

Module 8 - The Muscular System

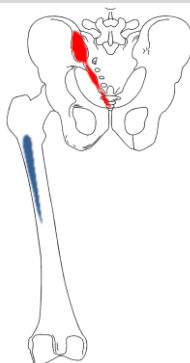
Muscles of the Hips and Legs

This Module will cover the muscle anatomy of the hips and legs. First we will cover the muscles found around the hip region that move the femur. Next we will learn about the muscles found in the thigh region that move the foreleg. Finally, we will learn about muscles on the foreleg that for the most part will affect the foot, however there is one muscle that we have placed in the leg section that actually does not affect the foot. It is called the Popliteus. Look for it in your studies. It is a small muscle but has one important function which is to “unlock” the leg from a rigid standing position.

LIST OF TERMS TO KNOW FOR THE MUSCLES OF THE HIPS AND LEGS

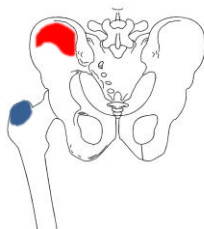
Muscles of the Hip

- **Gluteus Maximus**



Action: Extends the femur at the hip joint. Also helps with lateral rotation, adduction or abduction depending on the starting point of the motion

- **Gluteus Medius**



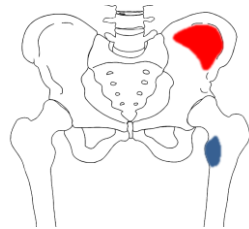
Action: Hip Abduction. Can help with medial rotation and lateral rotation as well

- **Gluteus Minimus**

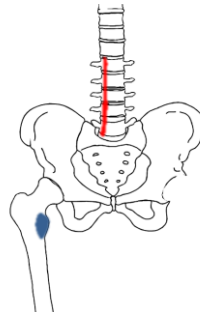
Helps the Gluteus Medius with all of its actions. This is a deep muscle and is not visible on the models in our lab. We generally have to describe where this muscle is or show pictures from other sources for testing purposes. We will not require you to know origin and insertion for this muscle.

- **Iliopsoas**
 - **Iliacus**
 - **Psoas Major**

The Iliopsoas is actually made up of two muscles, the iliacus and the psoas major. These two muscle join together to form one muscle band at about the level of the inguinal ligament.



Iliacus



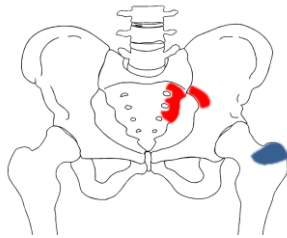
Psoas Major

Action: Hip flexion. Also can help with lateral rotation and lumbar flexion. Helps tilt the pelvis anteriorly.

- **Iliotibial Band**

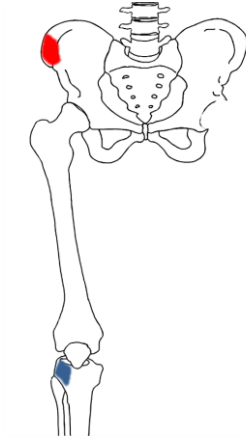
The Iliotibial band is a fibrous tissue that runs along the lateral leg and helps reinforce the thigh muscles. If you stand up and put your weight on a straight leg, you can feel the stiff Iliotibial band right along the lateral surface of your thigh. The iliotibial band is often called the "IT band".

- **Piriformis**



Action: Hip Lateral Rotation. Can also help with hip abduction and hip extension.

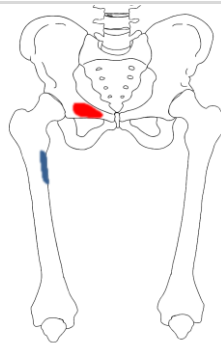
- **Tensor Fascia Latae**



Action: Hip Abduction. Can also help with hip flexion and hip medial rotation.

Muscles of the Thigh

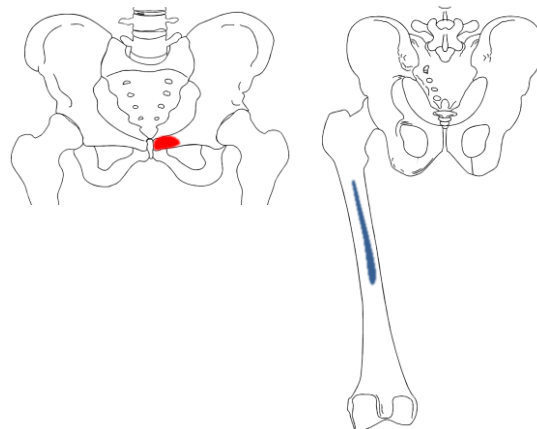
- **Pectineus**



Action: Hip adduction and flexion

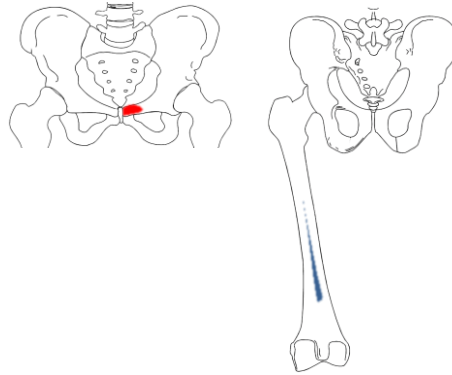
- **Adductor Brevis**

*Note that the insertion of this muscle and the next is on the posterior femur, thus an anterior origin view and a posterior insertion view



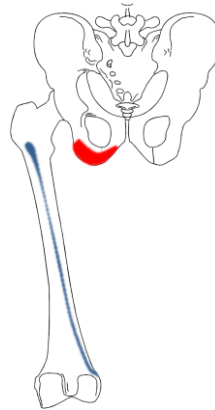
Action: Hip Adduction. Can also help with hip flexion and some lateral rotation.

- **Adductor Longus**



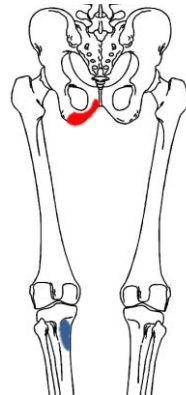
Action: Hip Adduction. Can also help with hip flexion and some lateral rotation.

- **Adductor Magnus**



Action: Hip adduction. Can also help with hip flexion and lateral rotation.

- **Gracilis**



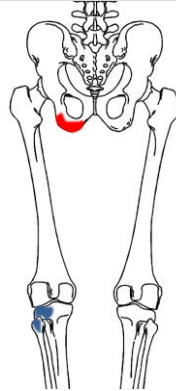
Action: Hip adduction. Can also help with hip flexion and medial rotation.

- **Hamstrings**

The Hamstrings are on the posterior thigh and are made up of three muscles. They all help with hip extension and knee flexion. They are important for sprinting and aggressive running can injure them.

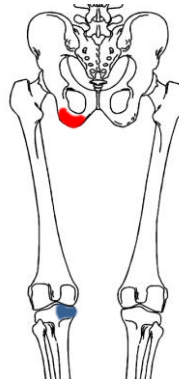
➤ **Bicep Femoris**

*Note that the Bicep Femoris has two heads (thus the name "bicep". However, we only learn one head here and that is the long head)



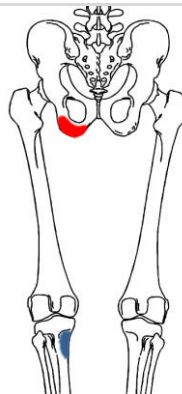
Action: Hip extension and knee flexion. Can also help with hip lateral rotation.

➤ **Semimembranosus**



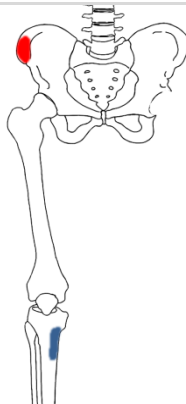
Action: Hip extension and knee flexion. Can also help with hip medial rotation.

➤ **Semitendinosus**



Action: Hip extension and knee flexion. Can also help with hip medial rotation.

• **Sartorius**



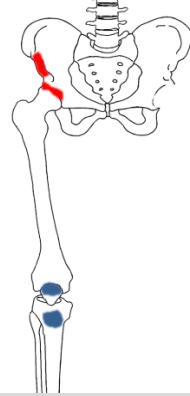
Action: Hip flexion, abduction and lateral rotation. This muscle does the "figure four motion" – Or - the motion you do when you rest your foot on your knee.

• **Quadriceps Femoris**

The quadriceps femoris muscles are on the anterior thigh. They are often called the "Quads". The term Quad refers to the

number 4 as there are 4 muscles that make up this group.

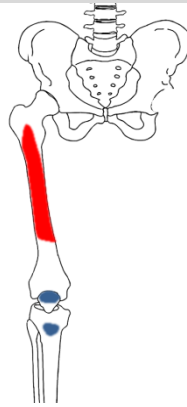
➤ **Rectus Femoris**



Action: Knee extension and hip flexion (this is the only muscle of the "quads" that crosses the knee and can help with hip flexion)

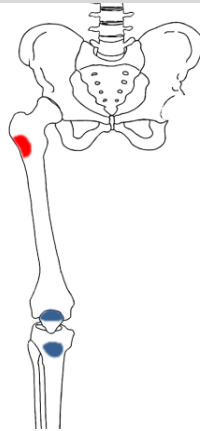
➤ **Vastus Intermedius**

*This muscle is underneath or deep to the rectus and can be hard to see unless the rectus is removed.



Action: Knee extension

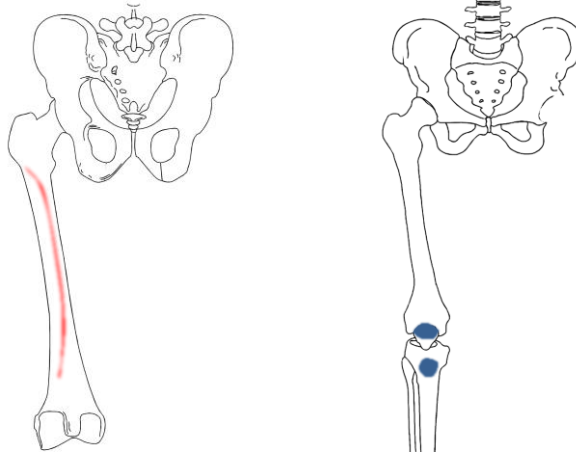
➤ **Vastus Lateralis**



Action: Knee extension

➤ **Vastus Medialis**

*This muscle attaches to the linea aspera and so the posterior view on the left shows this origin. The insertion however is on the anterior tibia (shown on the right).



Action: Knee extension

Muscles of the Leg

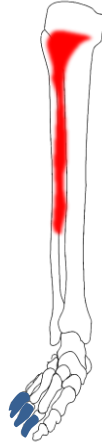
*Be aware that the images here and the model pictures in the online atlas may be different sides of the body.

• **Tibialis Anterior**



Action: Dorsiflexion of the ankle. Can also help with inversion of the foot.

- **Extensor Digitorum Longus**



Action: Extends digits 2-5 and can also help with dorsiflexion of the ankle

- **Extensor Hallucis Longus**



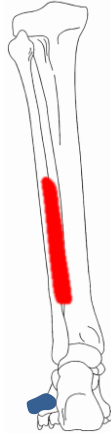
Action: Extends the 1st digit or "big toe". Also helps dorsiflex the ankle.

- **Fibularis Tertius**

*Note that there are three "fibularis" muscles. These muscles can also be called "peroneus" instead of fibularis. Older anatomy text books use the term peroneus and newer text books use the term fibularis.

This muscle is pretty small and can be hard to locate on our anatomy models. The tendon of this muscle is the easiest thing to locate on the models. We will not require you to know origin, insertion or action for this muscle.

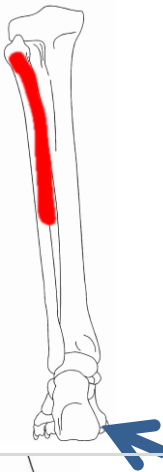
- **Fibularis Brevis**



Action: Eversion of the foot. Can also help with some plantar flexion of the ankle.

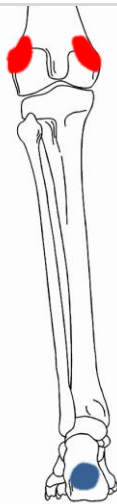
- **Fibularis Longus**

*Note that the insertion of this muscle is on the opposite side of the foot from the origin. This happens because the tendon of this muscle crosses from lateral to medial by running along the arch of the plantar side of the foot. This muscle helps support the arch.



Action: Eversion of the foot. Can also help with some plantar flexion of the ankle.

- **Gastrocnemius**

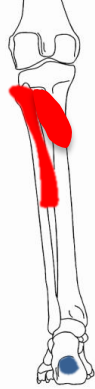


Action: A major action of this muscle is to plantar flex the ankle. This is the muscle that helps you stand on your tippy toes. This muscle can also help flex the knee.

- **Plantaris**

This muscle has a small muscle belly near the origin of the gastrocnemius muscle. It has a tendon that lies between the gastrocnemius and the soleus. It is not a strong muscle at all. It can help a little bit with plantar flexion but even if it was removed a person would not likely notice any strength loss. This muscle is a common one to be harvested for surgeries that involve a tendon graft somewhere else. You are not required to know origin, insertion and action for this muscle.

- **Soleus**

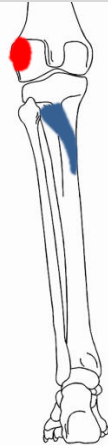


Action: Plantar flexion of the ankle

- **Tendo Calcaneus**

The tendo calcaneus is also commonly called the Achilles tendon. This tendon is very strong and serves as the common attachment point for the gastrocnemius, plantaris and soleus. After receiving all the muscle fibers from these three muscles, this tendon attaches to the posterior calcaneus where it pulls up and causes the front of the foot to drop (this motion is called plantar flexion).

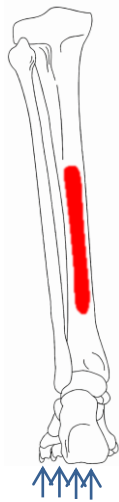
- **Popliteus**



Action: Helps with knee flexion and medial rotation. This muscle is said to “unlock” the knee from a fully straight position to a slightly bent position.

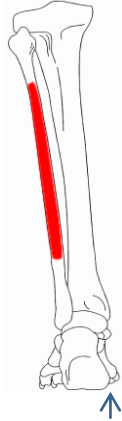
- **Flexor Digitorum Longus**

*Note that the origin of this muscle is the plantar surface of the toes and so the arrows are alluding to this even though it cannot be clearly seen. This is the same for the next muscle as well.



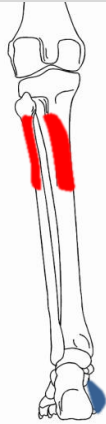
Action: Flexes the digits 2-5. In other words, this muscle flexes the all of the toes except the great toe or “big toe”. This muscle can also help with plantar flexion of the ankle

- **Flexor Hallucis Longus**



Action: Flexes the first digit or great toe ("big toe"). This muscle can also help with plantar flexion of the ankle and some inversion of the foot.

- **Tibialis Posterior**



Action: Plantar flexion and inversion of the ankle and foot.