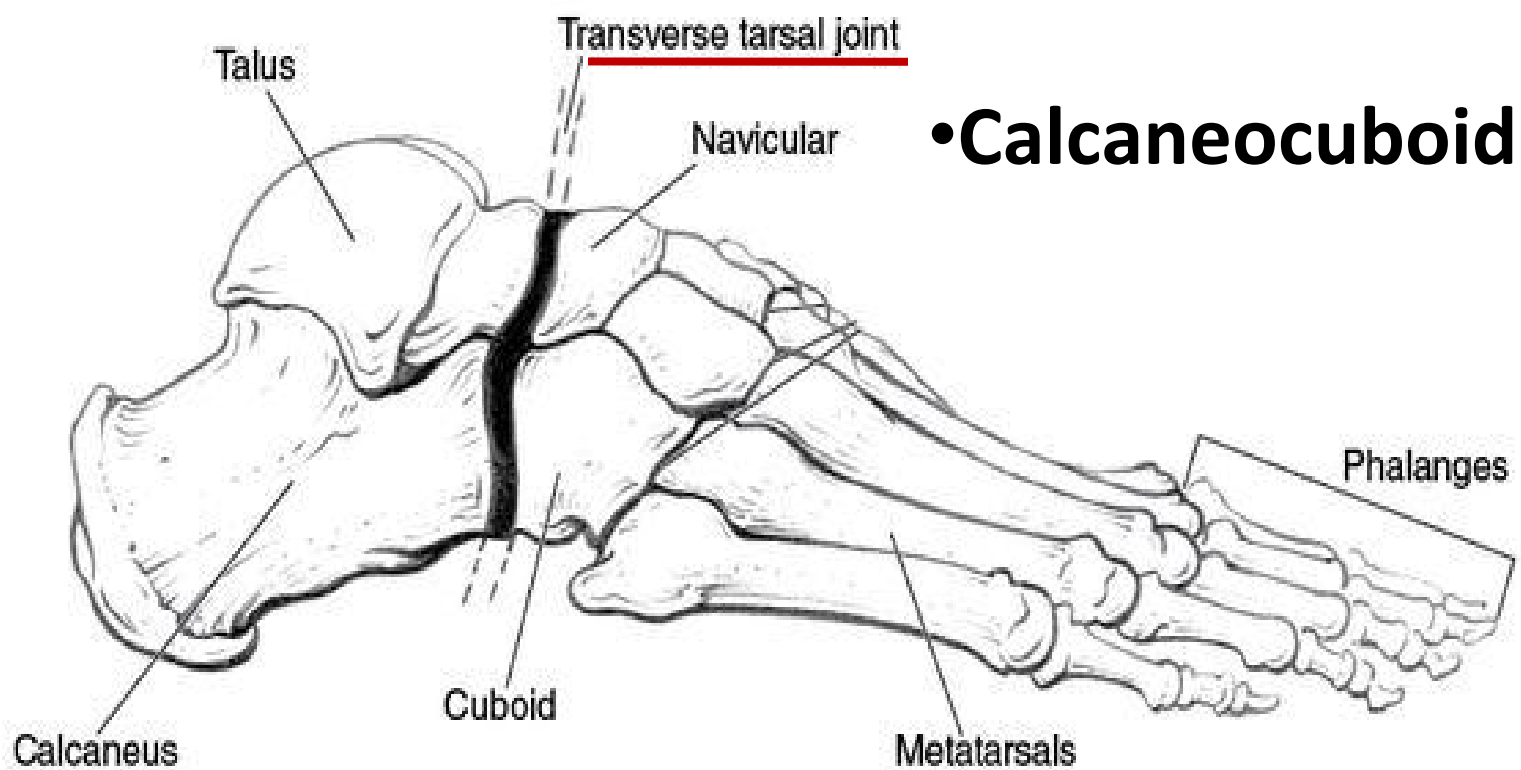
The **calcaneocuboid ligament** extends to the dorsomedial aspect of the cuboid

The **calcaneonavicular ligament** is attached to the dorsolateral aspect of the navicular

Midtarsal or transverse tarsal joints

• Talonavicular joint

• Calcaneocuboid joint



Lateral view of foot

CALCANEOCUBOID JOINT

Saddle or sellar joint.

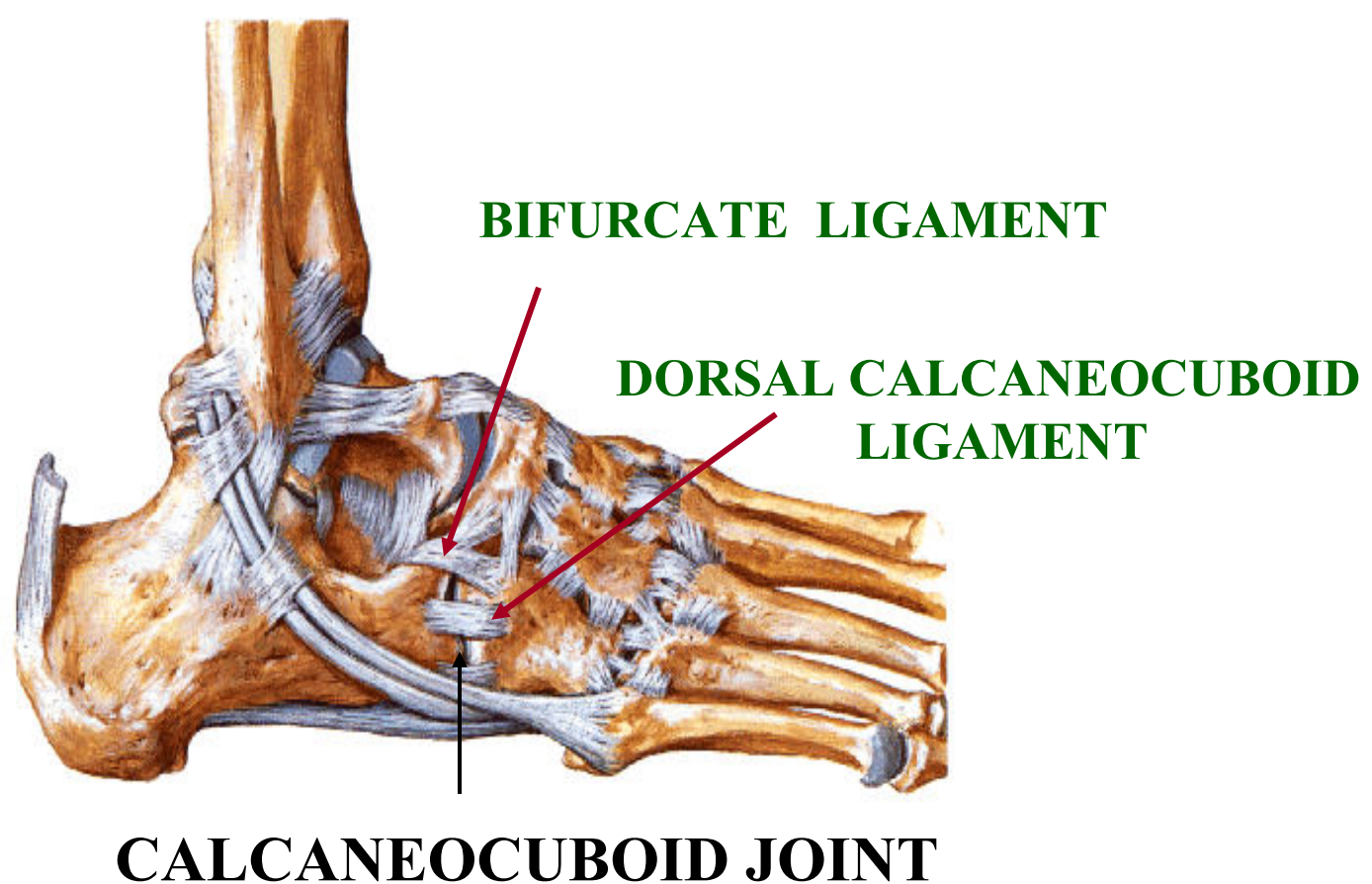
Between anterior surface of calcaneus & posterior surface of cuboid

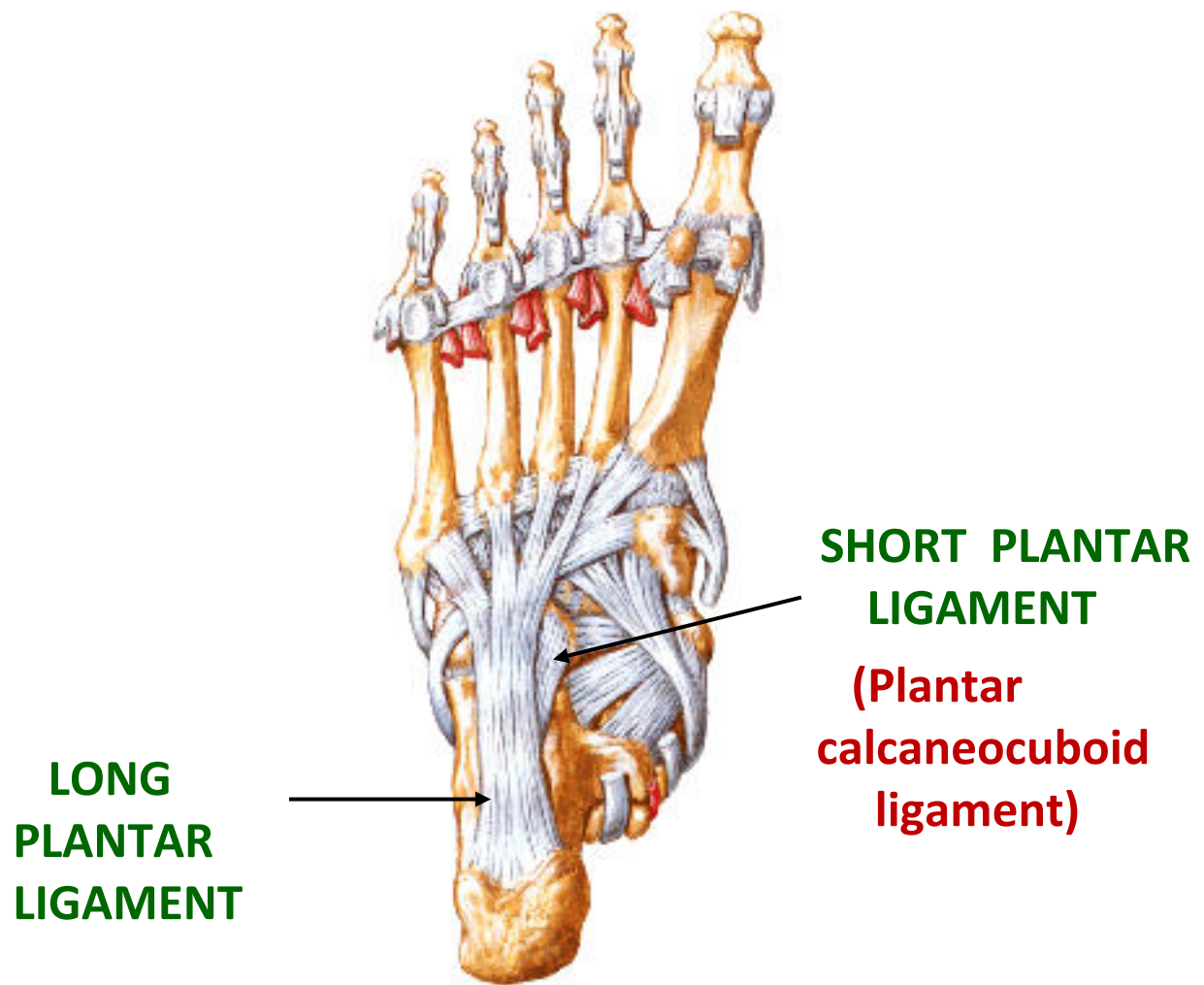


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CALCANEOCUBOID JOINT

Ligaments

- Capsule
- Calcaneocuboid part of bifurcate ligament
- Long plantar ligament
- Short plantar or Plantar calcaneocuboid ligament





PLANTAR VIEW

Lateral

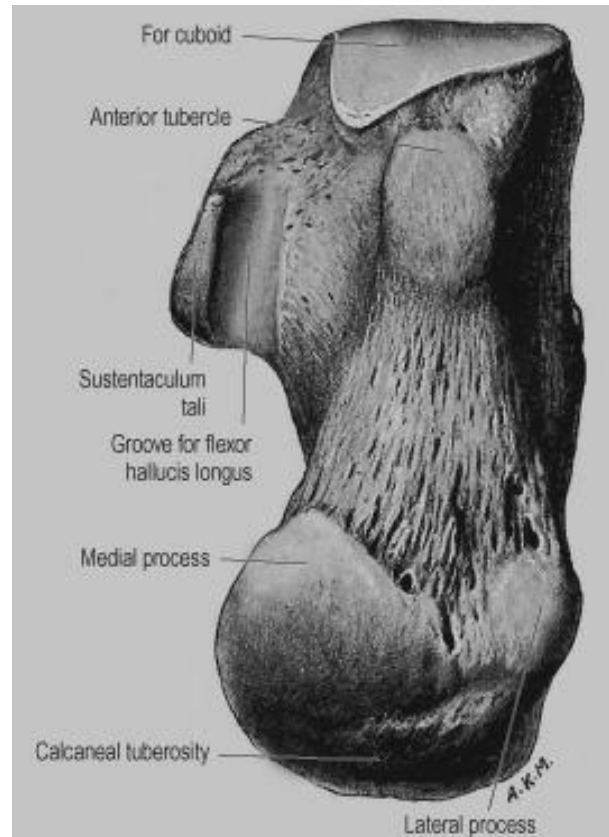
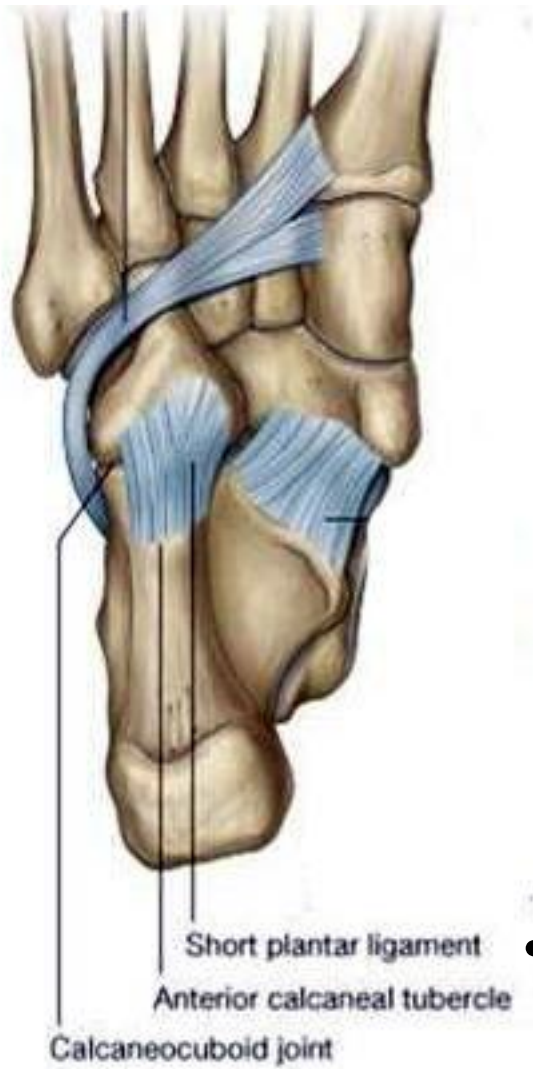
Medial



- The **longest ligament** associated with the tarsus.
- From **Plantar surface** of the **calcaneus** to **plantar surface** of the **cuboid**
- The **deep fibres** are attached to the **cuboid** and more **superficial fibres** to the **bases** of the **2nd, 3rd and 4th** and sometimes fifth, **metatarsals**.

Long plantar
ligament

Plantar calcaneocuboid ligament



- Is **deeper** than the **long plantar ligament**
- From the **anterior calcaneal tubercle** to the **cuboid**

Movements



INVERSION

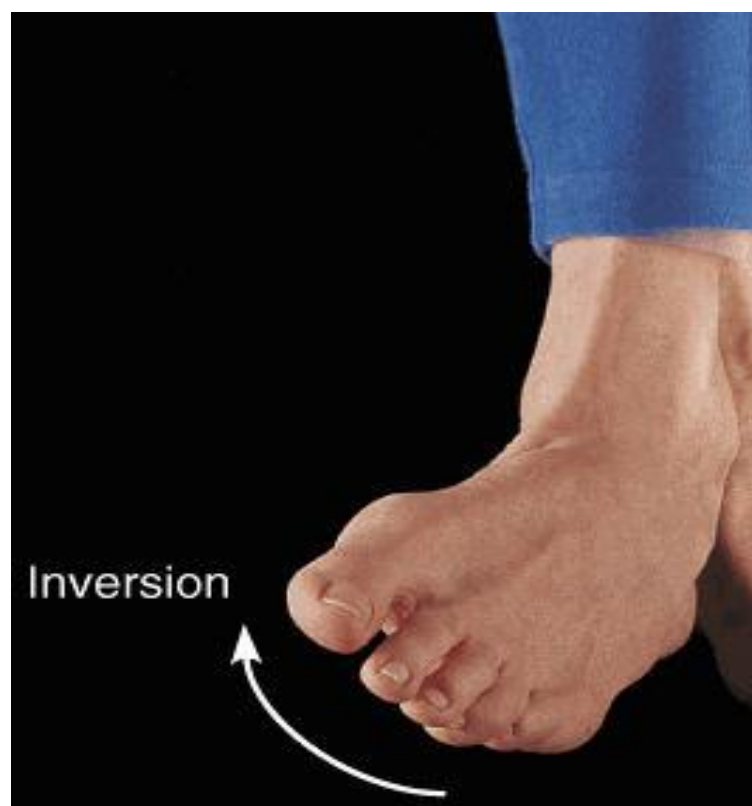


EVERSION

Inversion & Eversion



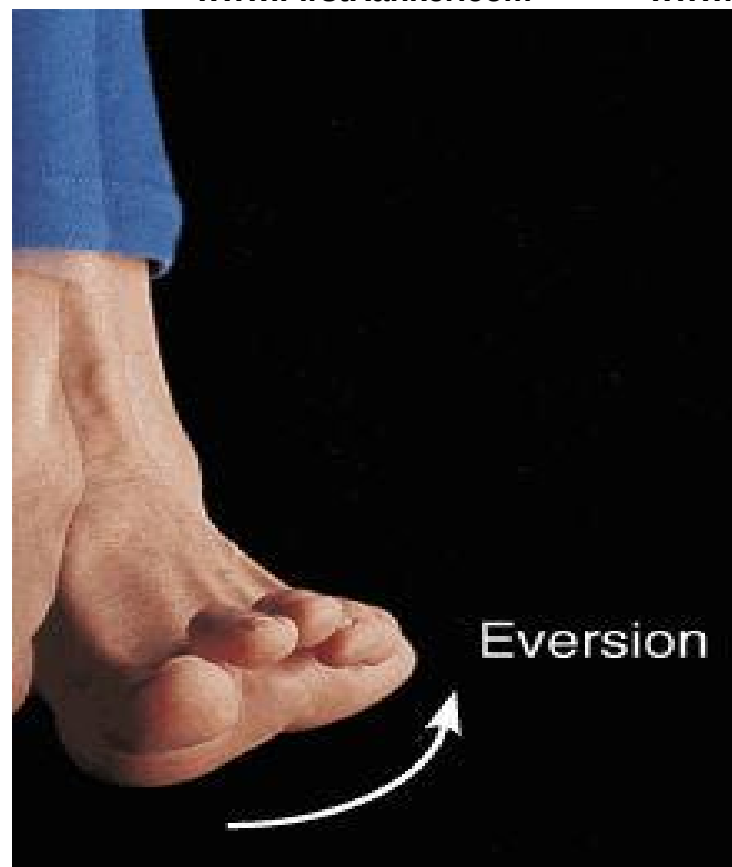
These movements are **essential** to **adjust the foot** while **walking on uneven surface**.



Inversion

Sole is directed downwards & medially.

Associated with plantar flexion

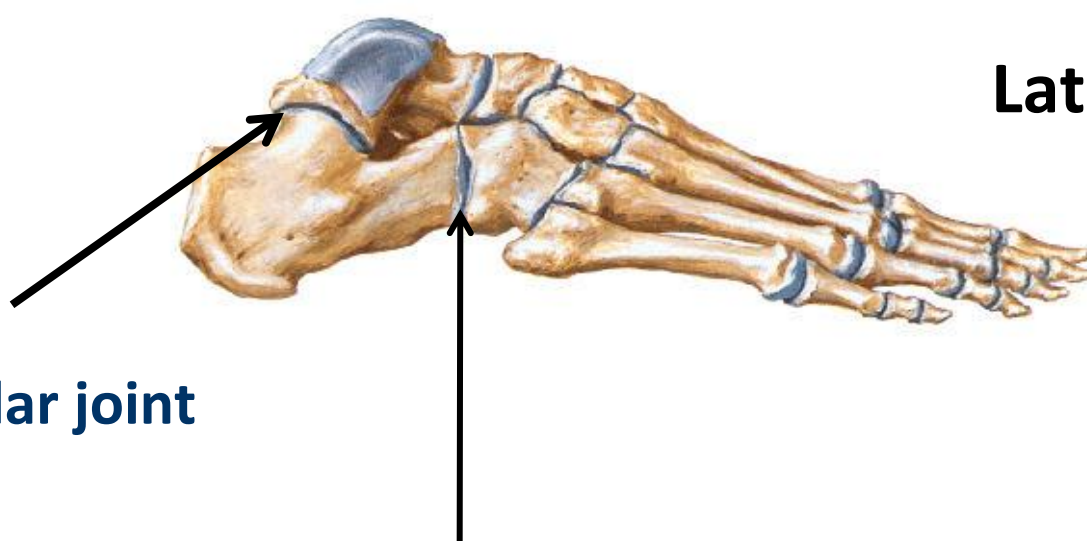


Eversion

Sole is directed downwards & laterally.

Associated with dorsiflexion

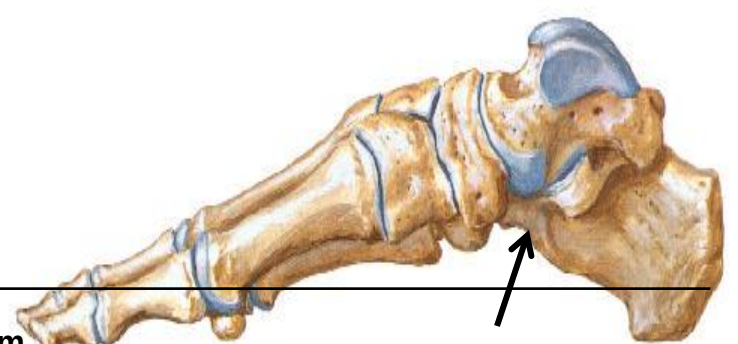
Joints on which it occurs



Lateral view

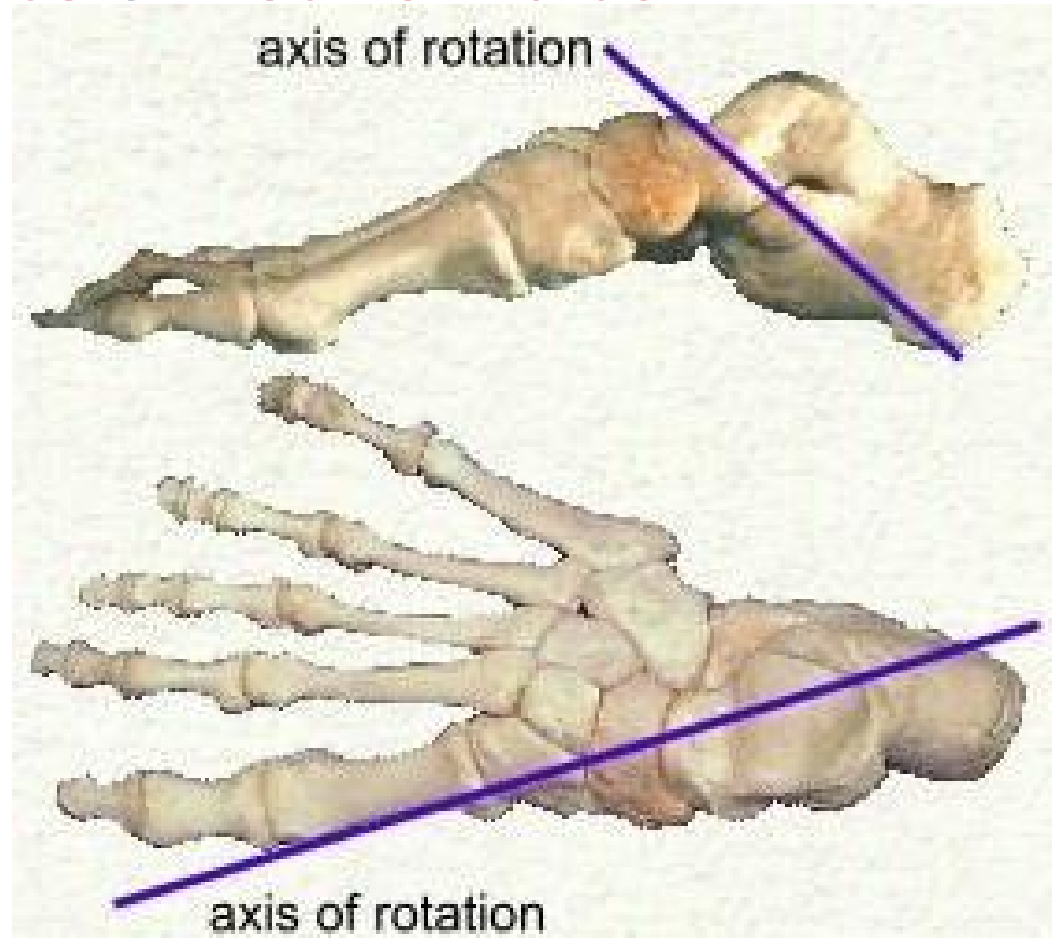
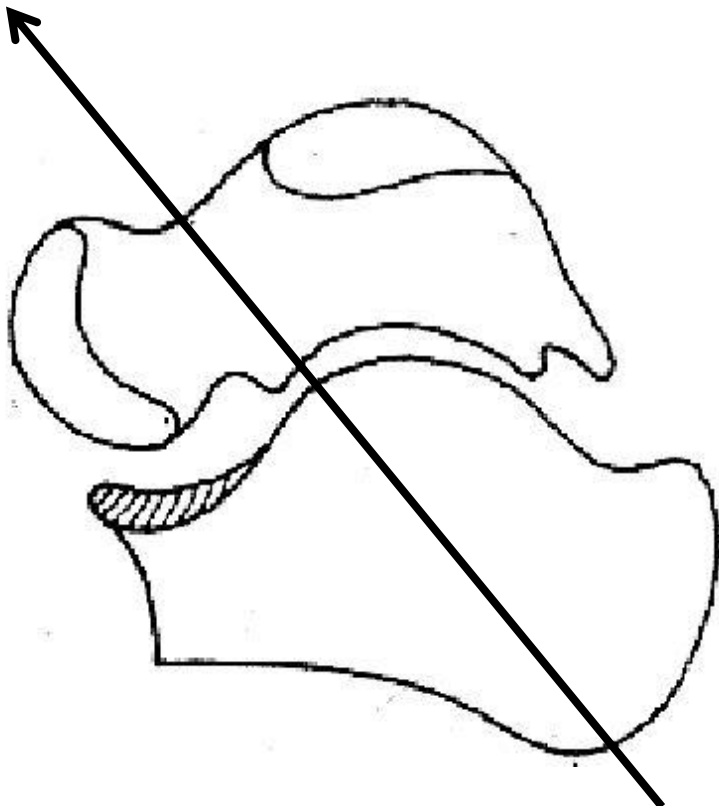
- Subtalar joint
- Transverse tarsal joint.
- Talo-calcaneo-navicular joint

Medial view

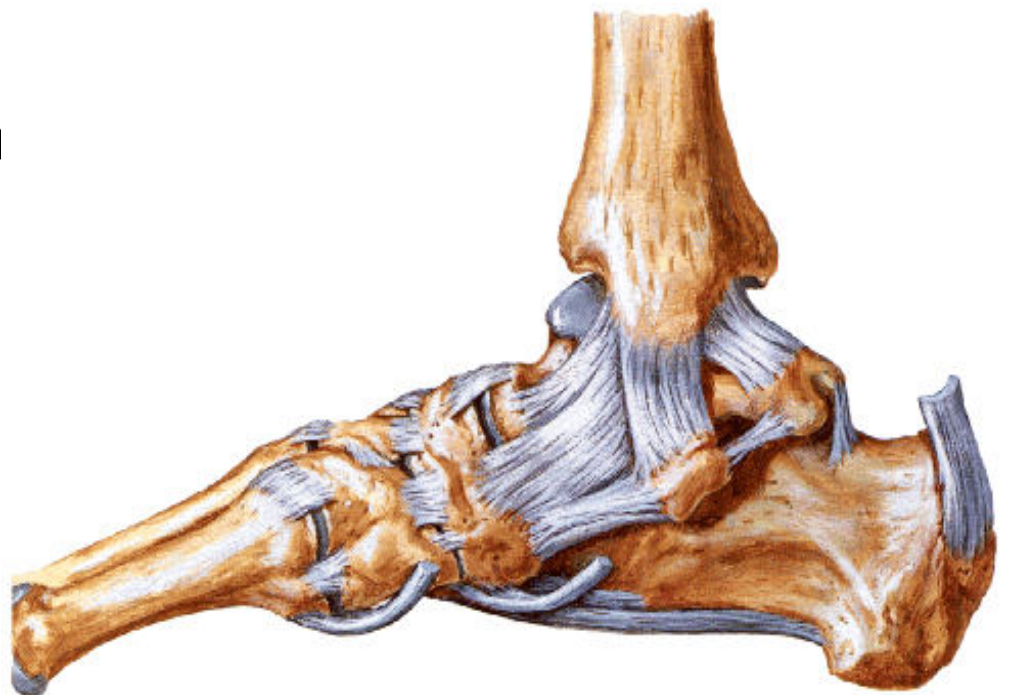


Axis of movement

Passes **obliquely upwards**, **forward** & **medially** from the **heel end of calcaneus** through **sinus tarsi** to **dorso-medial surface of neck of Talus**



Muscles causing Inversion
Tibialis Anterior
Tibialis Posterior



Muscles causing Eversion

Peroneus longus

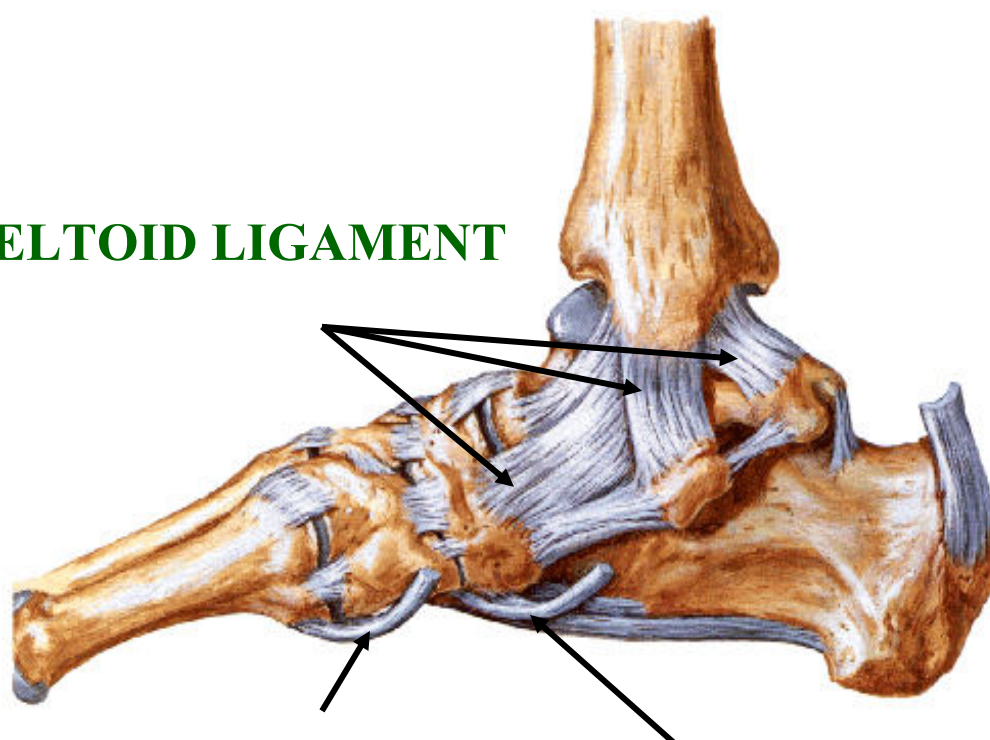
Peroneus brevis

Peroneus tertius



EVERSION LIMITED BY

DELTOID LIGAMENT

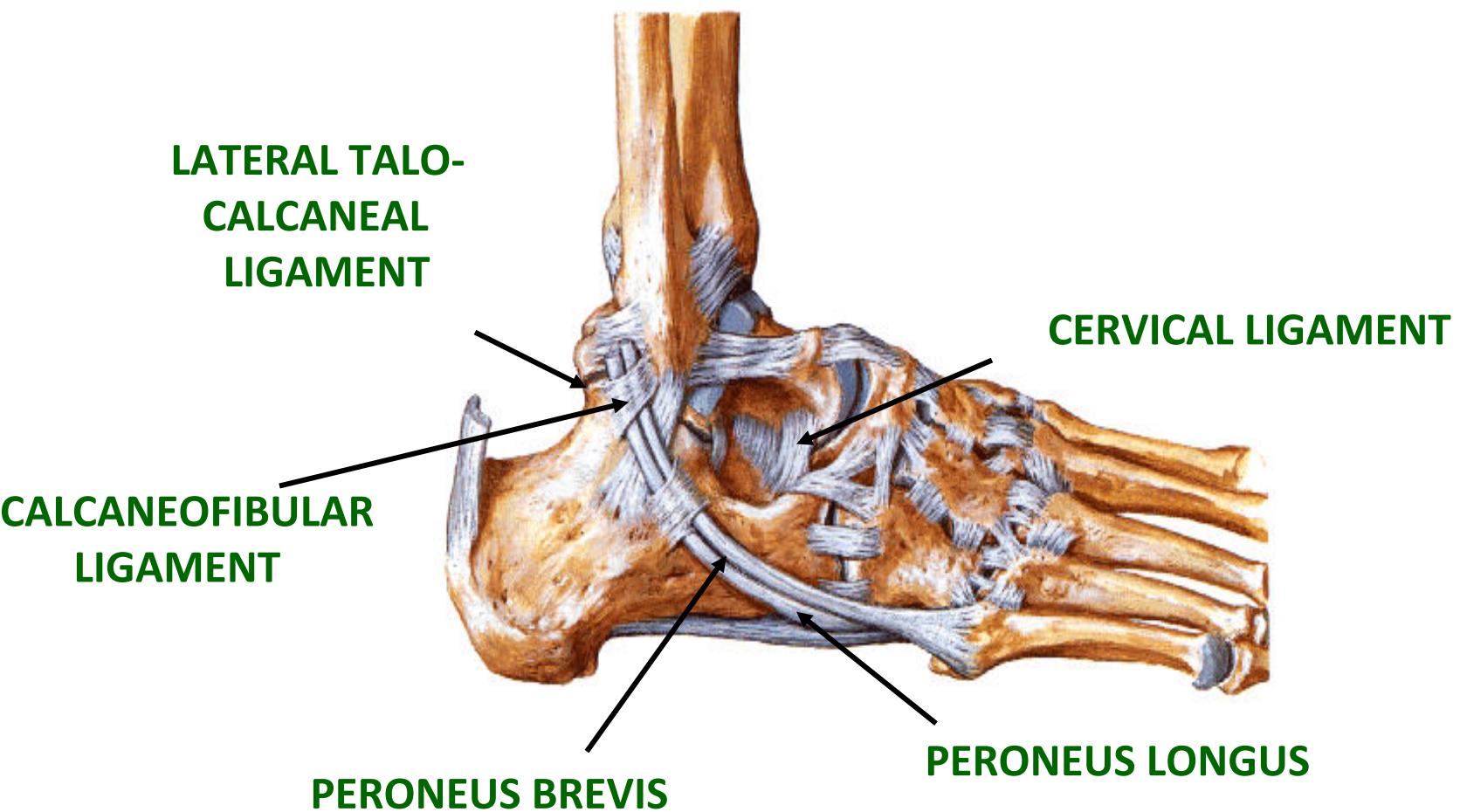


TIBIALIS ANTERIOR

TIBIALIS POSTERIOR

Medial view of the skeleton of foot

INVERSION LIMITED BY



Lateral view of the skeleton of foot

APPLIED ANATOMY

Ankle sprains :

Lateral Ankle Sprains caused by Over inversion of foot, which is common causes anterior talo-fibular & calcaneo - fibular ligaments to tear.

a/k/a Low Ankle sprain

Medial Ankle Sprains When foot is forcibly everted fibres of deltoid ligament are torn.

Lateral ankle sprain



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