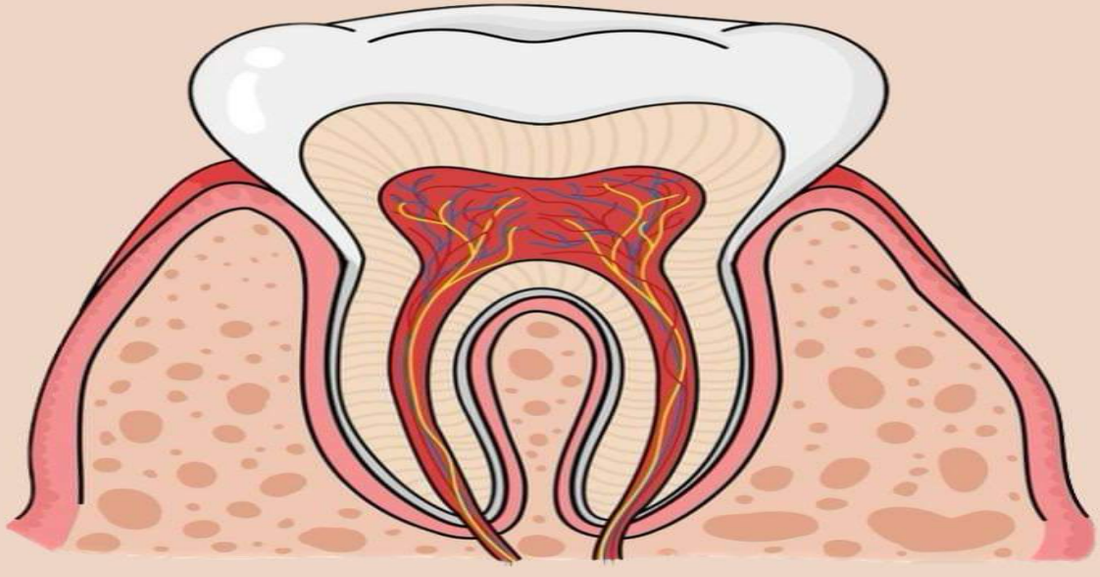
ANATOMY



LEC NO. : 8

DONE BY : Nour Al-amoush.

وَقُل رَّبِّ زِدْنِي عِلْمًا

Muscles of the Forearm (20)

في عنا اشي اسمه deep fascia بتكون على upper&lower limb بتعمل عليهم زي طبقة على شكل دائرة و بتعمل فاصل الى anterior & posterior

- Muscles in this group that act on the wrist (المعصم), hand and digits are known as **extrinsic muscles of the hand** because they originate *outside* the hand and *insert* within it. Intrinsic من الداخل
- Based on location and function, these muscles are divided into:
- (1) **Anterior compartment** (flexors – medial epicondyle) Most of them — Origin — fingers رايحة على & carpal tunnel
- (2) **posterior compartment** (extensors – lateral epicondyle) Origin
- The tendons of these muscles **that continue** into the hand are held close to the bones at **wrist** by strong fascial bands called **flexor** (Anterior) **and extensor retinaculum** (Posterior). ligaments هو يلي بثبتهم

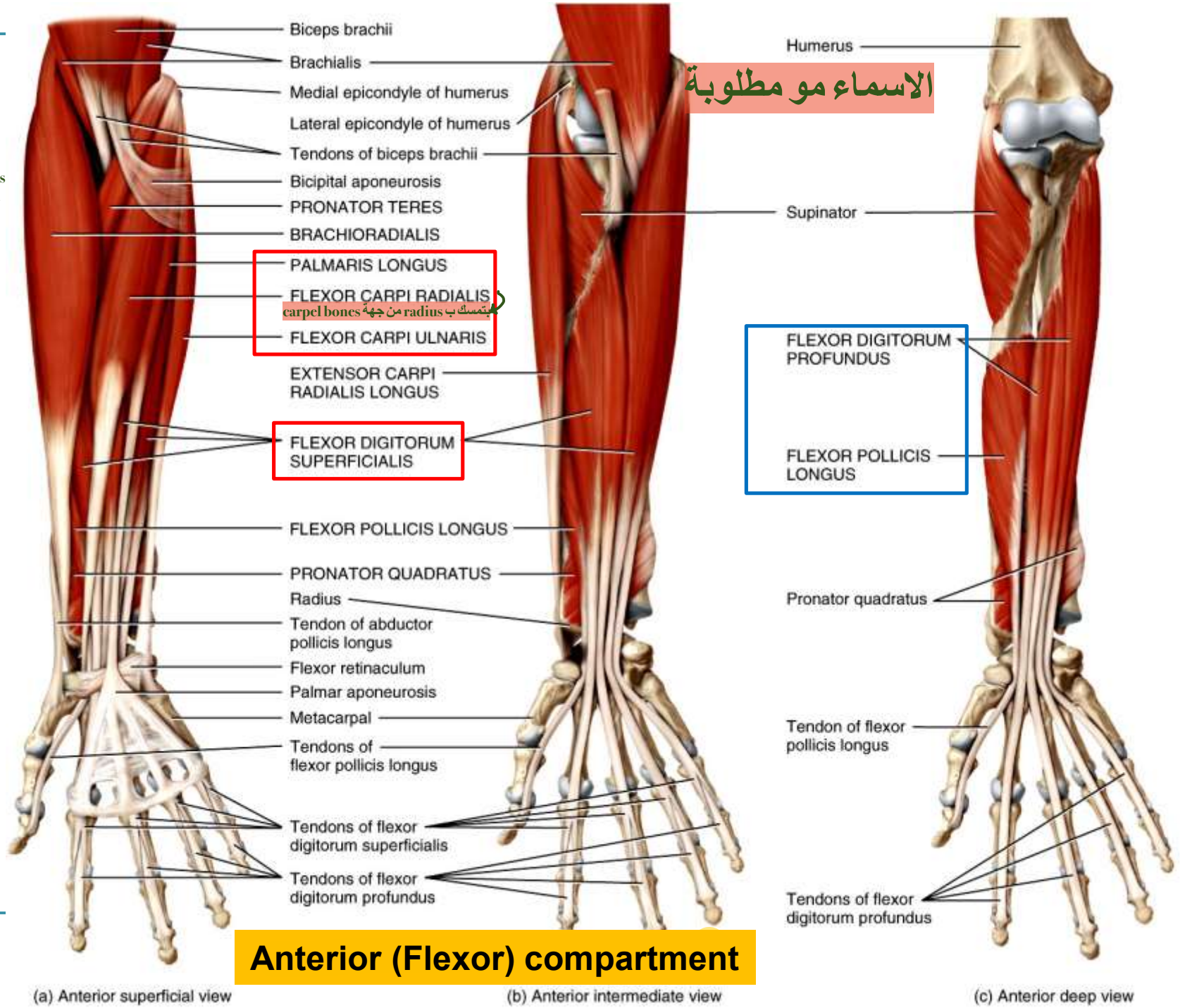
- Some muscles in the forearm act on the forearm, like the Another group

Supinator – Pronator Quadratus - Pronator teres

supination بتعمل — pronation بيعملوا

Compartment	Muscles
Anterior (Flexor) compartment Medial epicondyle	**Flexor carpi radialis (Pulse)** Palmaris longus Flexor carpi ulnaris Flexor digitorum superficialis من الاصابع Flexor pollicis longus Thumb = polics Flexor digitorum profundus ….
Lateral epicondyle Posterior (Extensor) compartment **Tennis elbow**	Extensor carpi radialis longus (brevis) Extensor digitorum Extensor carpi ulnaris. Abductor pollicis longus (brevis) Extensor pollicis longus Extensor indicis. From indics …….

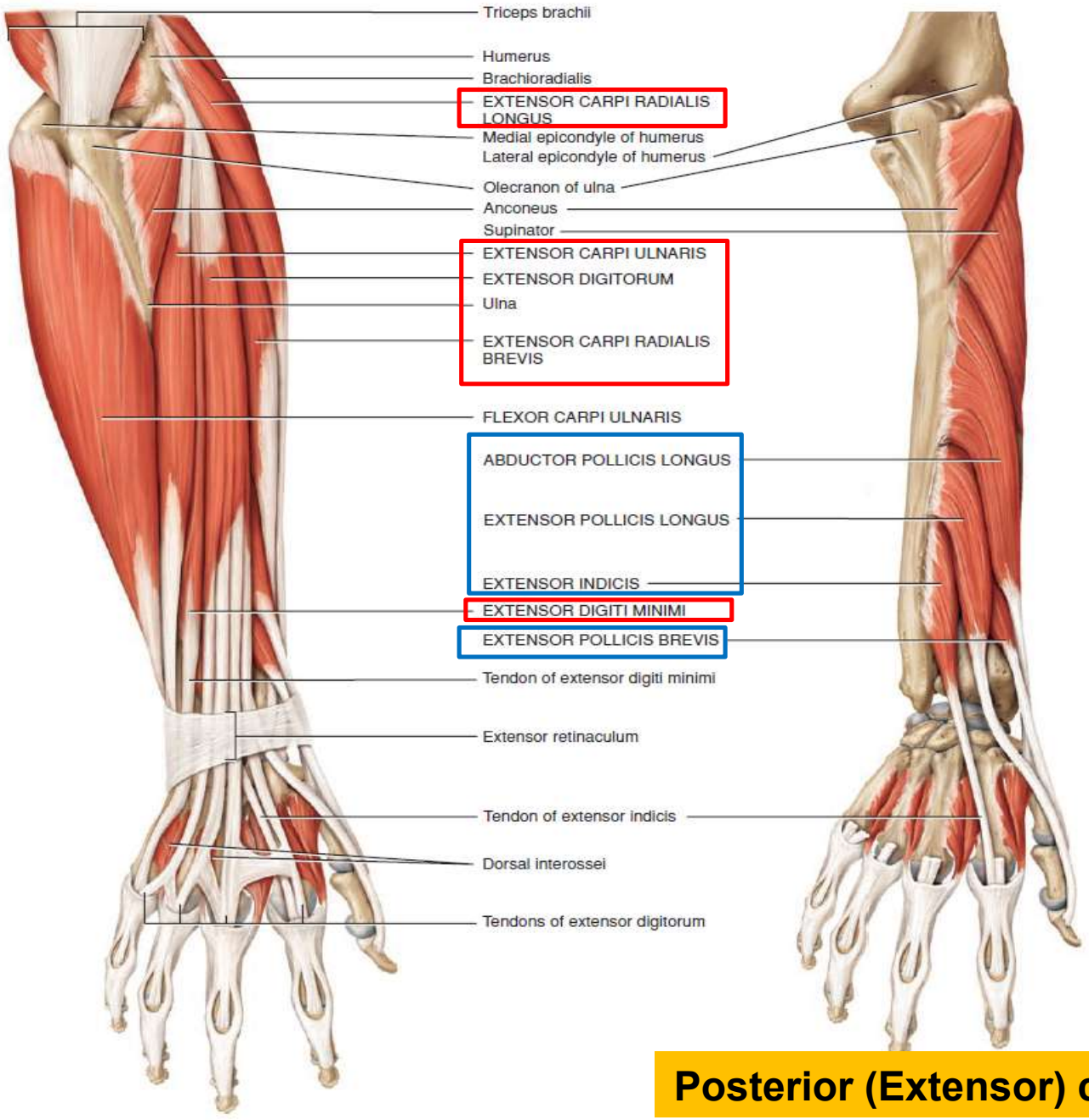
Arteries they are normally deep
But in some regions they are superficial such as in radial pulse



الاسماء مو مطلوبة

بتمسك ب radius من جهة carpel bones

Anterior (Flexor) compartment



(d) Posterior superficial view

(e) Posterior deep view

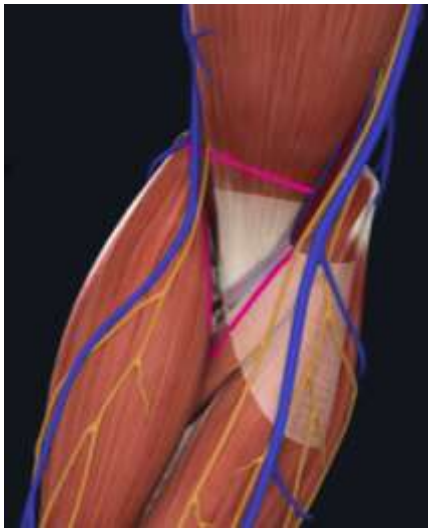
Posterior (Extensor) compartment

Cubital Fossa

cubital fossa is the area connecting arm & forearm
anterior aspect of elbow
Contains vein & artery

- The elbow is the area connecting the arm with the forearm
- The cubital fossa is **a triangular depression that lies in the anterior aspect of the elbow**

بهمك تعرف منها اسمها
وبعدين انه في
bicipital



Bicipital aponeurosis

- In the cubital fossa, the **median cubital vein** is separated from the underlying brachial artery by the bicipital aponeurosis. صفاق
- This is important because the aponeurosis protects the **brachial artery** from the mistaken introduction of irritating drugs that should have been injected into the vein.
- It also protects **median nerve** from injuries

Intrinsic Muscles of the Hand (19)

Origin & insertion inside the hand جهة على thumb, little

Their function

- Produce weak but precise movements.

بتعمل الحركات يلي ما بدها قوة مثل تكتب القلم او ترسم او تطبع او تمسك اشي ما بدنا قوة بس بدنا عضلة بسيطة مسؤولة عن الحركة مثلاً لما اكون حامل شنتة هي يلي بتعمل support

Writing - Typing - Playing a piano – Pincer-like action.

- Split into 3 groups:.

بس نحفظهم as groups
مش مطلوب حفظ العضلات

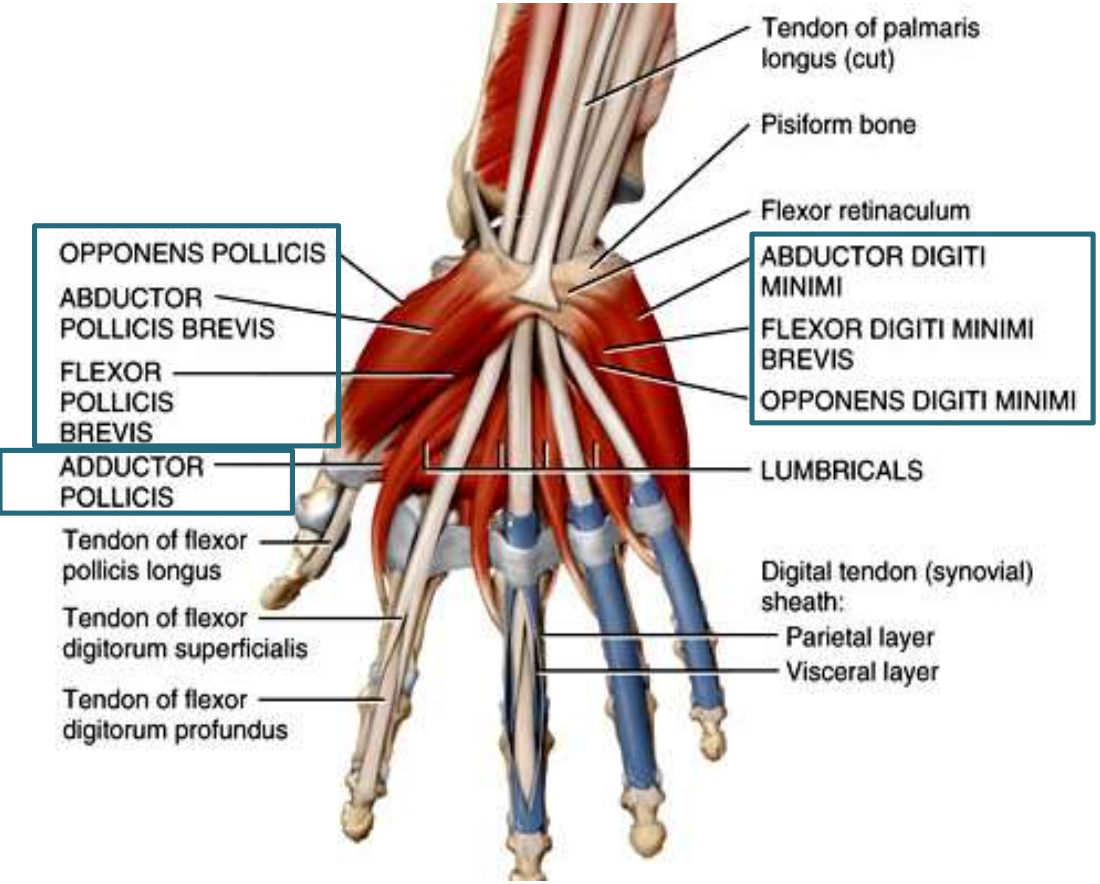
الفرق بين intrinsic & extrinsic
اول اشي انه الintrinsic بيعملوا حركات معينة للاصابع
و عضلاتها صغيرة مقارنةً ب extinsic

1. The intermediate group (12) includes
   - **A. The lumbricals** (4):
   - **B. The palmer interossei** (4): adduct the fingers towards the middle finger.

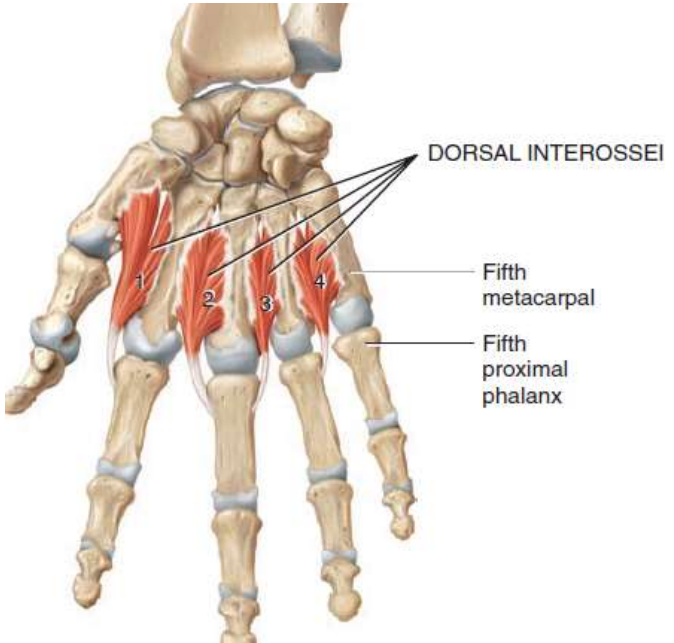
Between 2 bones

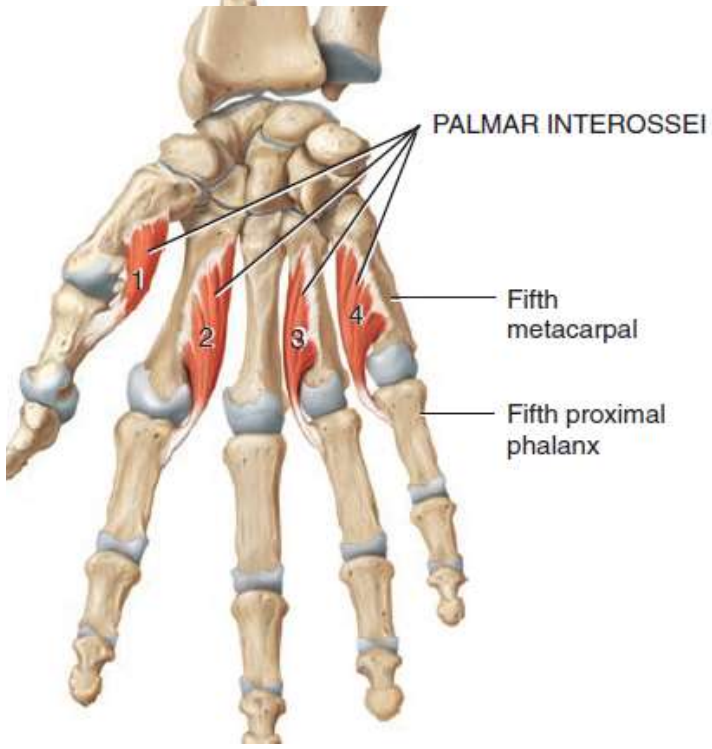
   - **C. The dorsal interossei** (4): abduct the fingers away from the middle finger.
2. The thenar muscles plus the adductor pollicis form the **thenar eminence.** These produce the various movements of the thumb (**Pollex**).
3. Hypothenar muscles act on the little finger and form the **hypothenar eminence.**

ارتفاع


Tendon of palmaris longus (cut)
Pisiform bone
Flexor retinaculum
OPPONENS POLLICIS
ABDUCTOR POLLICIS BREVIS
FLEXOR POLLICIS BREVIS
ADDUCTOR POLLICIS
ABDUCTOR DIGITI MINIMI
FLEXOR DIGITI MINIMI BREVIS
OPPONENS DIGITI MINIMI
LUMBRICALS
Tendon of flexor pollicis longus
Tendon of flexor digitorum superficialis
Tendon of flexor digitorum profundus
Digital tendon (synovial) sheath:
Parietal layer
Visceral layer


Flexion
Extension
Abduction
Adduction
Opposition


DORSAL INTEROSSEI
1
2
3
4
Fifth metacarpal
Fifth proximal phalanx


PALMAR INTEROSSEI
1
2
3
4
Fifth metacarpal
Fifth proximal phalanx

Muscles Of The Lower Limb

جزئية joints تركها د جهاد لـ د هبة

بنعرف انه muscle بتشتغل على اكتر من joint بس واحد بكون main

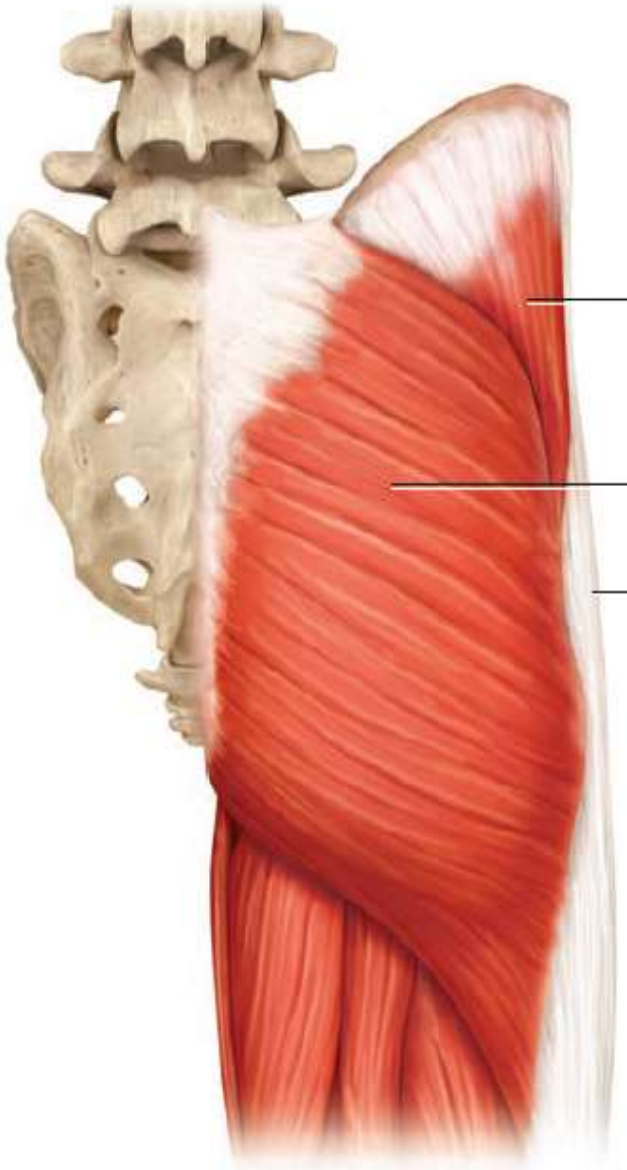
- Larger and powerful than upper limb هون function بكون على ال2 joints نفسه
- Lower limb muscles function in stability, locomotion التحرك, and maintenance of posture. In contrast, upper limb muscles are characterized by versatility of movement.
- Muscles of the lower limbs often cross two joints and can act equally on both.
- Most muscles that move the femur originate on the pelvic girdle and insert on the femur. Hip joint

Muscles of the Gluteal region (Buttocks)

منطقة الورك

عددهم ٩ تقريبًا منهم ٣-١ مهم جدًا

Muscle	Action	Notes
Gluteus maximus ① جاي من الوسط و رايحة على femur	Powerful Extensor of the femur, thigh, hip	With fat forms the buttocks
Gluteus Medius (IM) ② جاية من hip bone الى منطقة femur	Powerful Abductor بترفع الlower limb لاعلى	الهم function ب الحركة لما نمشي بصير ميلان Tilts pelvis when walking to permit opposite leg to clear ground initiating walking
Gluteus minimus ③	Abduct thigh	كلهم نفس المعنى Thigh=hip=femur
Tensor fasciae latae ④ مو مهمة كثير	Assists gluteus maximus in extending knee	Insert into Iliotibial tract (ilium, Tibia)
Piriformis ⑤	Lateral rotators of the thigh جايين من الخلف و عاملين على insertion على greater trochanter	Between these two muscles is a small space through which pass the Sciatic nerve (The largest nerve. عصب رئيسي خارج من spinal cord و بروح على المنطقة الخلفية ليغذي lower limb بهمنا نعرفه بوقت اعطاء الابر بالعضل ف باخد upper outer quadrant عشان اعمل gluteus medius ب injection)
Gemellus superior ⑥		
Obturator internus ⑦		
Gemellus inferior ⑧		
Quadratus femoris ⑨		



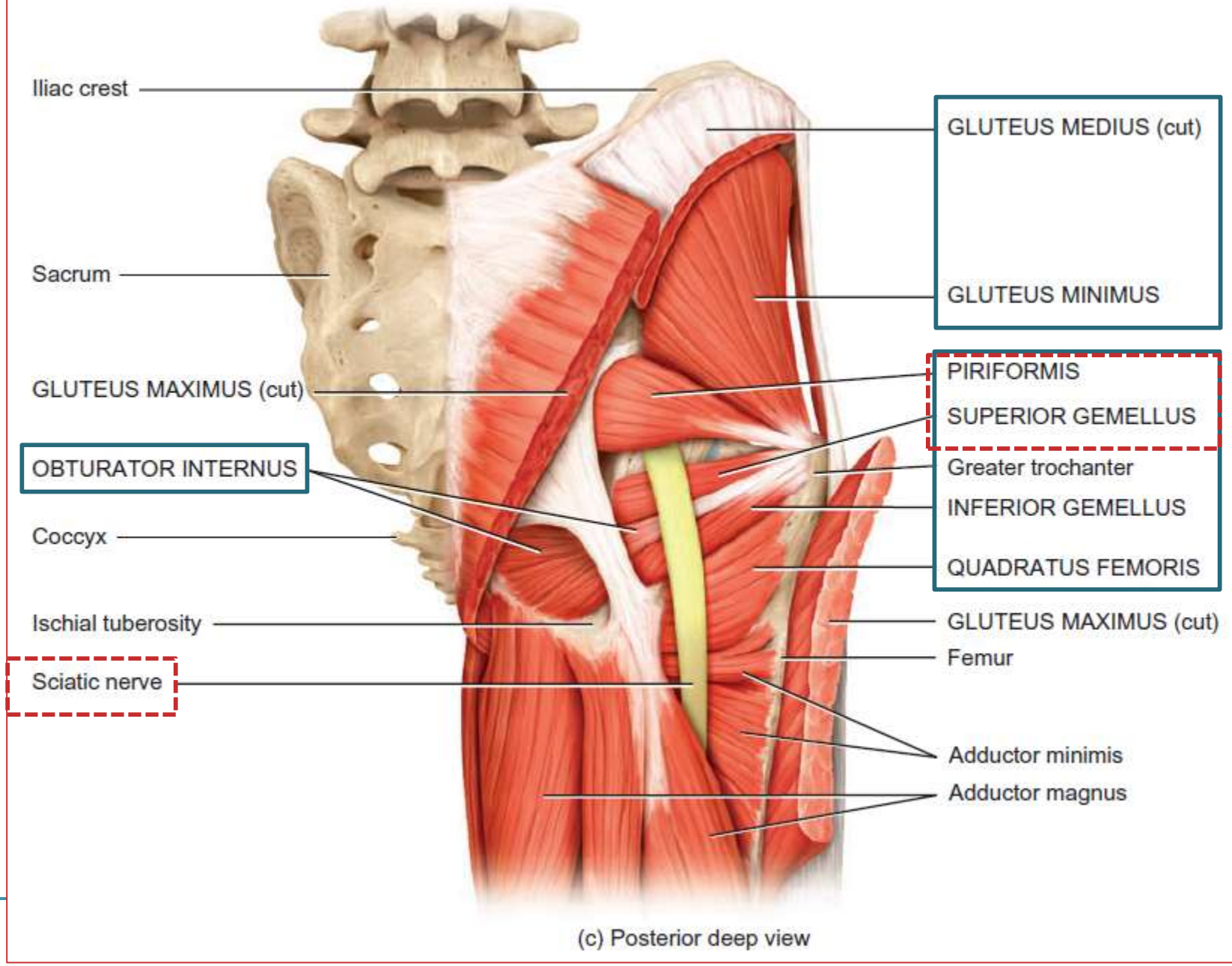
(b) Posterior superficial view

Powerful Abductor of thigh

Main Chief extensor of the femur

Medial > lateral

اذا كنت عامل للامام ف هي جاية من الخلف للامام



(c) Posterior deep view

Main muscles of the Thigh

منطقة الفخذ

الخط بين anterior superior iliac spine و pupic tubercal هو يلي بفصل بين

Three fascial septa فواصل pass from the inner aspect of the deep fascial sheath of the thigh to the **linea aspera** of the femur divide them into:

1. Anterior Compartment:

بسموها عضلة الخياطين او لما تقعد نتربع او رجل على رجل

- Sartorius **(flex thigh & flex knee)** جاي من anterior superior iliac spine للtibia حاية من الاعلى للاسفل على نفس diameter تاعها
- Quadriceps femoris (4 muscles): **main extensor of knee also part of it flex thigh**
- **Nerve supply:** Femoral nerve

2. Medial Compartment: (adductors of thigh) Adduction of thigh

Group of muscles exist at medial

Antagonist of meduis& minimus

- Gracilis, adductor longus, adductor brevis, adductor magnus
- **Nerve supply:** Obturator nerve medially جاي

3. Posterior Compartment: (extend thigh & flex knee)

Antagonist عكس anterior

- **Hamstring muscles:** (1- Biceps femoris 2- Semitendinosus 3- Semimembranosus)

From hip bone to tibia

upper limp جاي عكس

العضلة نصفها tendon و النصف الاخر muscle

Half is a muscle, the other one is membrane

- **Nerve supply**: Sciatic nerve

The longest nerve

Anterior compartment of the thigh is divided into 2 triangles by the Sartorius muscle

تقسم الanterior compartment الى upper&lower t
triangular area

The **Sartorius (cross-leg, tailor's)** is the longest muscle in the body. It originates from the anterior superior iliac spine and is inserted into the medial surface of the upper part of tibia. **It flexes, abduct and laterally rotates the thigh, it also flexes the leg**

Upper triangular

- **Above the Sartorius**: **Iliacus and Psoas major (iliopsoas muscle) main flexor of** thigh (waking up muscle).

بيعملوا insertion بنفس النقطة

Action Hip joint

لما تصحى من النوم بترفع ظهرك ف بصيرلها contraction
Flexion of the trunk

Lower triangular

- **Below the Sartorius: Quadriceps femoris** is formed of:

مستقيم جاية من hip اما الباقي من femur

1) Rectus femoris 2) Vastus medialis 3) Vastus intermedius 4) Vastus lateralis. **All extend knee (main extensor) and Rectus femoris flex thigh**

Action

عكس sartorius

- The tendon of the quadriceps inserts into the patella.

4 muscles will unite in this tendon

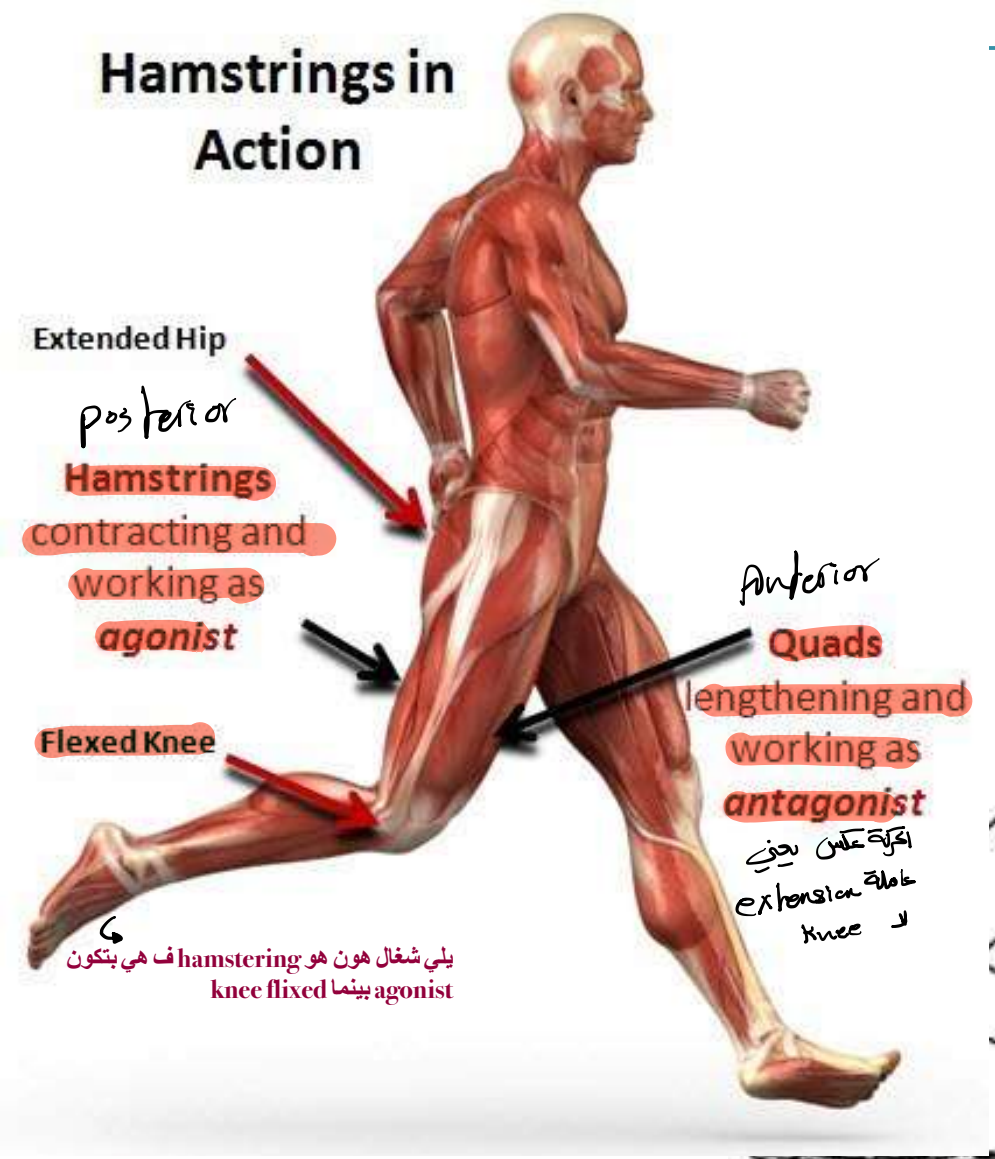
- The patellar ligament arises from the apex of the patella and inserts into the tibial tuberosity.

Origin

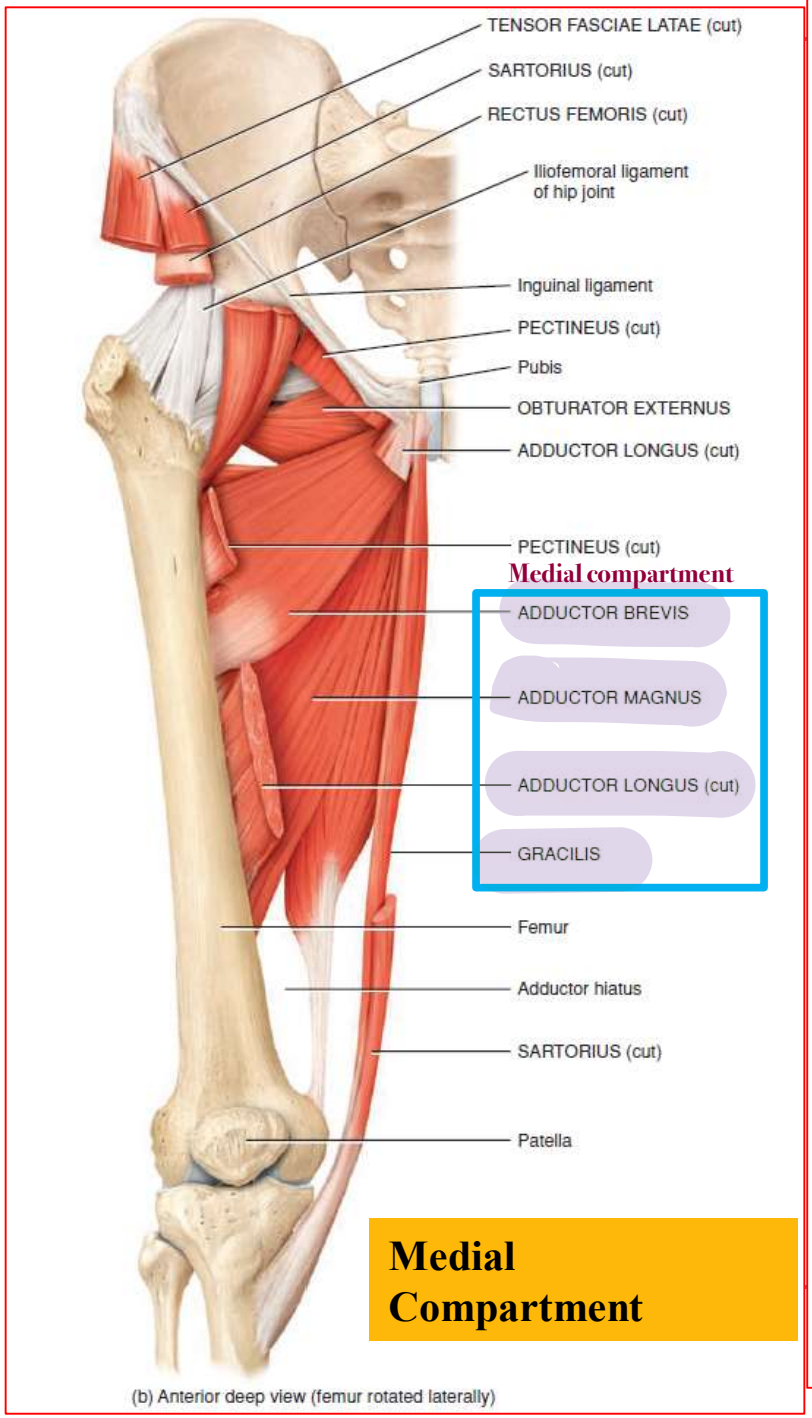
بكمل من patella بروح على tibial tuberosity

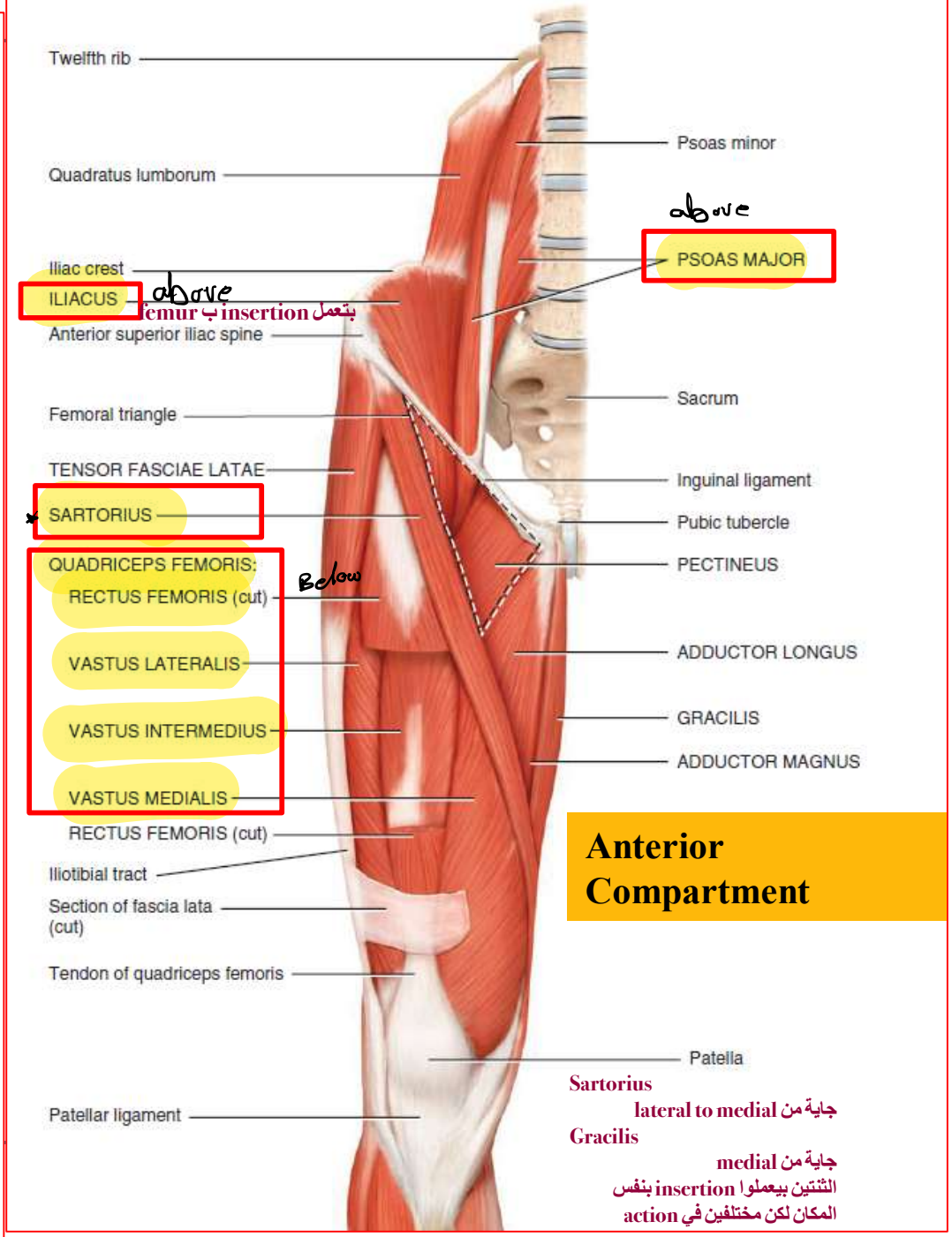
When the tendon between patella & tibia = ligament

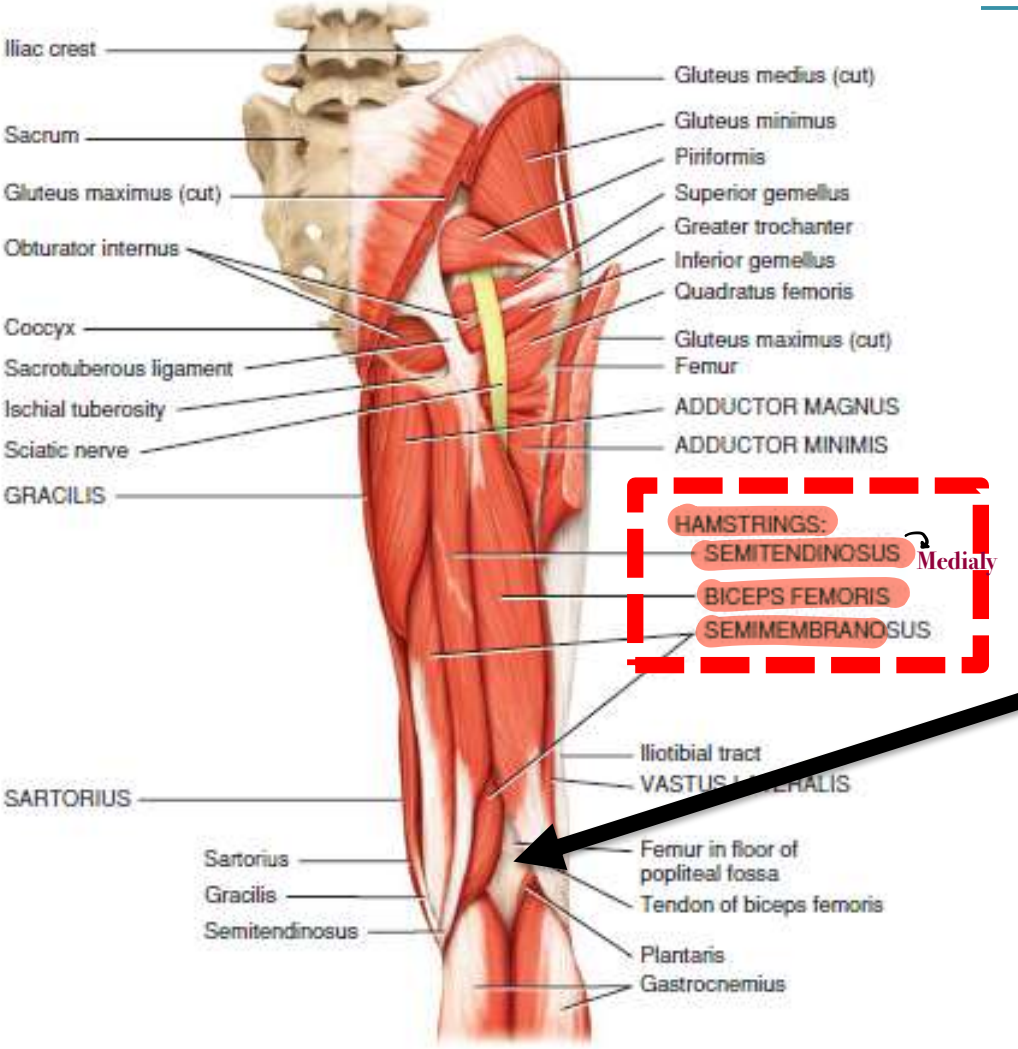
Hamstrings in Action



يلي شغال هون هو hamstering ف هي بتكون knee flixed بينما agonist


TENSOR FASCIAE LATAE (cut)
SARTORIUS (cut)
RECTUS FEMORIS (cut)
Iliofemoral ligament of hip joint
Inguinal ligament
PECTINEUS (cut)
Pubis
OBTURATOR EXTERNUS
ADDUCTOR LONGUS (cut)
PECTINEUS (cut)
Medial compartment
ADDUCTOR BREVIS
ADDUCTOR MAGNUS
ADDUCTOR LONGUS (cut)
GRACILIS
Femur
Adductor hiatus
SARTORIUS (cut)
Patella
Medial Compartment
(b) Anterior deep view (femur rotated laterally)


Twelfth rib
Quadratus lumborum
Iliac crest
ILIACUS
above
بتعمل insertion ب femur
Anterior superior iliac spine
Femoral triangle
TENSOR FASCIAE LATAE
SARTORIUS
QUADRICEPS FEMORIS:
RECTUS FEMORIS (cut)
VASTUS LATERALIS
VASTUS INTERMEDIUS
VASTUS MEDIALIS
RECTUS FEMORIS (cut)
Iliotibial tract
Section of fascia lata (cut)
Tendon of quadriceps femoris
Patellar ligament
Psoas minor
above
PSOAS MAJOR
Sacrum
Inguinal ligament
Pubic tubercle
PECTINEUS
Below
ADDUCTOR LONGUS
GRACILIS
ADDUCTOR MAGNUS
Patella
Anterior Compartment
Sartorius
lateral to medial جاية من
Gracilis
medial جاية من
الثنتين بيعملوا insertion بنفس
المكان لكن مختلفين في action



(d) Posterior superficial view of thigh and deep view of gluteal region

Medialy

Diamond shaped

Popliteal fossa

Behind

Posterior Compartment

Muscles of the Leg

- Leg muscles, like those of the thigh, are divided by deep fascia into three compartments: anterior, lateral, and posterior.
  - **Anterior compartment** muscles: **Dorsiflex** the foot **(e.g., tibialis anterior)**:
    Origin : leg
    Insertion: foot
    بتشتغل على ankle joint
    فقط هاي للحفظ من anterior
    كأنك واقف على كعبك
    جايين من lateral على foot
  - **Lateral compartment** muscles **Eversion** the foot. (**Peroneus longus and brevis**)
    للداخل
  - **Posterior compartment** muscles are split into two groups:

1. **Superficial group: (Calf muscles)**

تشكل بطن الساق
التلاتة حفظ
1) Gastrocnemius 2) Soleus 3) Plantaris. All share a common tendon of insertion, the calcaneal tendon (or Achilles tendon).
Insertion in calcaneuos

They Plantar flex the foot and the gastrocnemius also flexes the leg at knee.
Main action : planter flexion

2. **Deep group:** Plantar flex the foot (e.g., tibialis posterior):
فقط هاي الحفظ

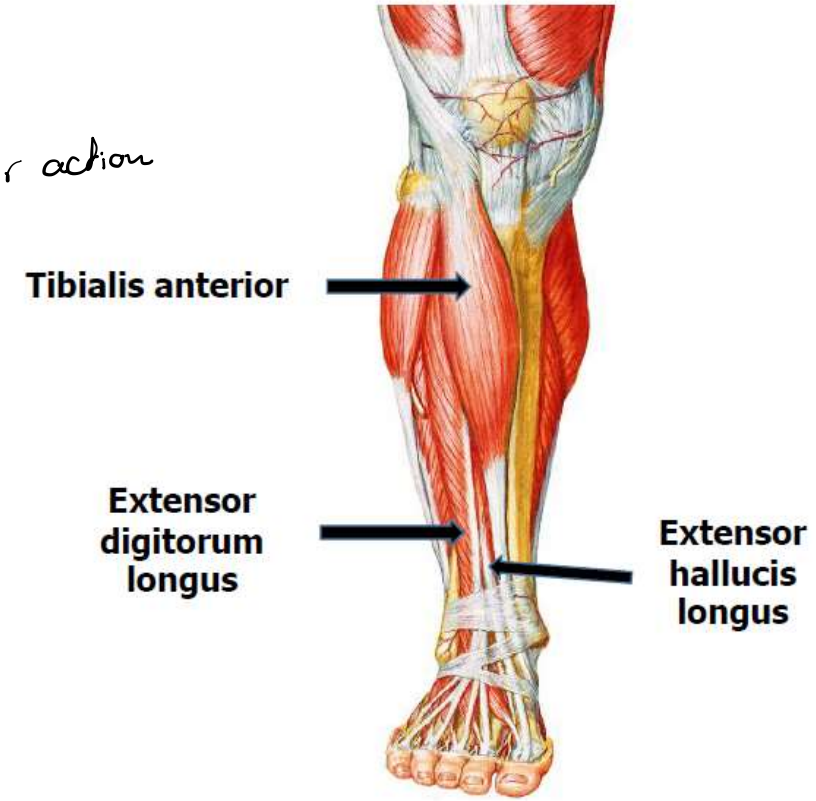
Inversion of foot by Tibialis anterior and Tibialis posterior supports medial longitudinal arch of foot

E-Muscles of Front of Leg

Nerve : anterior tibial nerve

* They include:

1. Tibialis anterior. بس هاي للحفظ ✓ + Their action
2. Extensor hallucis longus. For the big toe
3. Extensor digitorum longus. The rest toes
4. Peroneus Tertius.

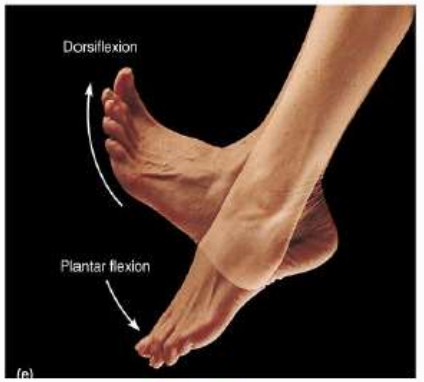


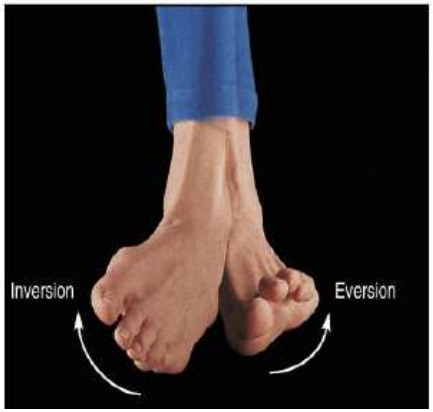
Muscles of Front of leg (contd)

* **Origin:** from front of tibia & fibula
* **Insertion:** Bones of foot.
* **Nerve supply:** Anterior tibial N.
* **Action:**

1. All muscles → Extension (dorsiflexion) of ankle joint.
2. Extensor hallucis longus → extension of big toe.
3. Extensor digitorum longus → extension of lateral 4 toes.
4. Tibialis anterior → inversion of foot.

مطلوب حفظه



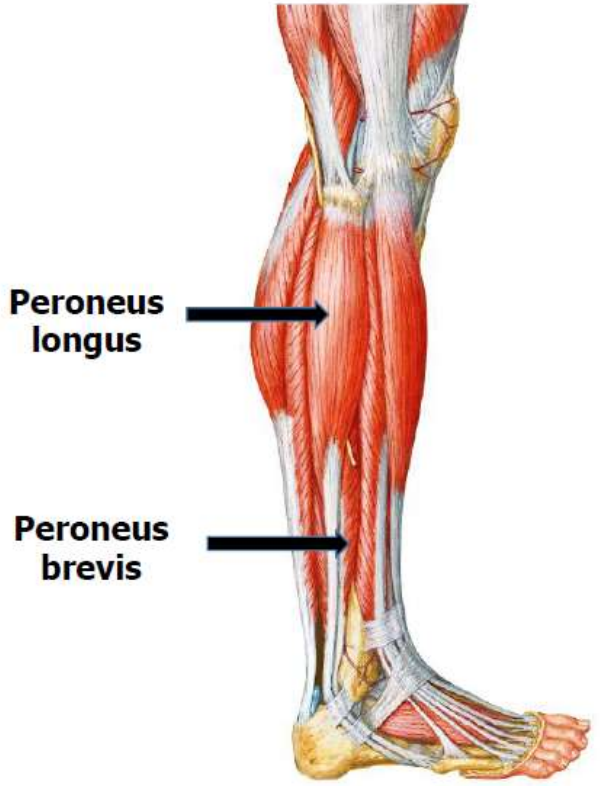


F-Muscles of Lateral side of Leg

* They include:

1. Peroneus longus.
2. Peroneus brevis.

* **Origin:** lateral surface of fibula.
* **Insertion:** Bones of foot.
* **Nerve supply:** Superficial Peroneal N.
* **Action:** Eversion of foot.



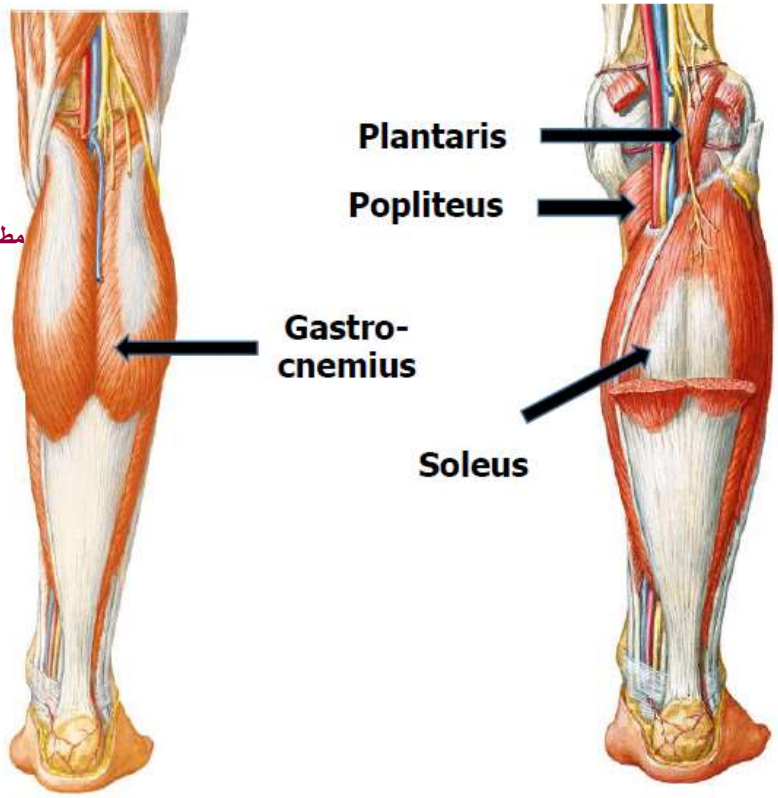
G-Muscles of Back of Leg

* They include:

A. Superficial Group:

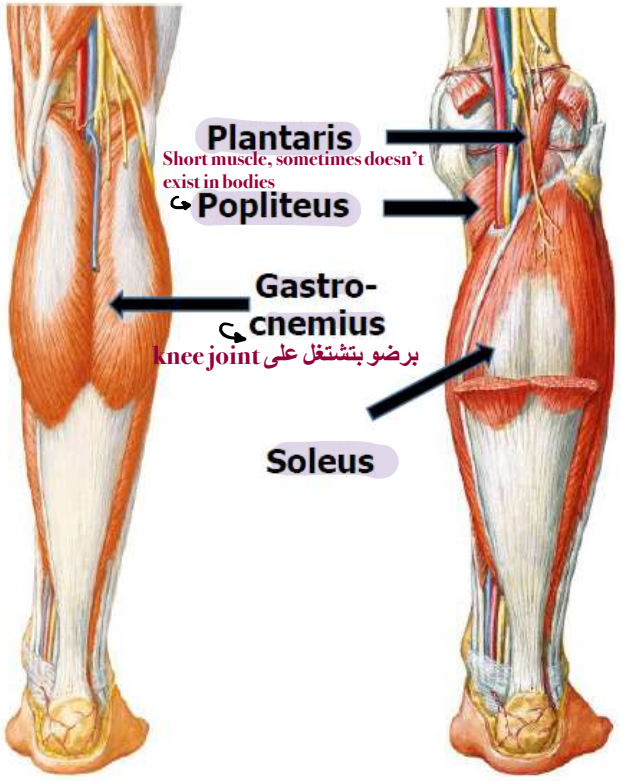
1. Gastrocnemius.
2. Soleus.
3. Plantaris.
4. Popliteus.

مطلوبين كلهم حفظ



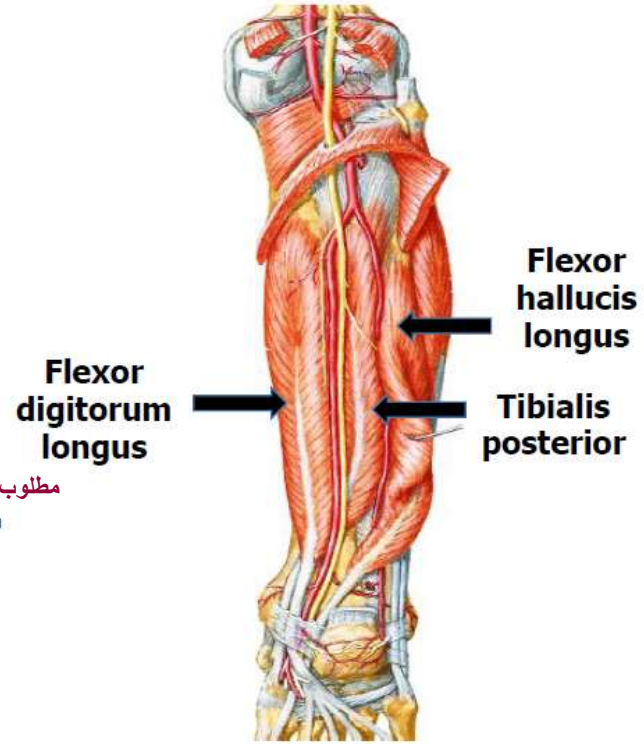
A. Superficial Group

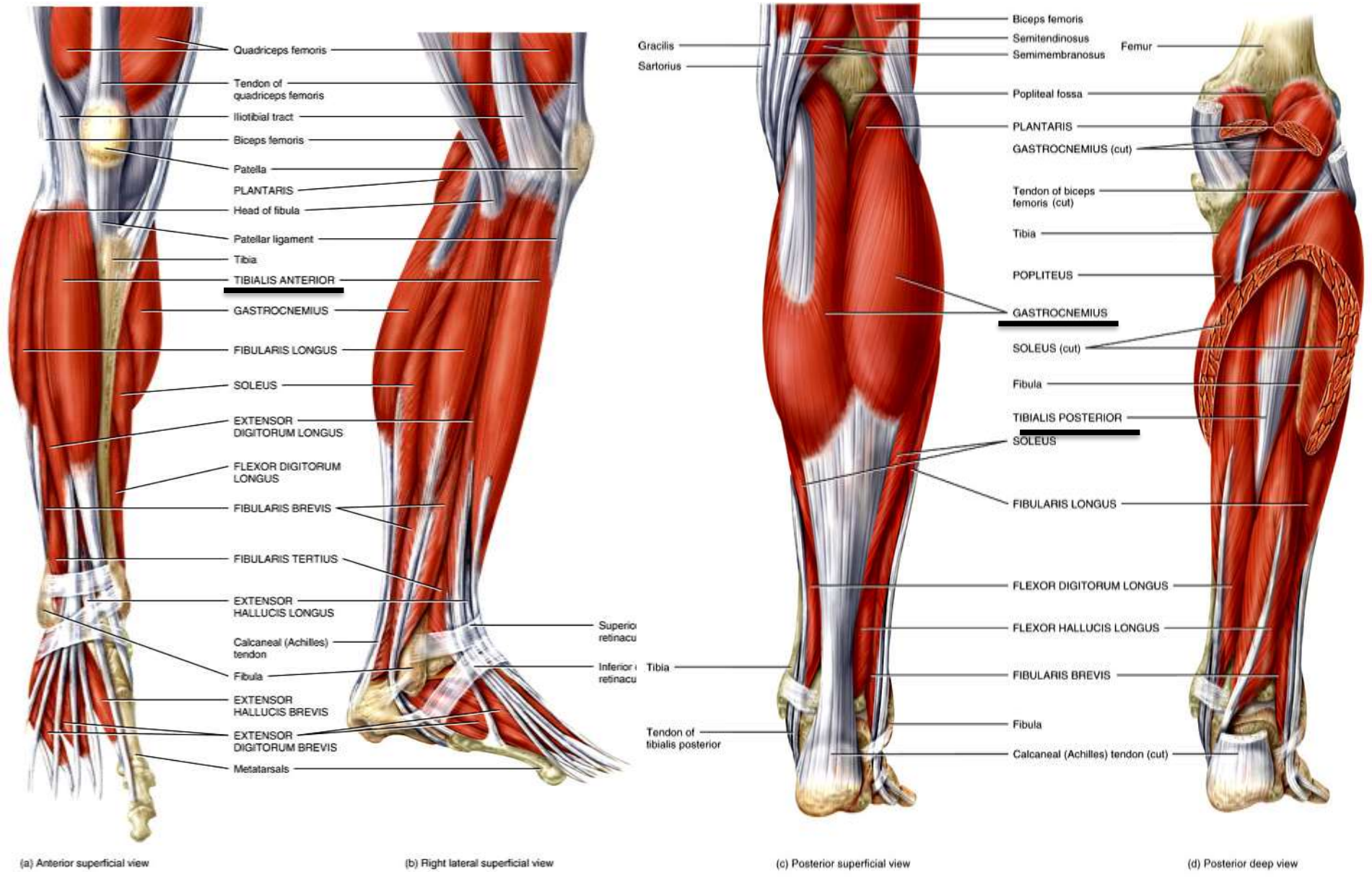
* **Origin:** from femur except soleus which takes origin from back of tibia & fibula.
* **Insertion:** Back of calcaneus except Popliteus which is inserted in upper end of tibia.
* **Nerve supply:** Tibial N. مش مطلوب
* **Action:** Plantar flexion of foot except Popliteus which helps in rotation of knee.



B. Deep Group

* **Includes:**
1. Flexor hallucis longus.
2. Flexor digitorum longus.
3. Tibialis posterior. بس هاي الحفظ
* **Origin:** from back of tibia & fibula.
* **Insertion:** Bones of foot.
* **Nerve supply:** Posterior Tibial N. مطلوب
* **Action:** Plantar flexion of foot & flexion of toes.





(a) Anterior superficial view

(b) Right lateral superficial view

(c) Posterior superficial view

(d) Posterior deep view

Intrinsic Muscles of the Foot

يلي اخذناهم قبل بنقدر نسميهم extrinsic

- These muscles are termed **intrinsic** because they originate & insert *within* the foot. بيعملوا support اثناء walking لكن هما مو main
- These muscles are limited in action. They're designed for **support and locomotion**, and are split into:

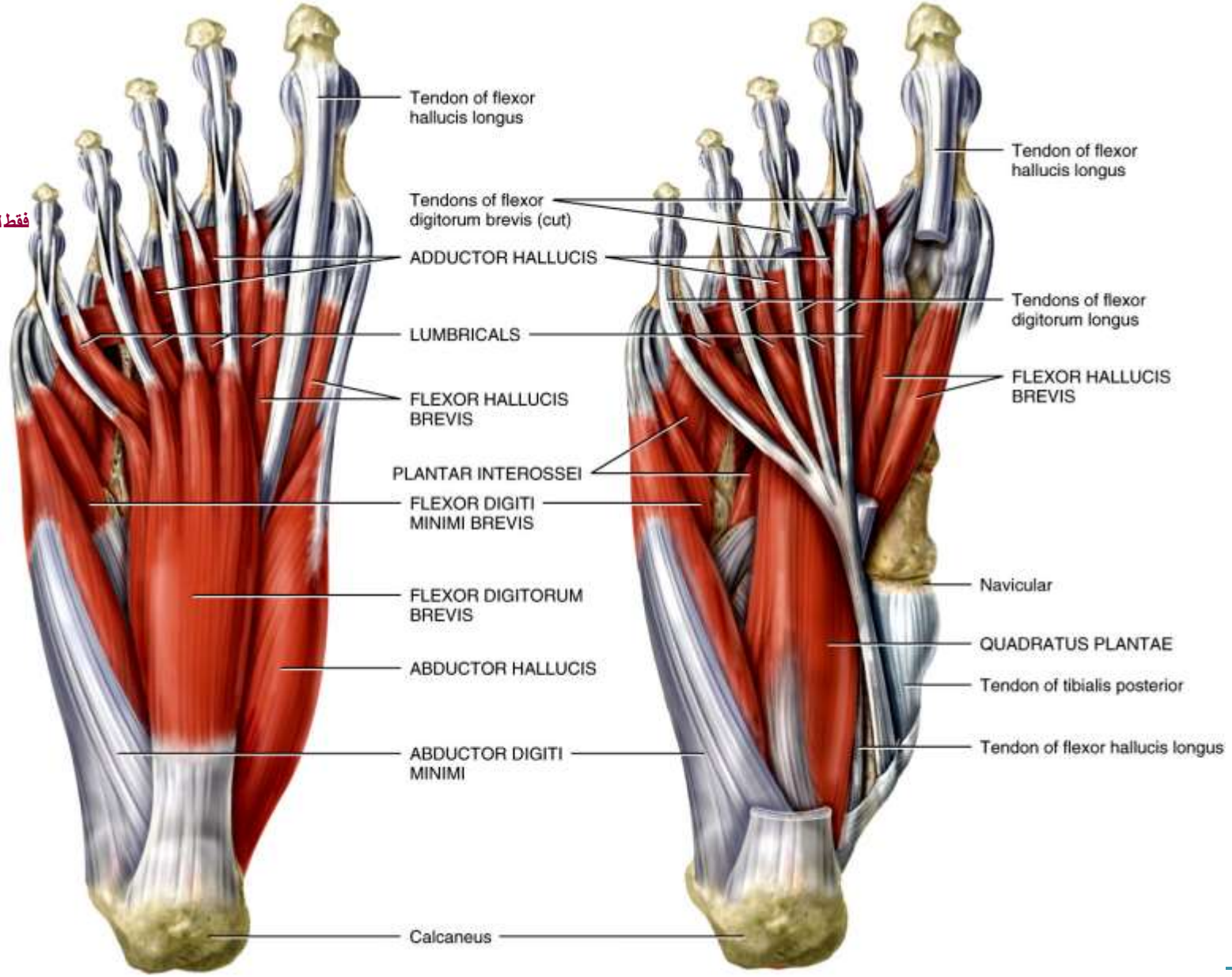
A. **Dorsal muscles** (2) **Extensor digitorum brevis** للاصابع **and Extensor Hallucis brevis** For big toe which extend Main action toes and **big toe (hallux)**.

B. **Plantar muscles** Under surface of foot are arranged in four layers (various actions): على metatarsals بشتغلوا العكس

مش حفظ بس نعرفهم انهم اربعة Layers

- 1st layer (most superficial) (3 muscles)
- 2nd layer (lumbricals and 1 muscle)
- 3rd layer (3 muscles).
- 4th layer (deepest) contain 4 dorsal and 3 plantar interossei

فقط للمعرفة



(a) Plantar superficial view

(b) Plantar intermediate view