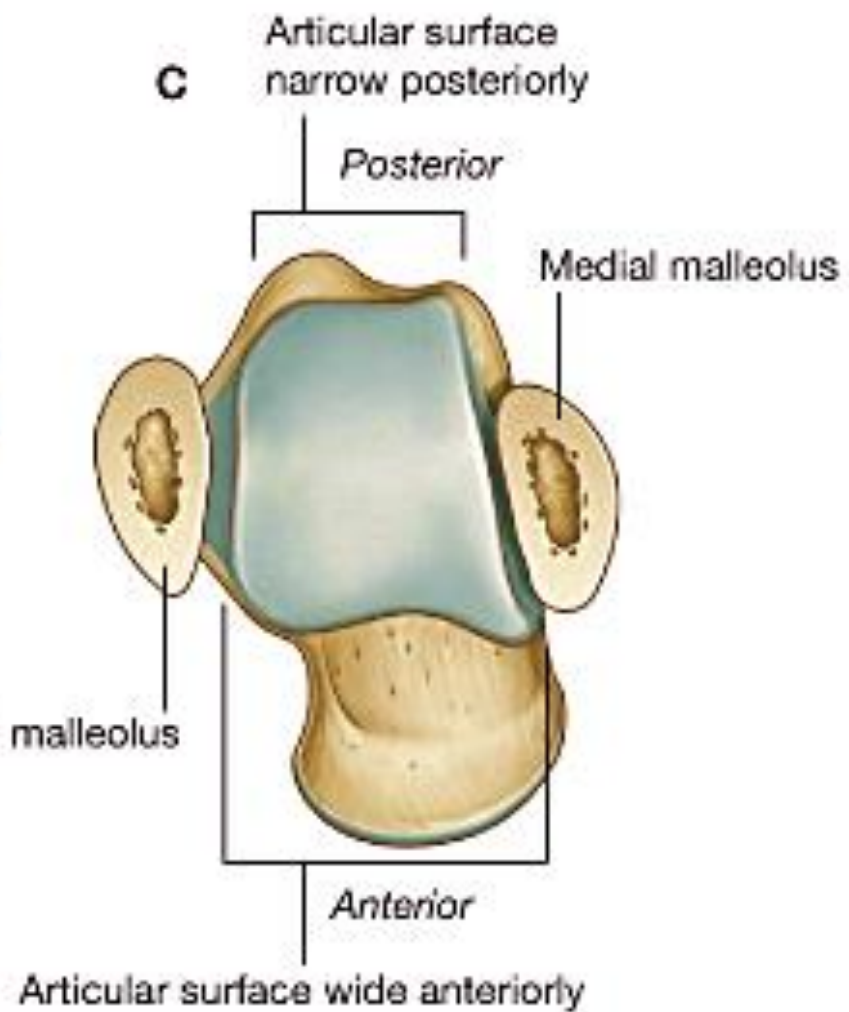
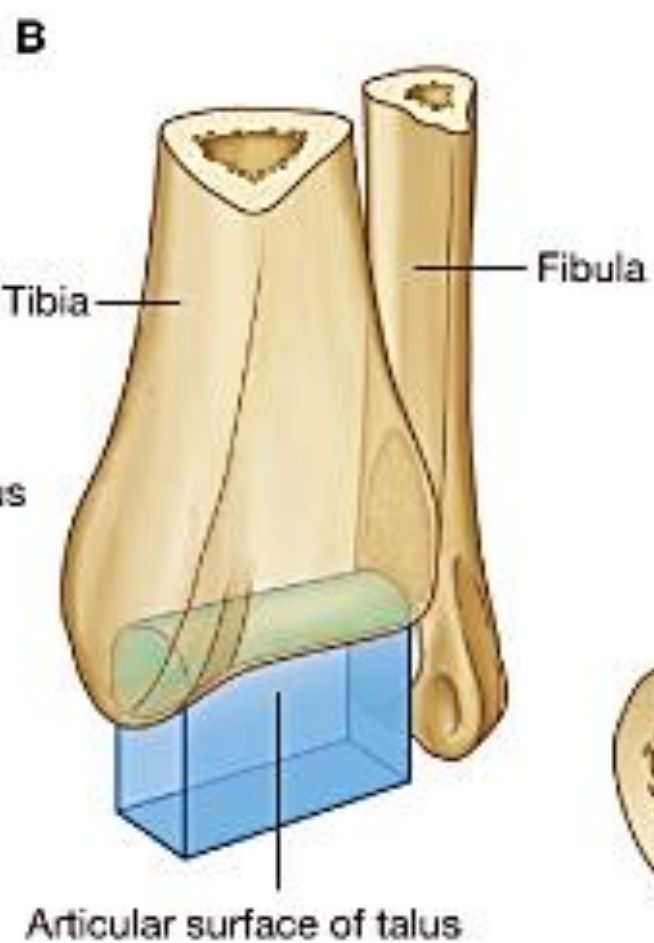
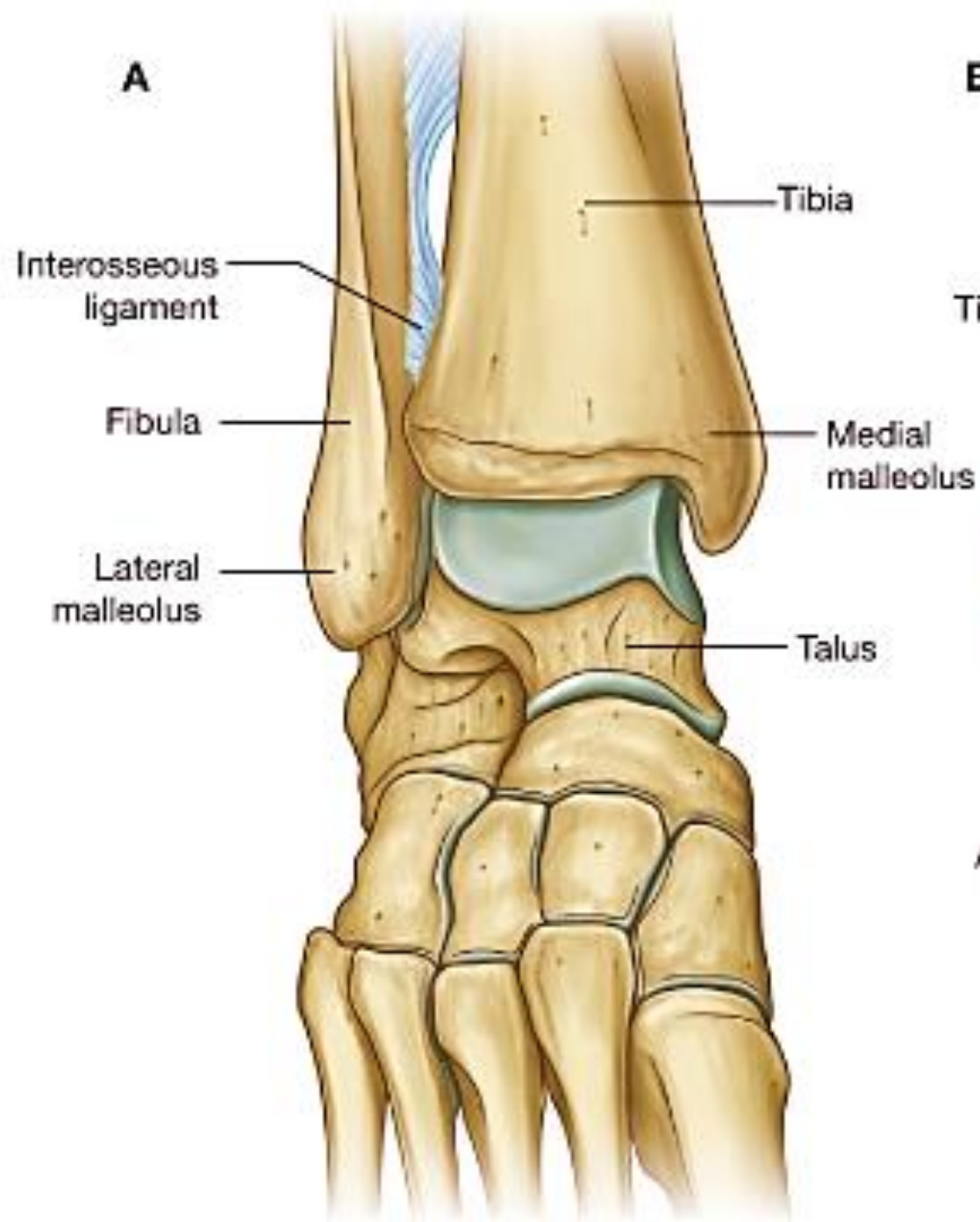


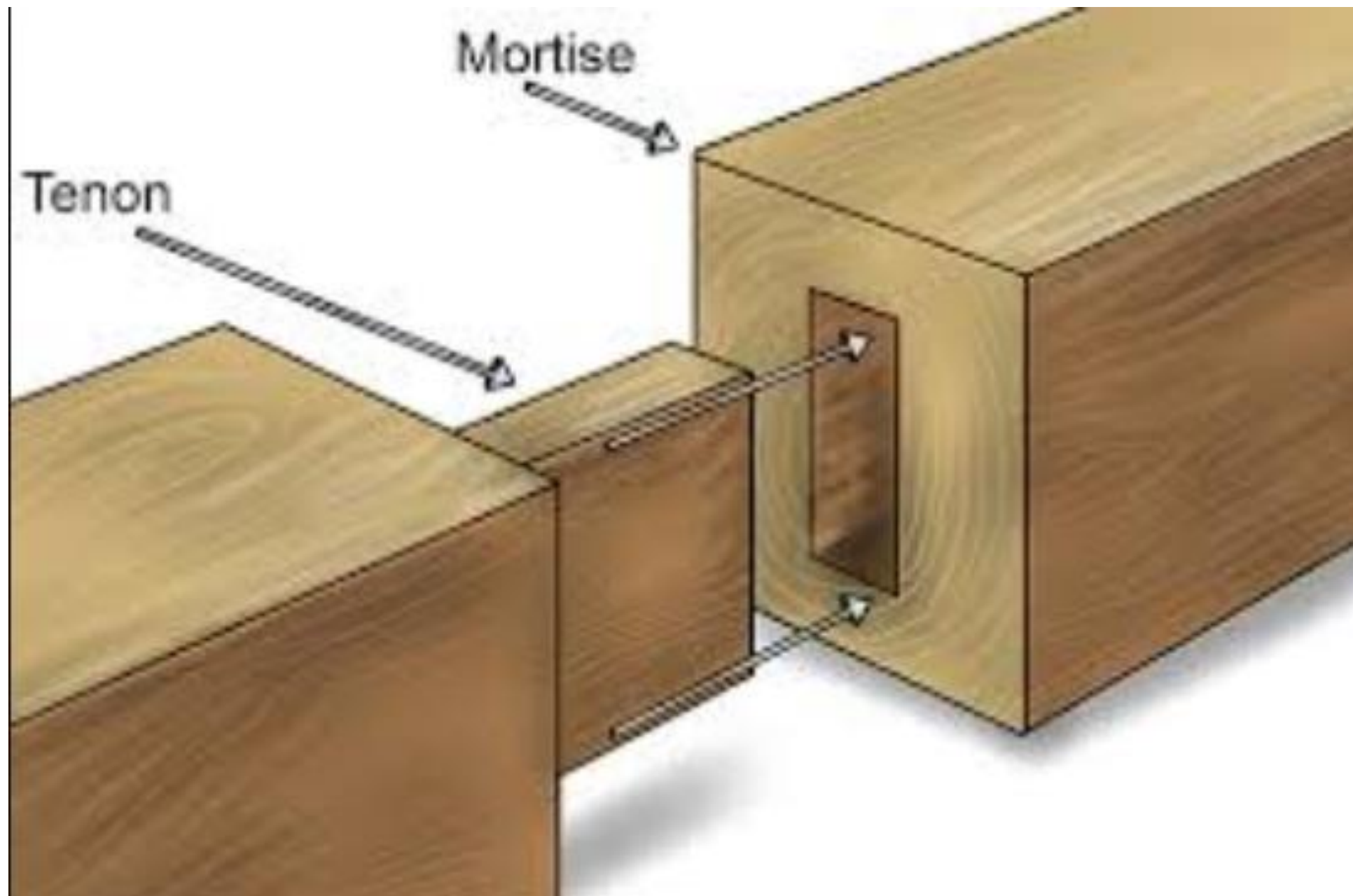
Ankle joint, Arches of the foot & sole of the foot



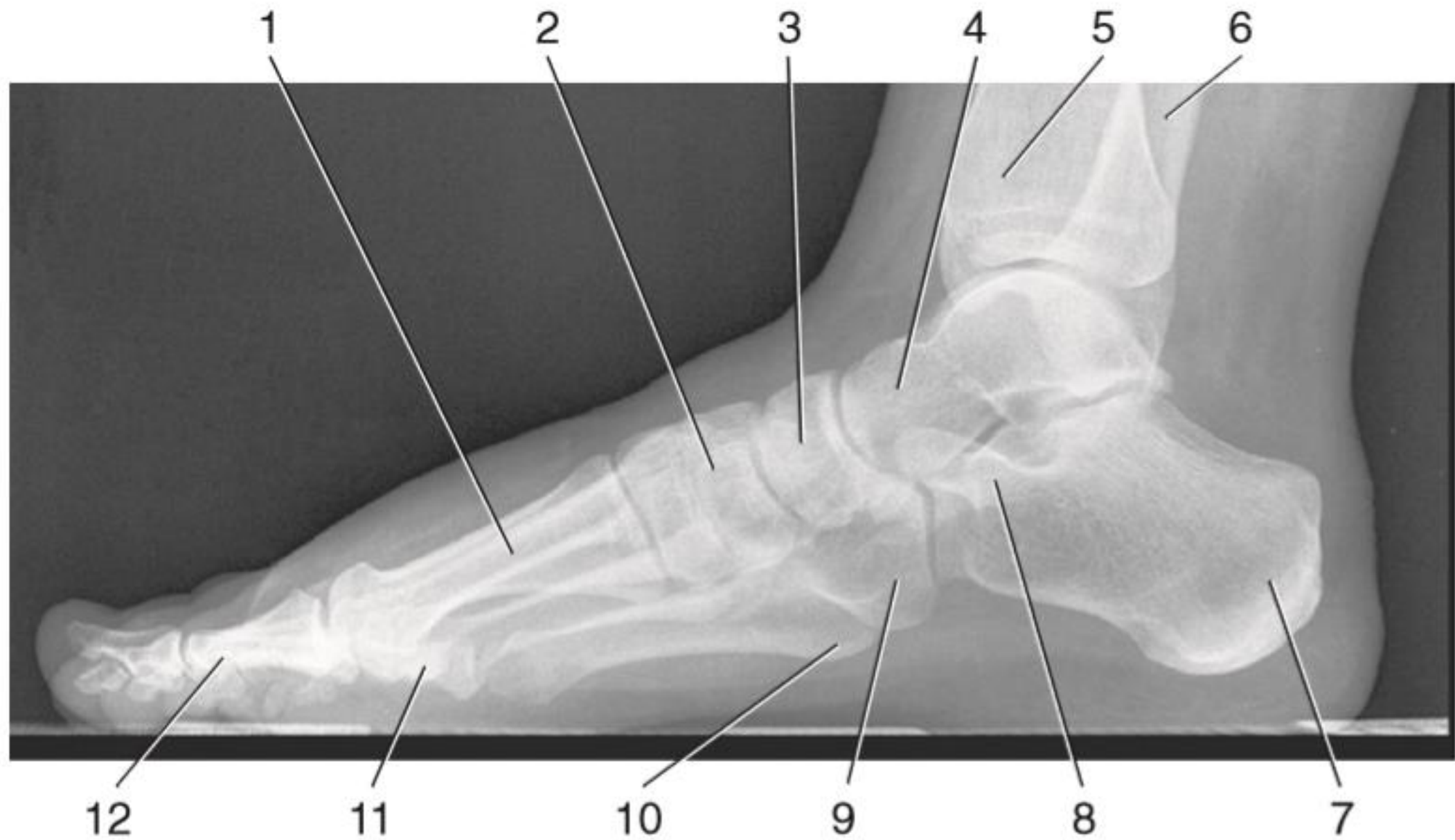
Lecture objectives

- Study type, articulations of the ankle j
- Identify the common ligaments & stabilizing factors
- Recognize its blood & nerve supply
- Identify its relations & movements
- Recognize foot arches & their stabilizing factors
- Identify the layers of the sole of the foot

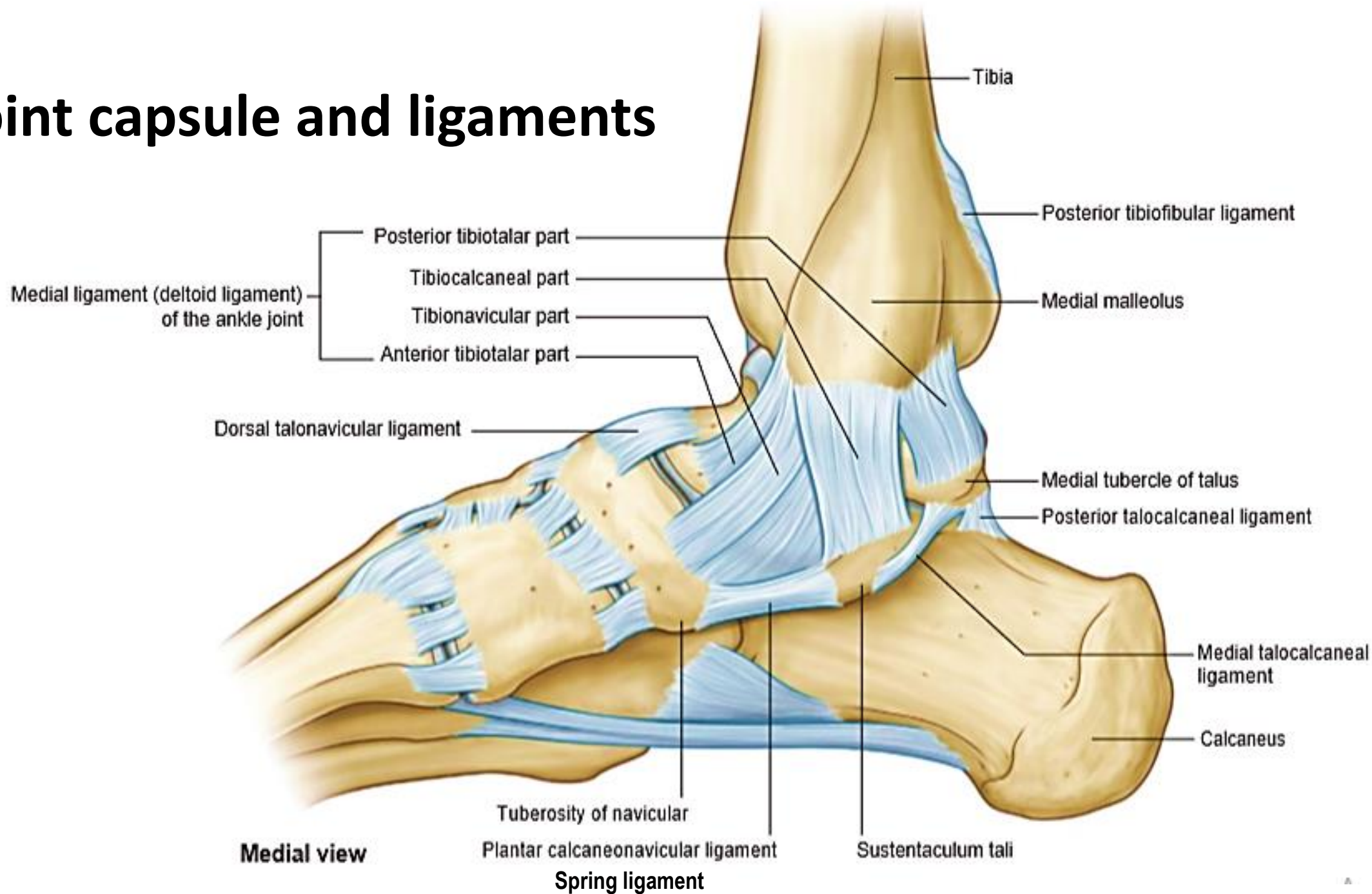


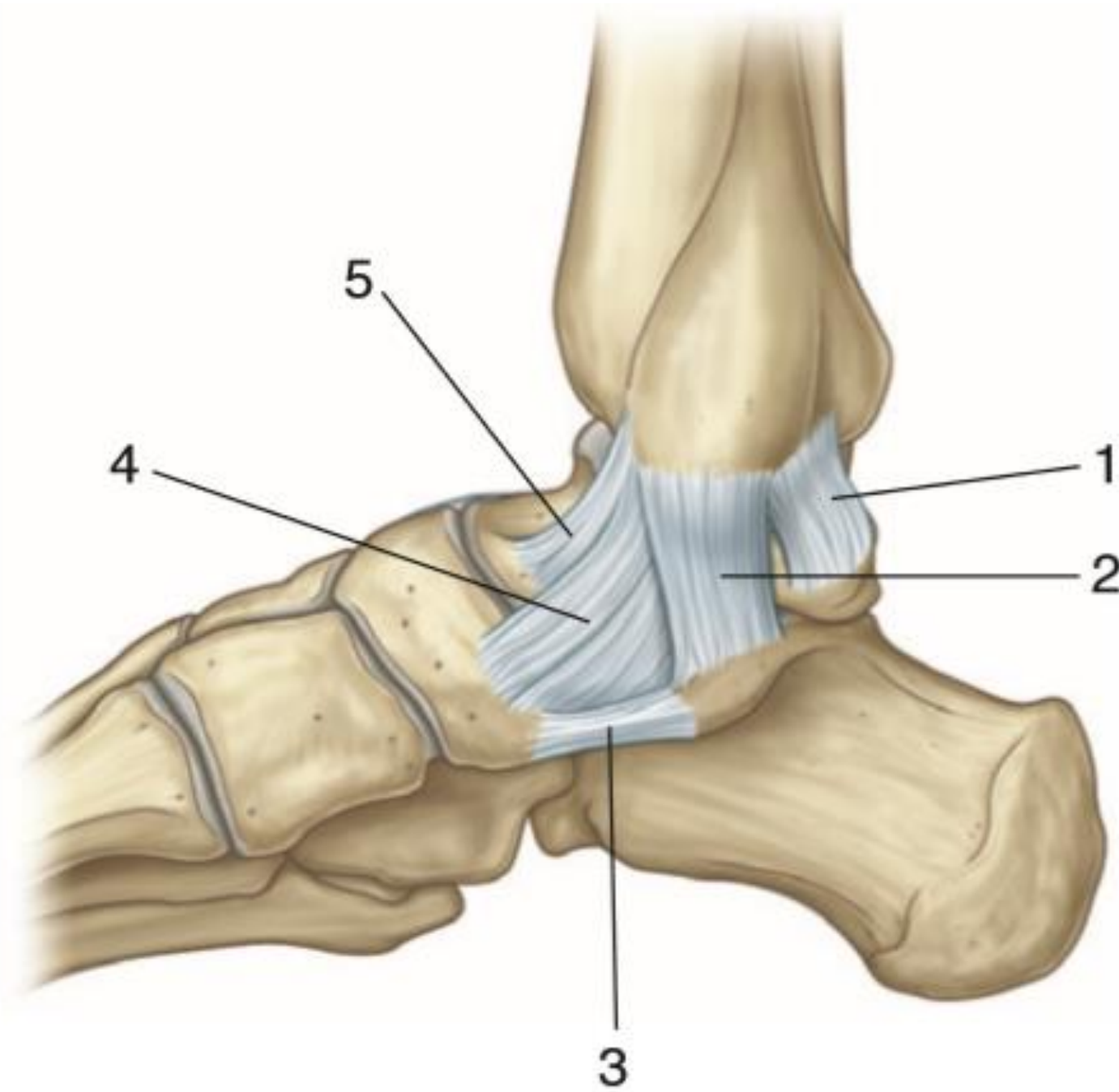


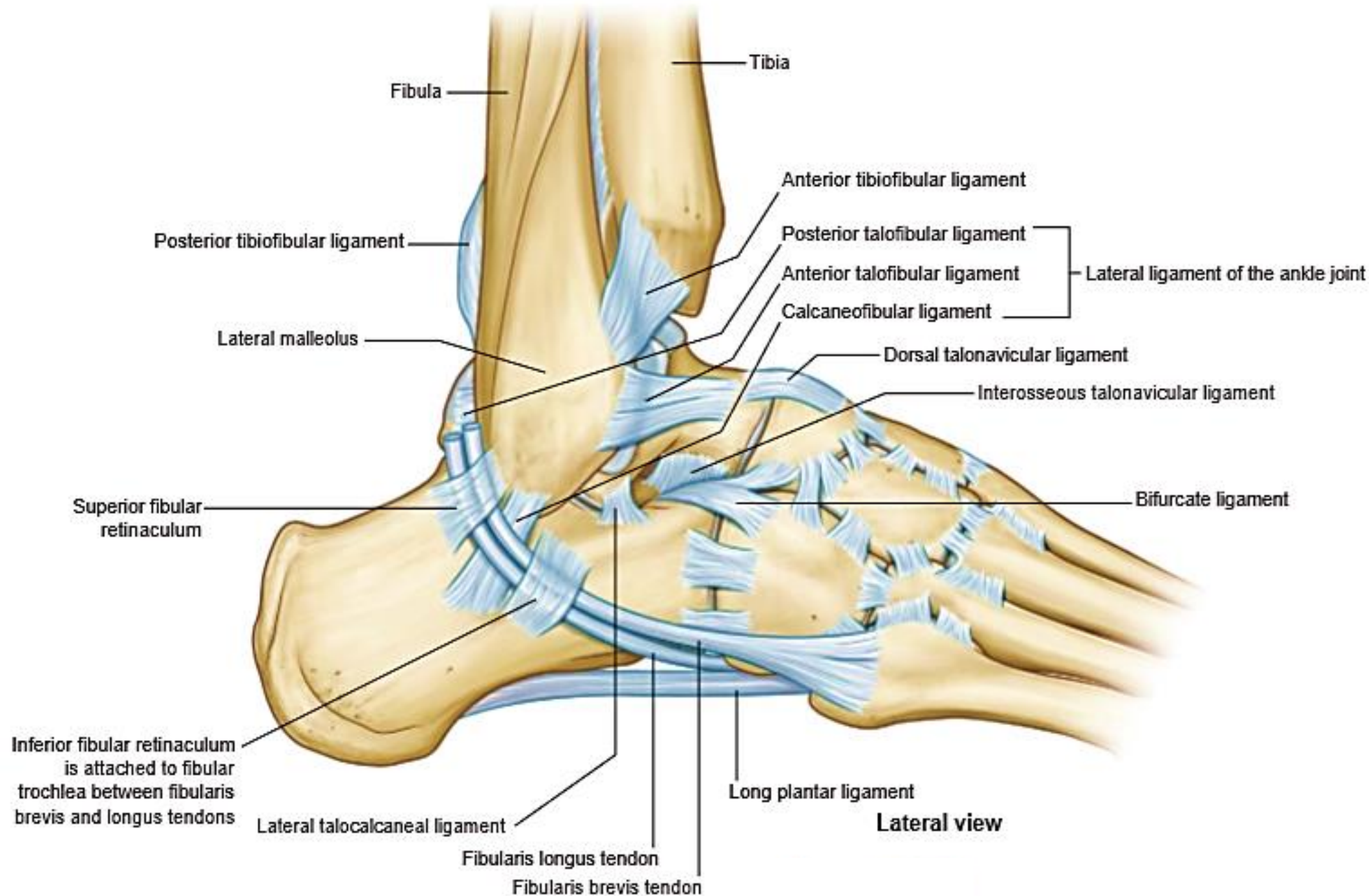
Identify the indicated structures.

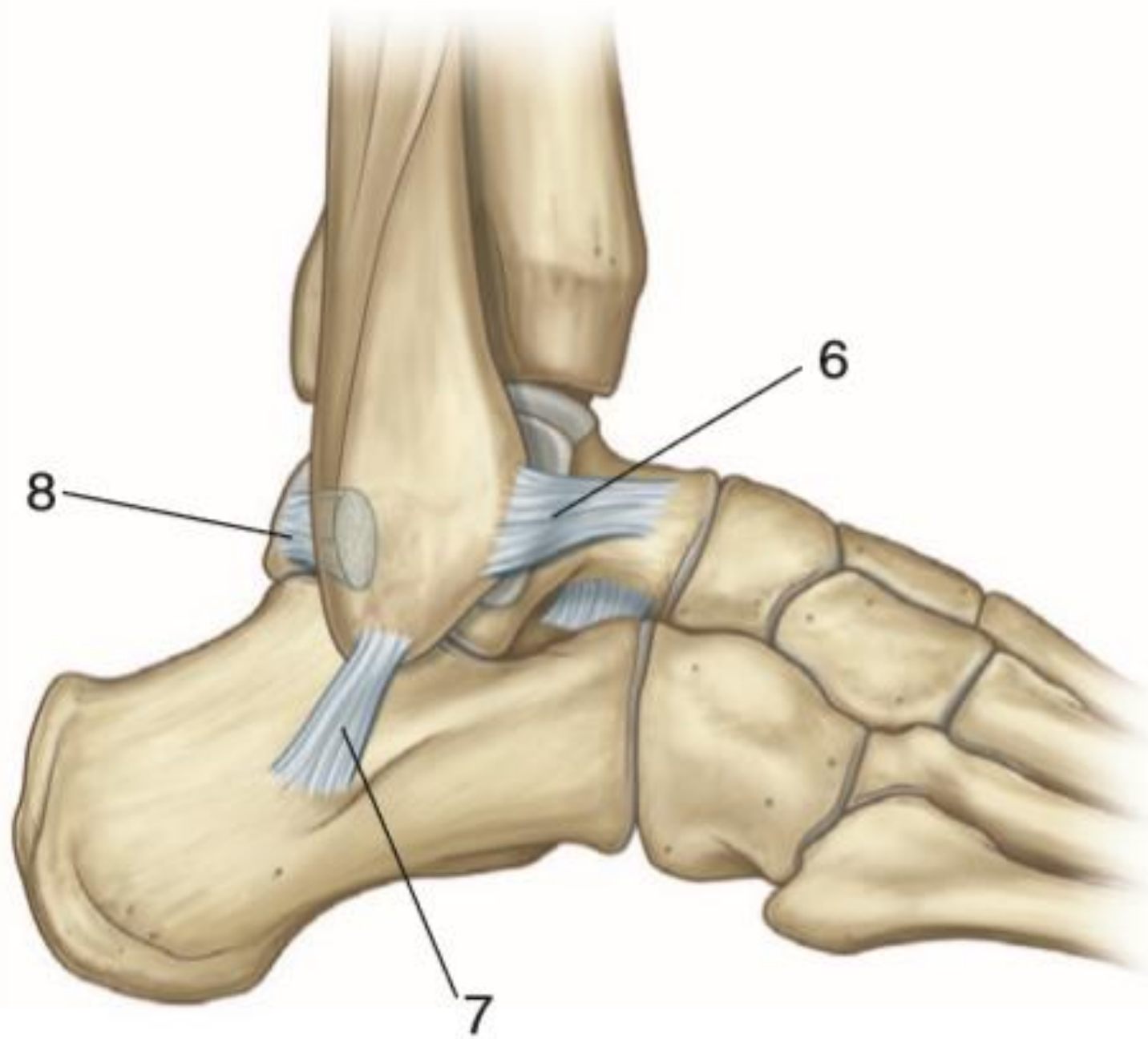


Joint capsule and ligaments



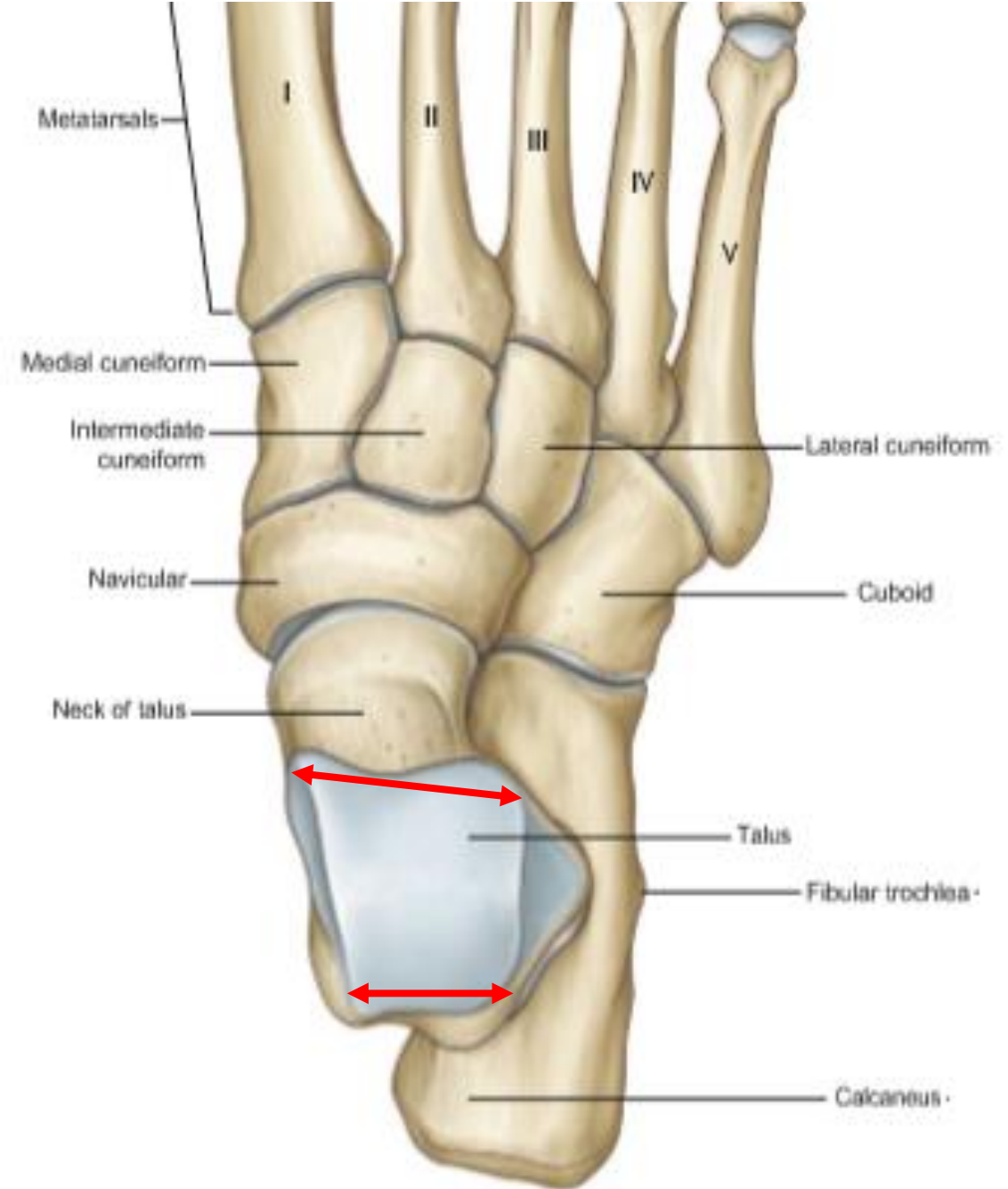




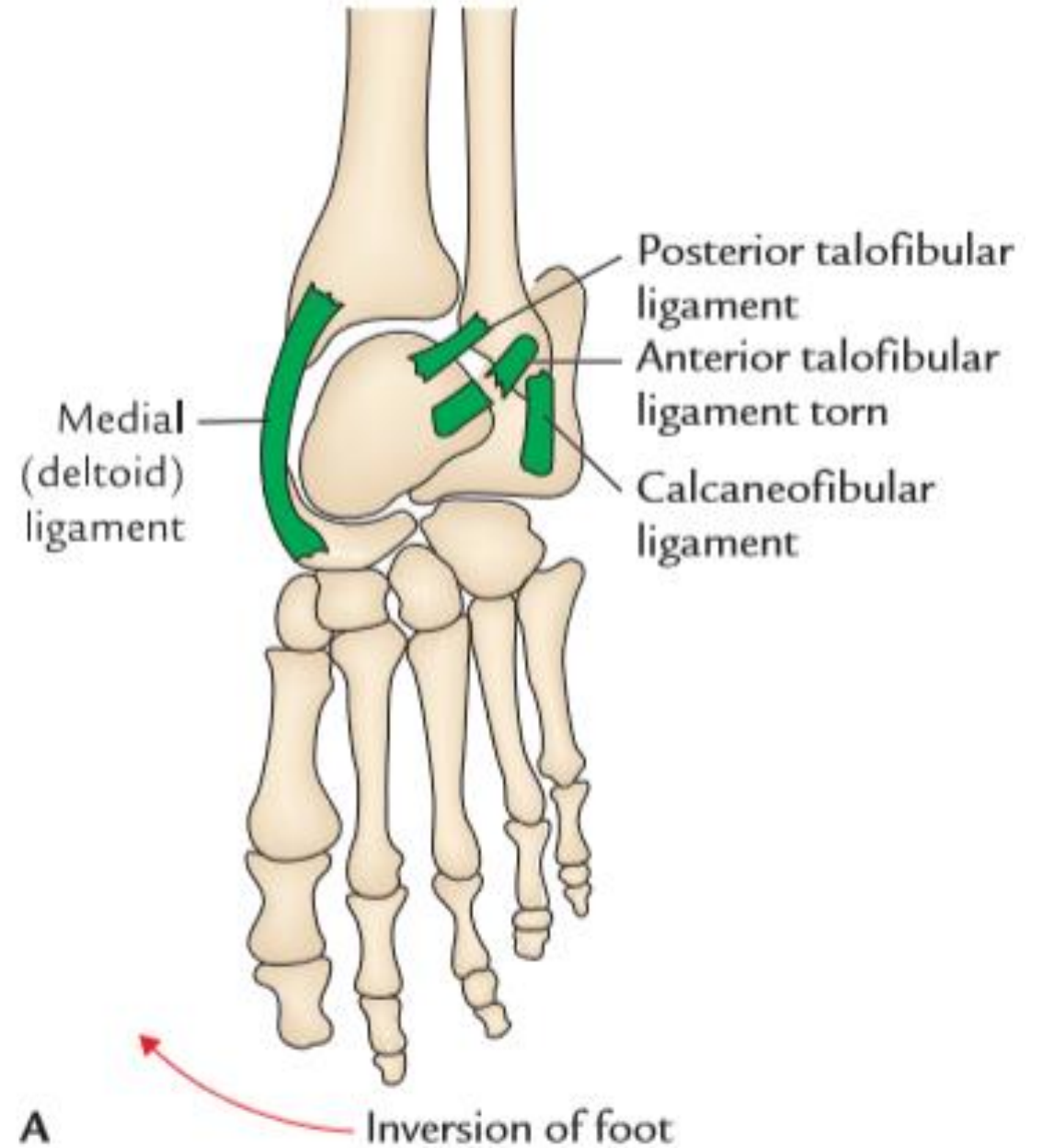
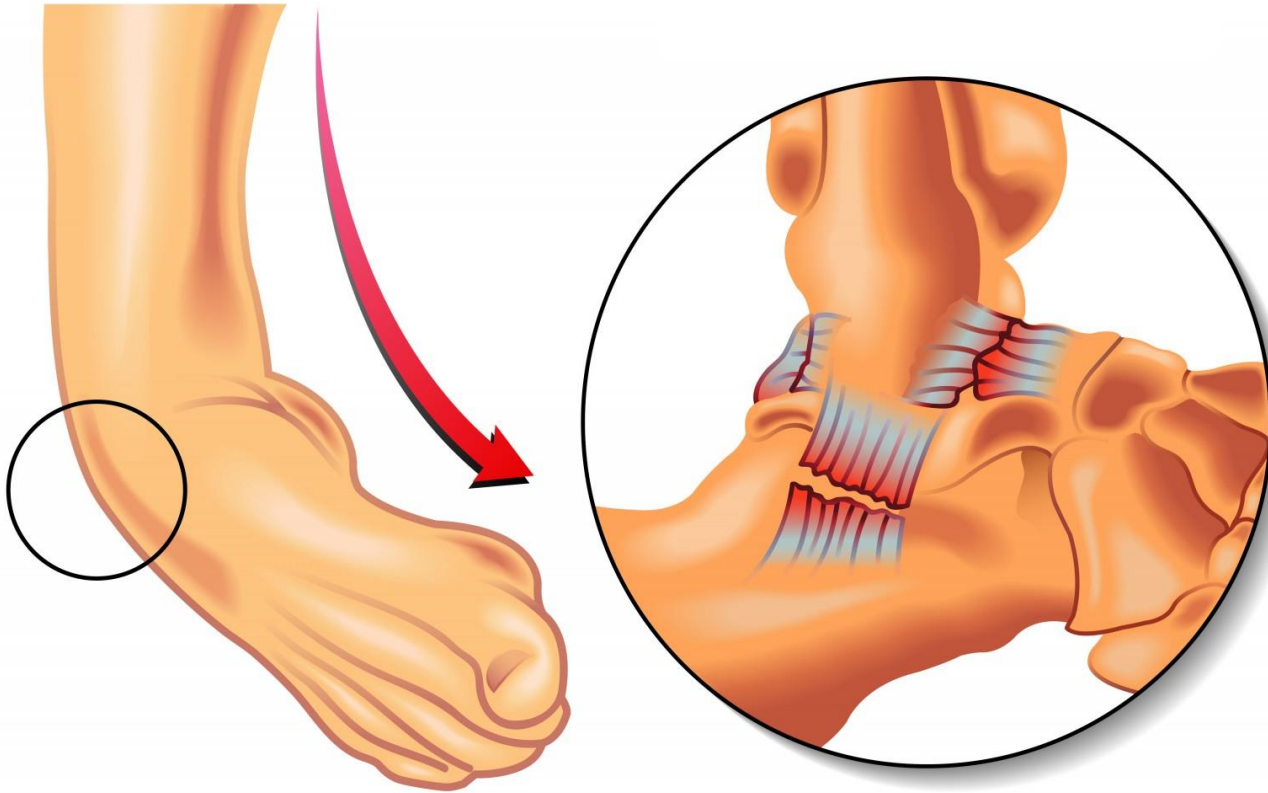


Stability of ankle joint

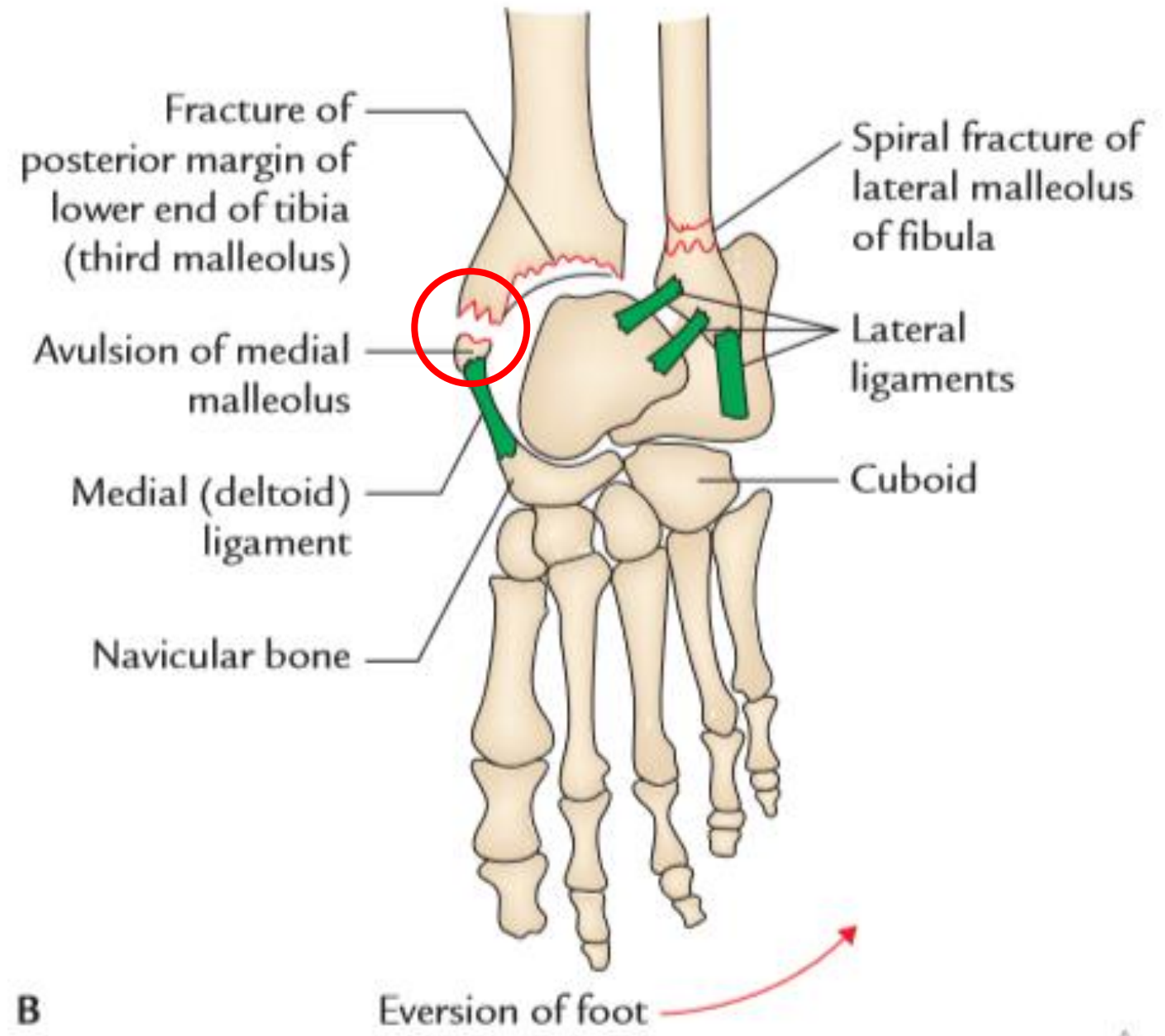
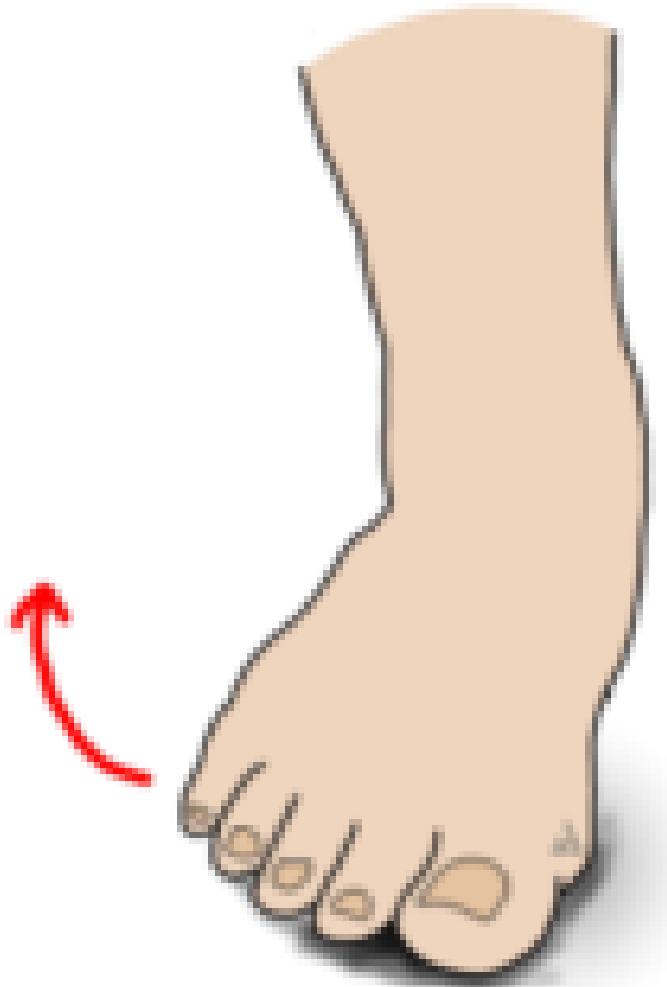
- The ankle joint is stable in dorsiflexion and unstable in plantar flexion
- Fitness of articular surfaces
- Ligaments
- Surrounding tendons



Ankle sprain



Evercion Sprain



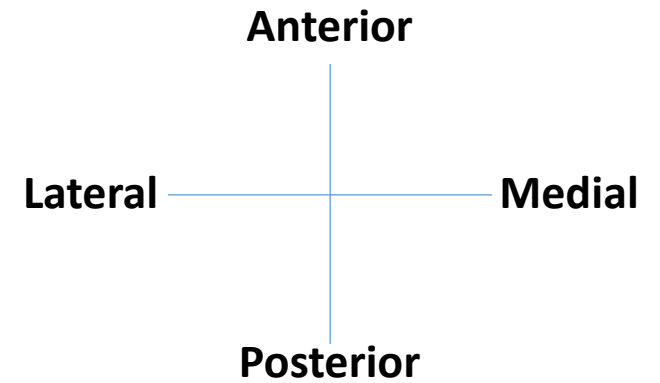
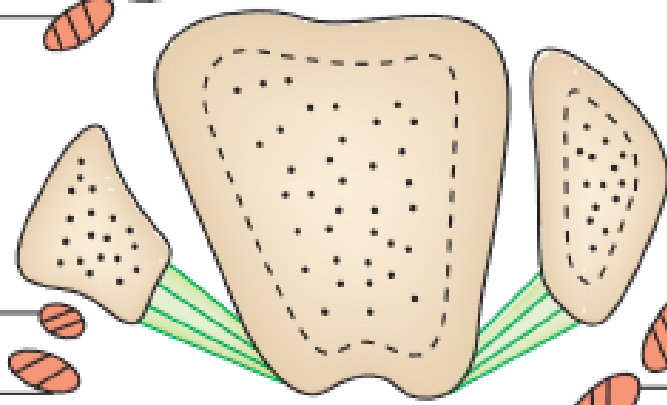
Anterior
(From medial to lateral side)



1. Tibialis anterior
2. Extensor hallucis longus
3. Anterior tibial artery
4. Deep peroneal nerve
5. Extensor digitorum longus
6. Peroneus tertius

Peroneus brevis

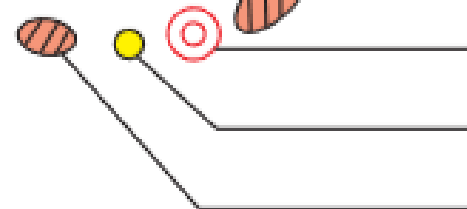
Peroneus longus



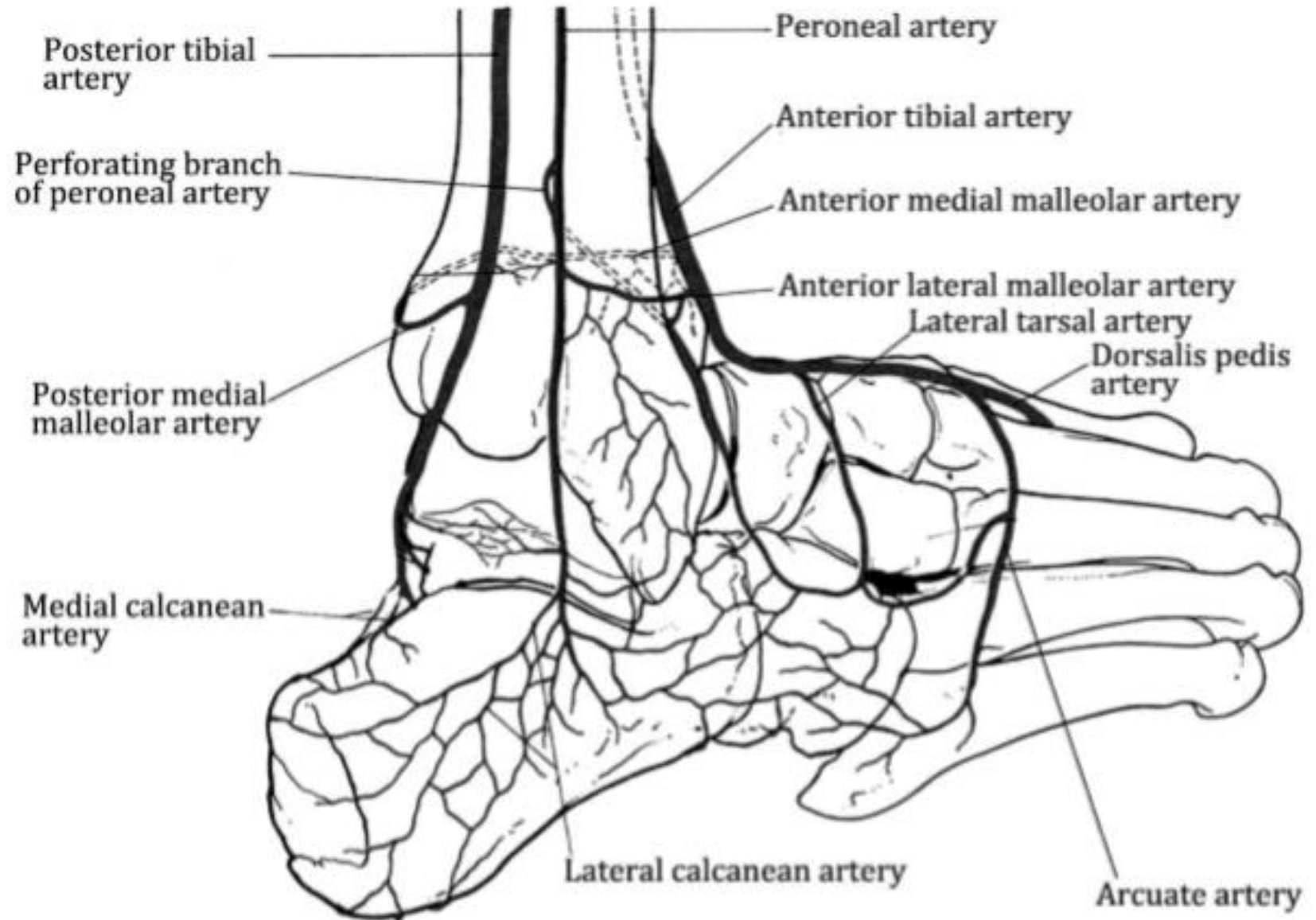
Posterior
(From medial to lateral side)



1. Tibialis posterior
2. Flexor digitorum longus
3. Posterior tibial artery
4. Posterior tibial nerve
5. Flexor hallucis longus

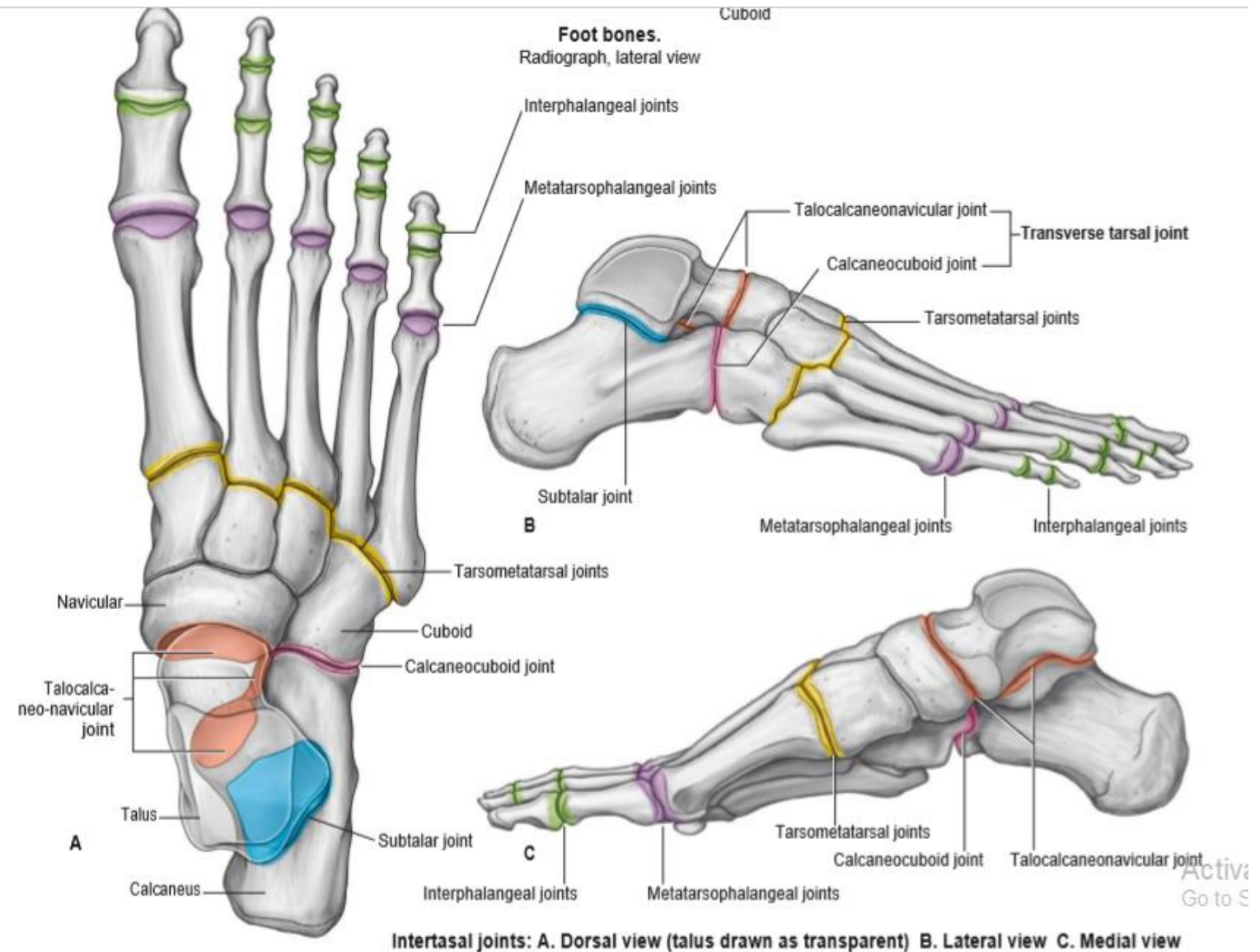


- Lat.: lat. Mal. Rete by lateral mal. Br. Ant. Tibial & post. Mal. Br. Peroneal art
- Med: med mal reter by ant med mal br ant tibial+post med mal br post tibial
- Ant: perforating peroneal+lat tarsal dorsalis
- Post.: med calc. of post tibial+lat. Calc. of peroneal



Tarsal joints

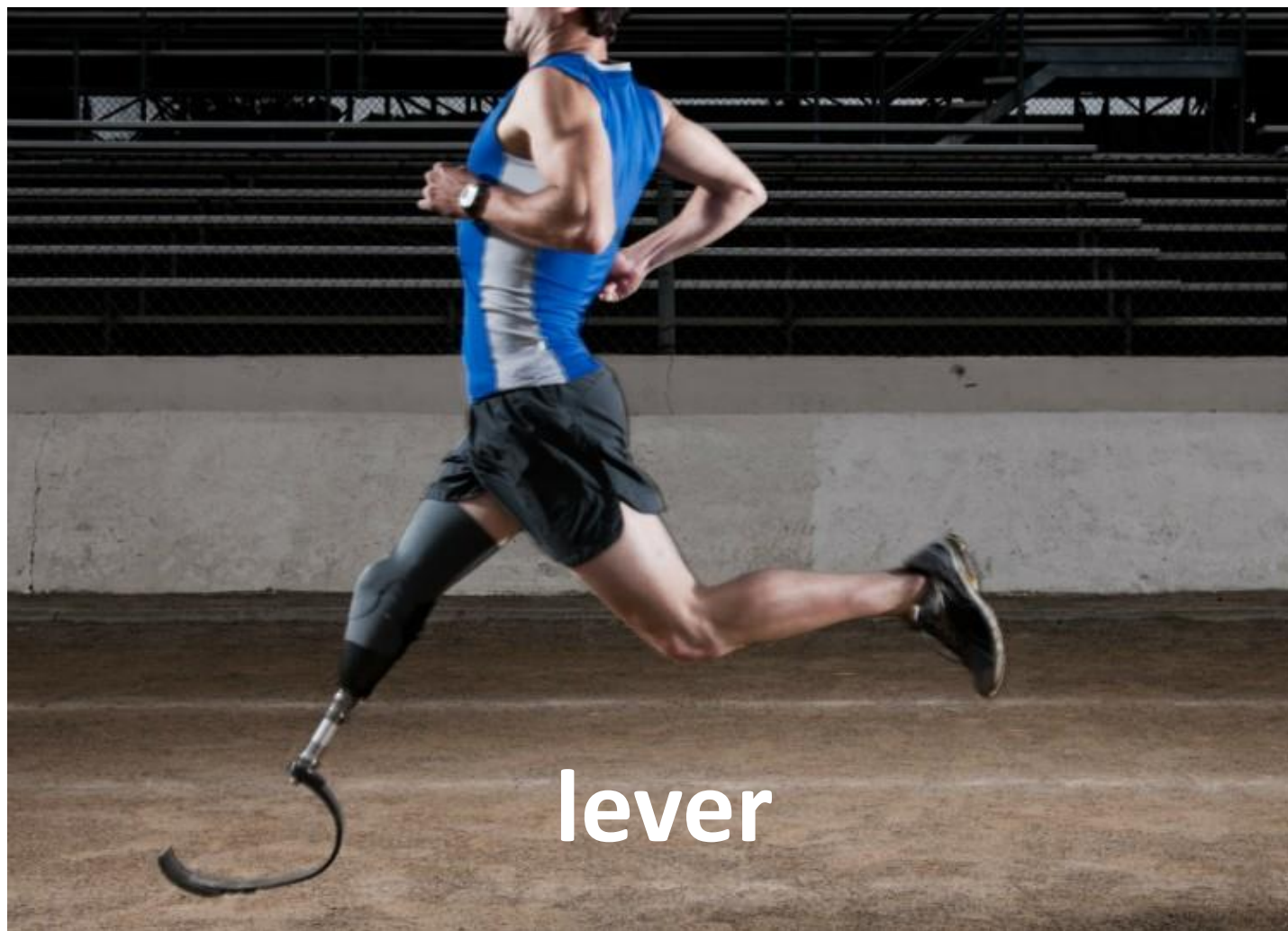
- Subtalar joint
- Midtarsal joints
- Talocalcaneonavicular joint



Arches of the foot



platform

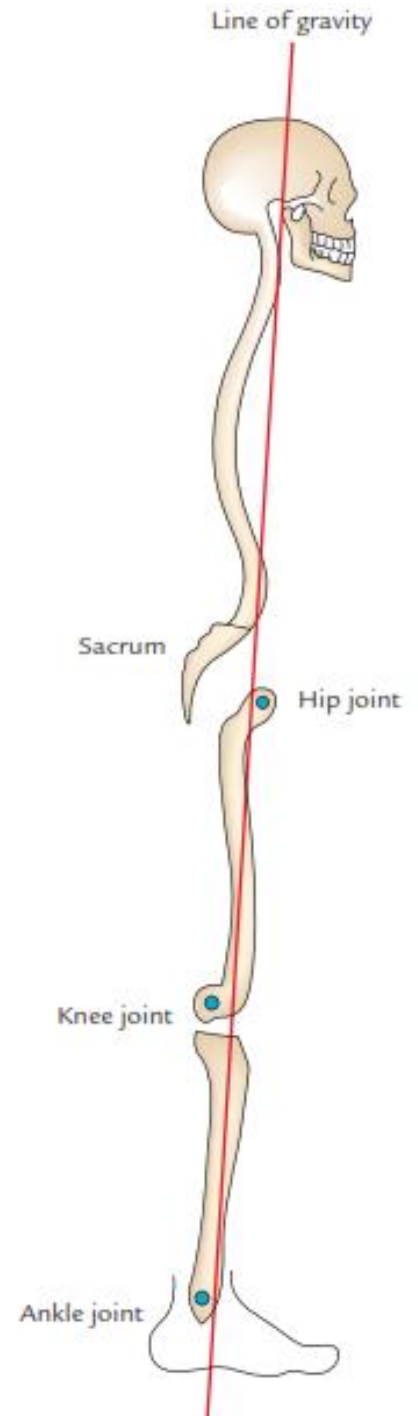
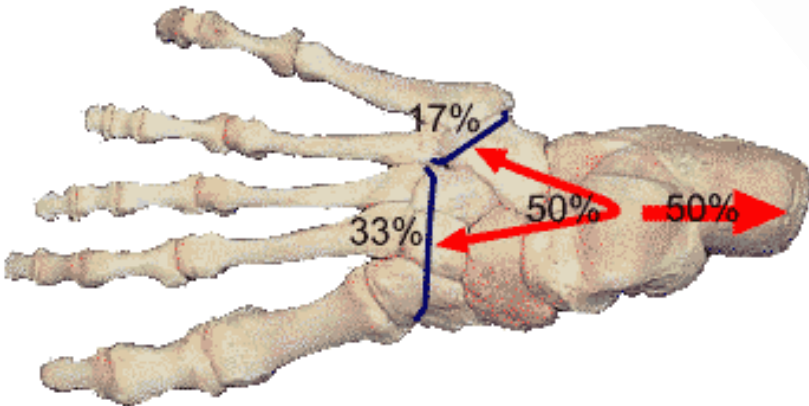


lever

Heads of lateral
4 metatarsals

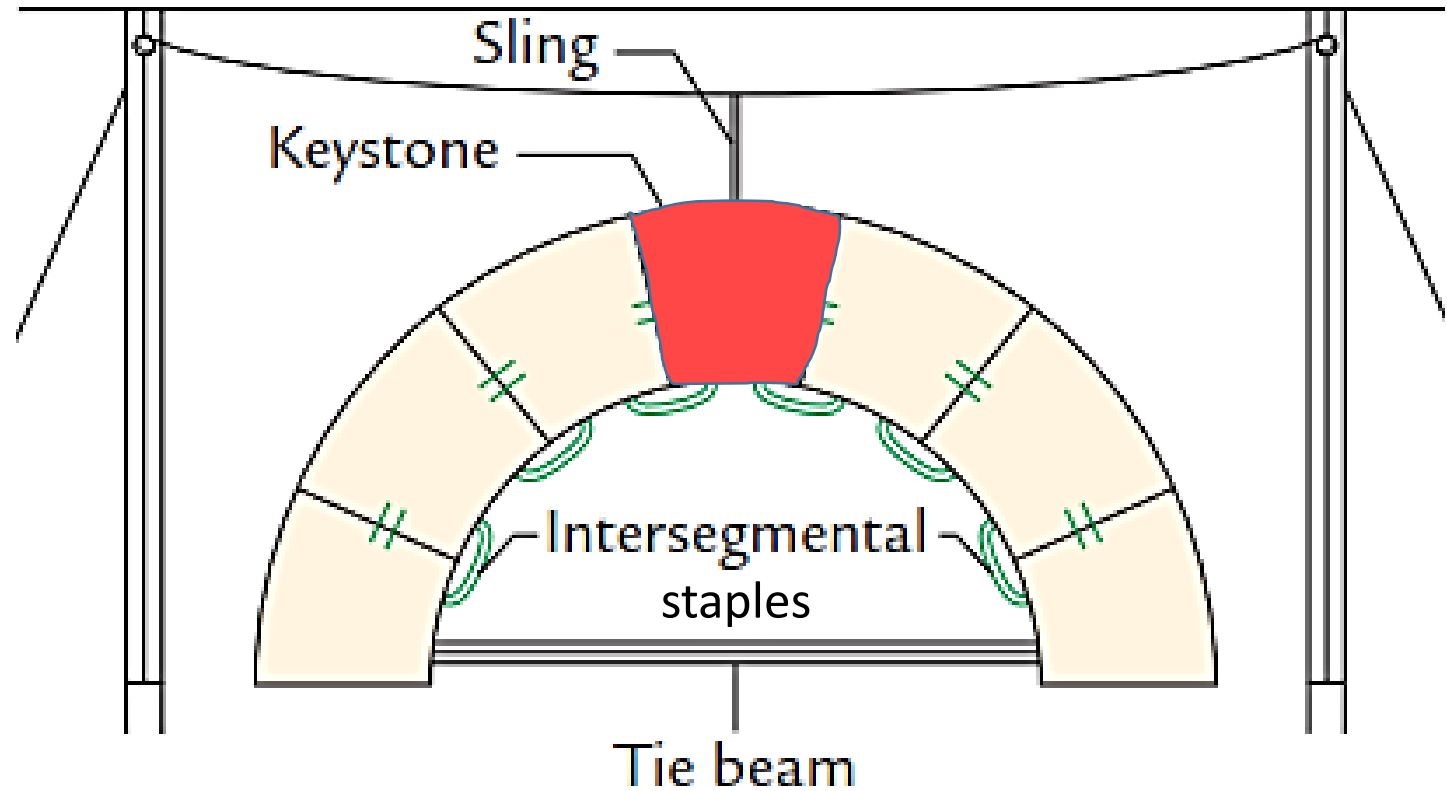
2 Sesamoid bones
below the head of
First metatarsal

Medial process
of calcaneus

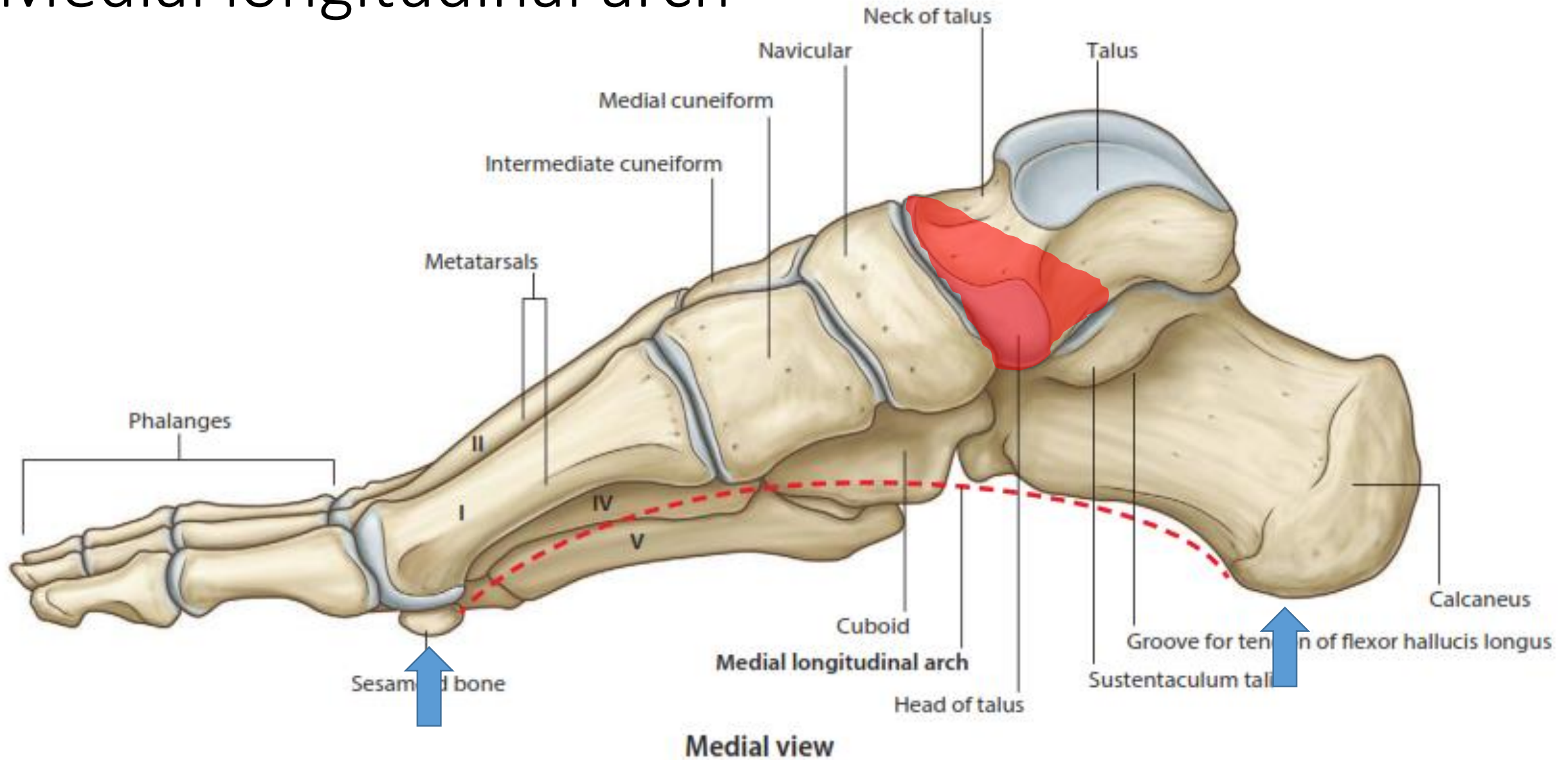


Stone bridge

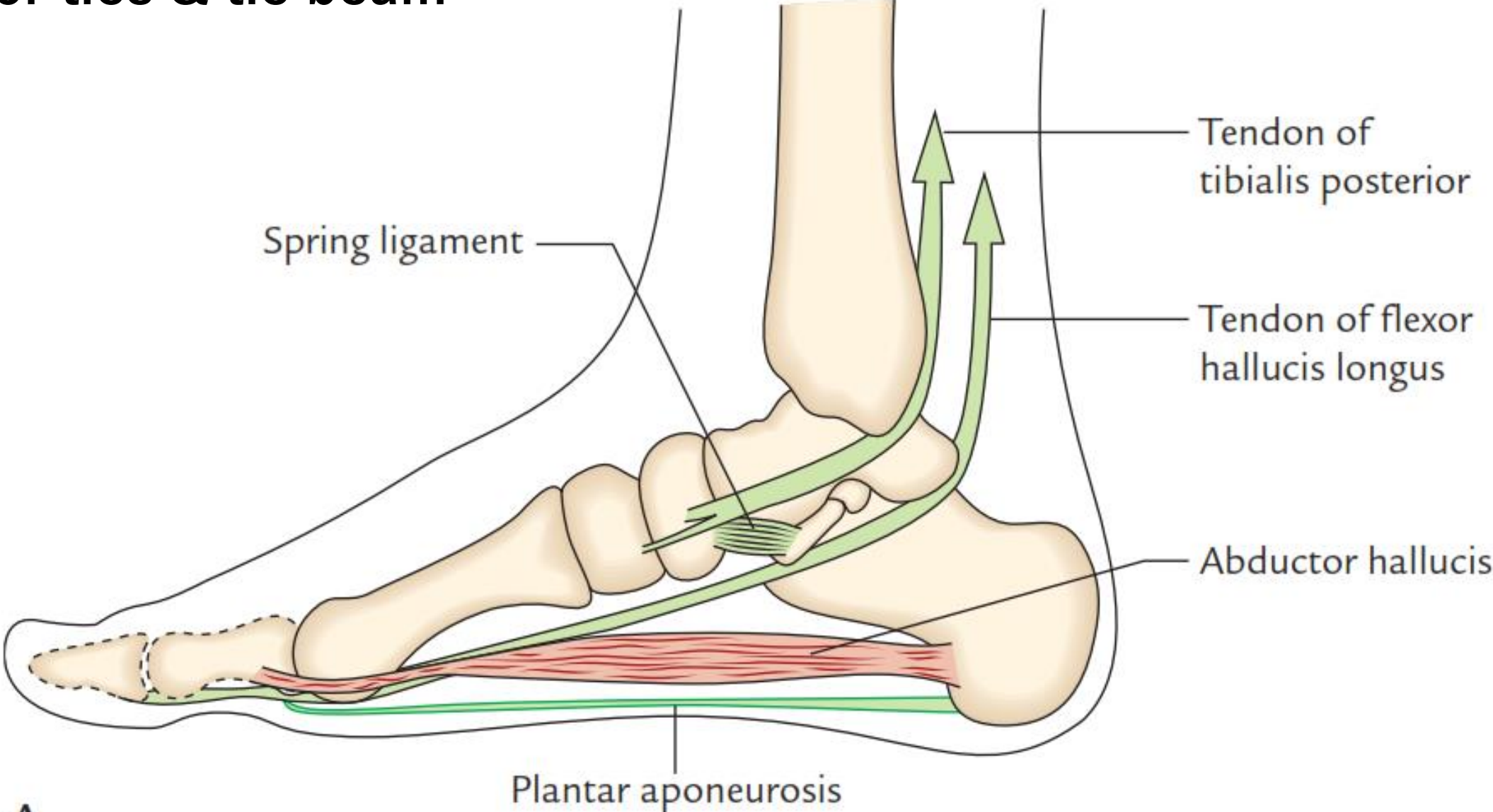
- Supporting factors
- Pillars, shape of stones & keystone
- Tie beam
- Inferior ties (staples)
- Suspending sling



Medial longitudinal arch

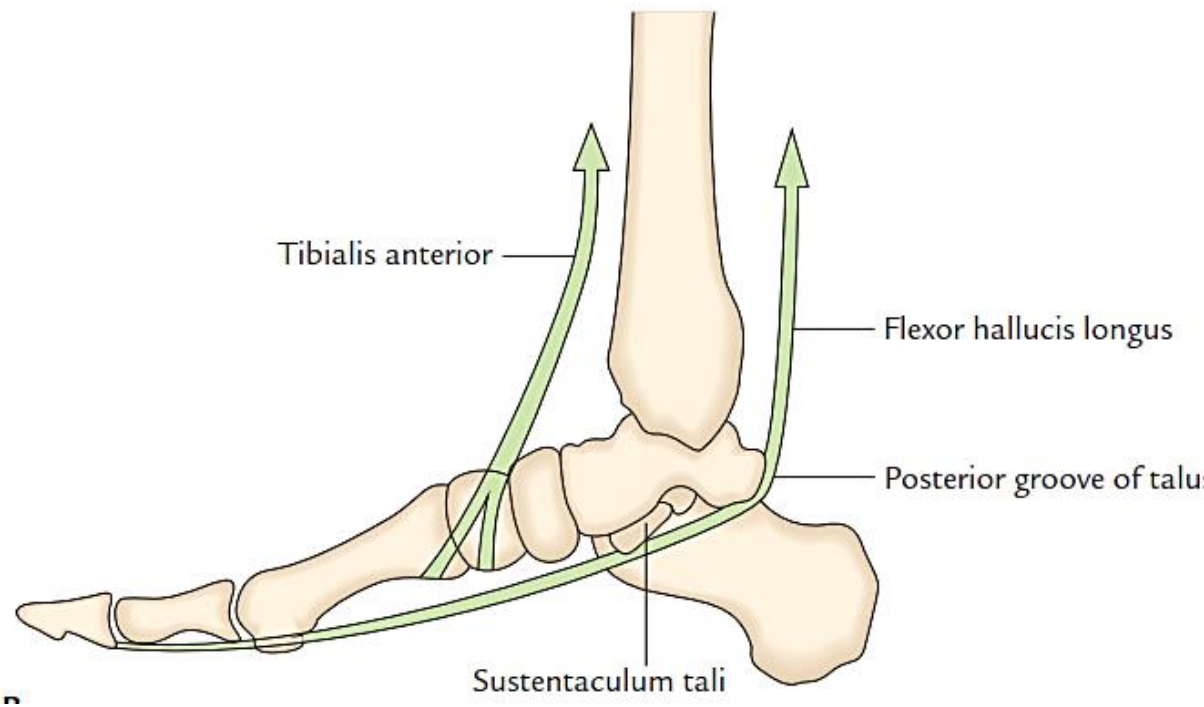
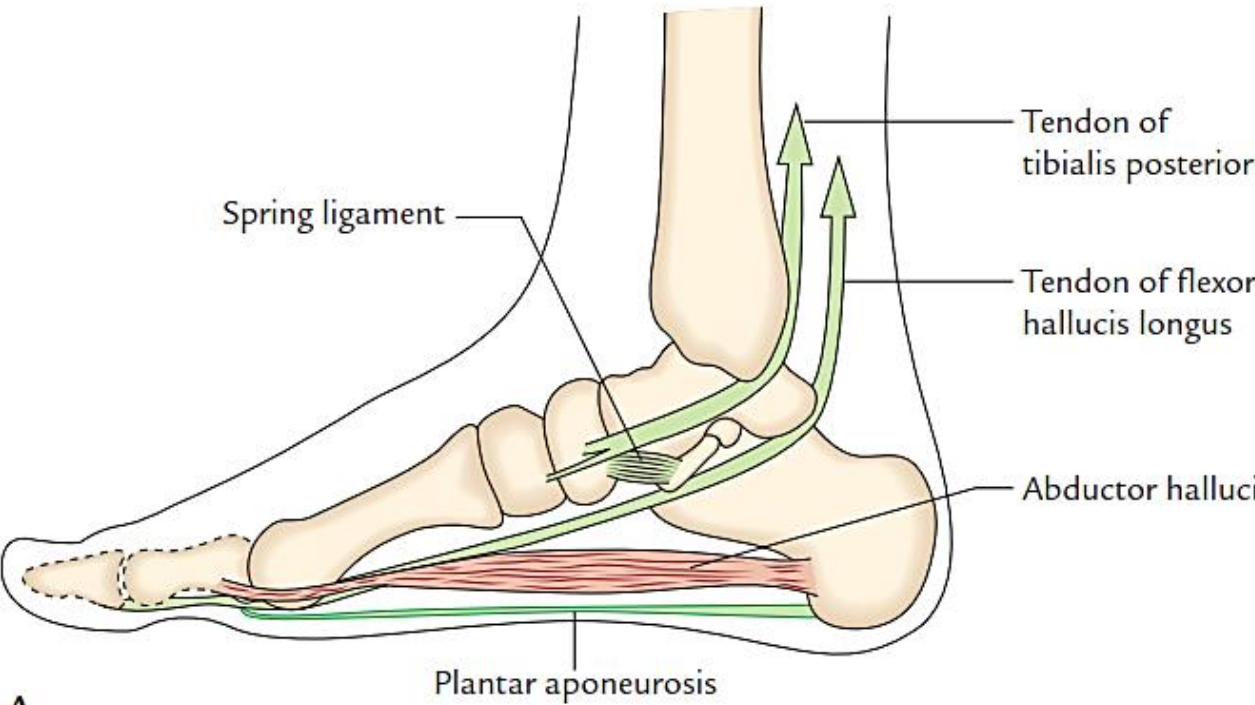


Inferior ties & tie beam

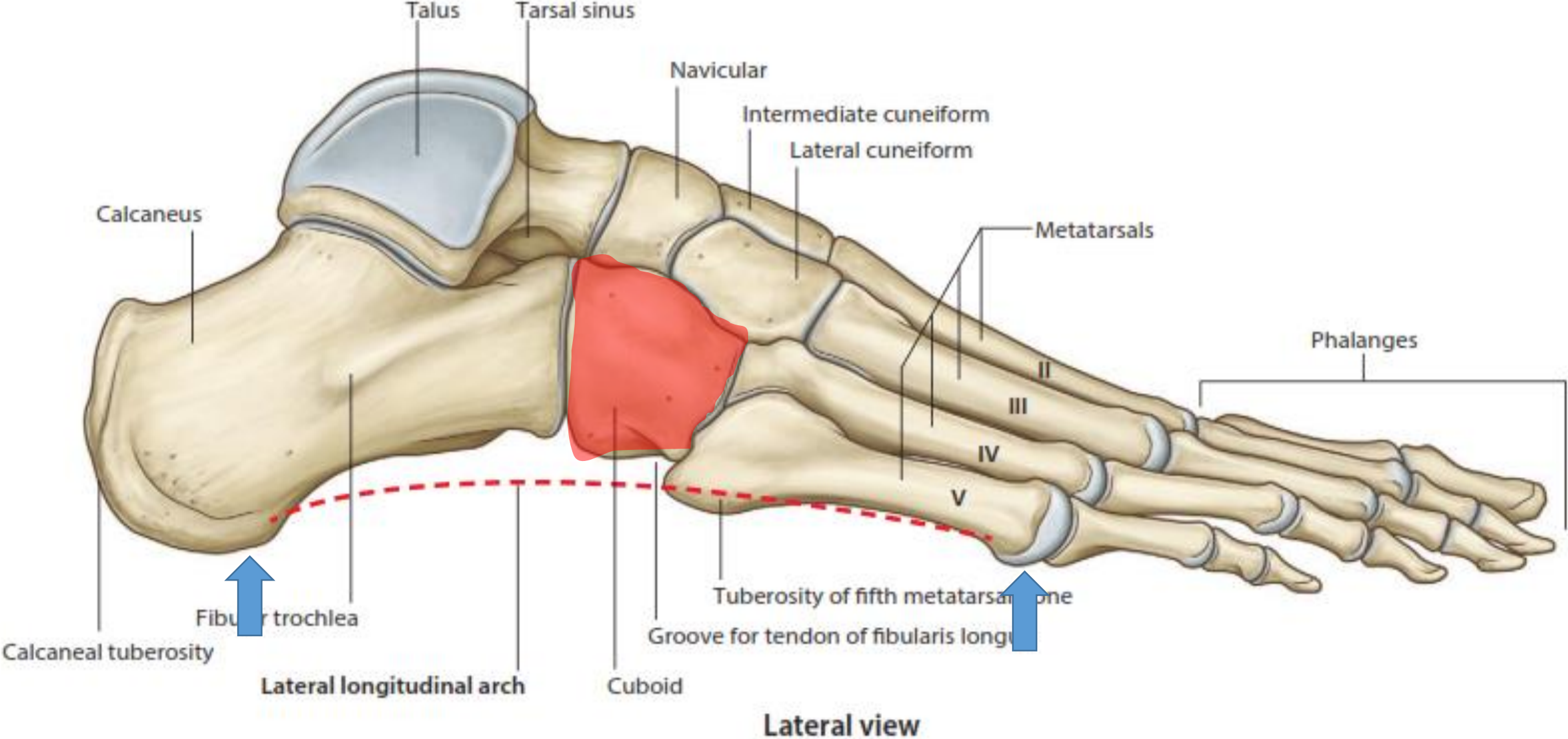


A

Suspending sling

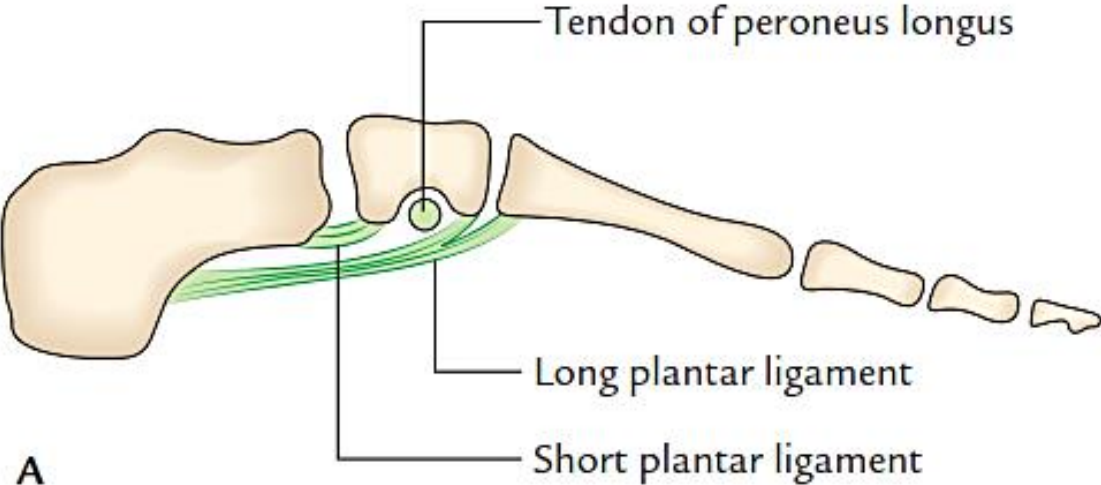


Lateral longitudinal arch

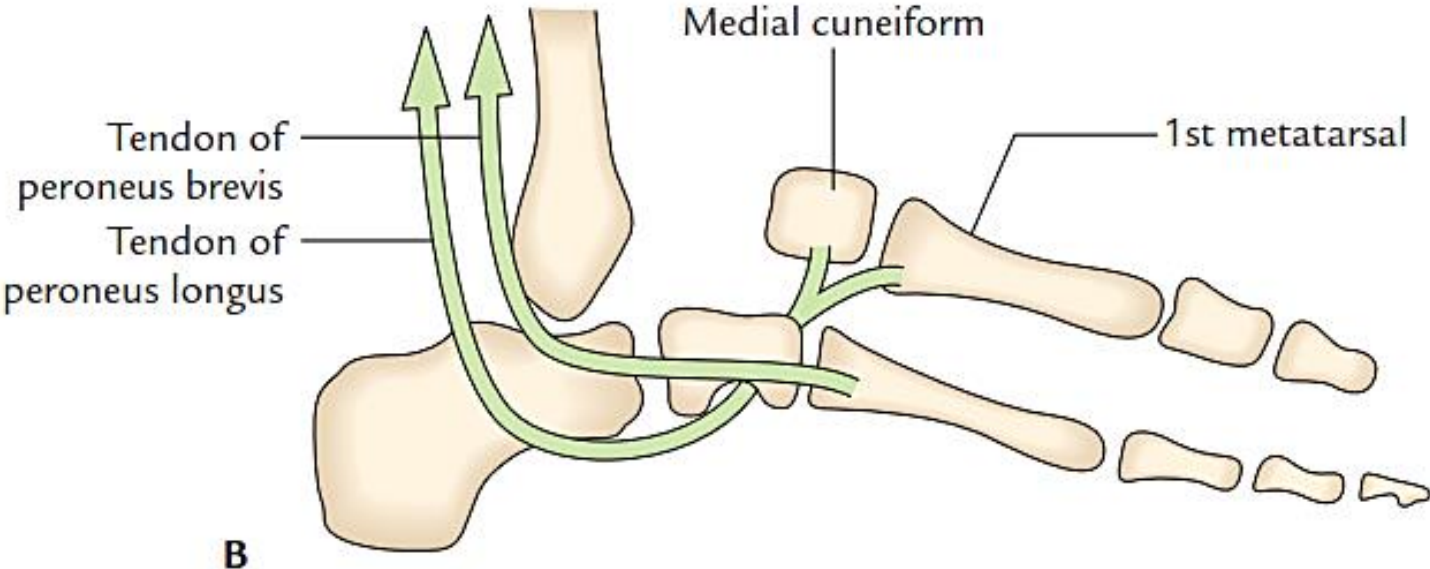


Inferior ties & tie beam

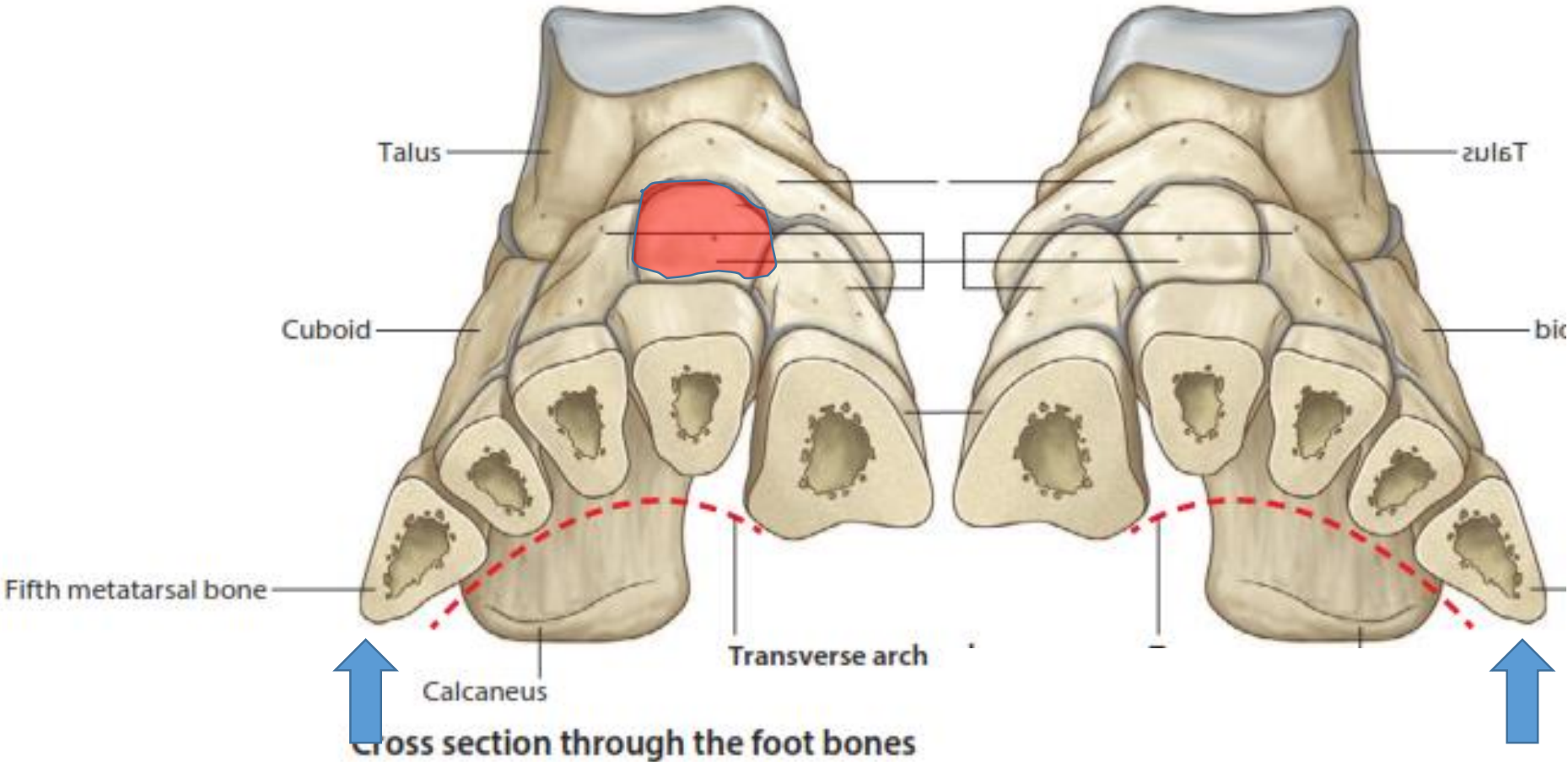
short & long planter ligaments , planter aponeurosis & lateral muscles



Suspending sling



Transverse arch



Inferior ties

superficial & deep metatarsal ligaments & dorsal interossei

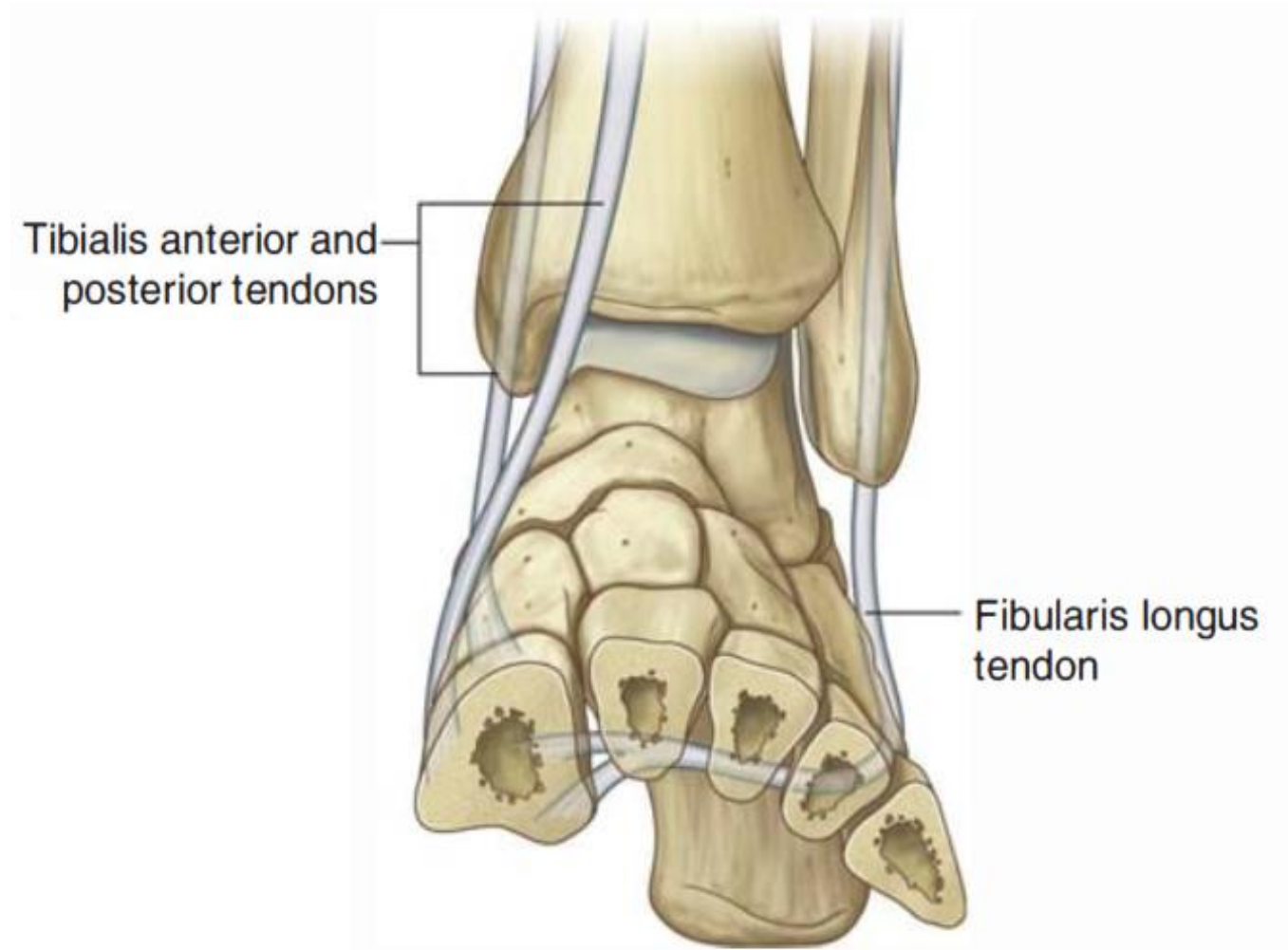
Tie beam

Peroneus longus & tibialis posterior

Suspending sling

peroneus tertius & brevis laterally

Tibialis anterior medially



Functions of arches

- **Weight distribution**
- **Shock absorption**
- **MLA propeller during walking, running**
- **LLA static organ for weight transmission**
- **Protects the nerves & vessels**



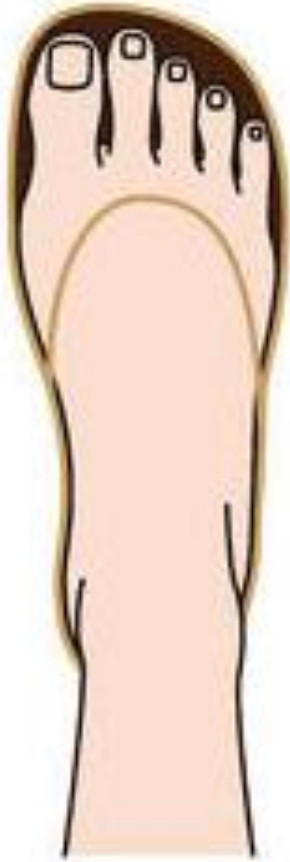
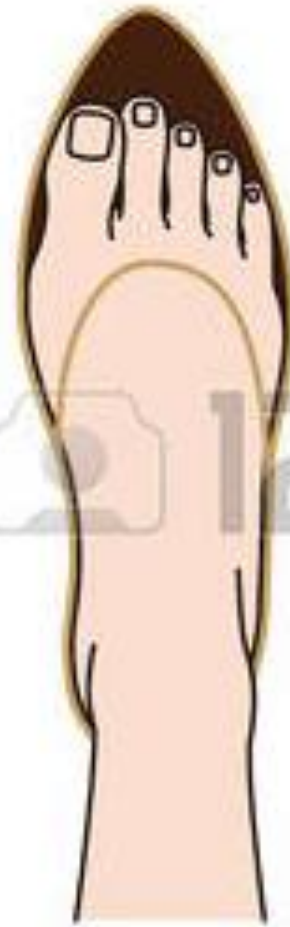
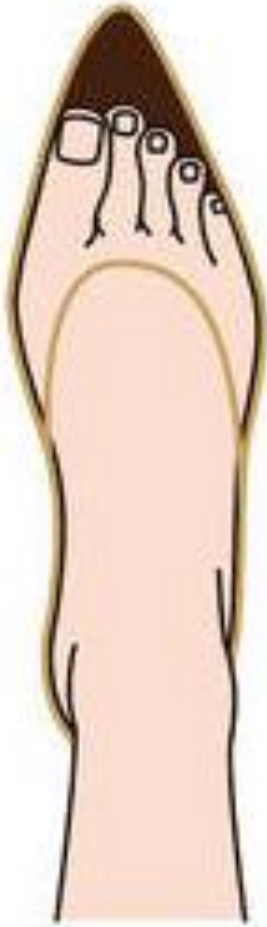
Clinical correlation

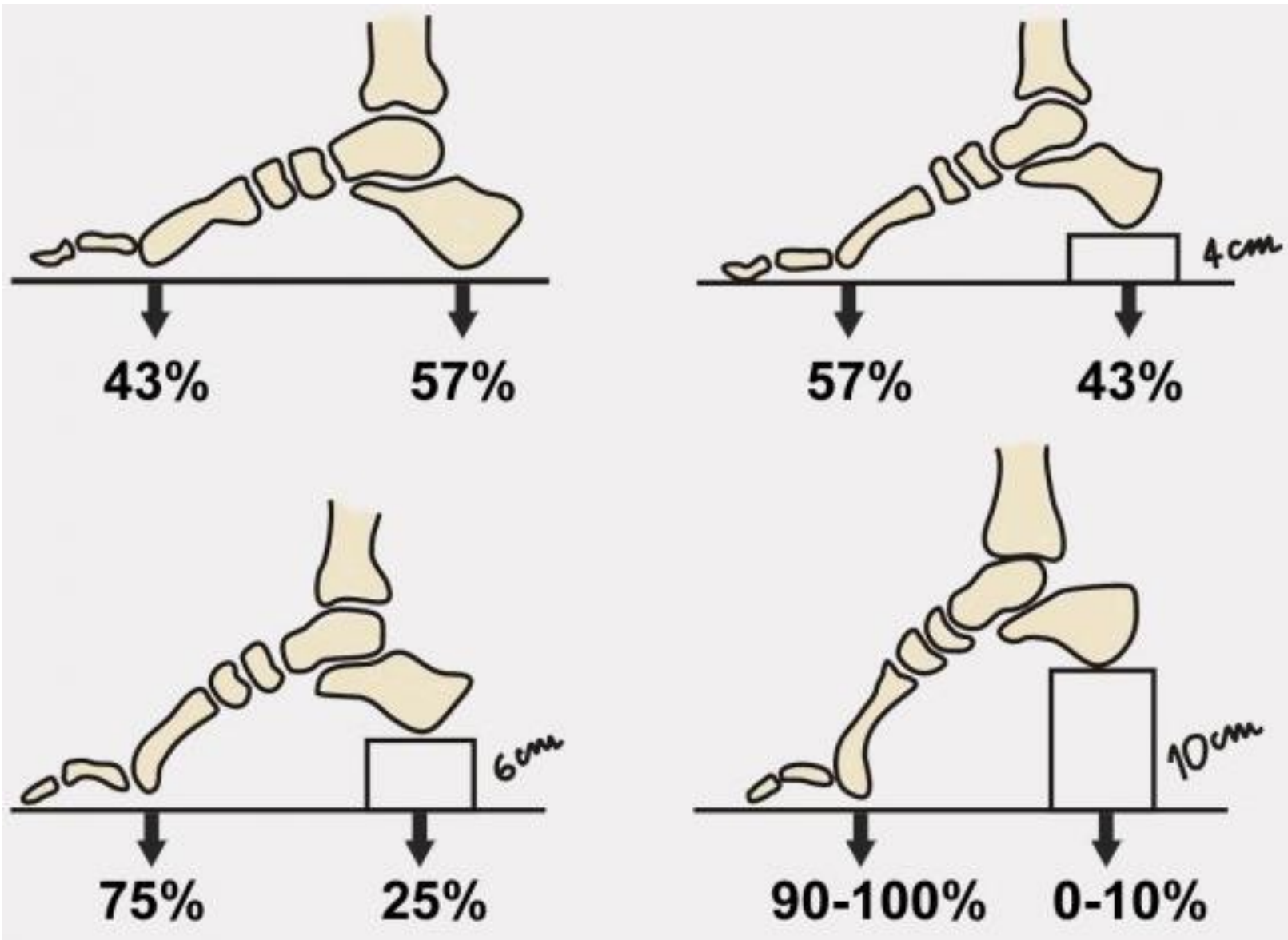
- Flat foot (Pes planus)



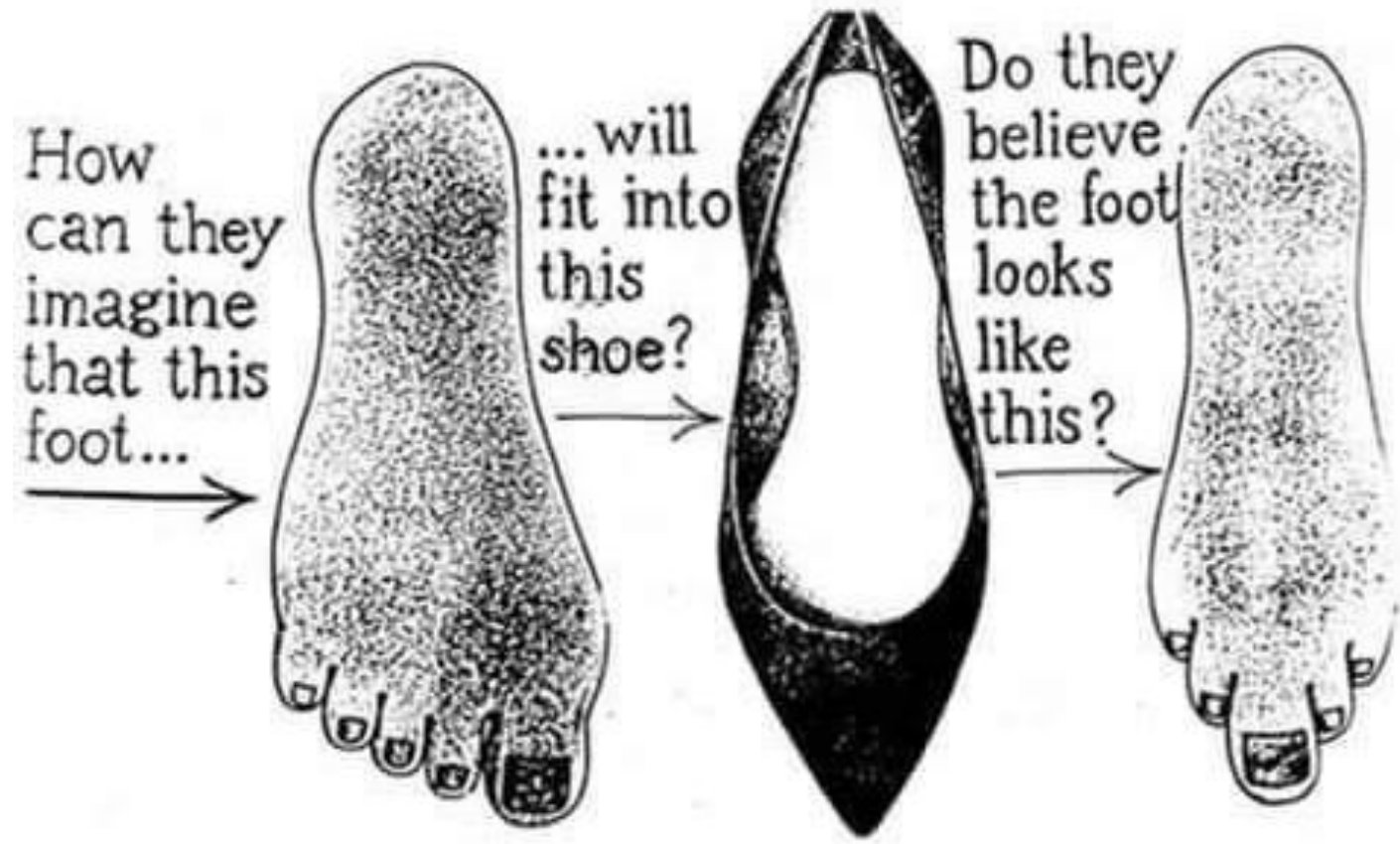
- High arched foot (Pes cavus)

- **Hallux Valgus (high heels foot !)**





Who designs this stuff? 🙄



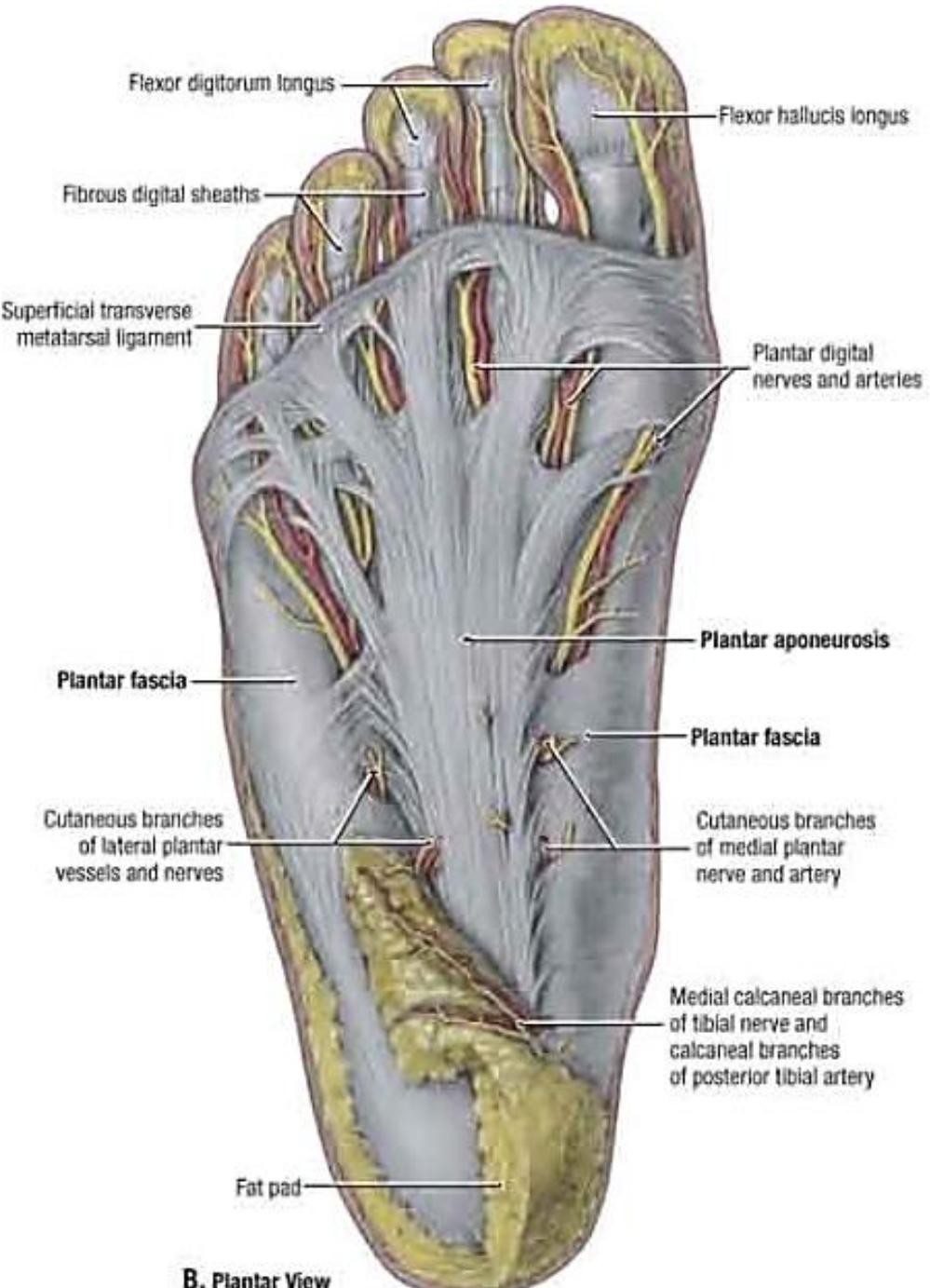


SOLE OF THE FOOT

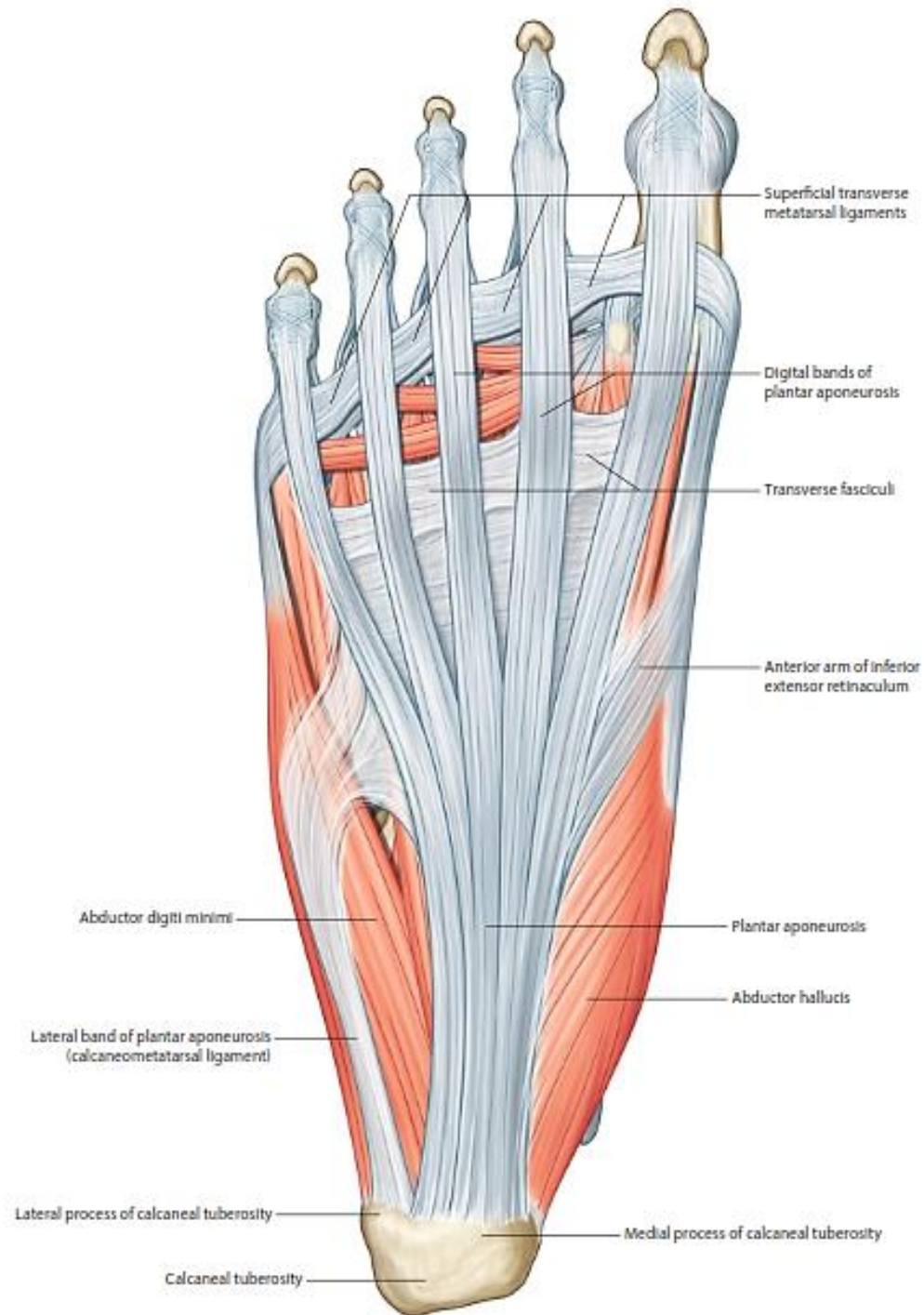
Cutaneous innervation



Skin & superficial fascia



Deep fascia & planter aponeurosis





Clinical correlation

- **Planter fasciitis**





Calcaneal spur



Home remedies for planter fasciitis

Fibrous flexor sheath

- At toes region



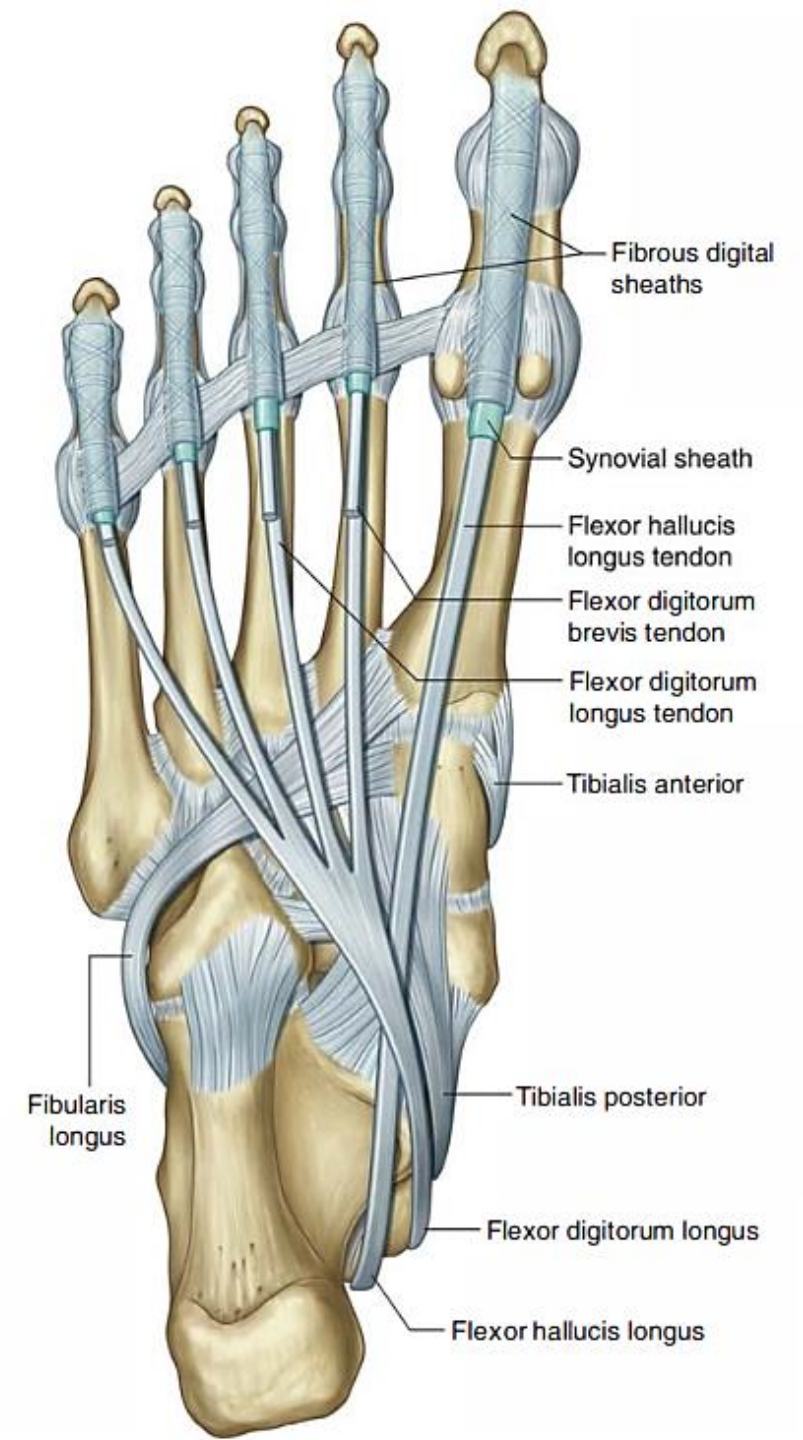
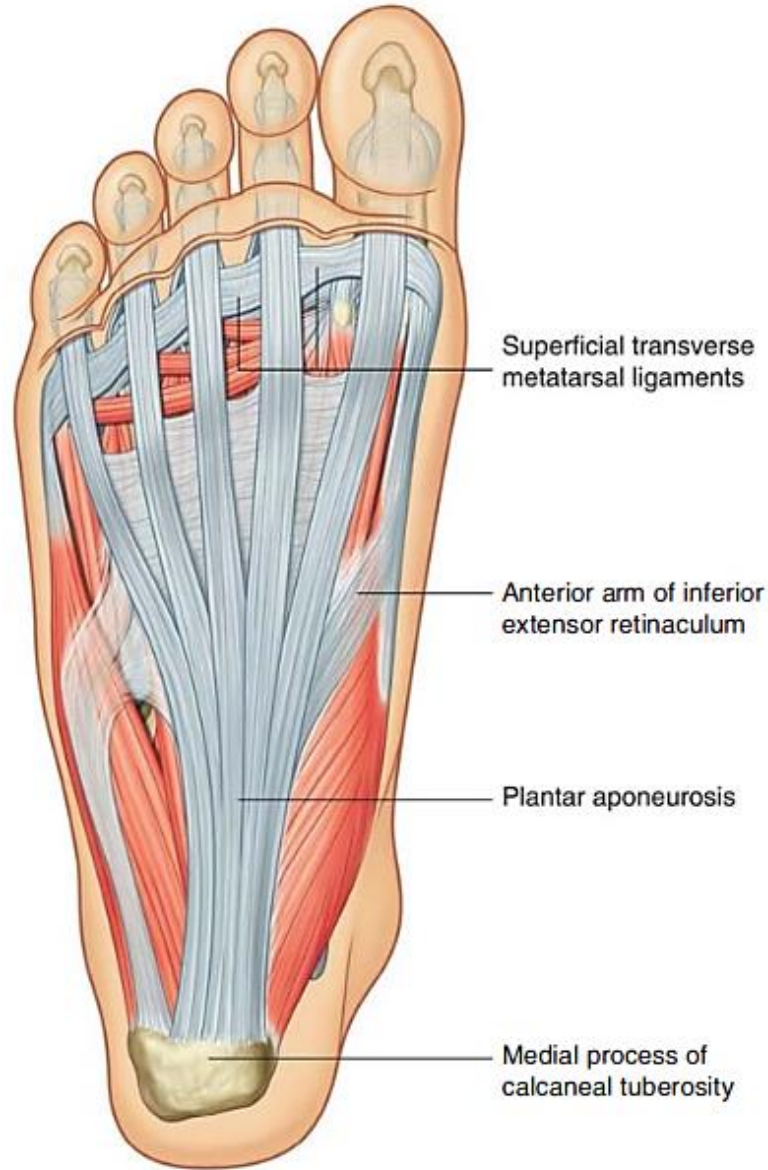
- Deep fascia



Fibrous flexor sheath



Superficial & deep trans. Metatarsal Ligs.

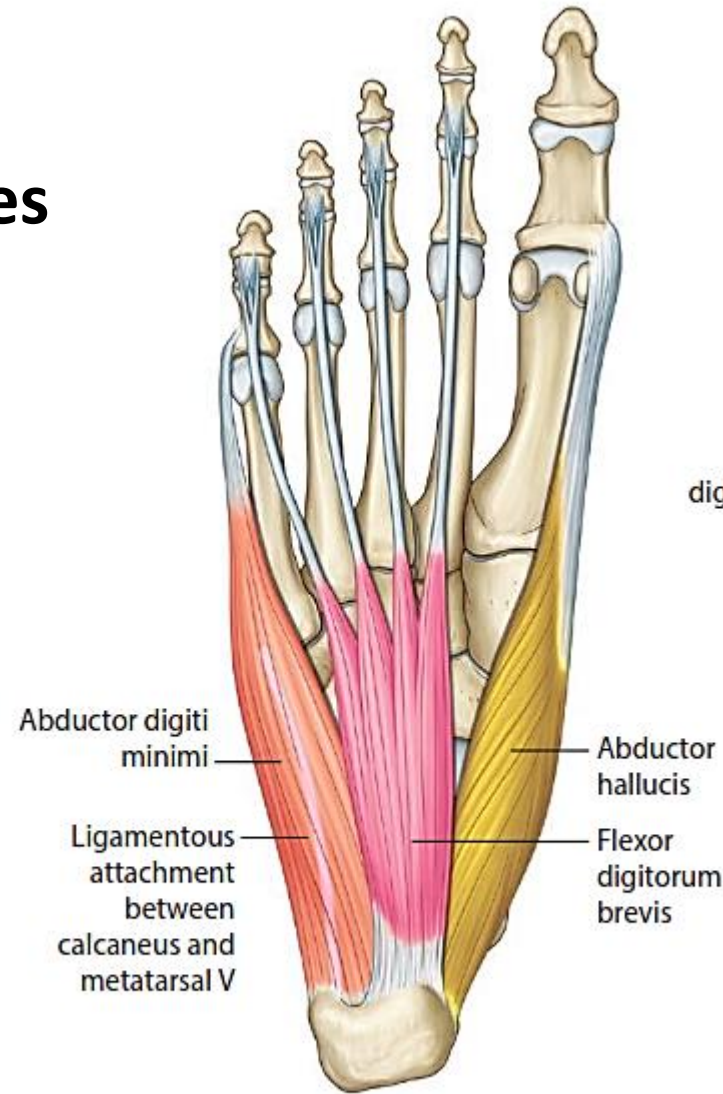


Muscles of sole of foot

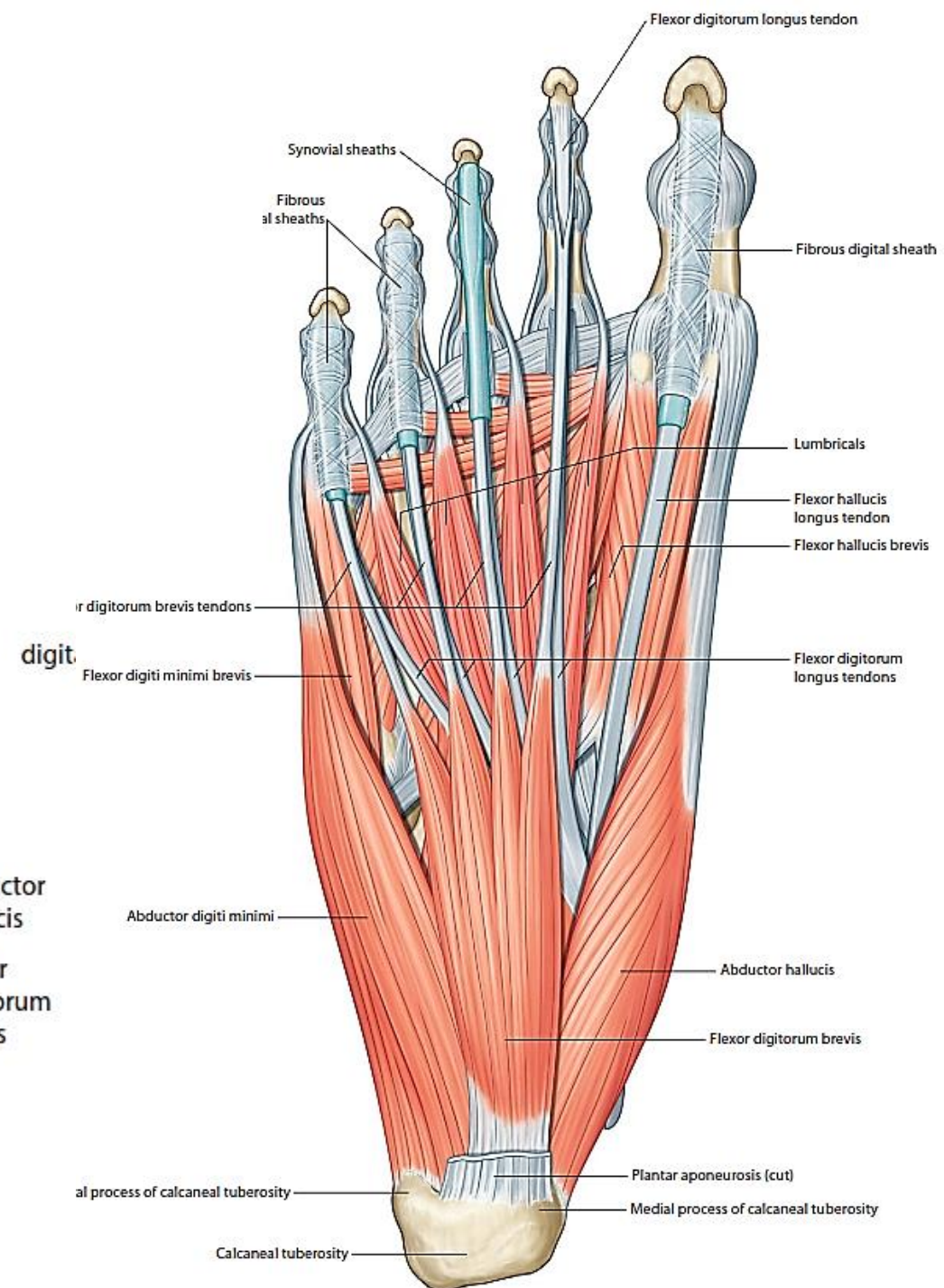
- 4 layers
- 2 neurovascular planes

1st layer

- FDB
- ABD H
- ABD DM

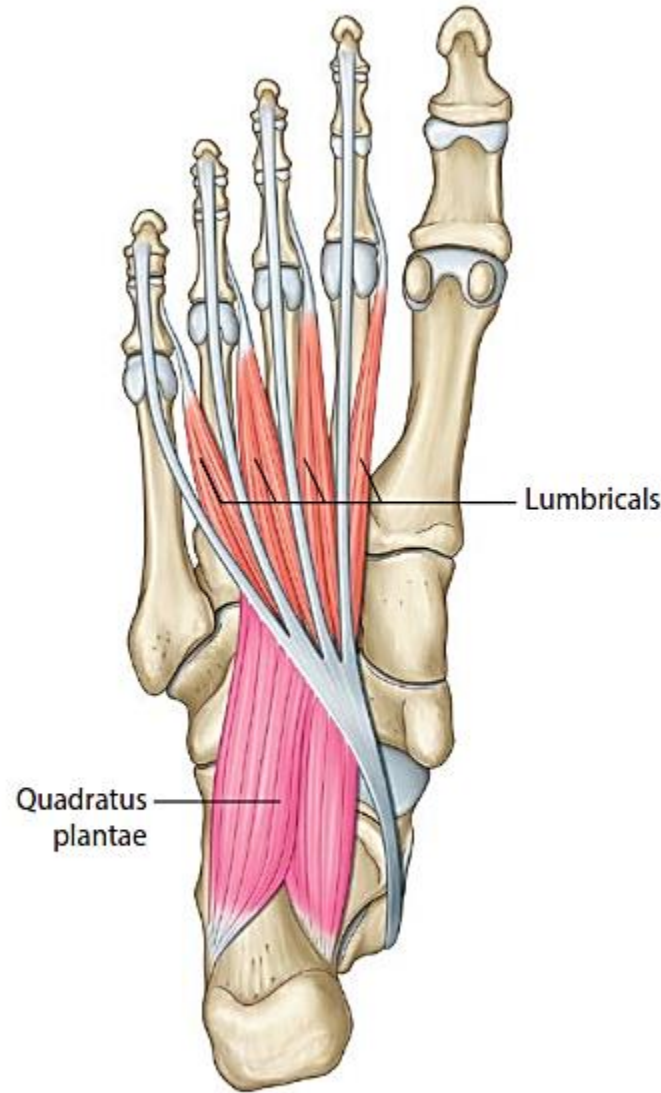


First layer of muscles in the sole of the foot

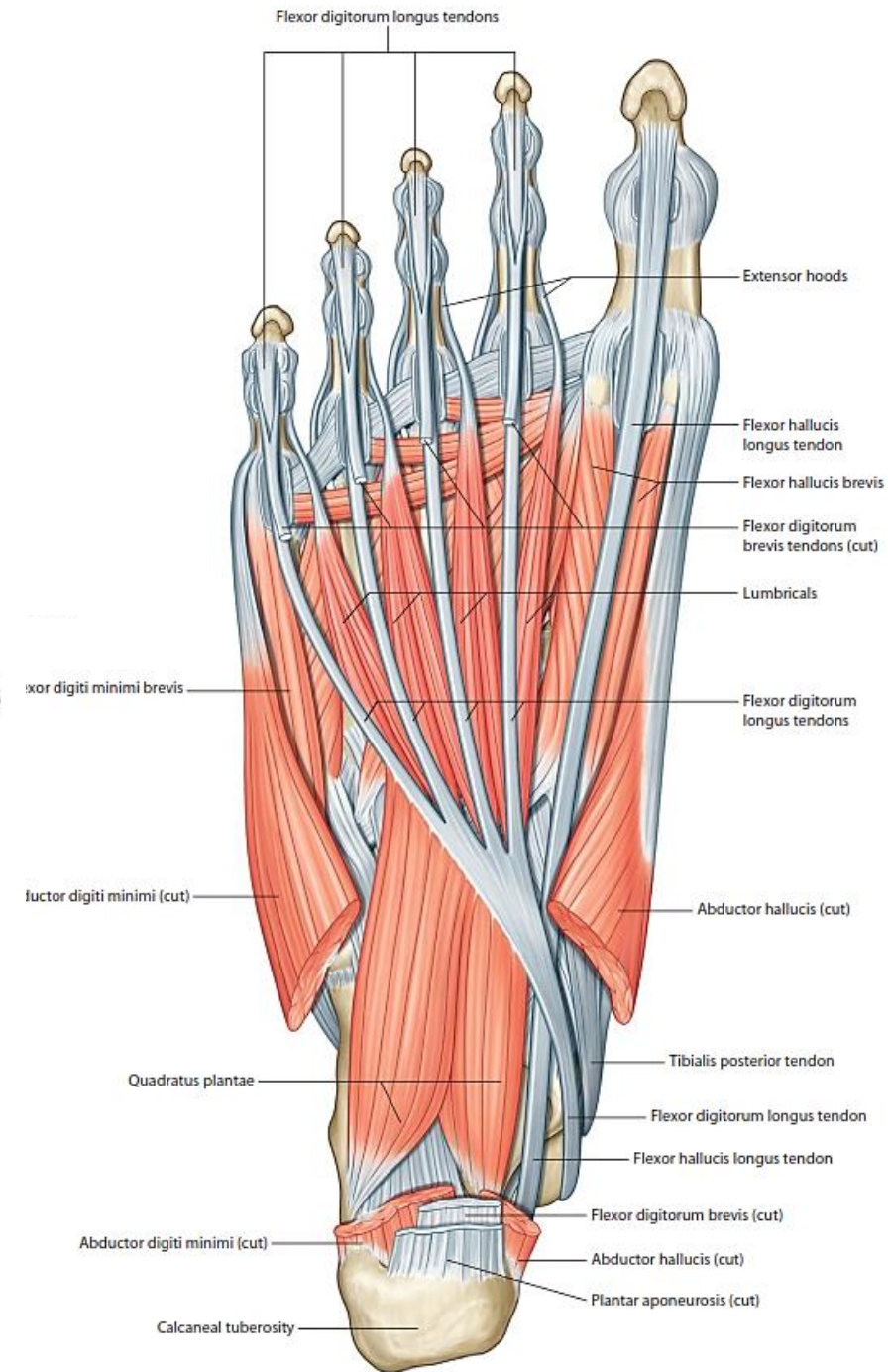


2nd layer

- FDL tendons
- FHL tendon
- 4 lumbricals
- FDA (quadratus plantae)

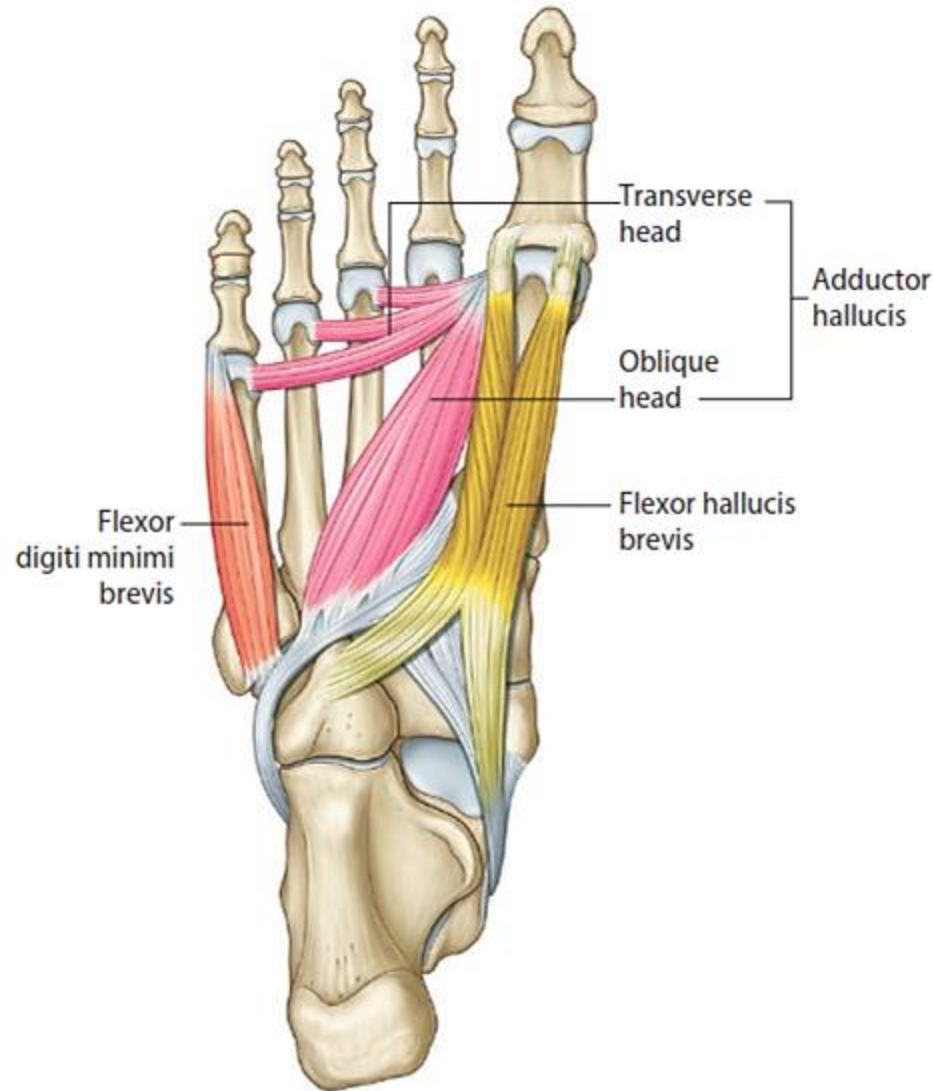


Second layer of muscles in the sole of the foot

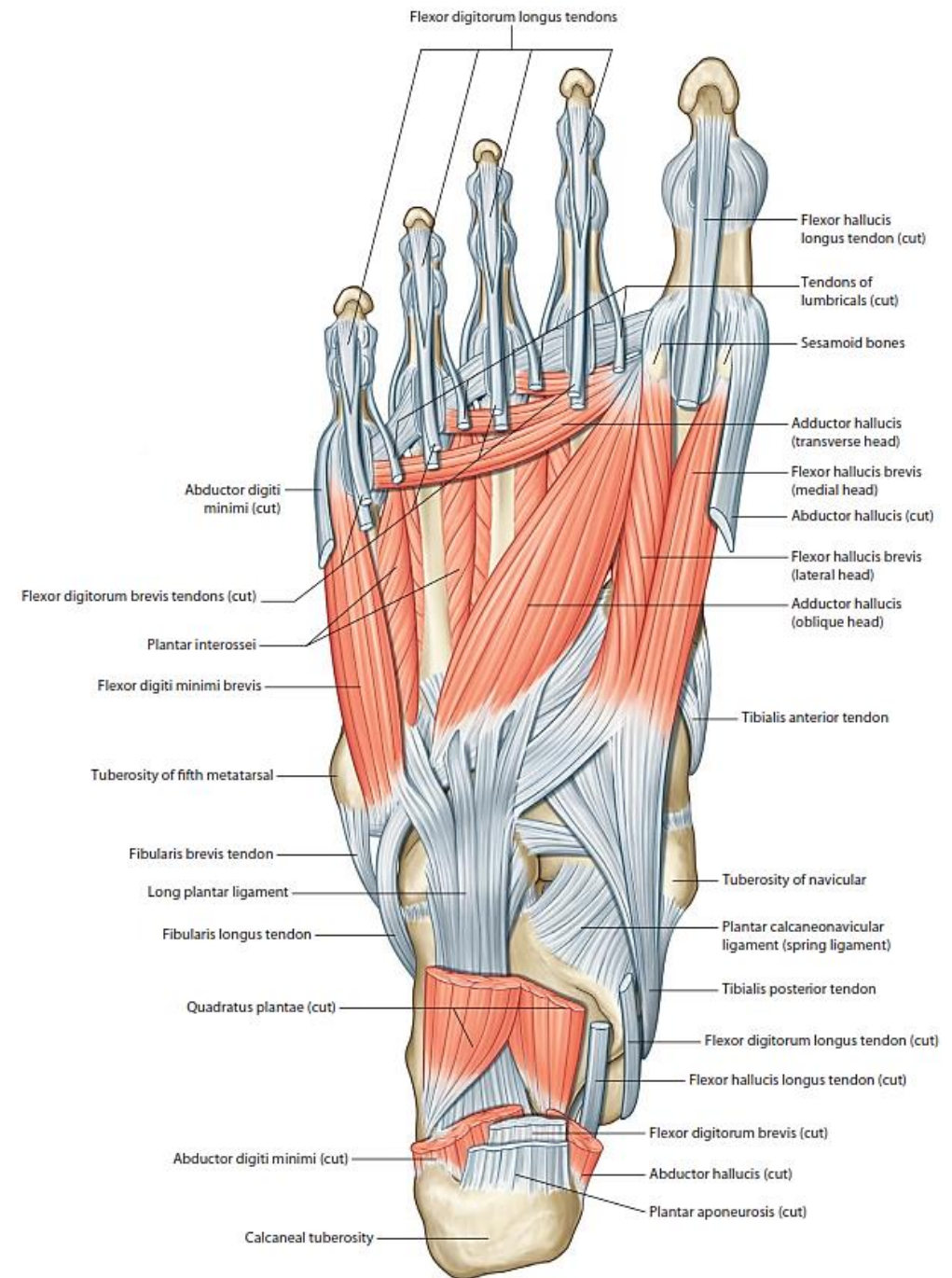


3rd layer

- FHB
- AH
- FDMB



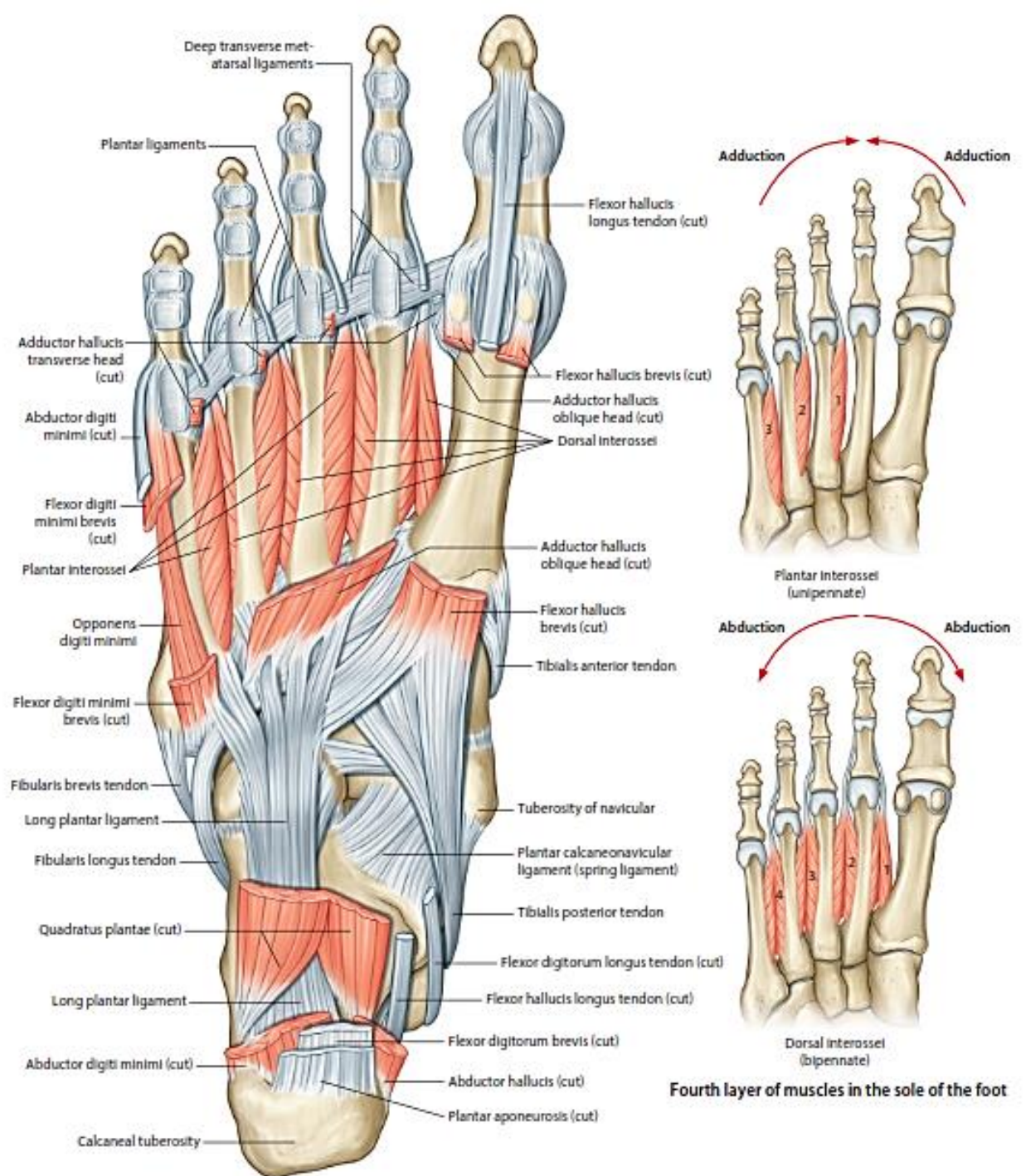
Third layer of muscles in the sole of the foot

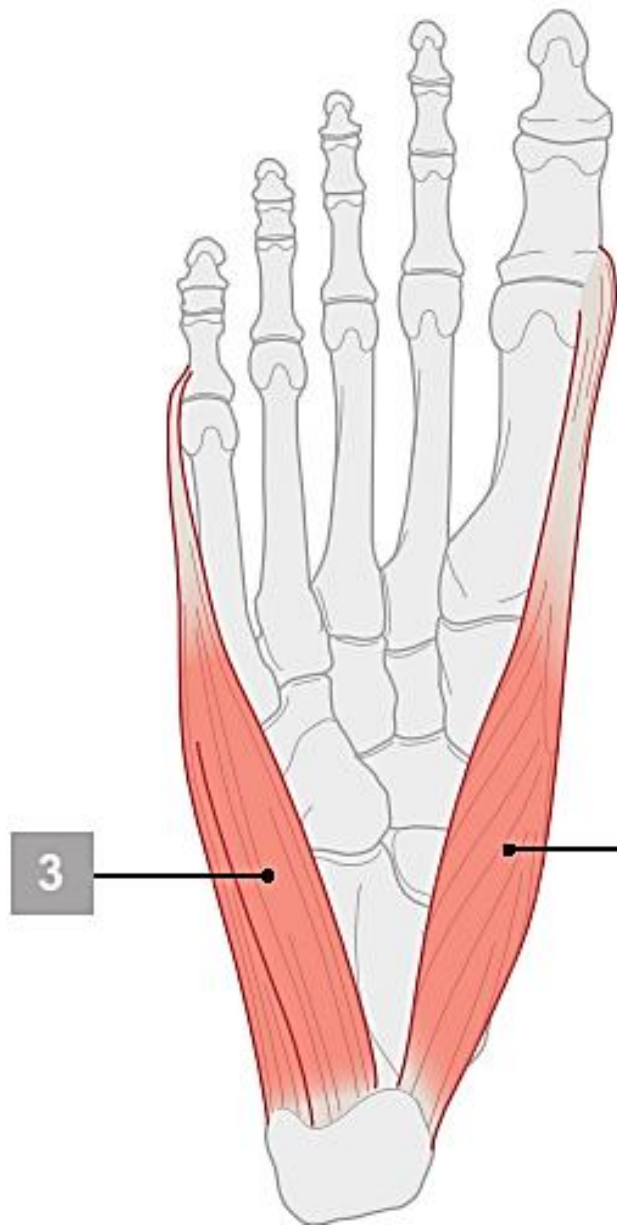


Muscles of sole of foot (third layer)

4th layer

- Interossei (3 planter, 4 dorsal)
- TP tendon
- PL tendon

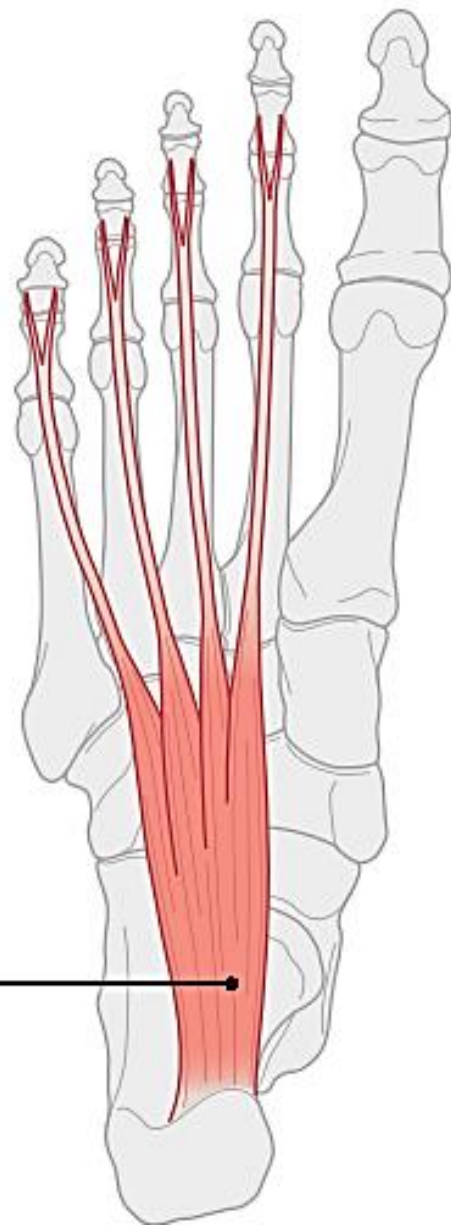




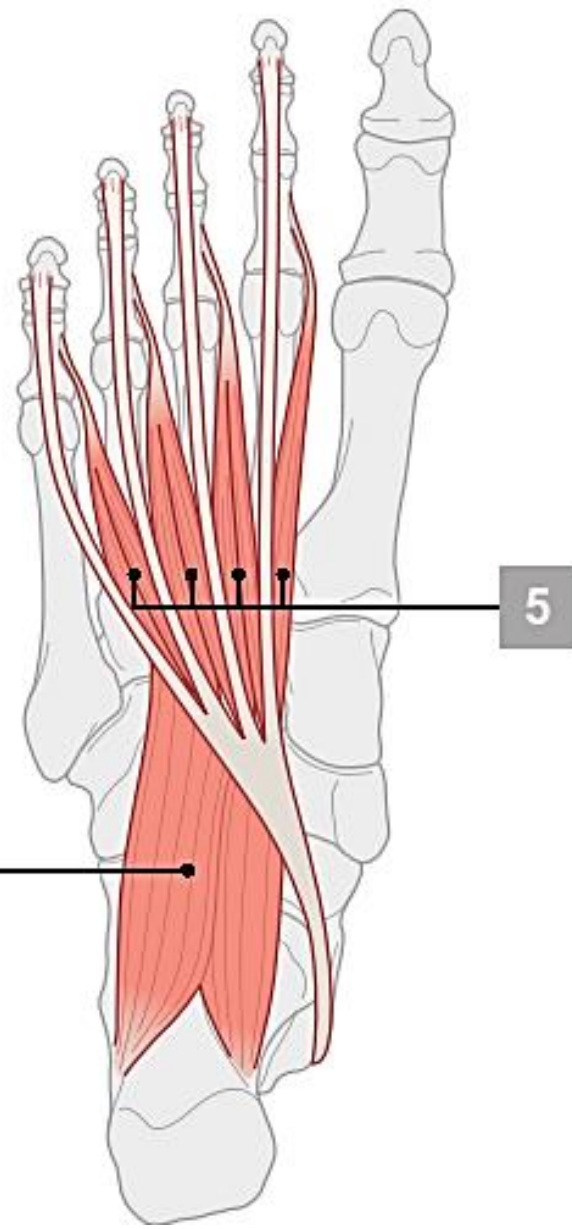
1

2

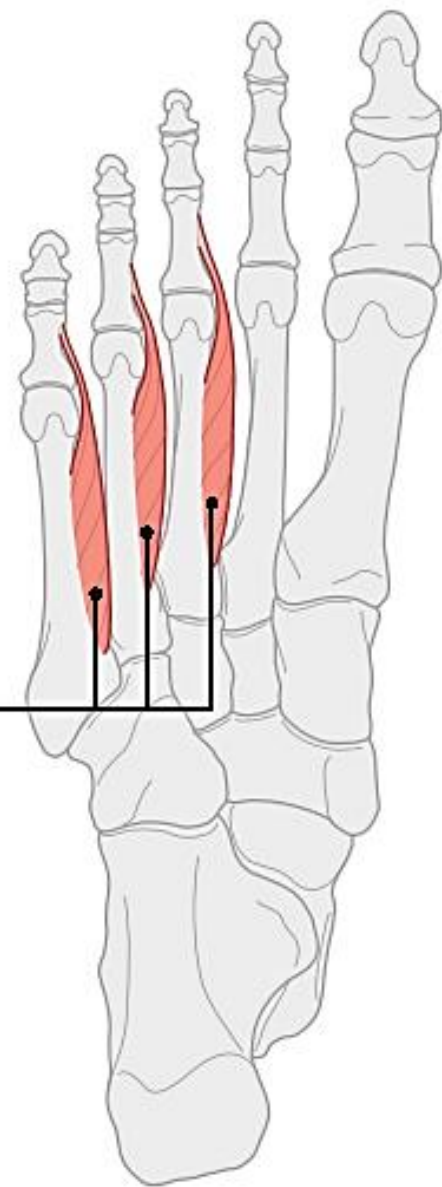
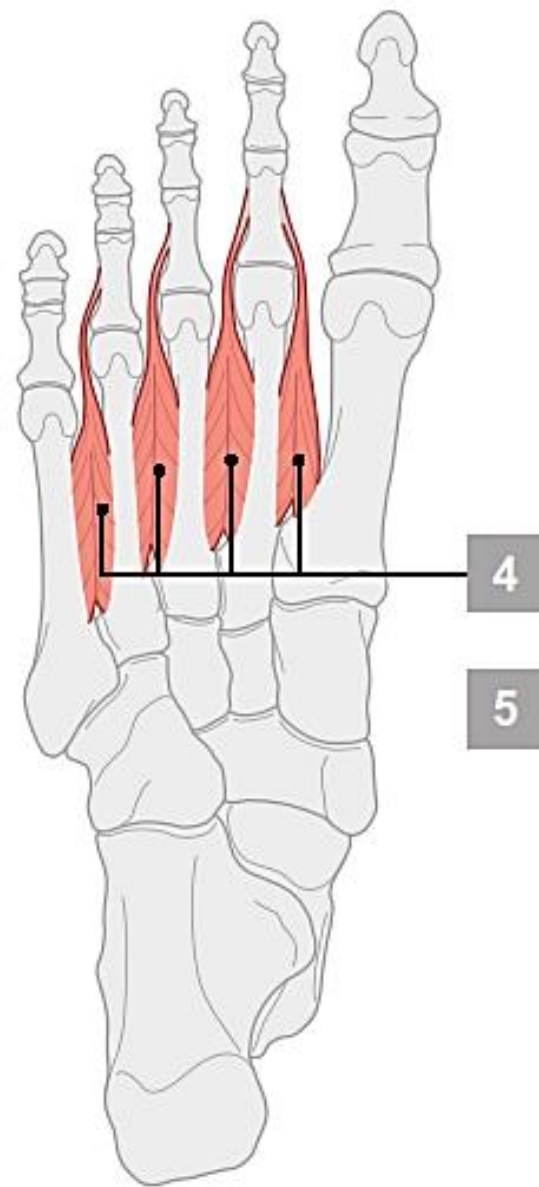
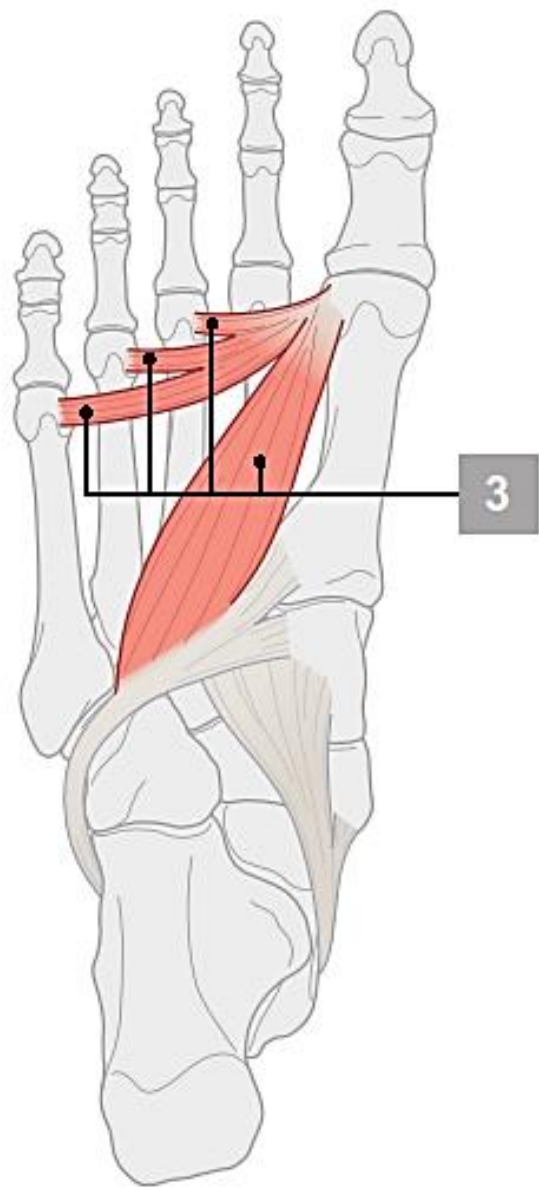
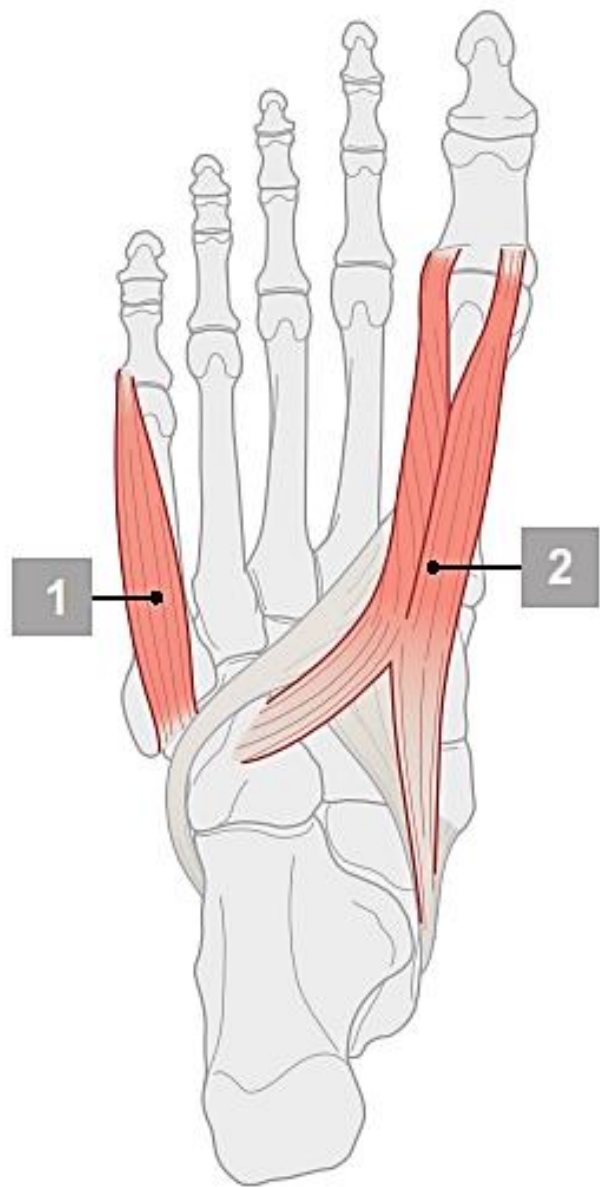
3



4

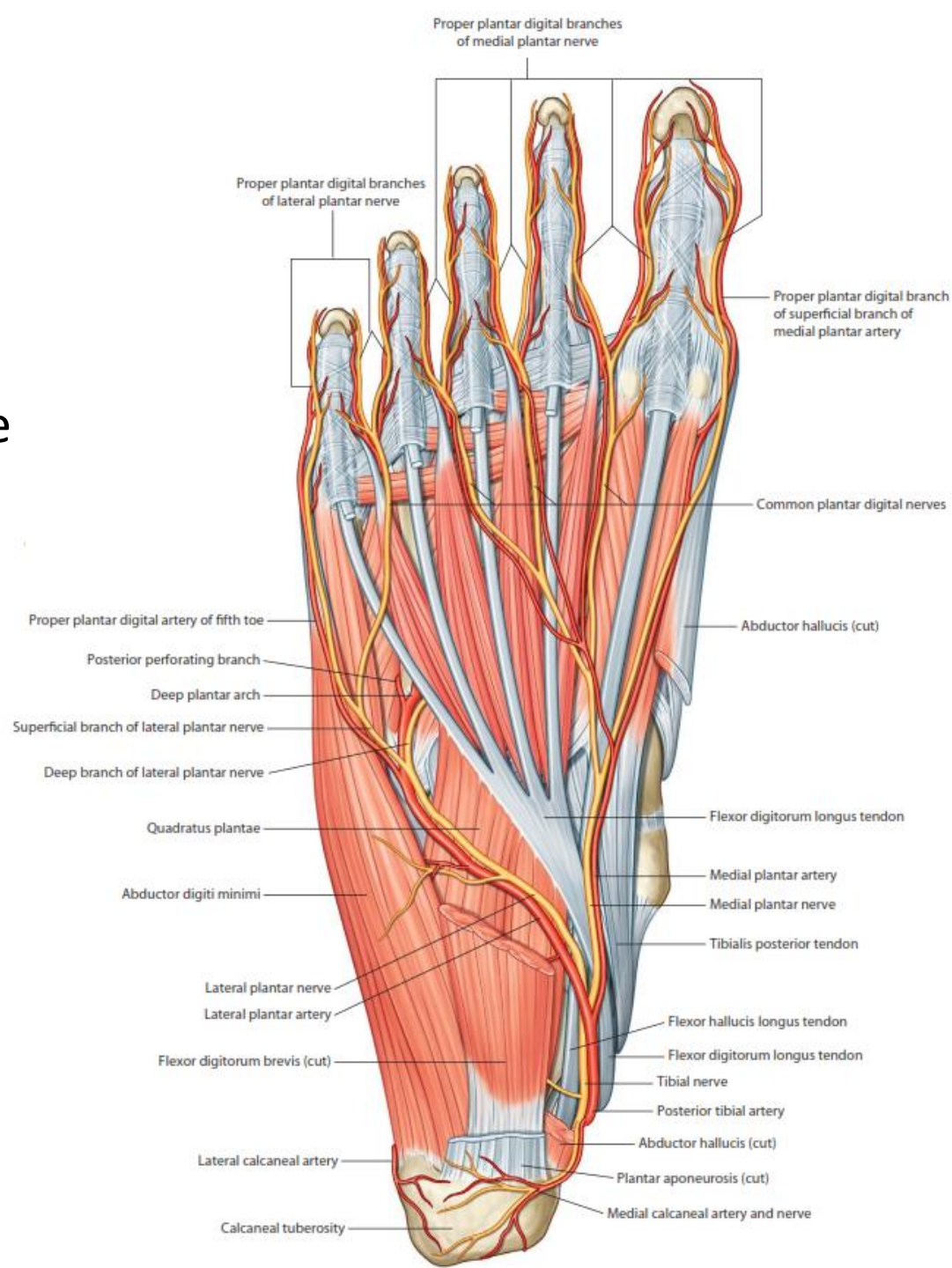


5



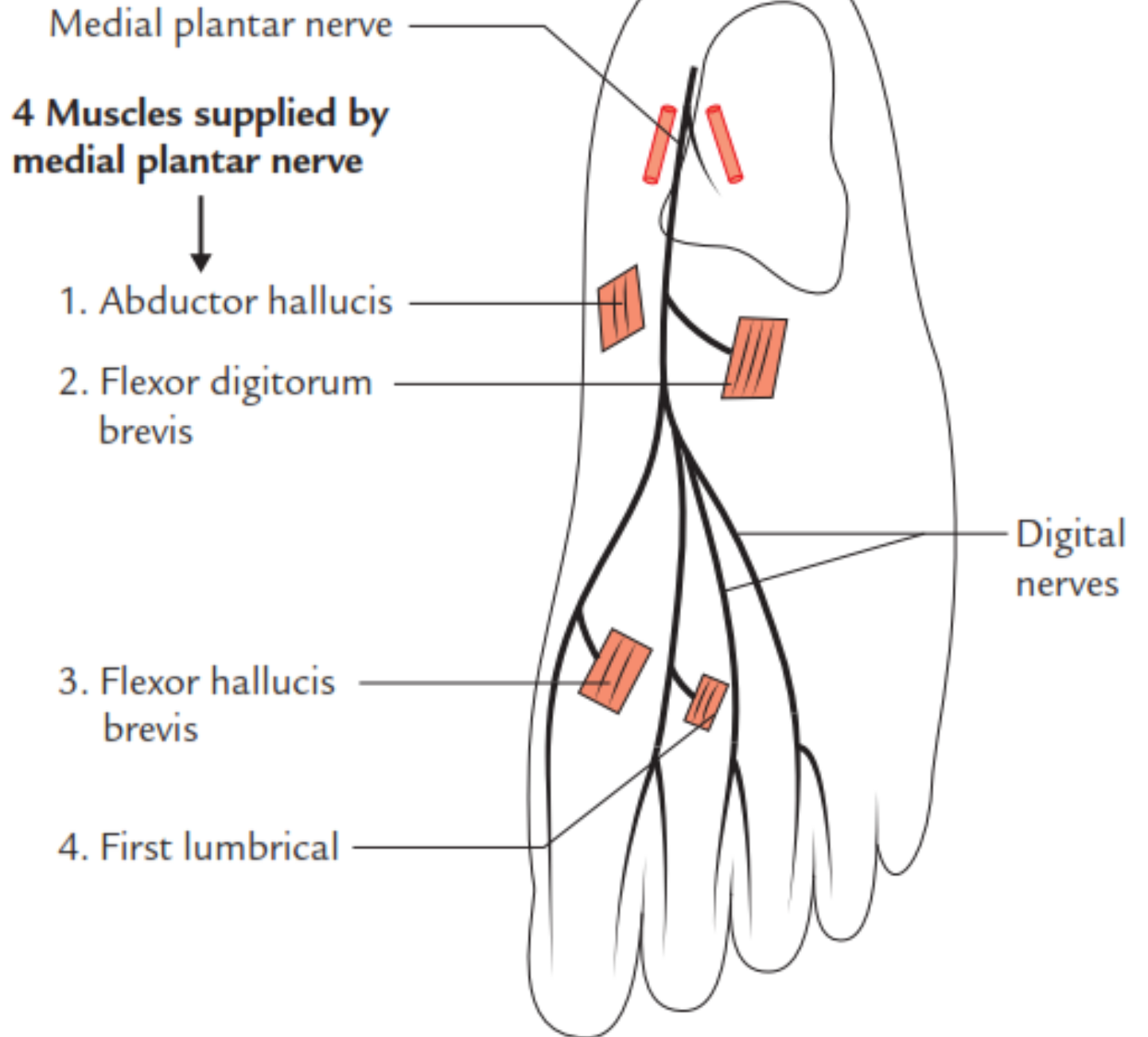
Arteries of sole of foot

- Superficial neurovascular plane
- Deep neurovascular plane



Nerves of sole of foot

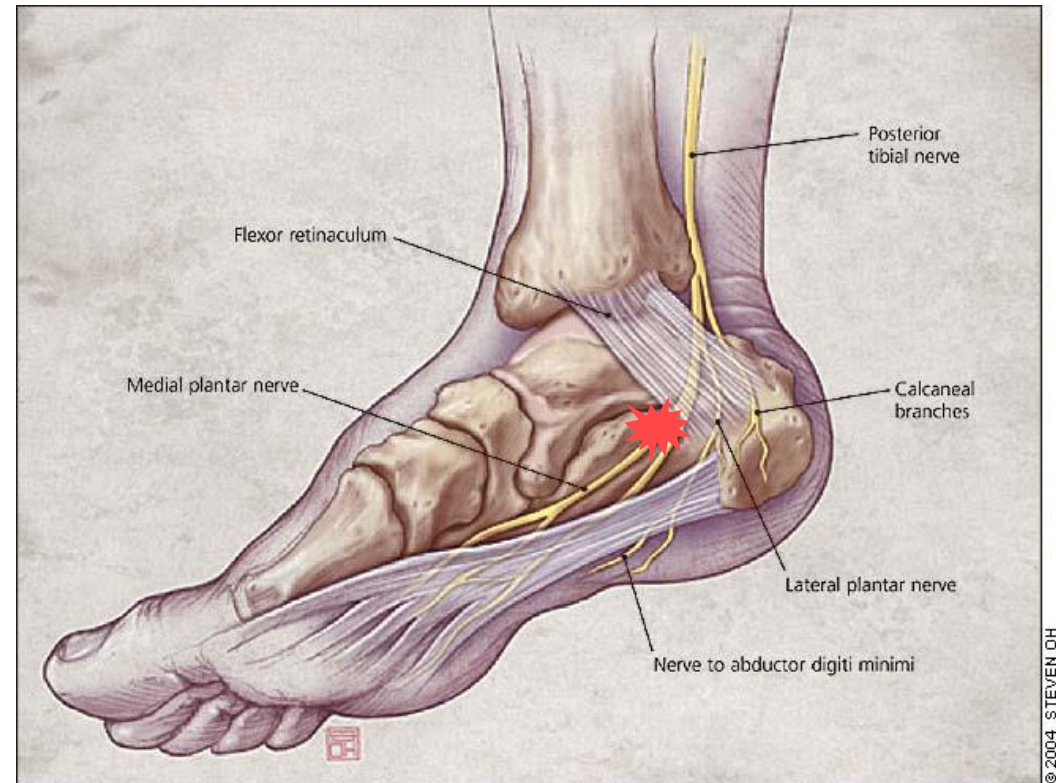
Medial planter nerve





Clinical correlation

Jogger's foot (med. Planter nerve entrapment) repetitive eversion



Lateral planter nerve

