

APPLIED EQUINE ANATOMY

THE PELVIC GIRDLE & HINDQUARTERS

This section includes the major locomotion muscles. The framework of the pelvis and its muscular connections to the spine and hind legs are all designed to powerfully move the horse. Impulsion is developed through proper biomechanical action in this region.

Sacrotuberose Ligament

Actions & Functions:

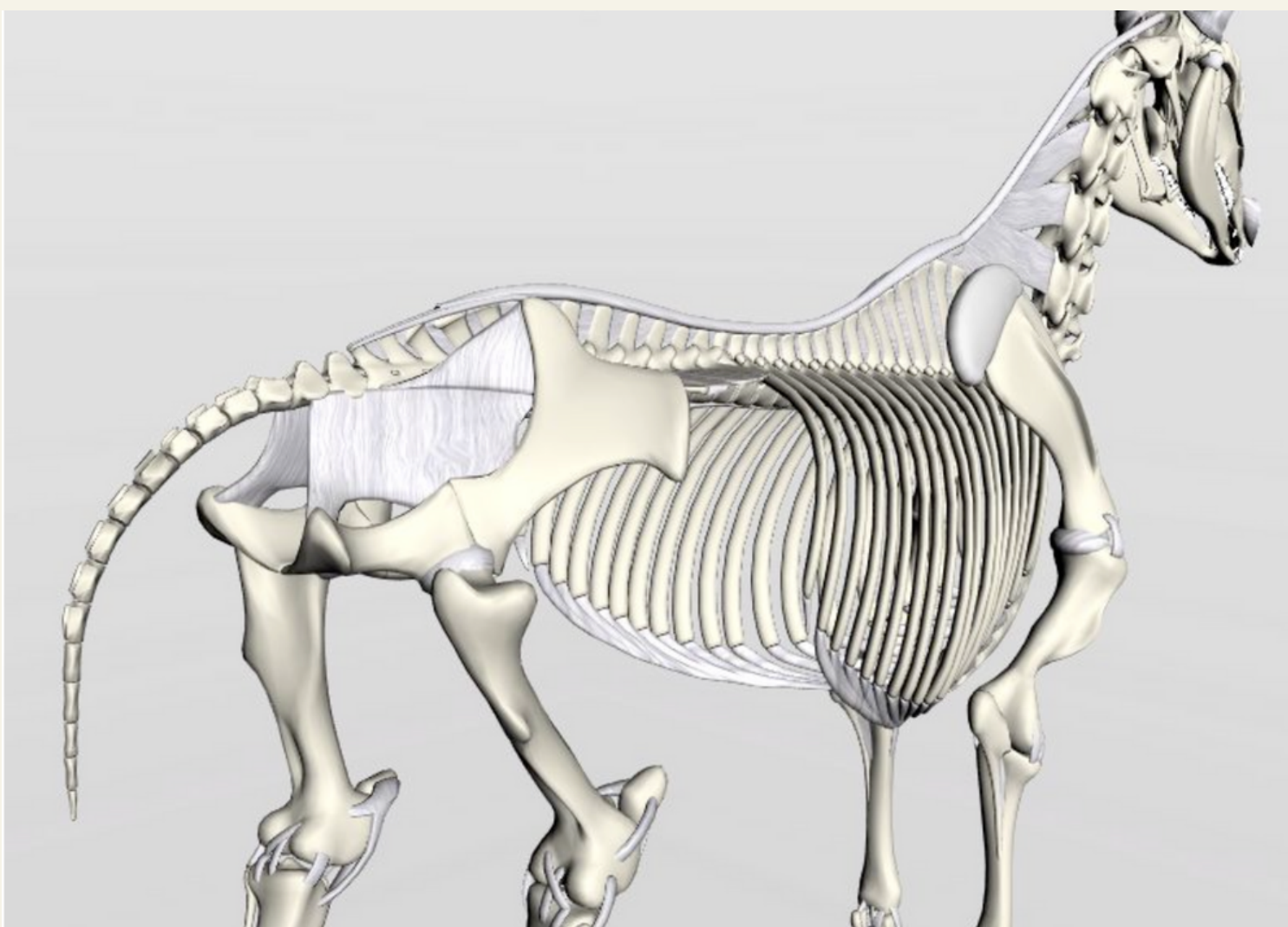
The importance of this ligament in locomotion - and in its potential to impede fluid motion - cannot be overstated. It is frequently overlooked in diagnostic testing, yet many key locomotive muscles originate, at least in part, on this ligament. Unlike a strap-like ligament, it is a broad, sheet-like structure.

Origin:

- Transverse processes of the first caudal vertebrae
- Dorsal border of the ischium and ilium

Special Notes:

Within this ligament lie the lesser and greater ischiatic foramina, which allow passage for important blood vessels, nerves, and tendons. Constriction or dysfunction in this ligament can profoundly affect a horse's ability to move freely and without pain.



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Iliopsoas Complex

Note: The “p” in “psoas” is silent – it is pronounced “so-as.”

This complex is made up of three muscles: the psoas major, psoas minor, and the iliacus. Some anatomy texts group these as a single muscle due to their close anatomical and functional relationship. Almost always, if there is an issue in one of these muscles, pain will be present in all of them.

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Psoas Major

Actions & Functions:

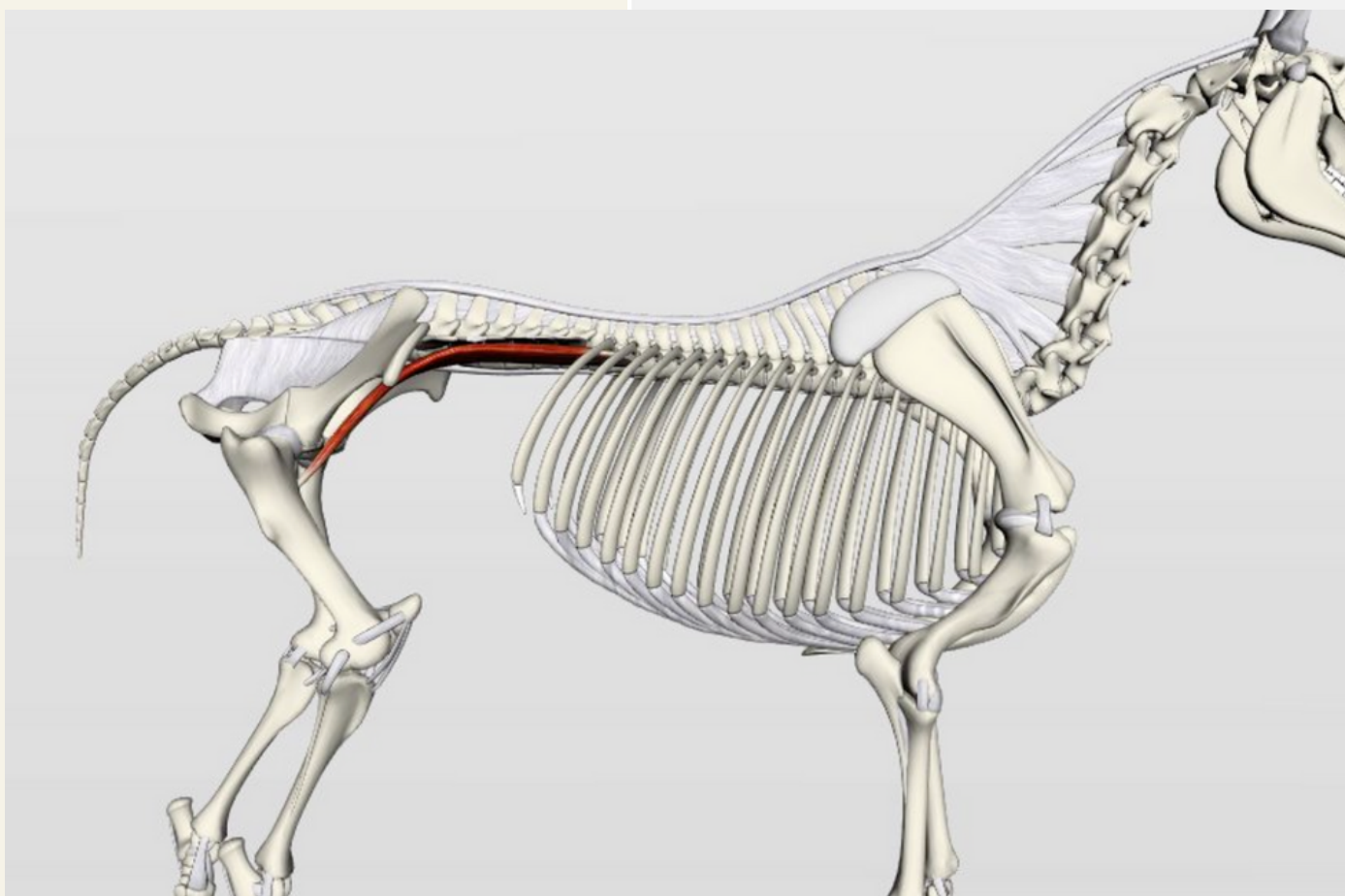
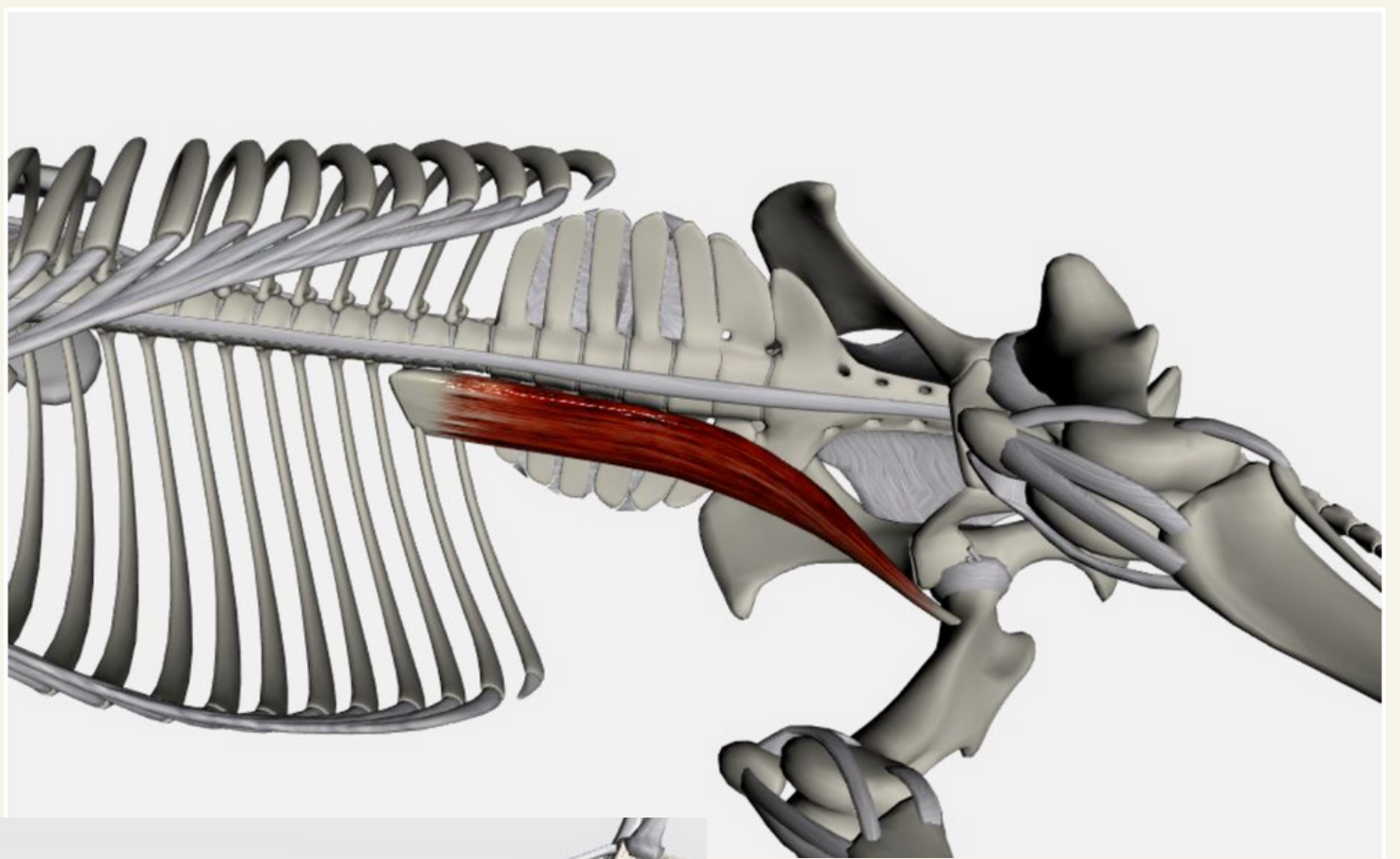
- Flexes the hip
- Rotates the thigh outward

Origin: Ribs 17–18 and the ventral surface of the bodies and transverse processes of the lumbar vertebrae

Insertion: Lesser trochanter of the femur

Special Notes:

This deep muscle is often implicated in chronic back pain in horses.



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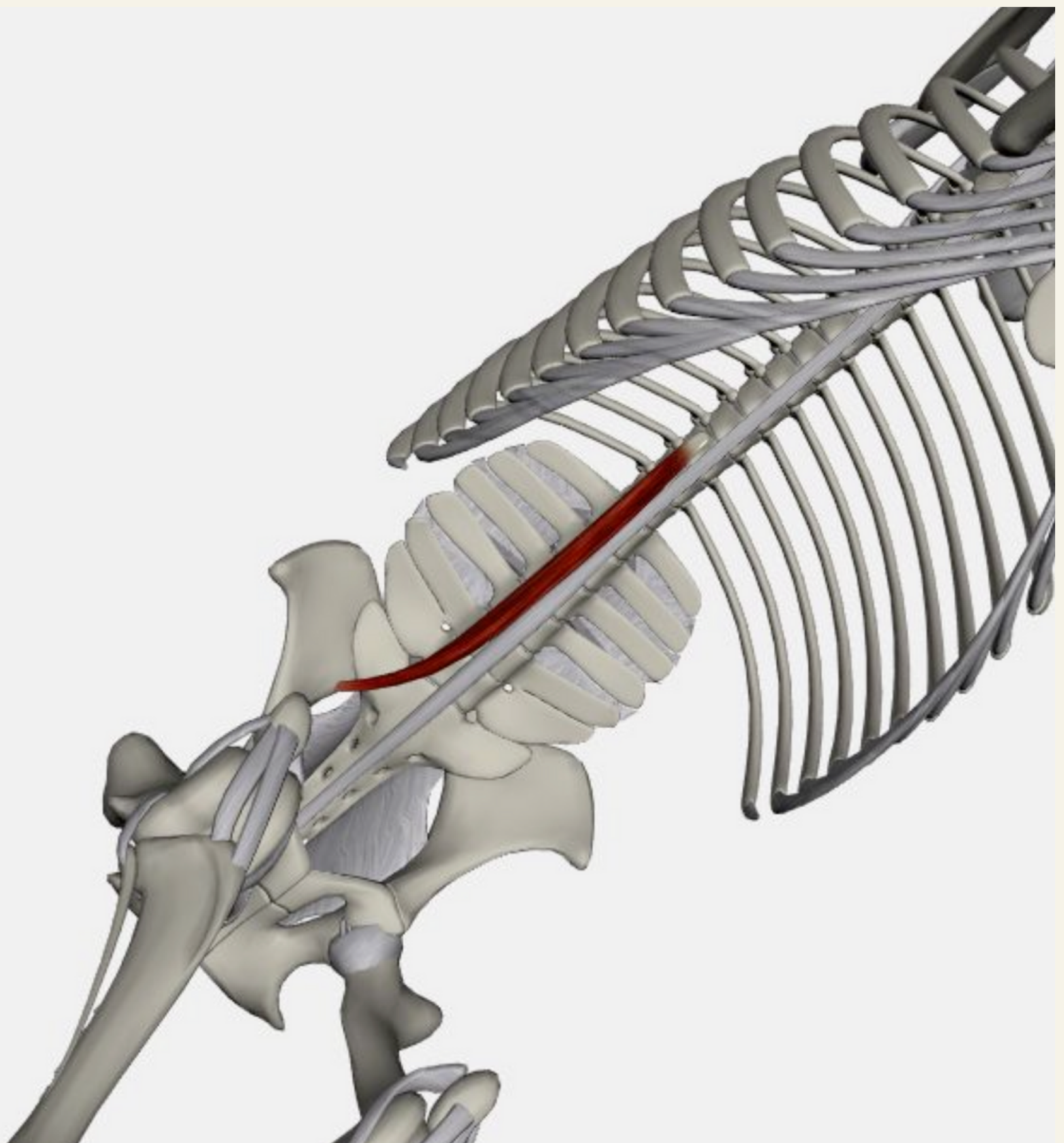
Psoas Minor

Actions & Functions:

- Flexes the pelvis over the loins

Origin: Bodies of T17–18 and L1–L4

Insertion: Ilium



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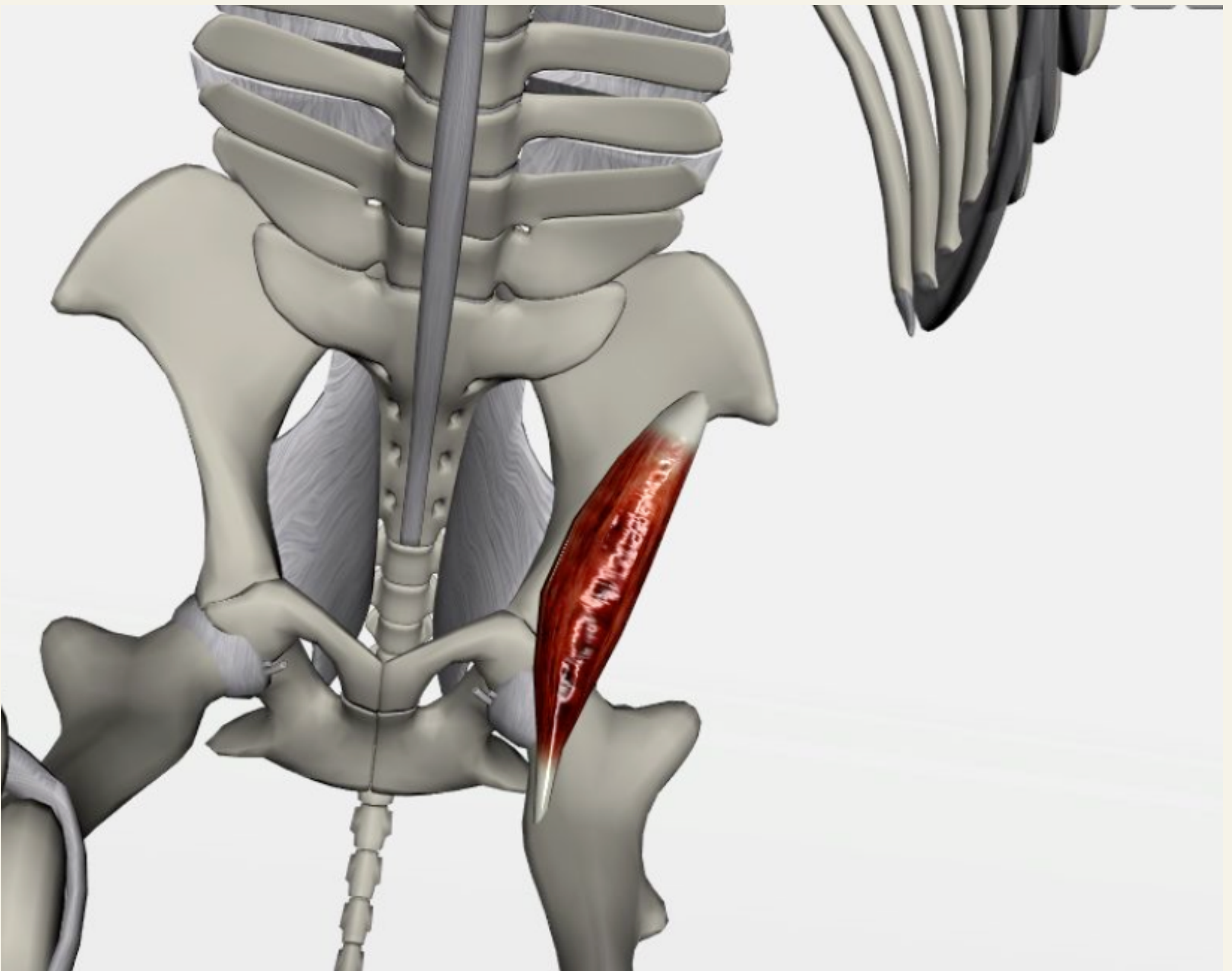
Iliacus

Actions & Functions:

- Flexes the hip joint
- Externally rotates the hip joint
- Protracts the limb

Origin: Sacropelvic surface of the ilium, pelvic surface of the sacrum, and tendon of the psoas minor

Insertion: Lesser trochanter of the femur



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Gluteus Medius

Actions & Functions:

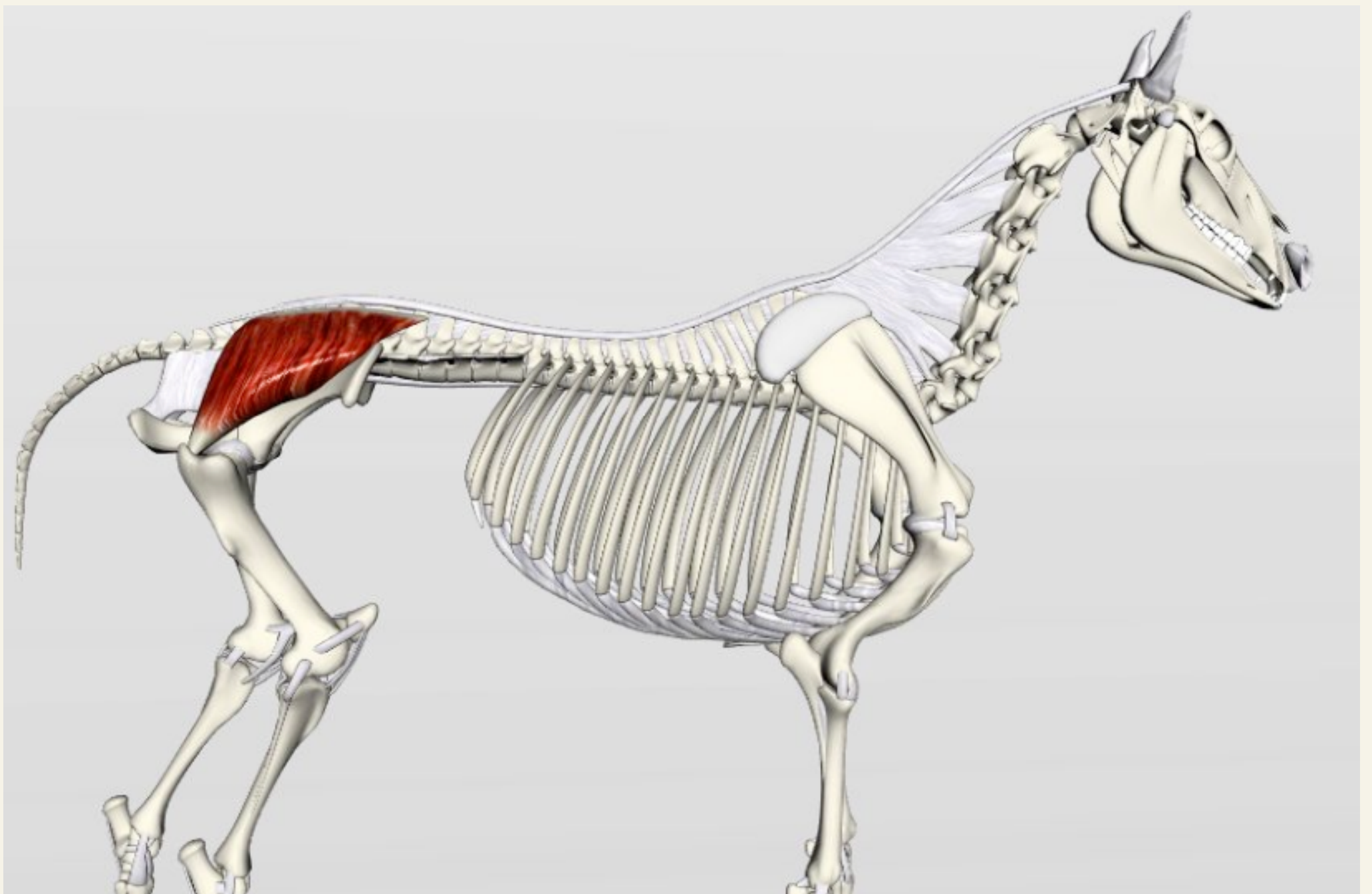
- Extends the hip
- Abducts the limb

Origin: Dorsal surface of the ilium, sacrum, sacroiliac ligament, and sacrotuberose ligament

Insertion: Cranial aspect of the greater trochanter of the femur

Special Notes:

As in humans, this particular gluteal muscle is one of the most commonly problematic and tender areas when there is soreness within the pelvic region.



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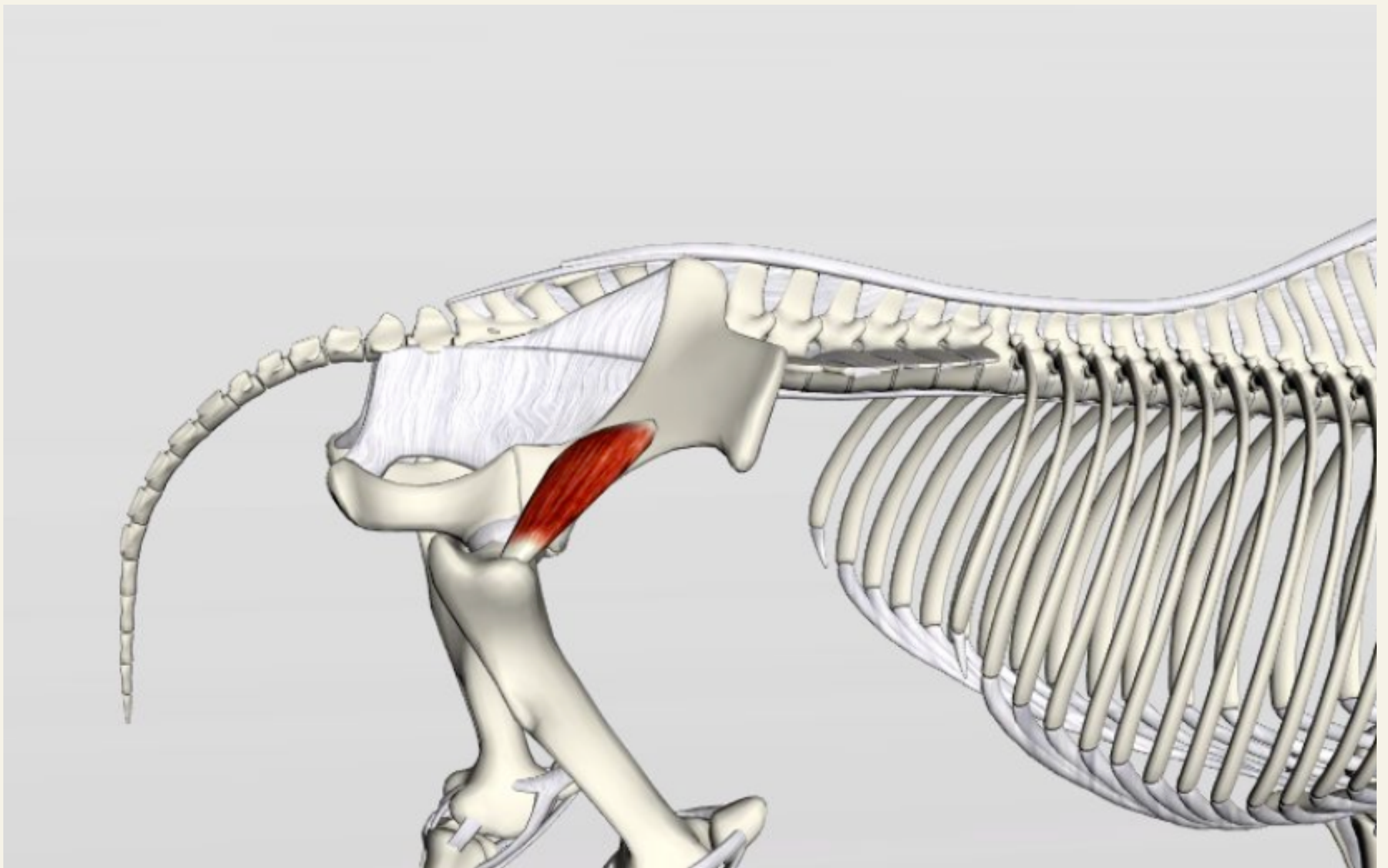
Gluteus Profundus

Actions & Functions:

- Abducts the thigh

Origin: Ischiadic spine

Insertion: Greater trochanter of the femur



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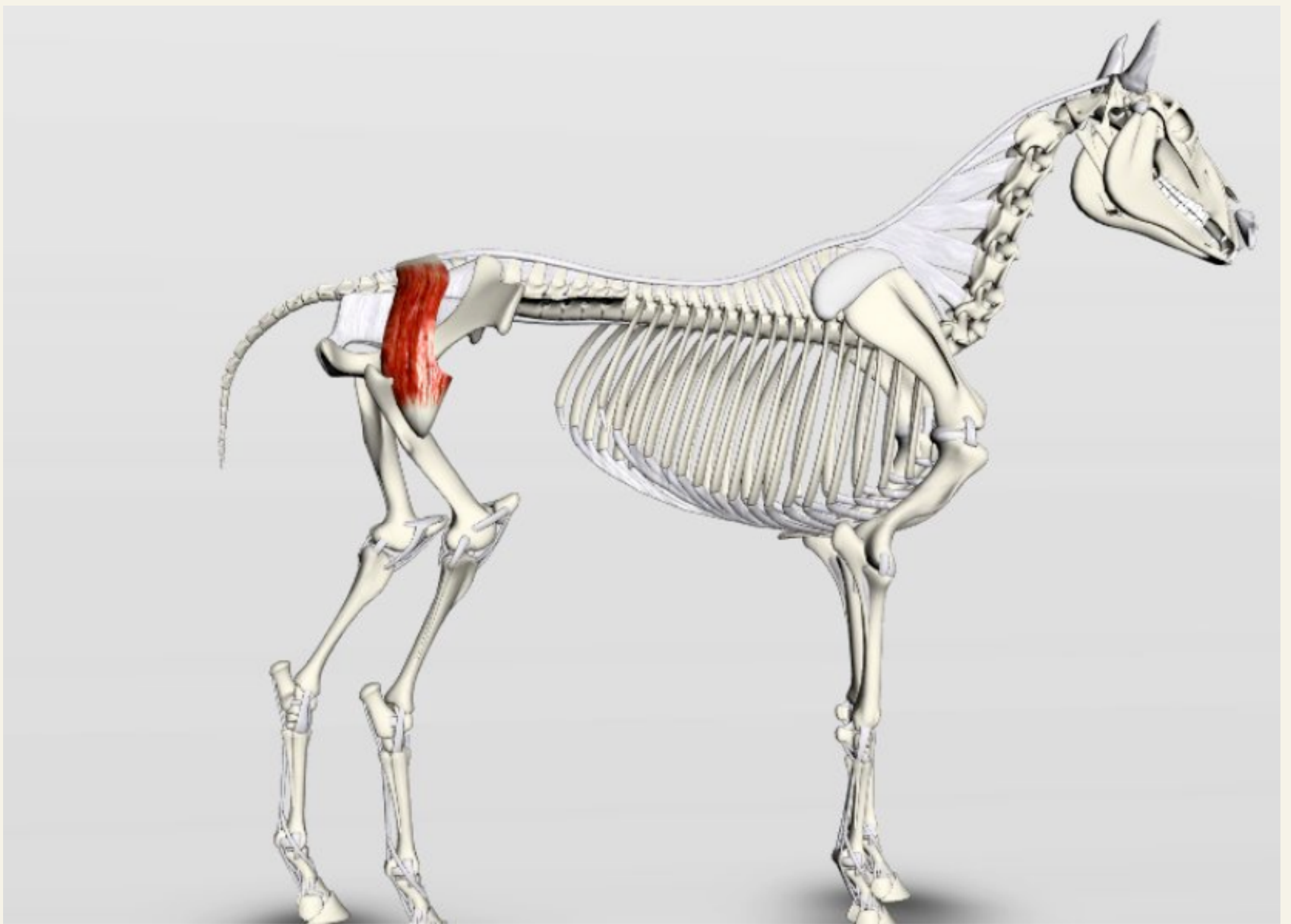
Gluteal Superficialis

Actions & Functions:

- Flexes the hip
- Abducts the limb

Origin: Tuber coxae and the gluteal fascia

Insertion: Third trochanter



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Gracilis

Actions & Functions:

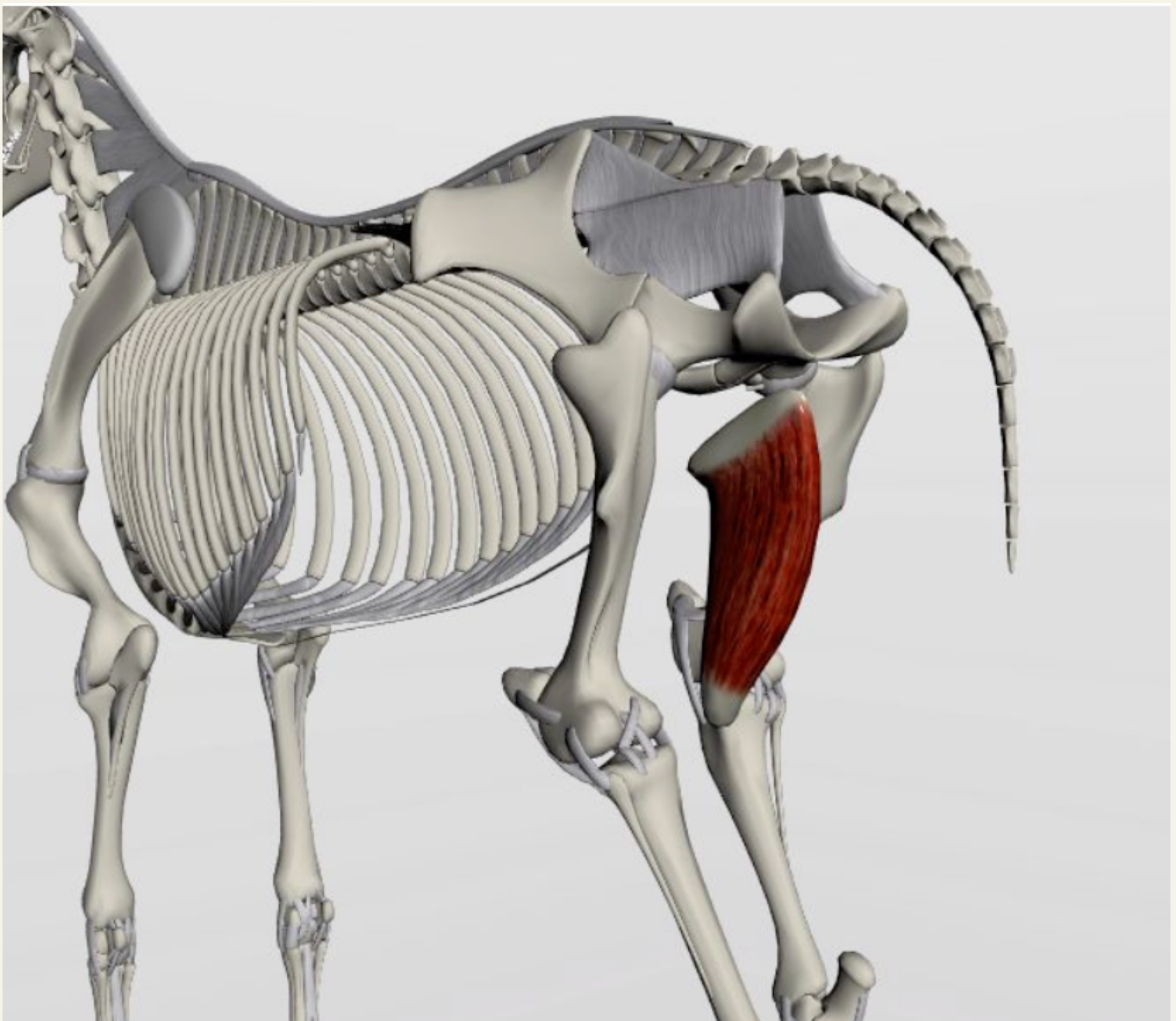
- Adducts the limb

Origin: Pelvic symphysis

Insertion: Crural fascia, medial patellar ligament, cranial border of the tibia

Special Notes:

This is the most external and largest adductor you will feel when palpating the inner thigh.



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Adductor Femoris

Actions & Functions:

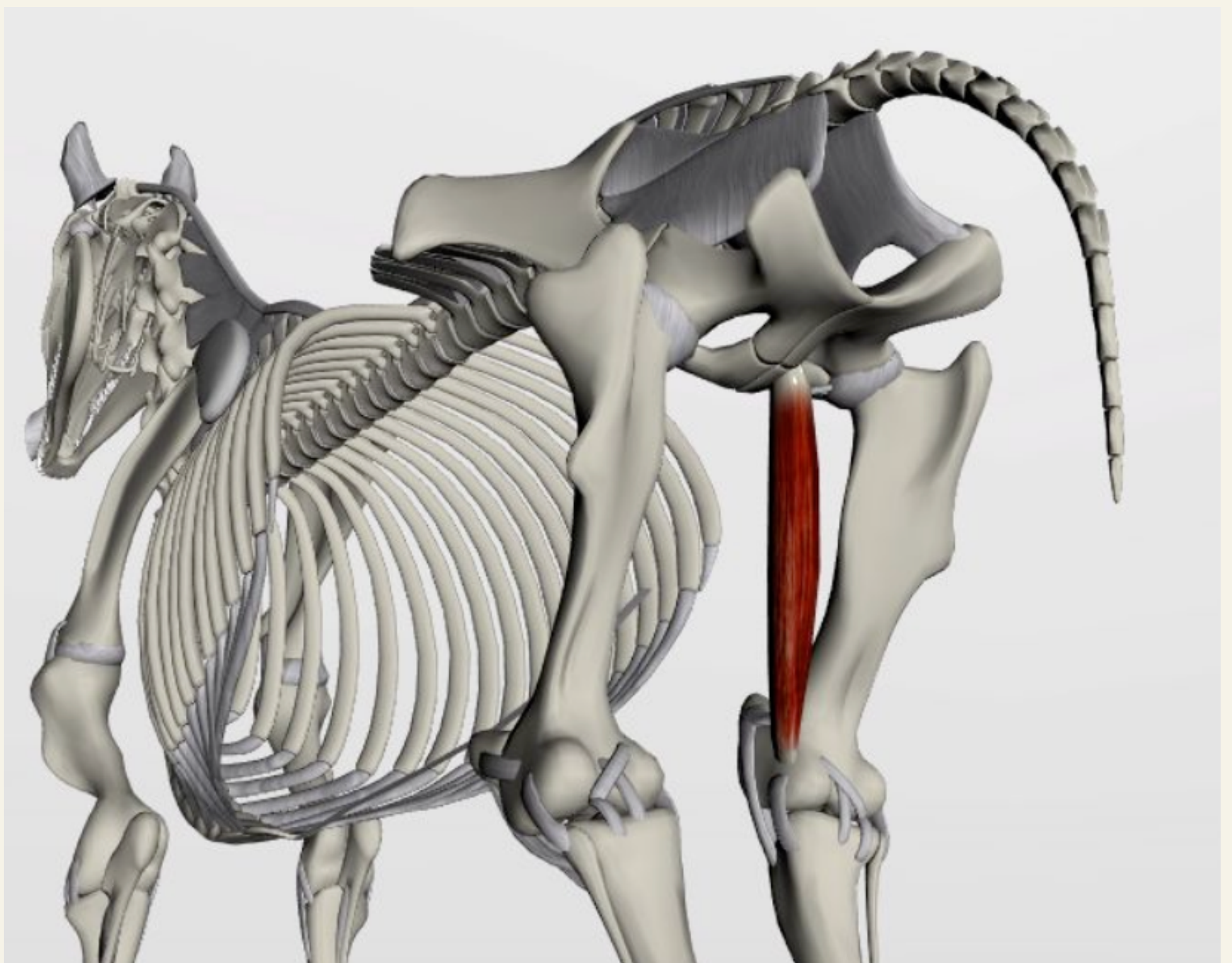
- Adducts the limb
- Extends the hip joint

Origin: Ventral surface of the pubis and the ischium

Insertion: Medial condyle of the femur

Special Notes:

This is the deeper and more caudal of the adductor muscles.



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Sartorius

Actions & Functions:

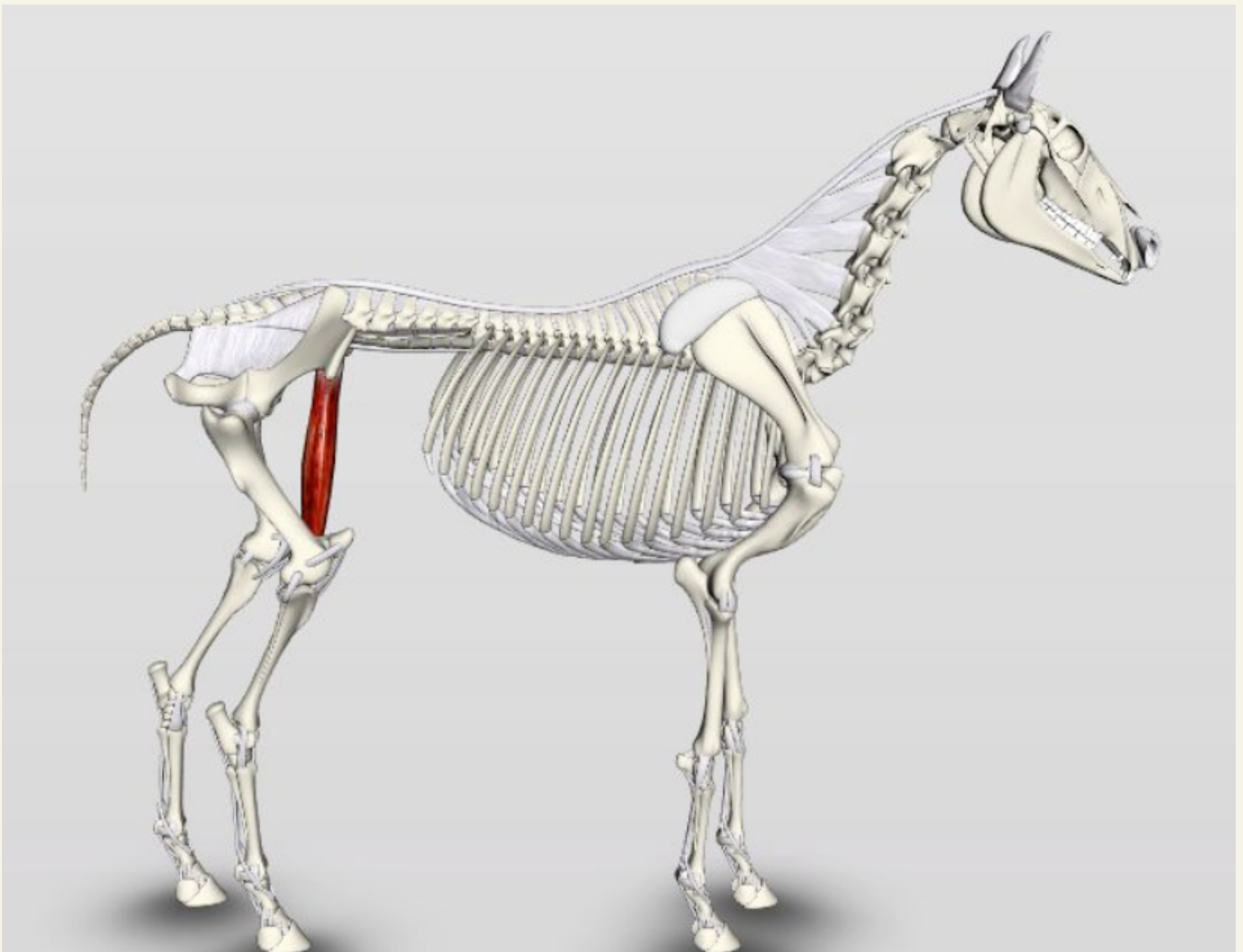
- Adducts the limb
- Flexes the hip joint
- Advances the limb

Origin: Iliac fascia under the pelvis

Insertion: Medial crural fascia, medial patellar ligament, tibial tuberosity

Special Notes:

This muscle feels like a diagonal strap coming off the stifle and angling upward and caudally. In horses with tender stifles, this muscle is almost always very sensitive to touch.



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Tensor Fascia Latae

Actions & Functions:

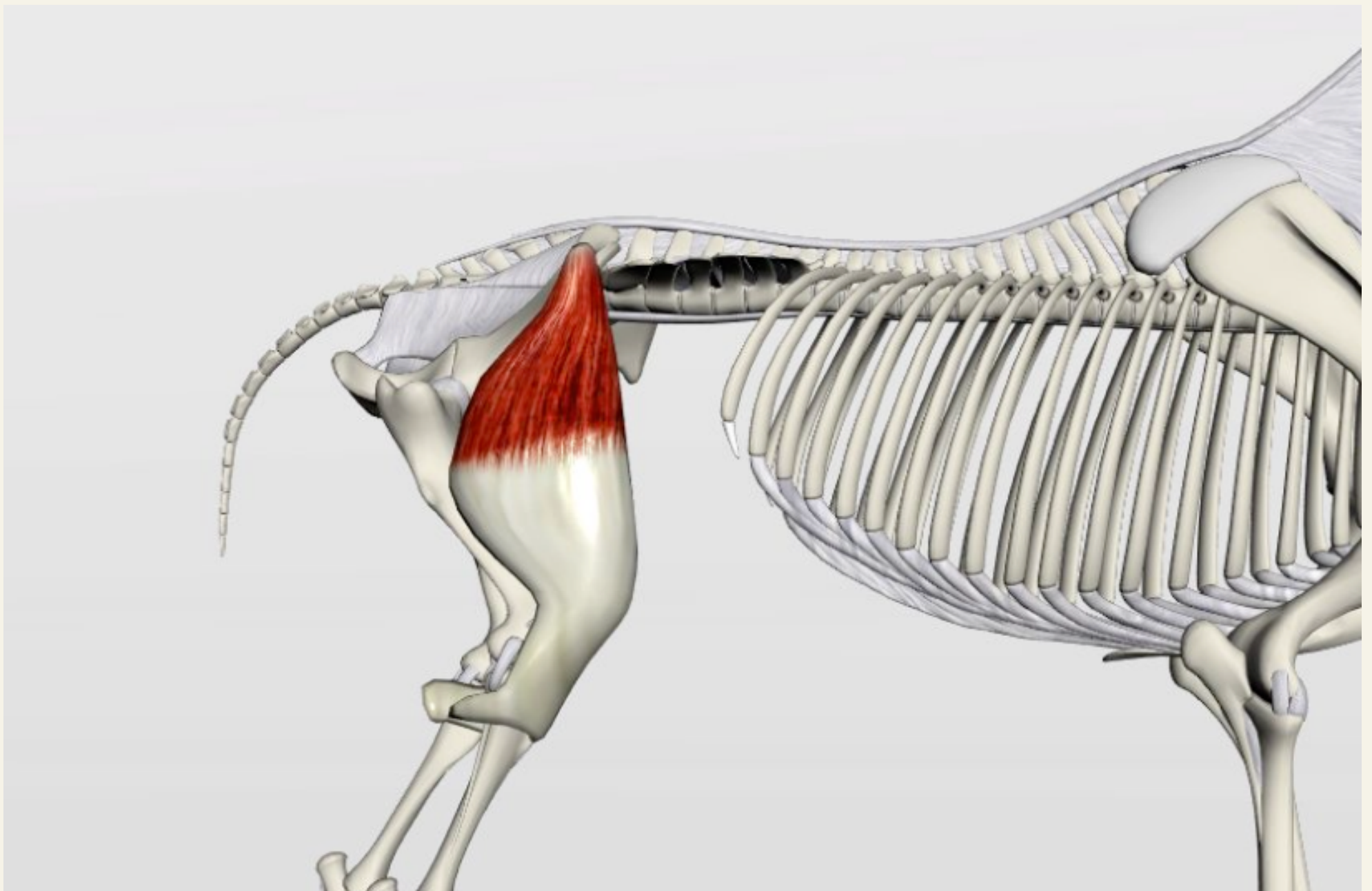
- Flexes the hip
- Extends the stifle
- Tenses the fascia latae
- Draws the limb forward

Origin: Posterior tuber coxae

Insertion: Fascia latae of the patella, lateral patellar ligament, cranial border of the tibia, third trochanter

Special Notes:

In horses with sore stifles, palpation of this area will often cause a marked reaction.



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Quadriceps Femoris

Actions & Functions:

This muscle group is made up of four separate muscles:

- Vastus lateralis
- Vastus medialis
- Vastus intermedius
- Rectus femoris

These muscles differ primarily in their origins, but come together in function at their shared insertion.

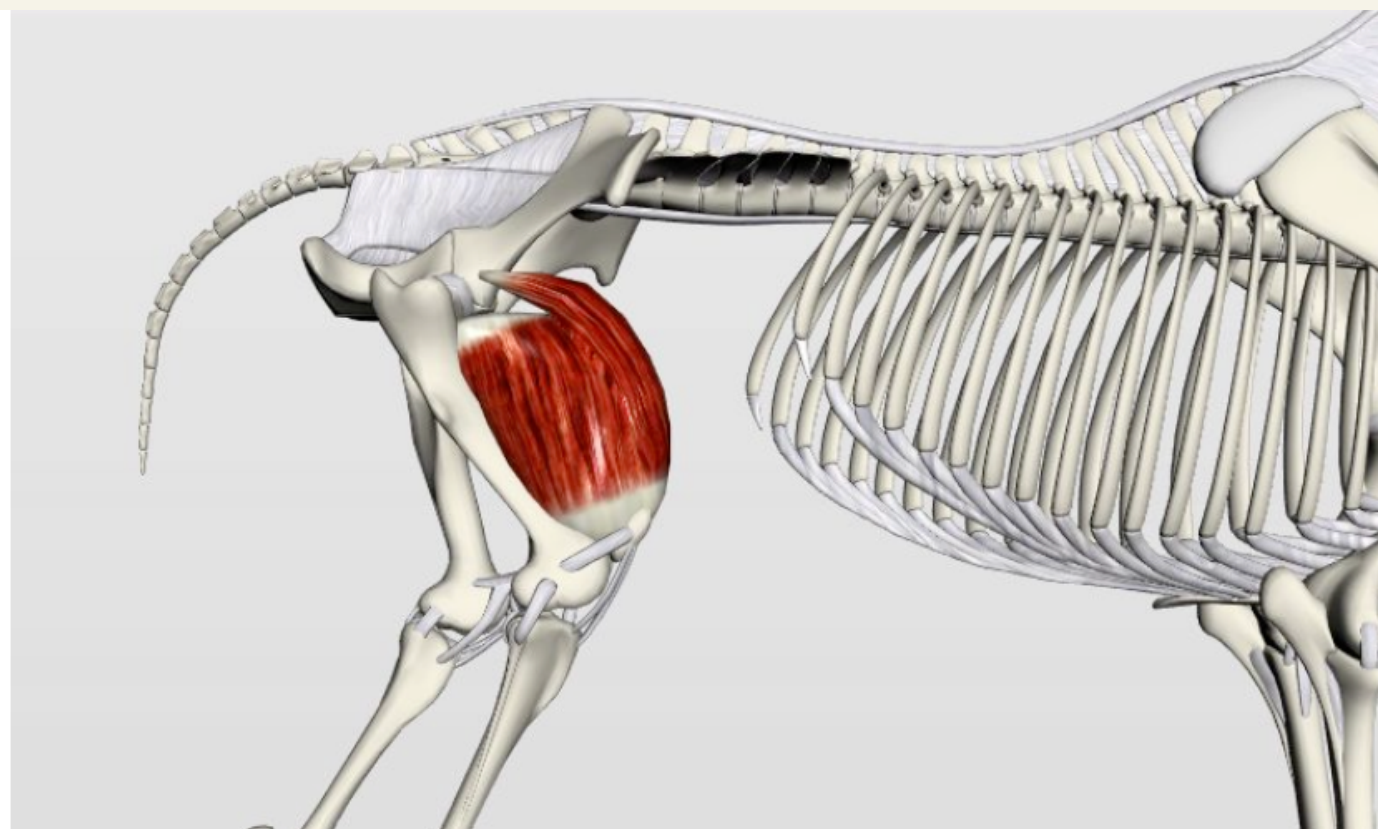
- Action of the vastus muscles: Extends the stifle joint and stabilizes the patella
- Action of the rectus femoris: Extends the stifle, stabilizes the patella, and flexes the hip

Origin:

- Vastus lateralis: Proximolateral surface of the femur
- Vastus intermedius: Proximodorsal surface of the femur
- Vastus medialis: Proximomedial surface of the femur
- Rectus femoris: Body of the ilium

Insertion (all four):

Attach to the patella via the quadriceps tendon, which continues as the intermediate patellar ligament and inserts on the tibial tuberosity



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Sartorius

Actions & Functions:

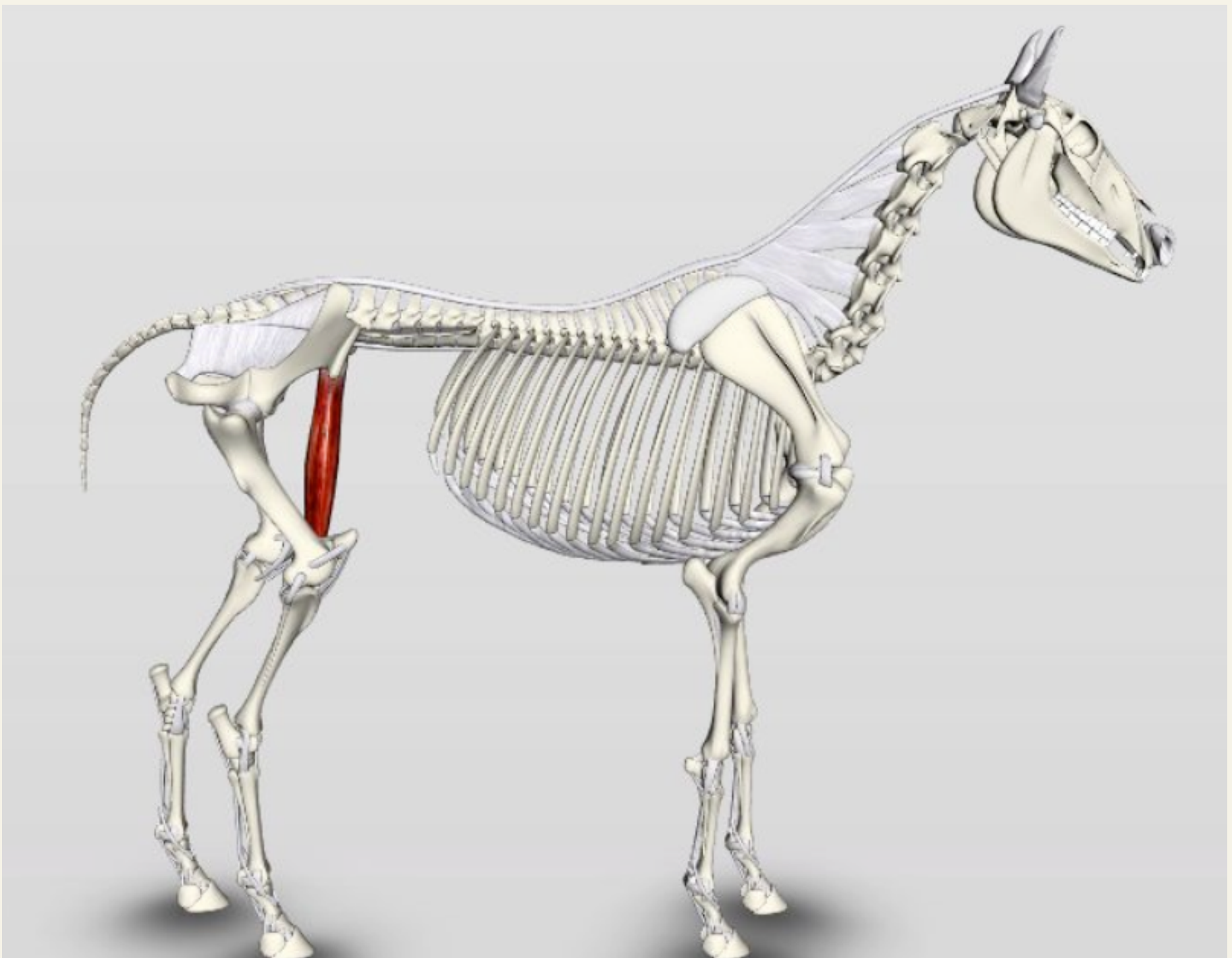
- Adducts the limb
- Flexes the hip joint
- Advances the limb

Origin: Iliac fascia under the pelvis

Insertion: Medial crural fascia, medial patellar ligament, tibial tuberosity

Special Notes:

This muscle feels like a diagonal strap coming off the stifle and angling upward and caudally. If a horse has tender stifles, this muscle is almost always very sensitive to touch.



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Semimembranosus

Actions & Functions:

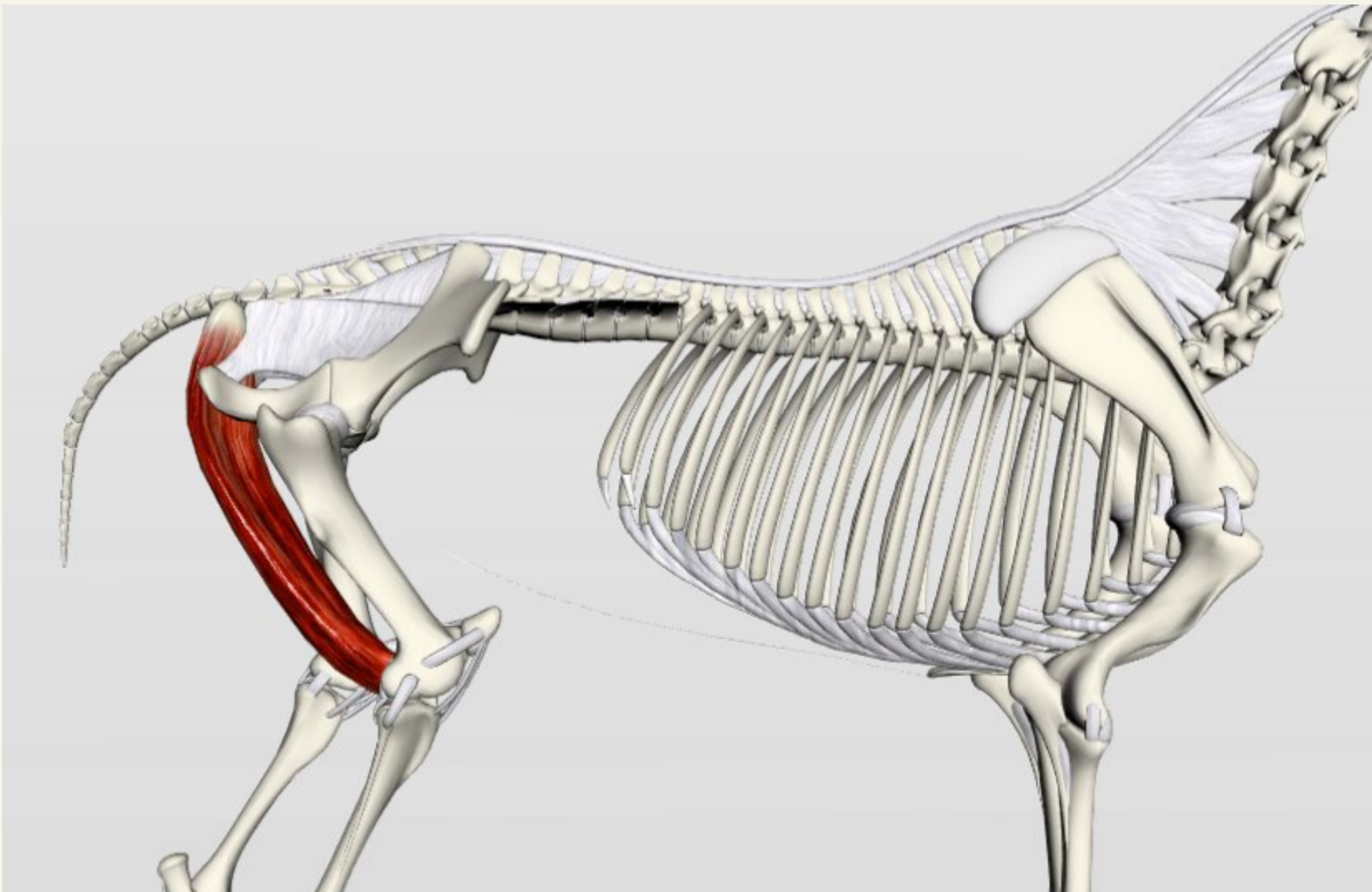
- During weight bearing: Extends the hip and adducts the limb
- When the limb is unweighted: Adducts the limb, draws it backward, and rotates it inward

Origin: Sacrotuberose ligament, first caudal (coccygeal) vertebrae, ischial tuberosity

Insertion: Medial condyles of the femur and tibia

Special Notes:

This is one of the three major hamstring muscles, and lies more medially compared to the other two.



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Semitendinosus

Actions & Functions:

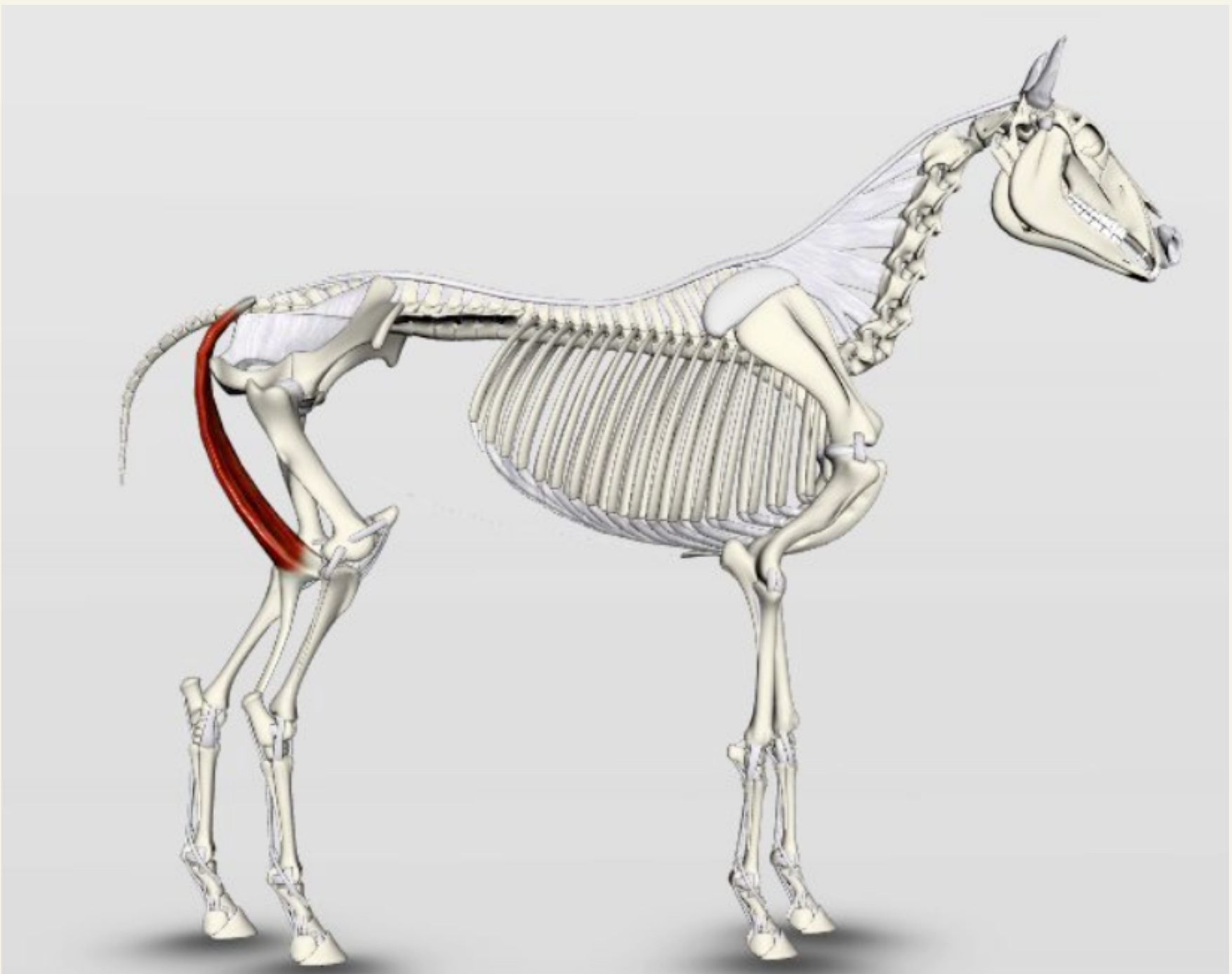
- During weight bearing: Extends the hip, stifle, and hock
- When the limb is unweighted: Flexes the stifle joint, draws the limb backward, and inwardly rotates it

Origin: Last sacral vertebra, transverse processes of the first two caudal (coccygeal) vertebrae, sacrotuberose ligament, central part of the tuber ischii

Insertion: Cranial border of the tibia, crural fascia, and tarsal ligament to the calcanean tuber

Special Notes:

This is one of the three major hamstring muscles, and is the most caudal of the group. It is innervated by the sciatic nerve.



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Biceps Femoris

Actions & Functions:

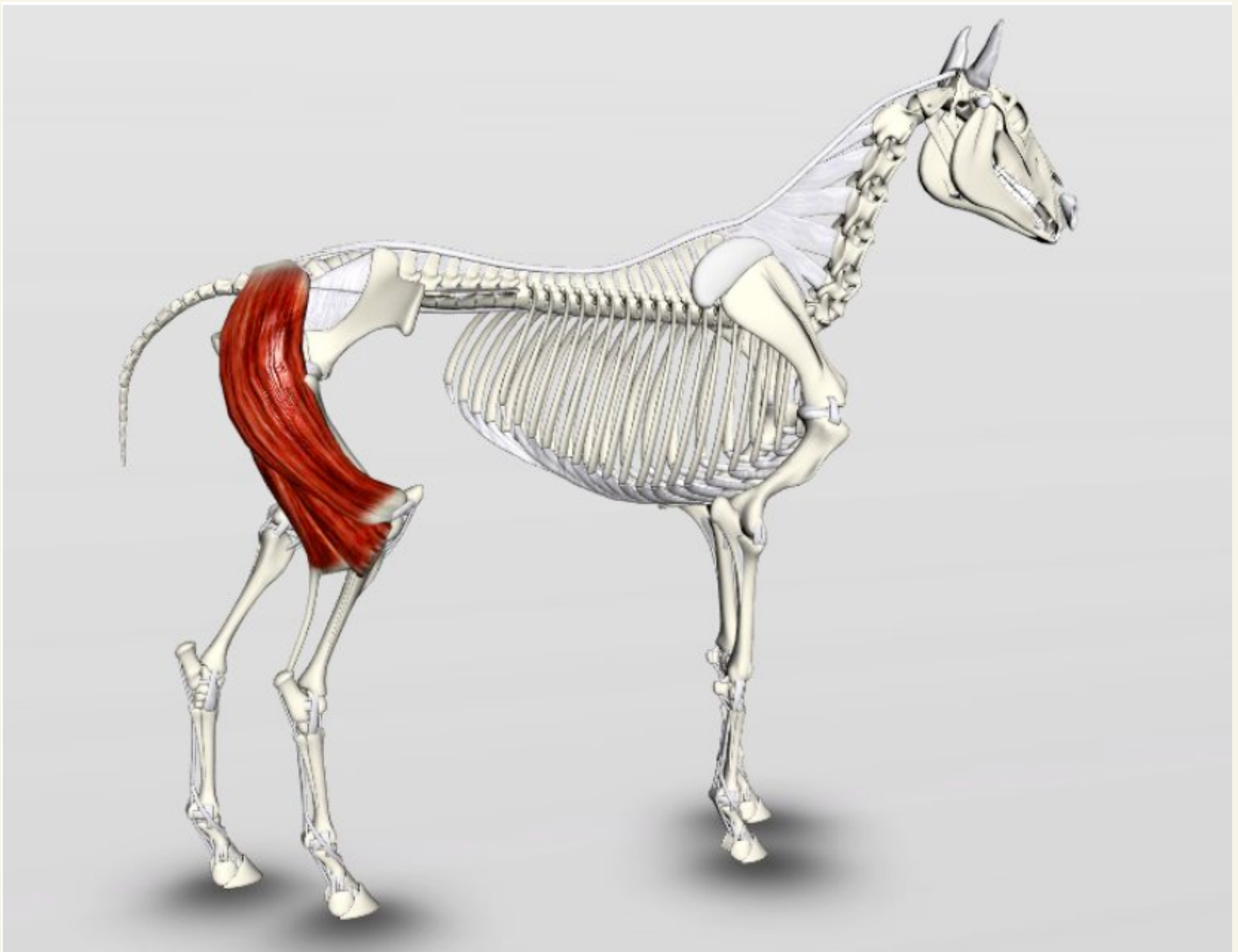
- Cranial section: Extends the hip and stifle, abducts the limb
- Caudal section: Flexes the stifle, abducts the limb, and extends the hock

Origin: Spinous and transverse processes of S3–S5, sacrotuberose ligament, caudal fascia, ischial tuberosity

Insertion: Intermediate and lateral patellar ligaments, cranial border of the tibia, crural fascia, common calcanean tendon (Achilles tendon), and tuber calcis

Special Notes:

This is the largest and most lateral of the three hamstring muscles.



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Gastrocnemius

Actions & Functions:

- Flexes the stifle
- Extends the hock

Origin: Lateral and medial supracondylars of the femur

Insertion: Tuber calcis

Special Notes:

The taut tendinous portion of this muscle merges with the common calcaneal tendon, forming the equine analog to the human Achilles tendon.

