

# QUADRICEPS CONTUSION (THIGH BRUISE) AND STRAIN

## What is a thigh bruise (quadriceps contusion) and strain?

A thigh bruise is a bruise (contusion) to the large group of muscles in the front of the thigh that help straighten the leg. These muscles are called the quadriceps. A thigh bruise is also called a charley horse. A strain is a partial tear of a muscle and is often called a pulled muscle.

## How does it occur?

A thigh bruise is caused by a direct blow to the muscles of the thigh. A strain may be caused by overuse or by an abrupt movement of the thigh in activities such as sprinting or jumping.

## What are the symptoms?

You have pain in the middle of your thigh and have difficulty walking or running. You may have difficulty bending or straightening your leg or lifting your knee. An area of your thigh may be swollen and discolored.

A thigh bruise or strain usually heals without complications. However, a large bruise may bleed a lot into the quadriceps muscle. This bleeding is called a hematoma. The hematoma may become calcified and form a hard lump in the quadriceps muscle. This lump is called osteomyositis ossificans and may cause stiffness or a bump in the muscle that may be very long lasting.

## How is it diagnosed?

Your healthcare provider will ask about your symptoms and examine your thigh. If your provider suspects an area of calcification, an X-ray may be ordered.

## How is it treated?

Right after your injury your healthcare provider may wrap your leg in a bent-knee position and place ice over your thigh. This will put a maximum stretch on the thigh muscles, keeping them from becoming too tight or stiff during healing.

Other treatment may include:

- putting ice packs on your thigh for 20 to 30 minutes every 3 to 4 hours for 2 or 3 days or until the pain goes away
- lying down and elevating your thigh by putting a pillow under it

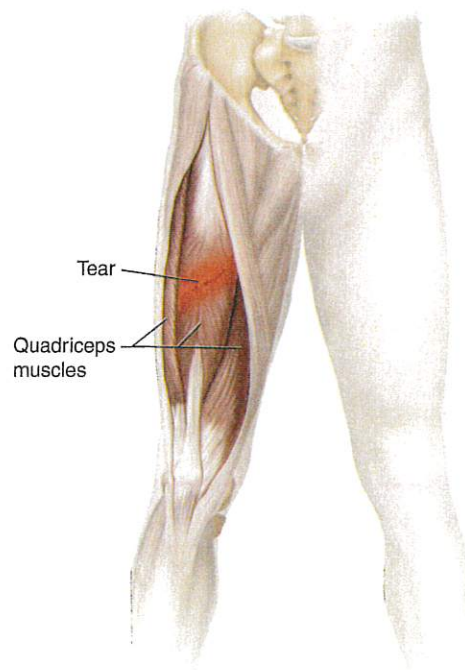
- taking an anti-inflammatory medicine prescribed by your healthcare provider (adults aged 65 years and older should not take non-steroidal anti-inflammatory medicine for more than 7 days without their healthcare provider's approval)
- wearing an elastic thigh wrap when you return to sports
- having prescribed physical therapy, which would include rehabilitation exercises and deep tissue treatments such as ultrasound or electrical stimulation.

While you are recovering from your injury you will need to change your sport or activity to one that does not make your condition worse. For example, you may need to swim instead of run.

## When can I return to my sport or activity?

The goal of rehabilitation is to return you to your sport or activity as soon as is safely possible. If you return too soon you may worsen your injury, which could lead to permanent damage. Everyone recovers from injury at a different rate. Return to your sport or activity will be determined by how soon your thigh recovers, not by how many days or weeks it has been

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since your injury occurred. In general, the longer you have symptoms before you start treatment, the longer it will take to get better.

You may safely return to your sport or activity when, starting from the top of the list and progressing to the end, each of the following is true:

- you have full range of motion in the injured leg compared to the uninjured leg
- you have full strength of the injured leg compared to the uninjured leg
- you can jog straight ahead without pain or limping
- you can sprint straight ahead without pain or limping
- you can do 45-degree cuts, first at half-speed, then at full-speed
- you can do 20-yard figures-of-eight, first at half-speed, then at full-speed

- you can do 90-degree cuts, first at half-speed, then at full-speed
- you can do 10-yard figures-of-eight, first at half-speed, then at full-speed
- you can jump on both legs without pain and you can jump on the injured leg without pain

### How can I prevent a thigh bruise or strain?

A thigh bruise usually occurs from a direct blow to the thigh, which may not be preventable. However, in contact sports such as football be sure to wear the proper protective equipment. Strains are best prevented by warming up and stretching properly before your activity.

## QUADRICEPS CONTUSION (THIGH BRUISE) AND STRAIN REHABILITATION EXERCISES

You may do all of these exercises right away.



QUADRICEPS STRETCH

**1. QUADRICEPS STRETCH:** Stand an arm's length away from the wall, facing straight ahead. Brace yourself by keeping one hand against the wall. With your other hand, grasp the ankle of the opposite leg and pull your heel toward your buttocks. Don't arch or twist your back. Keep your knees together. Hold this stretch for 15 to 30 seconds. Repeat 3 times on each side.

**3. STRAIGHT LEG RAISE:** Lie on your back with your legs straight out in front of you. Bend one knee and place the foot flat on the floor. Tighten up the top of your thigh muscle on the opposite leg and lift that leg about 8 inches off the floor, keeping the thigh muscle tight throughout. Slowly lower your leg back down to the floor. Do 3 sets of 10 on each side.



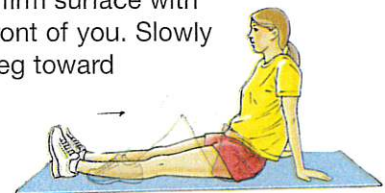
STRAIGHT LEG RAISE

**2. QUAD SETS:** Sitting on the floor with one leg straight and your other leg bent, press the back of your knee of your straight leg into the floor by tightening the muscles on the top of your thigh. Hold this position 10 seconds. Relax. Do 3 sets of 10.



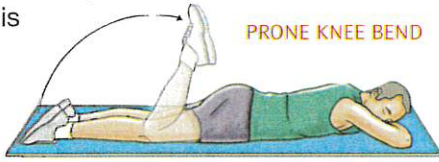
QUAD SETS

**4. HEEL SLIDE:** Sit on a firm surface with your legs straight in front of you. Slowly slide the heel of one leg toward your buttock by pulling your knee to your chest as you slide. Return to the starting position. Do 3 sets of 10.

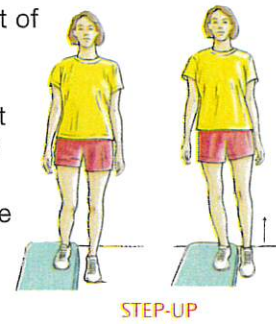


HEEL SLIDE

**5. PRONE KNEE BEND:** Lie on your stomach with your legs straight out behind you. Bend your knee so that your heel comes toward your buttocks. Hold 5 seconds. Relax and return your foot to the floor. Do 3 sets of 10. As this becomes easier you can add weights to your ankle.



**7. STEP-UP:** Stand with the foot of one leg on a support (like a block of wood) 3 to 5 inches high. Keep your other foot flat on the floor. Shift your weight onto the leg on the support and straighten the knee as the other leg comes off the floor. Lower your leg back to the floor slowly. Do 3 sets of 10.



When you have no pain with walking or climbing stairs you can begin the next 2 exercises.

**6. WALL SQUAT:** Stand with your back, shoulders, and head against a wall and look straight ahead. Keep your shoulders relaxed and your feet 1 foot away from the wall and a shoulder's width apart. Keeping your head against the wall, slide down the wall, lowering your buttocks toward the floor until your thighs are almost parallel to the floor. Hold this position for 10 seconds. Make sure to tighten the thigh muscles as you slowly slide back up to the starting position. Do 3 sets of 10. Increasing the amount of time you are in the lowered position helps strengthen your quadriceps muscles.



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