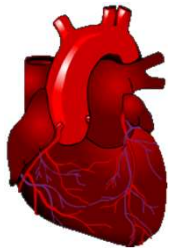
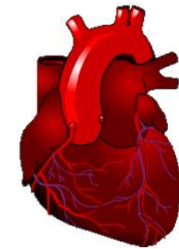




Systematic Anatomy



Locomotor system - Part 7



Muscles of the lower limb

Dr.Hongqi Zhang (张红旗)

Dept.of Anatomy,Fudan University

Email: zhanghq58@126.com

Muscles of the lower limb

Hip muscles (pelvic girdle)	{ Anterior group	2
	{ Posterior group	5
Muscles of thigh	{ Anterior group	2
	{ Posterior group	3
	{ Medial group	5
Muscles of leg	{ Anterior group	3
	{ Posterior group	4
	{ Lateral group	2
Muscles of foot	{ Dorsal muscles	
	{ Sole muscles	



Hip muscle

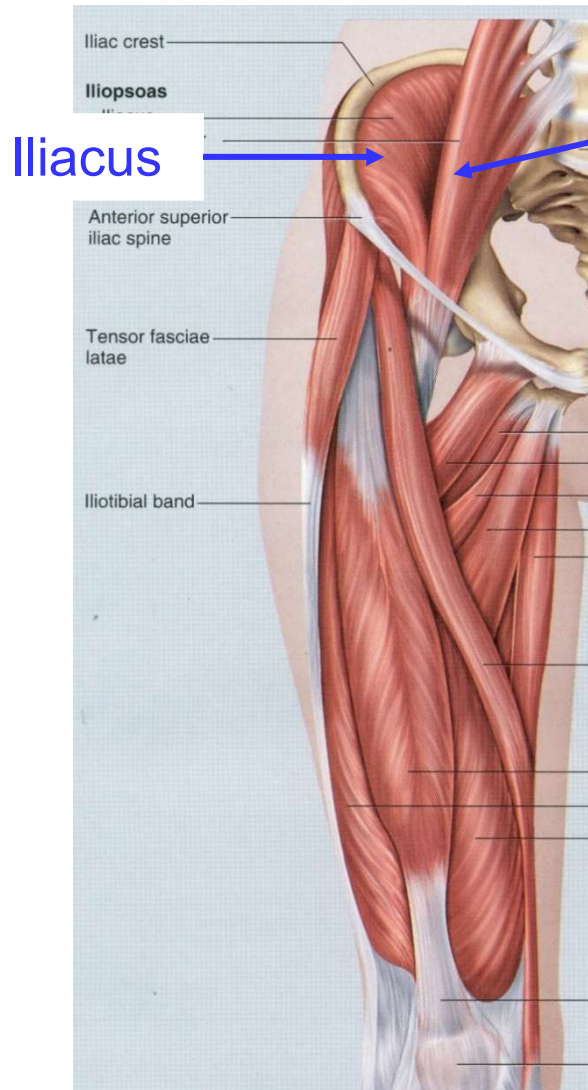
Anterior group { iliopsoas { Iliacus
Psoas major
Tensor fasciae latae

Posterior group { Gluteus maximus
Gluteus medius
Gluteus minimus
Piriformis
Obturator internus

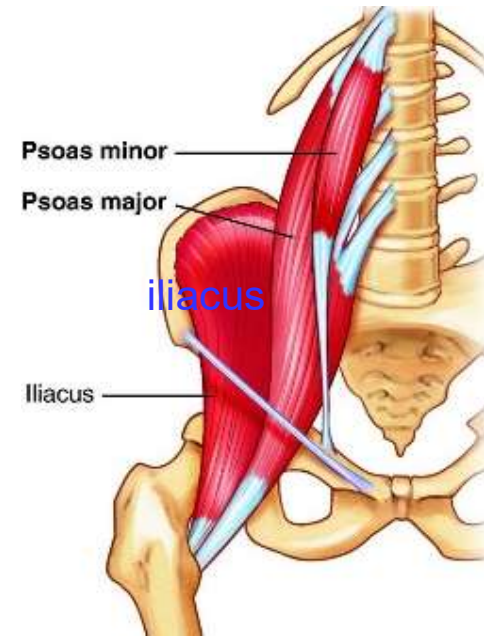
Copy

Iliopsoas m. & tensor fasciae latae

ity



Psoas major

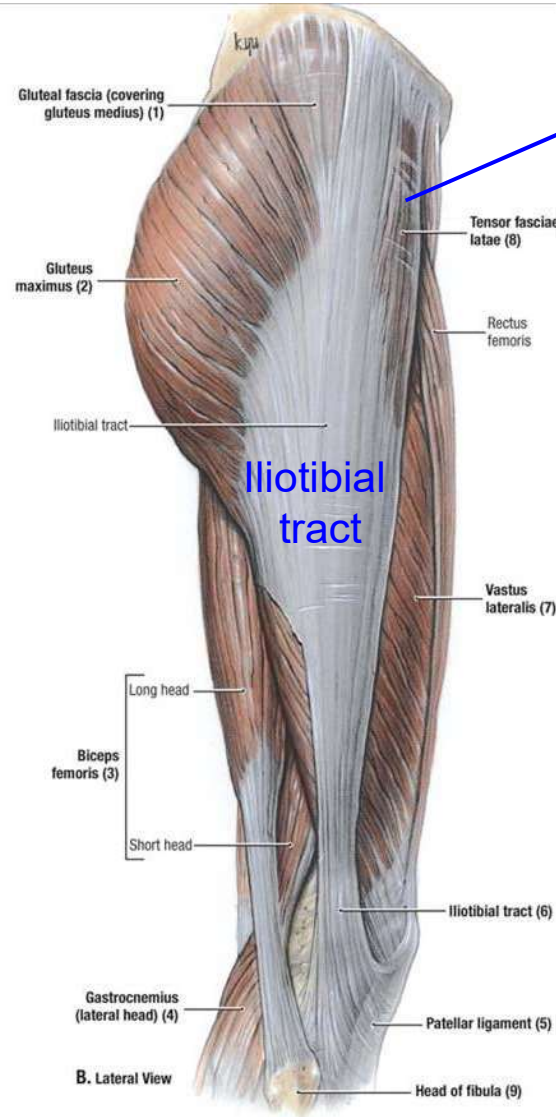


Origin: transverse process of lumbar vertebrae and iliac fossa

Insertion: lesser trochanter of femur

It is the most powerful flexor of the thigh. when lower limb is fixed it bends the Vertebral column forward and flexes the lumbar region laterally.

Tensor fasciae latae



Tensor fasciate latae

Position: On the lateroanterior side of the thigh.

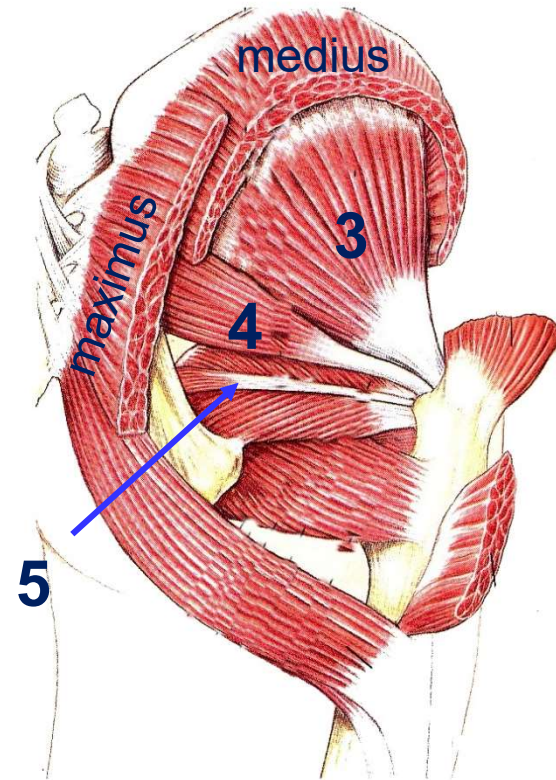
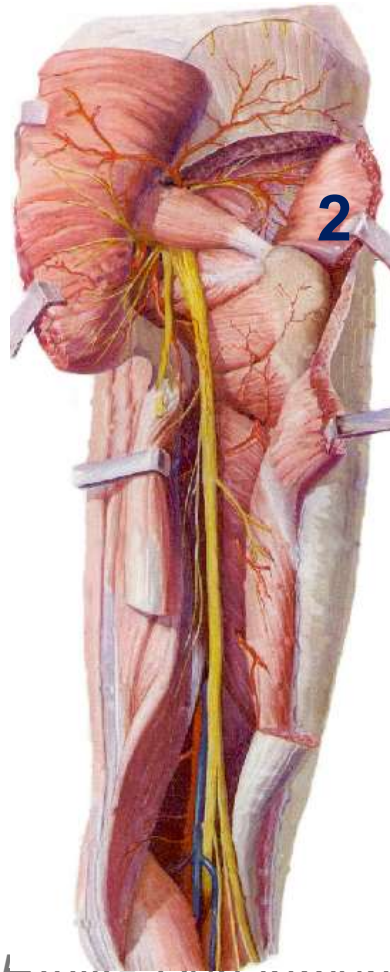
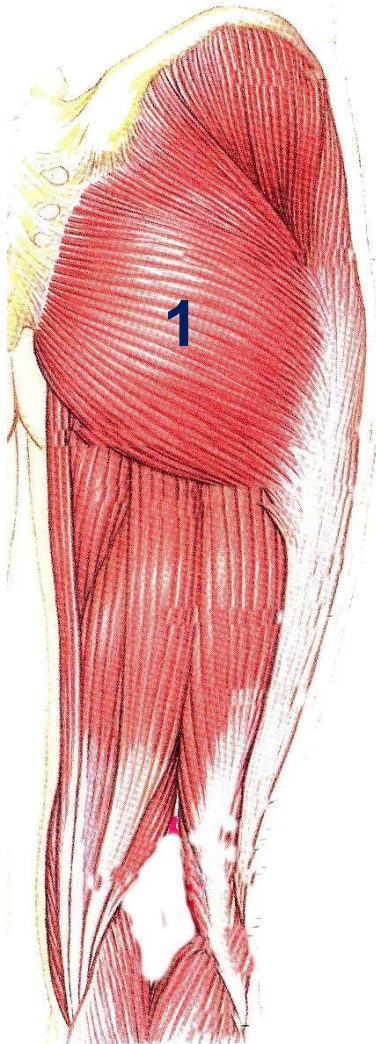
Origin: ant,sup.ilic spine.is enclosed within the fascia lata.

Attach: to the iliotibial tract and insert into the lateral condyle of the tibia

Actions: tense the fasciae latae flexes (and abducts) the hip

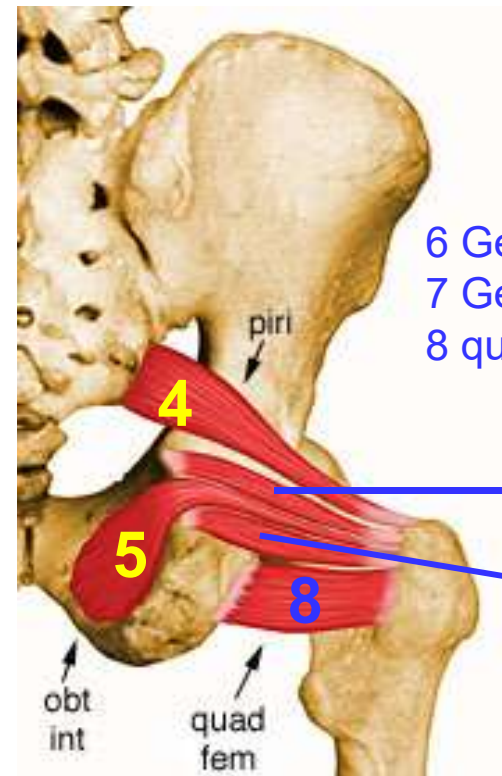
Posterior group of hip muscle

- 1-Gluteus maximus
- 2-Gluteus medius
- 3-Gluteus minimus
- 4-Piriformis
- 5-Obturator internus



Posterior group of hip muscle

- 1-Gluteus maximus
- 2-Gluteus medius
- 3-Gluteus minimus
- 4-Piriformis
- 5-Obturator internus



- 6 Gemellus sup.
- 7 Gemellus inf.
- 8 quadratus femoris

The action of the post.muscular group of the hip

1. Gluteus maximus

It is powerful **extensor** of the thigh.the most powerful lateral **rotator**

2. Gluteus medius

Abducts and rotates the thigh

3. Gluteus minimus

Abducts and its anterior fibers can medially rotate the thigh

4. Piriformis

Lateral rotate and abduct the hip joint

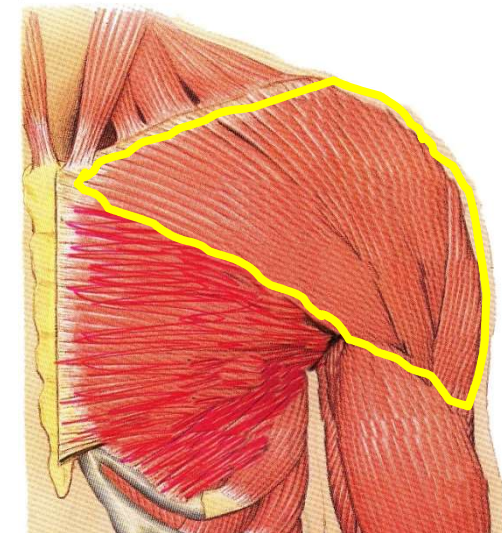
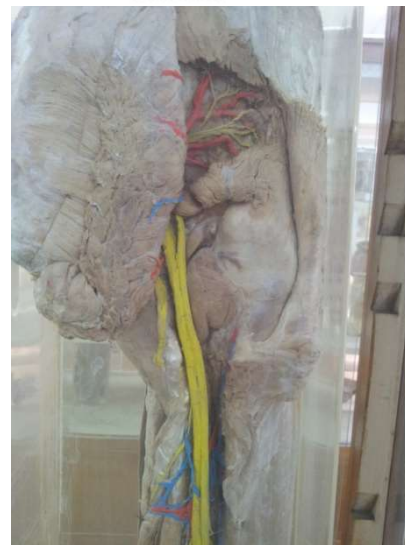
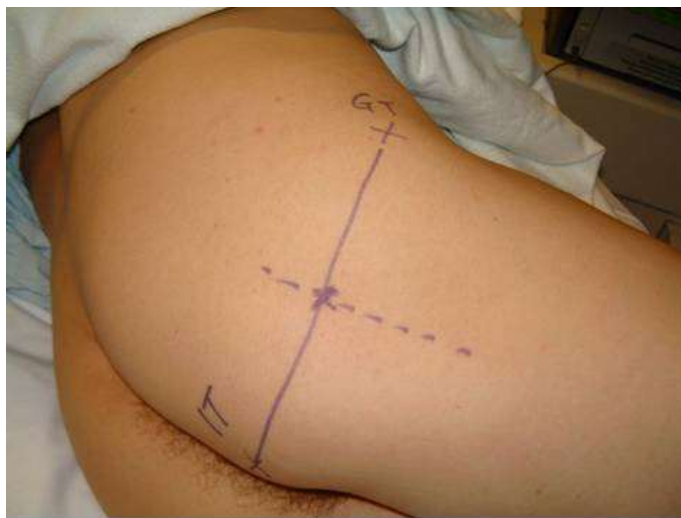
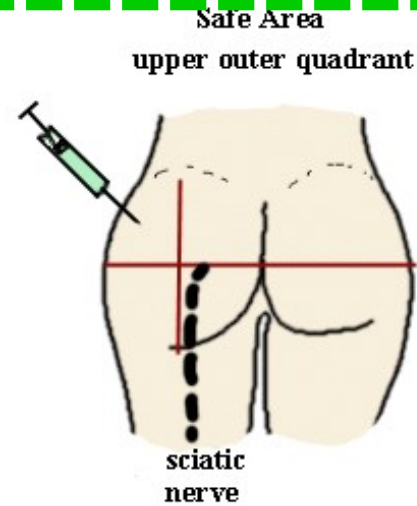
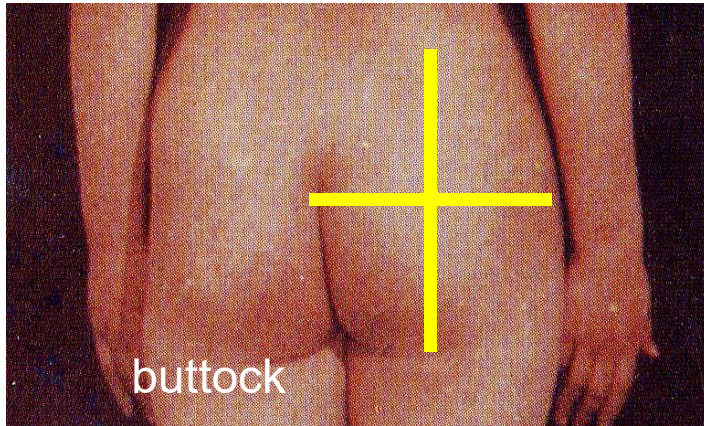
5. Obturator internus

Lateral rotate the hip joint

Various injections in human body

1. **Intradermal injection** – inject medicine into skin.
2. **Subcutaneous injection** – inject medicine into subcutaneous tissue.
3. **Intramuscular injection** – inject medicine into muscle.
actually many regions could be choosed.
4. **Intravenous injection** – inject medicine into vein.
5. **Intraarterial injection** – inject medicine into artery.
6. **Intracardiac injection** – inject medicine into the heart.

Intramuscular injection of hip



The muscles of the thigh

Anterior group 2

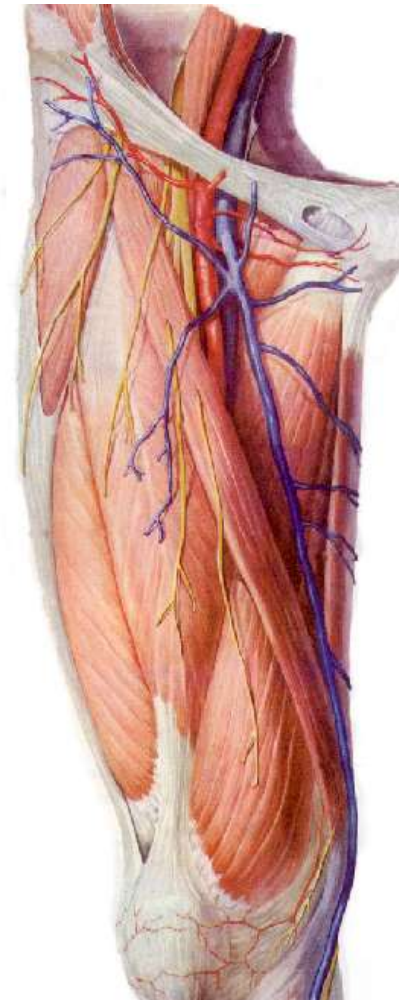
Flex hip joint and
Extend knee joint

Medial group 5

Adduct hip joint

Posterior group 3

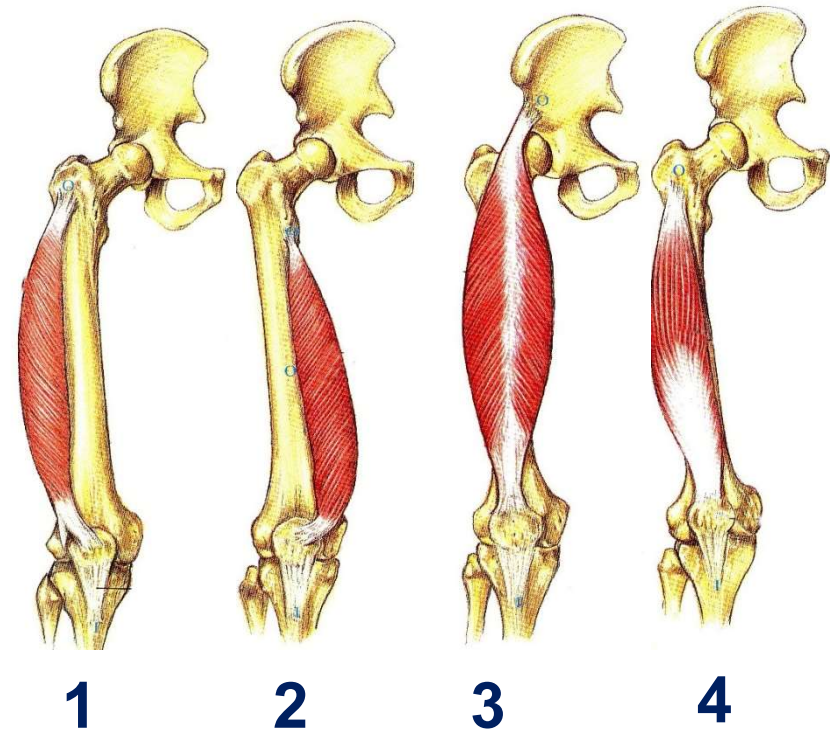
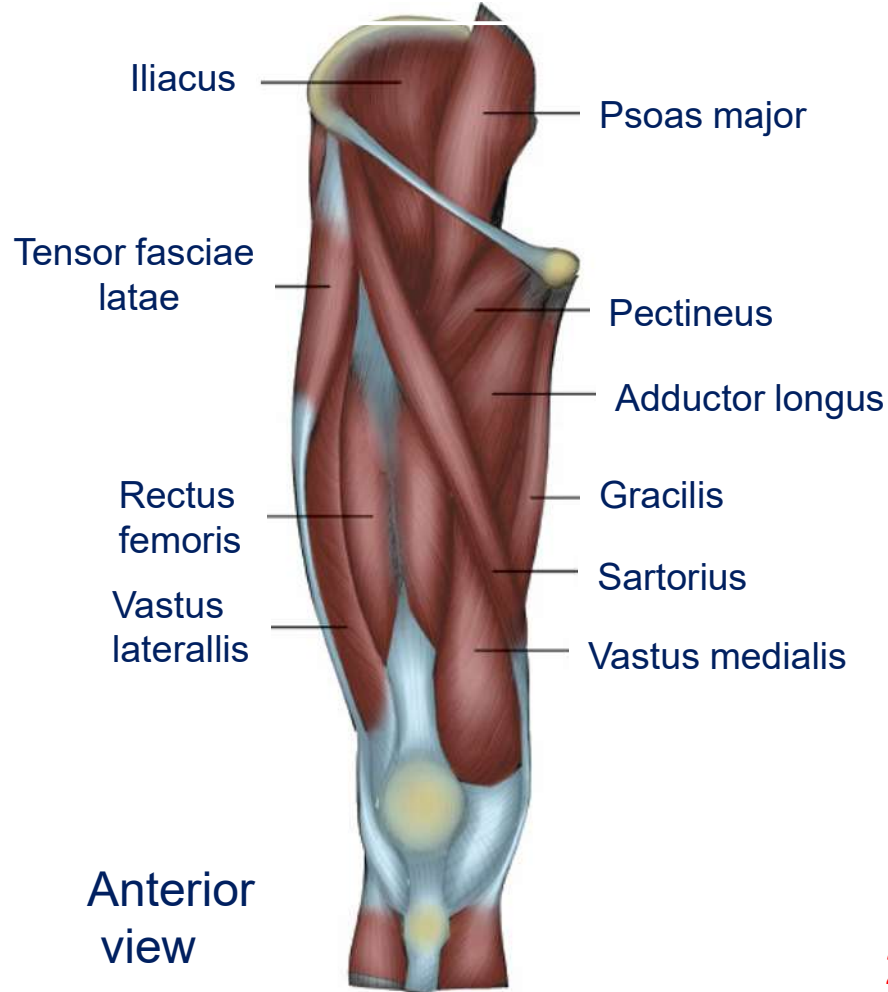
Ext. end hip joint and
flex knee joint



Copy Anterior muscular group of the thigh

Sartorius

Quadriceps femoris (with four heads)



1 - Vastus lateralis
2 - Vastus medialis

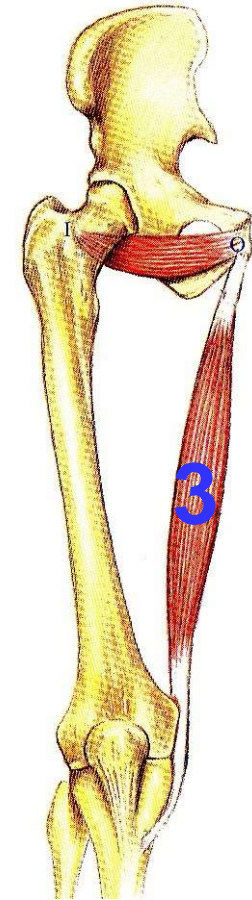
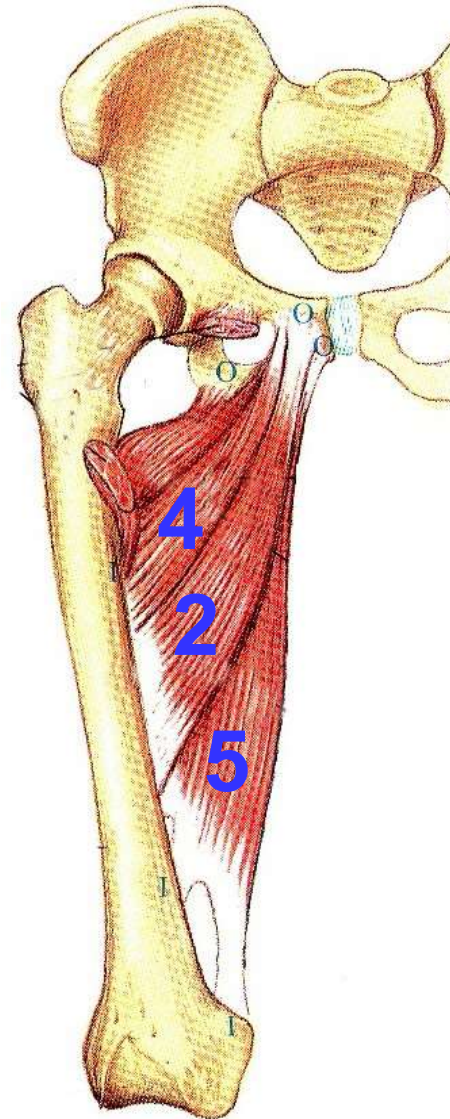
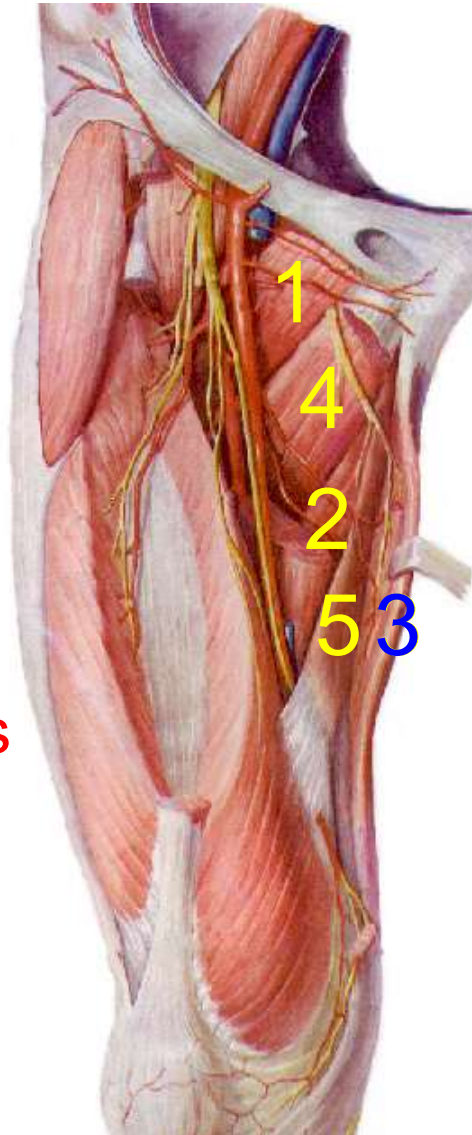
3 - Rectus femoris
4 - Vastus intermedius

Sartorius act to flex the hip and knee joints, the longest muscle of the body
Quadriceps femoris acts to extend the knee joint mainly and flex the hip joint

Copy

Medial group of the thigh muscles

- 1-Pectineus
- 2-Adductor longus
- 3-Gracilis
- 4-Adductor brevis
- 5-Adductor magnus



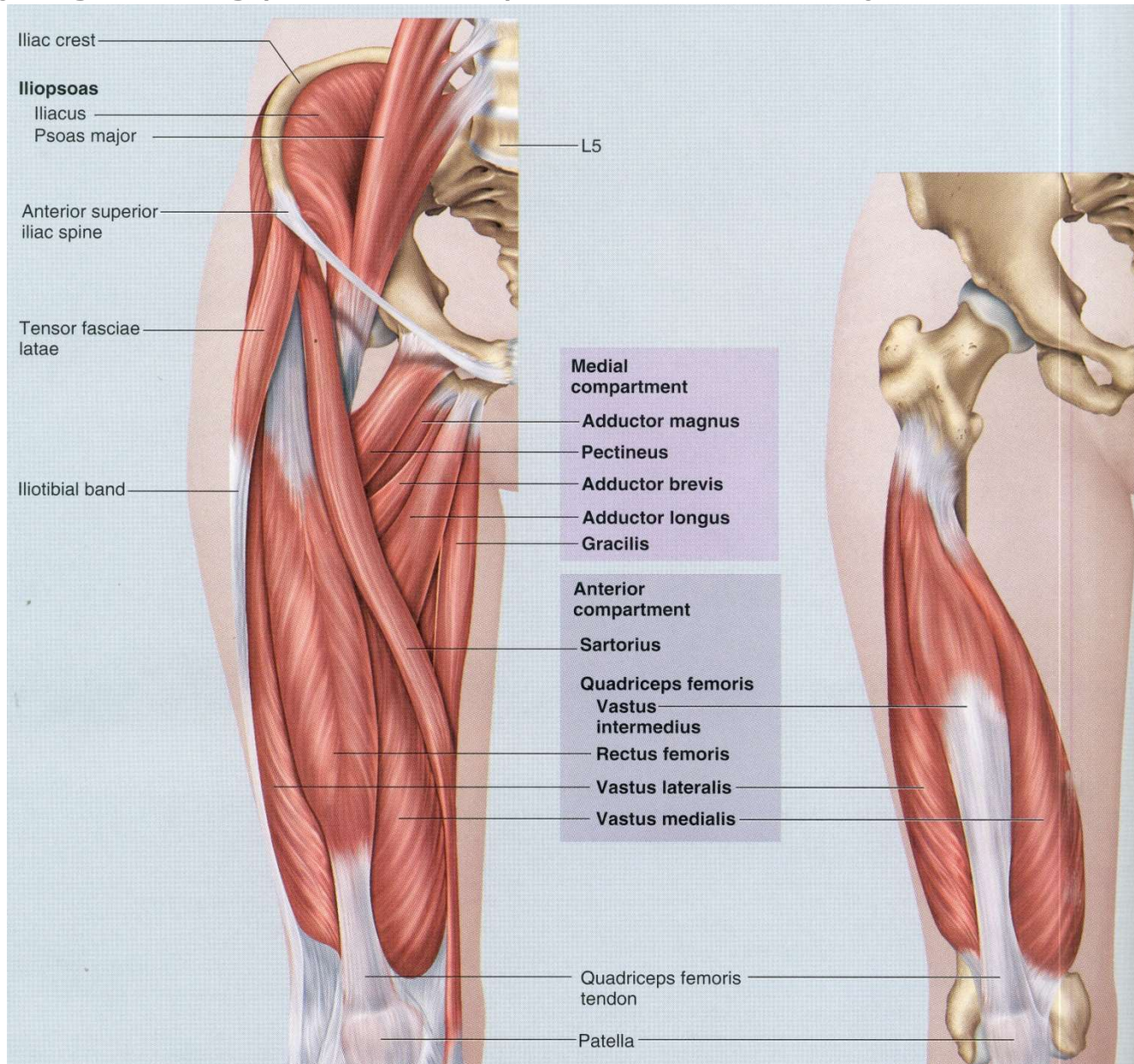
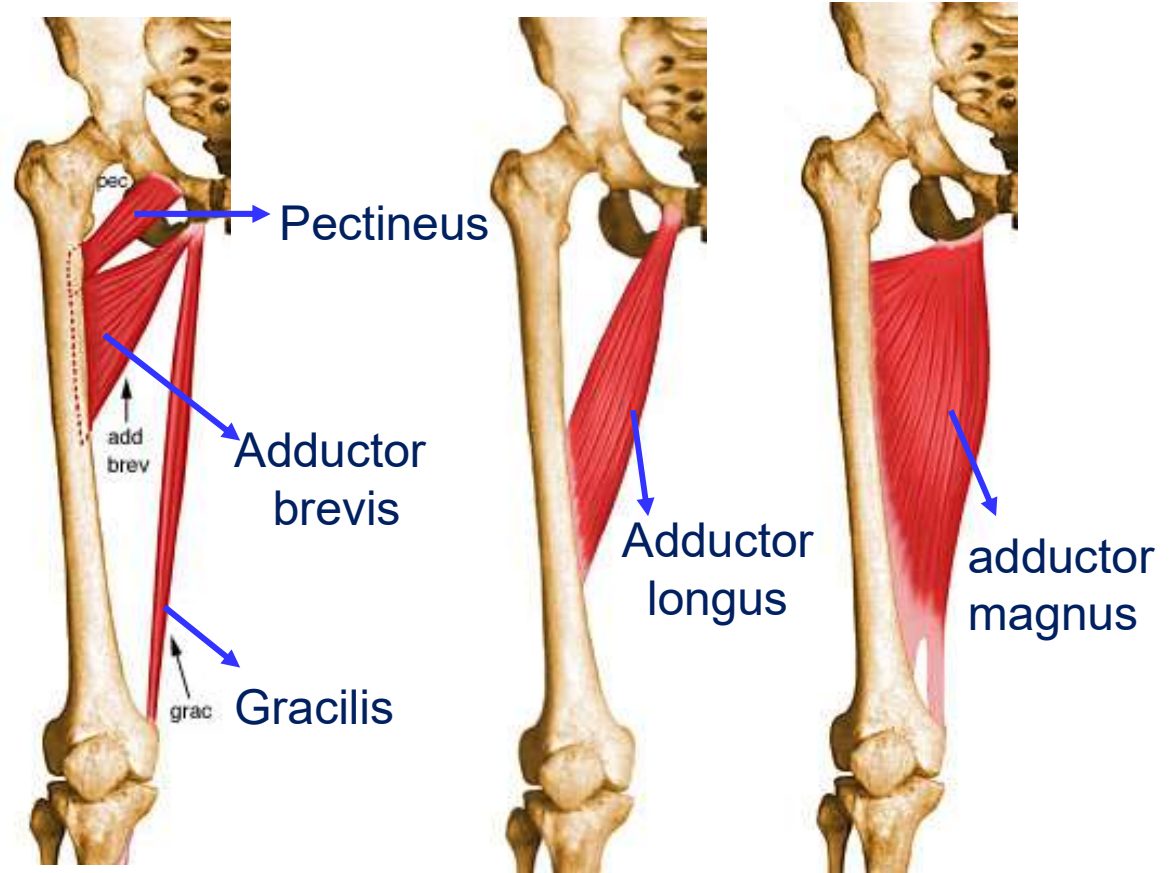
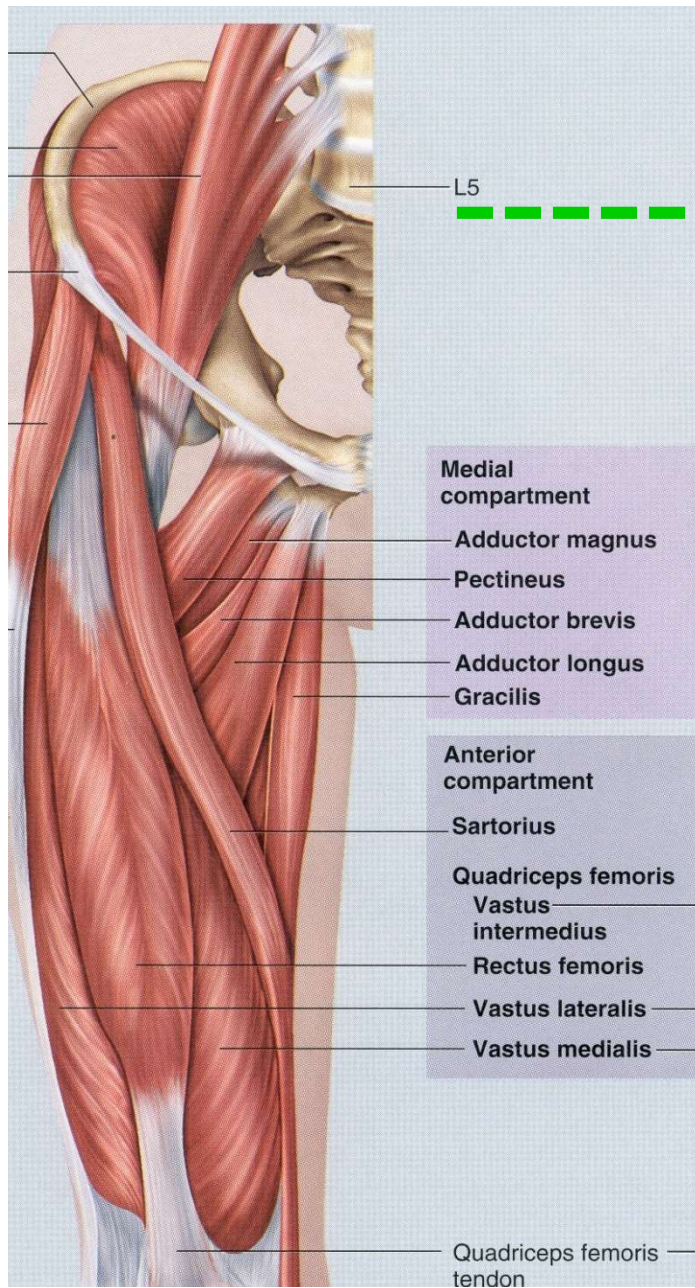


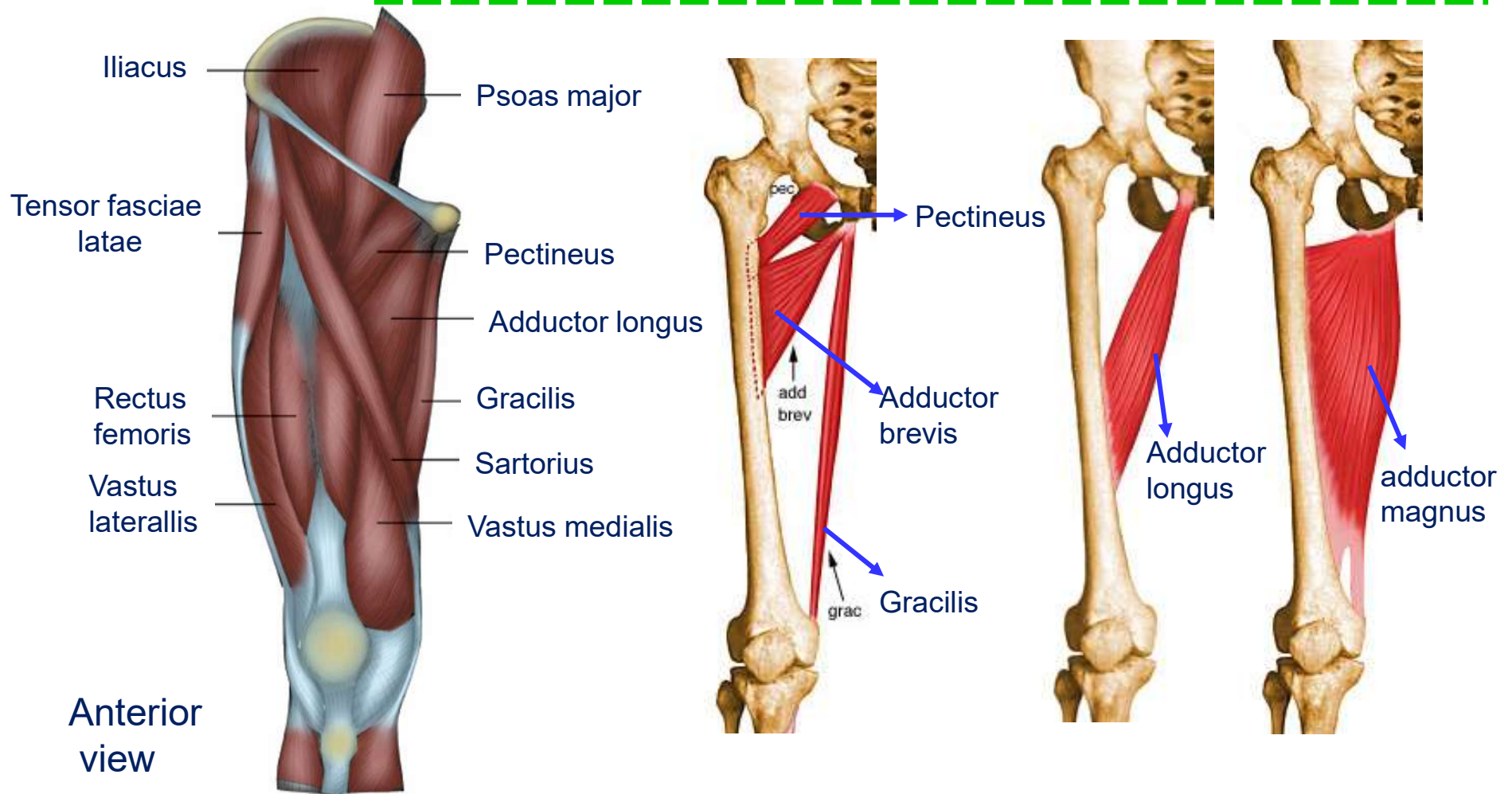
FIG-D

Medial group of the thigh



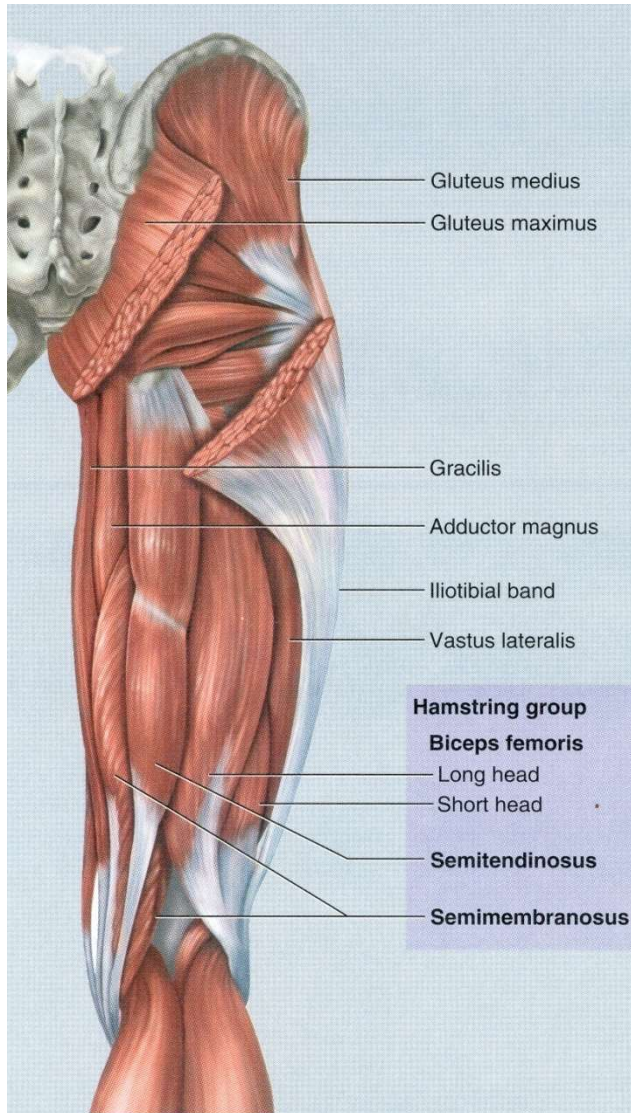
Medial group act to adduct, flex and laterally rotate the thigh. The gracilis can adduct the hip joint and flex the knee joint.

Medial group of the thigh



Medial group act to adduct, flex and laterally rotate the thigh. The gracilis can adduct the hip joint and flex the knee joint.

Posterior group of thigh m.



Biceps femoris (Long head)



Biceps femoris (Short head)



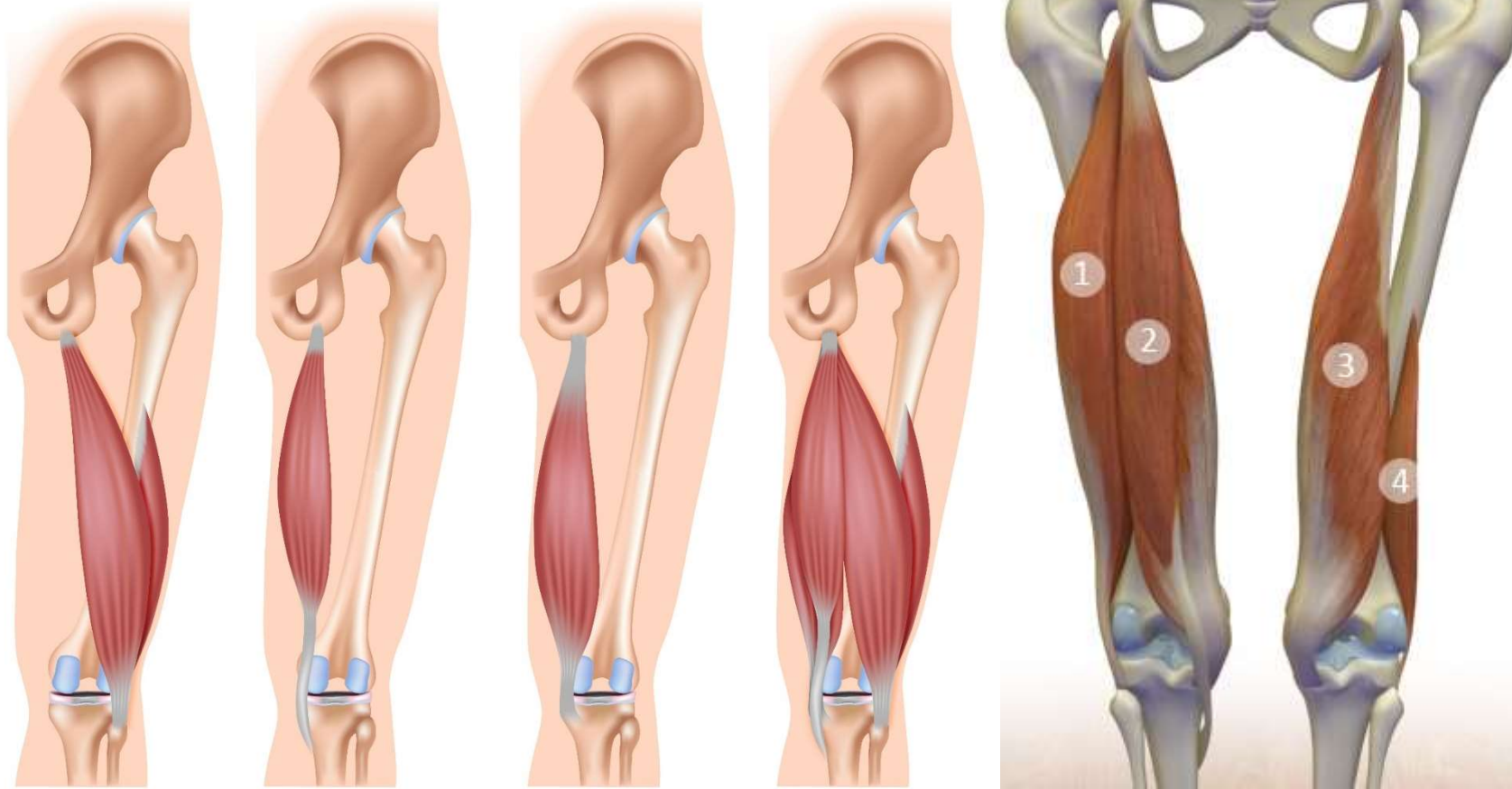
semitendinosus



semimembranosus

They are the main extensors of the thigh and flexors of the leg. When the knee joints is semi-flexed, they can also rotate the leg

The Hamstring Group



Biceps femoris Semitendinosus Semimembranosus

The muscles of the leg

Anterior group 3

Extend ankle & extend toe of foot

Lateral group 2

Strephepodia (足外翻)

Maintain transverse & lateral longitudinal arches of the foot

Posterior group 4

Flex the toe & strephenopodia (足内翻)



Anterior muscular group of the leg

1-Tibialis anterior

2-Extensor digitorum longus

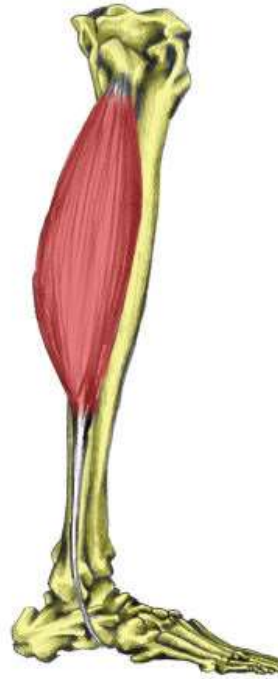
3-Extensor hallucis longus

Action :

All the muscles can dorsiflex the ankle Joint, in addition, the tibialis anterior can invert the foot. the extensor hallucis longus extends the big toe and the extensor digitorum longus extends the other toes.



lateral muscular group of the leg city



Peroneus longus



Peroneus brevis

Actions : acting together ,they flex and evert the ankle joint.
The peroneus longus with the tibialis anterior helps to maintain the transverse and lateral longitudinal arches of the foot

Posterior muscular group of the leg

Superficial layer

1-gastrocnemius

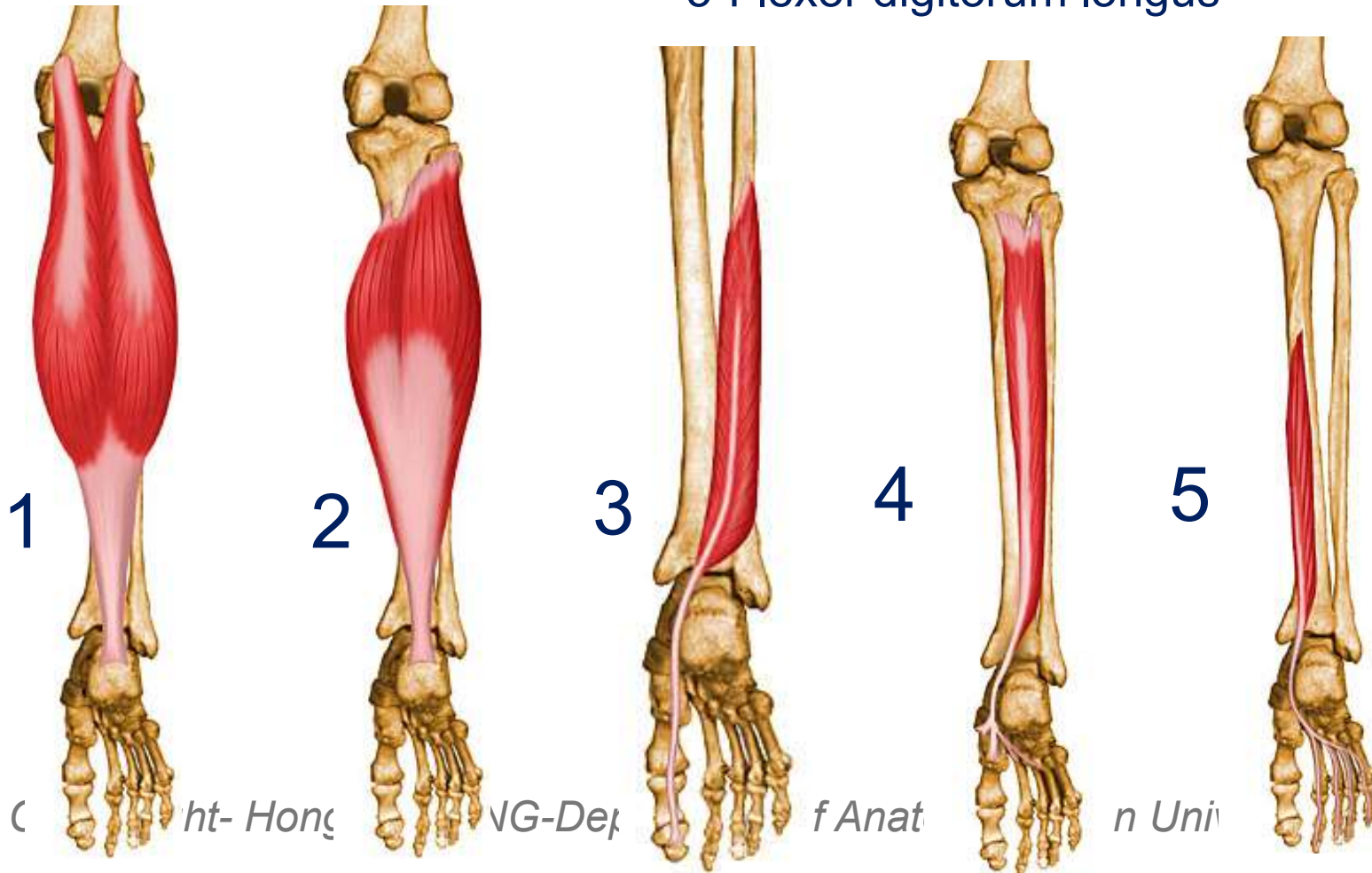
2- soleus

Deep layer

3-Flexor hallucis longus

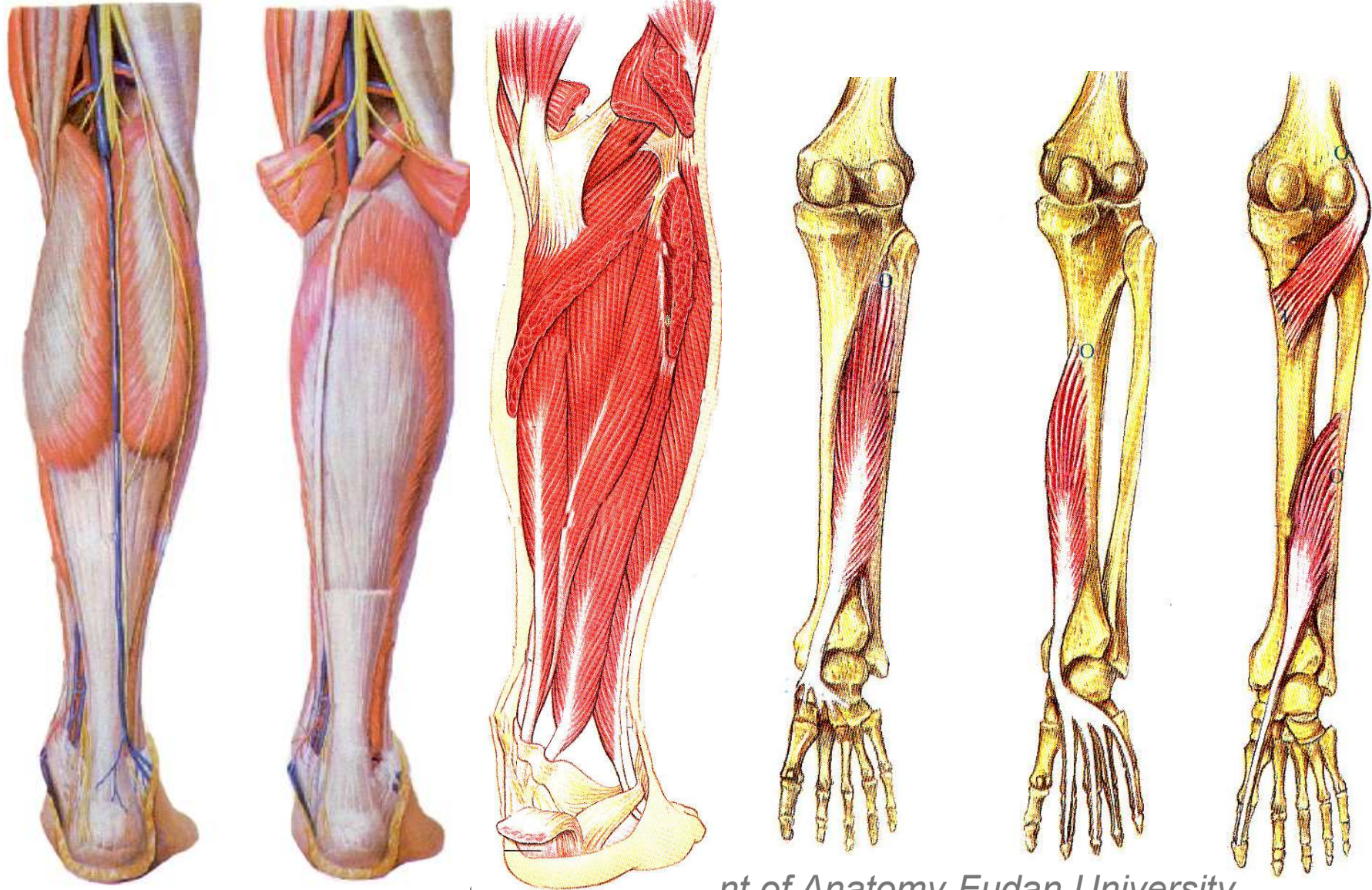
4-Tibialis posterior

5-Flexor digitorum longus



Copy

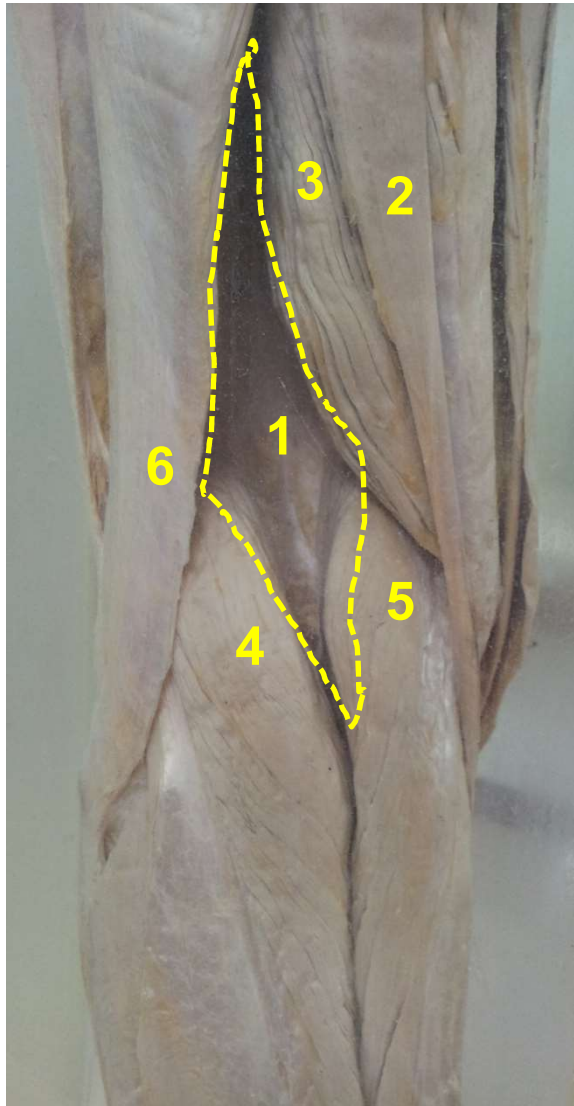
Posterior muscular group of the leg



nt of Anatomy-Fudan University



Popliteal fossa-structure & boundary



1. Popliteal fossa
2. Semitendinosus
3. Semimembranosus
4. Lat.head of gastrocnemius
5. Med.head of gastrocnemius
6. Long head of biceps femoris



The muscle of foot

Similar in name and number to those of the hand.

Three groups:

Medial group-movement of 1st toe

Intermediate group-movement of 2nd-5th toe

Lateral group-movement of 5th toe

The foot is adapted to provide support while bearing body weight rather than to grasp objects. The plantar muscles are grouped into four layers. But these are difficult to associate, even in dissection, the muscles function either to move the toes or to support the arches of the foot through their contraction. because of their complexity the muscles of the foot will be presented only in illustration

The important contents today

- ◆ Understand the name, position and action of the muscles of the hip.
- ◆ Master the name, position and action of the muscles of the thigh.
- ◆ Master name, location and function of the muscles of the leg
- ◆ Understand grouping of the muscle of the foot

Copy Right- Hongqi ZHANG-Department of Anatomy-Fudan University



See you next time!

Copy Right- Hongqi ZHANG-Department of Anatomy-Fudan University