



Frontal, Lateral compartment of Leg and Dorsum of Foot

Musculoskeletal block- Anatomy-lecture 15

Editing file



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

Color guide :

Only in boys slides in **Blue**

Only in girls slides in **Purple**

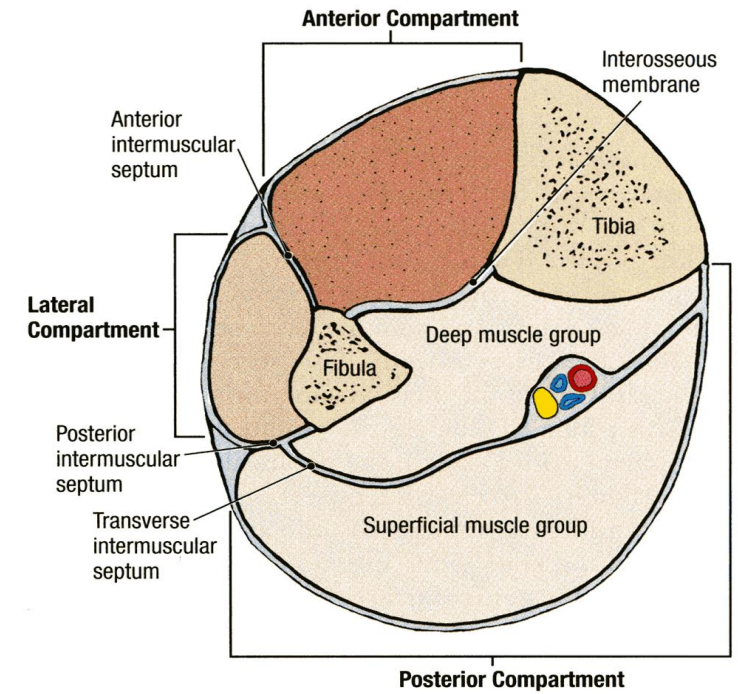
important in **Red**

Doctor note in **Green**

Extra information in **Grey**

Fascia & Fascial compartments of the Leg

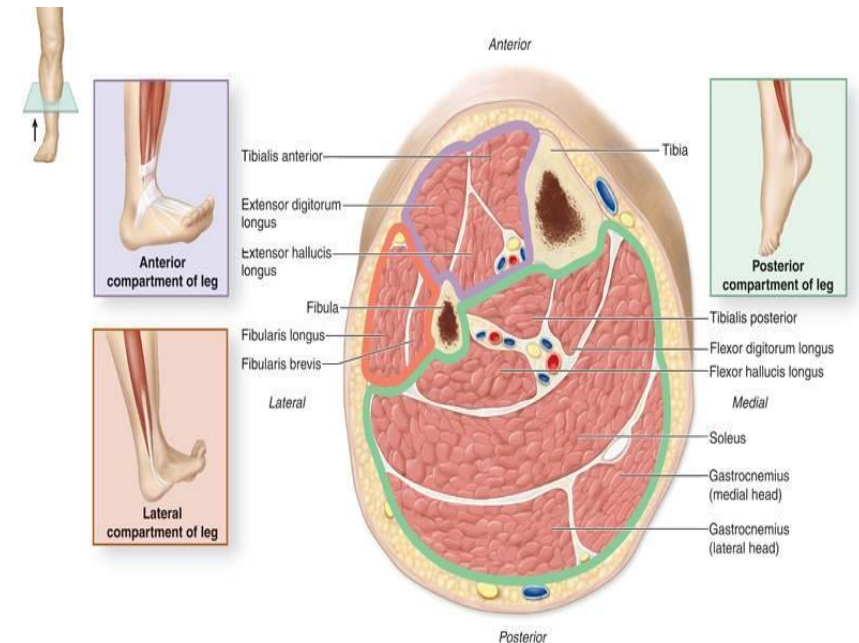
- The deep fascia **surrounds the leg** and is attached to Anterior & Medial borders of Tibia.
- **Two Intermuscular Septa** Pass from the deep aspect of this fascia to be attached to:
Anterior border of fibula (Anterior intermuscular septum)
Posterior border of fibula (Posterior intermuscular septum)
- **Interosseous membrane:** A **thin & strong** membrane, that binds the interosseous borders of tibia & fibula. It binds the two bones and provides attachment for muscles.



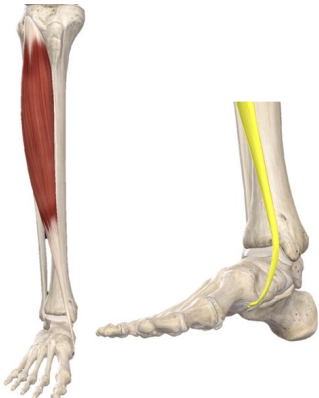
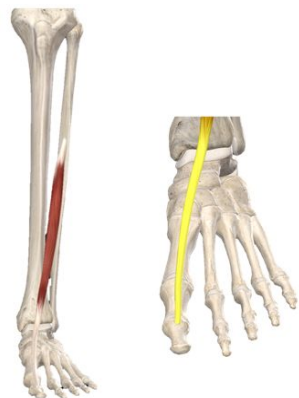
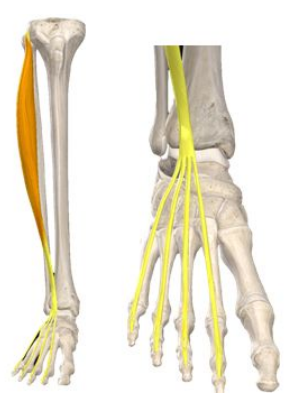
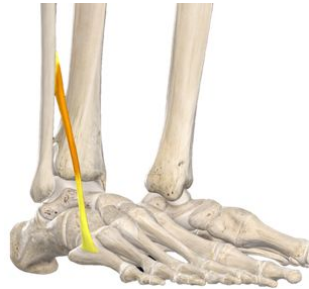
Together the **interosseous membrane** and the **two intermuscular septa** divide the leg into **3** Compartments

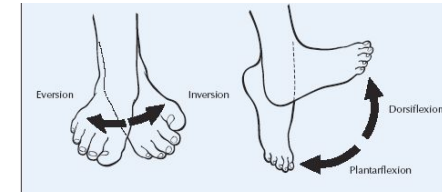
1. **Anterior compartment, Extensors.**
2. **Lateral compartment, Evertors.**
3. **Posterior compartment, Flexors**

Each one has its own **Muscles, Blood vessels and Nerves.**

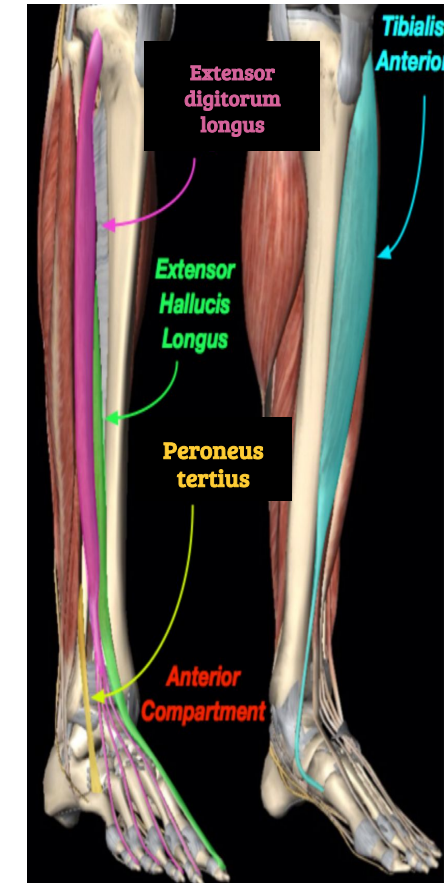


Anterior Compartment of the leg

Muscles	Tibialis anterior	Extensor hallucis longus	Extensor digitorum longus	Peroneus tertius (Could be absent)
Origin	lateral surface of the shaft of the tibia and interosseous membrane	anterior surface of the shaft of the fibula and interosseous membrane		
Insertion	Medial cuneiform Base of first metatarsal bone.	Base of distal phalanx of big toe	Extensor expansion of lateral 4 toes.	Base of fifth metatarsal bone
Action	-Extends foot at <u>ankle joint</u> -Inverts the foot at <u>subtalar joint</u> . - Supports the medial longitudinal arch of the foot	-Extends foot at <u>ankle joint</u> -Inverts foot at <u>subtalar joints</u> -Extends big toe	-Extends foot at <u>ankle joint</u> . -Extends the lateral 4 toes	-Extends foot at <u>ankle joint</u> . -Everts the foot at <u>subtalar joint</u> .
Nerve	Anterior tibial (deep Peroneal) nerve			
Blood supply	anterior tibial artery			
Pictures				



Plantar Flexion = flexion of ankle/foot
Dorsiflexion = extension of ankle/foot



Extensor Retinaculum

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

Superior Extensor Retinaculum:

Attached to **lower part of anterior surface (borders) of tibia and fibula** **above** the ankle.
(above the lateral and medial malleolus)

Inferior Extensor Retinaculum:

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

- the common stem of the Y attached laterally
- lower band of the Y blind with deep fascia of the foot

Structures Passing Deep to Extensor Retinaculum:

From medial to lateral

Tom **H**as a **V**ery **N**ice **D**og **P**ig

1- **T**ibialis anterior

2- **E**xtensor **h**allucis longus

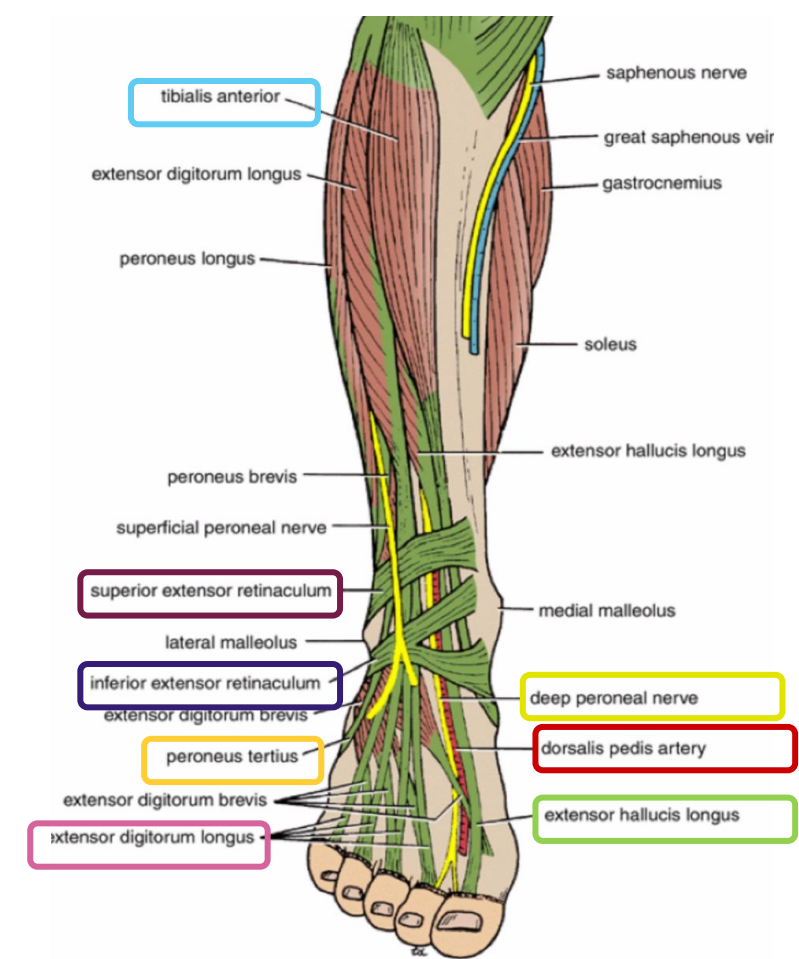
3- Anterior tibial **a**rtery (ATA)

4- **V**enae comitantes of (ATA).

5- Deep peroneal **n**erve (Anterior tibial nerve)

6- **E**xtensor **d**igitorum longus

7- **P**eroneus tertius

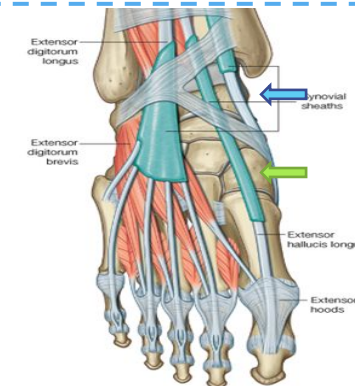


Synovial Sheaths of Extensor Tendons on the Dorsum of Foot


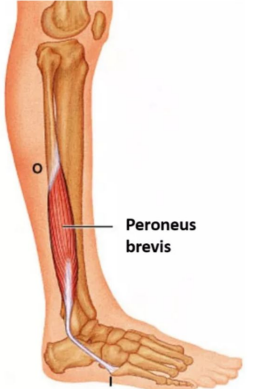
Tibialis anterior & **Extensor hallucis longus**

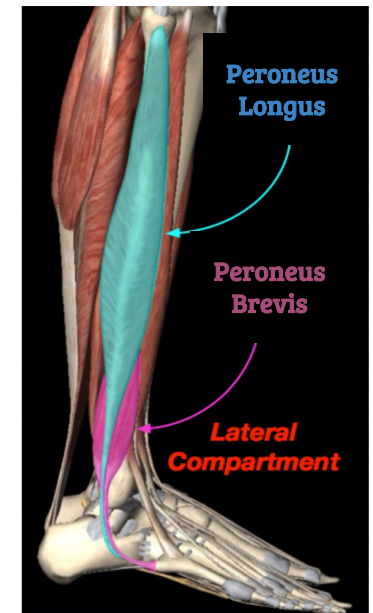
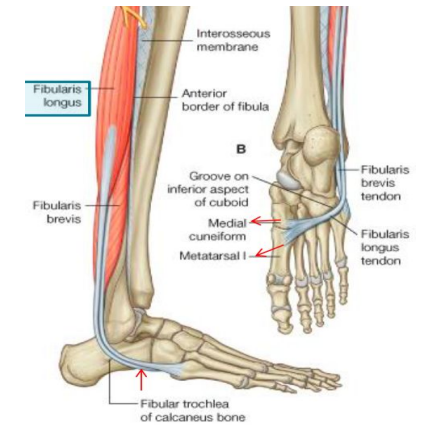
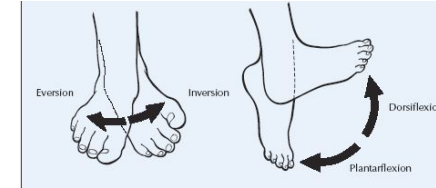
Both have their **own synovial sheath**

Extensor digitorum longus & **Peroneus tertius** have a **common sheath**, it extends to the level of Base of 5th Metatarsal bone.



Lateral Compartment of the leg:

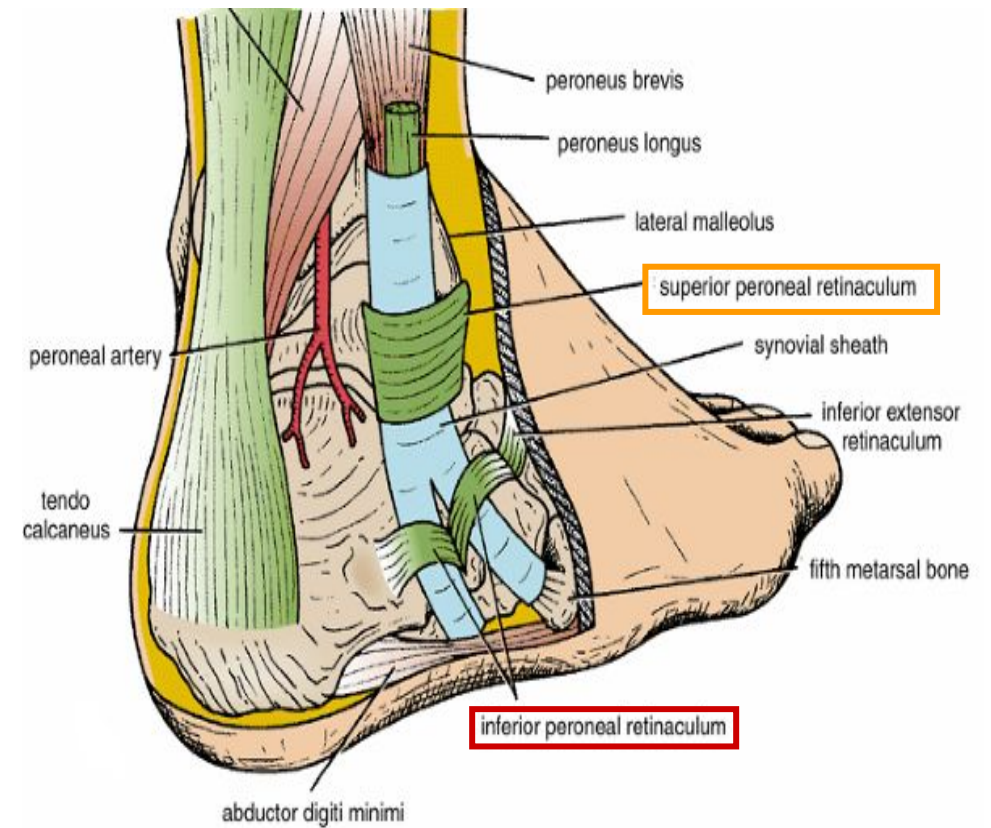
Muscle	Origin	Insertion	Action	Nerve	Picture
Peroneus Longus (PL)	Lateral surface of shaft of fibula	Base of first metatarsal and the medial cuneiform (same as tibialis anterior)	<ol style="list-style-type: none"> 1 Plantar flexes foot at ankle joint 2. Everts foot at subtalar joints 3. Supports lateral longitudinal and transverse arches 	Superficial Peroneal (Musculocutaneous)	
Peroneus Brevis (Pb)		Base of fifth metatarsal bone. (same as peroneus tertius)	<ol style="list-style-type: none"> 1. Plantar flexes foot at ankle joint; 2. Everts foot at subtalar joints 3. Supports Lateral longitudinal arch of foot. 		



Blood supply: Peroneal Artery

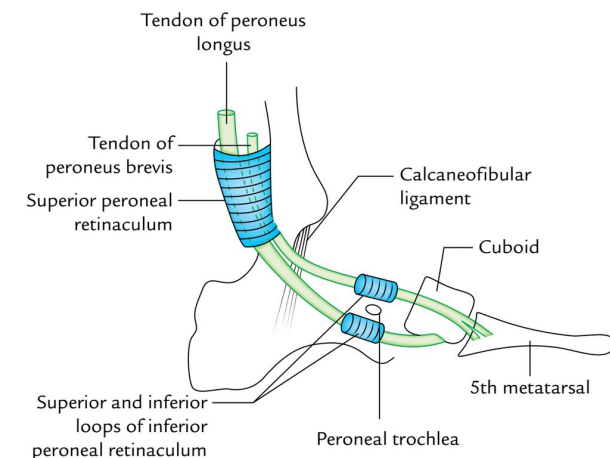
Peroneal Retinaculum

- **Superior peroneal retinaculum** Connects the lateral malleolus to calcaneum & holds the tendons of **peroneus longus** & **brevis**,
- **Inferior peroneal retinaculum** binds the tendons of the peroneus longus and brevis muscles to the lateral side of the calcaneum .



Synovial Sheaths of Peroneal Longus & Brevis:

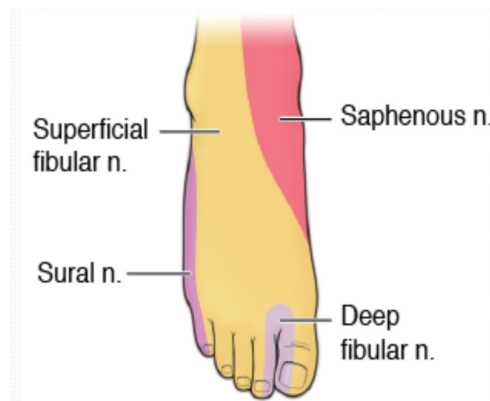
- Above the **superior peroneal retinaculum** tendons of 2 peronei are surrounded by a single common tubular **synovial sheath**
- deep to **inferior peroneal retinaculum**, they have separate sheaths



Dorsum of foot

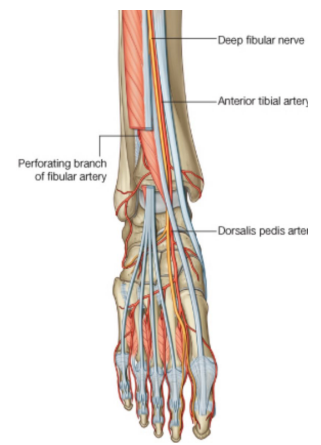
Blood Vessel: Dorsalis Pedis artery

Nerves: DEEP & Superficial Peroneal



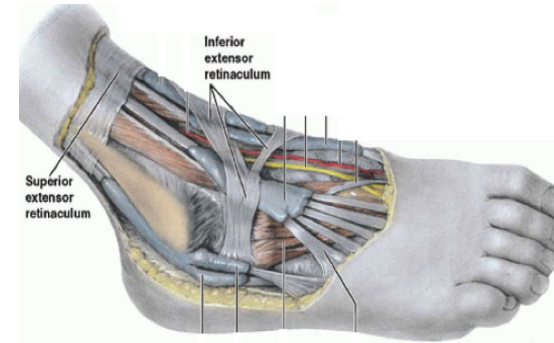
Doctor note :

- medial side of big toe= superficial peroneal
- medial side of the foot =saphenous
- lateral side of the small toe =sural
- lateral side of the foot= sural
- Adjacent side of first two toe =deep peroneal



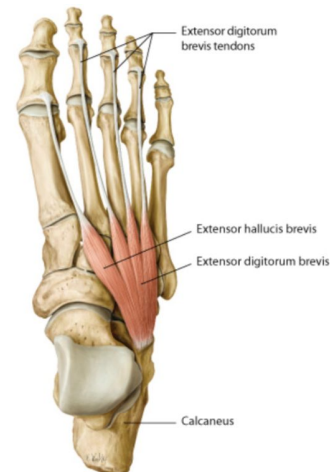
• Deep Fascia of Dorsum of Foot

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



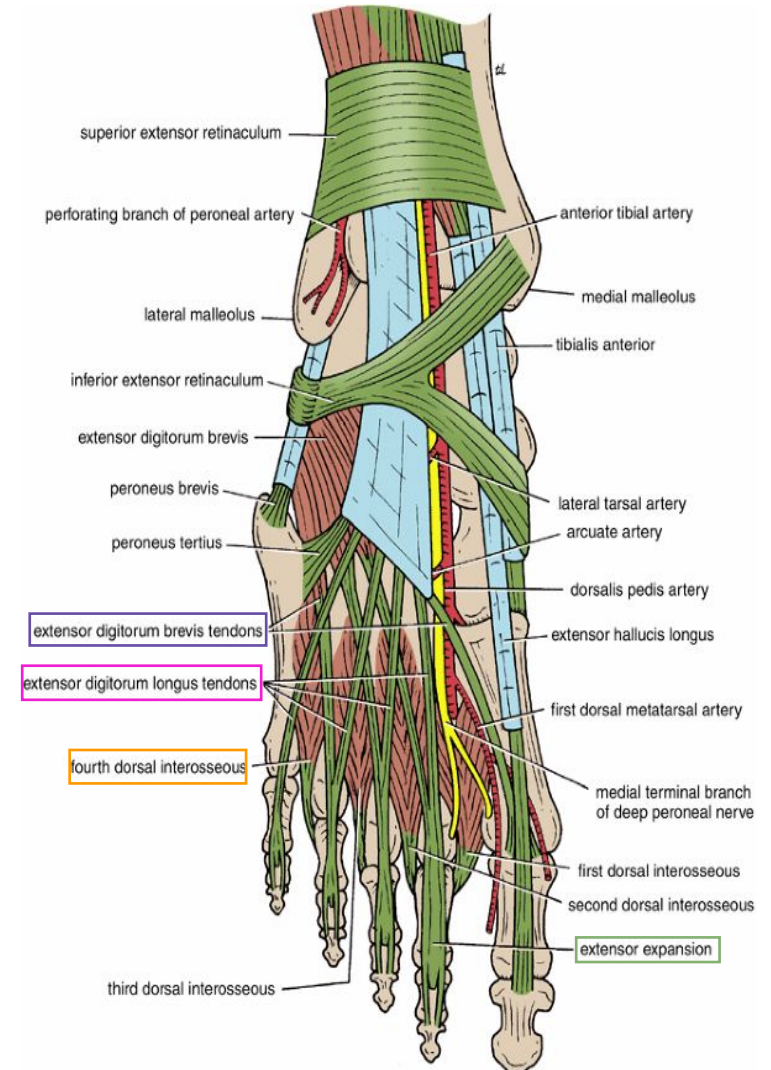
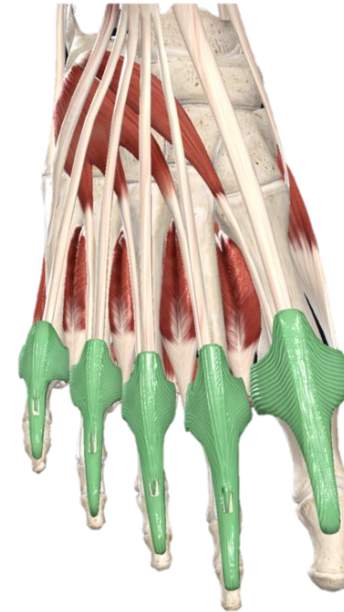
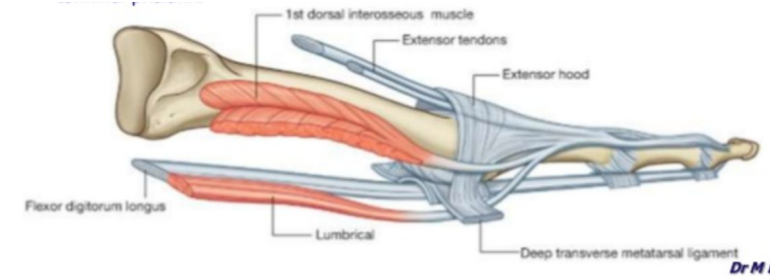
• Muscle of Dorsum of the Foot

Muscle	Origin	Insertion	Action
Extensor Digitorum Brevis	Anterior part of upper surface of the Calcaneum & from the Inferior extensor retinaculum	By 4 tendons into the proximal phalanx of big toe Extensor expansion of 2nd, 3rd and 4th toes . part that inserts into the big toe also called extensor hallucis longus	Extension of the medial 4 toes



Insertion of Long Extensor Tendons

- 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 phalanges.
Two Lateral parts: inserted into the Base of Distal phalanges.
- The (**Extensor Expansion**) receives insertion of: **Interossei & Lumbrical** muscles.



MCQs

Question 1: The Peroneus tertius is inserting from anterior surface of fibula to:

- A. Extensor expansion of lateral four toes
- B. Base of 5th metatarsal bone.
- C. Medial cuneiform & base of 1st metatarsal bone.
- D. Base of distal phalanx of great toe.

Question 2: Which muscle can evert the foot?

- A. Peroneus Tertius.
- B. Tibialis Anterior.
- C. Extensor Hallucis Longus.
- D. Extensor Digitorum Longus.

Question 3: The peroneus longus is inserted into:

- A. Base of first metatarsal
- B. The lateral cuneiform
- C. The medial cuneiform
- D. Both a&c

Question 4: The Extensor Expansion receives insertion of

- A. Interossei
- B. Lumbricals
- C. Tibialis anterior
- D. A & B

Question 5: Which nerve supplies the anterior compartment of the leg?

- A. Anterior tibial
- B. Lateral fibular
- C. Deep peroneal
- D. superficial peroneal

Question 6: Which of the following is medial to vessels in the extensor retinaculum?

- A. Extensor Hallucis Longus Tendon
- B. Deep Peroneal nerve
- C. Peroneus Tertius Tendon
- D. Extensor Digitorum Longus Tendon

Question 7: All of the following are attached to the fibula except?

- A. Extensor Digitorum Longus
- B. Peroneus Brevis
- C. Tibialis Anterior
- D. Extensor Hallucis Longus

Question 8: How many Intermuscular septa pass from deep fascia to attach to fibula?

- A. 3
- B. 2
- C. 1
- D. 4

Team members

Boys team:

- Khalid AL-Dossari
- Naif Al-Dossari
- Faisal Alqifari
- Salman Alagla
- ★ Ziyad Al-jofan
- Suhail Basuhail
- Ali Aldawood
- Khalid Nagshabandi
- Mohammed Al-huqbani
- Jehad Alorainy
- Khalid AlKhani
- Omar Alammari

Team leaders

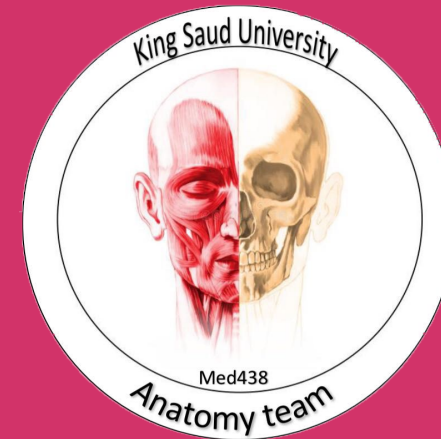
- ★ Abdulrahman Shadid
- Ateen Almutairi

★ =This lecture done by

Girls team :

- Ajeed Al Rashoud
- Taif Alotaibi
- Noura Al Turki
- Amirah Al-Zahrani
- Alhanouf Al-haluli
- Sara Al-Abdulkarem
- Rawan Al Zayed
- Reema Al Masoud
- Renad Al Haqbani
- Nouf Al Humaidhi
- Fay Al Buqami
- Jude Al Khalifah
- Nouf Al Hussaini
- Alwateen Al Balawi
- Rahaf Al Shabri
- Danah Al Halees
- Haifa Al Waily
- Rema Al Mutawa
- Amirah Al Dakhilallah
- Maha Al Nahdi
- Renad Al Mutawa
- Ghaida Al Braithen
- Reham Yousef

Special thank for
Anatomy team 436



Good luck

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