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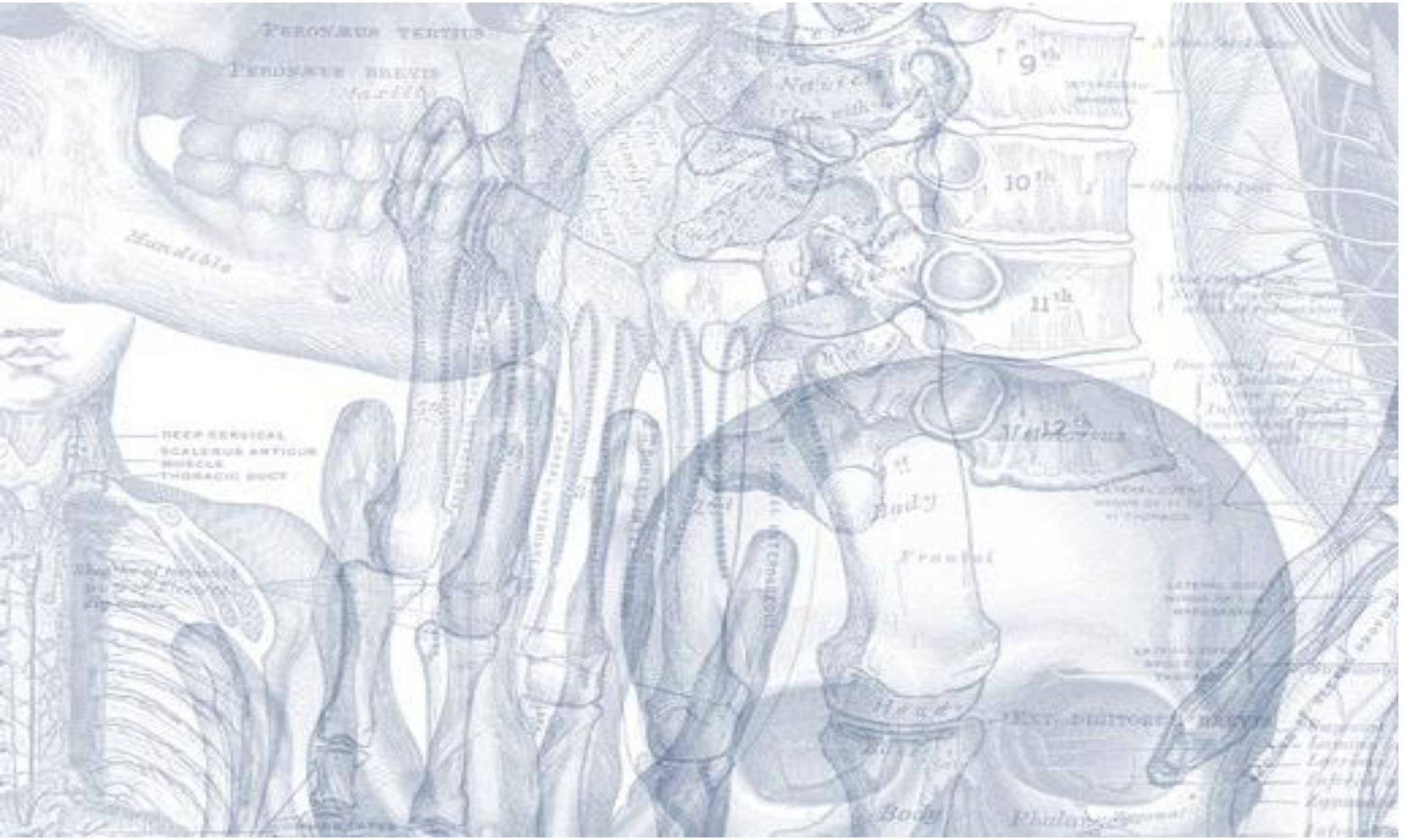


ANATOMY
TEAM 436

436
MEDICINE
KING SAUD UNIVERSITY

Revised by
شوق الأحمري & طراد الوكيل

Frontal, Lateral compartment of Leg and Dorsum of Foot

Editing File

Color Code

- **Important**
- **Doctors Notes**
- **Notes/Extra explanation**

Objectives

- ✓Identify the deep fascia of leg
- ✓Identify the fascial compartments of the leg
- ✓Describe the anatomy of the anterior & lateral compartments
- ✓List the contents of each compartment (muscles, vessels & nerves)
- ✓Describe the anatomy and contents of the dorsum of the foot

Fascia of the Leg

•The deep fascia **surrounds the leg** and is attached to Anterior & Medial borders of Tibia.

•Two Intermuscular Septa

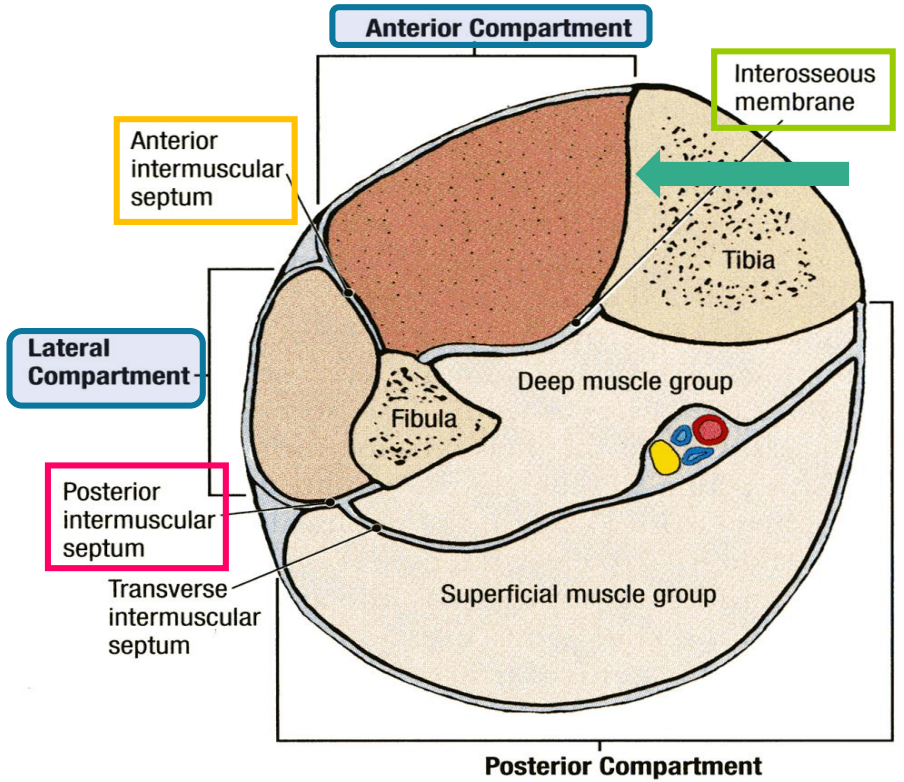
Pass from the deep aspect of this fascia to be attached to :

Anterior border of fibula (Anterior intermuscular septum)

Posterior border of fibula (Posterior intermuscular septum)

•Interosseous membrane:

A thin & strong membrane, that binds the interosseous borders of tibia & fibula. It binds the two bones and provides attachment for muscles.

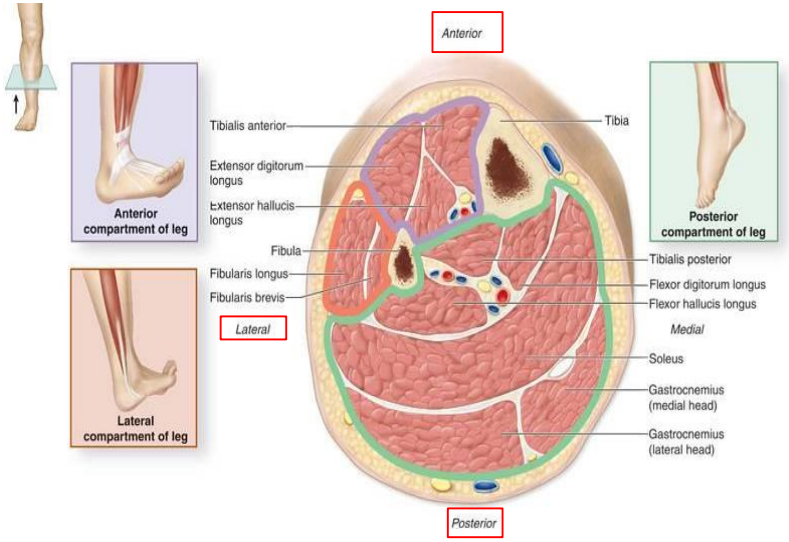


The **interosseus membrane** and the two intermuscular septa divide the leg into

(3) Compartments :

1. Anterior 2. Lateral (peroneal) 3. Posterior

Each one has its own **Muscles** (with specific action), **Blood vessels** and **Nerves**.



Anterior Compartment
Criteria (Contents)

Muscles :

- All muscles take origin from the fibula EXCEPT **Tibialis Anterior .**

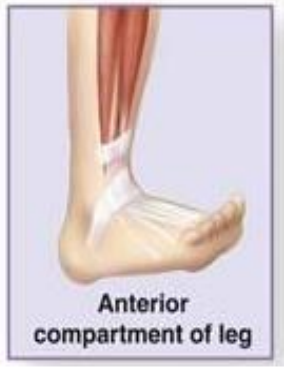
Nerve supply:

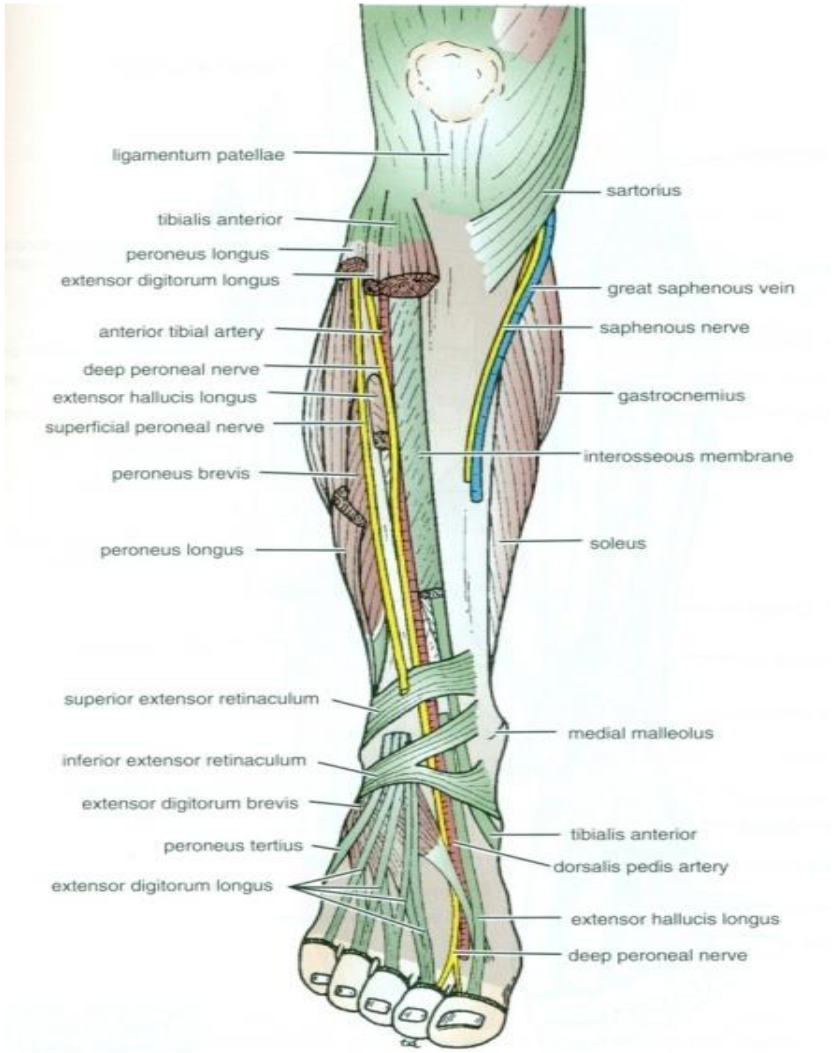
- Deep Peroneal.

Blood Supply:

- Anterior tibial.

Action: **Dorsiflexion** of the ankle joint & Extension of the toes & (**Inversion**).





Anterior Compartment
Muscles

Tibialis Anterior

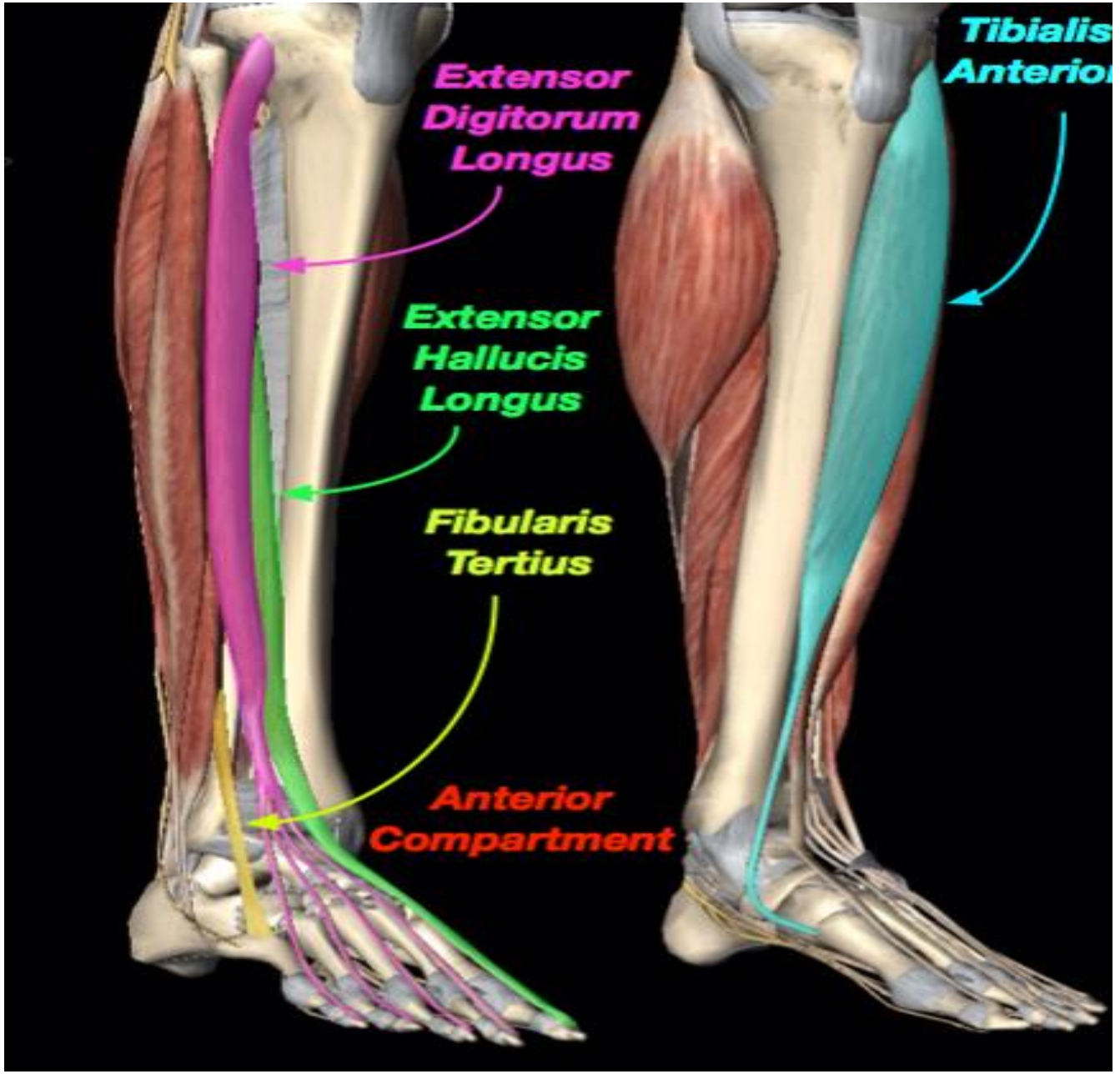
Extensor Digitorum Longus

Extensor Hallucius* Longus

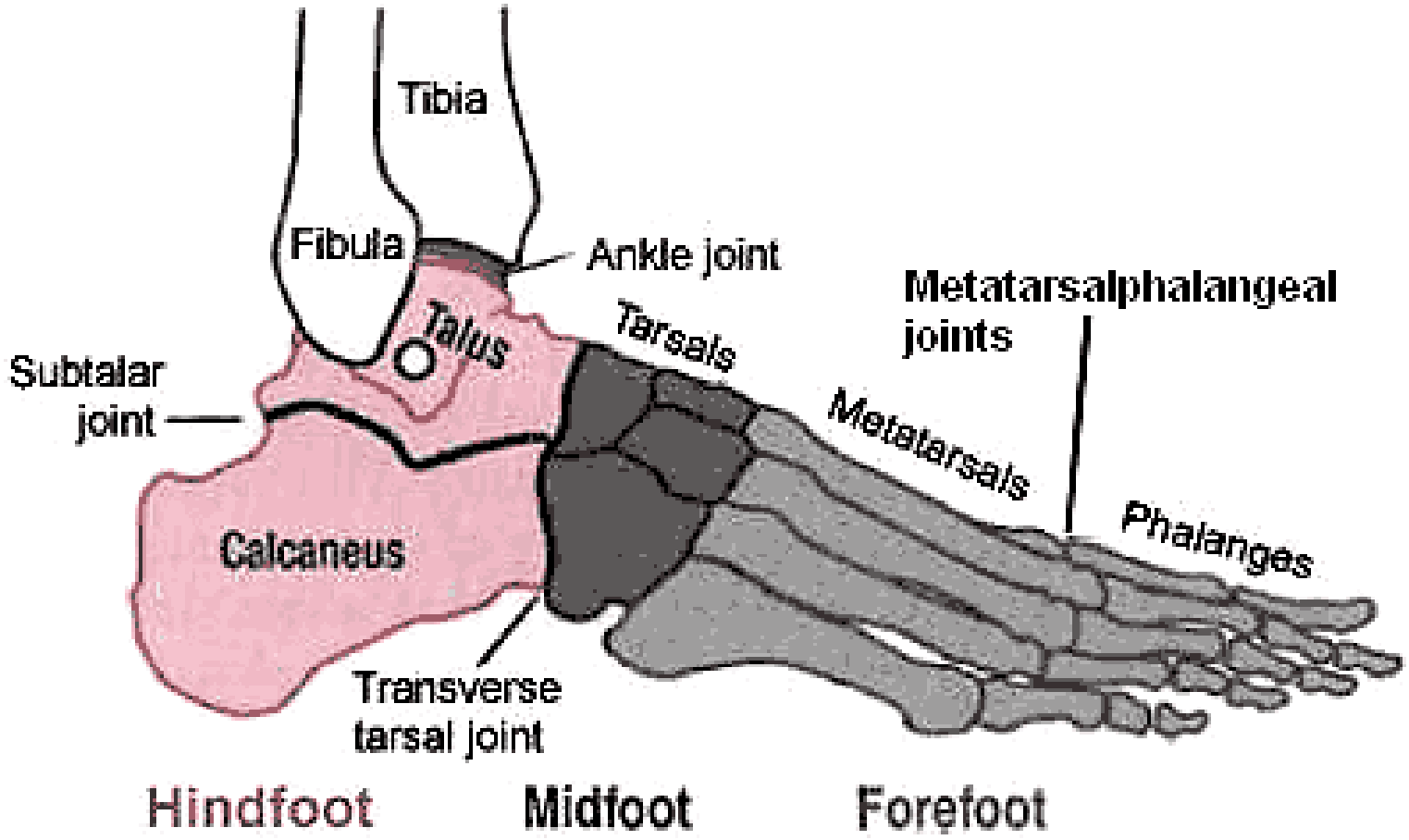
Peroneus Tertius**

*Hallucius = big toe

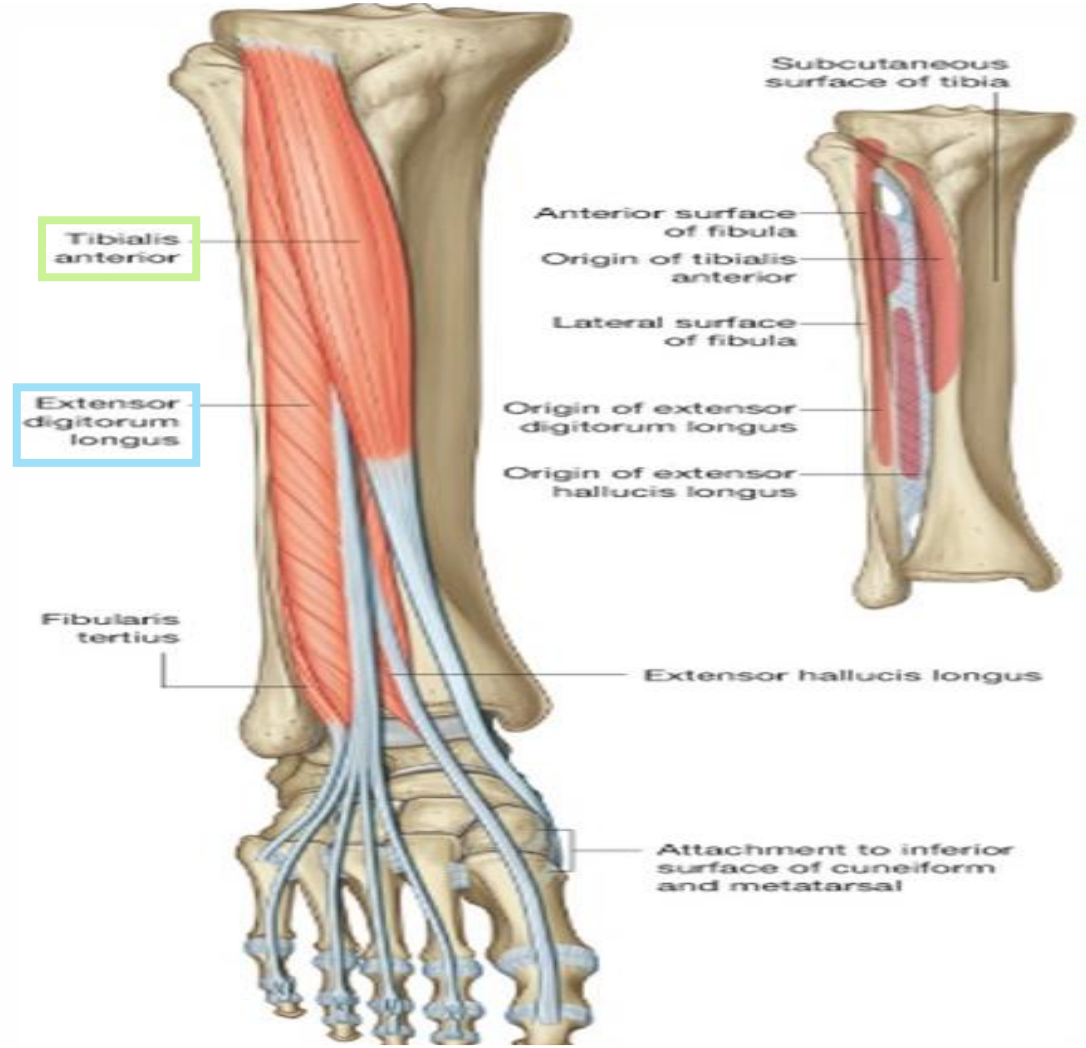
**Fibularis Tertius = Pernous tertius

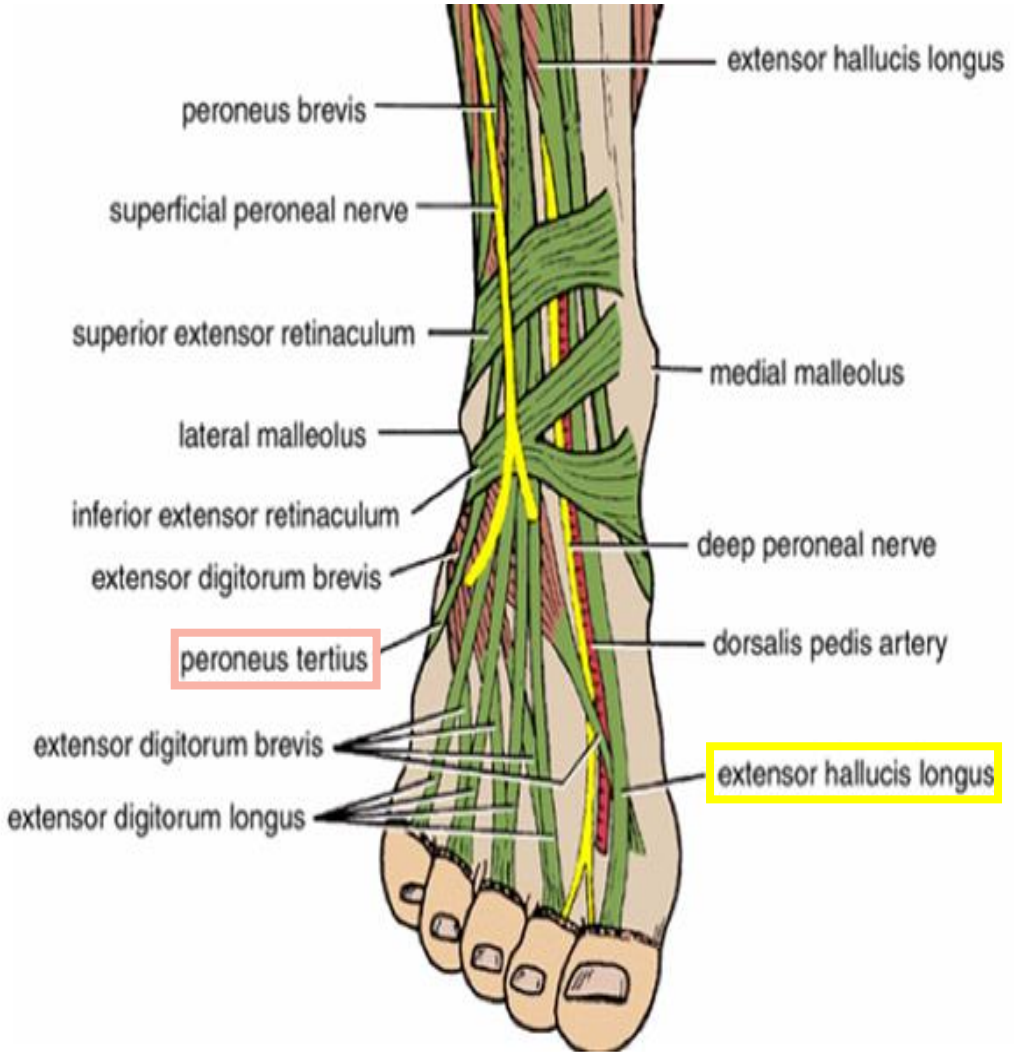


Recall the bones and joints of the foot



Anterior Compartment
Muscles





Anterior Compartment
Muscles

Plantar flexion = flexion of ankle/foot
Dorsi flexion = extension of ankle/foot

Muscle	Origin	Insertion	Action
Tibialis anterior.	Lateral surface of shaft of tibia & interosseous membrane.	Medial cuneiform & base of 1st metatarsal bone.	Extends foot at ankle joint. Inverts foot at subtalar & transverse tarsal joints. Holds up medial longitudinal arch of foot.
Extensor Digitorum Longus.	Anterior surface of shaft of fibula.	Extensor expansion of lateral four toes.	Extends toes. Dorsi flex foot at ankle joint.
Peroneus tertius.	Anterior surface of shaft of fibula.	Base of 5th metatarsal bone.	Dorsi flex foot at ankle joint. Everts foot at subtalar and transverse tarsal joints.
Extensor hallucis longus.	Anterior surface of shaft of fibula.	Base of distal phalanx of great toe.	Extends big toe. Dorsi flex foot at ankle joint. Inverts foot at subtalar and transverse tarsal joints.

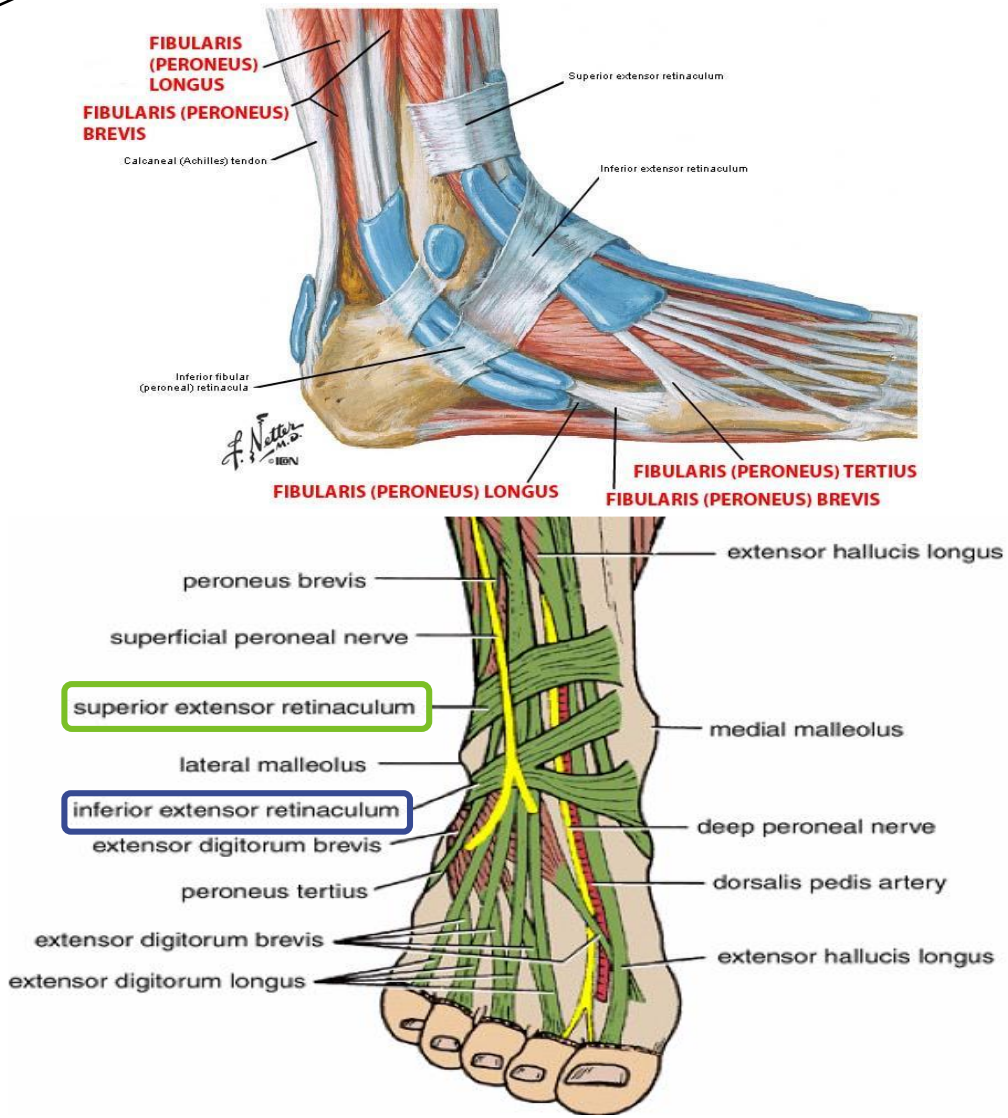
Extensor Retinaculum

A thickening of deep fascia that keep the long tendons around ankle joints in position.

Superior Extensor Retinaculum:

Attached to <u>anterior surface of tibia</u> and <u>fibula</u> **above** the ankle.

(above the lateral and medial malleolus)



Inferior Extensor Retinaculum:

Y-shaped and located **inferior** to ankle.

Structures Passing **Deep** to Extensor Retinaculum:

From medial to lateral:

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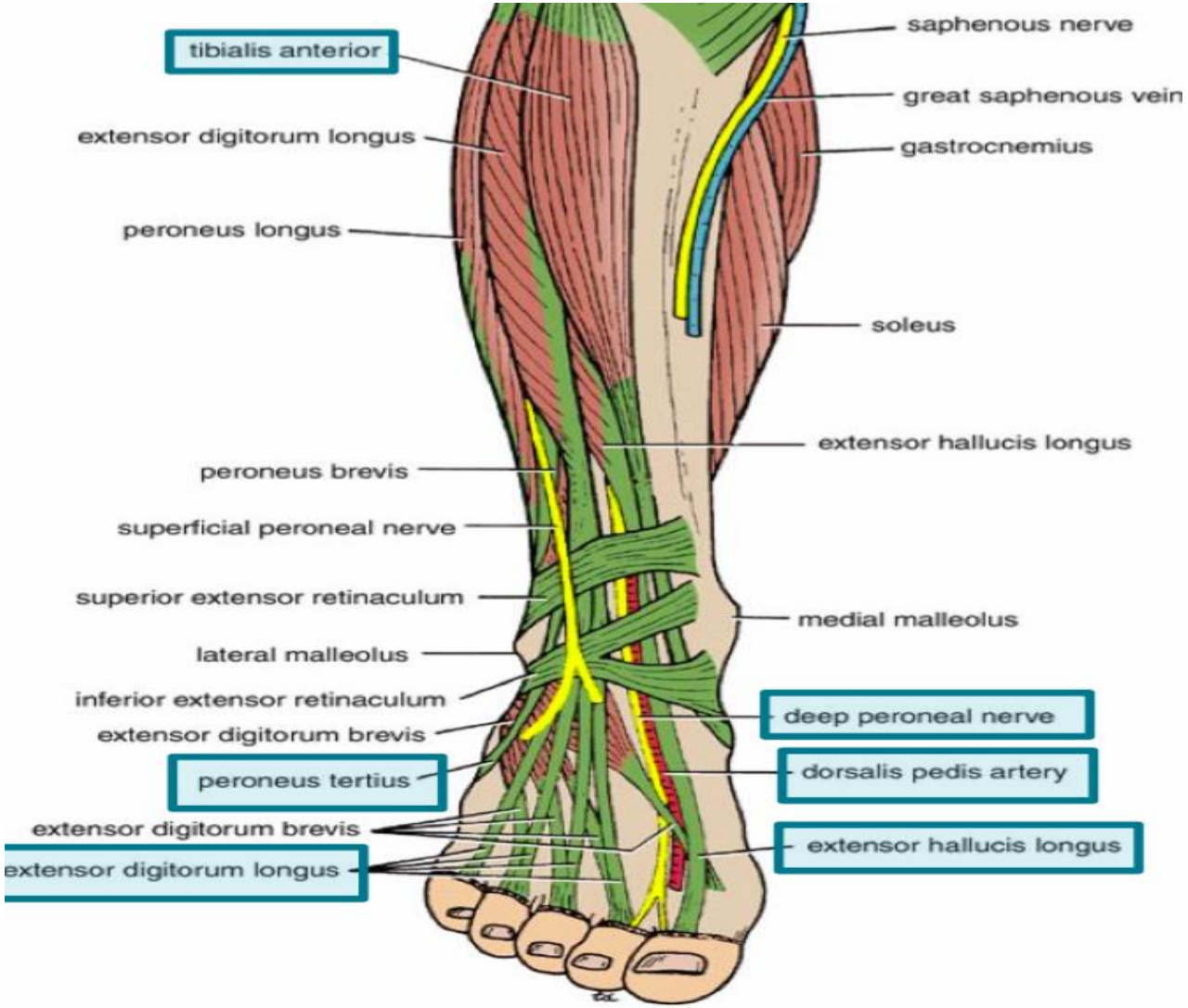
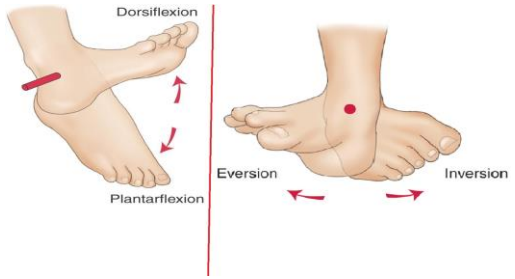
1- **Tibialis** anterior
2- Extensor **hallucis** longus
3- Dorsalis pedis artery (**vessel**)
4- Dorsalis pedis nerve (**nerve**)
5- Extensor **digitorum** longus
6- **Peroneus** tertius

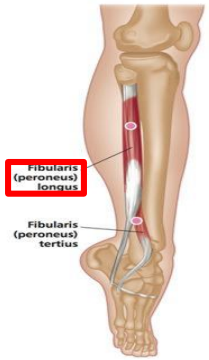
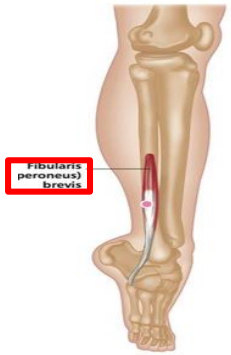


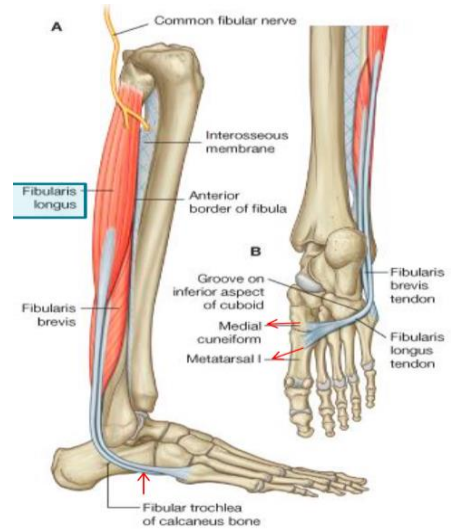
Lateral Compartment: Muscles

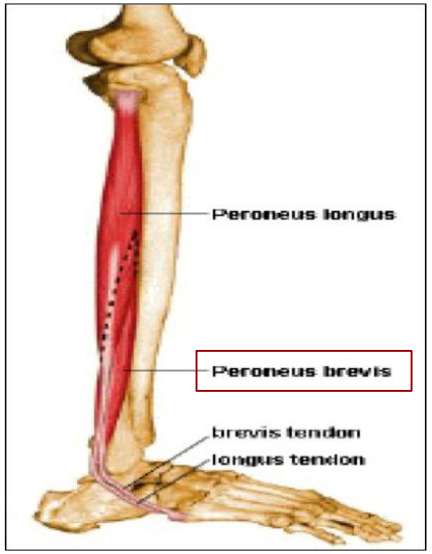
The lateral compartment contains only 2 muscles.

The general action is Plantar flexion and Eversion



Muscle	Origin	Insertion	Action	Nerve	Blood Supply
Peroneus Longus 	Lateral surface of shaft of fibula	Base of **first metatarsal** and the **medial cuneiform** (same as tibialis anterior)	1.Plantar flexes foot at ankle joint 2.Everts foot at subtalar and transverse tarsal joints 3. Supports **lateral longitudinal** and **transverse arches**	Superficial Peroneal (Musculocutaneous)	**Peroneal Artery**
Peroneus Brevis 		Base of **fifth metatarsal** bone. (same as peroneus tertius)	1.Plantar flexes foot at ankle joint; 2.Everts foot at subtalar and transverse tarsal joint **3. Supports Lateral longitudinal arch** of foot.		





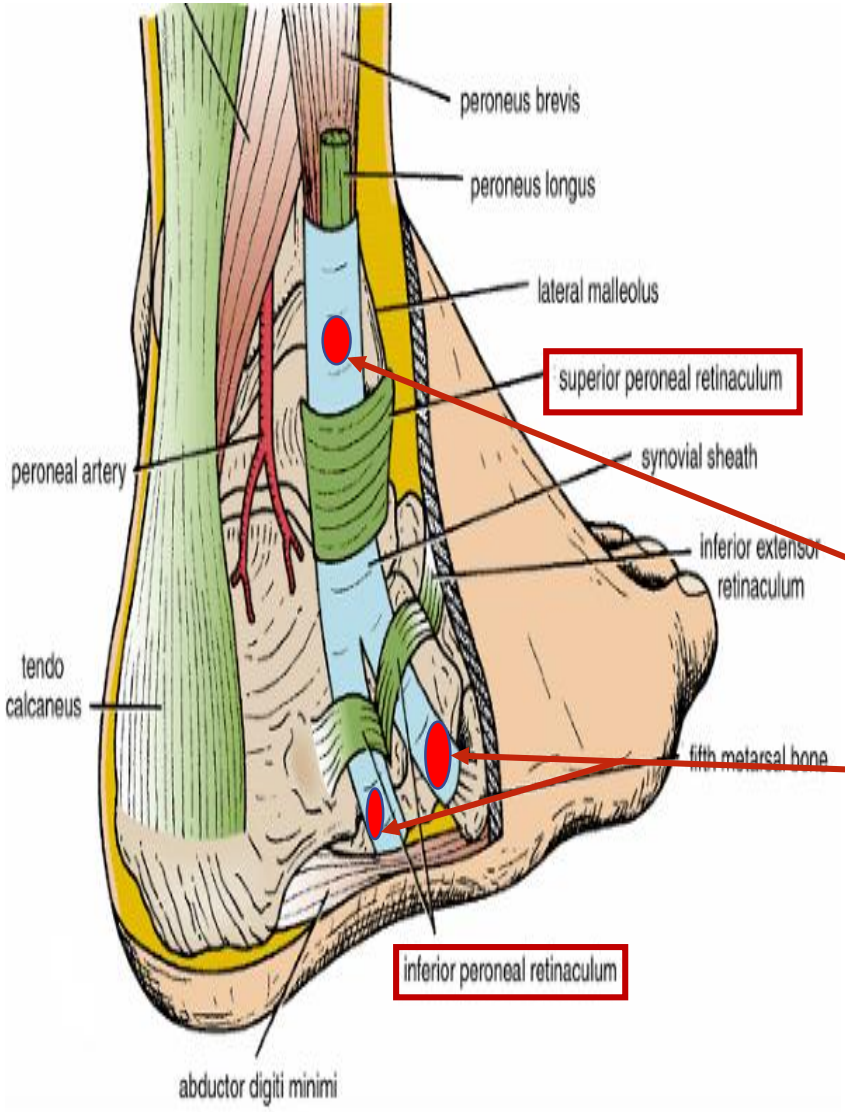
NOTE: Peroneus = Fibularis

Peroneal retinacula

1-Superior peroneal retinaculum

Connects the **lateral malleolus** to **calcaneum** & holds the <u>tendons of peroneus longus & brevis</u>

2-Inferior peroneal retinaculum



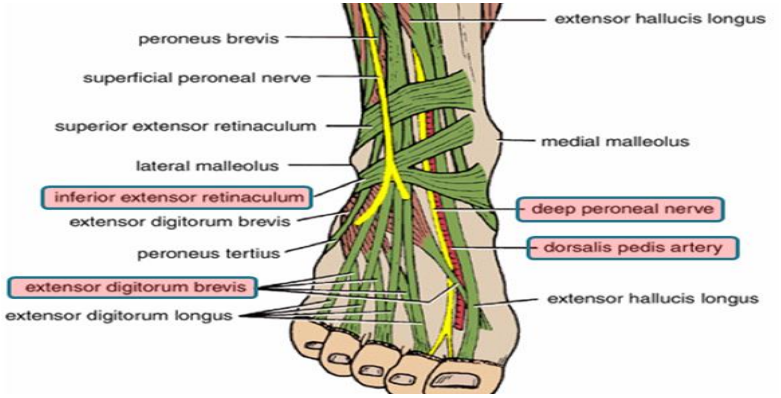
Synovial Sheaths of Peroneal Longus & Brevis:

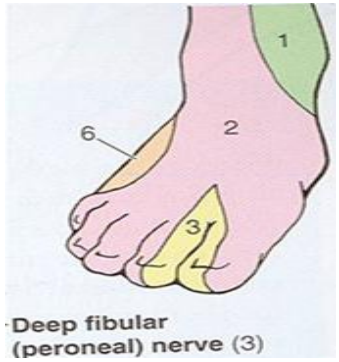
Above the inferoir peroneal retinaculum tendons of peronei are surrounded by a **single common tubular synovial sheath**, deep to <u>inferior peroneal retinaculum</u>, they have **separate** sheaths

Dorsum of foot

Contents

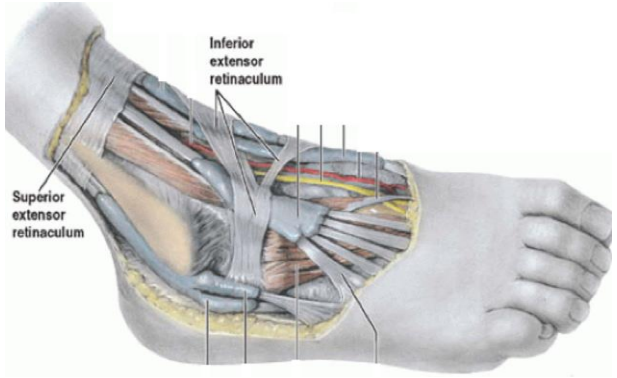
Muscles: Extensor Digitorum Brevis
Blood Vessel: Dorsalis Pedis
Nerves: DEEP & Superficial Peroneal



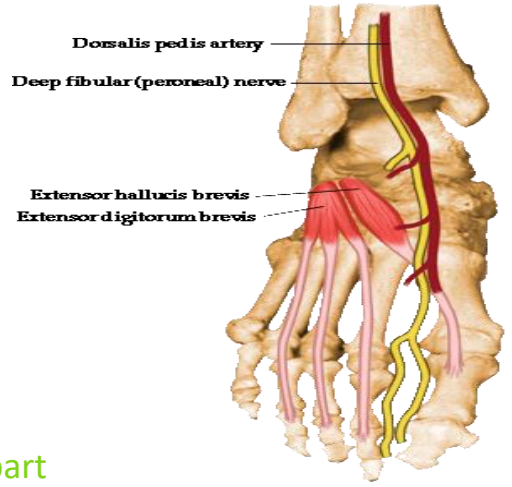


Deep Fascia of Dorsum of Foot

It is very thin, but just distal to ankle joint, it is thickened to form Inferior extensor retinaculum.



Muscle	Origin	Insertion	Innervation	Action
Extensor Digitorum Brevis	Anterior part of upper surface of the Calcaneum & from the Inferior extensor retinaculum	tendons into the proximal phalanx of the big toe (extensor hallucis brevis) and long extensor tendons to second, third, and fourth toes	Deep fibular nerve	Extension of toes



The muscle has 4 tendons (since it is called digitorum): one on the big toe and 3 on the 2nd 3rd and 4th toes. We call the part that inserts into the big toe extensor hallucis longus, but they are all collectively known as extensor digitorum brevis

Insertion of Long Extensor Tendons **(Extensor Expansion)**

The tendons of Extensor digitorum longus pass to the lateral four toes.

- Each tendon to the 2nd , 3rd & 4th toes is joined on its lateral side by a tendon of **Extensor digitorum brevis.**

- The extensor tendons form:

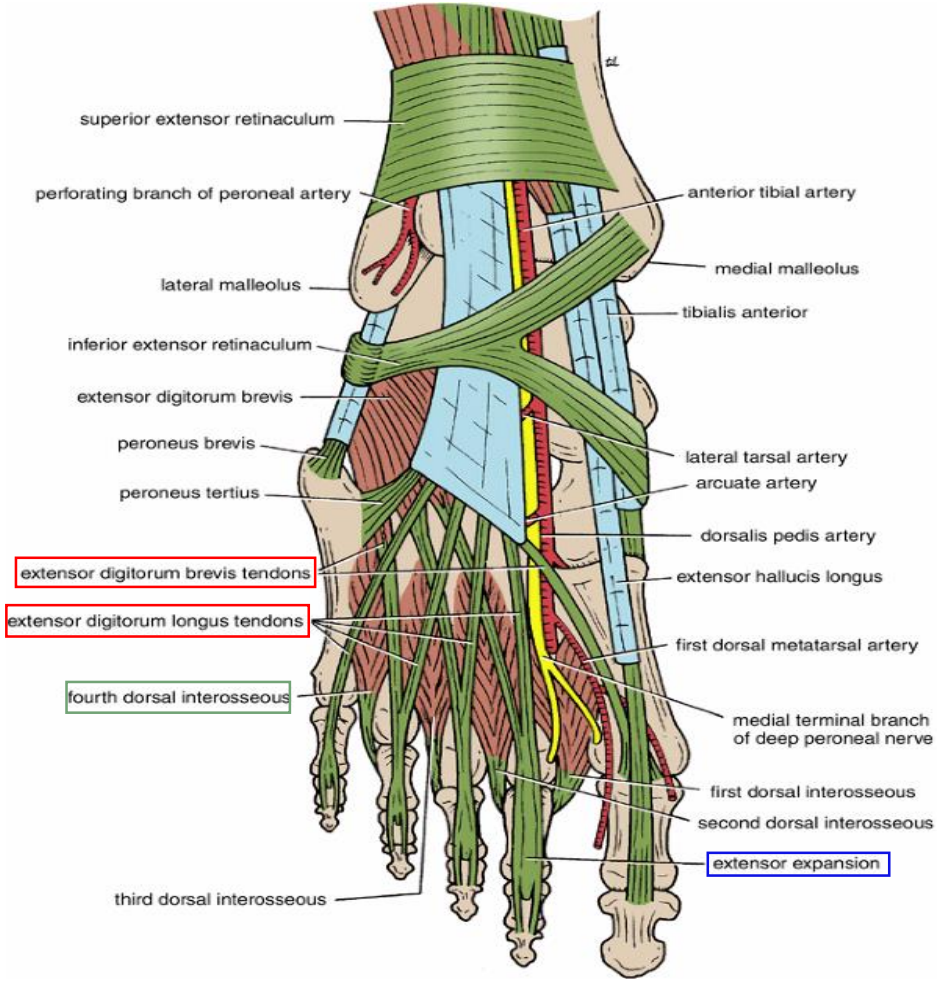
a **Fascial Expansion** (Extensor Expansion) on the dorsum of each toe.

-The expansion divides into (3) parts:-

~**Central part:** inserted into the Base of Middle phalangese.

~**Two Lateral parts:** inserted into the Base of Distal phalangese.

The (Extensor Expansion) receives insertion of :
Interossei & Lumbrical muscles.



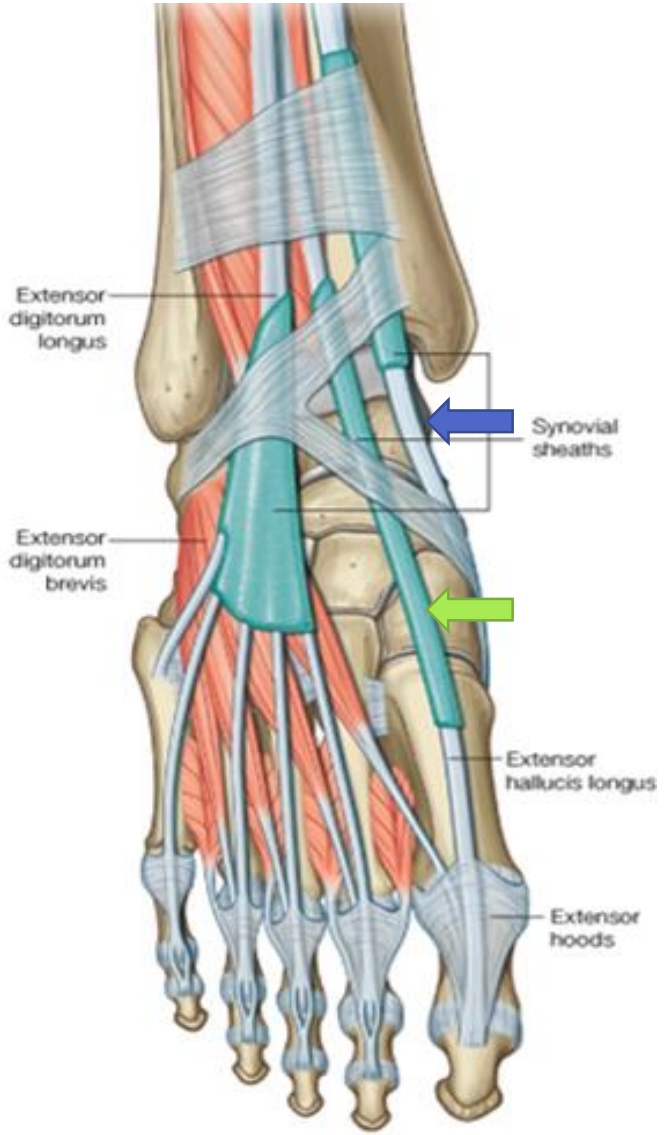
Synovial Sheaths of Extensor Tendons on the Dorsum of Foot

Tibialis anterior & **Extensor hallucis longus**

Both have their own synovial sheath

Extensor digitorum longus & **Peroneus tertius**

have a common sheath, it extends to the level of **Base of 5th Metatarsal bone.**



Summary

The interosseus membrane and the two intermuscular septa divide the leg into

Anterior Compartment

Muscles
Tibialis Anterior
Extensor Digitorum Longus
Extensor Hallucius Longus
Peroneus Tertius
(all take origin from fibula EXCEPT tibialis anterior)

Genreal Action
Dorsiflexion of the ankle joint & Extension of the toes & (**Inversion**).

Innervation
Deep peroneal

Lateral (Peroneal) Compartment

Muscles
Peroneus longus
Peroneus brevis

General Action
Plantar flexion and Eversion

Innervation
Superficial peroneal

Posterior Compartment

Structures Passing **Deep** to Extensor Retinaculum:

From medial to lateral:

Tom Has a Very Nice Dog & Pigeon

1- **Ti**bialis anterior

2- Extensor **h**allucis longus

3- Dorsalis pedis artery (**v**essel)

4- Dorsalis pedis **n**erve

5- Extensor **d**igitorum longus

6- **P**eroneus tertius

Contents of dorsum of foot

Muscles:	Extensor Digitorum Brevis
Blood Vessel:	Dorsalis Pedis
Nerves:	Deep & Superficial Peroneal

Questions

1- Which muscle can evert the foot?
A-Tibialis Anterior.
B- Extensor Digitorum Longus.
C- Peroneus Tertius.
D- Extensor Hallucis Longus.

2- The Peroneus tertius is inserting from anterior surface of fibula to :
A- Extensor expansion of lateral four toes.
B- Base of distal phalanx of great toe.
C- Base of 5^{th} metatarsal bone.
D- Medial cuneiform & base of 1^{st} metatarsal bone.

3- The interosseus membrane and the two intermuscular septa divide the leg into ____ compartments.
A- 1
B- 2
C- 3
D- 4

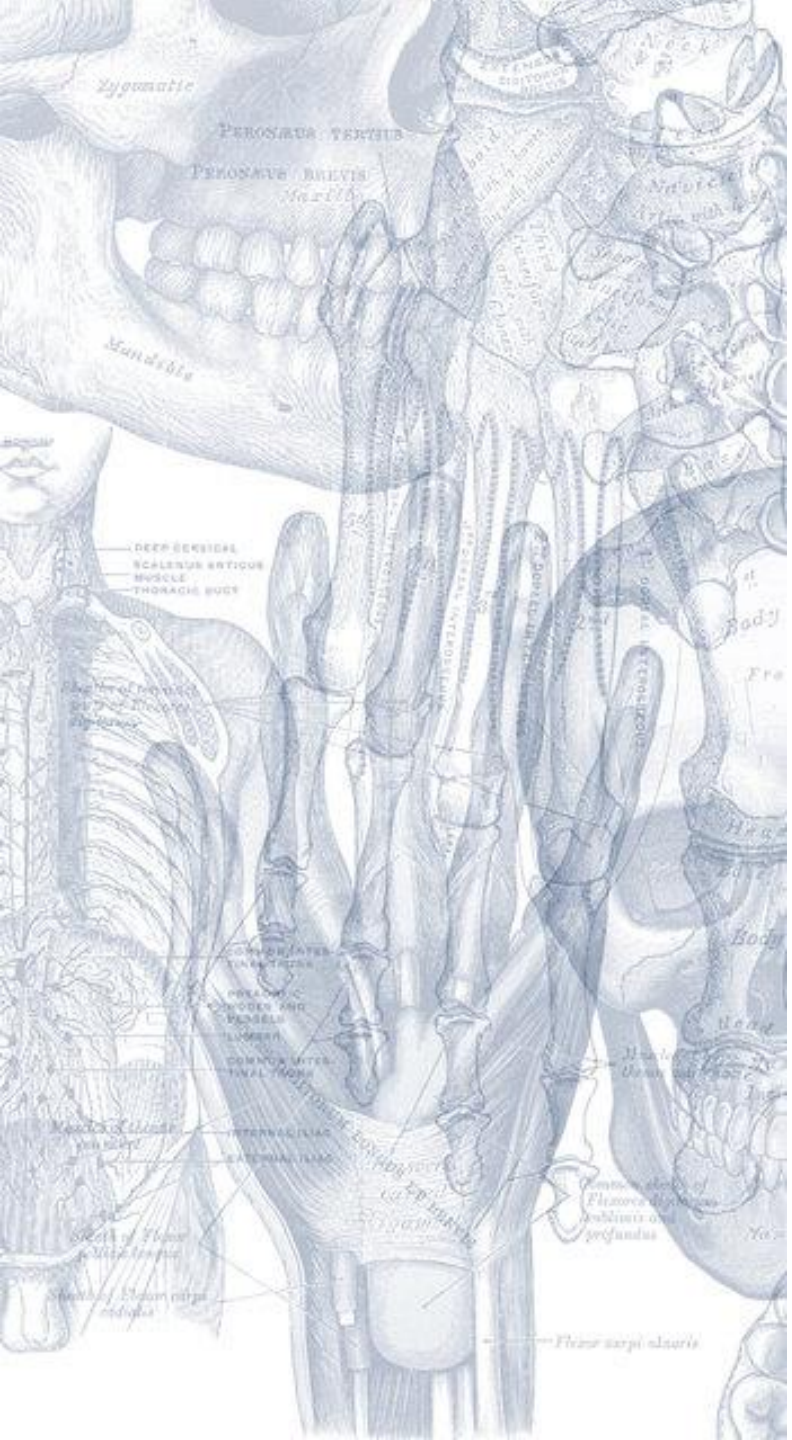
4- Peroneus tertius is the most medial muscle passing down the extensor retinaculum.
A- True
B- False

5- The peroneus longus is inserted into:
A- Base of first metatarsal
B- The medial cuneiform
C- The lateral cuneiform
D- Both a&b

6- The blood vessel that supplies the dorsum of foot is the dorsialis pedis
A-true
B-false

7- The Extensor Expansion receives insertion of:
A- Interossei
B- Lumbricals
C- Tibialis anterior
D- A & B

1- C
2- C
3- C
4- B
5- D
6- A
7- D



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