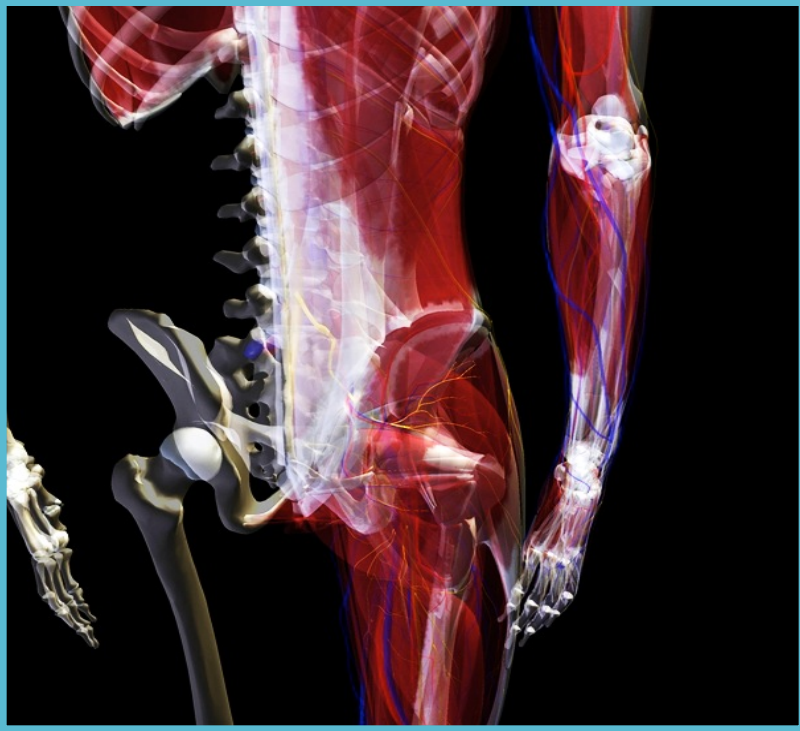




Anatomy Team
433

**King Saud University
College of medicine
Musculoskeletal Block**



GLUTEAL REGION AND BACK OF THIGH

15

Objectives

TO IDENTIFY:

⇒ Contents of gluteal region:

- Groups of Glutei muscles and small muscles (Lateral Rotators).
- Nerves & vessels.

⇒ Foramina and structures passing through them as:

- Greater Sciatic Foramen.
- Lesser Sciatic Foramen.

⇒ Back of thigh:

- Hamstring muscles.

Color Index:

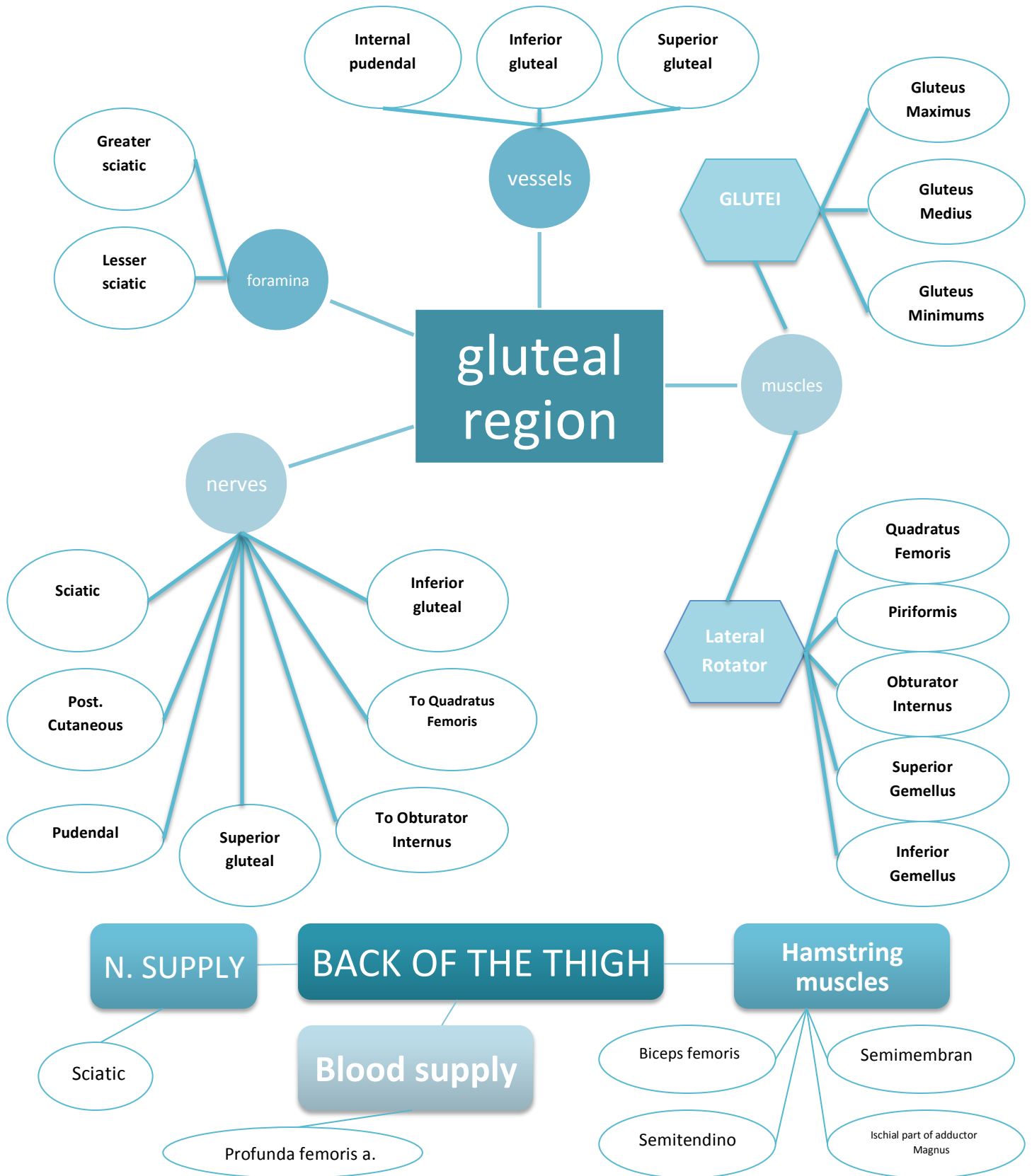
- Red: Important.
- Violet: Explanation.
- Gray: Additional Notes.

Other colors are for
Coordination

Abbreviation:

n. Or N.	Nerve
V.	Vessels
GSF	Greater Sciatic Foramen.
SGS	Sartorius Gracilis Semitendinosus
a.	Arteries
g.	Gluteus

Mind Map

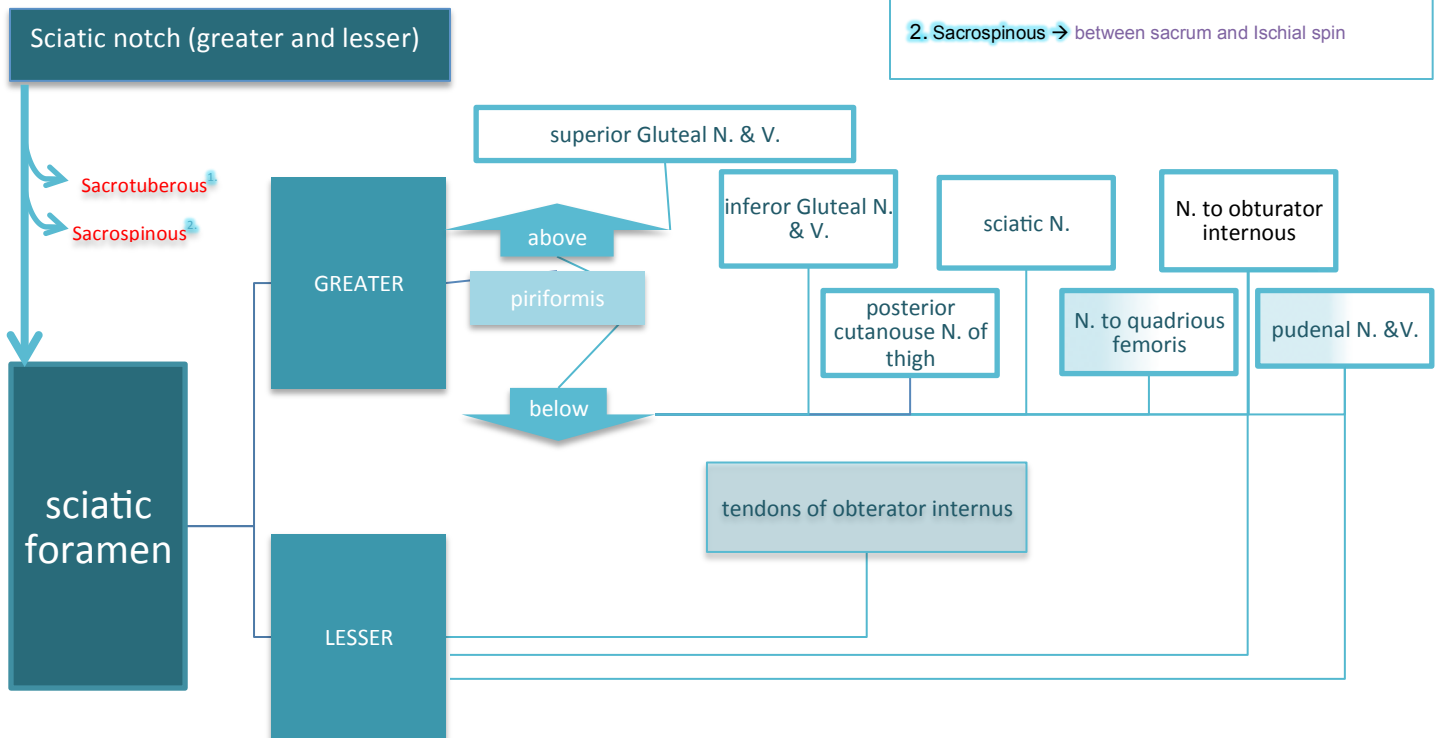


Gluteal region

FIRST: SCIATIC FORAMEN

Sciatic notches are converted to foramen by these two ligaments:

1. Sacrotuberous → between sacrum and Ischial tuberosity
2. Sacrospinous → between sacrum and Ischial spin



Second: muscles

A) GLUTEI

	Gluteus minimus	Gluteus medius	Gluteus maximus
Origins	Gluteal surface of ilium		
	Anterior	Middle	Posterior ⇒ Main origin: back of (sacrum, coccyx & Sacrotuberous ligament)
Insertion	Surface of the Greater trochanter		⇒ Main: iliotibial tract ¹ ⇒ Other: gluteal tuberosity of the femur
	Anterior	Lateral	
N. Supply	Superior gluteal N.		Inferior gluteal N.
Action	⇒ Abduction and medial rotation of the hip joint. ⇒ Prevent tilt of the pelvic on raising the other injured limb from ground. ²		⇒ Stabilizing the femur on the tibia. ⇒ Extension and lateral rotation of the hip joint

1. Iliotibial tract: thinking of deep fascia of lateral side of the thigh.
 2. In polio if the nerve supplying these muscles is injured (superior gluteal n.), the patient will have Waddling gait.
- For further understanding of these parts look at page 7

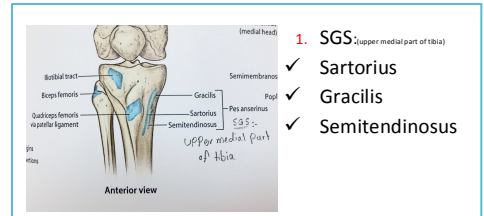
b) Small muscles (lateral rotators)

NAME OF THE MUSCLE	ORIGIN	INSERTION	N. supply	Action
1- obturator intrnus	Inner surface of the side wall of the pelvis	Medial surface of the greater trochanter	n. to obturator intrnus	✓ Lateral rotation of the hip joint. ✓ Control movement of the hip joint.
2- Superior Gemellus	Upper part of lesser sciatic notch	Tendons of obturator internus	n. to obturator internus	
3- Inferior Gemellus	Lower part of lesser sciatic notch		n. to quadratus femoris	
4- piriformis	Middle 3 sacral vertebrae	GSF→upperborder of the grater trochanter	Anterior rami of S1,2	
5- quadratus femours	Lateral border of the ischeal tuberosity	Quadrata tubercle& interochanteric crest	n. to quadratus femoris	

Third: Nerves

	Course(path of the nerve)	Branches
1-superior	GSF→above Piriformis→between glutes medius & minimus.	✓ Muscular → gluteus medius, minimus & tensor fasciae lata. ✓ Articular to hip joint
2- inferior gluteal	GSF→below Piriformis →deep to gluteal maximus	✓ Muscular → gluteus maximus
3- N. to Quadratus femoris	GSF→ below Piriformis	✓ Muscular →quadratus femoris & inferior gemellus ✓ Articular to hip joint
4-posterior cutaneous N. of thigh	GSF→below Piriformis → deep fascia	✓ Gluteal region. ✓ Back of scrotum (labium majus). ✓ Back of thigh. ✓ Upper part of back of leg.
5- sciatic N.	GSF→ below Piriformis → superficial to: <ul style="list-style-type: none"> ✓ Ischial spine ✓ Superior Gemellus ✓ Inferior Gemellus ✓ Quadratus femoris ✓ Tendon of the spine ✓ Adductor Magnus 	✓ No branch ✓ Divide into: <ul style="list-style-type: none"> • Tibial • <i>Common peroneal nerves</i>, in the middle of back of thigh.

Compartments of the thigh

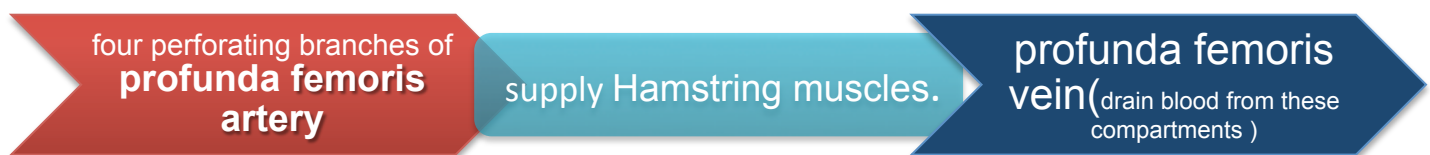


First: Muscles

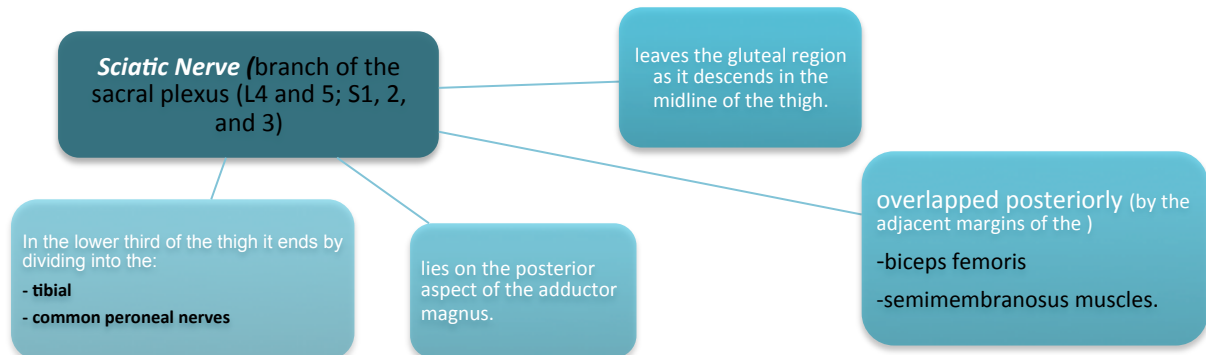
	ORIGIN		INSERTION	n. supply	Action	
1-Biceps femoris	Long head:	Ischial tuberosity	the head of the fibula	tibial part of the sciatic	✓ Flexion of knee.	extends hip
	Short head:	Linea aspera		common peroneal part of the sciatic	✓ Lateral rotation of flexed leg	
2- SEMITENDINOSUS	Ischial tuberosity		Upper part of the medial surface of the shaft of the tibia (SGS) ¹ .	Tibial portion of the sciatic	✓ Flexes and medially rotates the leg at the knee joint; ✓ Extends the thigh at the hip joint.	
3- SEMIMEMBRANOSUS			Posterior surface of the medial condyle of the tibia → It forms the oblique popliteal ligament ¹ .		✓ Flexes and medially rotates the leg at the knee joint; ✓ Extends the thigh at the hip.	
4- ADDUCTOR MAGNUS (HAMSTRING PART)			Adductor tubercle of the medial condyle of the femur.		✓ Extends the thigh at the hip joint.	

Always remember that → the action of any muscle attached to Ischial tuberosity is **extension of the hip joint**

Second: blood supply



Third : NERVE SUPPLY



Gluteal region

GLUTEI muscles of the gluteal

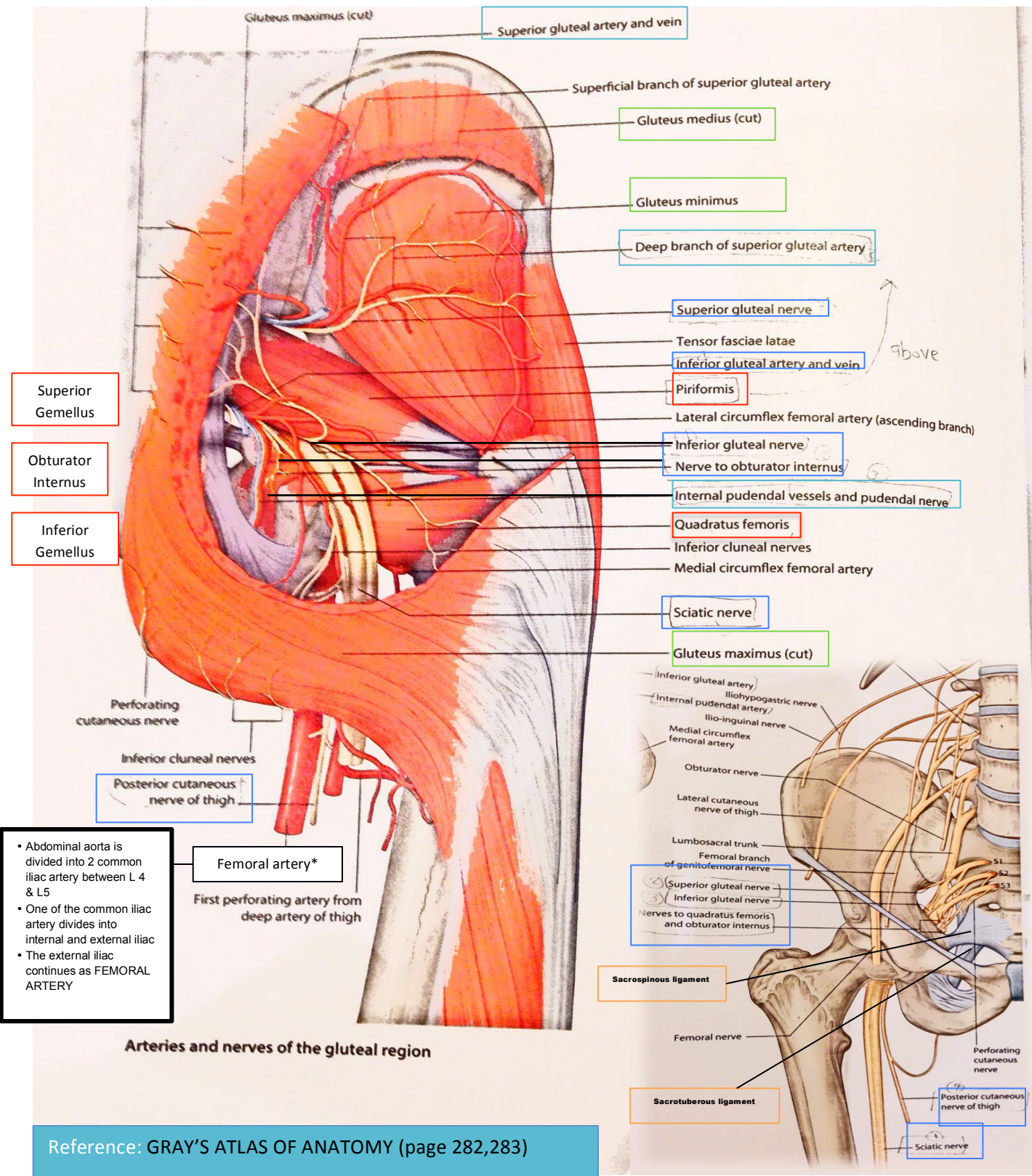
Ligaments (convert sciatic notch to foramen)

Small muscles (lateral rotators)

Arteries and veins

Nerves of the gluteal region

Extra information from tutor



- Superior Gemellus
- Obturator Internus
- Inferior Gemellus

• Abdominal aorta is divided into 2 common iliac artery between L 4 & L5
 • One of the common iliac artery divides into internal and external iliac
 • The external iliac continues as FEMORAL ARTERY

Femoral artery*

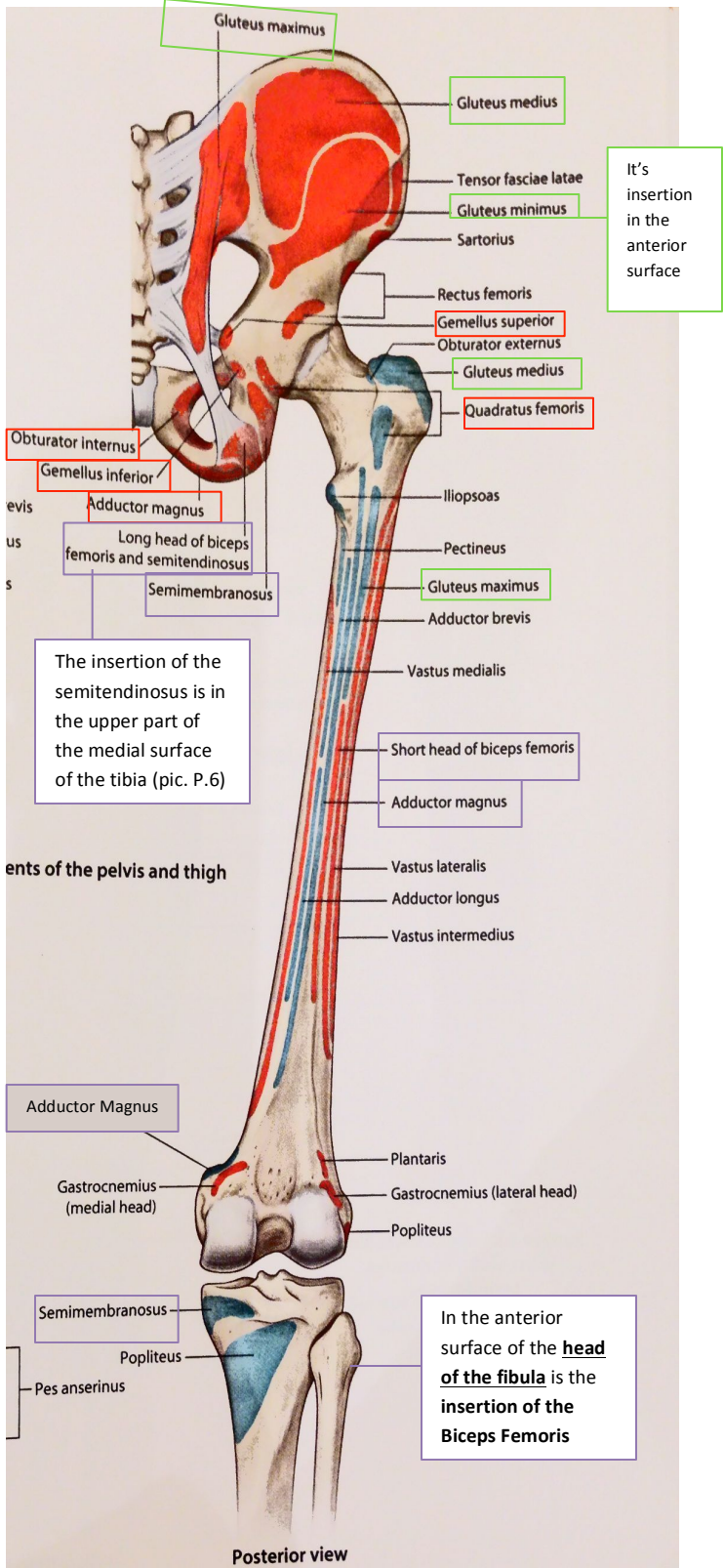
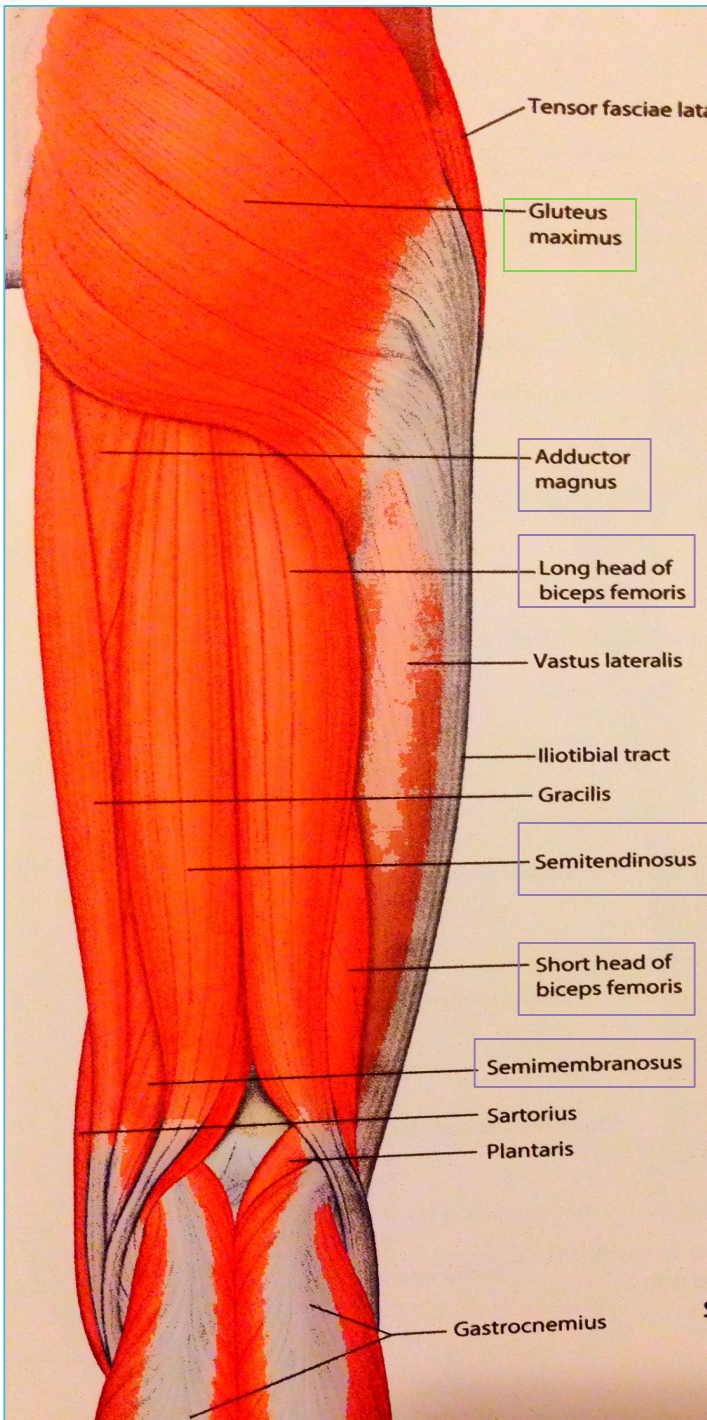
First perforating artery from deep artery of thigh

Arteries and nerves of the gluteal region

Reference: GRAY'S ATLAS OF ANATOMY (page 282,283)

Compartments of the thigh

Muscles at the back of the thigh



We apology if the pictures were not clear : |
 Reference: GRAY'S ATLAS OF ANATOMY (page 285,287)

Remember that:

- ⇒ All gluteal muscles **origin** from gluteal surface of ilium, **anteriorly** (g. minimus) **midly** (g. medius) **posteriorly** (g. Maximus) but the main origin of g. Maximus is *back of sacrum & coccyx back of sacrotuloeros ligament*.
- ⇒ The **insertion** of g. muscles are greater trochanter **anteriorly** (g.minimus), **latterly** (g.medius), **medially** (Obturator Internus), **upper part** (Piriformis) but g. Maximus is *iliotibial tract & gluteal tuberosity of the femur*.
- ⇒ All nerves of gluteal region are **rises from sacral plexus**.
- ⇒ All blood vessels of gluteal region are **rises from internal iliac vessels**.
- ⇒ Any muscles attach to Ischial tuberosity extend hip joint.
- ⇒ **Sciatic Nerve** a branch of the sacral plexus (L4 to S3), it **divides** into the tibial and common peroneal nerves.
- ⇒ Greater & lesser sciatic notch are transformed into foramen by **sacrotuberous & sacrospinous ligaments**.
- ⇒ Hamstring muscles origin from Ischial tuberosity **except** short head of biceps femoris linea aspera.
- ⇒ Insertion of biceps femoris head of fibula, Semitendinosus & Semimembranosus medial condyle of the tibia (SGS)

SUPPORTING :)

Our sisters and brothers we hope we made this lecture easier for you and to help you to imagine the regions, these are websites for 3D illustration of the human body



<https://www.biodigitalhuman.com/>



<http://www.zygotebody.com/#nav=1.37,87.59,2506>

These are videos might help you to understand these regions:

✓ Muscles of the Thigh 6:39



<http://www.youtube.com/watch?v=PAMWumkerRA>

✓ Muscles of the Gluteal Region (7:27)



<http://www.youtube.com/watch?v=RHJwCzzWqhE>

Multiple Choice Questions

Q1: Which one of the following muscles stabilize the femur on the tibia:

- A. Gluteal medius B. Gluteal minimums C. Gluteus Maximus.

Q2: Which one of the following muscles origin in the anterior part of gluteal surface of ilium:

- A. Gluteal medius. B. Gluteal minimums. C. Gluteus Maximus

Q3: Which one of the following nerves has not branches in gluteal region?

- A. Superior gluteal n. B. Inferior gluteal n. C. Post. Cutaneous n. D. Sciatic nerve.

Q4: Which one of the following nerves passing above Piriformis:

- A. Superior gluteal n. B. Inferior gluteal n. C. Post. Cutaneous n.

Q5: Which one of the following Hamstring muscles supply by common peroneal part of the sciatic:

- A. Long head of Biceps femoris. B. Short head of Biceps femoris C. Semitendinosus D. Semimembranosus

Q6: Which one of the following Hamstring muscles form oblique popliteal ligament:

- A. Semitendinosus B. Semimembranosus C. Adductor Magnus.

Q7: Which one of the following muscles supply by profunda femoris artery:

- A. Piriformis B. Biceps Femoris C. Quadratus femoris.

Q8: Which one of the following structures passing from Greater sciatic foramen to lesser sciatic foramen:

- A. Sciatic nerve. B. Superior gluteal nerves C. Pudental nerve.

Answers :

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
C	B	D	A	B	B	B	C



Anatomy Team

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**MAY THE DREAMS OF YOUR PAST
BE THE REALITY OF YOUR FUTURE**