

# QUADRICEPS CONTUSION



## ■ ■ ■ Description

Quadriceps contusion is a bruising of the skin and underlying tissues of the thigh, including muscle, its covering fascia, and occasionally bone, due to a direct blow. Contusions cause bleeding from ruptured small capillaries that allow blood to infiltrate muscles, tendons, or other soft tissues. The thigh is well suited to absorb direct blows, but contusions do often occur here.

## ■ ■ ■ Common Signs and Symptoms

- Swelling, pain, and tenderness of the thigh, either superficial or deep
- Feeling of firmness when pressure is exerted at the injury site
- Discoloration under the skin, beginning with redness and progressing to the characteristic black and blue or purple bruise
- Restricted activity of the injured leg proportional to the extent of the injury
- Knee stiffness or pain when trying to bend the knee

## ■ ■ ■ Causes

- Direct blow to the thigh, usually from a blunt object (another player's helmet or knee)

## ■ ■ ■ Risk Increases With

- Contact or collision sports, especially football, rugby, and soccer
- Inadequate protection of exposed areas during contact or collision sports
- Bleeding disorder or use of anticoagulants, aspirin, or nonsteroidal anti-inflammatory medications

## ■ ■ ■ Preventive Measures

- Wear appropriate protective equipment (such as thigh pads for football) and ensure correct fit.
- Limit use of anticoagulants, aspirin, and nonsteroidal anti-inflammatory medications.

## ■ ■ ■ Expected Outcome

This condition is usually curable with time and appropriate treatment. Healing time varies but usually averages 1 to 2 weeks.

## ■ ■ ■ Possible Complications

- Excessive bleeding, leading to disability, particularly compartment syndrome (massive swelling within the confines of the thigh, resulting in crushing injury to the muscles and nerves and death of these structures due to blockage of blood to the muscles and nerves)

- Healing of the injured area with calcification (myositis ossificans) that can be painful and can limit joint function
- Infection (uncommon)
- Knee stiffness or loss of motion
- Prolonged disability, particularly with knee stiffness or myositis ossificans
- Delayed healing or resolution of symptoms, particularly if activity is resumed too soon

## ■ ■ ■ General Treatment Considerations

Initial treatment consists of medication, ice, and compressive strapping to relieve pain and reduce swelling; stretching to prevent knee and thigh stiffness; and modification of activities to allow the bruised muscles to heal. Referral to a physical therapist of athletic trainer may be advised for further evaluation and treatment, especially to regain knee motion. Nonsteroidal anti-inflammatory medicines may be recommended starting 2 to 3 days after a severe injury to reduce the likelihood of developing calcification of the contusion (myositis ossificans). Uncommonly, your physician may attempt to remove a blood collection (hematoma), if one exists, with a needle and syringe to help speed recovery. Rarely, surgery is recommended to remove the clotted blood.

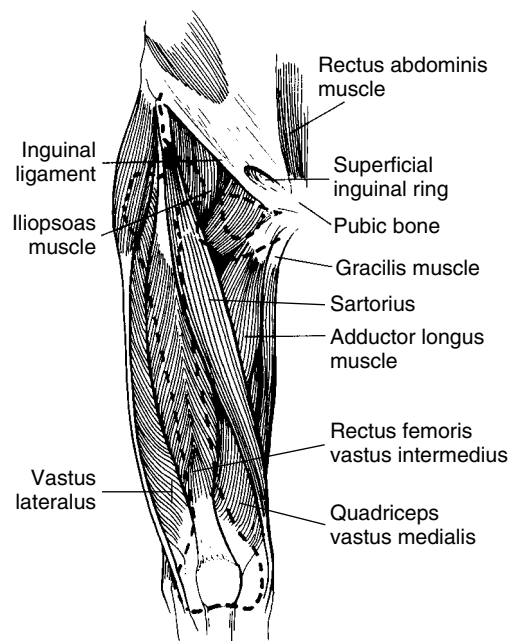


Figure 1

From DeLee JC, Drez D Jr.: Orthopaedic Sports Medicine: Principles and Practice. Philadelphia, WB Saunders, 1994, p. 1103.

■ ■ ■ Medication

- Nonsteroidal anti-inflammatory medications, such as aspirin and ibuprofen (do not take for the first 3 days after injury or within 7 days before surgery), or other minor pain relievers, such as acetaminophen, are often recommended. Take these as directed by your physician. Contact your physician immediately if any bleeding, stomach upset, or signs of an allergic reaction occur.
- Nonsteroidal anti-inflammatory medications, such as indomethacin, may be given to reduce the likelihood of calcification of the hematoma and myositis ossificans.
- Topical ointments may be of benefit.
- Pain relievers may be prescribed as necessary by your physician. Use only as directed and only as much as you need.
- Injections of corticosteroids may be given to reduce inflammation, although not usually for acute injuries.

■ ■ ■ Heat and Cold

- Cold is used to relieve pain and reduce inflammation. Cold should be applied for 10 to 15 minutes every 2 to 3 hours for inflammation and pain and immediately after any activity that aggravates your symptoms. Use ice packs or an ice massage.
- Heat may be used before performing stretching and strengthening activities prescribed by your physician, physical therapist, or athletic trainer. Use a heat pack or a warm soak.

■ ■ ■ Notify Our Office If

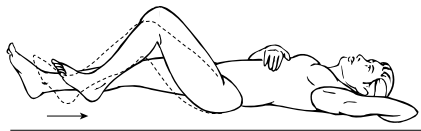
- Symptoms get worse or do not improve in 2 weeks despite treatment
- New, unexplained symptoms develop (drugs used in treatment may produce side effects)

EXERCISES

➤ RANGE OF MOTION AND STRETCHING EXERCISES • Quadriceps Contusion

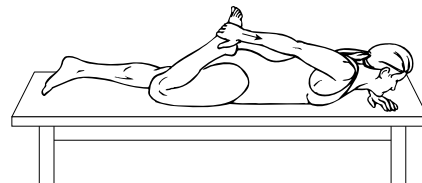
These are some of the *initial* exercises you may start your rehabilitation program with until you see your physician, physical therapist, or athletic trainer again or until your symptoms are resolved. Please remember:

- Flexible tissue is more tolerant of the stresses placed on it during activities.
- Each stretch should be held for 20 to 30 seconds.
- A *gentle* stretching sensation should be felt.



RANGE OF MOTION • Knee Flexion

1. Lie on your back with your legs out straight.
2. Slowly slide your heel toward your buttocks. Bend your knee as far as is comfortable to get a stretching sensation.
3. Hold for \_\_\_\_\_ seconds.
4. Return your leg to the starting position.
5. Repeat exercise \_\_\_\_\_ times, \_\_\_\_\_ times per day.



STRETCH • Quadriceps, Prone

1. Lie on your stomach as shown.
2. Bend your knee, grasping your toes, foot, or ankle. If you are too “tight” to do this, loop a belt or towel around your ankle and grasp that.
3. Pull your heel toward your buttock until you feel a stretching sensation in the front of your thigh.
4. Keep your knees together.
5. Hold this position for \_\_\_\_\_ seconds.
6. Repeat exercise \_\_\_\_\_ times, \_\_\_\_\_ times per day.

### > STRENGTHENING EXERCISES • Quadriceps Contusion

These are some of the *initial* exercises you may start your rehabilitation program with until you see your physician, physical therapist, or athletic trainer again or until your symptoms are resolved. Please remember:

- Strong muscles with good endurance tolerate stress better.
- Do the exercises as *initially* prescribed by your physician, physical therapist, or athletic trainer. Progress slowly with each exercise, gradually increasing the number of repetitions and weight used under their guidance.

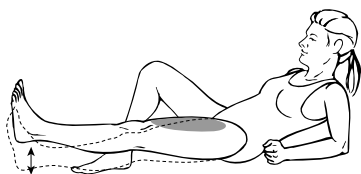


#### STRENGTH • Quadriceps, Short Arcs

1. Lie flat or sit with your leg straight.
2. Place a \_\_\_\_\_ inch roll under your knee, allowing it to bend.
3. Tighten the muscle in the front of your knee as much as you can, and lift your heel off the floor.
4. Hold this position for \_\_\_\_\_ seconds.
5. Repeat exercise \_\_\_\_\_ times, \_\_\_\_\_ times per day.

**Additional Weights: OK TO USE      DO NOT USE!!!**

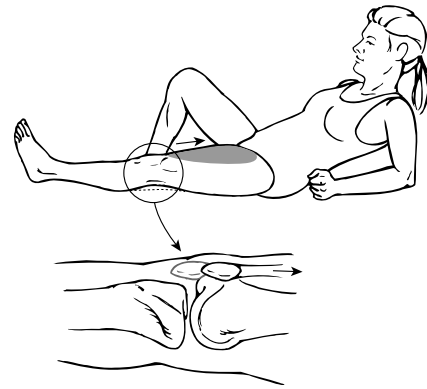
**If okay'd by your physician, physical therapist, or athletic trainer, a \_\_\_\_\_ pound weight may be placed around your ankle for additional weight.**



#### STRENGTH • Quadriceps, 7 Count

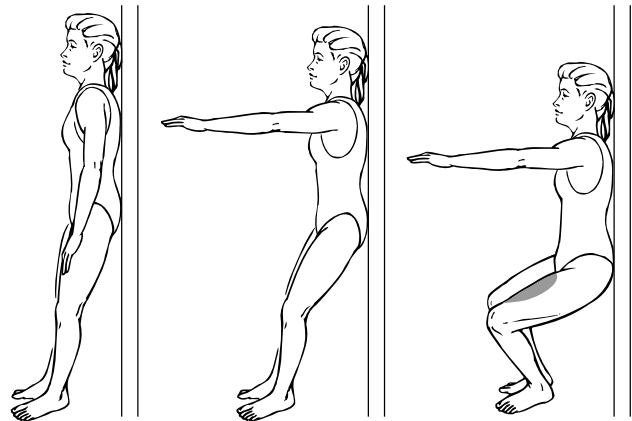
**The quality of the muscle contraction in this exercise is what counts the most, not just the ability to lift your leg!**

1. Tighten the muscle in front of your thigh as much as you can, pushing the back of your knee flat against the floor.
2. Tighten this muscle **harder**.
3. Lift your leg/heel 4 to 6 inches off the floor.
4. Tighten this muscle **harder again**.
5. Lower your leg/heel back to the floor. Keep the muscle in front of your thigh as tight as possible.
6. Tighten this muscle **harder again**.
7. Relax.
8. Repeat exercise \_\_\_\_\_ times, \_\_\_\_\_ times per day.



#### STRENGTH • Quadriceps, Isometrics

1. Lie flat or sit with your leg straight.
2. Tighten the muscle in the front of your thigh as much as you can, pushing the back of your knee flat against the floor. This will pull your kneecap up your thigh, toward your hip.
3. Hold the muscle tight for \_\_\_\_\_ seconds.
4. Repeat this exercise \_\_\_\_\_ times, \_\_\_\_\_ times per day.



#### STRENGTH • Quadriceps, Wall Slide

1. Stand with your back against the wall. Your feet should be shoulder-width apart and approximately 18 to 24 inches away from the wall. Your kneecaps should be in line with the tip of your shoes or your second toe.
2. Slowly slide down the wall so that there is a \_\_\_\_\_ degree bend in your knees. (*Your physician, physical therapist, or athletic trainer will instruct you how to progress the amount of bend based on your symptoms and diagnosis.*)
3. Hold this position for \_\_\_\_\_ seconds. Stand up and rest for \_\_\_\_\_ seconds.
4. Repeat exercise \_\_\_\_\_ times, \_\_\_\_\_ times per day.

Notes:

(Up to 4400 characters only)

Notes and suggestions