

Thigh

The thigh is part of the lower limb between the pelvis and buttocks and the knee. The bone in the thigh is called the femur. The femur is a very strong and thick bone, due to the high proportion of cortical bone, and forms a ball and socket joint at the hip and a condylar joint at the knee.

The thigh is divided into 3 muscle compartments. These compartments use the femur as an axis, and are separated by tough connective tissue membrane called septa. Each of these compartments has its own blood and nerve supply, and contains a different group of muscles. As the compartments are located at different locations in relation to the femur, each compartment does different movement to the hip and knee joint.

The 3 compartments are:

1. Medial compartment
2. Posterior compartment
3. Anterior compartment

The medial fascial compartment of thigh contains the hip adductors:

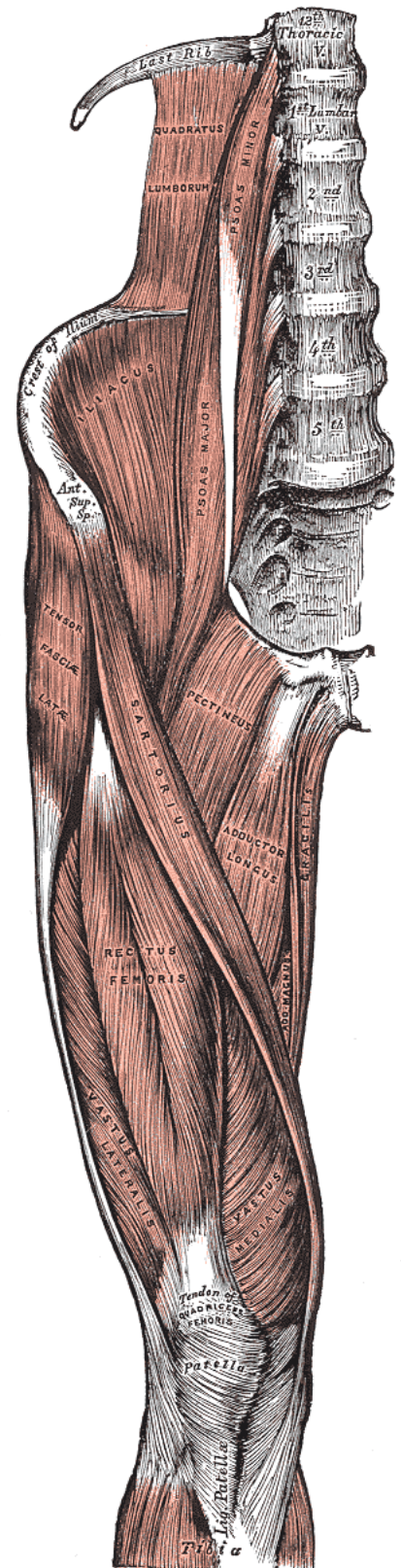
- Adductor magnus
- Adductor longus
- Adductor brevis
- Pectineus
- Gracilis

This compartment is supplied by the obturator nerve.

The posterior compartment of the thigh contains the knee flexors and hip extensors, which is also known as the hamstrings.

- Biceps femoris (short head and long head)
- Semimembranosus
- Semitendinosus

This compartment is supplied by the tibial nerve, except for the short head of biceps femoris is supplied by common peroneal nerve.



The anterior compartment of the thigh contains the knee extensors and hip flexors:

- Sartorius (the longest muscle in the human body)
- Quadriceps (rectus femoris, vastus lateralis, vastus intermedius, vastus medialis)
- Articularis genu.

The iliopsoas is sometimes considered a member of this group; however, it does not share the same innervation. The anterior compartment is supplied by the femoral nerve.

Common sources of thigh pain

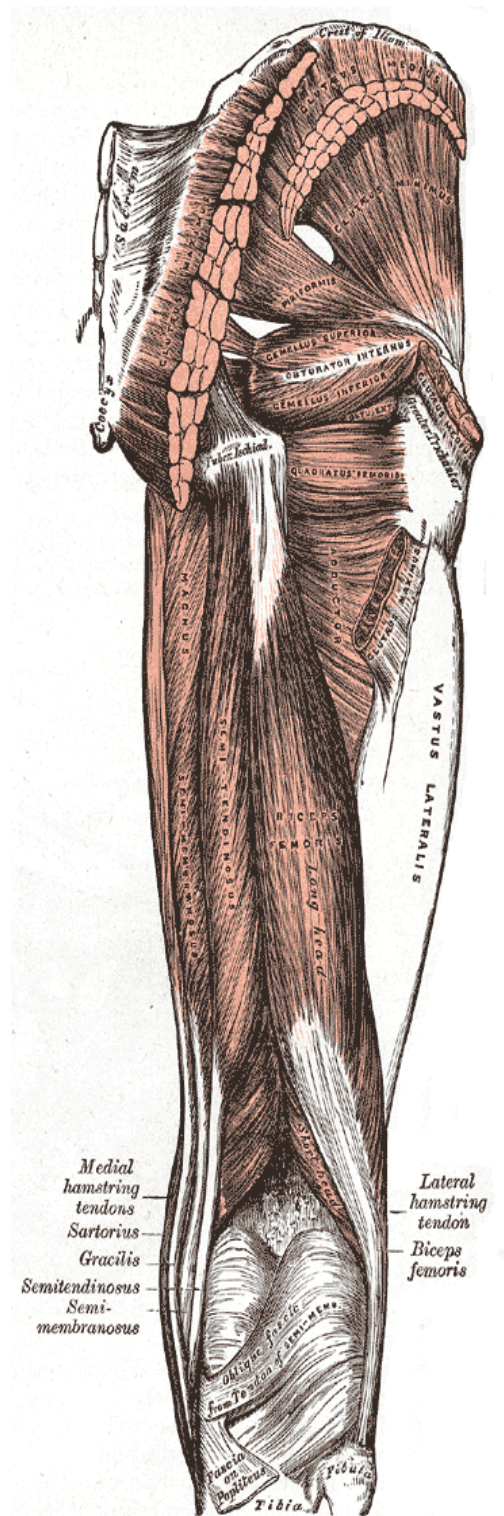
- Adductor muscle strain
- Quadriceps muscle contusion
- Quadriceps muscle strain
- Hamstring muscle strain
- Hamstring muscle contusion
- Referred pain from lumbar spine

Thigh muscle strain

A muscle strain, also called a pull or tear, is a common injury, particularly among people who participate in sports. The hamstring and quadriceps muscle sets are particularly at risk for muscle strains because they cross both the hip and knee joints. They are also used for high-speed activities such as track and field events (running, hurdles, long jump), football, basketball, and soccer.

Signs and symptoms

Muscle strains usually happen when a muscle is stretched beyond its limit, tearing the muscle fibers. They frequently occur near the point where the muscle joins the tough, fibrous connective tissue of the tendon. A similar injury occurs if there is a direct blow to the muscle. Muscle strains in the thigh can be quite painful, and may involve some bruising if blood vessels are also broken. Once a muscle strain occurs, the muscle is vulnerable to reinjury, so it's important to let the muscle heal properly and to follow preventive protocols.



A person who experiences a muscle strain in the thigh will frequently describe a popping or snapping sensation as the muscle tears. Pain is sudden and may be severe. The area around the injury may be tender to the touch, with visible bruising.

Diagnosis and treatment

Muscle strains are graded according to their severity. A grade 1 strain is mild and usually heals readily, while a grade 3 strain is a severe tear of the muscle that may take months to heal. Most muscle strains can be treated with the RICE protocol. RICE: Rest, Ice, Compression, and Elevation.

- Rest: Take a break from the activity that caused the strain.
- Ice: Do not apply ice directly to the skin, but you can use cold packs for 20 minutes at a time, several times a day.
- Compression: To prevent additional swelling and blood loss, wear an elastic compression bandage.
- Elevation: To minimize swelling, keep your leg up higher than your heart.

As the pain and swelling subside, physiotherapy will help improve range of motion and strength. The muscle should be at full strength and pain-free before you return to sports. This will help prevent additional injury.

Preventing muscle strains

Several factors can predispose you to muscle strains. These include:

- Muscle tightness. Tight muscles are vulnerable to strain, so athletes should follow a year-round program of daily stretching exercises.
- Muscle imbalance. Because the quadriceps and hamstring muscles work together, if one is stronger than the other, the weaker muscle can become strained.
- Poor conditioning. If your muscles are weak, they are less able to cope with the stress of exercise and more likely to be injured.
- Muscle fatigue. Fatigue reduces the energy-absorbing capabilities of muscle, making them more susceptible to injury.
- Insufficient warm-up. A proper warm-up is protective because it increases range of motion and reduces stiffness. You can take the following precautions to help prevent muscle strain:
 - Warm up before any exercise session or sports participation, including practice. This will help increase your speed and endurance.
 - Stretch slowly and gradually, holding each stretch to give the muscle time to respond and lengthen..
 - Condition your muscles with a regular program of exercises.
 - If you are injured, take the time needed to let the muscle heal before you return to sports. Wait until your muscle strength and flexibility return to pre-injury levels, a process that can take 10 days to 3 weeks for a mild strain, and up to 6 months for a severe strain.