

وسهلا



أهلا

يُمنع أخذ السلايدات بدون
إذن المحرر واي اجراء
يخالف ذلك يقع تحت طائلة
المسؤولية القانونية
جميع المعلومات للاستخدام
التعليمي فقط

الأستاذ الدكتور يوسف حسين

رئيس قسم التشريح والأنسجة والأجنة

كلية الطب - جامعة مؤتة - الأردن

دكتورة من جامعة كولونيا المانيا

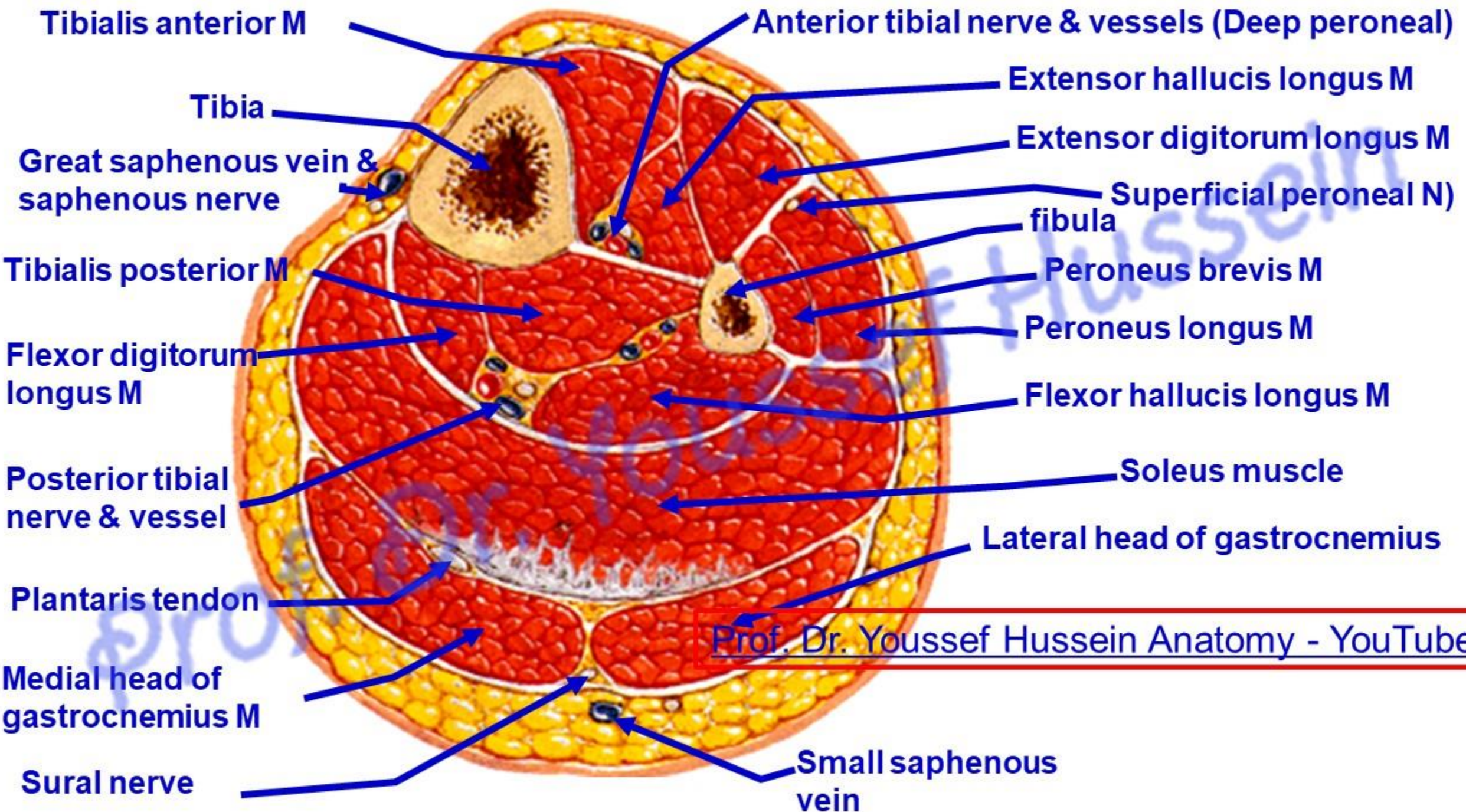
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**Transverse section
of the middle of the leg**

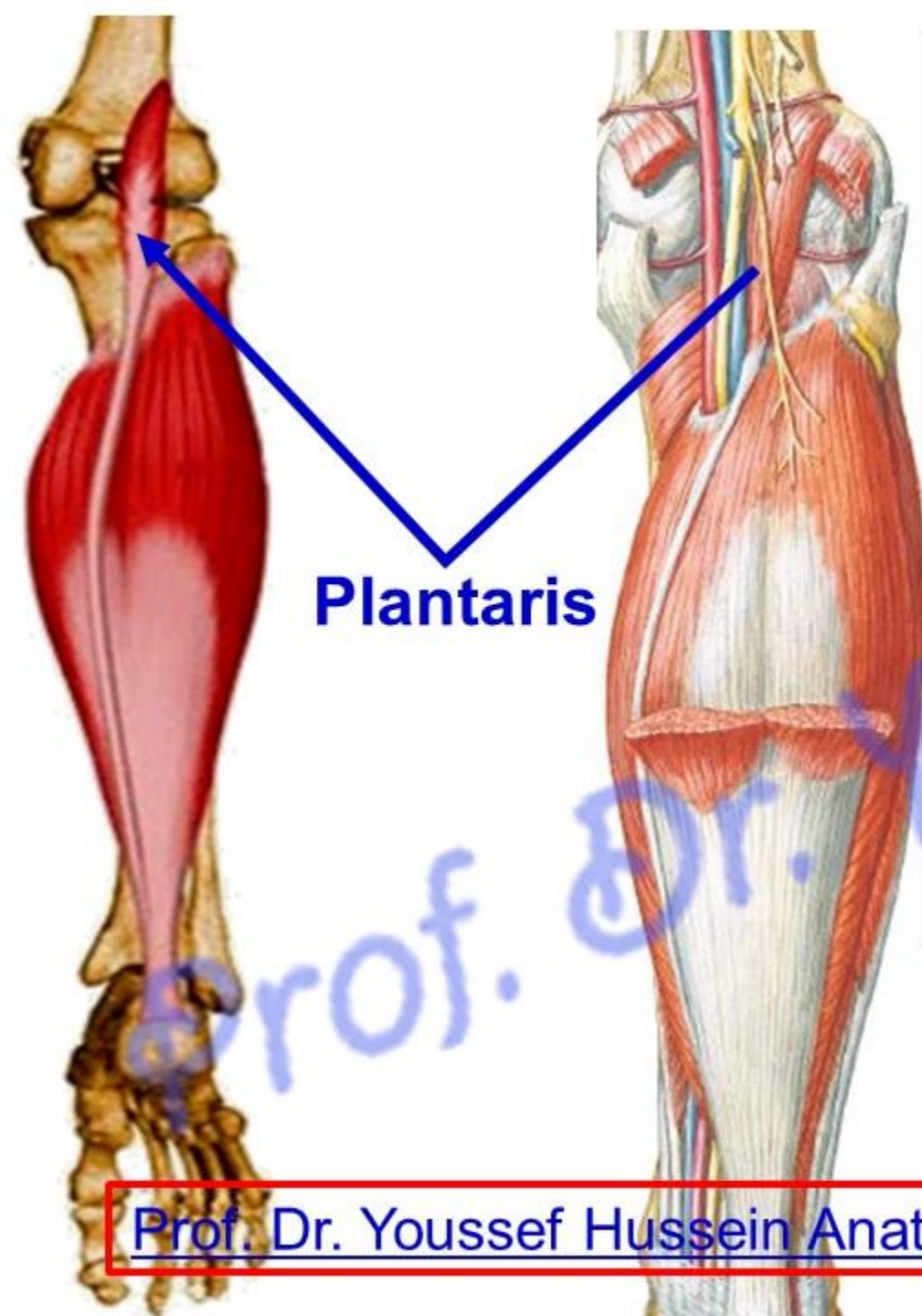
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Superficial group Posterior Compartment of the Leg

- **Superficial muscles**
 - 1- **Plantaris (Tibial nerve)**
 - 2- **Gastrocnemius (Tibial nerve)**
 - 3- **Soleus (Tibial and Posterior Tibial nerves)**

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- **PLantaris**

**** Origin:** from the popliteal surface of the femur just above the Lateral condyle.

- **The muscle may be absent.**

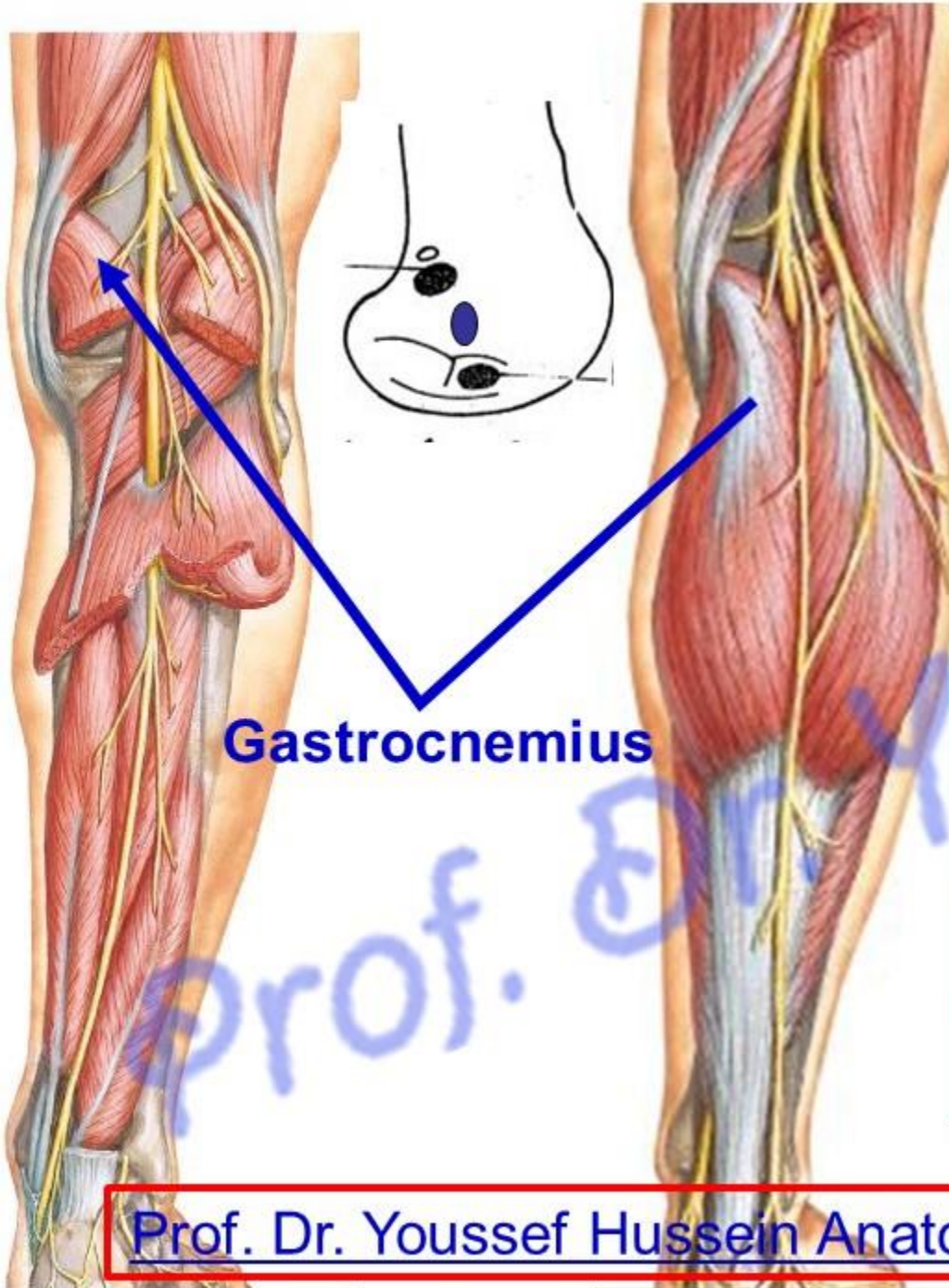
**** Course;** It is a long slender tendon which descends between the gastrocnemius and soleus.

**** Insertion, either** Into the tendocalcaneus.

- OR separately in the posterior surface of the calcaneus.

**** Nerve supply:** Tibial nerve.

**** Actions:** Plantar Flexion of the foot.



• **Gastrocnemius**

**** Origin:** by 2 heads:

1- Medial head: From the popliteal surface of the femur just above the medial condyle.

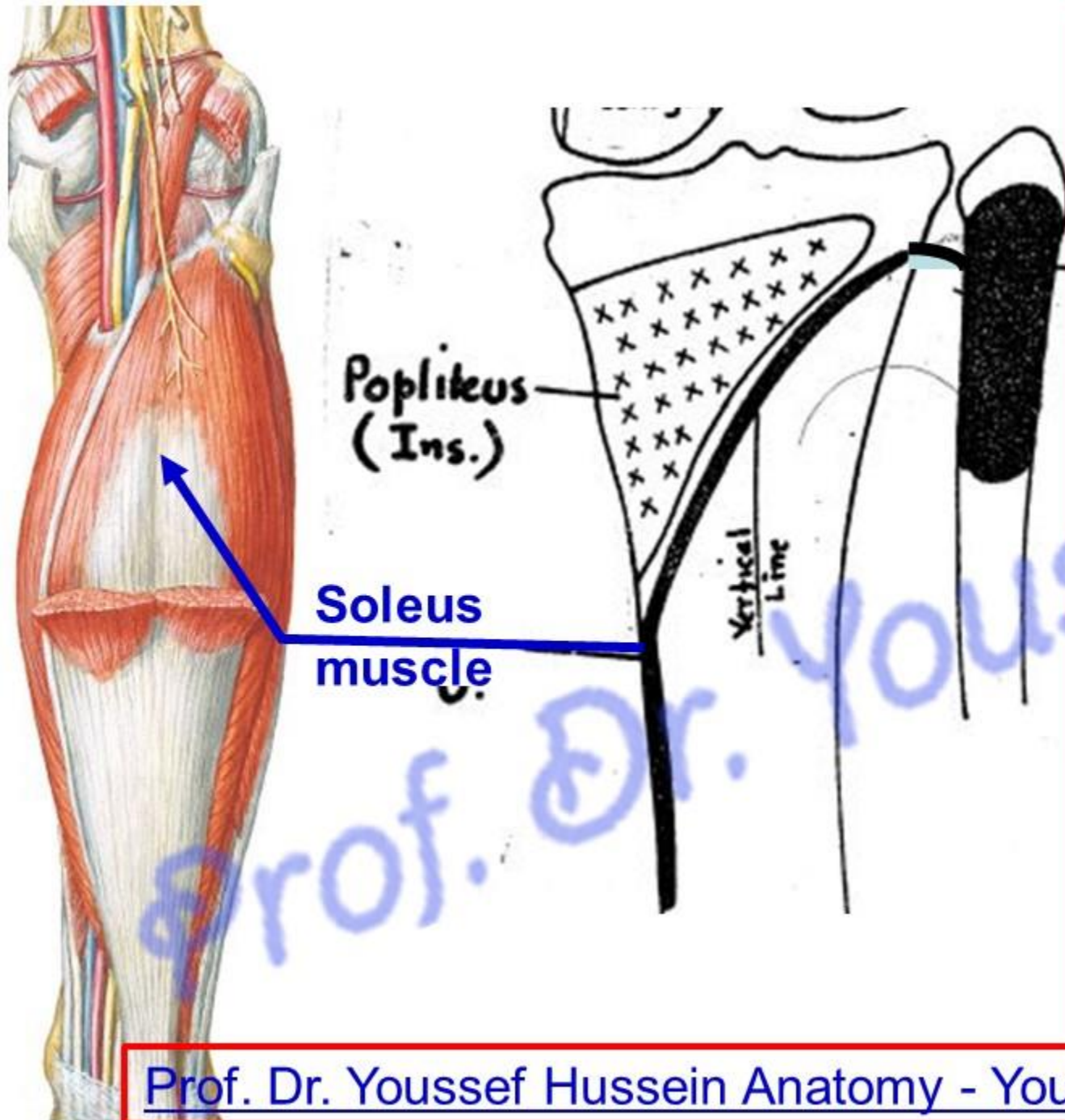
2- Lateral head: from lateral surface of lateral condyle of femur above and behind the lateral epicondyle. It contains sesamoid bone called **Fabella**.

**** Insertion:** Tendocalcaneus into the middle of the posterior surface of the calcaneus.

**** Nerve supply:** Tibial nerve (each head receive separate branch).

**** Actions:** 1- Plantar flexion of the foot (at ankle joint).

2- Flexion of the knee joint.



• Soleus

** Origin: from

- 1- Upper 1/3 of posterior surface of fibula.
- 2- Back of the head of the fibula.
- 3- Tendinous arch (between head of fibula and soleal line).
- 4- Soleal line of the tibia
- 5- Middle 1/3 of medial border of tibia.

** **Insertion:** into the tendocalcaneus.

** **Nerve supply:** Double nerve supply.

1- Its superficial surface, branch from the tibial nerve in the popliteal fossa.

2- Its deep surface, branch from the posterior tibial nerve in the leg.

** **Action:** powerful plantar flexor of the foot

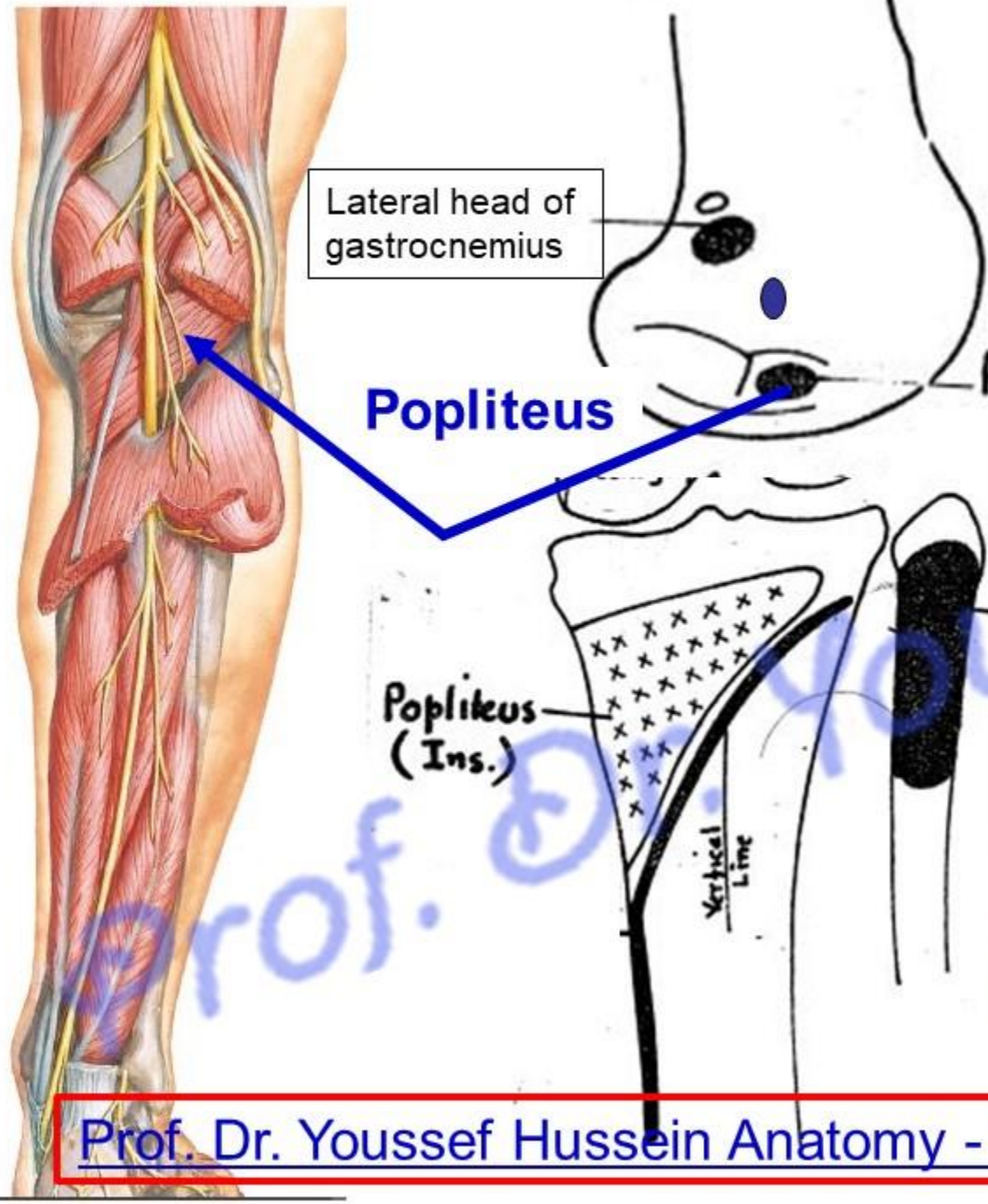
(acted only on the ankle joint).

❖ **Tendocalcaneus (Tendo-Achilles = Tennis player)**

- It receives insertion of **Gastrocnemius, soleus and** plantaris muscles.
- It ends in the middle of the posterior surface of the calcaneus.
- Tendocalcaneus is the strongest and thickest tendon of the body.
- **Soleus** muscle has a very strong but slow action (**like 1st gear of car**).
- When movement is under way, the quicker acting **gastrocnemius** increases the speed (**like the top gear of the car**) e.g. in **running**.
- The 2 heads of gastrocnemius and soleus are called **triceps surae**.
- **The soleus muscle** contains a **rich venous plexus** which drains the superficial veins and pumps it to the deep veins against gravity (**peripheral heart**). So, it liable to **deep venous thrombosis** especially with old age, bed rest for a long time, sitting for long time, or fracture neck of femur [Prof. Dr. Youssef Hussein Anatomy - YouTube](#)
- Rupture of tendocalcaneus leading to walking disability and running is impossible.
- **Rupture of tendon of plantaris leading to sudden and severe pain**. Due to pushing a heavy item (ground) or trauma to ankle joint during stretch of plantaris (plantar flexion of ankle joint) while simultaneously keeping knee joint straight

Deep group Posterior Compartment of the Leg

- 1- **Tibialis posterior** (Posterior Tibial nerve)
- 2- **Flexor digitorum longus** (Posterior Tibial nerve)
- 3- **Flexor hallucis longus** (Posterior Tibial nerve)
- 4- **Popliteus** (Tibial nerve)



• PopLiteus

** **Origin:** groove on lateral surface of Lateral condyle of femur below the lateral epicondyle.

- **The muscle is intracapsular extrasynovial.**

** **Insertion:** triangular area on posterior surface of the tibia above the soleal line.

** **Nerve supply:** Tibial nerve.

- It descends superficial to the muscle and then hooks on the lower border to supply the muscle through its deep surface.



Unlocking of knee joint

At the beginning of
flexion of knee joint

Lateral rotation of femur on
tibia when the foot is fixed
on the ground

Or medial rotation of tibia
on femur when the foot is
raised from the ground



Protection of the lateral
meniscus.

- **Origin of Flexor Digitorum Longus**

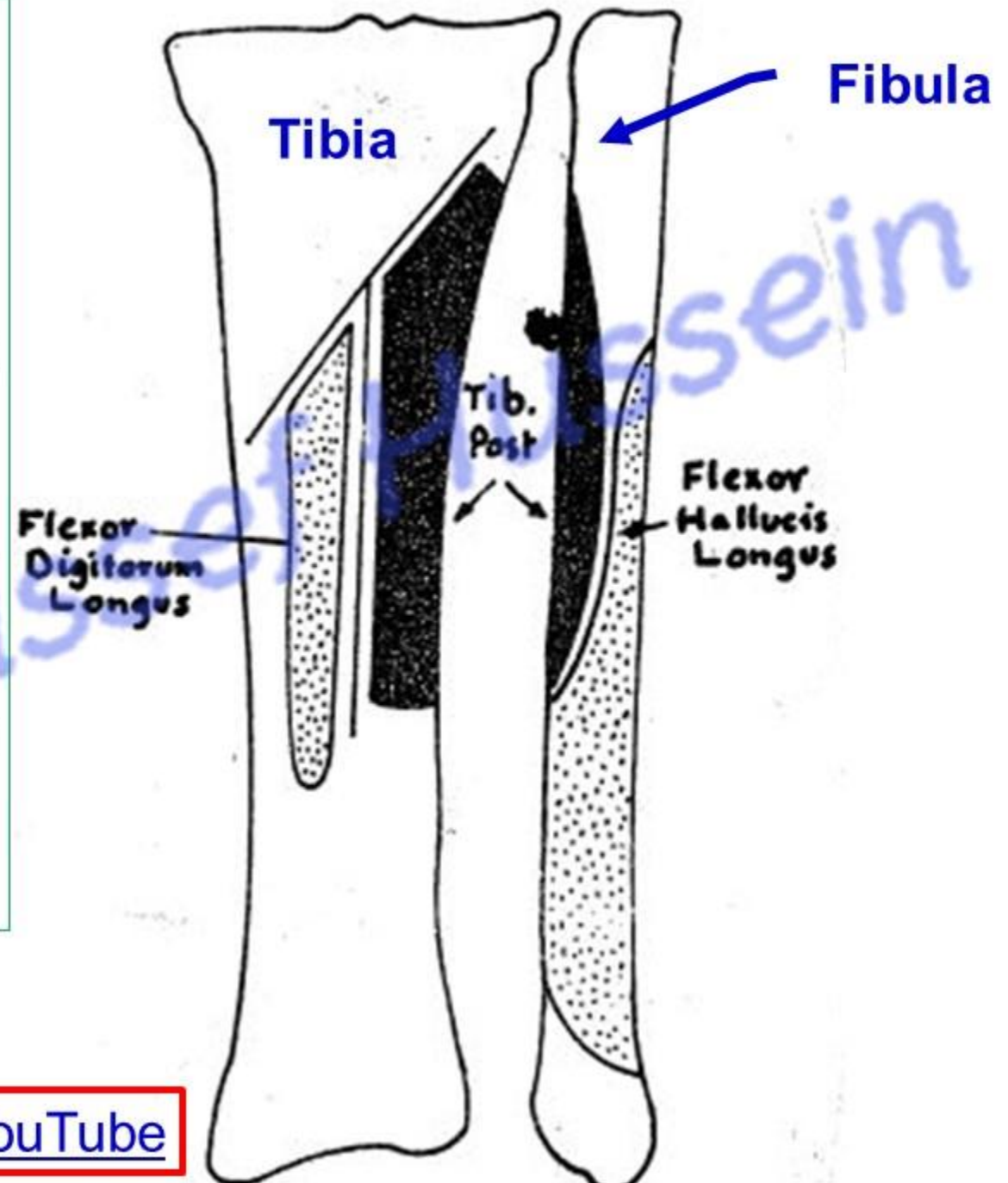
** Posterior surface of the tibia below the soleal line and medial to the vertical line.

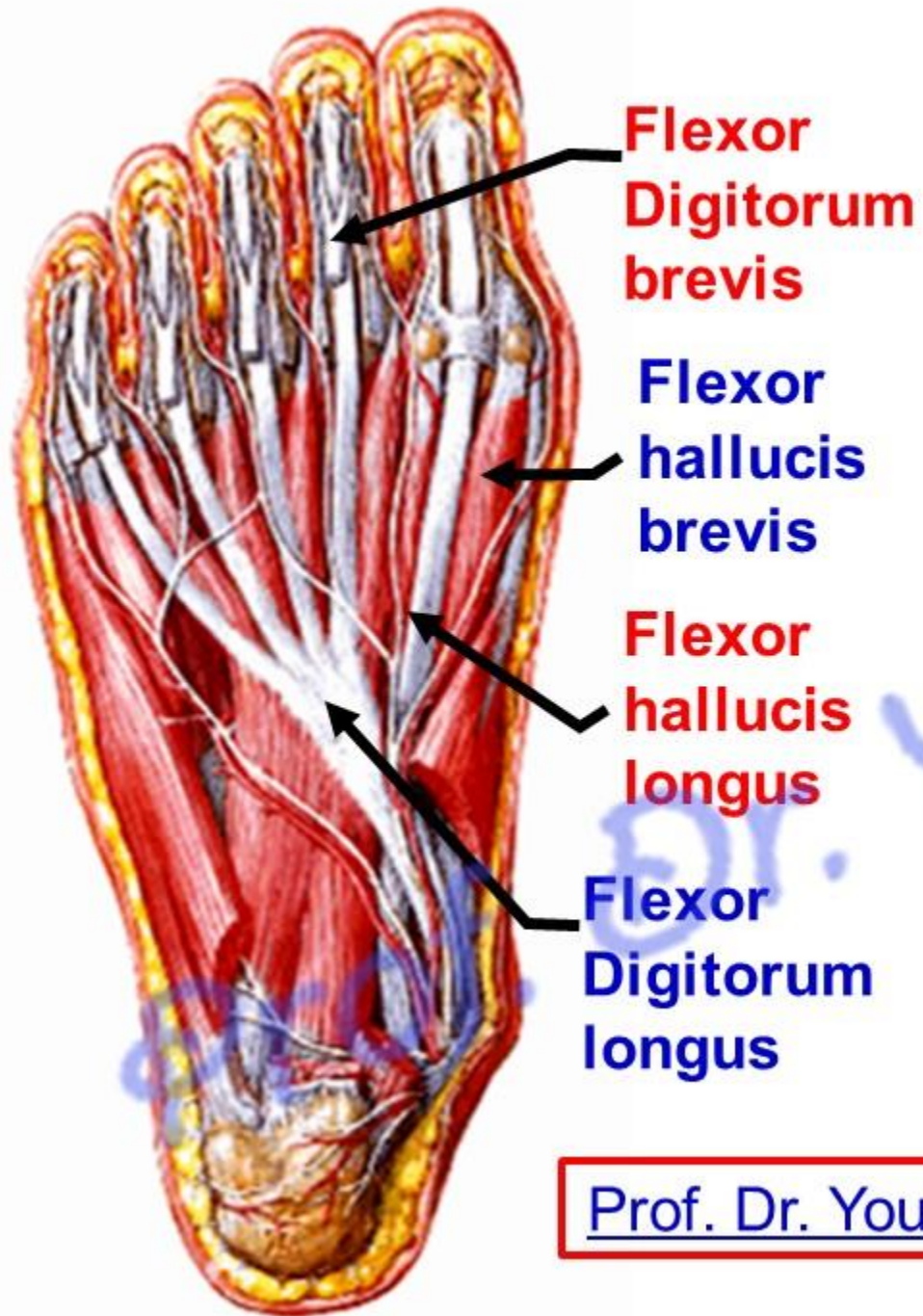
- **Origin of Flexor Hallucis Longus**

** Lower 2/3 of posterior surface of fibula lateral to the median crest.

- **Origin of Tibialis Posterior**

- 1- Posterior surface of tibia below soleal line and lateral to the vertical line
- 2- Posterior surface of fibula medial to median crest
- 3- Interosseus membrane.





- **Insertion of Flexor Hallucis Longus:** plantar surface of terminal (distal) phalanx of **the big toe (hallux)** (Flexor hallucis brevis splits into lateral and medial to allow the passage of FHL)
- **Insertion of Flexor Digitorum Longus**
 - They divide into 4 tendons which are inserted into plantar surface of the **distal (terminal) phalanges** of the **lateral 4 toes**.
 - Each tendon passing through an opening in corresponding tendon of **Flexor digitorum brevis** opposite the proximal phalanx.

- **Insertion of Tibialis Posterior**

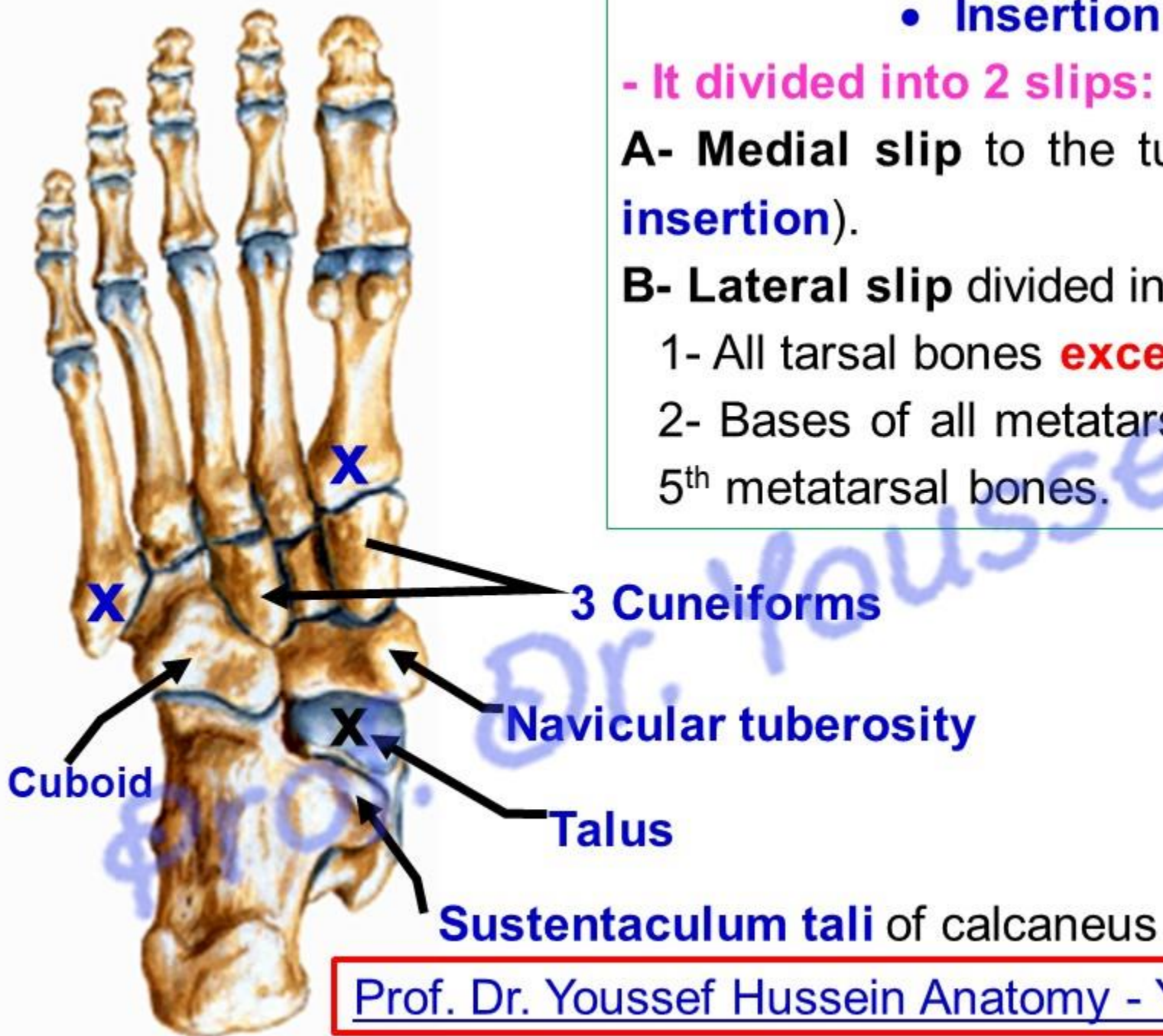
- It divided into 2 slips:

A- Medial slip to the tuberosity of navicular bone (**main insertion**).

B- Lateral slip divided into several slips to:

1- All tarsal bones **except** talus.

2- Bases of all metatarsal bones **except** the first and the 5th metatarsal bones.



- **** Actions of Flexor Hallucis Longus**

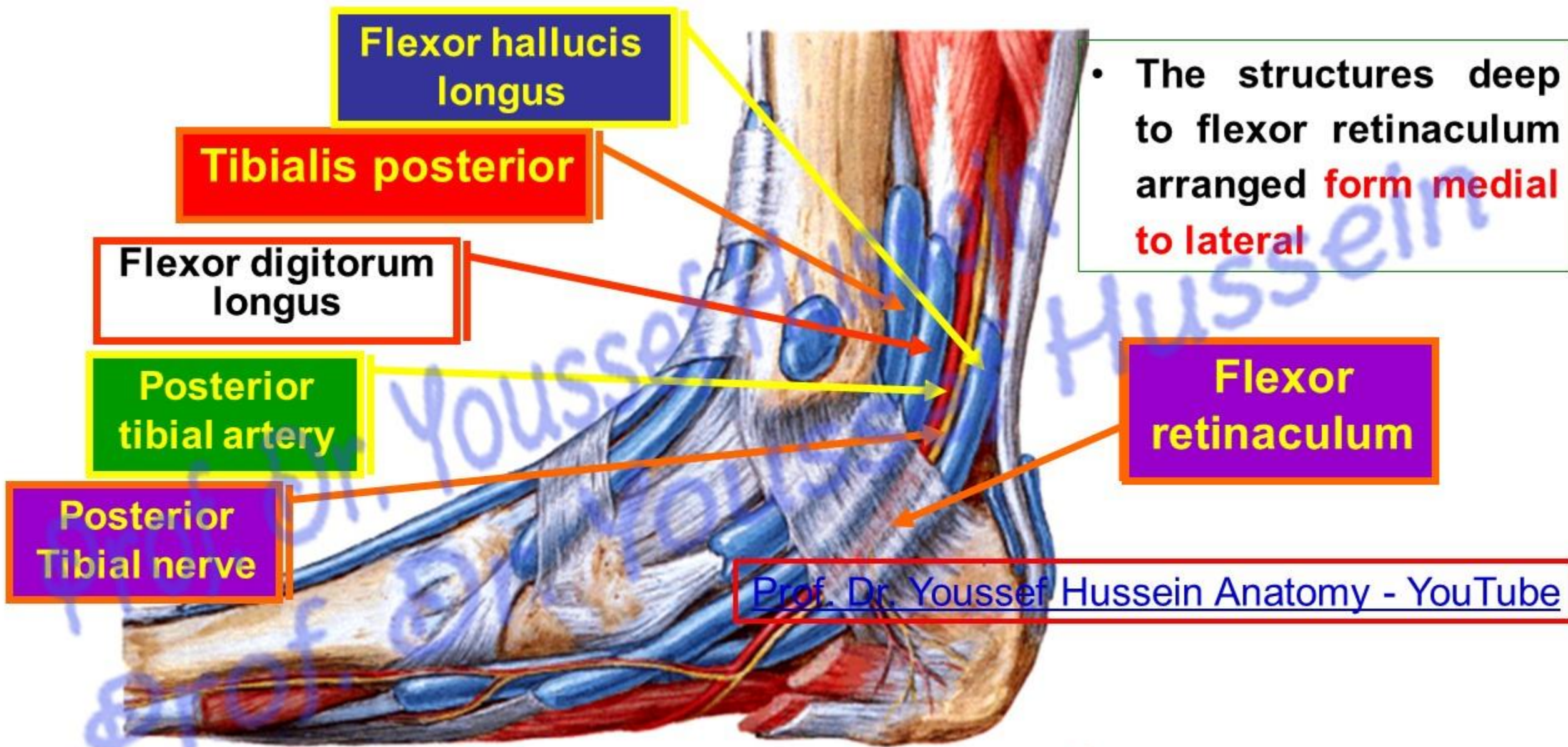
- 1- Plantar flexion of the foot.
- 2- Inversion of the foot.
- 3- Supporting the longitudinal arch of the foot
- 4- Flexion of all Joints of the big toe.

- **** Actions of Flexor Digitorum Longus**

- 1- Plantar flexion of the foot.
- 2- Inversion of the foot.
- 3- Supporting the longitudinal arch of the foot.
- 4- Flexion of all joints of the lateral 4 toes.

- **** Actions of Tibialis Posterior**

- 1- Plantar flexion of the foot.
- 2- Inversion of the foot.
- 3- Supporting the longitudinal arch of the foot.



• The structures deep to flexor retinaculum arranged from medial to lateral

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Tom

Designs

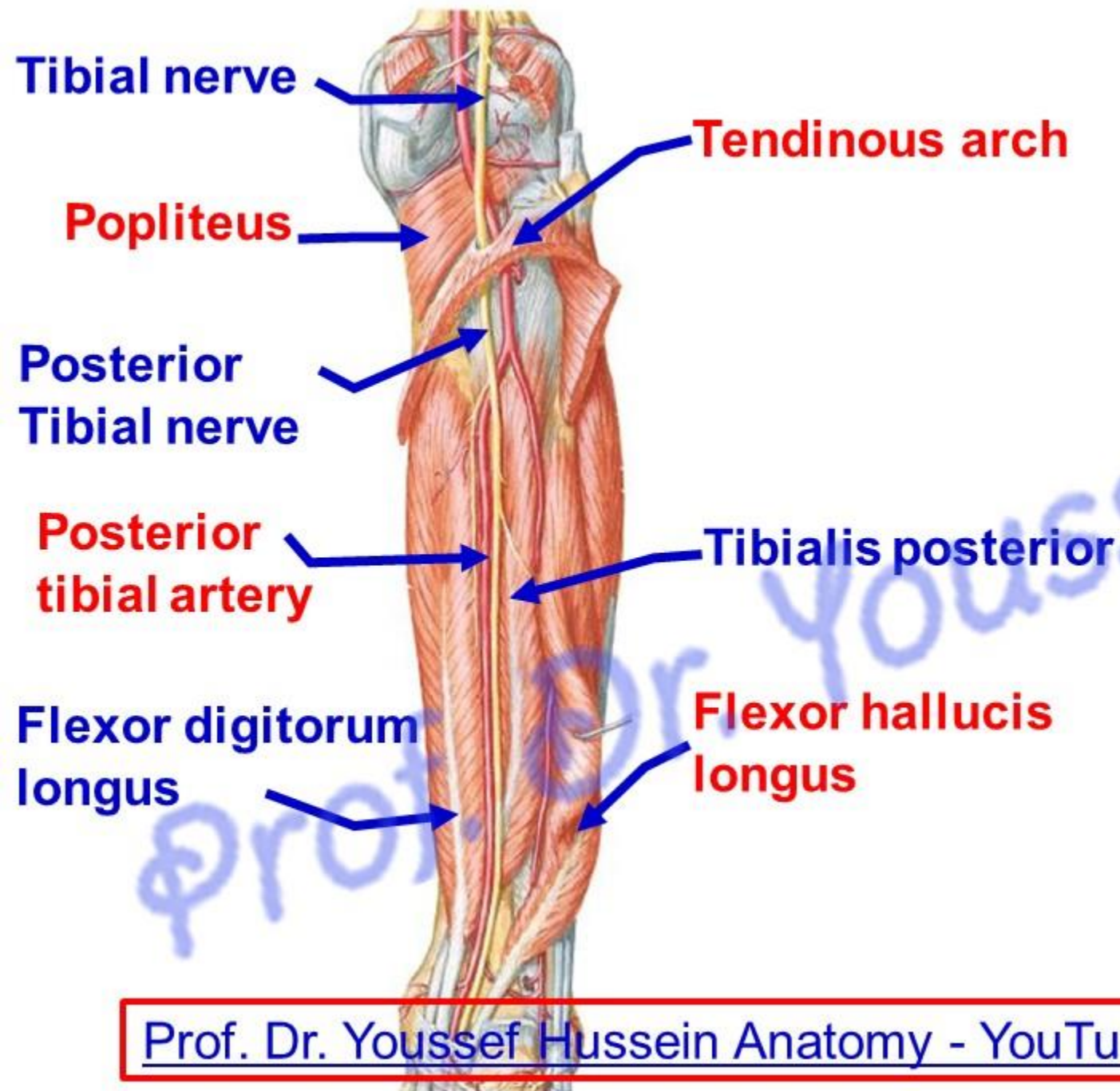
Very

Nice

House

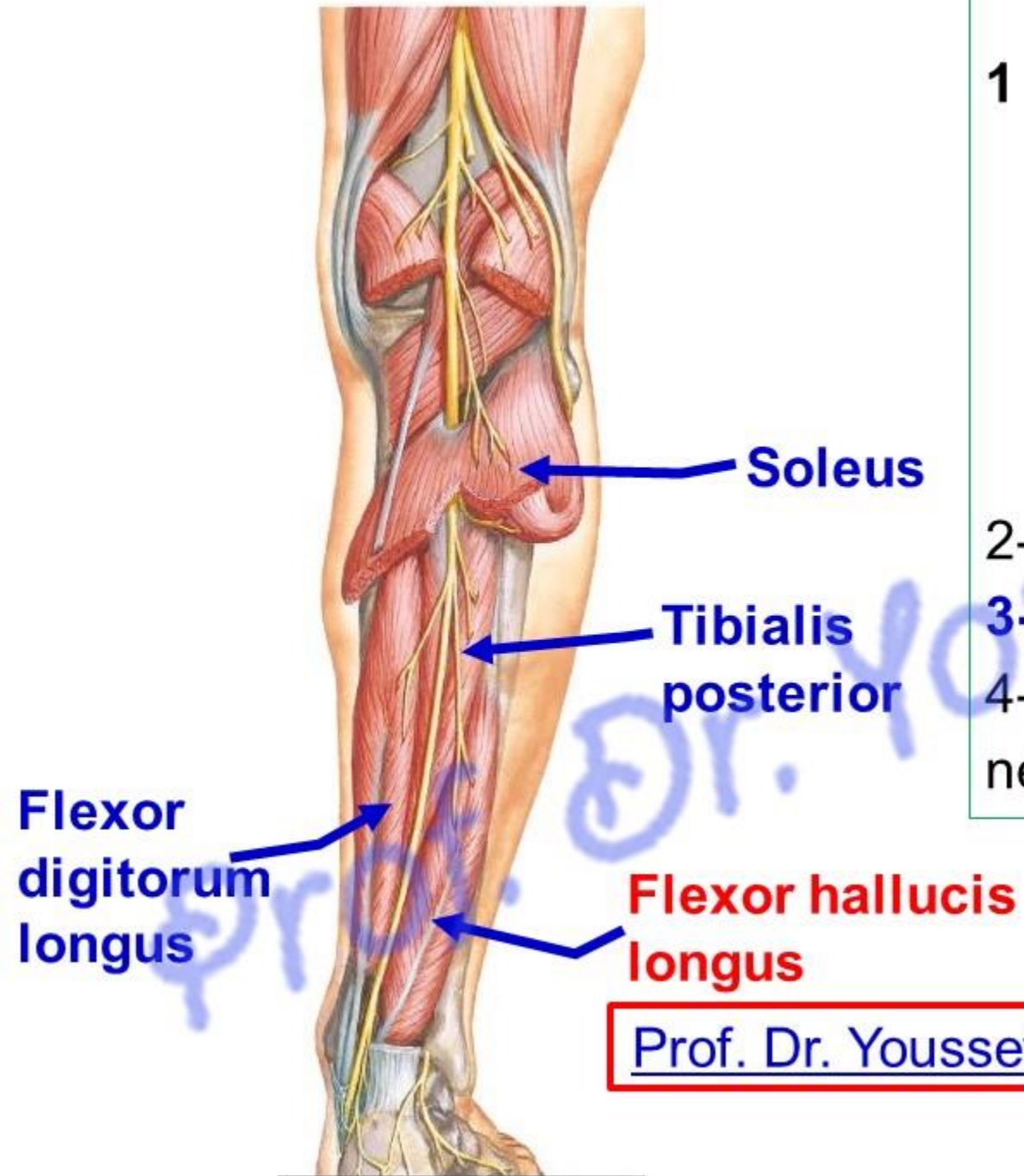


Posterior Tibial nerve



**** Posterior tibial nerve is** the continuation of tibial nerve at the **lower border of popliteus muscle.**

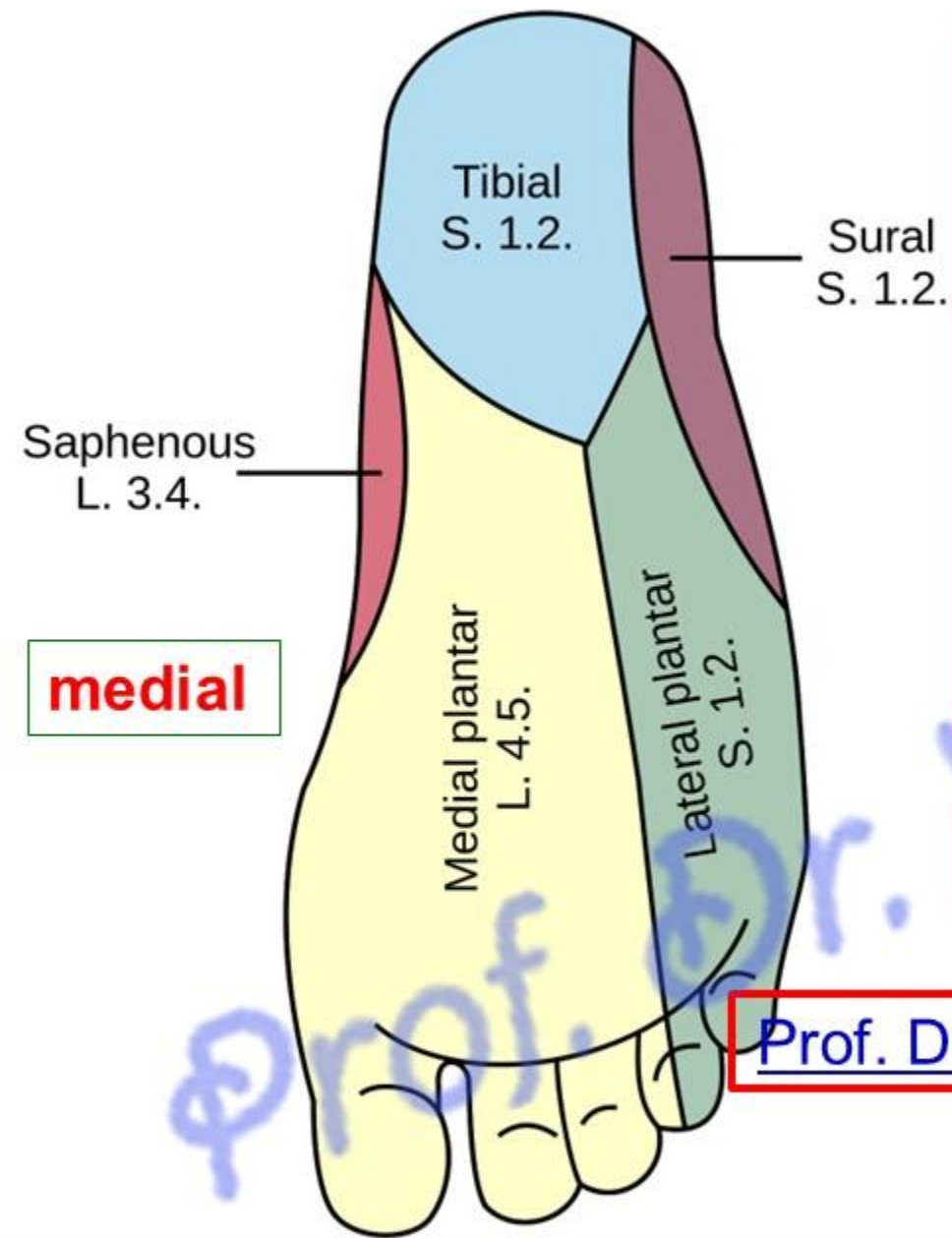
- It descends deep to **tendinous arch** of soleus muscle.
- It descends downward **with** the posterior tibial artery **between** the superficial (plantaris, gastrocnemius and soleus) and deep muscles.



**** Branches of posterior tibial nerve**

- 1 - **Muscular branches:** soleus and 3 deep;
 - a- **Soleus** through its deep surface.
 - b- **3 deep muscles,**
 - 1) Flexor hallucis longus.
 - 2) Flexor digitorum longus.
 - 3) Tibialis posterior.
- 2- **Cutaneous:** to the skin of the heel.
- 3- **Articular branch:** to the ankle joint.
- 4- **Terminal branches:** medial and lateral plantar nerves.

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• Branches of Lateral Plantar Nerve

- 1- **Muscular** to muscles of the sole of the foot
- 2- **Articular branches:** to the joints of the foot.
- 3- **Cutaneous branches** to skin of the lateral 1/3 of the sole of the foot and lateral one and half toes.

• Branches of Medial Planter Nerve

- 1- **Muscular** to muscles of the sole of the foot
- 2- **Articular branches:** to the joints of the foot.
- 3- **Cutaneous branches** to skin of the medial 2/3 of the sole and medial 3.5 toes and their nail beds.

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• **Cutaneous nerve supply of the sole of foot**

- **Injury of tibial nerve**

- The tibial nerve is **less frequently injured**.

A- Motor effects; leads to

1- Paralysis of muscles of the posterior compartment of the leg.

- **Deformity, Talipes calcaneovalgus** (dorsiflexion and eversion of the foot).

2- Paralysis of the muscles of the sole of the foot (**clawing of the toes**).

B- Sensory effects; Numbness, tingling, pain, then

1- Loss of cutaneous sensations on back of leg.

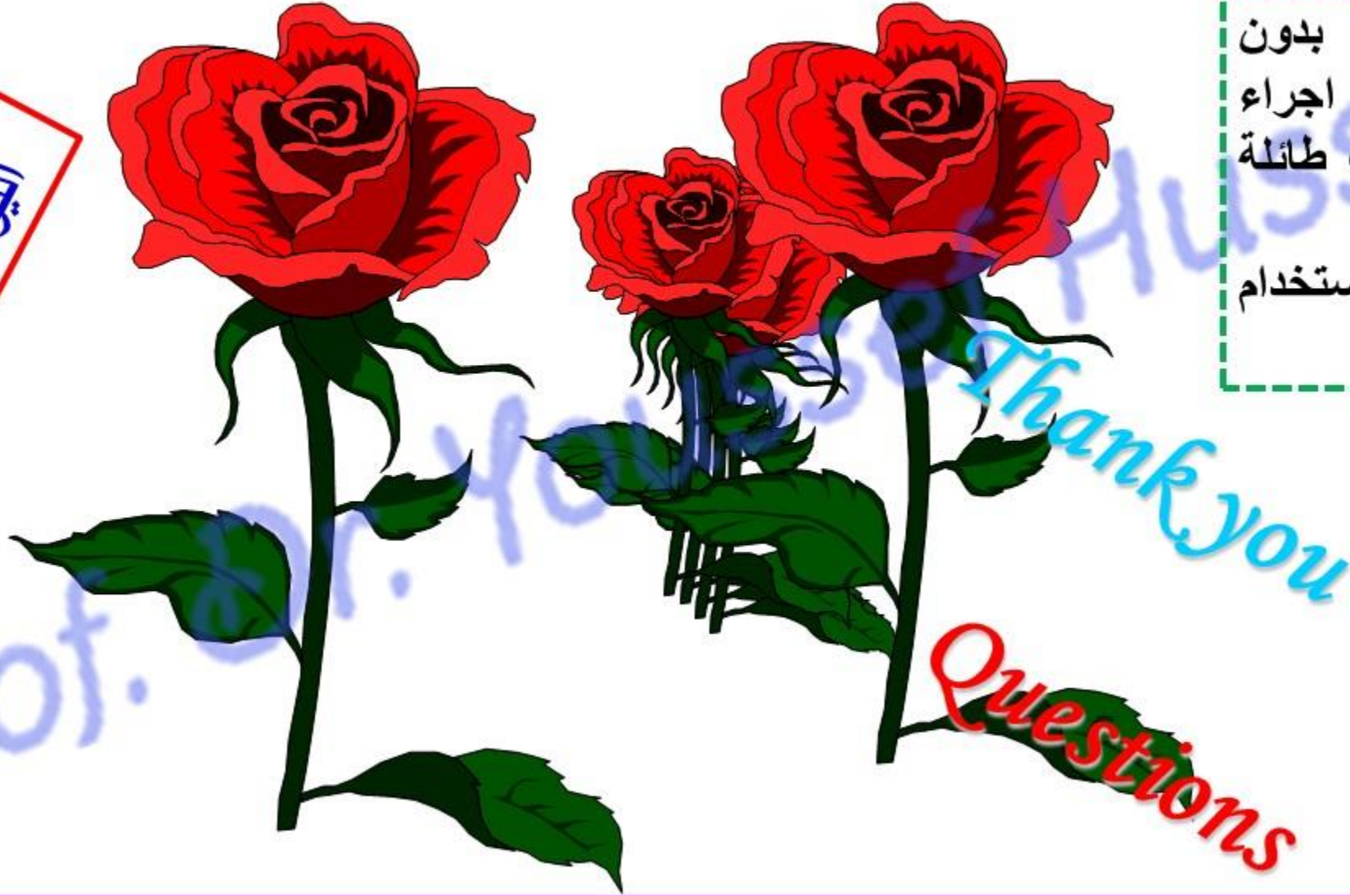
2- Loss of cutaneous sensations on sole of the foot (**trophic ulcer**).



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