

Anterior compartment of leg & Dorsum of foot - I

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LEARNING OBJECTIVES

At the end of this teaching session on anterior compartment of leg & foot, all the MBBS 1st year students must be able to:

- ✓ Enumerate the superficial veins of the region
- ✓ Describe cutaneous innervation of front of leg & dorsum of foot
- ✓ Describe the deep fascia of leg and its modifications in leg and dorsum of foot
- ✓ Describe the muscles of front of leg and dorsum of foot - origin, insertion, nerve supply and actions.

INTRODUCTION

Superficial fascia of front of leg and dorsum of foot contains

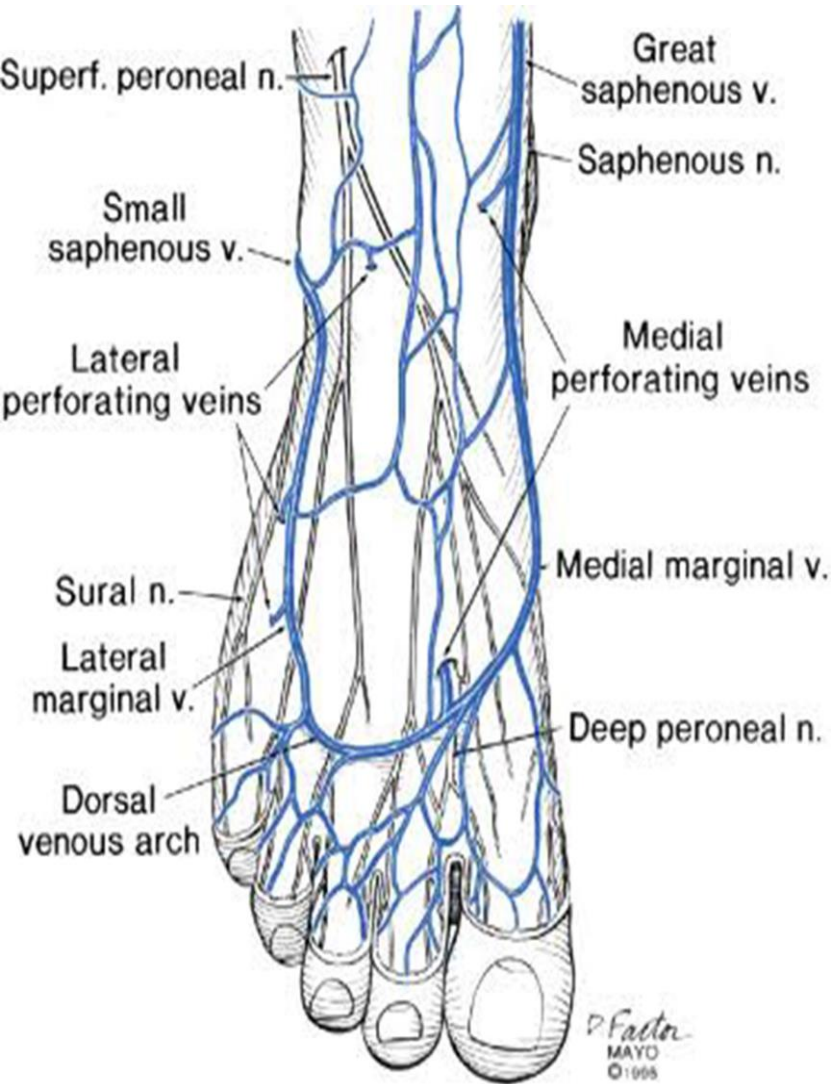
➤ Superficial veins

➤ Cutaneous nerves

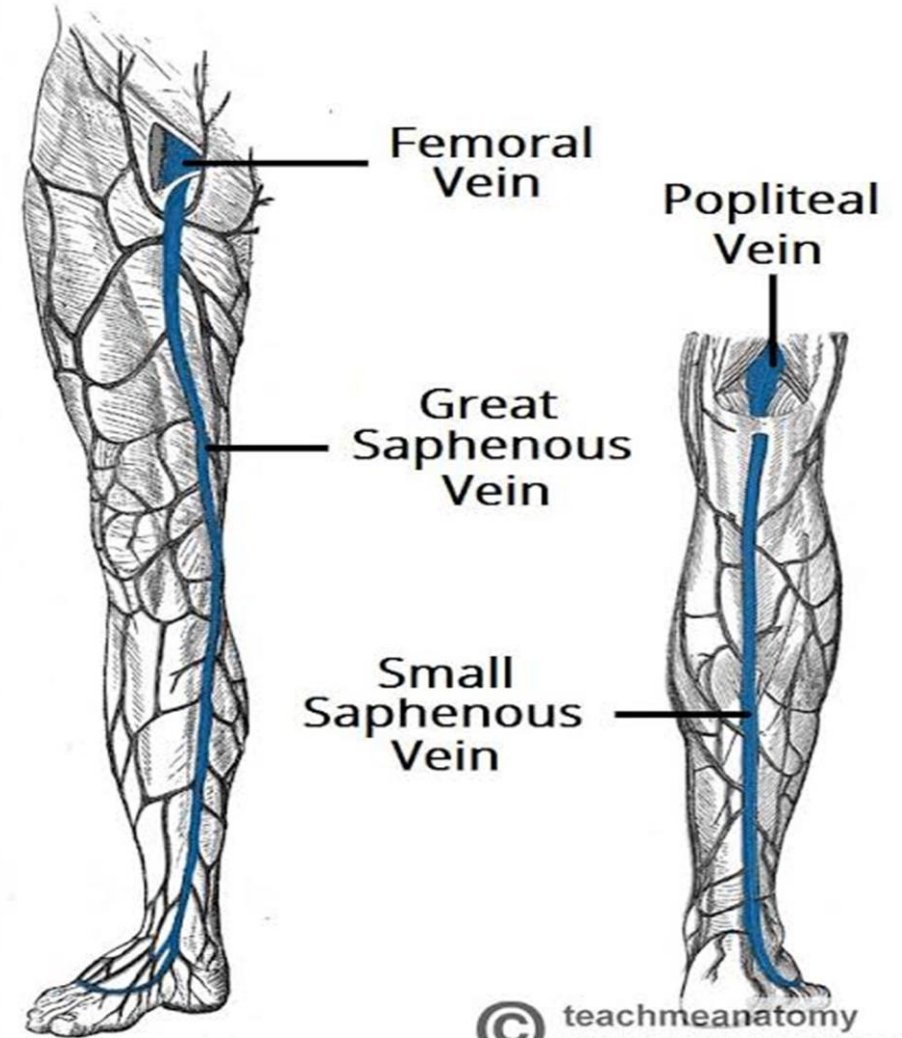
➤ Lymphatics

➤ Small unnamed arteries

SUPERFICIAL VEINS

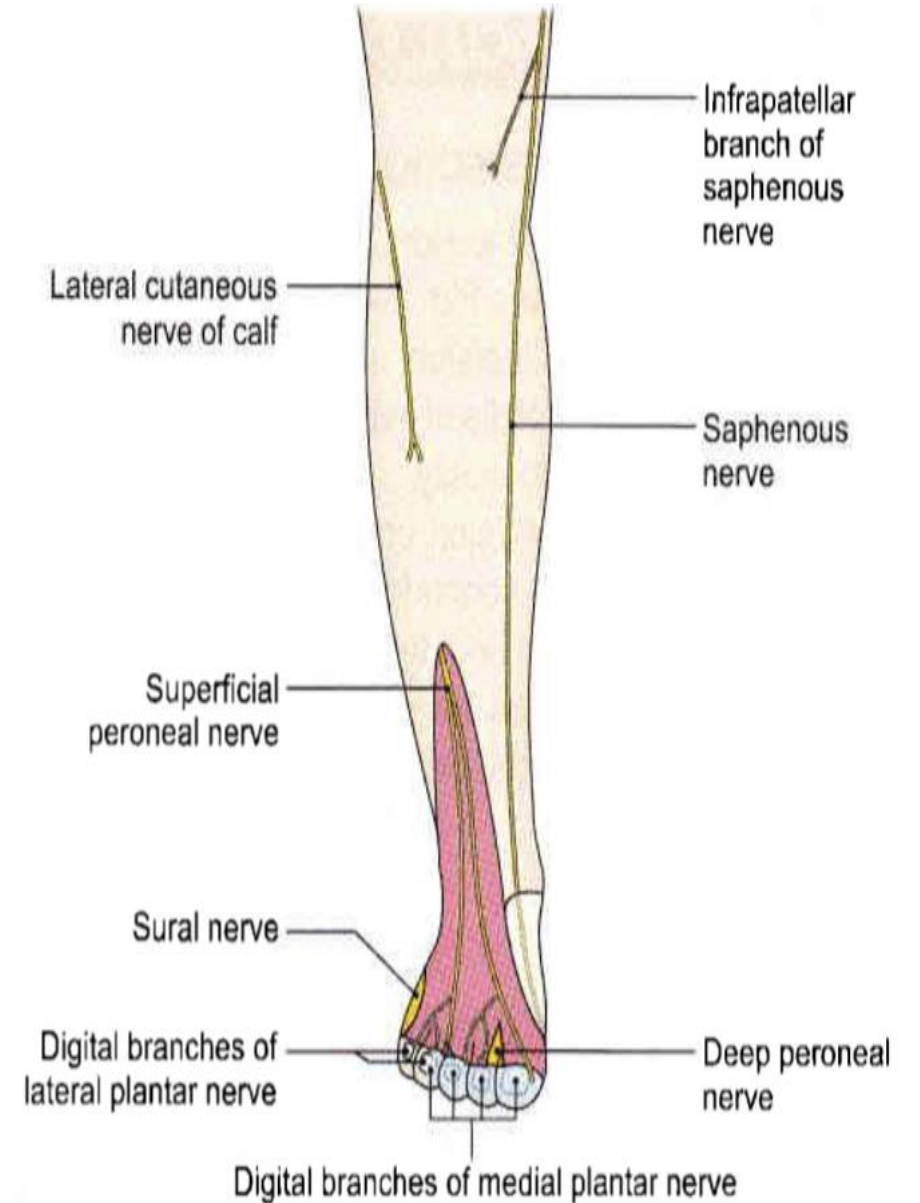


- **Dorsal venous arch**
- **Great saphenous vein**
- **Small saphenous vein**



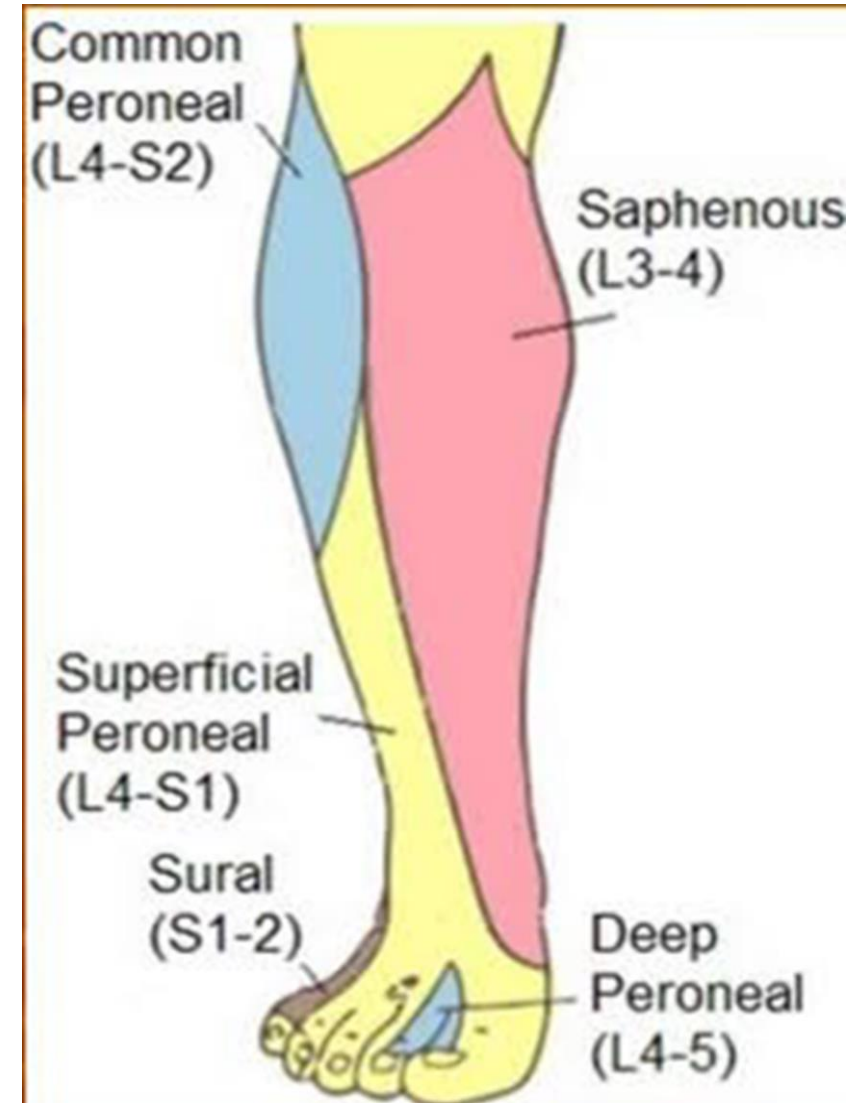
Cutaneous nerves

- The **Lateral cutaneous nerve of the calf**, branch of the common peroneal nerve, supplies the skin on the upper 2/3rd part of the lateral surface of the leg.
- The **superficial peroneal nerve**, branch of the common peroneal nerve, supplies the skin of the lower 1/3rd part of the anterolateral surface of the leg, skin over entire dorsum of foot except lateral border (sural nerve), medial border up to base of great toe (saphenous nerve), Cleft between 1st & 2nd toes (deep peroneal nerve).
- The **saphenous nerve**, branch of the femoral nerve, supplies the skin on the anteromedial surface of the leg.



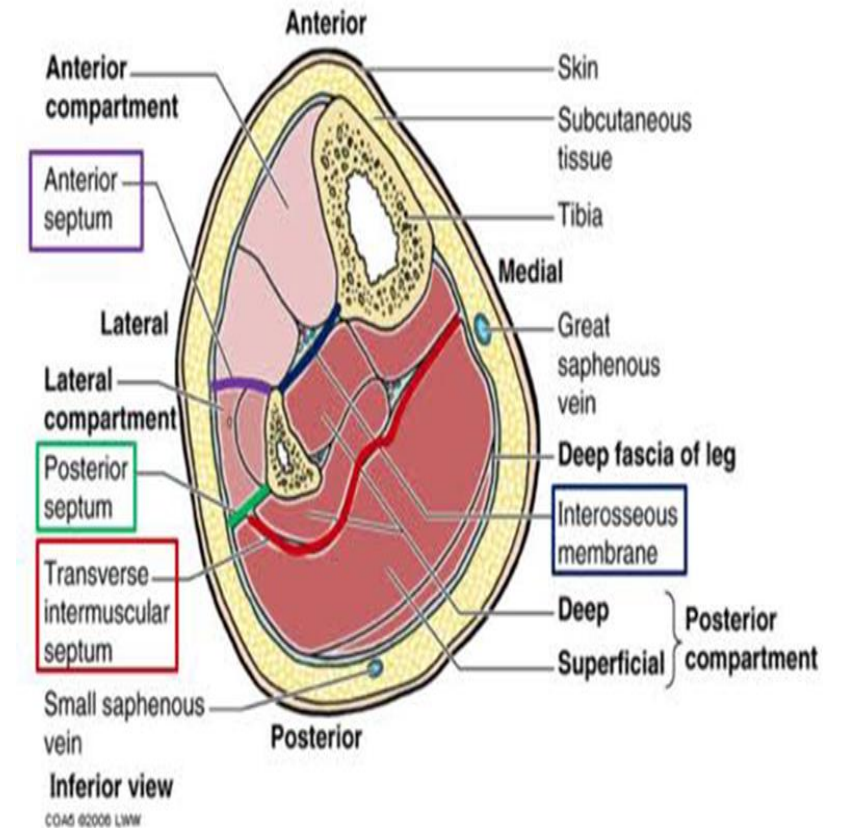
- **Sural nerve** (branch of tibial nerve) supplies the skin of lateral border of the foot upto the tip of the little toe.
- **Deep peroneal nerve** (branch of common peroneal nerve) supplies the skin adjoining the cleft between big and second toes.
- **Digital branches of medial and lateral plantar nerves** (branches of tibial nerve) curve up and supply the distal part of dorsum of toes.

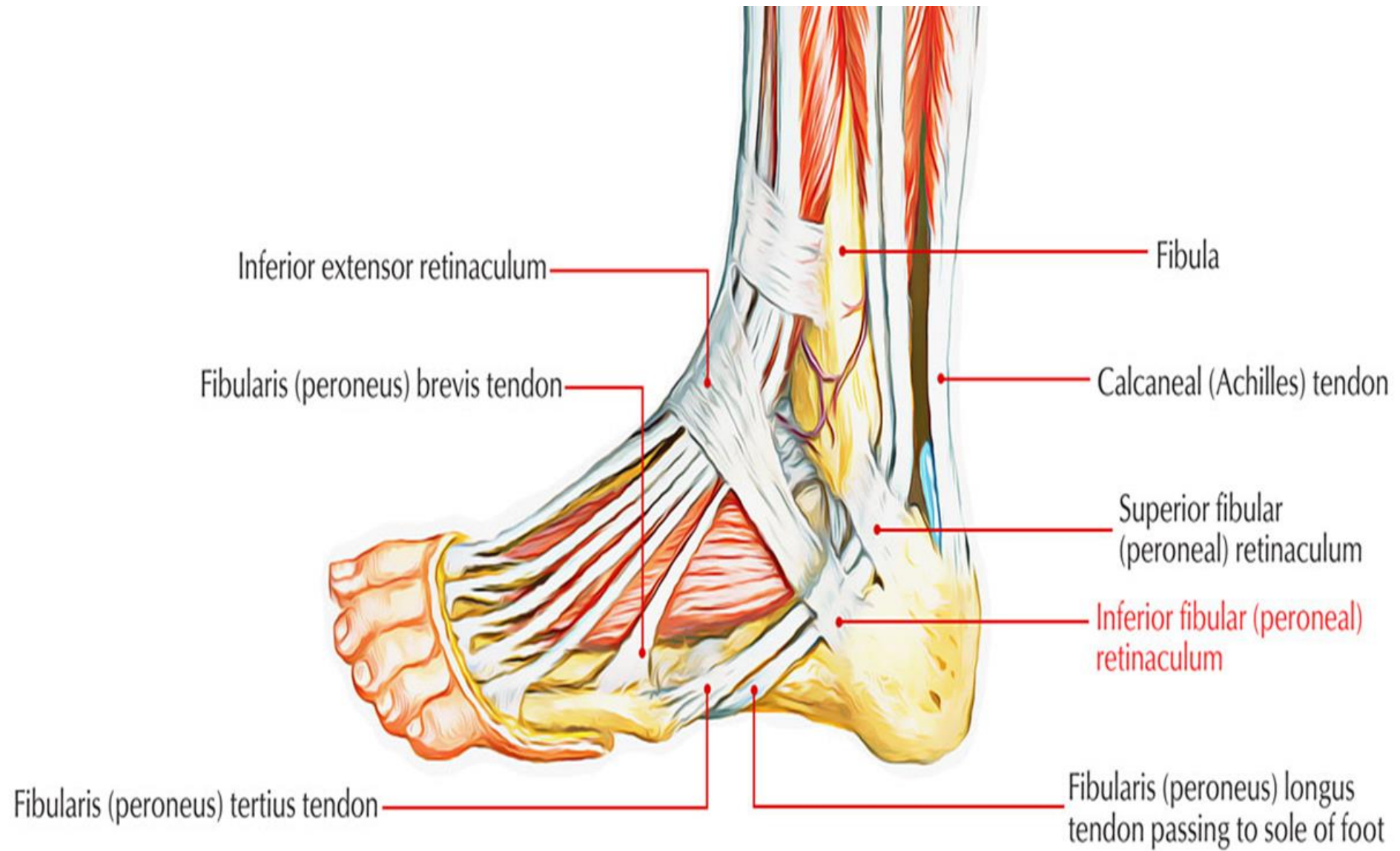
medial plantar nerves- medial 3 ½ toes, lateral plantar nerves – lateral 1 ½



DEEP FASCIA

- In leg tibia and fibula are partly subcutaneous .
- Deep fascia is replaced by periosteum over medial surface of tibia and medial malleolus.
- **Intermuscular septum**- extensions of deep fascia divide leg into compartments
- Anterior and posterior intermuscular septum divide leg into
 - 1) anterior
 - 2) posterior- divided into superficial, intermediate and deep parts.
 - 3) lateral
- **Retinacula** present around ankle – superior and inferior extensor retinacula



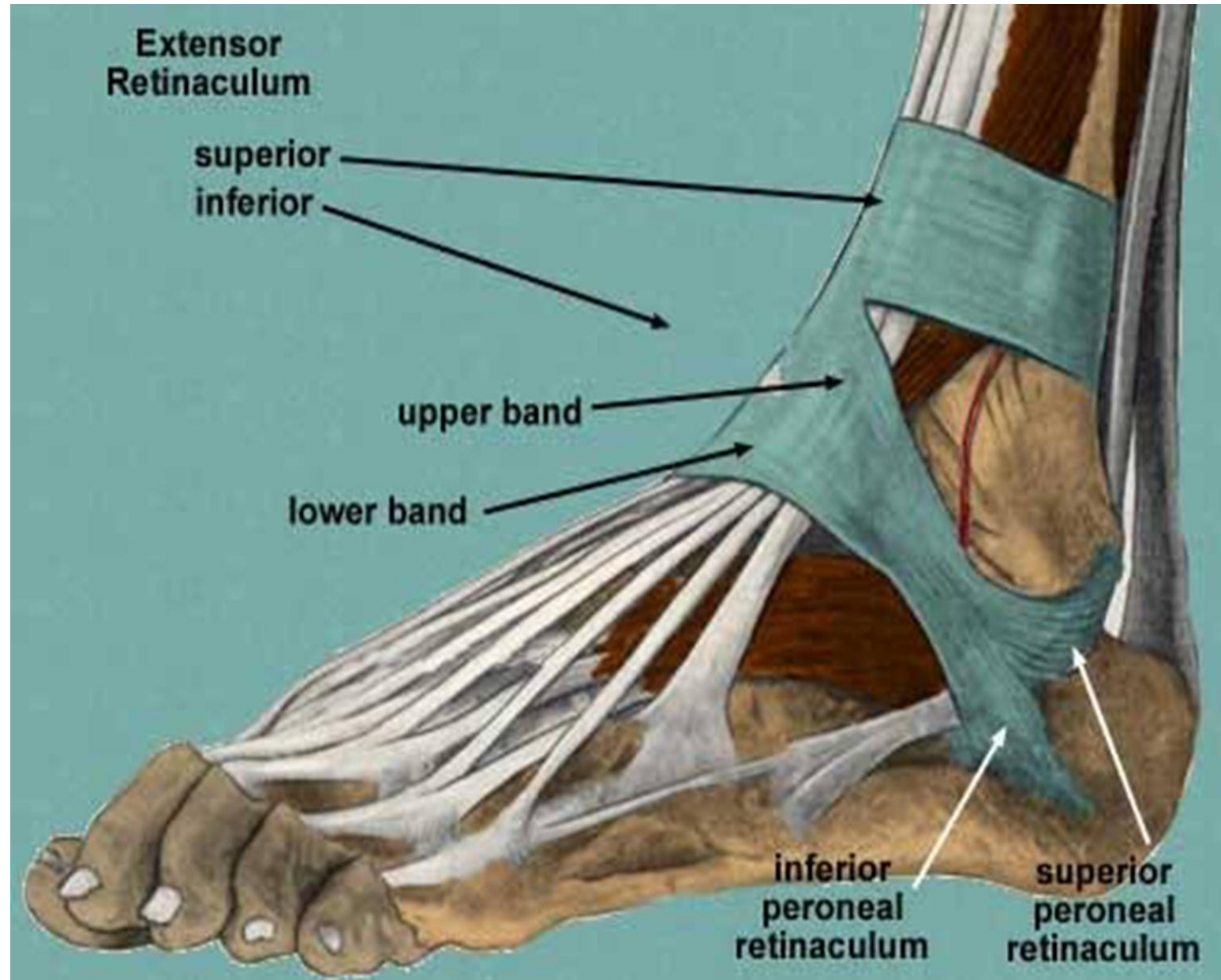


Superior extensor retinaculum

Attachment

medially- lower part of anterior border of tibia

laterally- lower part of anterior border of fibula

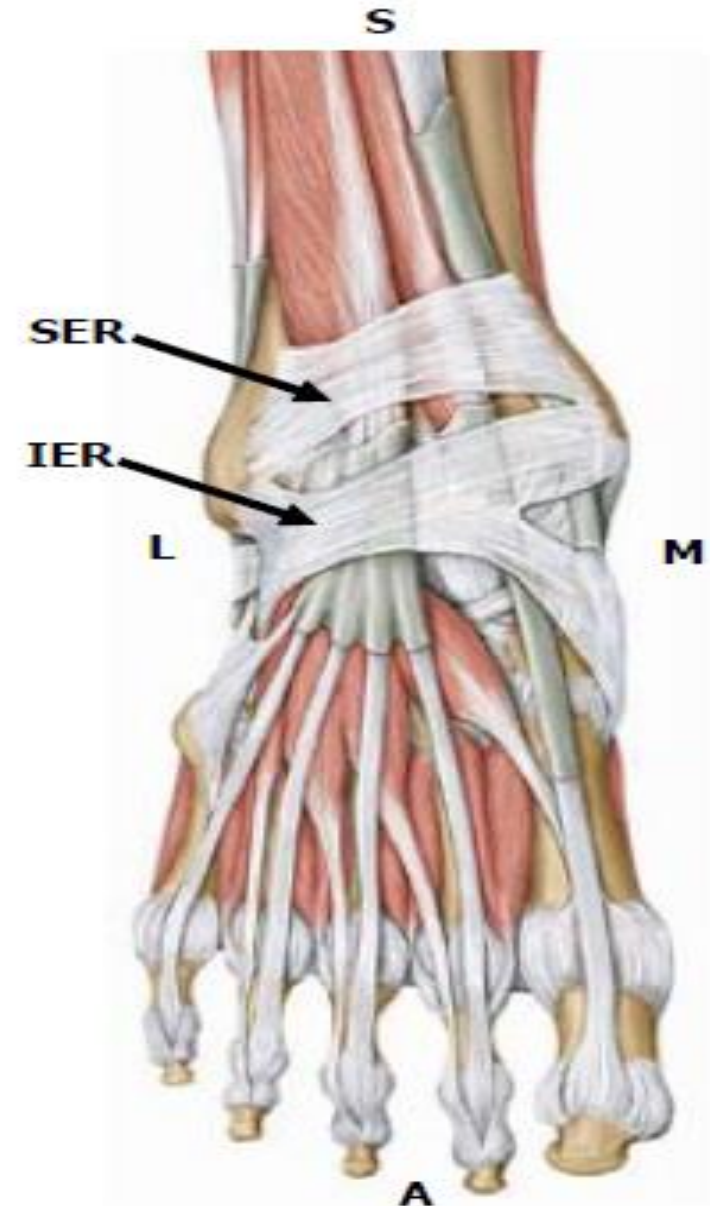


Inferior extensor retinaculum

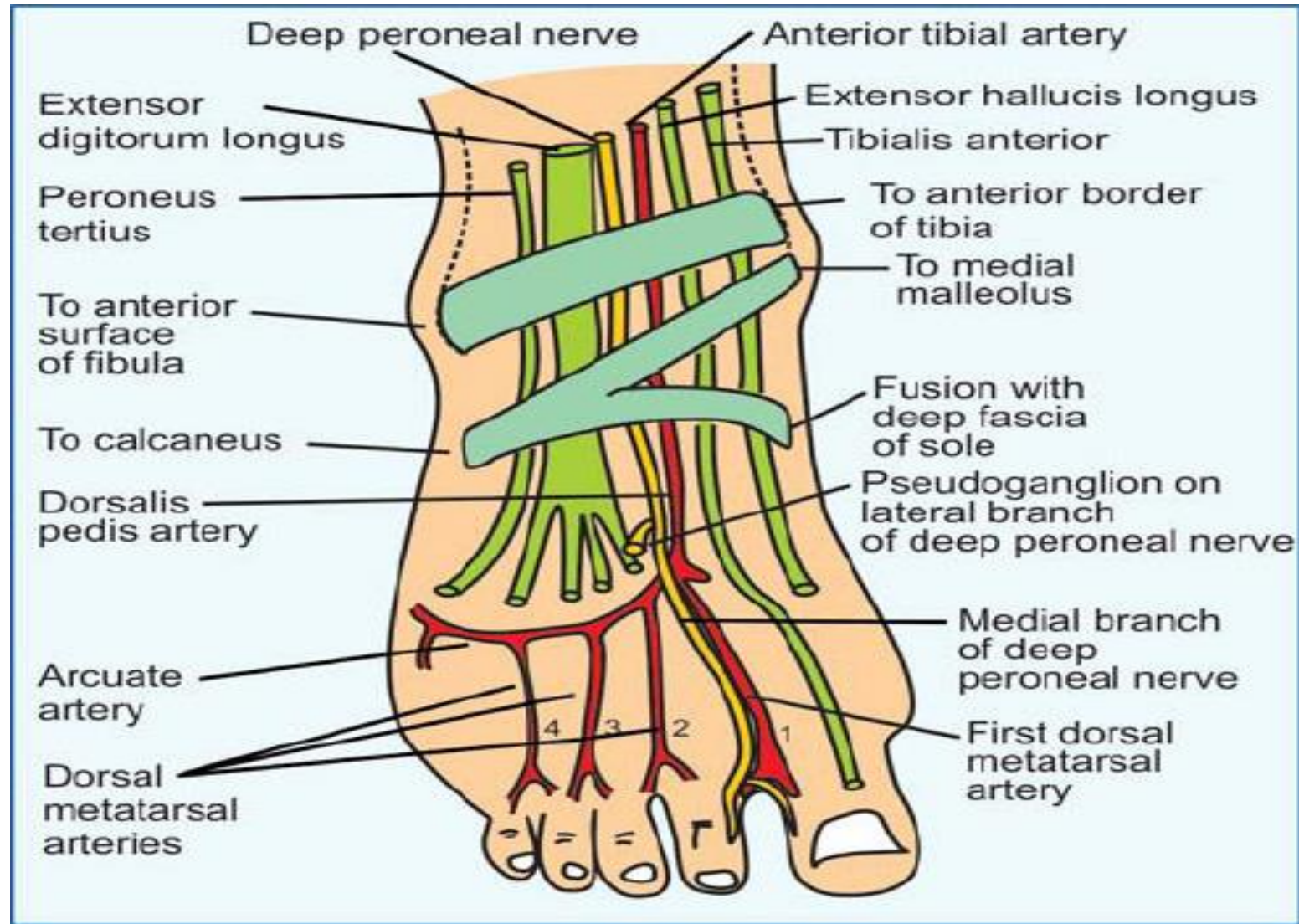
- Y shaped band
- Stem of Y lies laterally and upper , lower bands medially

Attachment

- 1)Stem- anterior non-articular part of superior surface of calcaneum in front of sulcus calcanei.
- 2)Upper band- passes upwards & medially , attached to anterior border of medial malleolus
- 3)Lower band-passes downwards and medially, attached to plantar aponeurosis.



Structures passing under the retinaculum

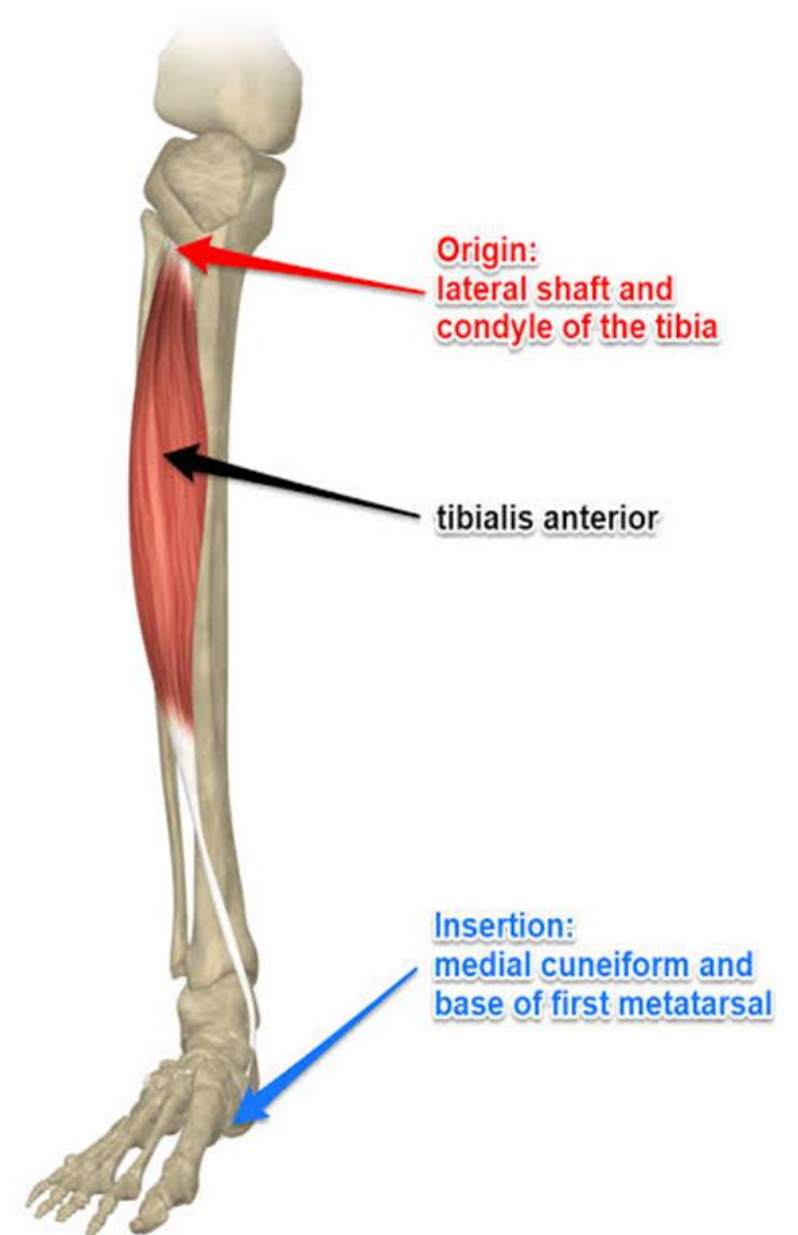


CONTENTS

- Muscles
- Artery- Anterior tibial artery
- Nerve- Deep peroneal nerve

Tibialis anterior

- Nerve supply-deep peroneal nerve
- Action-dorsiflexion of foot at ankle joint, maintain medial longitudinal arch, inversion of foot at mid tarsal and subtarsal joint



Extensor Hallucis Longus

- Origin – medial surface of the shaft of fibula and the adjacent interosseous membrane.
- Insertion- dorsal surface of base of distal phalanx of great toe.
- Action -extends great toe (MTP Jn and IP Jn) and dorsiflexor of foot.
- Innervation -deep peroneal nerve (L4, L5, S1).



Extensor Digitorum Longus

- Origin: lateral condyle of the tibia and whole of upper 1/4th and anterior half of middle 2/4th of medial surface of the fibula, upper part of interosseous membrane
- Insertion: divide into 4 tendons for lateral 4 toes and is inserted into base of middle and distal phalanges
- Note: passes anterior to lateral malleolus.
- Actions:
 - Toe extension
 - Dorsiflexion
 - Eversion



Peroneus tertius

- Origin – lower 1/4th of medial fibular shaft surface & adjoining interosseous membrane
- Insertion medial part of dorsal surface of the base of the fifth metatarsal.
- Action works with the EDL to dorsiflex, Evert and abduct the foot.
- Innervation -Deep peroneal nerve
- Separated part of EDL



Muscle of dorsum of foot

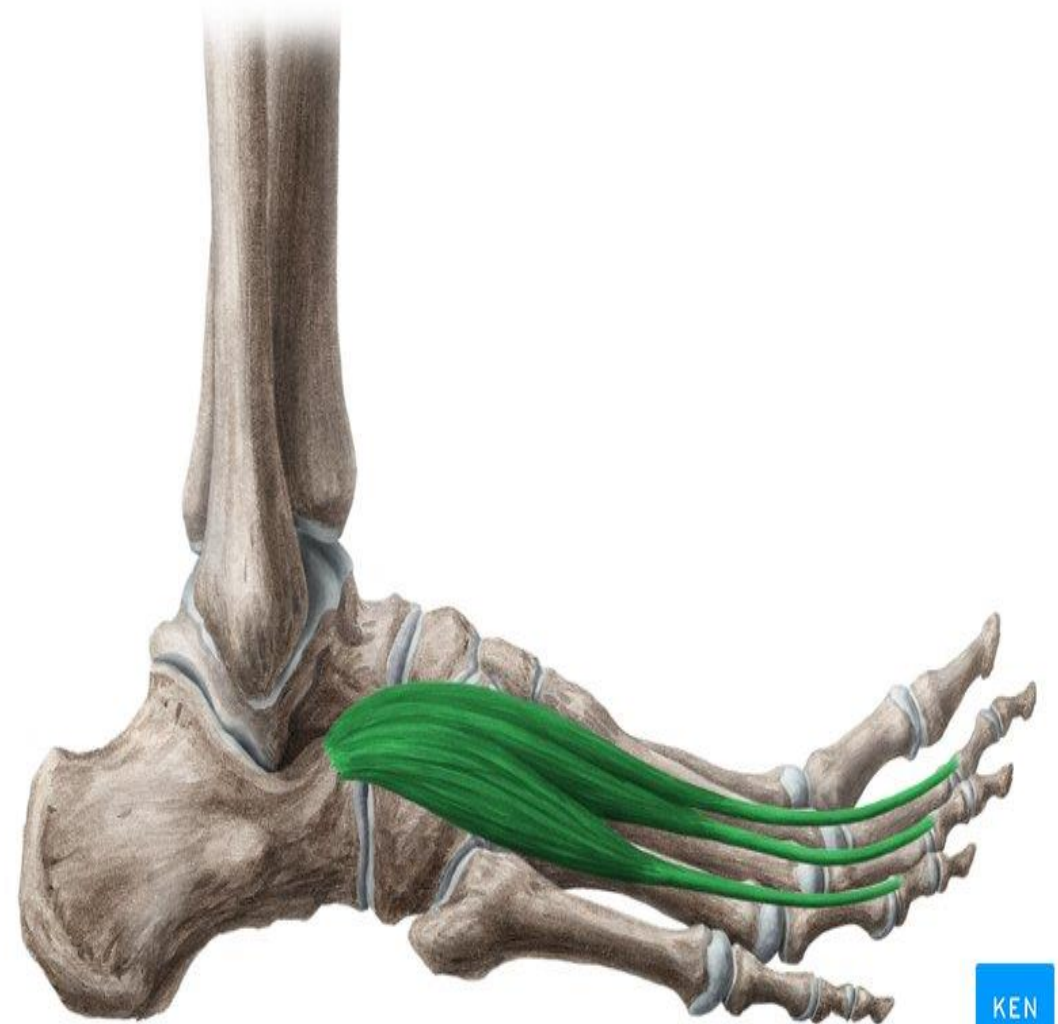
- **Extensor digitorum brevis-**

Small muscle situated on lateral part of dorsum of foot, deep to EDL tendons

Origin- anterior part of superior surface of calcaneum

Insertion- It form four tendons. The most medial is the extensor hallucis brevis inserted into the base of the proximal phalanx of the big toe.

2- The remaining 3 tendons join the lateral side of long extensor tendons of the 2nd, 3rd & 4th toes.



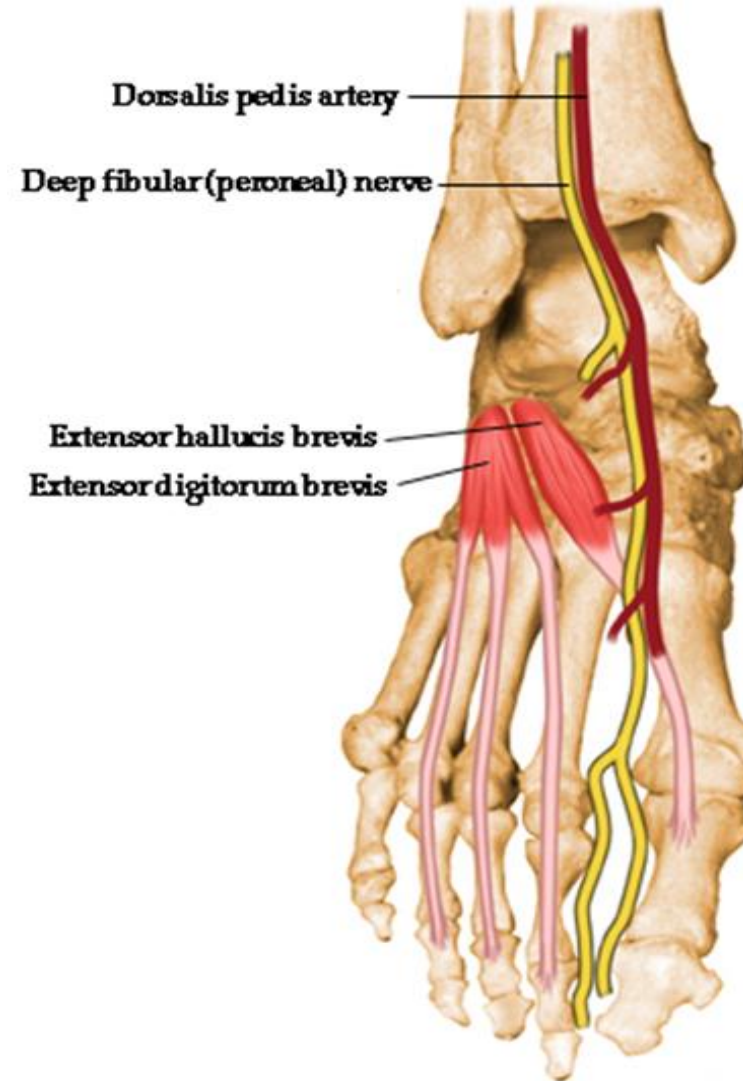
- Nerve Supply:

Deep peroneal nerve.

- Action:

1- Extension of metatarsophalangeal joints of the medial four toes.

2- Extension of interphalangeal joints of the second, third and fourth toes.





To be continued...