



לגעת בכאב Touching the pain

החברה הישראלית לרפואת שריר שלד
The Israeli Society of Musculoskeletal Medicine



Hip and Low back Pain

Simon Vulfsons

Rambam Institute for Pain Medicine



Program for the day

Common causes of low back pain, hip and thigh pain

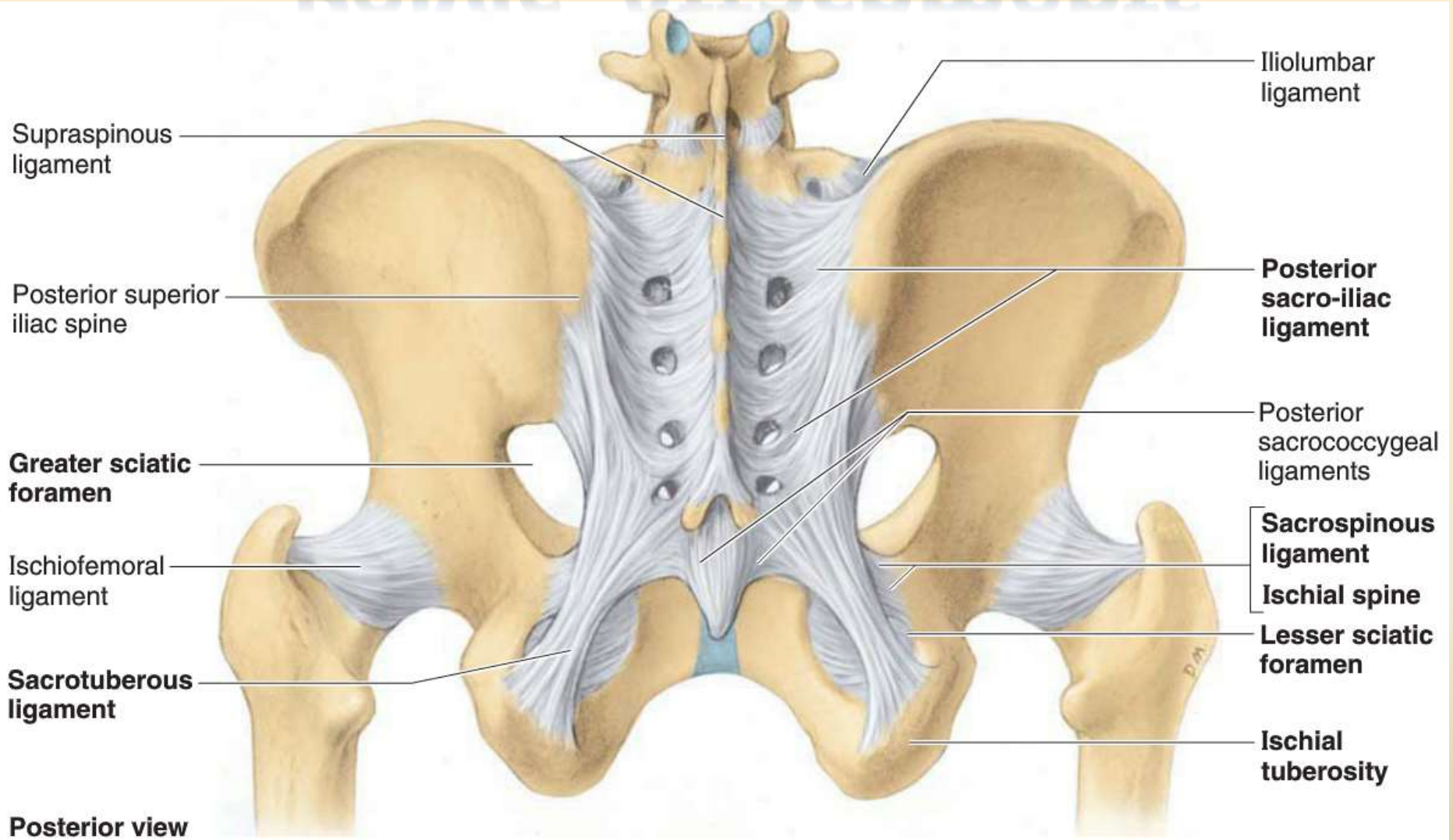
- Gluteus medius
- Gluteus minimus
- Piriformis

Hip abductors/stabilizers

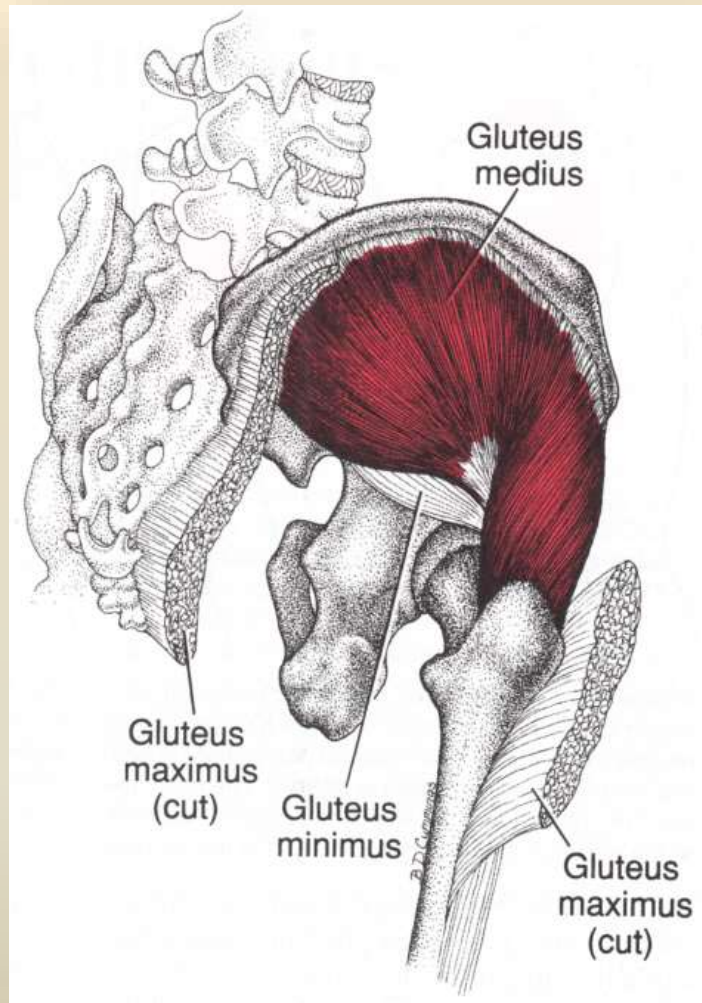
Hip rotator



Pelvic Attachments



Gluteus medius “lumbago muscle”



Innervation:

L4, L5, S1 *superior gluteal n.*

Action:

- Thigh abduction, medial rotation
- Keep pelvis level when ipsilateral limb is weight-bearing
- Advance opposite limb in swing phase

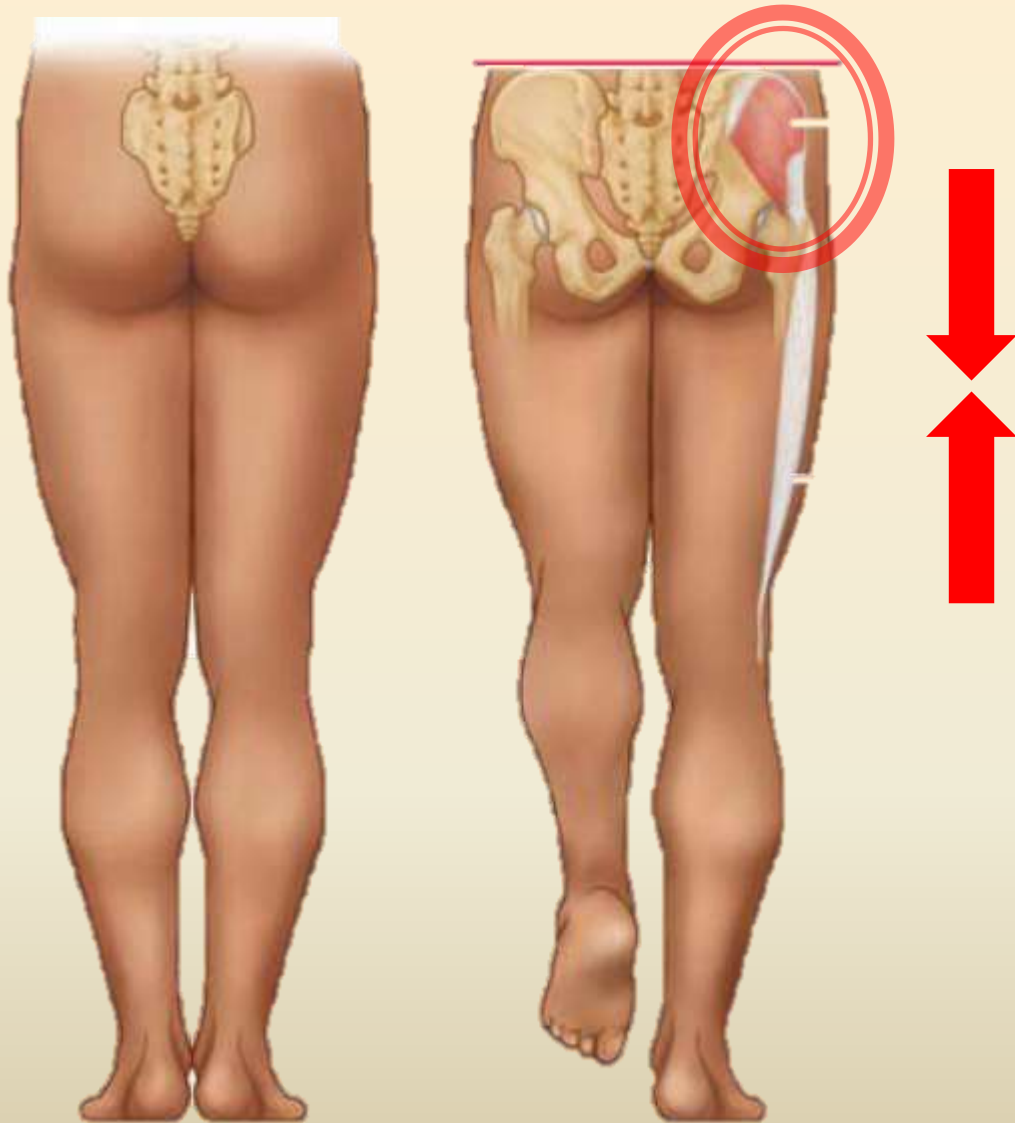
Pathology:

Sciatica - weakness



Friedrich
Trendelenburg
1844-1924

Gluteus medius

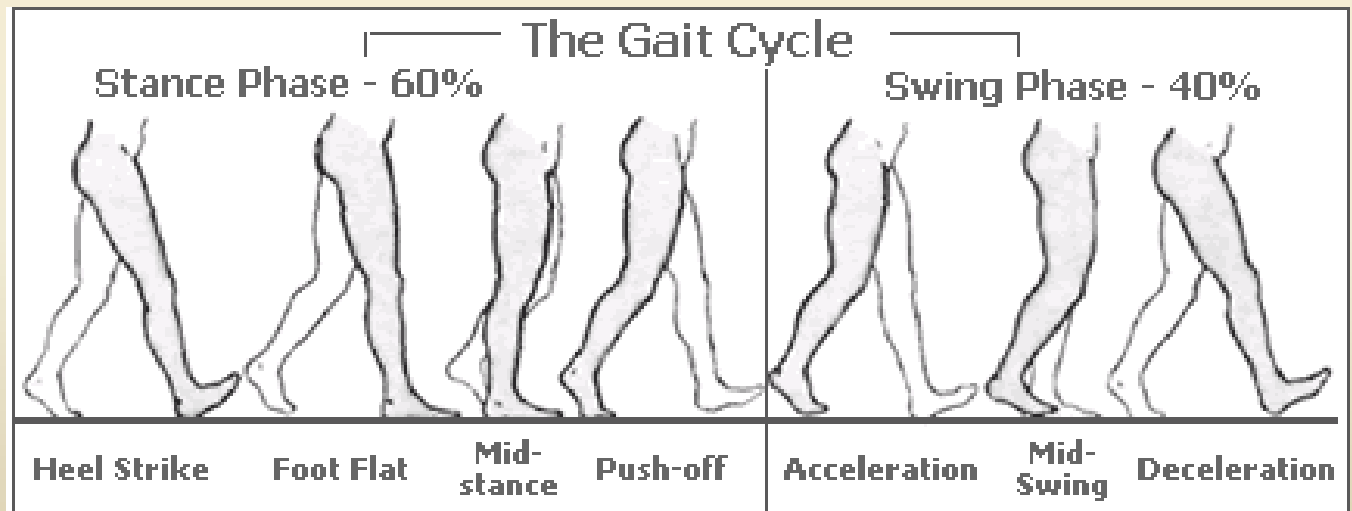


Gluteus medius

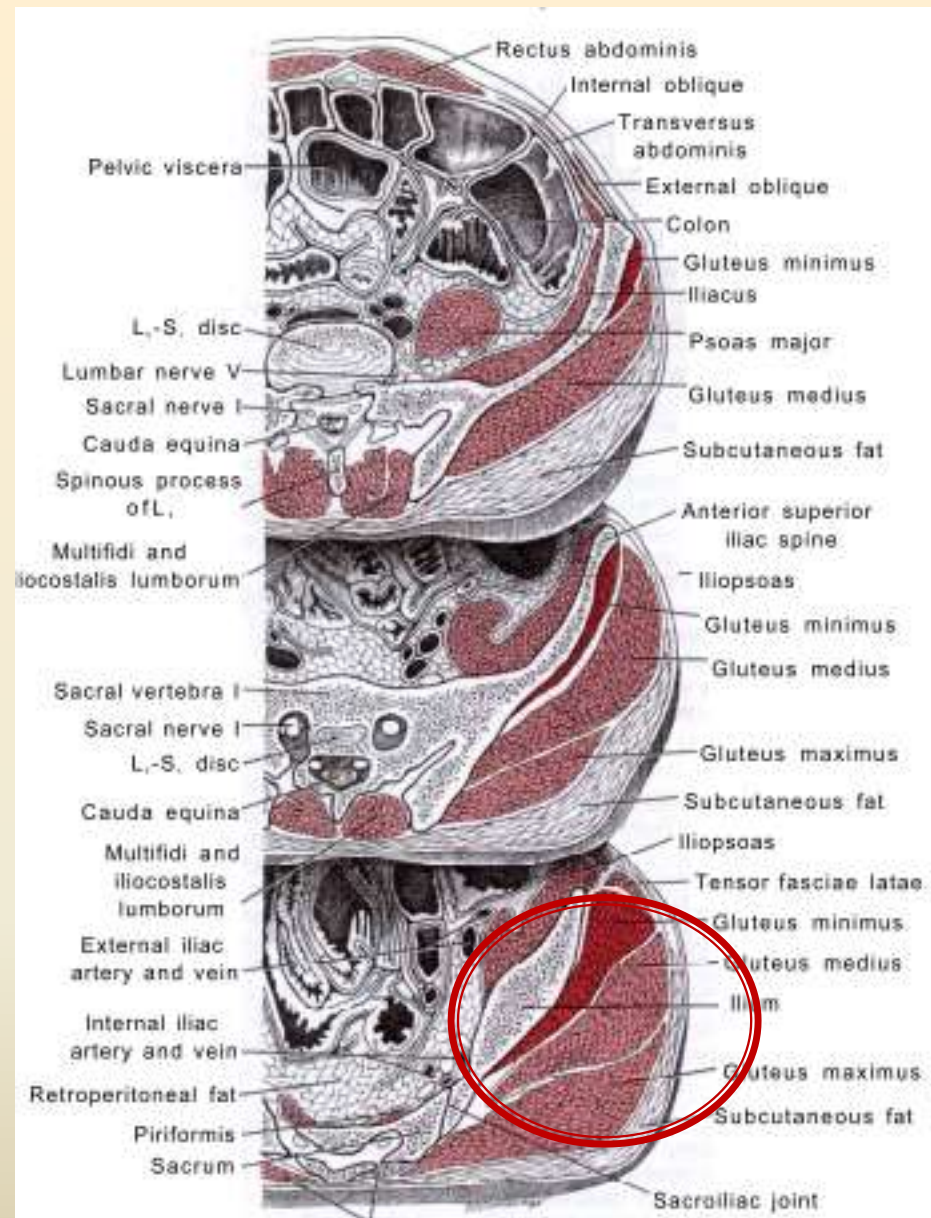
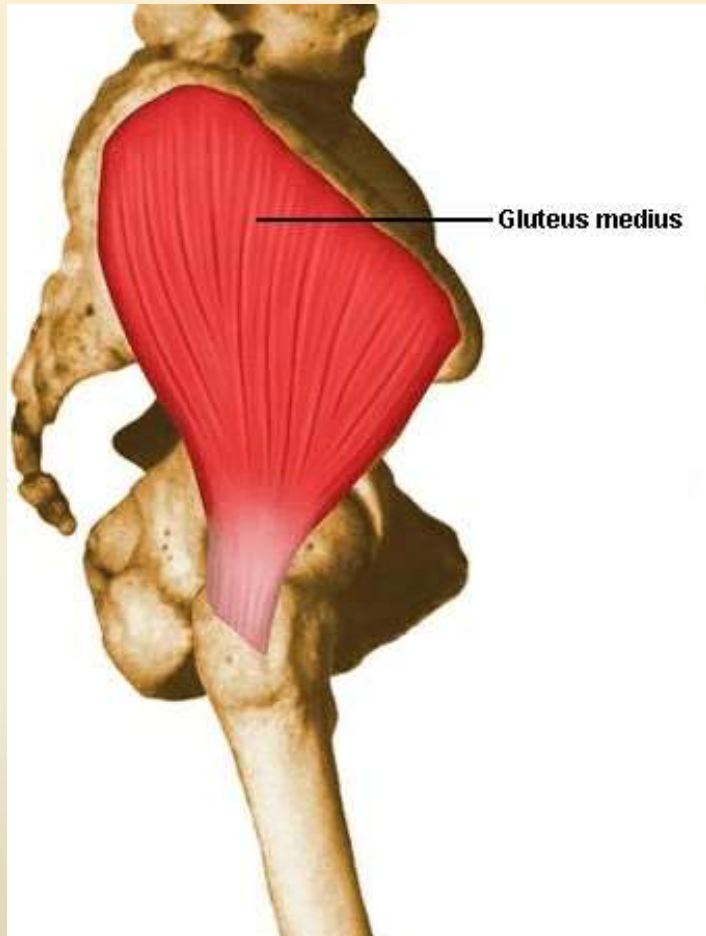


Gait Cycle

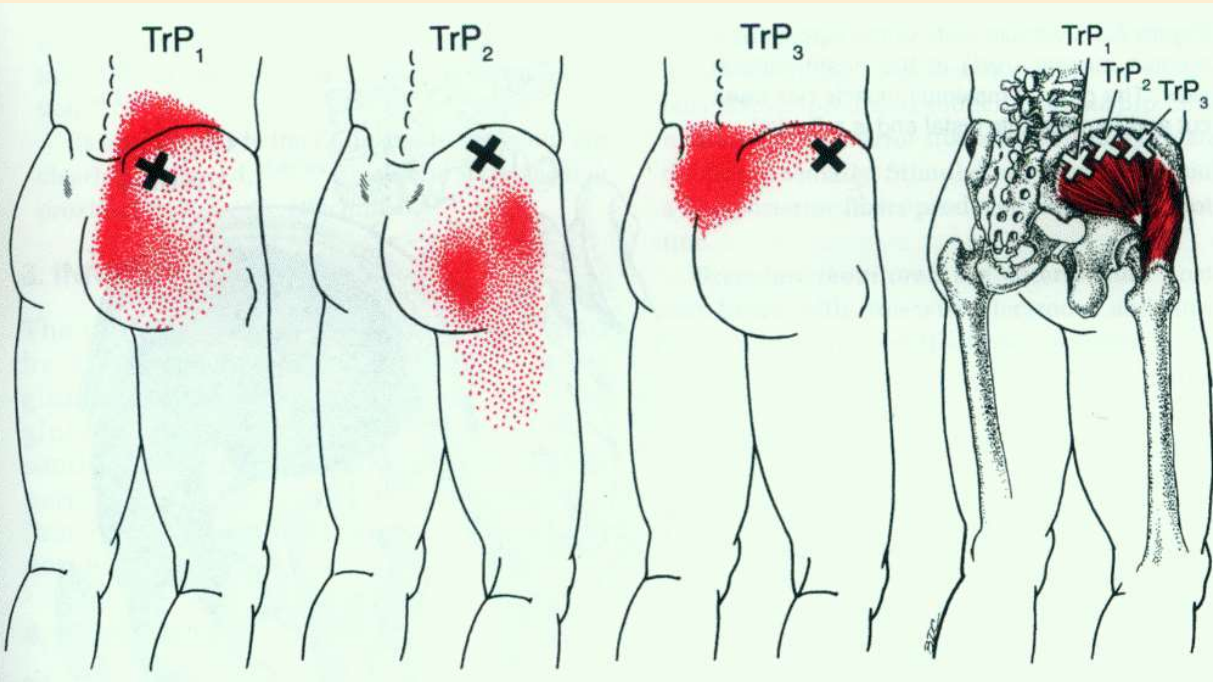
- Gluteus carries **3x** body weight during gait cycle, to keep hips level
- Glutei engaged 60% of the time in gait cycle
- Body weight shifts over stance leg to maintain equilibrium



Gluteus medius

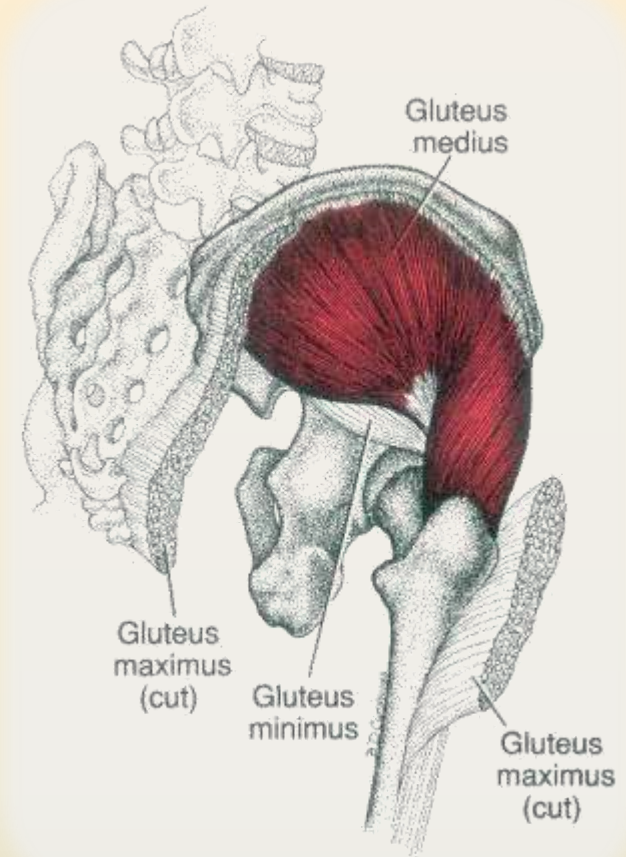


Gluteus medius



Pain pattern

Typically radiates upwards
buttock
SI joint
sacrum



Trendelenburg Test



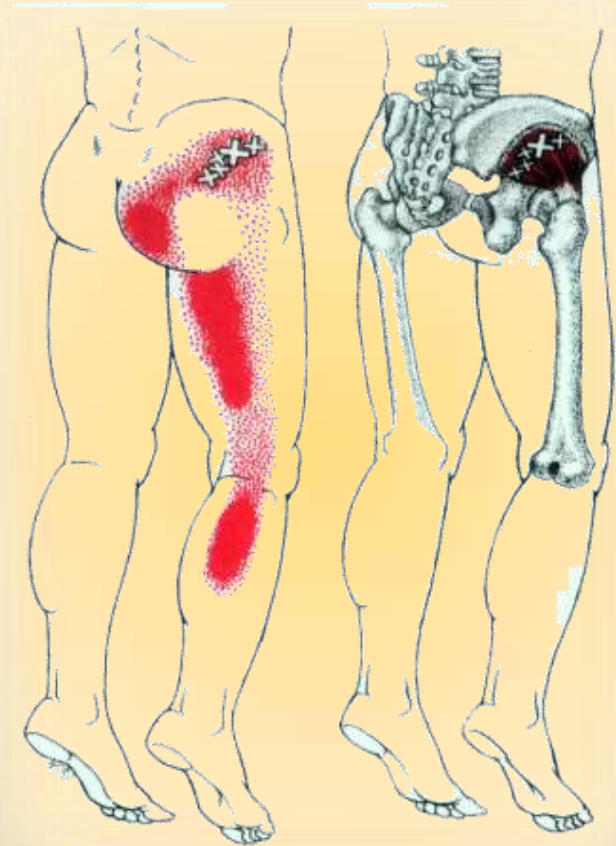
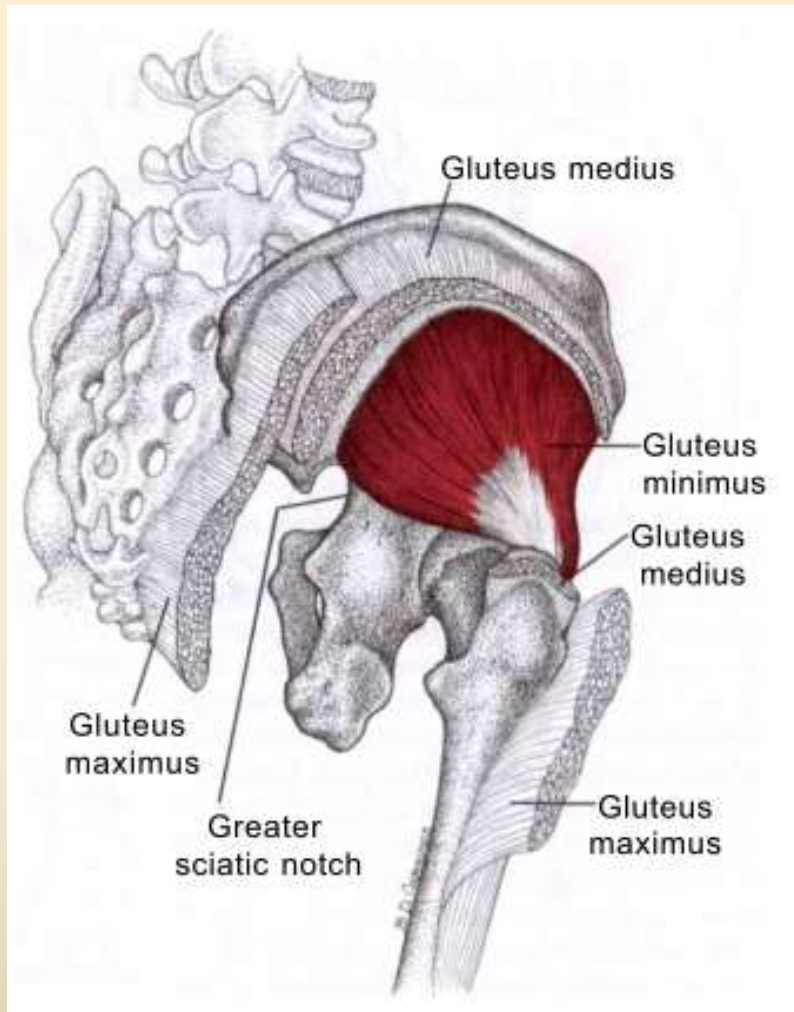
Note Left side

- Weakness of Glut Med
- Hiking over to the left

Pearl:

Note the level of the hips while the patient slowly raises his knee
If there is a weakness during the raise it could be due to the opposite quadratus lumborum compensating

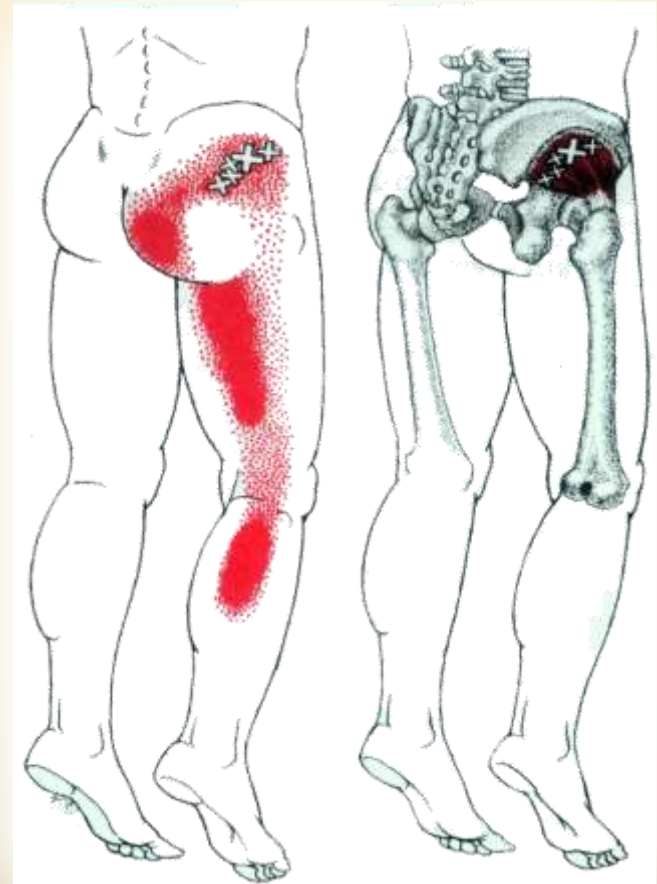
Gluteus Minimus - “Pseudo-Sciatica”



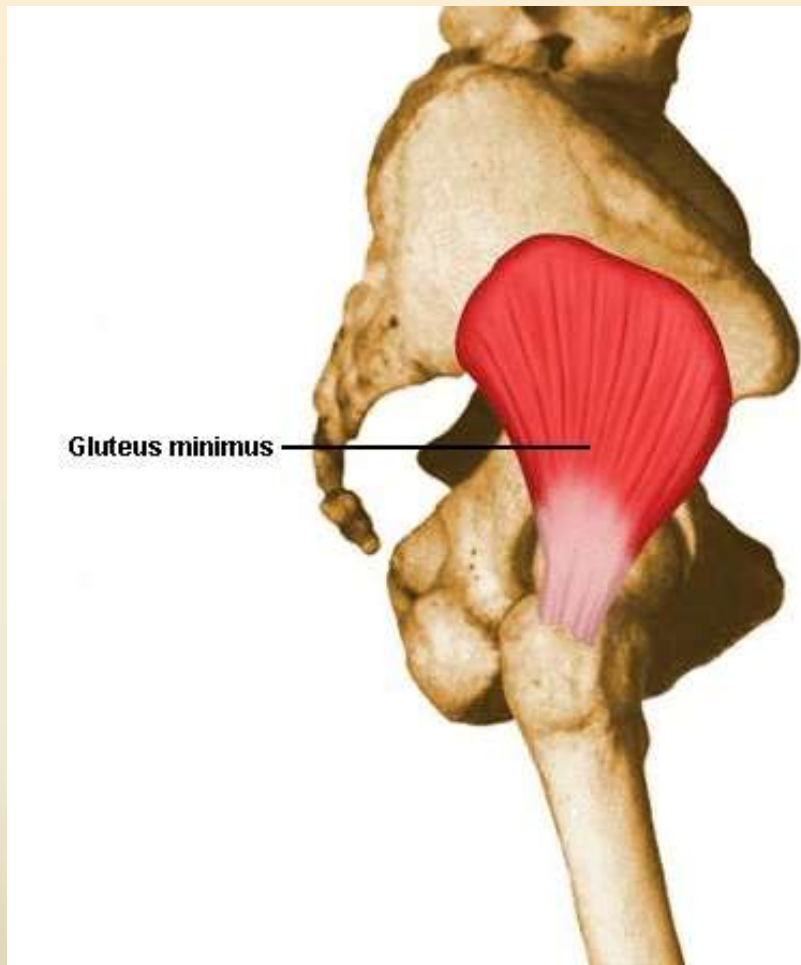
Gluteus Minimus - “Pseudo-Sciatica”

Pain pattern

Typically radiates down
buttock
lateral thigh
down to ankle



Gluteus minimus



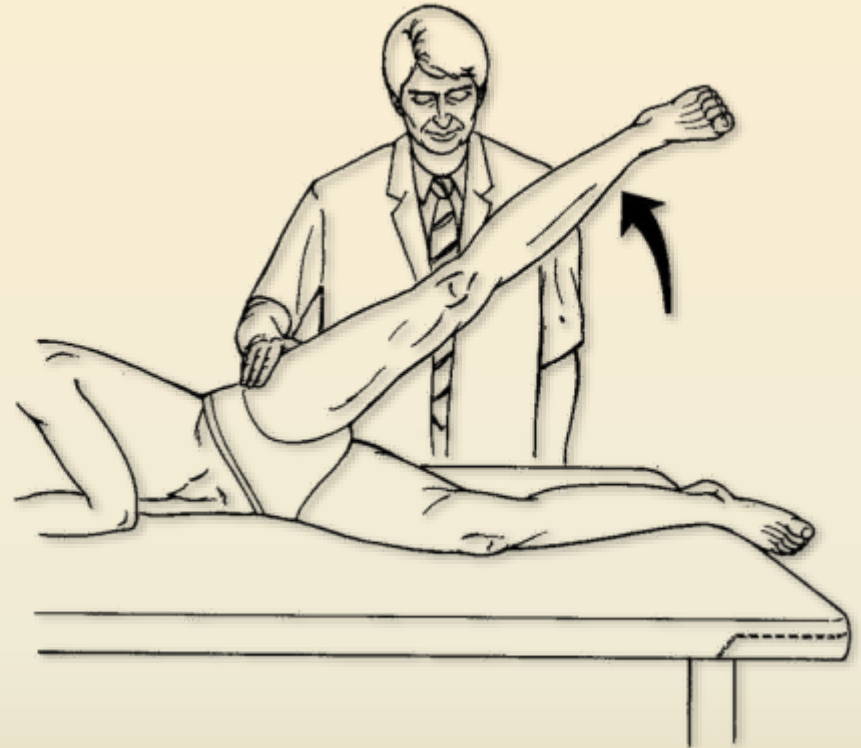
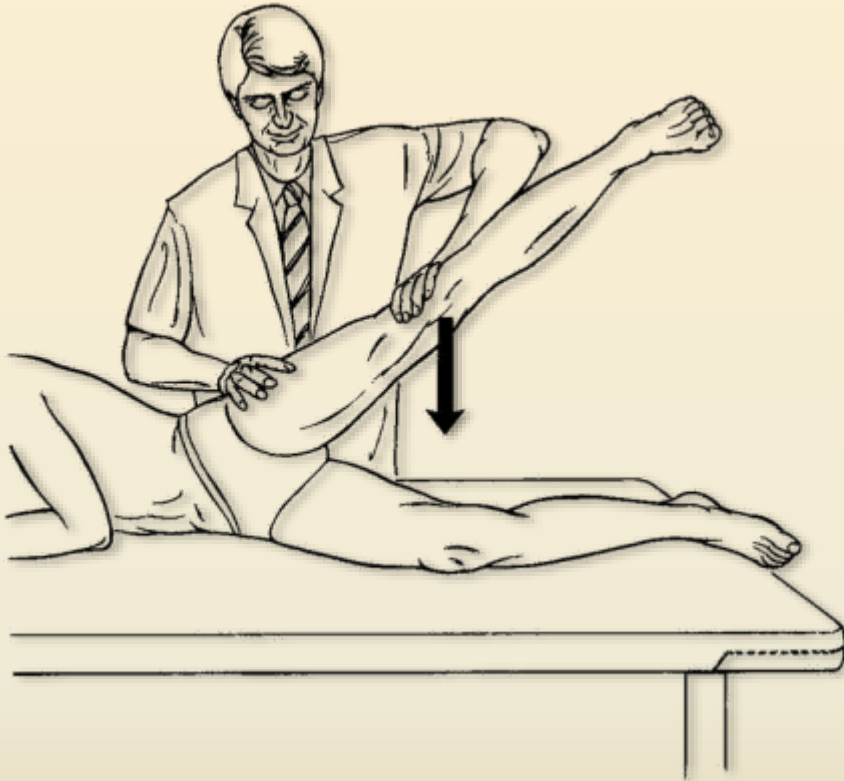
Innervation:

L4, L5, S1 *superior gluteal n.*

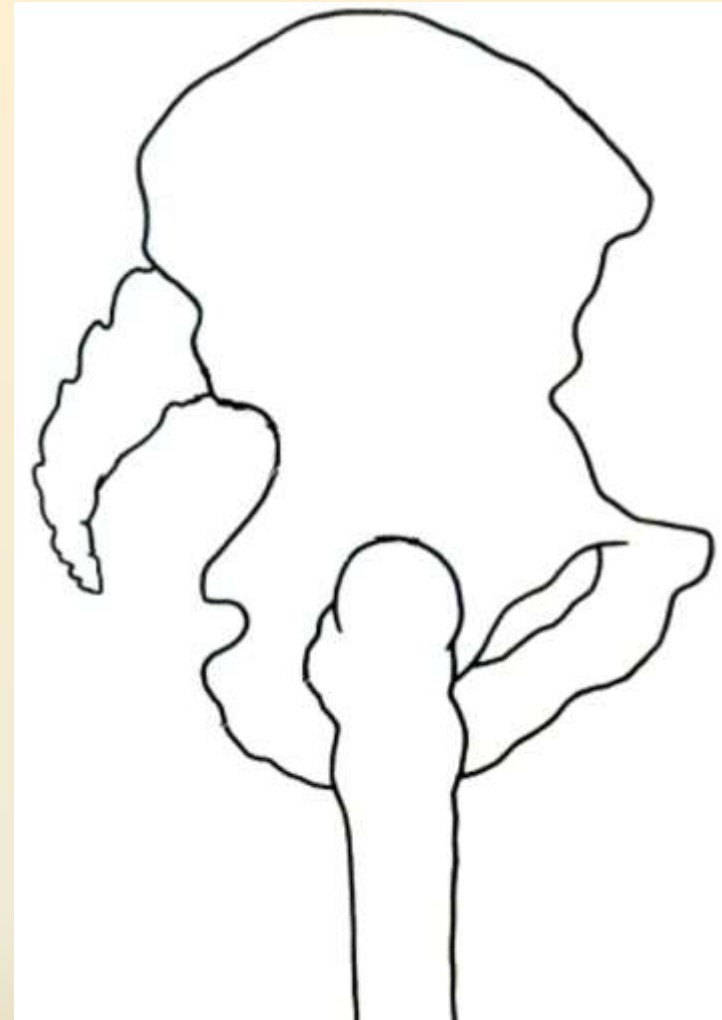
Action:

- Thigh abduction, medial rotation
- Keep pelvis level when ipsilateral limb is weight-bearing
- Advance opposite limb in swing phase
- Medial rotator of thigh (anterior portion)

Gluteus Minimus – muscle testing



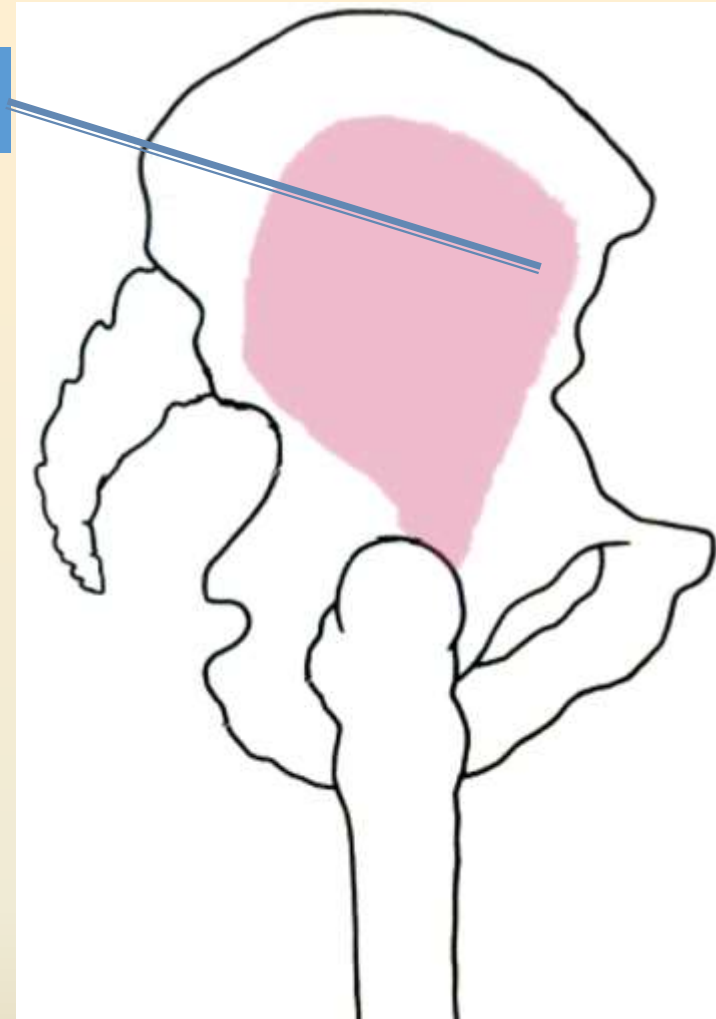
Surface anatomy of the glutei muscles

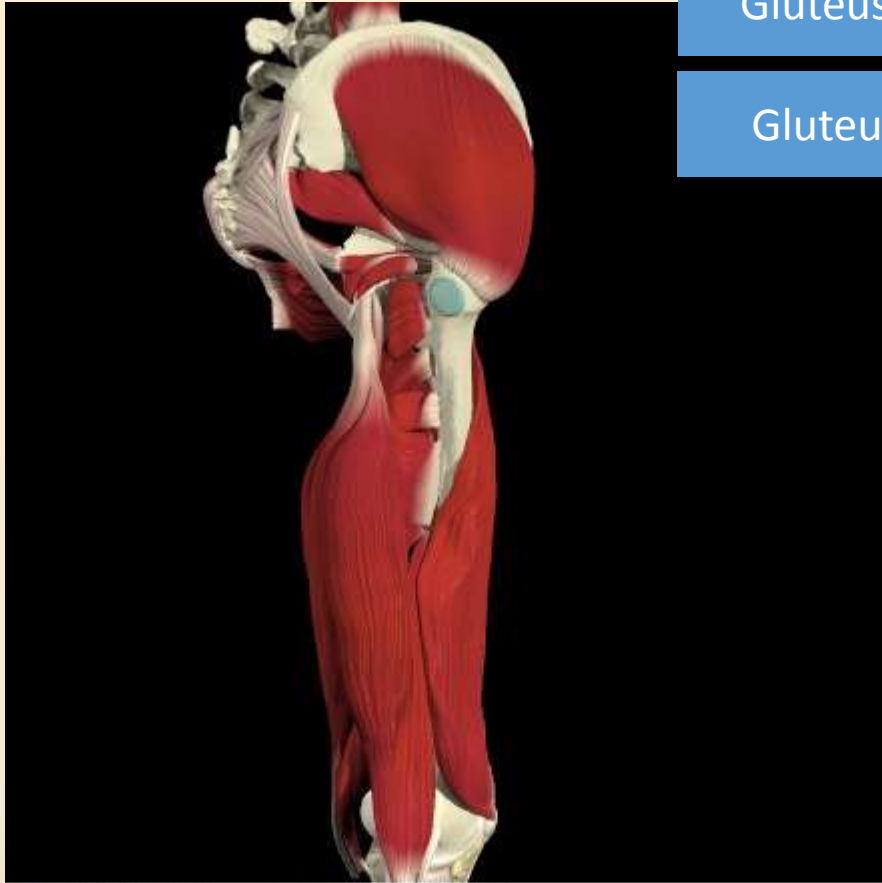


Gluteus minimus



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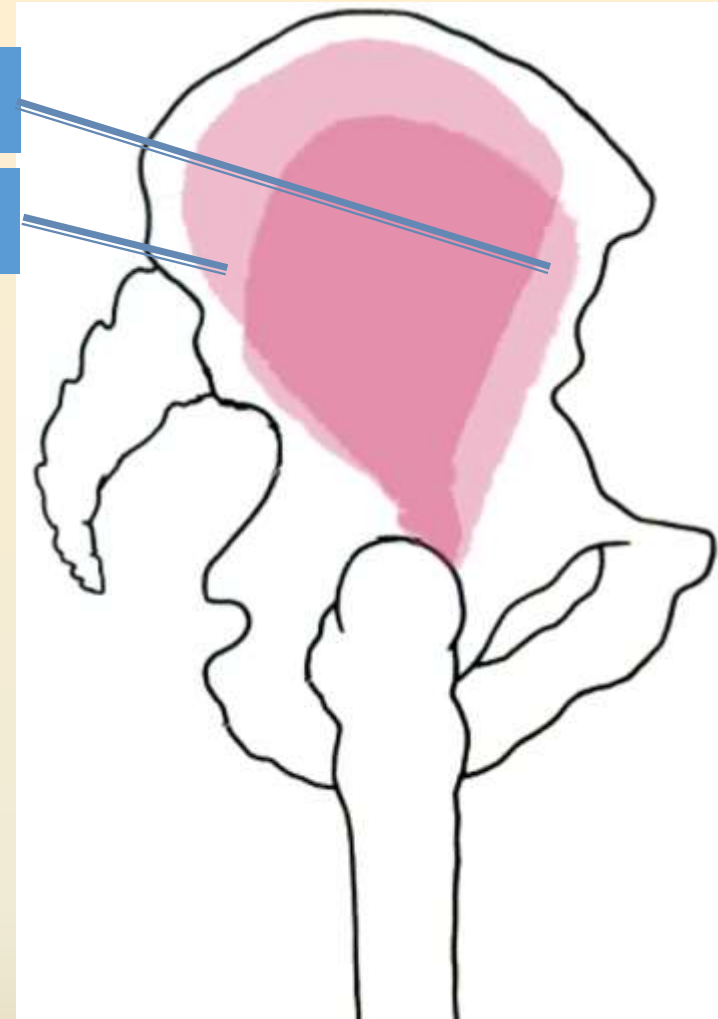




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Gluteus minimus

Gluteus medius



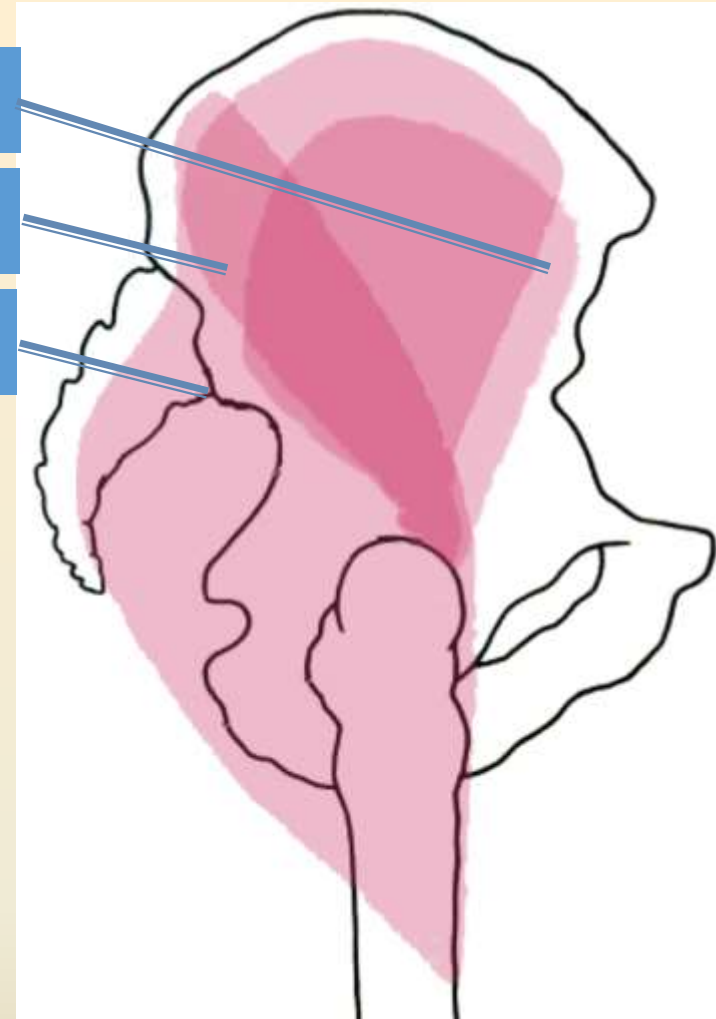


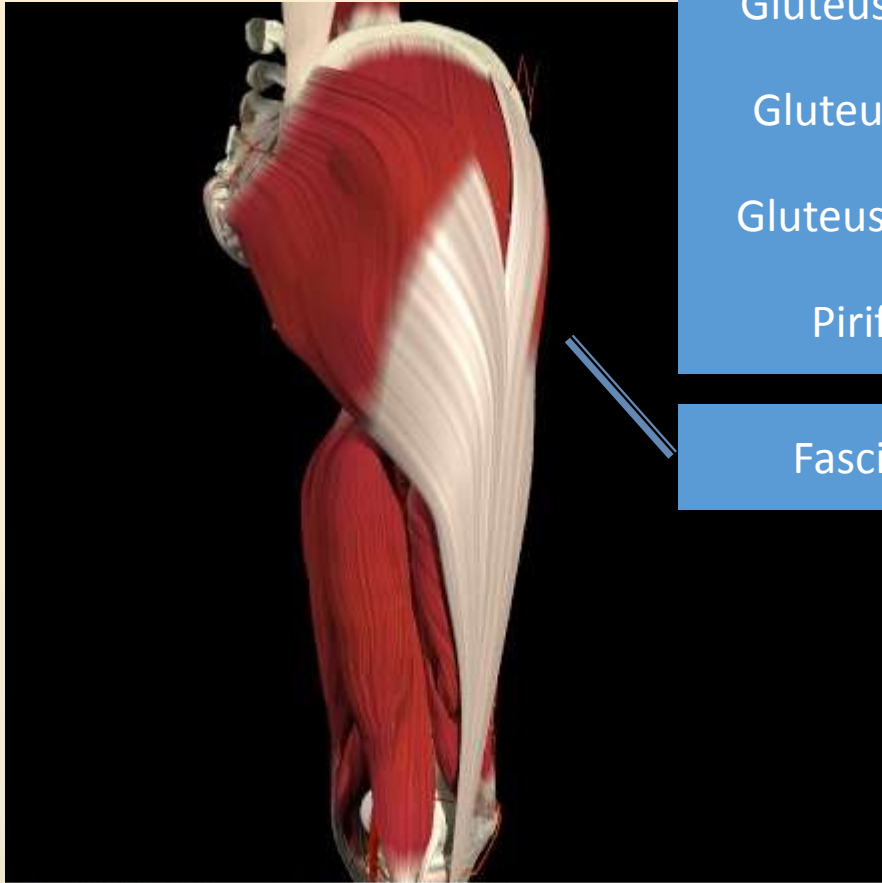
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Gluteus minimus

Gluteus medius

Gluteus maximus





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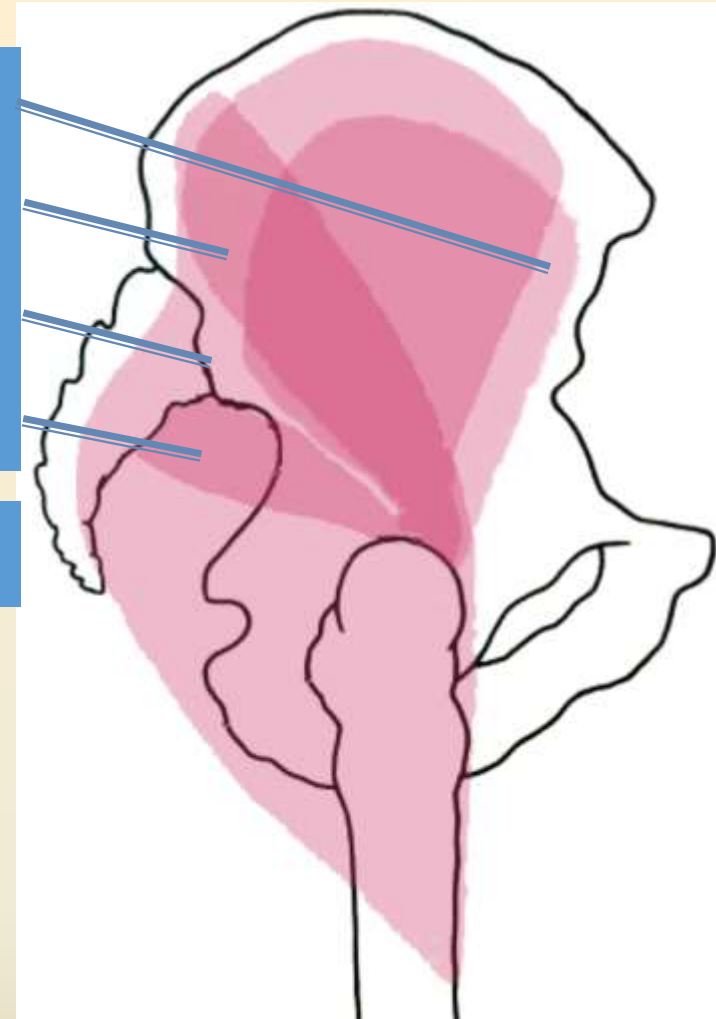
Gluteus minimus

Gluteus medius

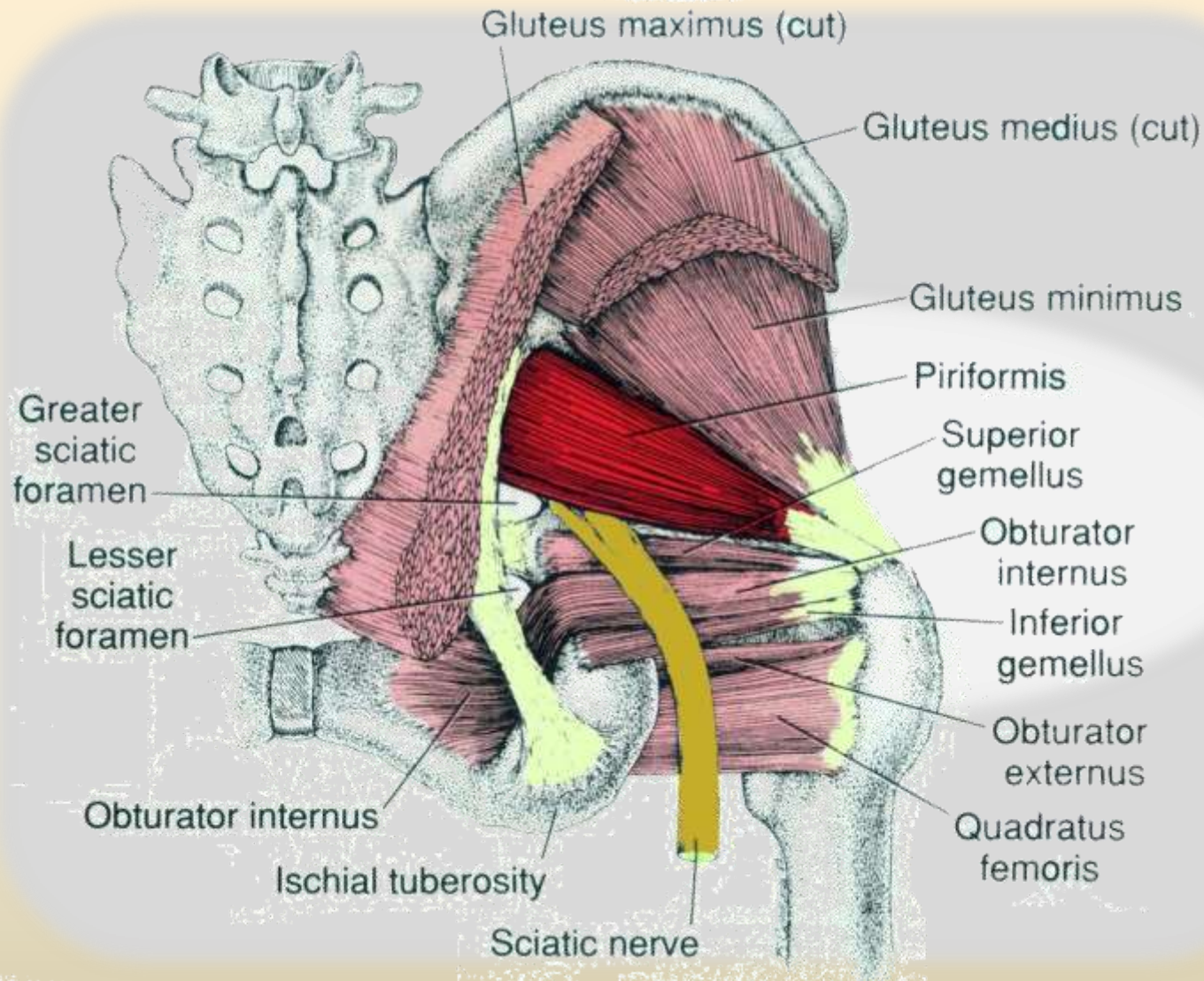
Gluteus maximus

Piriformis

Fascia + ITB



Piriformis



Piriformis Syndrome

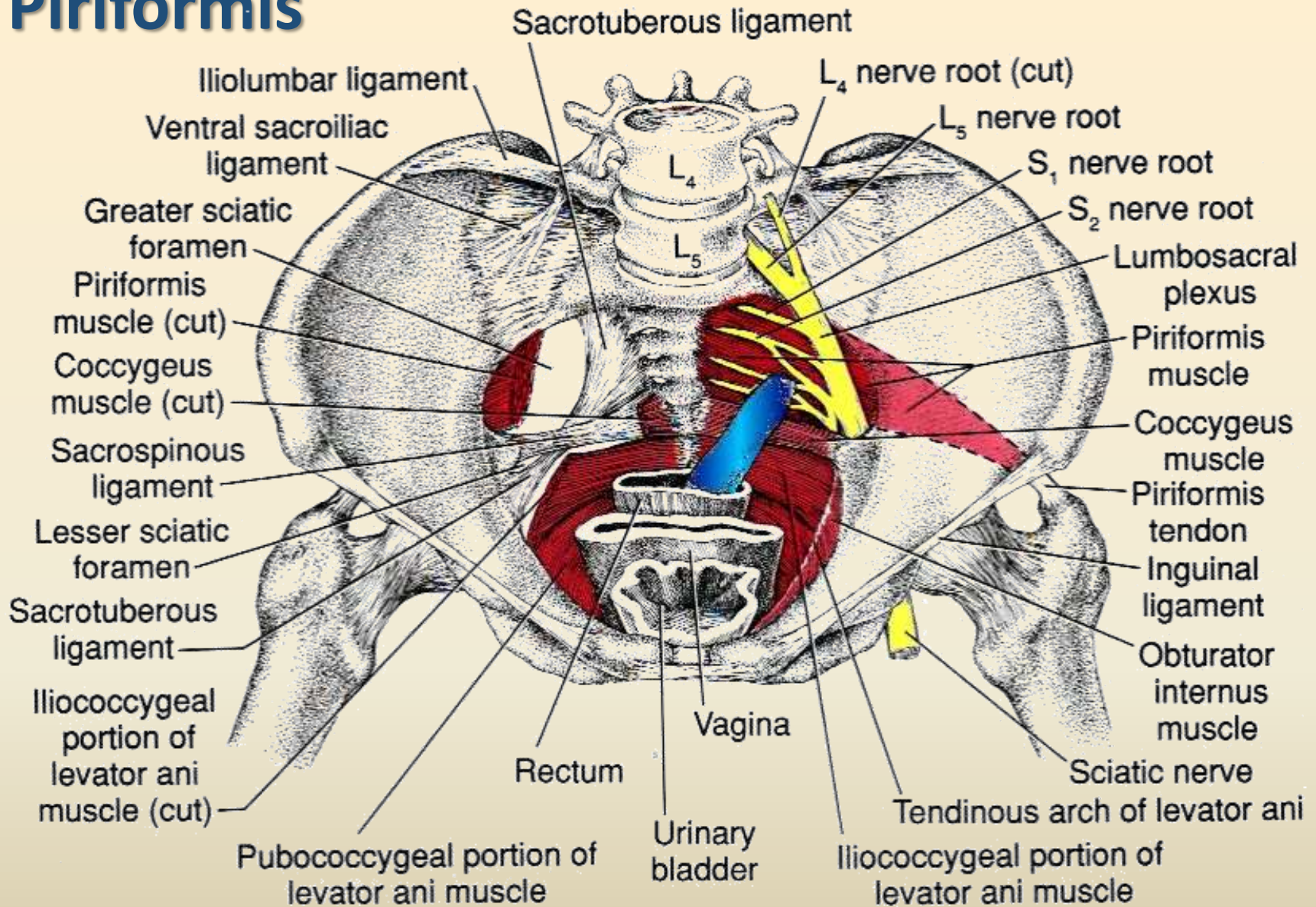
Pain ± paraesthesiae

- Low back
- Groin
- Perineum
- Buttock
- Hip
- Posterior thigh
- Leg and foot
- Rectum (during defecation)

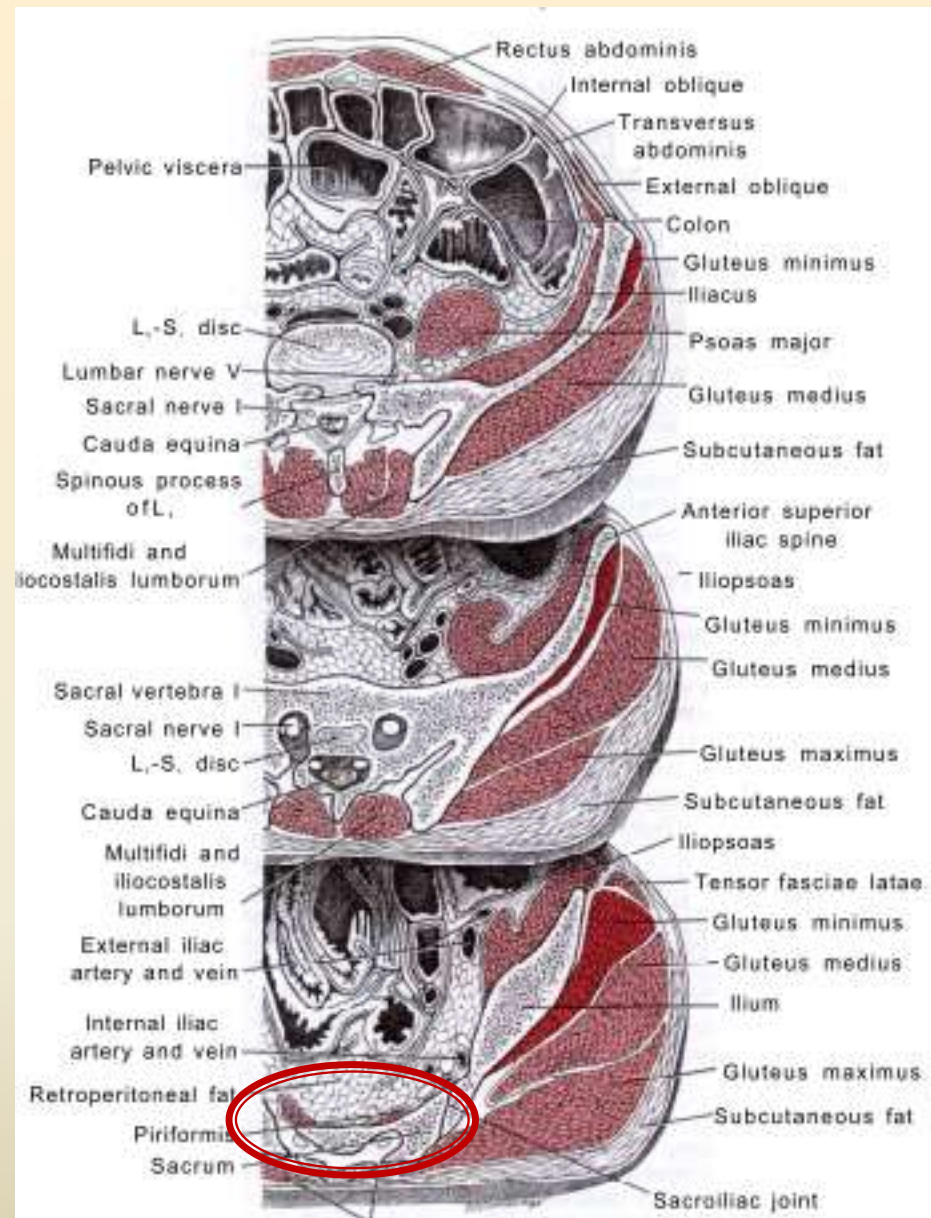
Aggravated by:

- sitting
- *combination of:*
 - hip flexion
 - Adduction
 - medial rotation
- Activity
- Swelling in painful limb
- Sexual dysfunction
- Dyspareunia (*female*)
- Impotence (*male*)

Piriformis



Piriformis



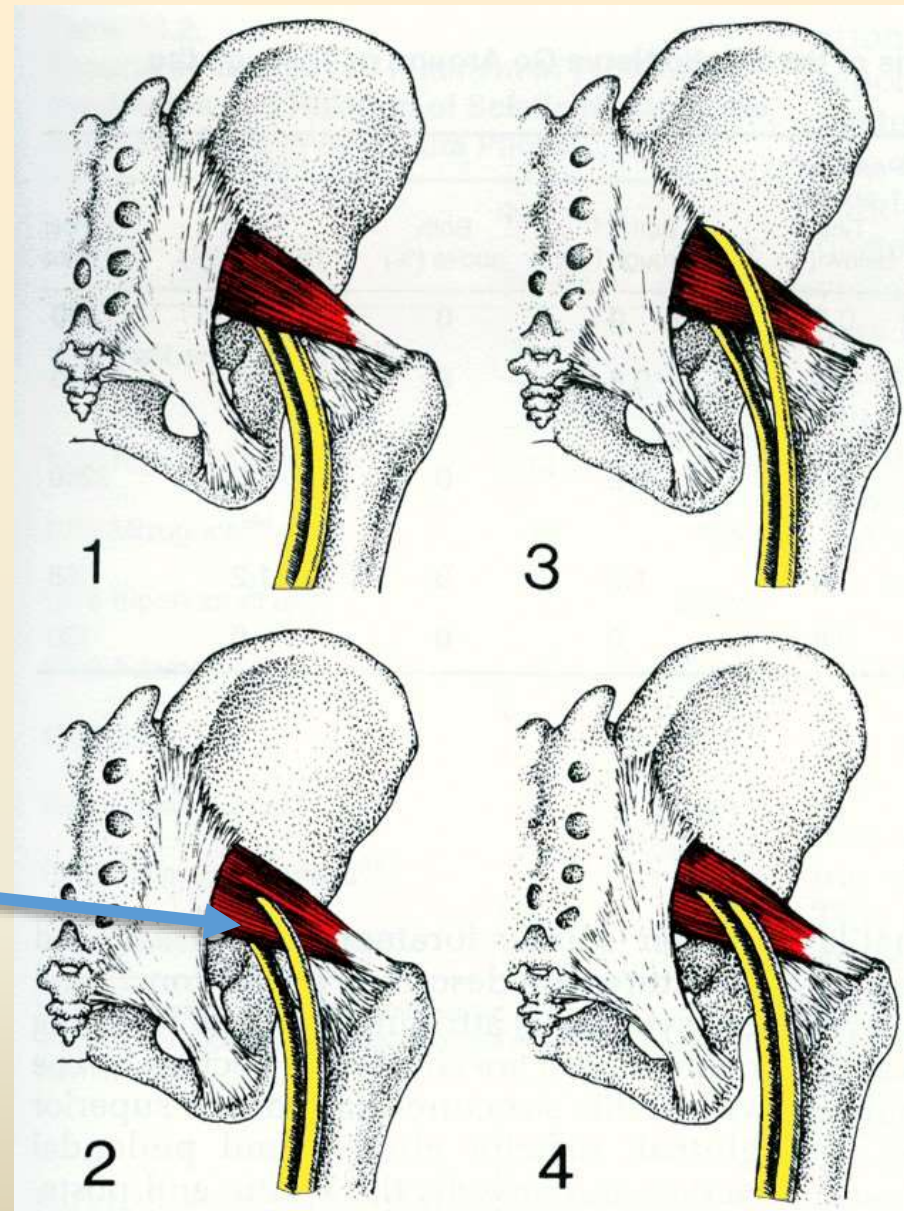
Piriformis

Variant relation of sciatic nerve

17% of patients

Most common variant
(81%)

Beaton Type B
Common peroneal nerve



Piriformis

Isometric contraction testing

Innervation: S1, S2

Action:

leg extended

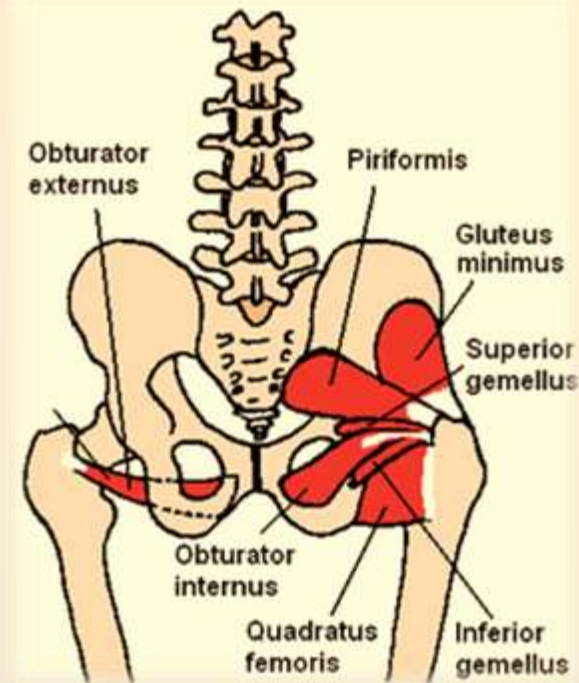
External (lateral) rotation

leg flexed 90°

Abduction, internal rotation

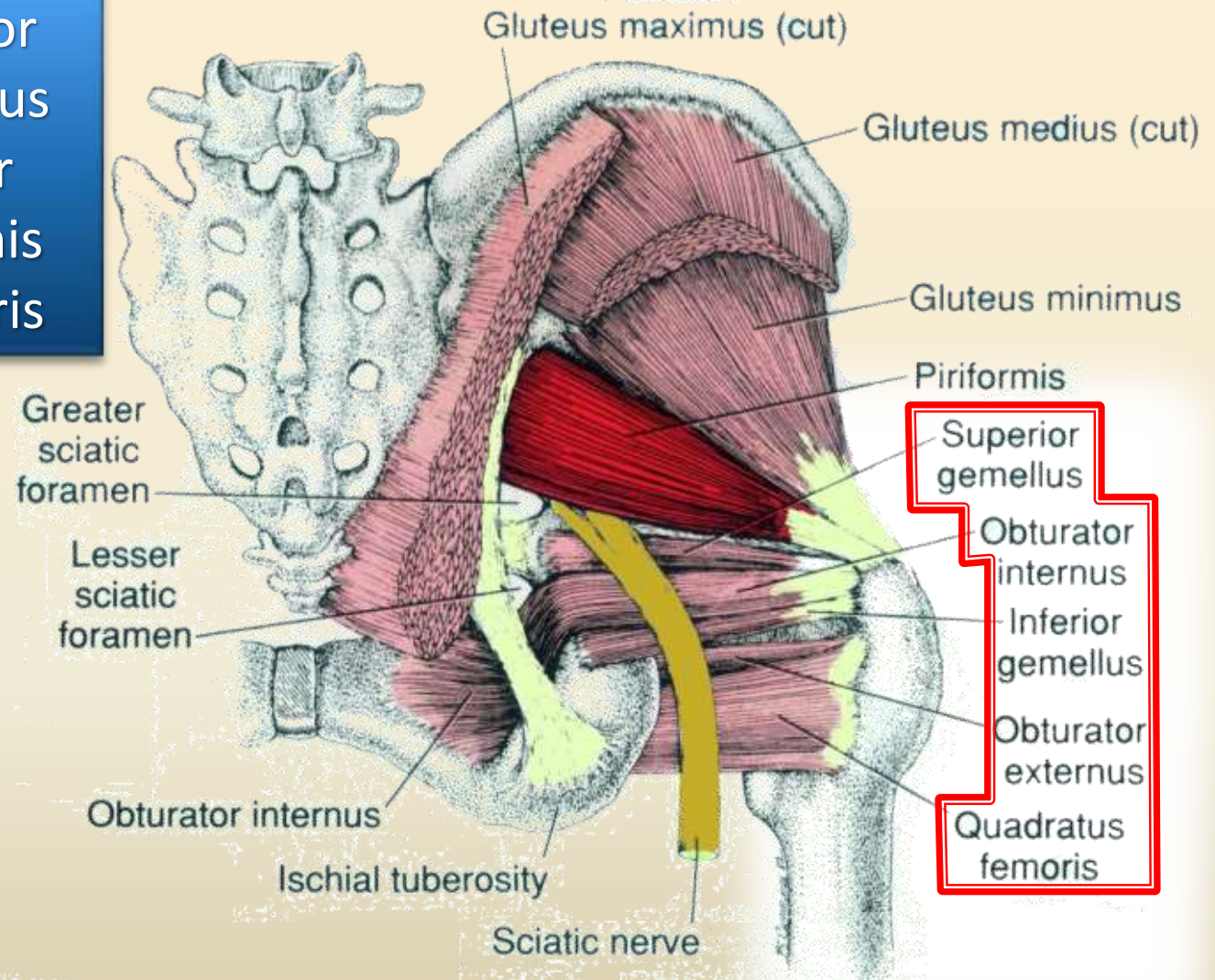
As the hip flexes, the rotation moment of piriformis changes such that by full hip flexion it becomes a medial (internal) rotator.” (Travell & Simons, 1992)

“The transition point for this change in action is considered to occur at about 60° of hip flexion.” (Kapandji 1970, Lee 1989)



Piriformis – GIGO complex

- Gemellus superior
- Obturator internus
- Gemellus inferior
- Obturator externus
- Quadratus femoris



Piriformis

Surface Landmarks

