

Popliteal fossa back of leg & Sole of foot

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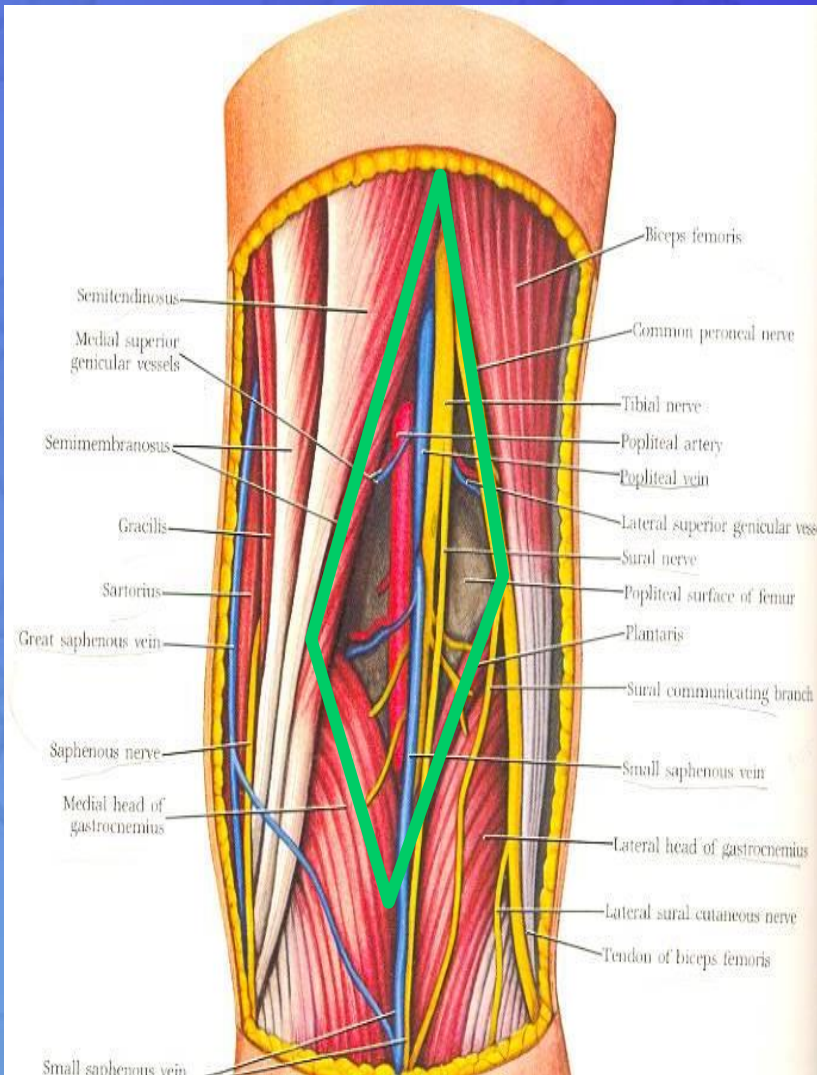
Objectives

At the end of the you should know:

- The popliteal fossa with its contents.
- The contents of posterior fascial compartment of the leg.
- The structures hold by Flexor retinaculum at the ankle joint.
- Layers forming in the sole of foot.

Popliteal Fossa

Is a diamond-shaped intermuscular space at the back of knee



Boundaries

Laterally:

Above: biceps femoris.

Below: lateral head of gastrocnemius & plantaris

Medially:

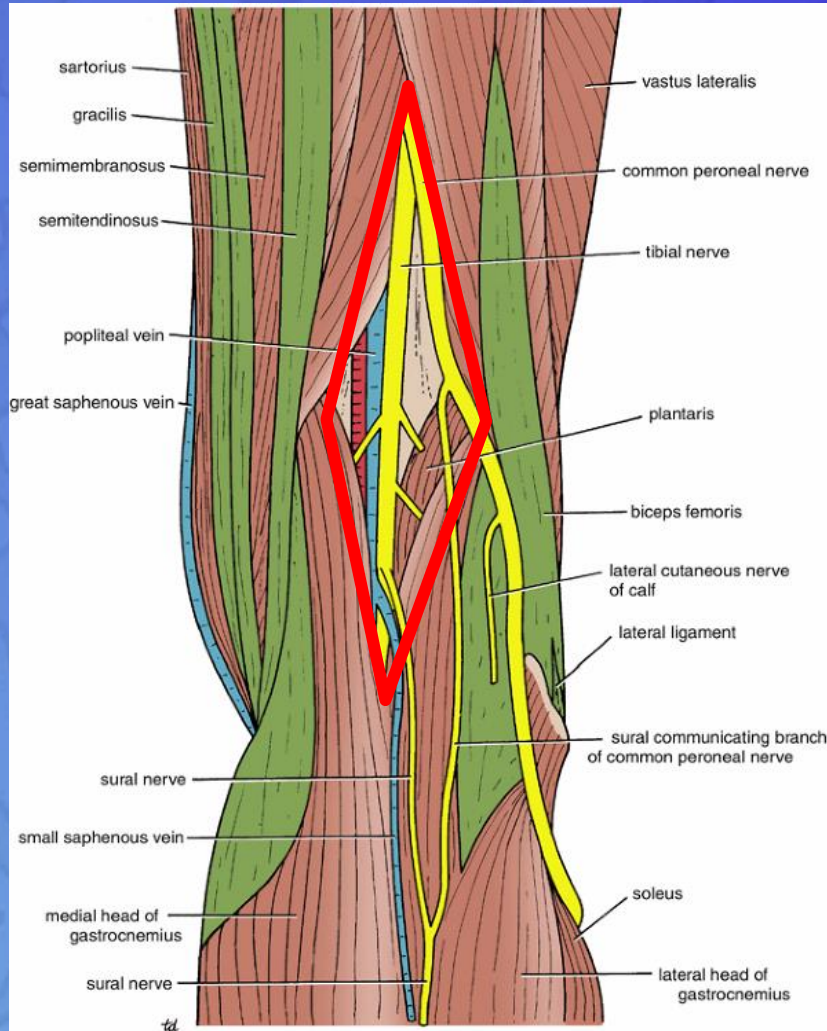
Above: semitendinosus & semimembranosus

Below: medial head of gastrocnemius

Roof: Skin, superficial fascia and deep fascia of the thigh

Floor: Popliteal surface of femur, posterior ligament of knee joint and popliteus muscle

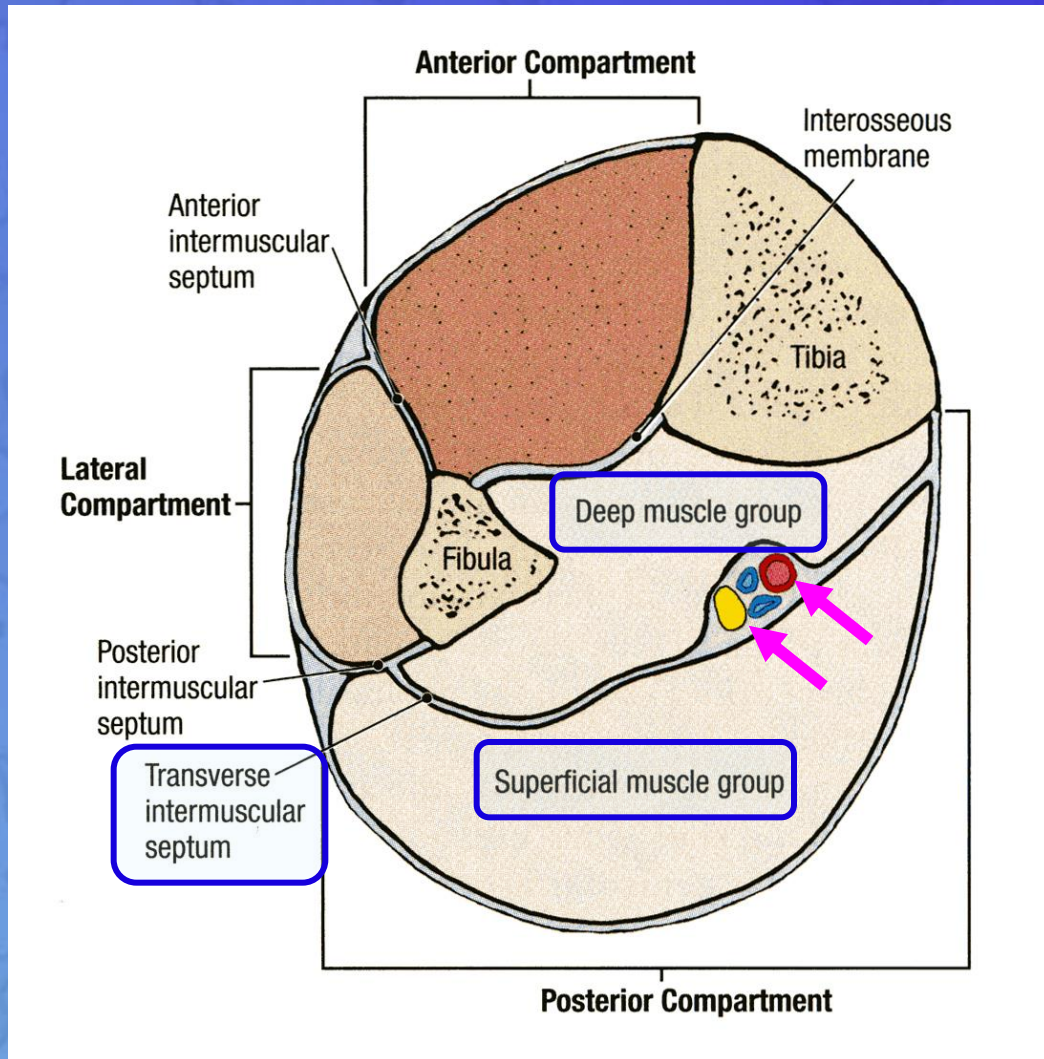
Popliteal Fossa



Contents:

1. Popliteal vessels
2. Small saphenous vein
3. Common peroneal nerve
4. Tibial nerve
5. Posterior cut. nerve of thigh
6. Connective tissue & popliteal lymph nodes

CONTENTS OF THE POSTERIOR FASCIAL COMPARTMENT OF THE LEG



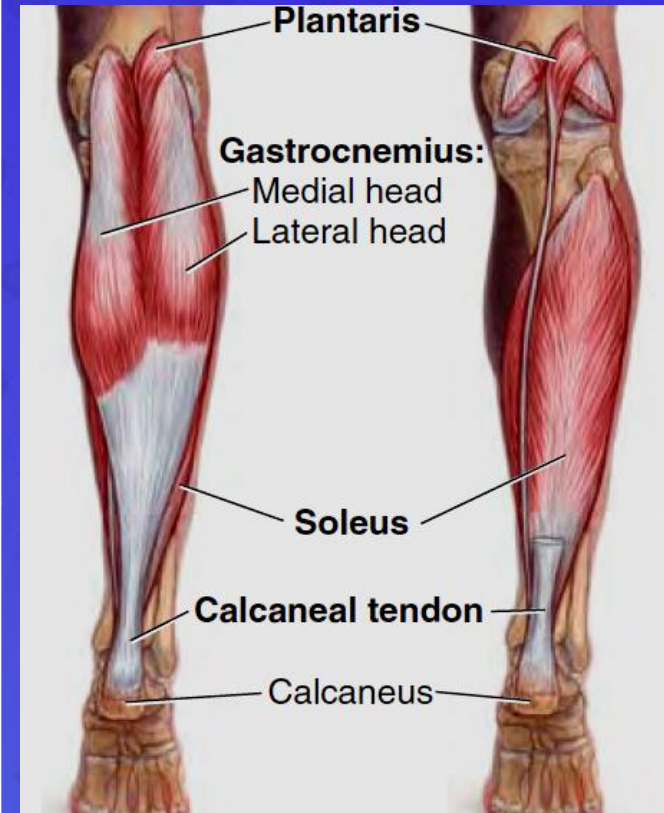
The deep transverse fascia of the leg is a septum that divides the muscles of the posterior compartment into superficial and deep groups.

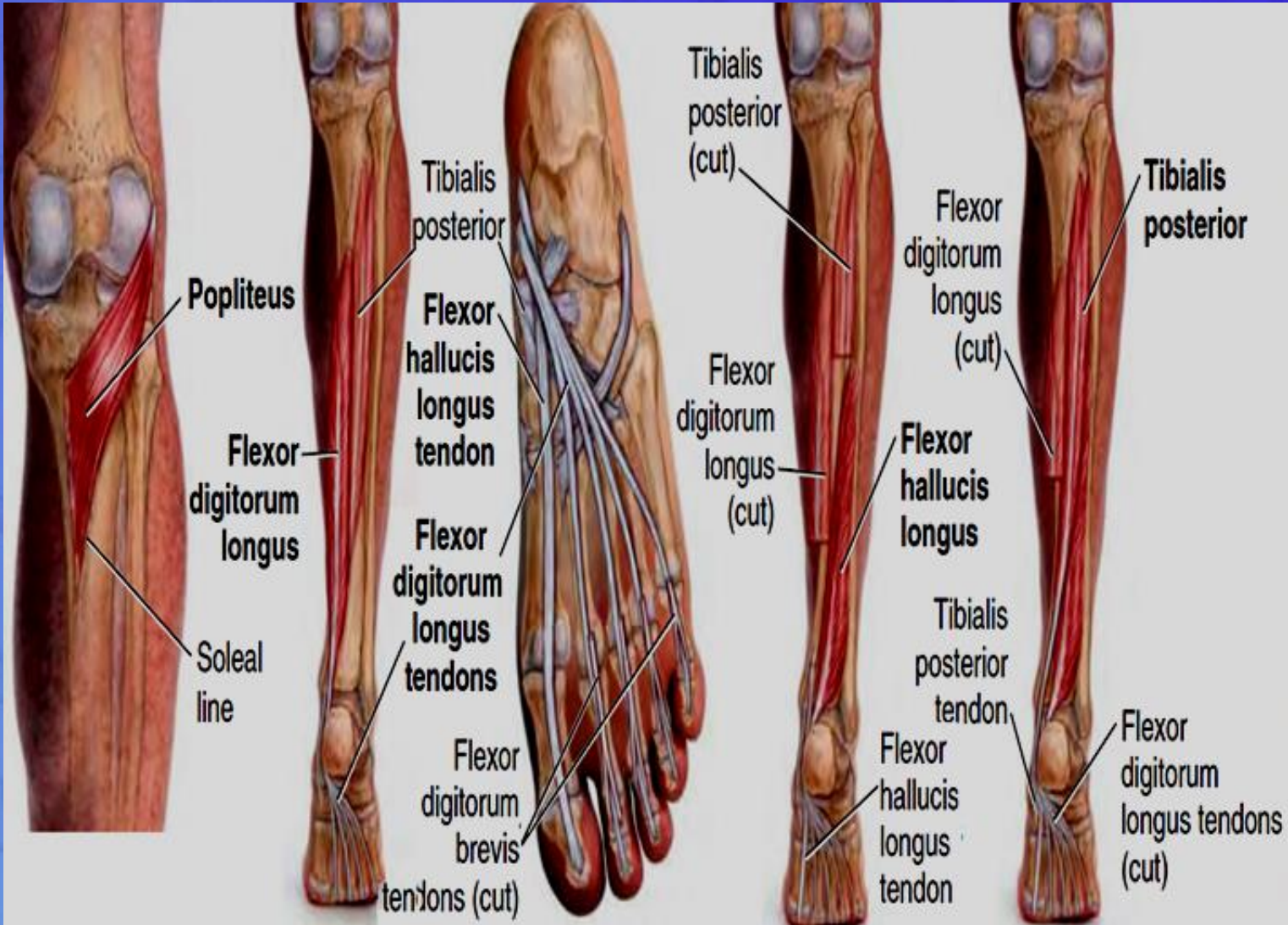
Contents:

1. Superficial group of muscles
2. Deep group of muscles
3. Posterior tibial artery
4. Tibial nerve

SUPERFICIAL GROUP

Muscle	Origin	Insertion	Action
<u>Gastrocnemius</u>	1- <u>lateral head</u> lateral condyle of femur. 2- <u>medial head</u> popliteal surface of femur above medial condyle	Via <u>tendo-calcaneus</u> into <u>posterior surface of calcaneum</u>	1-plantar flexes ankle joint 2-flexes knee joint
plantaris	Lateral supracondylar ridge.	<u>Posterior surface of calcaneum</u>	
soleus	Shaft of tibia & fibula.	Via <u>tendo-calcaneus</u> into <u>posterior surface of calcaneum</u>	Together with gastrocnemius & plantaris is the <u>powerfull plantar flexor</u> at ankle j. It is the <u>main force in walking & running.</u>

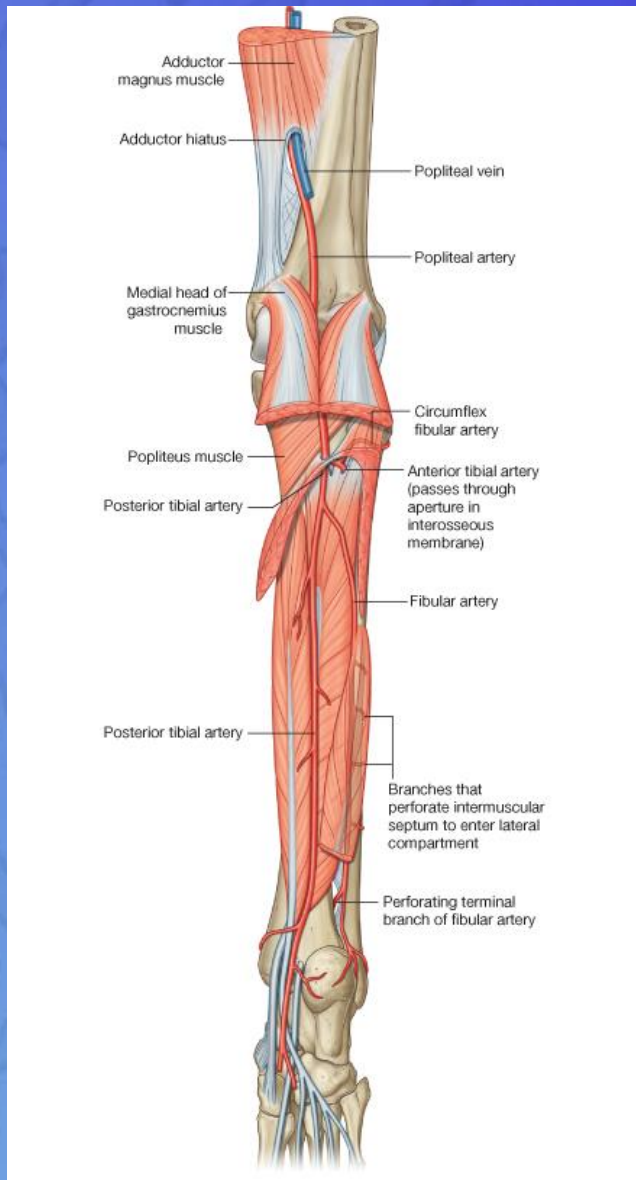




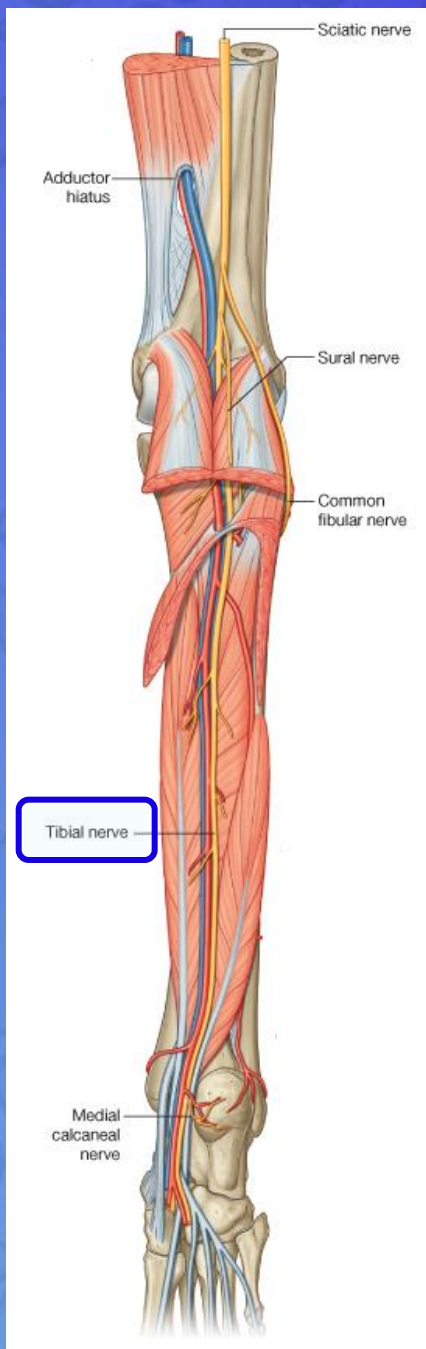
DEEP GROUP

Muscle	Origin	Insertion	Action
Popliteus	<u>lateral condyle of femur (Intra-capsular).</u>	Posterior surface of tibia above soleal line.	<u>1-Flexes knee</u> <u>2-Unlocks knee joint</u> by lateral rotation of femur on tibia
Flexor digitorum longus	Posterior surface of shaft of tibia.	Bases of distal phalanges of lateral 4 toes.	<u>1-Flexes</u> phalanges of lateral 4 toes. <u>2-Plantar Flexes</u> foot at ankle joint
Flexor hallucis longus	Posterior surface of shaft of fibula.	Base of distal phalanx of big toe.	1-Flexes phalanx of big toe. <u>2-Plantar flexes</u>
Tibialis posterior	Posterior surface of tibia & fibula +I.M.	All tarsal bones except talus.	<u>Plantar Flexes inversion</u>

POSTERIOR TIBIAL ARTERY



- The **posterior tibial artery** is one of the terminal branches of the popliteal artery

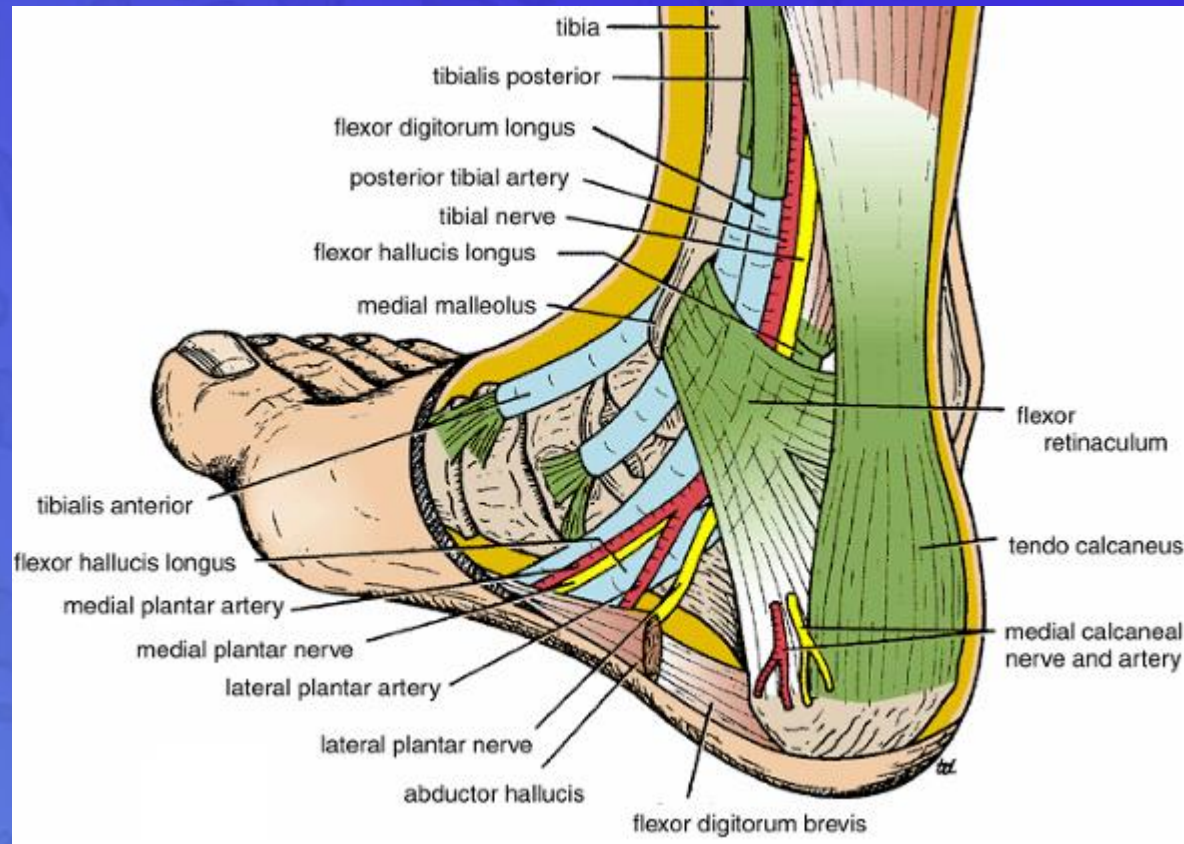


TIBIAL NERVE

- The tibial nerve is the larger terminal branch of the sciatic nerve in the lower third of the back of the thigh

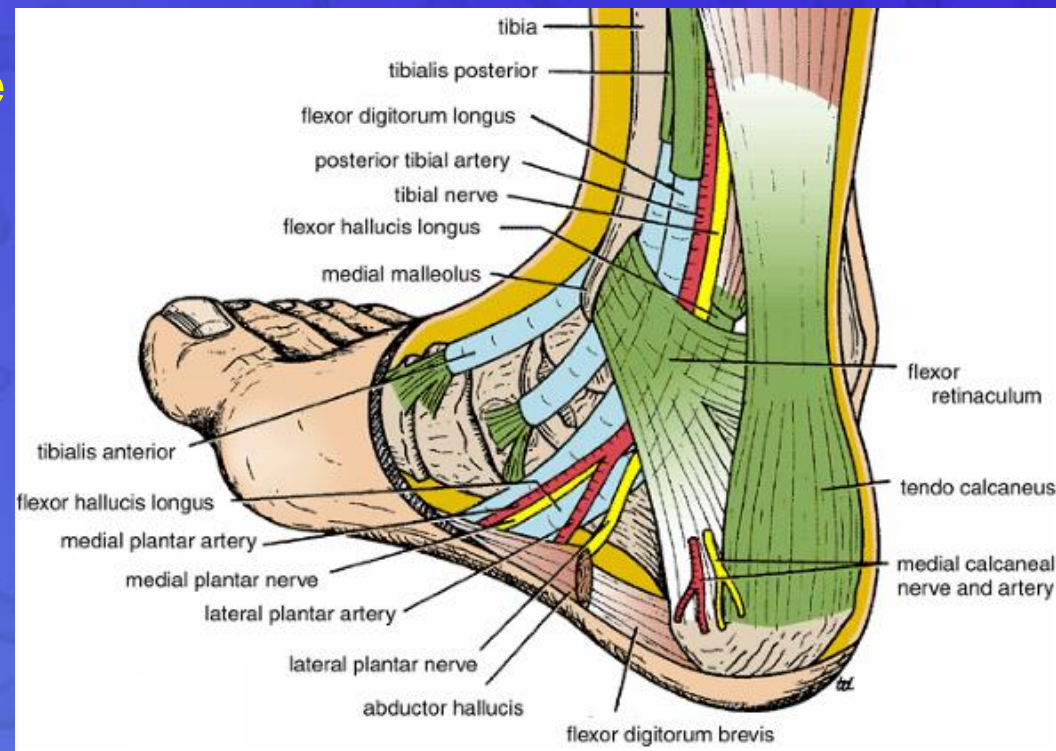
Flexor Retinaculum

Extends from back of
medial malleolus to
medial side of
calcaneum



Structures passing posterior to medial malleolus, deep to flexor retinaculum

- **Medial to lateral**
- Tibialis posterior tendon
- Flexor digitorum longus tendon
- Posterior tibial artery with venae comitantes
- Tibial nerve
- Flexor hallucis longus tendon

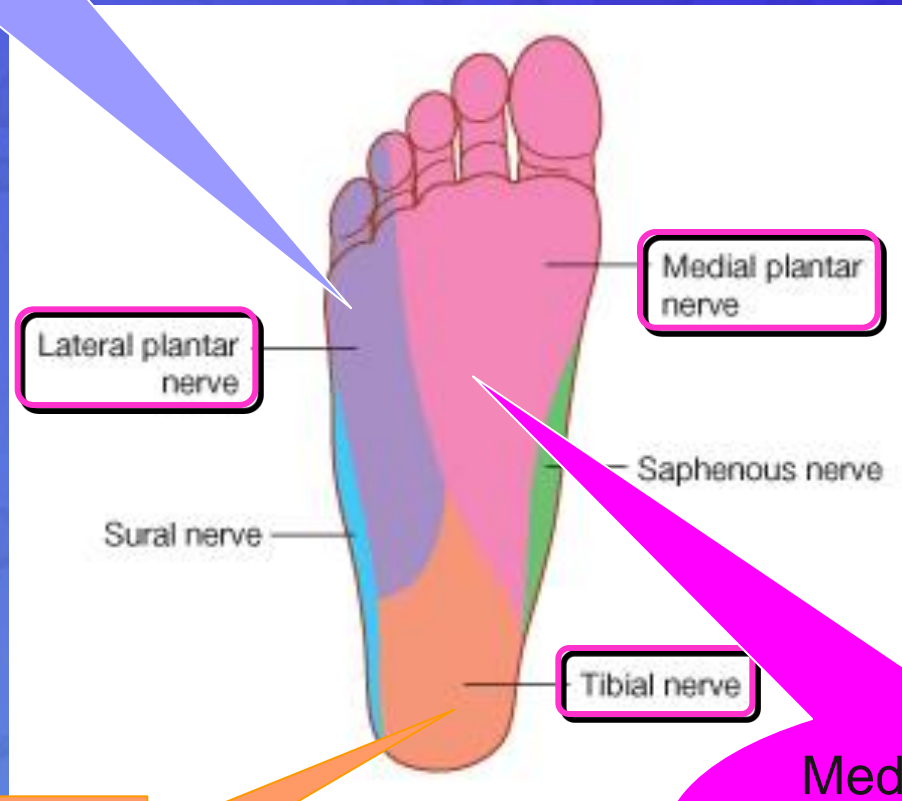


All the tendons are surrounded by a synovial sheath

Sensory Nerve Supply

The **sensory nerve supply** to the skin of the sole of the foot is derived from

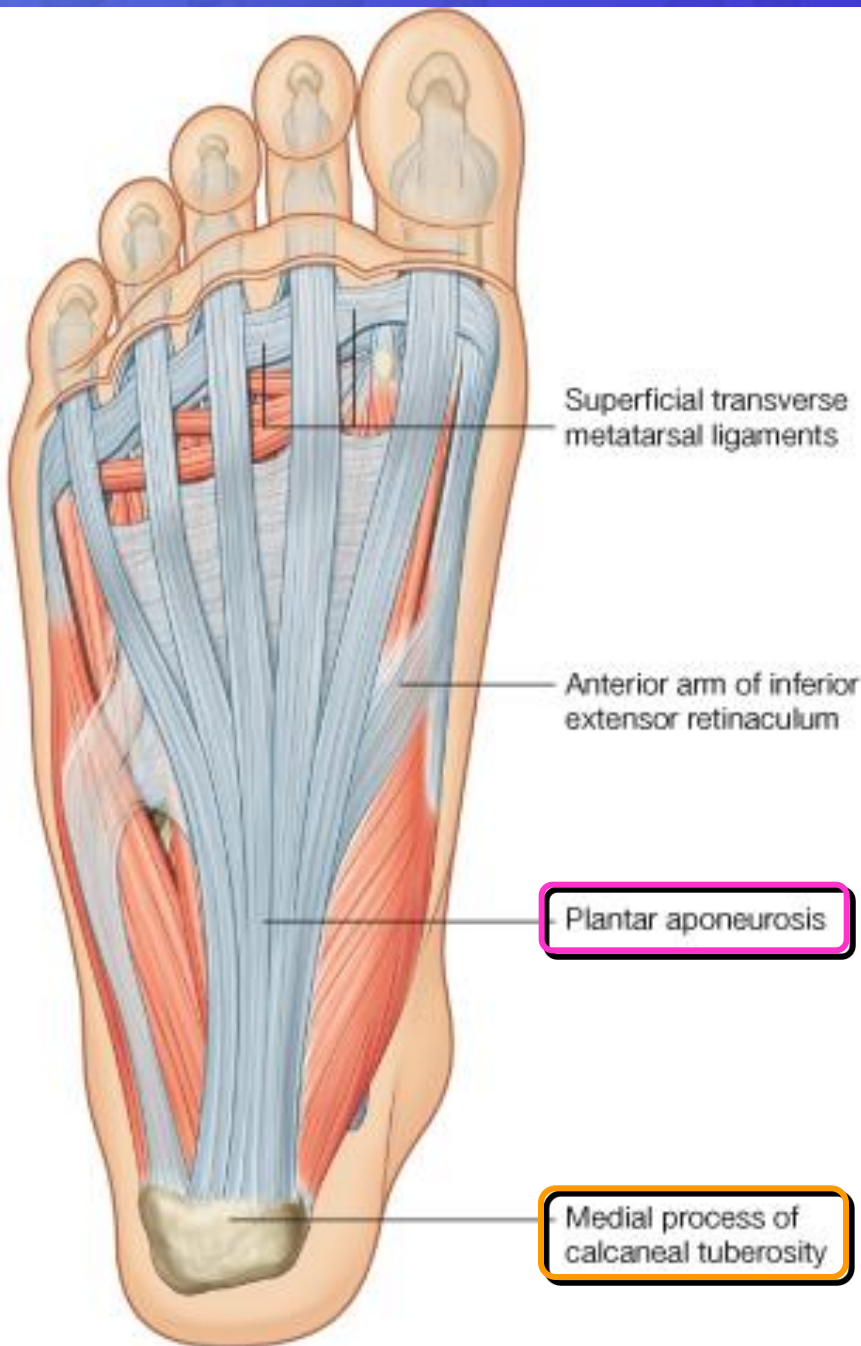
Lateral plantar nerve innervate the lateral third of the sole



Tibial nerve innervates the medial side of the heel

Medial plantar nerve innervate the medial two thirds of the sole

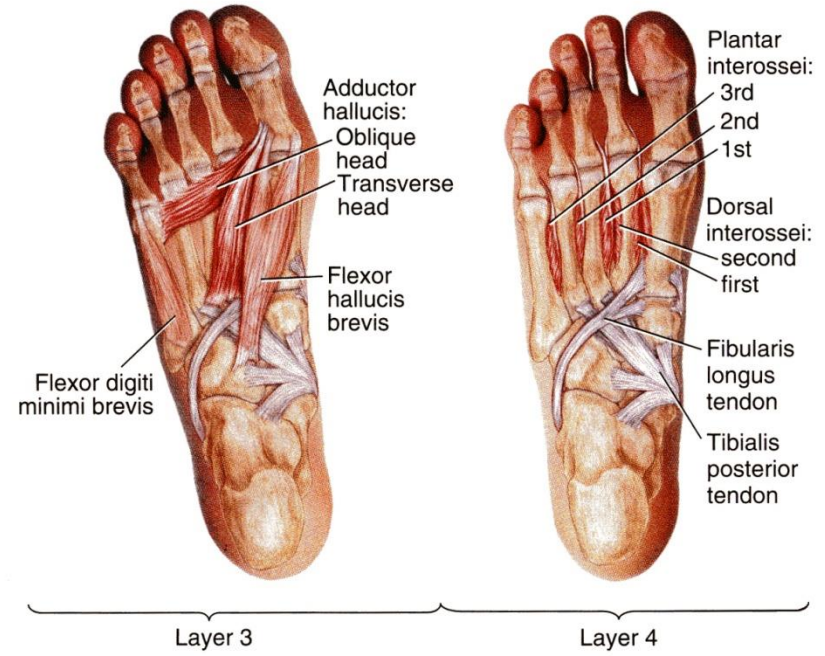
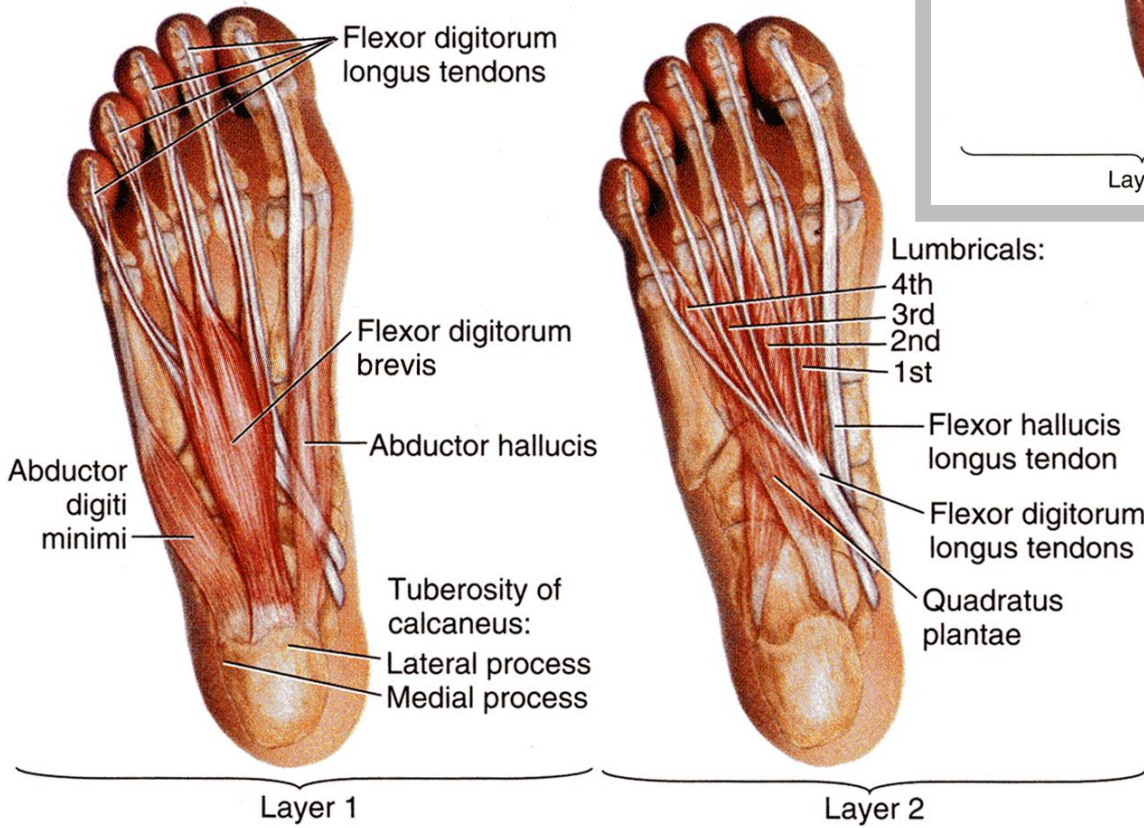
DEEP FASCIA

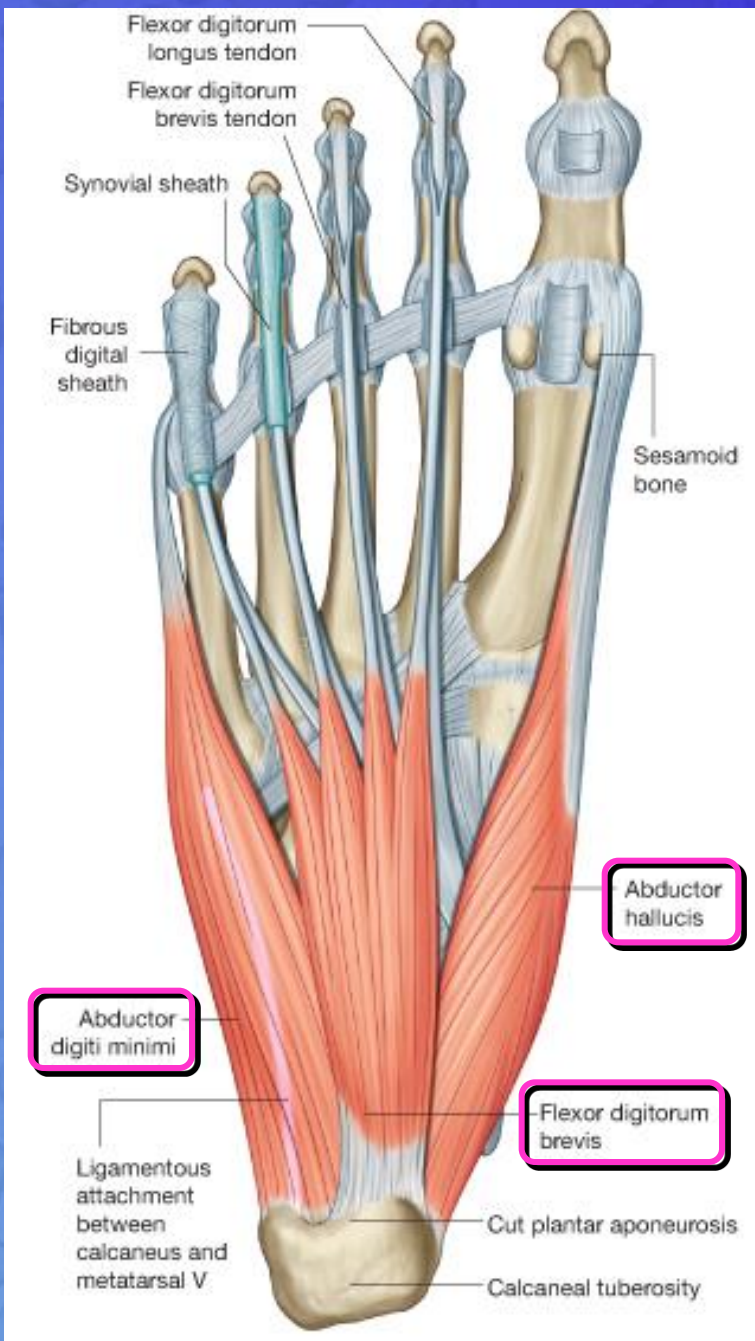


- The **plantar aponeurosis** is a triangular thickening of the deep fascia that protects the underlying nerves, blood vessels, and muscles.
- Its apex is attached to the **medial and lateral tubercles** of the calcaneum.
- The base of the aponeurosis divides into five slips that pass into the toes.

MUSCLES OF THE SOLE OF THE FOOT

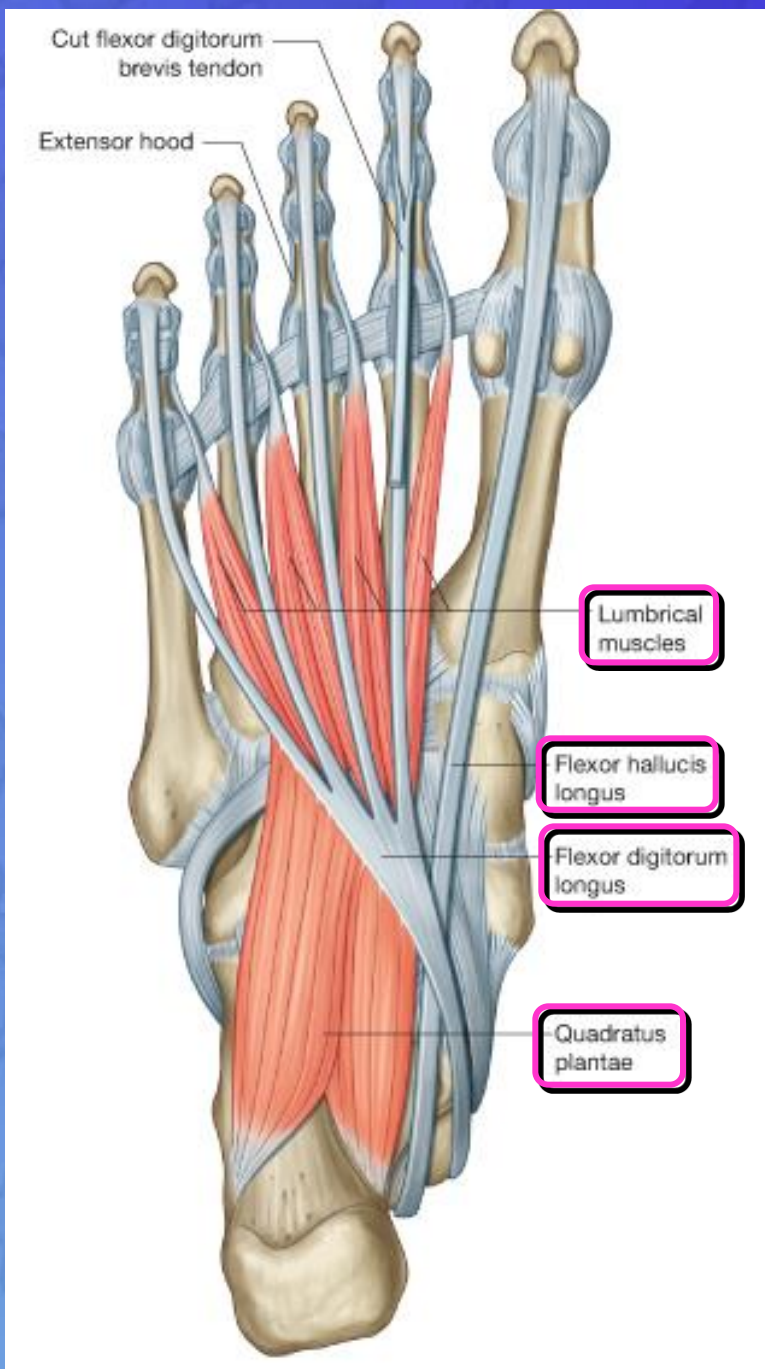
The muscles of the sole are conveniently described in **four layers** from superficial to deep.





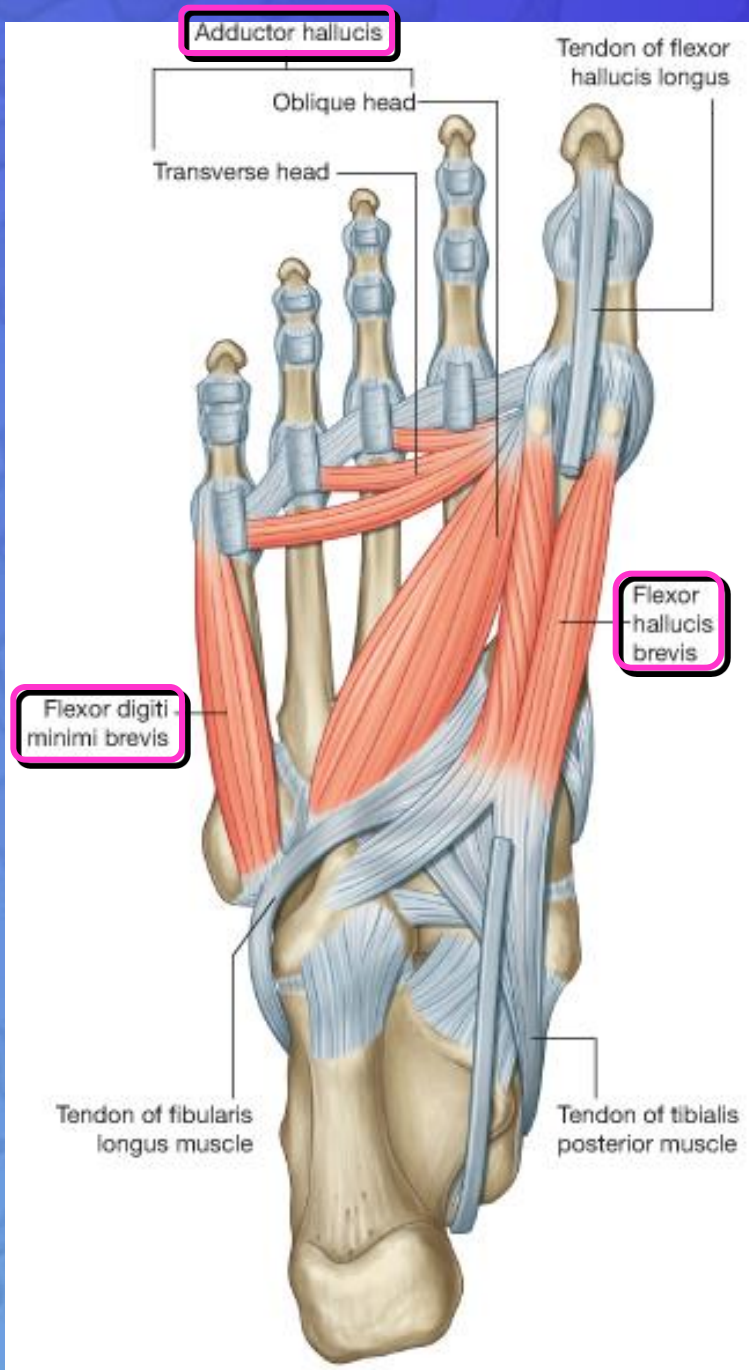
First Layer

1. Abductor hallucis,
2. Flexor digitorum brevis,
3. Abductor digiti minimi



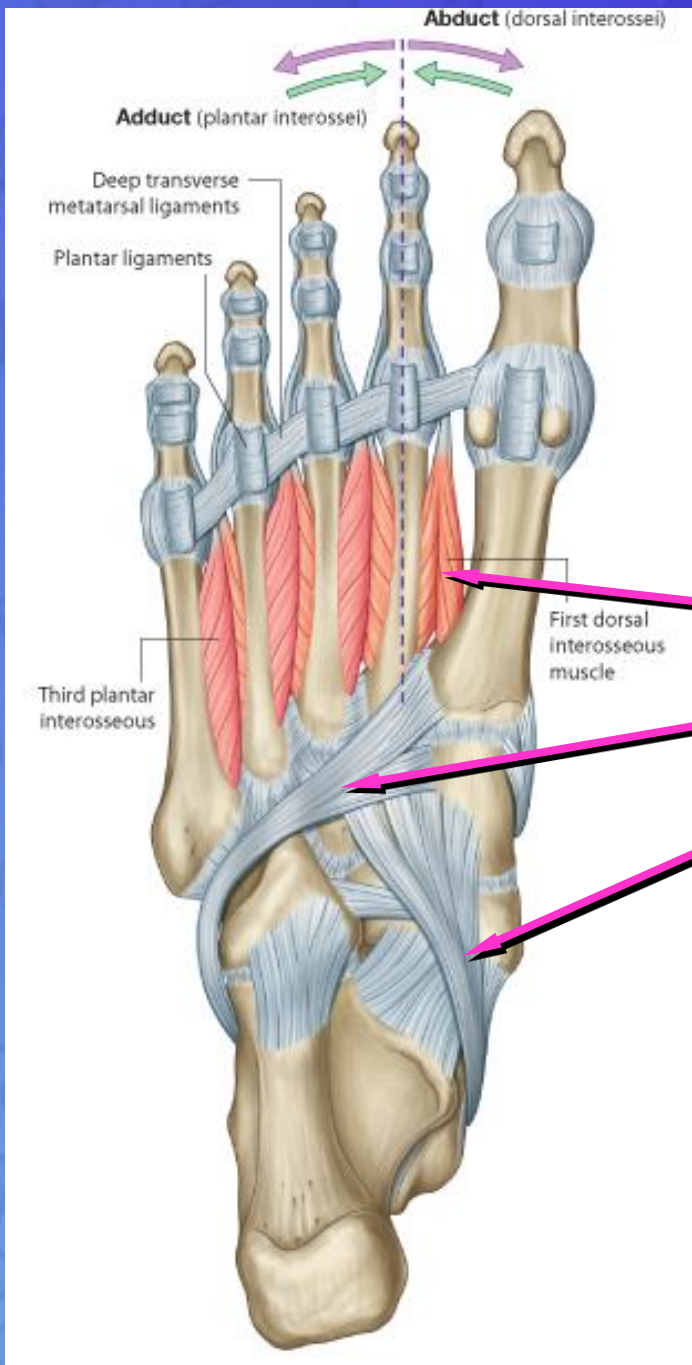
Second Layer

1. Quadratus plantae,
2. Lumbricals,
3. Flexor digitorum longus tendon,
4. Flexor hallucis longus tendon



Third Layer

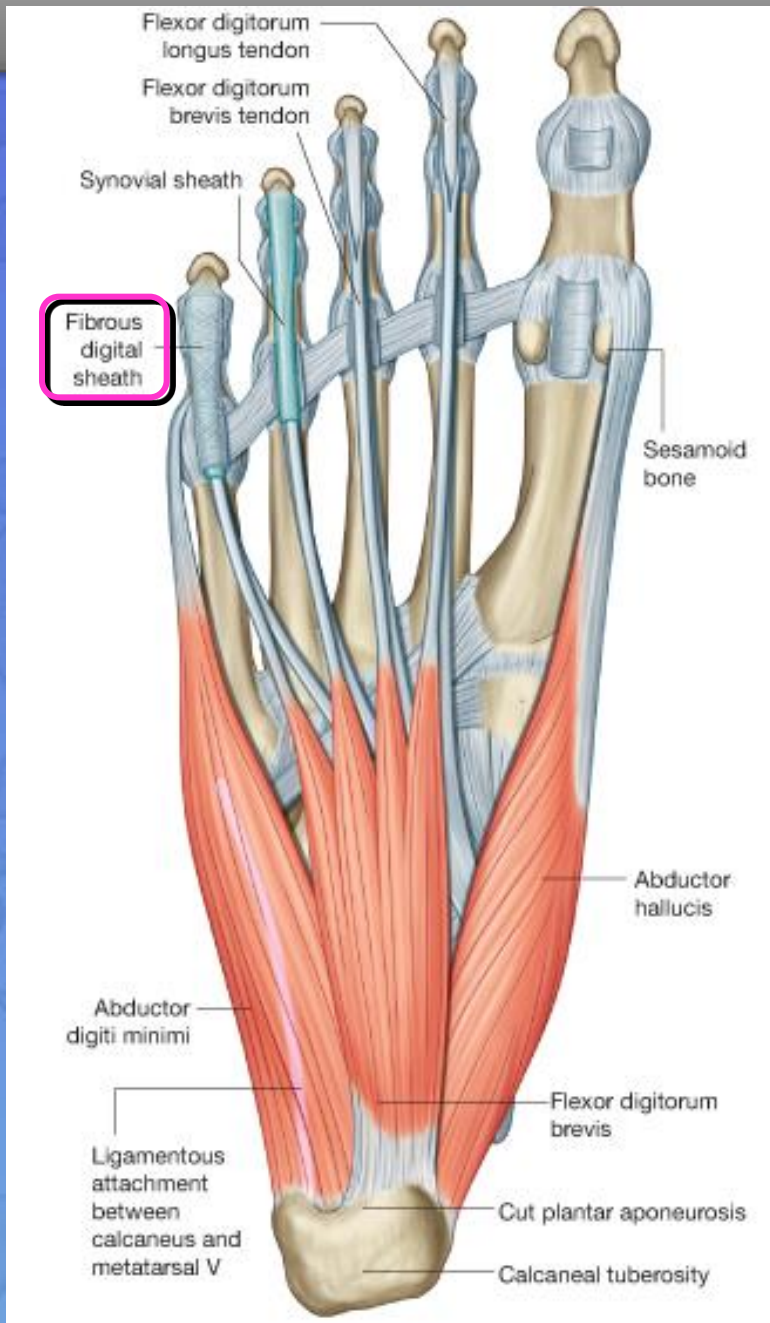
1. Flexor hallucis brevis
2. Adductor hallucis
3. Flexor digiti minimi brevis



Fourth Layer

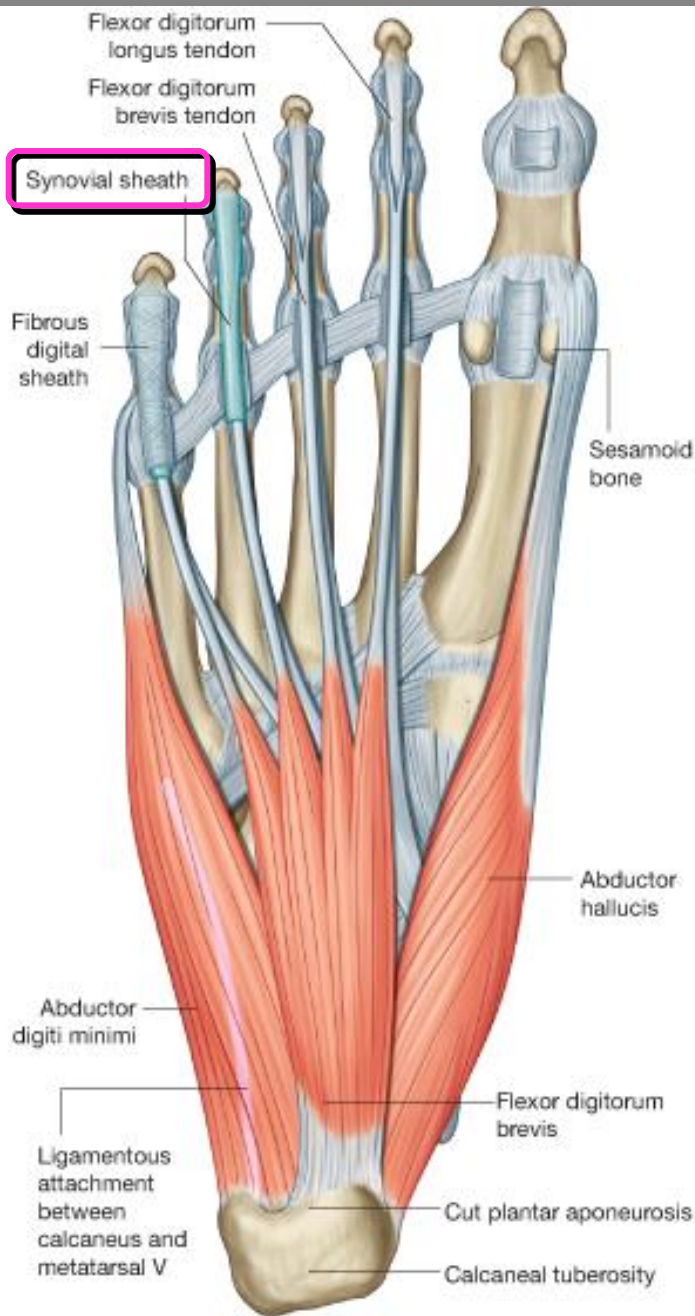
1. Interossei,
2. Peroneus longus tendon,
3. Tibialis posterior tendon

Fibrous Flexor Sheaths

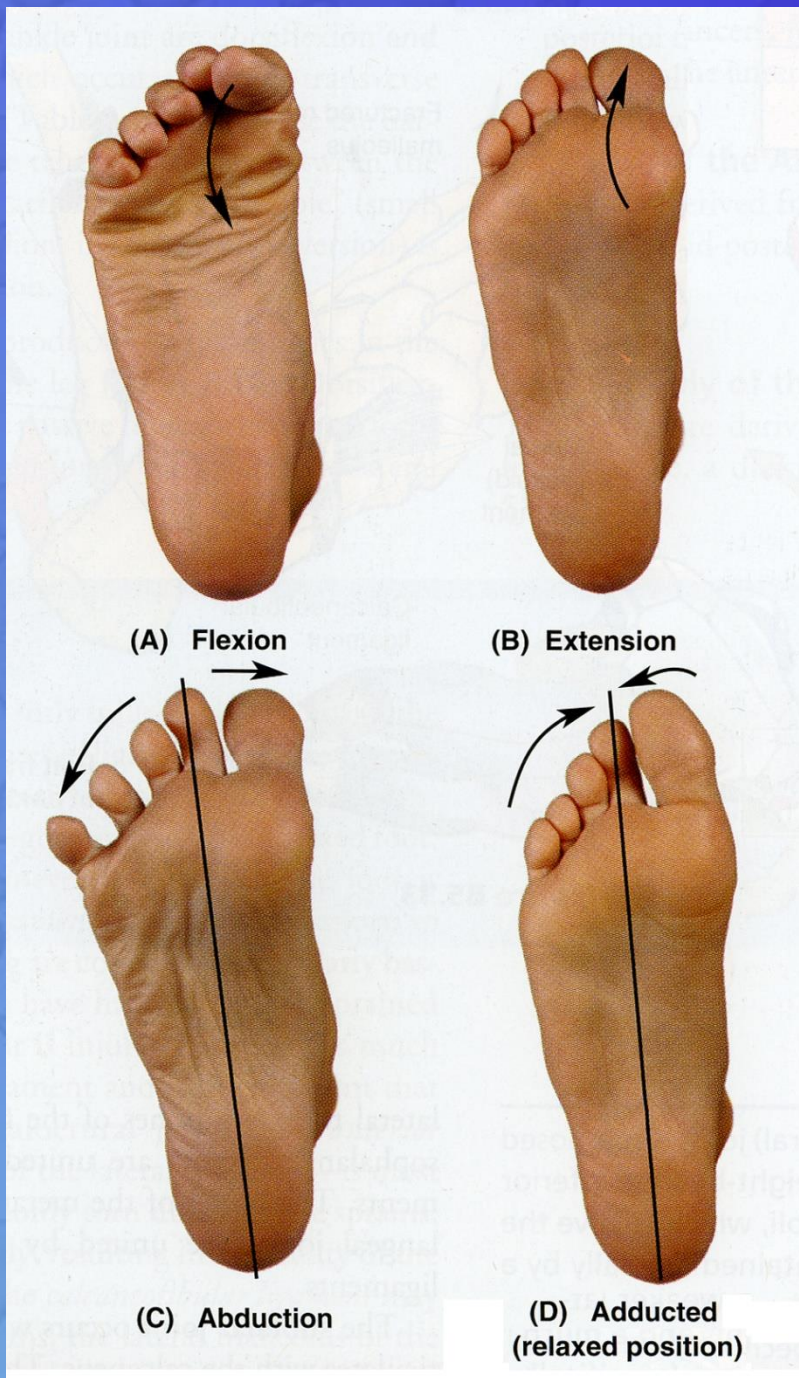


- The inferior surface of each toe, from the head of the metatarsal bone to the base of the distal phalanx, is provided with a **strong fibrous sheath**, which is attached to the sides of the phalanges.
- The fibrous sheath, together with the inferior surfaces of the phalanges and the interphalangeal joints, forms a **blind tunnel** in which lie the flexor tendons of the toe

Synovial Flexor Sheaths

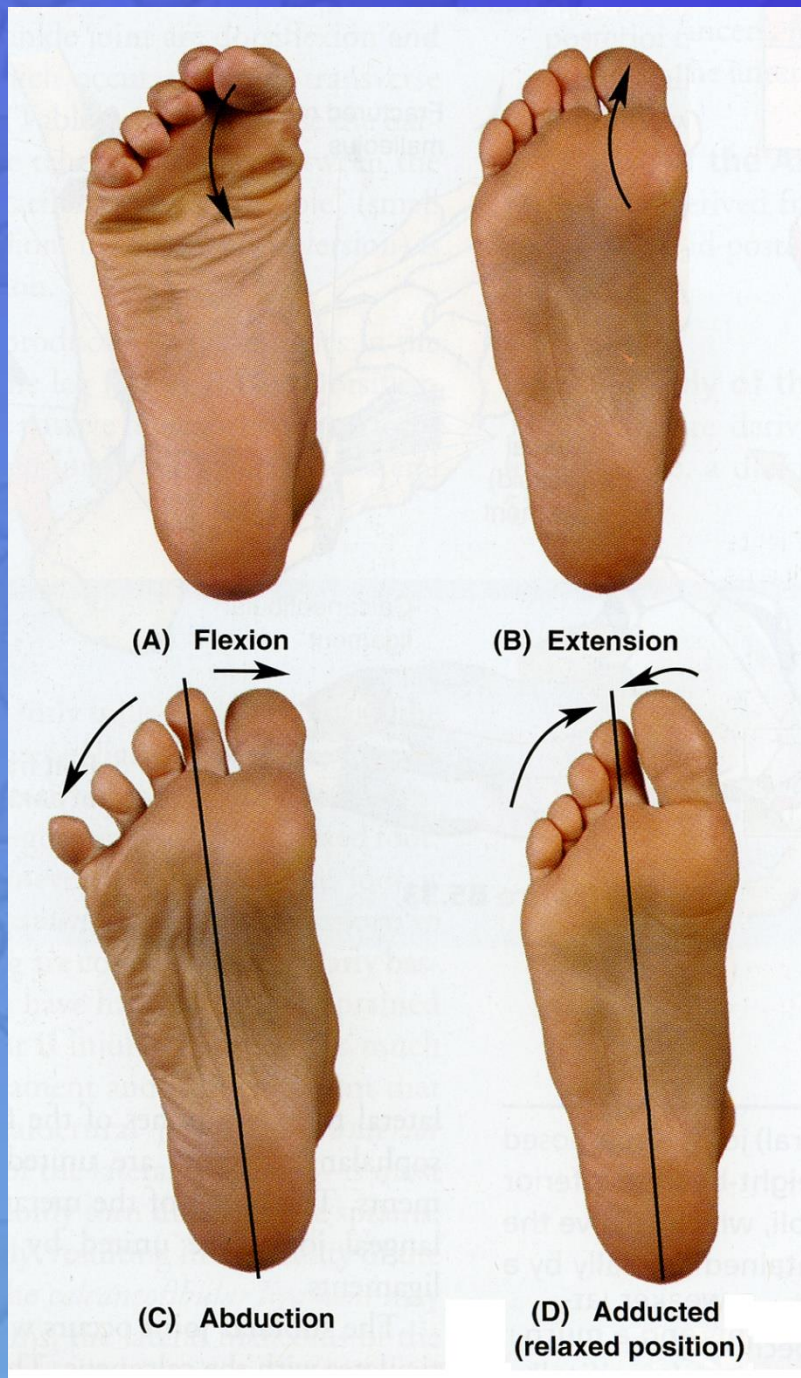


The tendons of the flexor hallucis longus and the flexor digitorum longus are surrounded by **synovial sheaths**



Movement	Muscles ^a
Metatarsophalangeal joints	
Flexion (A)	Flexor digitorum brevis Lumbricals Interossei Flexor hallucis brevis Flexor hallucis longus Flexor digit minimi brevis Flexor digitorum longus
Extension (B)	Extensor hallucis longus Extensor digitorum longus Extensor digitorum brevis
Abduction (C)	Abductor hallucis Abductor digiti minimi Dorsal interossei
Adduction (D)	Adductor hallucis Plantar interossei

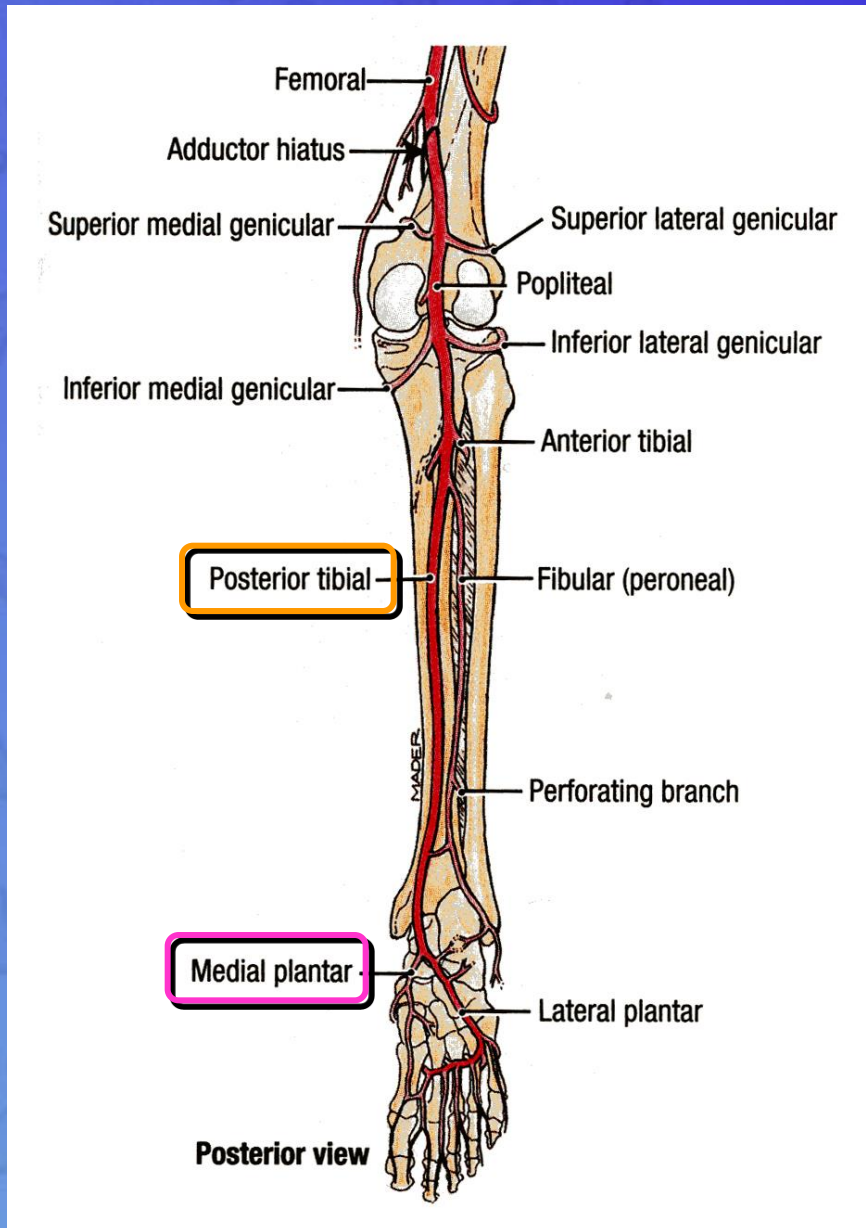
^aMuscles in boldface are chiefly responsible for the movement; the other muscles assist them.



Movement	Muscles ^a
Interphalangeal joints	
Flexion (fig. A)	Flexor hallucis longus Flexor digitorum longus Flexor digitorum brevis Quadratus plantae
Extension (fig. B)	Extensor hallucis longus Extensor digitorum longus Extensor digitorum brevis

^aMuscles in boldface are chiefly responsible for the movement; the other muscles assist them.

Medial & Lateral Plantar Arteries

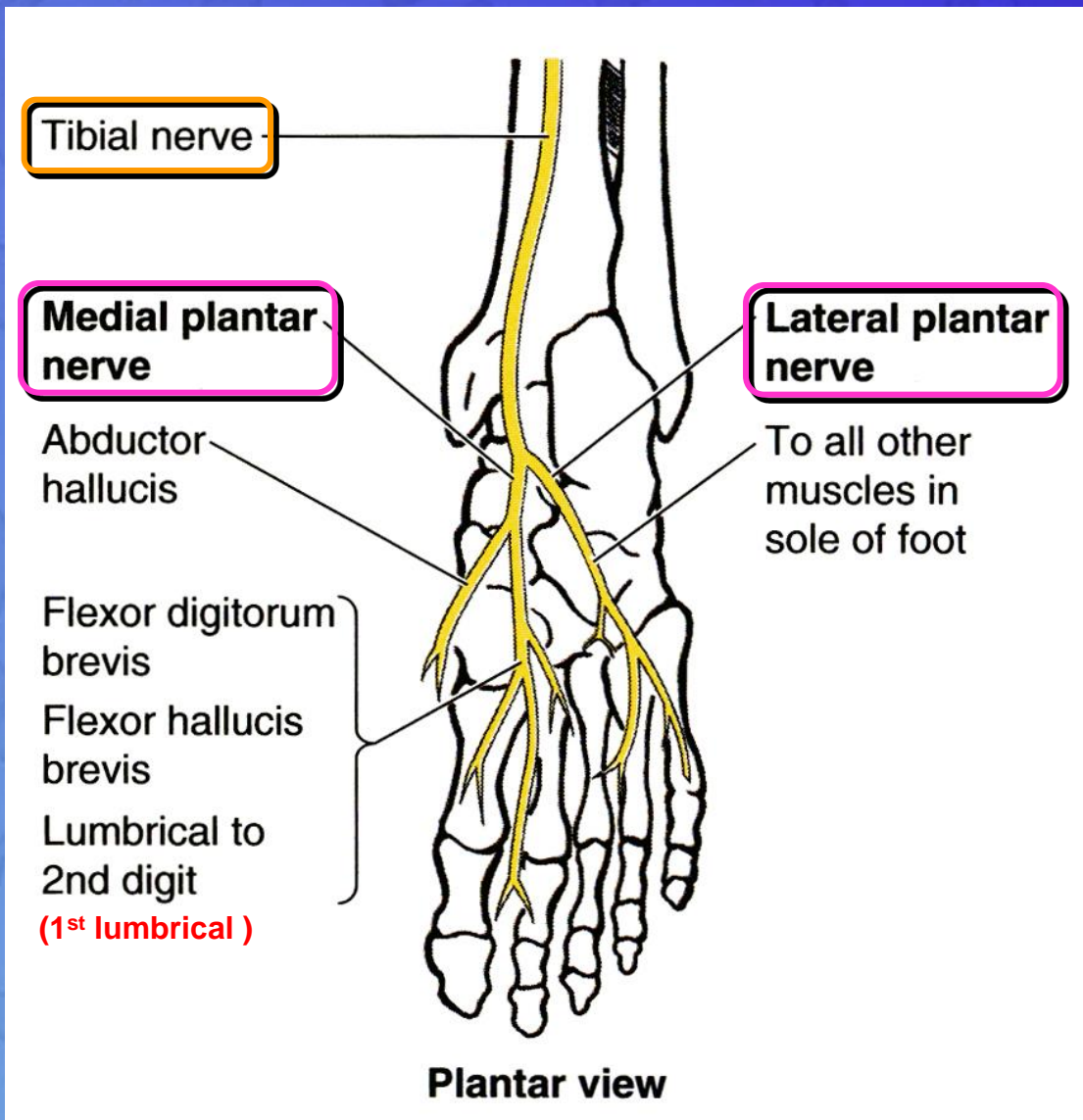


The **medial plantar artery** is the smaller & **lateral plantar artery** is the larger of the terminal branches of the *posterior tibial artery*

Medial & Lateral Plantar Nerve

The **medial plantar nerve** is a terminal branch of the **tibial nerve**.

The **lateral plantar nerve** is a terminal branch of the **tibial nerve**.





Thank you