

# 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 a 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 health care provider will ask about your symptoms and examine your thigh. If your provider suspects an area of calcification, an x-ray may be ordered.

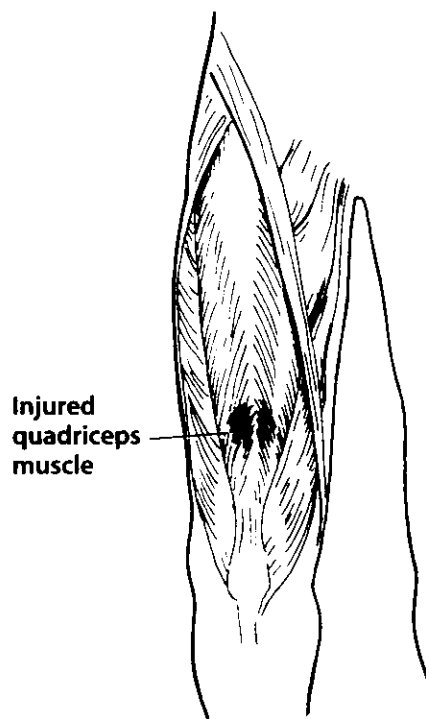
## **How is it treated?**

Right after your injury your health care 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 medication prescribed by your health care provider
- ▶ wearing an elastic thigh wrap when you return to sports
- ▶ having prescribed physical therapy, which would include rehabilitation exercises and deep tissue

## **Quadriceps Contusion (Thigh Bruise)**



Front view of thigh

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 affected leg compared to the unaffected leg.
- ▶ You have full strength of the affected leg compared to the unaffected 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 affected leg without pain.

### **How I prevent piriformis syndrome?**

Piriformis syndrome is best prevented by stretching the muscles that rotate your thigh inward and outward. It is important to have a good warm-up before starting your sport or activity.

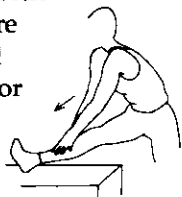
## **Piriformis Syndrome Rehabilitation Exercises**

You may do all of these exercises right away.

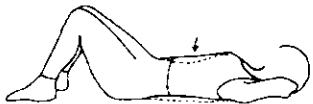
**1. PIRIFORMIS STRETCH:** Lying on your back with both knees bent, rest the ankle of your injured leg over the knee of your uninjured leg. Grasp the thigh of your uninjured leg and pull that knee toward your chest. You will feel a stretch along the buttocks and possibly along the outside of your hip on the injured side. Hold this for 15 to 30 seconds. Repeat 3 times.



**2. STANDING HAMSTRING STRETCH:** Place the heel of your leg on a stool about 15 inches high. Keep your knee straight. Lean forward, bending at the hips until you feel a mild stretch in the back of your thigh. Make sure you do not roll your shoulders and bend at the waist when doing this or you will stretch your lower back instead. Hold the stretch for 15 to 30 seconds. Repeat 3 times.



**3. PELVIC TILT:** Lie on your back with your knees bent and your feet flat on the floor. Tighten your abdominal muscles and push your lower back into the floor. Hold this position for 5 seconds, then relax. Do 3 sets of 10.



**4. PARTIAL CURL:** Lie on your back with your knees bent and your feet flat on the floor. Tighten your stomach muscles and flatten your back against the floor. Tuck your chin to your chest. With your hands stretched out in front of you, curl your upper body forward until your shoulders clear the floor. Hold this position for 3 seconds. Don't hold your breath. It helps to breathe out as you lift your shoulders up. Relax. Repeat 10 times. Build to 3 sets of 10. To challenge yourself, clasp your hands behind your head and keep your elbows out to the side.



**5. PRONE HIP EXTENSION:** Lie on your stomach with your legs straight out behind you. Tighten up your buttocks muscles and lift one leg off the floor about 8 inches. Keep your knee straight. Hold for 5 seconds. Then lower your leg and relax. Do 3 sets of 10.

Repeat this exercise for the other leg.



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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 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.
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- ▶ You can jog straight ahead without pain or limping.
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- ▶ 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.

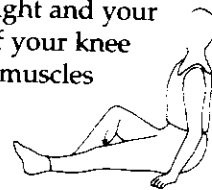
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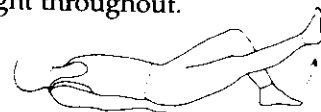
**1. QUADRICEPS STRETCH:** Stand an arm's length away from the wall, facing straight ahead. Brace yourself by keeping the hand on the uninjured side against the wall. With your other hand, grasp the ankle of the injured leg and pull your heel toward your buttocks. Don't arch or twist your back and keep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



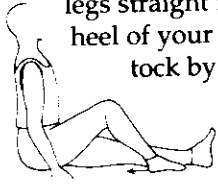
**2. QUADRICEPS ISOMETRICS:** Sitting on the floor with your injured leg straight and your other leg bent, press the back of your knee into the floor by tightening the muscles on the top of your thigh. Hold this position 10 seconds. Relax. Do 3 sets of 10.



**3. STRAIGHT LEG RAISE:** Lie on your back with your legs straight out in front of you. Tighten up the top of your thigh muscle on the injured 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.



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



**5. PRONE KNEE BENDS:** 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.

