

# *Vastus intermedius*

*Origin: Anterior and lateral surfaces of shaft of femur*

***Insertion:*** the four heads are attached to the patella and, via the ligamentum patellae, to the tibial tuberosity (the real insertion)

***Actions:*** the quadriceps femoris muscle

Extends the leg at knee joint; flexes thigh at hip joint (only the rectus femoris head).

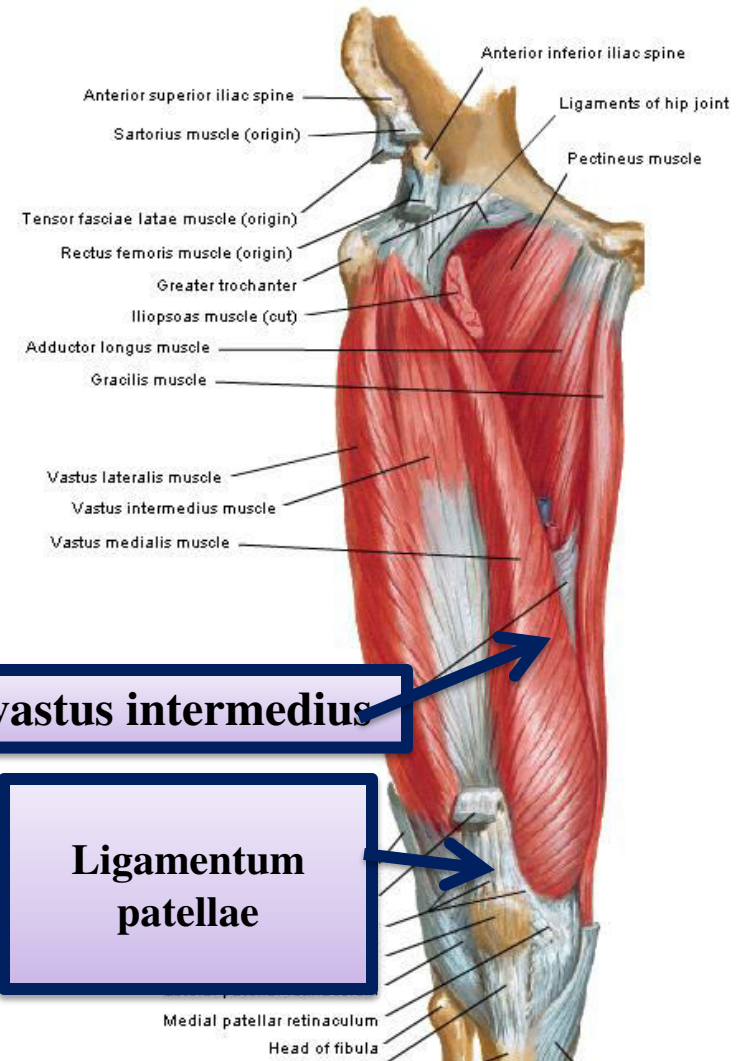
***Remember***

**Quadriceps femoris is the main extensor of the knee joint**

***Nerve supply : femoral nerve***

## The quadriceps femoris muscle

Muscles of Thigh  
Anterior View - Deeper Dissection



# *Femoral Nerve*

- is the largest branch **of the lumbar plexus** (L2, 3, and 4).
- It emerges from **the lateral border** of the psoas muscle
- enters the thigh **lateral to the femoral artery** and the femoral sheath, **behind** the inguinal ligament.
- it terminates by dividing into **anterior and posterior** divisions.

## Anterior Division

The anterior division gives off **two cutaneous branches**

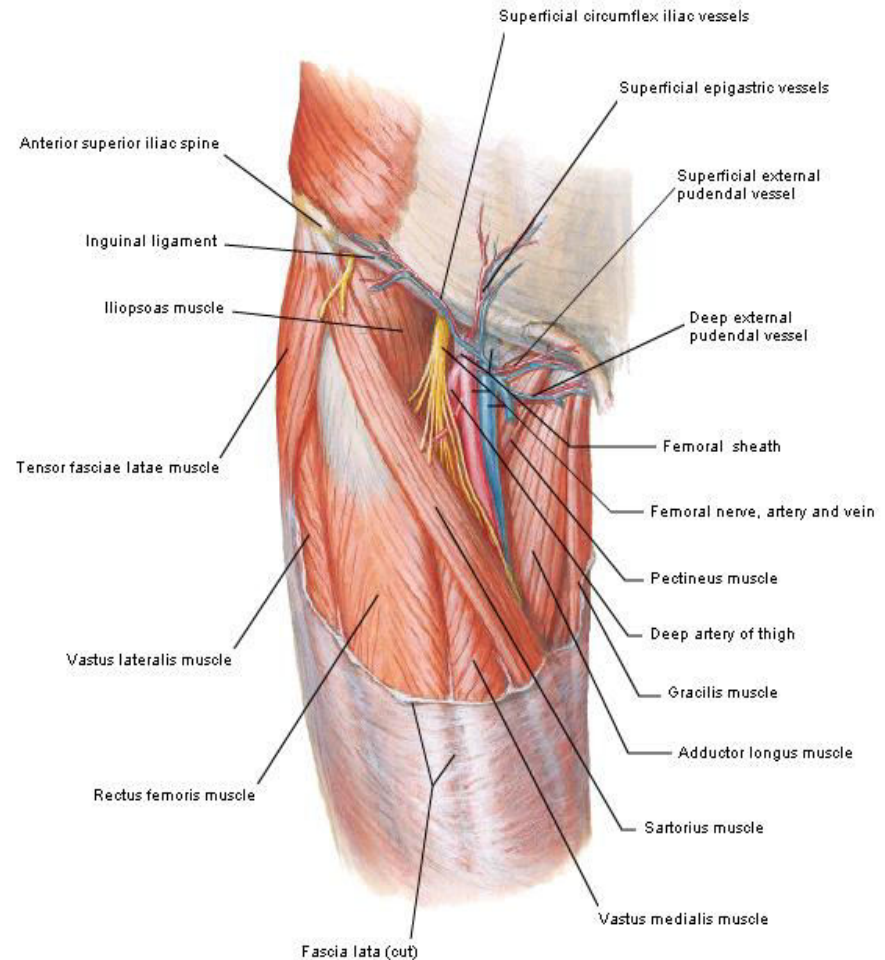
1- **the medial cutaneous nerve of the thigh.**

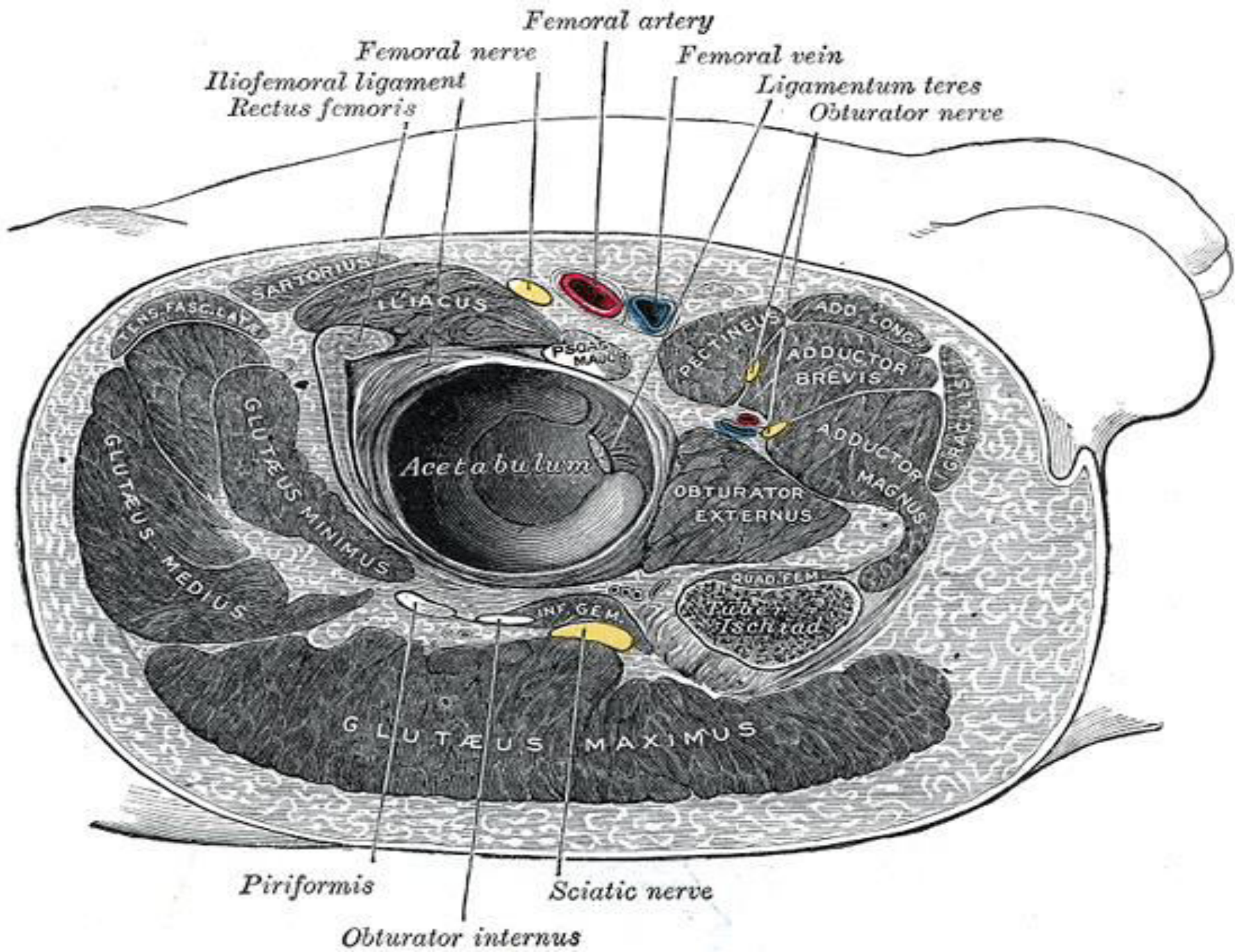
2- **the intermediate cutaneous nerve of the thigh**

and **two muscular branches.**

Nerve to **sartorius** and nerve to **pectineus muscles.**

## Arteries and Nerves of Thigh Superficial Anterior View





## Posterior Division

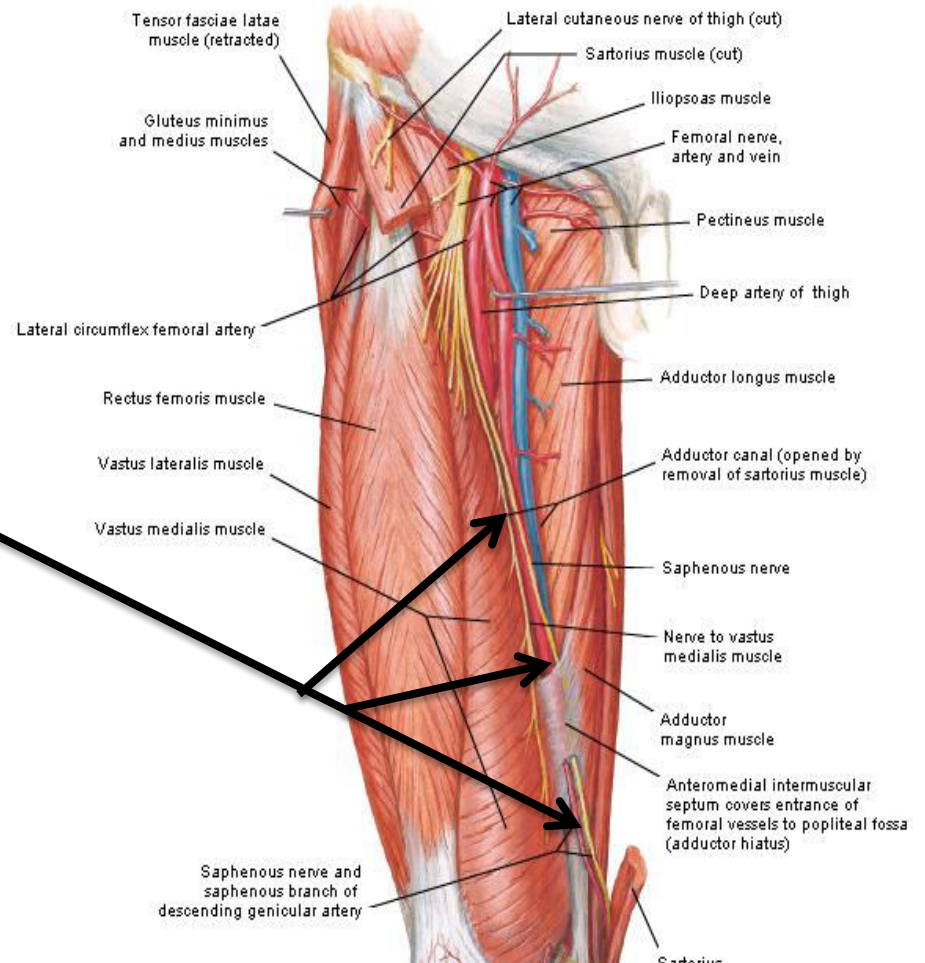
The posterior division gives off **one cutaneous branch**

**The Saphenous nerve**  
and *muscular branches to the quadriceps muscle.*

# THE SAPHENOUS NERVE

- runs downward and medially.
- It emerges between the tendons of sartorius and gracilis
- It then runs down in company with the ***great Saphenous vein.***
- It passes ***in front of the medial malleolus*** and along the medial border of the foot, where it terminates in the region ***of the ball of the big toe***

Arteries and Nerves of Thigh  
Deeper Anterior View - Superficial Dissections



# articular branch

To the hip joint

Why?

is derived from the nerve to the rectus femoris muscle

are three in number.

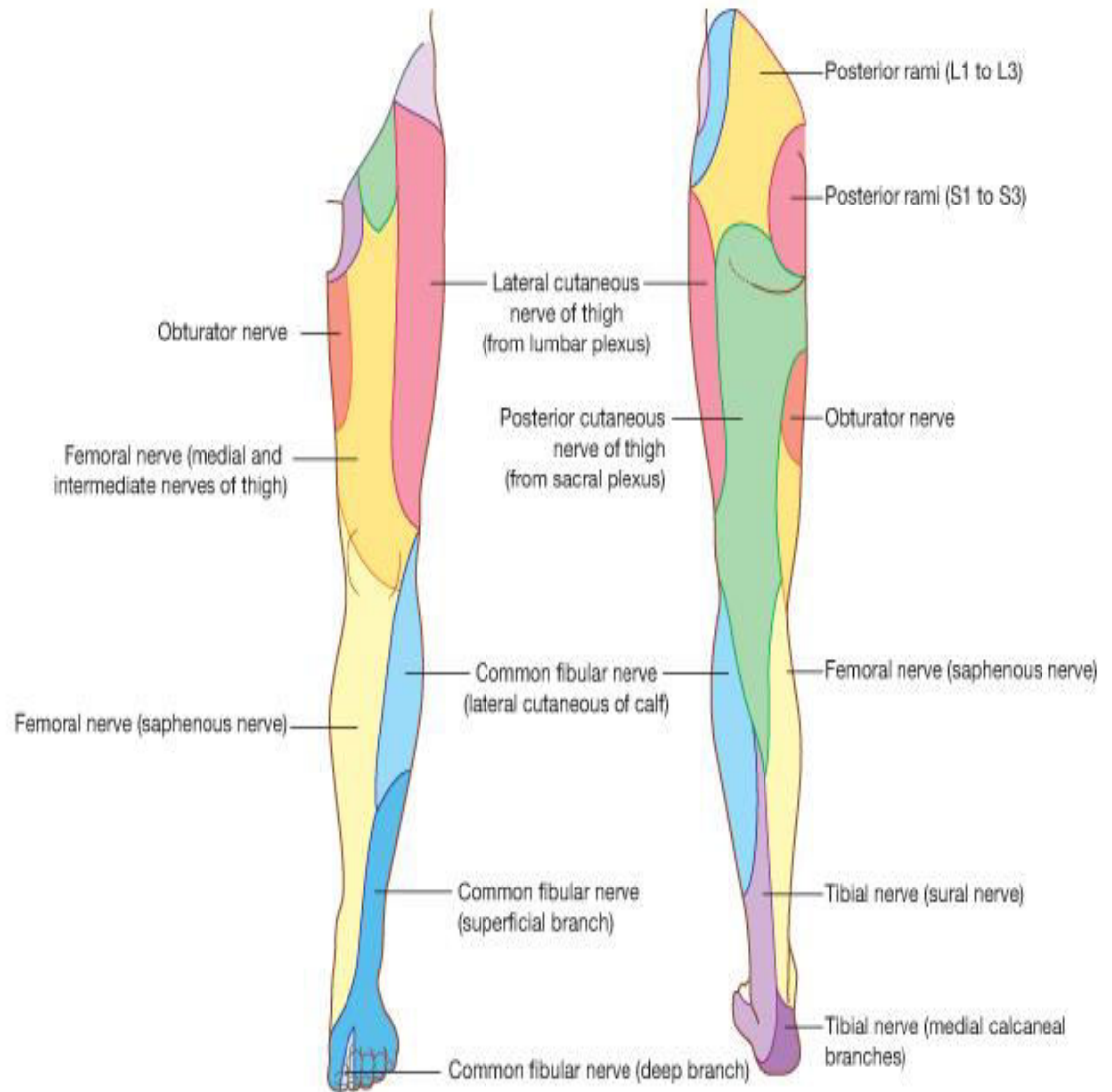
To the knee joint

➤ *the first one* is derived from the nerve to the *vastus lateralis* muscle. Which penetrates the capsule of the joint on its anterior aspect.

➤ *The second one* which is derived from the nerve to the *vastus medialis*, can usually descend downward on the surface of this muscle (*to reach the joint the nerve then penetrates the muscular fibers to accompany the articular branch of the highest genicular artery where it pierces the medial side of the articular capsule, and supplies the synovial membrane*)

*The third branch* is derived from the nerve to the *vastus intermedius*

The **saphenous nerve** accompanies the femoral artery through the adductor canal, but does not pass through the adductor hiatus with the femoral artery. Rather, the saphenous nerve penetrates directly through connective tissues near the end of the canal to appear between the sartorius and gracilis muscles on the medial side of the knee. Here the saphenous nerve penetrates deep fascia and continues down the medial side of the leg to the foot, and supplies skin on the medial side of the knee, leg, and foot.



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**MEDIAL FASCIAL COMPARTMENT  
OF THE THIGH**

**Why do we need adductors for the hip joint !**

**Can you think of a bone that can be suitable to provide an origin for an adductor muscle of the hip joint?**

**The Pubic bone**

**Why?**

**Would you be able to think of a bone that can be a good insertion FOR the adductor muscles ?**

**The femur**

**Why?**



# *Contents of the medial fascial compartment*

## **1-Muscles**

*GRACILIS*

*ADDUCTOR LONGUS*

*ADDUCTOR BREVIS*

*ADDUCTOR MAGNUS*

*OBTURATOR EXTERNUS*

In the practical sessions  
Remember that the adductor muscles are  
arranged in three layers in similar way to  
that of the pages of the book .  
The first layer (page) contains: pectineus  
and adductor longus  
The second layer contains: add. Brevis only  
The third layer contains: add. Magnus only

**2-Nerve supply:** *Obturator nerve*

**3-blood supply:** *Profunda femoris*  
*artery*  
*and obturator artery*

# Muscles of the Medial Fascial Compartment of the Thigh

## *Adductor longus*

**Origin:** *Body of pubis, medial to pubic tubercle*

**Insertion:** *Posterior surface of shaft of femur (linea aspera)*

**Nerve supply:** *Obturator nerve*

**Actions:** *Adducts thigh at hip joint*

## *Adductor brevis*

**Origin:** *Inferior ramus of pubis*

**Insertion:** *Posterior surface of shaft of femur (linea aspera)*

**Nerve supply:** *Obturator nerve*

**Actions:** *Adducts thigh at hip joint*

## *Adductor magnus (pubic part)*

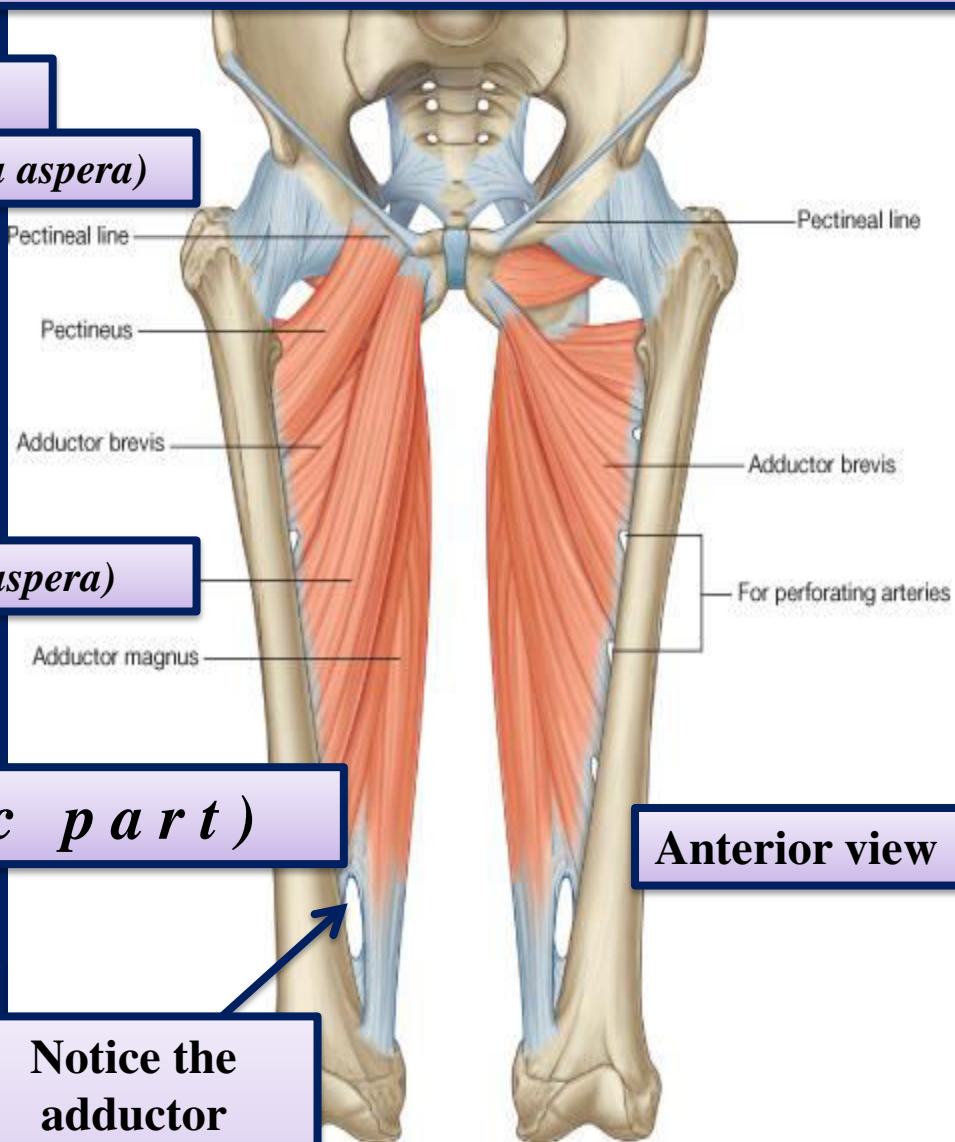
**Origin:** *Ischio-pubic ramus*

**Insertion:** *mainly linea aspera, gluteal tuberosity and medial supracondylar line*

**Nerve supply:** *obturator nerve*

**Actions:** *Adducts thigh at hip joint*

Notice the adductor hiatus. Which structures pass through it?



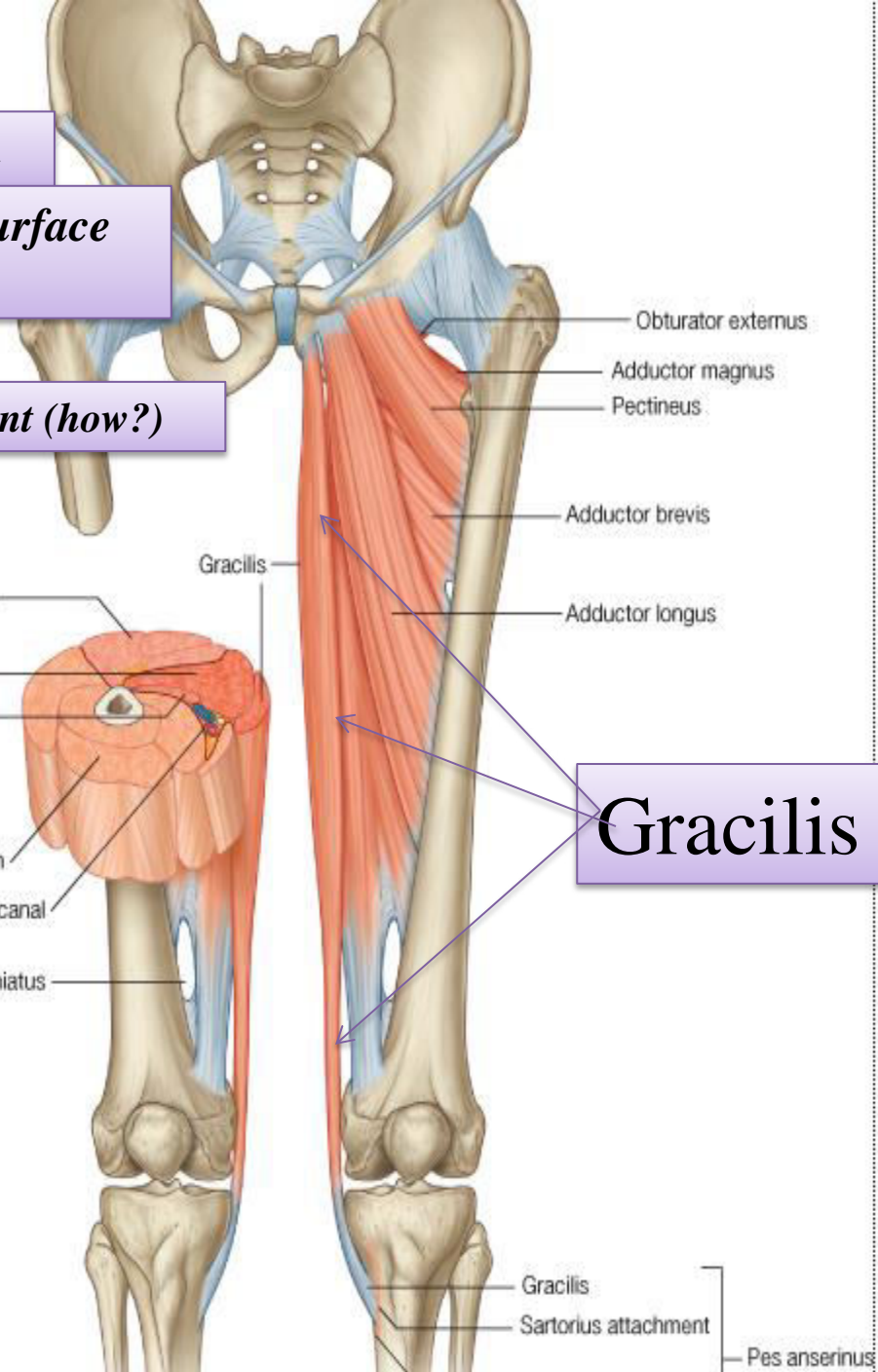
# Gracilis muscle

**Origin:** *Inferior ramus of pubis, ramus of ischium*

**Insertion:** *Upper part of shaft of tibia on medial surface (SGS) area*

**Nerve supply:** *Obturator nerve*

**Actions:** *Adducts thigh at hip joint; flexes leg at knee joint (how?)*



pubic part of

Adductor magnus

Ischial part of

Gracilis

Pes anserinus

# Obturator externus

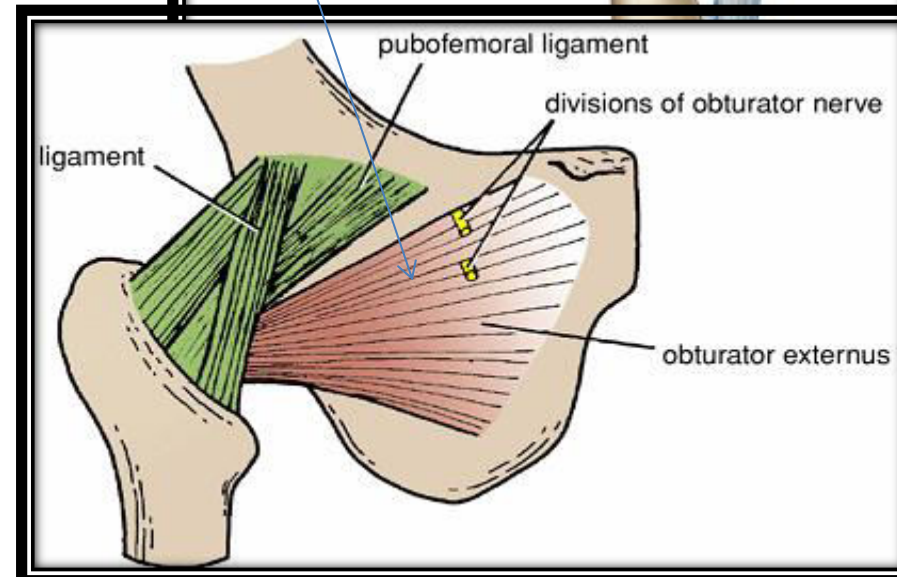
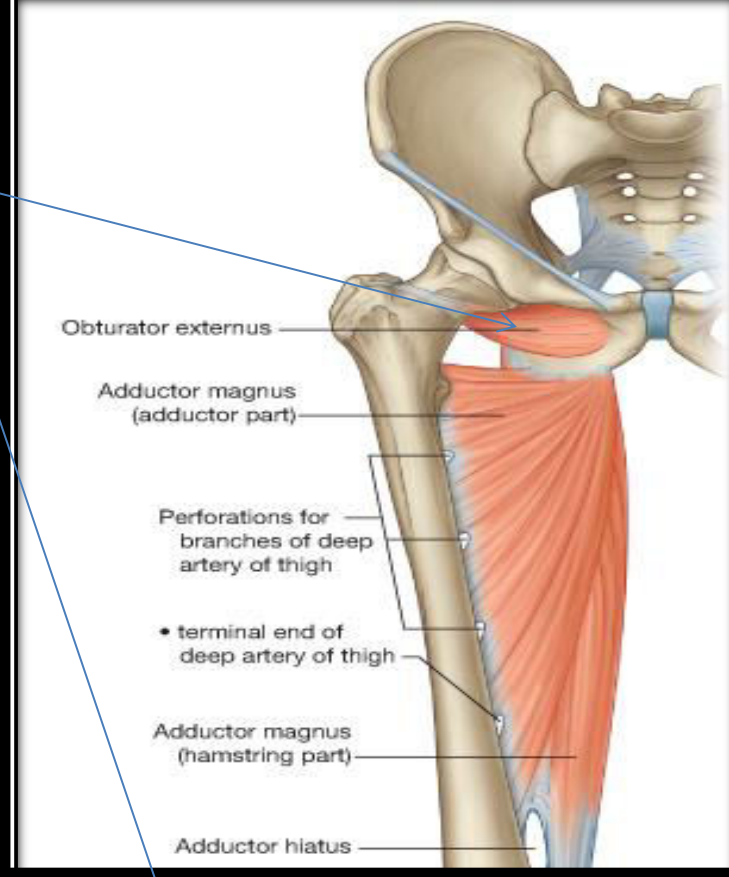
**Origin: Outer surface of obturator membrane and pubic and ischial rami**

**Insertion: Medial surface of greater trochanter**

**Nerve supply: Obturator nerve**

**Action: Laterally rotates thigh at hip joint**

**One of the short lateral rotator muscles of the hip joint**



# **Action of the adductor muscles as a group**

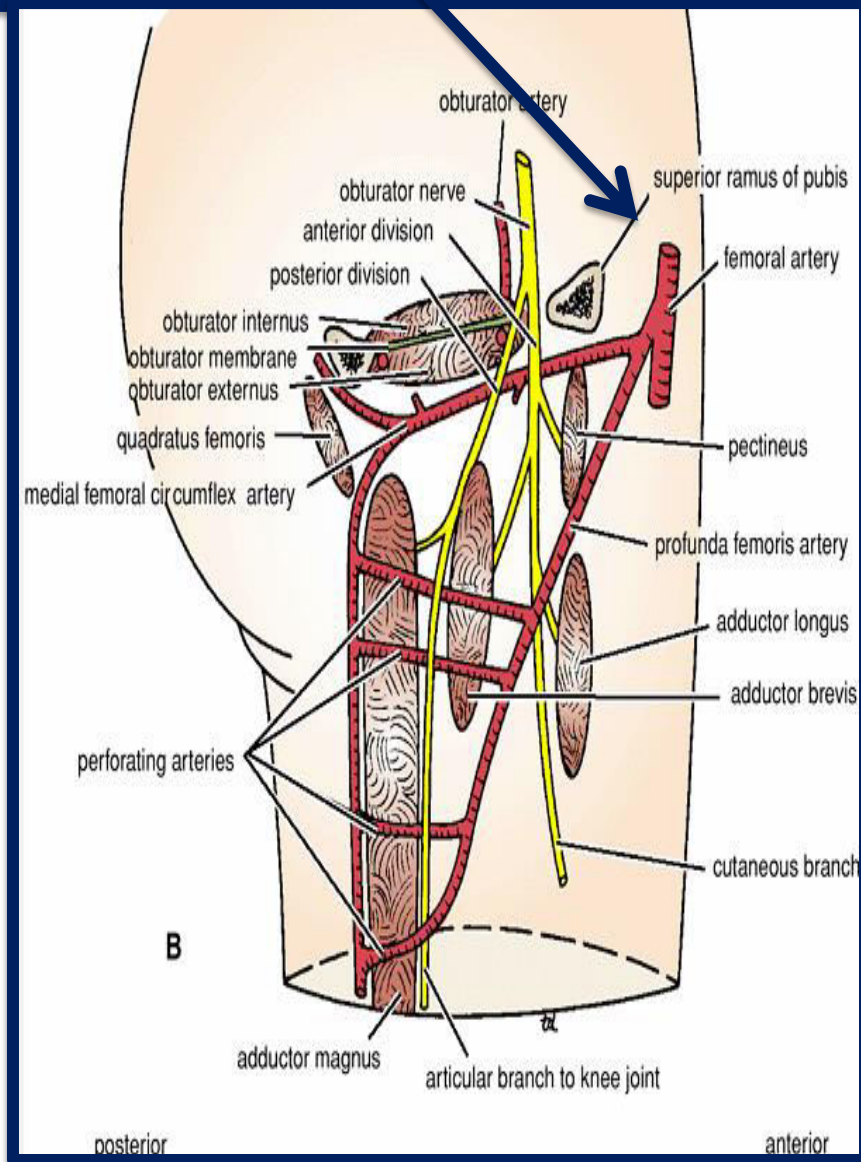
**1) Adduct the thigh although adduction of the thigh is not important in the mechanism of walking and standing**

**2- Because their origin is in front of the hip joint ( in a plane that is in front of the hip joint) they can flex the thigh at the hip joint**

**3- Because their origin is from the medial Side of the hip while their insertion is on the back of the thigh They can assist in lateral rotation of the thigh**

# Obturator Nerve

- Arises from the lumbar plexus (L2, 3, and 4) anterior divisions
- Emerges on the **medial border of the psoas muscle**
- *It divides into anterior and posterior divisions*
- The anterior division (**Motor**) it gives muscular branches to :  
*Gracilis*  
*Adductor brevis*  
*Adductor longus*  
and occasionally to the *Pectineus*.
- Sensory
- It gives articular branches **to the hip joint**



- contributes to the **subsartorial plexus**  
supplies the skin **on the medial side of the thigh.**

➤ *The posterior division*

It gives muscular branches (MOTOR) to the

*Obturator externus*

*The adductor part of the adductor magnus*

and occasionally to *The adductor brevis*

It supplies the knee joint (SENSORY).

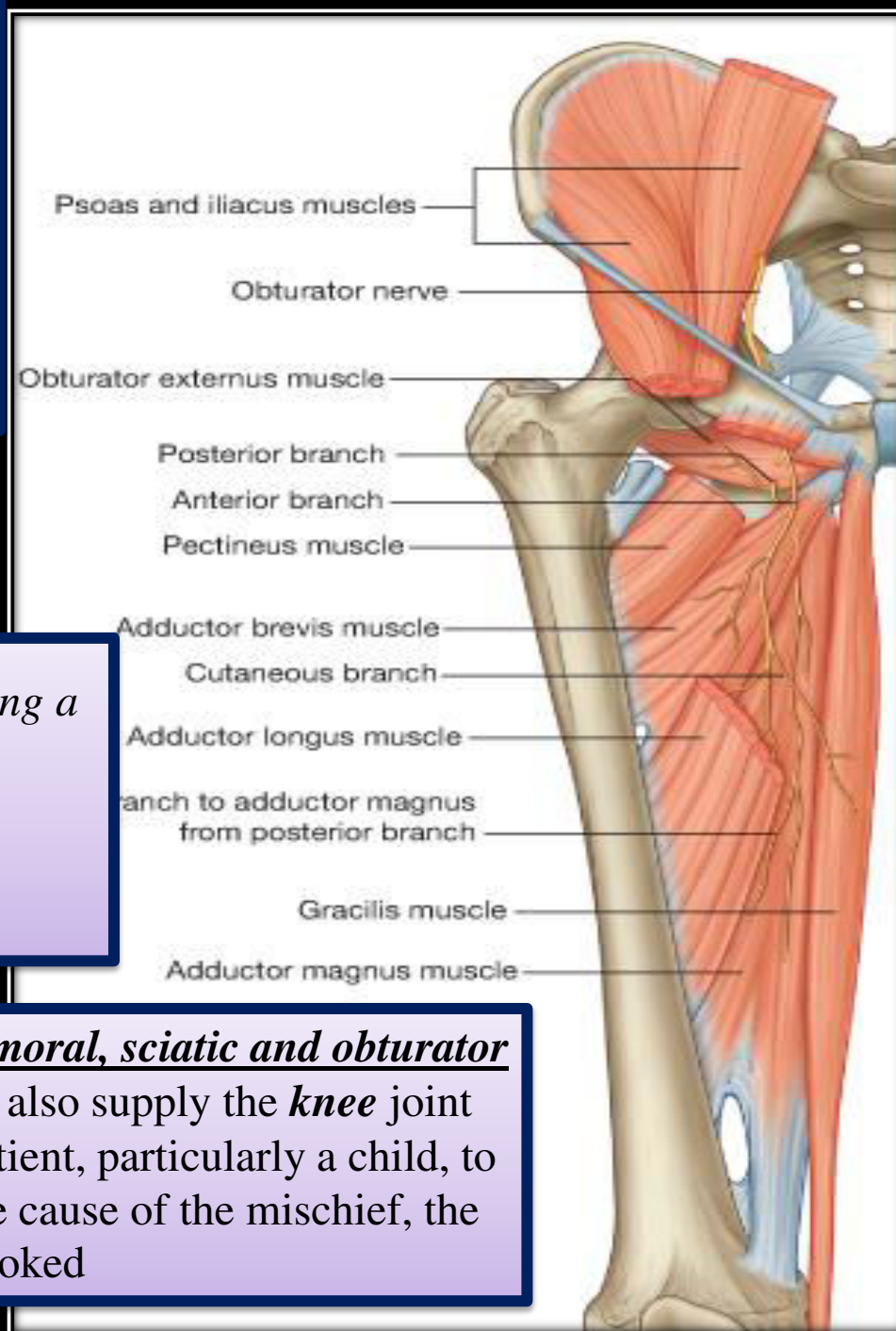
Referred pain

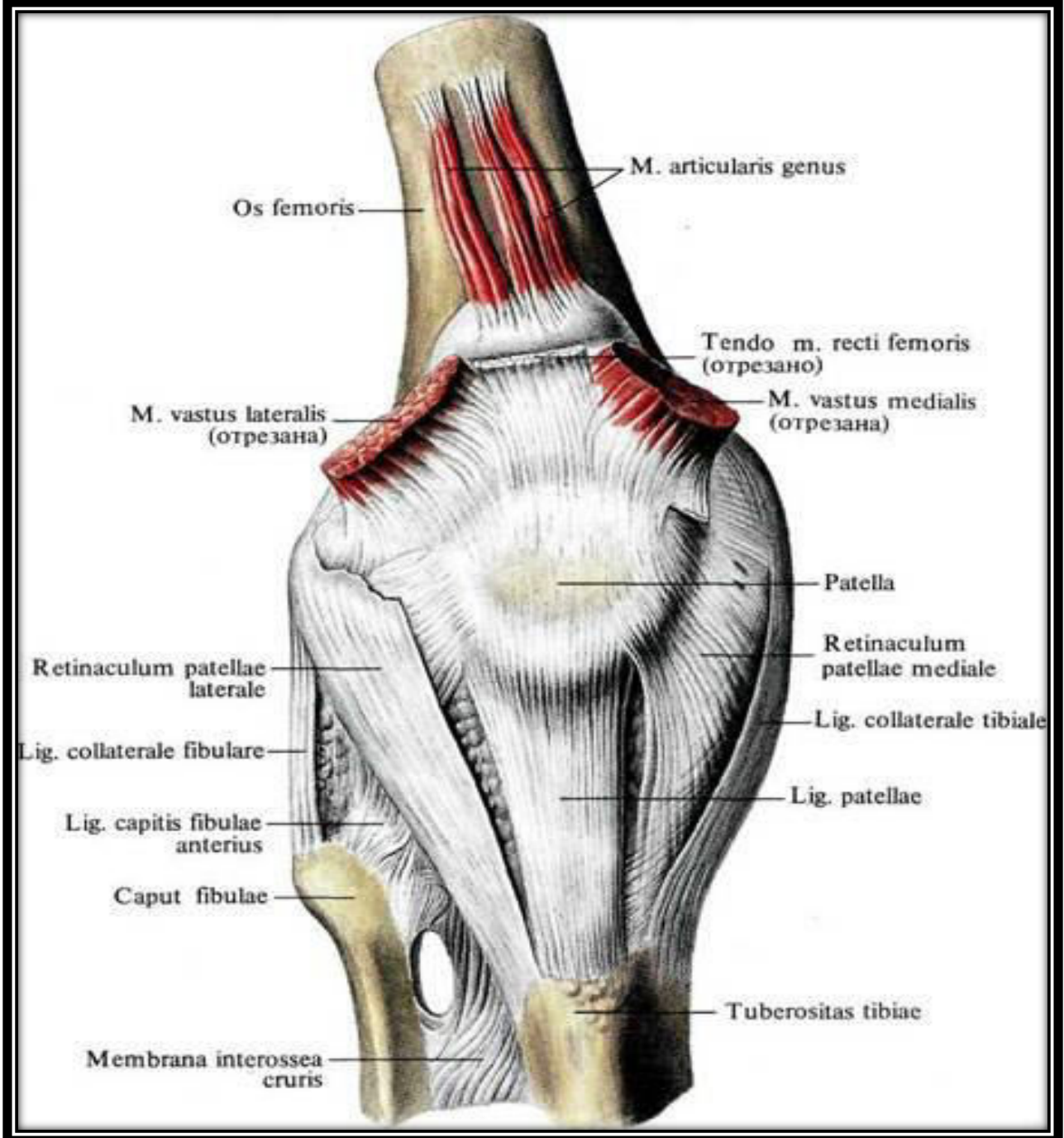
Is the pain perceived at a location other than the site of the painful stimulus.

*Hilton's law* states that the nerves crossing a joint supply

- 1- the muscles acting on it
- 2- the skin over the joint
- 3- the joint itself.

For example, The hip receives fibres from the femoral, sciatic and obturator nerves. It is important to note that these nerves also supply the *knee* joint and, for this reason, it is not uncommon for a patient, particularly a child, to complain bitterly of pain in the knee and for the cause of the mischief, the diseased hip, to be overlooked





Os femoris — M. articularis genus

Tendo m. recti femoris (отрезано) — M. vastus medialis (отрезана)  
M. vastus lateralis (отрезана)

Patella — Retinaculum patellae mediale  
Retinaculum patellae laterale — Lig. collaterale tibiale  
Lig. collaterale fibulare

Lig. capitis fibulae anterius — Lig. patellae

Caput fibulae — Tuberositas tibiae

Membrana interossea cruris



Articularis Genu – Originating from the latin roots “articularis” – pertaining to the joints, and “Genu” – pertaining to or relating to the knee (or knee shaped).

**Articularis Genu:**

Origin: Anterior surface of distal part of the body of the femur

Insertion: Proximal part of the suprapatellar bursa (an extension of the synovial cavity of the knee joint) and proximal anterior joint capsule of the knee

The articularis genu is a small muscle that may be blended with the [vastus intermedius](#), but is usually distinct from it. This muscle lies deep to the vastus intermedius and [rectus femoris](#) and inserts deep to the patella.