

QUADRICEPS STRAIN

DESCRIPTION

Inflammation and pain in the front of the thigh along the quadriceps muscles. There are 4 muscles that comprise the quadriceps muscle group that go from the hip across the knee to the leg. This muscle group is important for straightening your knee and bending your hip. It is important for running and jumping. This is usually a grade 1 or 2 strain of the muscle-tendon unit. A *Grade 1 strain* is a mild strain. There is a “slight pull” without obvious tearing (it is microscopic tearing). There is no loss of strength and the muscle-tendon unit is the correct length. A *Grade 2 strain* is a moderate strain. There is tearing of fibers within the substance of the muscle, tendon or where the tendon meets the bone. The length of the muscle-tendon-bone unit is increased and there is decreased strength. A *grade 3 strain* is a complete rupture of the tendon. (see Quadriceps Rupture).

FREQUENT SIGNS AND SYMPTOMS

- Pain, tenderness, swelling, warmth and/or redness over the quadriceps muscles at the front of the thigh. The pain is worse during and after strenuous activity.
- Muscle spasm in the thigh
- Pain and/or weakness with running, jumping or straightening the knee against resistance
- Crepitation (a crackling sound) when the tendon is moved or touched
- Bruising in the thigh 48 hours following the injury
- Loss of fullness of the muscle or area of muscle bulging with complete rupture

CAUSES

- Strain from overuse or sudden increase in amount or intensity of activity or overuse of the lower extremity.
- May be due to a single violent blow or force to the knee or the quadriceps area of the thigh.

RISK INCREASES WITH

- Sports that require quick starts (sprinting or running races and other track events, racquetball, badminton)
- Sports that require jumping (basketball and volleyball).
- Contact sports such as soccer or football.
- Poor physical conditioning (strength/flexibility)
- Inadequate warm-up prior to practice or play
- Previous quadriceps or knee injury.

EXPECTED OUTCOME

Usually curable within 6 weeks if treated appropriately.

POSSIBLE COMPLICATIONS

- Healing time will be prolonged if not appropriately treated or if not given adequate time to heal
- Chronically inflamed tendon causing persist pain with activity that may progress to constant pain
- Recurrence of symptoms if return to activity is too soon.
- Proneness to repeated injury

GENERAL TREATMENT CONSIDERATIONS

Initial treatment consists of medication and ice to relieve the pain, stretching and strengthening exercises (particularly bending the knee) and modifying the activity which initially cause the problem to occur. These all can be carried out at home, though referral to a physical therapist or athletic trainer for further evaluation and treatment may be helpful. An elastic bandage or neoprene (wet suit material) sleeve may help reduce swelling and reduce symptoms. Crutches may be recommended if the strain is severe and the athlete is limping until the pain and inflammation settle down for the first 24 to 72 hours. Rarely surgery is necessary to reattach muscle if it pulls off bone (uncommon), or if chronic, persistent pain exists for more than 3 months despite appropriate conservative treatment for strains. Suturing or sewing torn muscle is usually not successful, though complete tendon rupture often requires surgical repair. Single muscle rupture is not usually fixed surgically since these rarely cause problems.

MEDICATION

- Non-steroidal anti-inflammatory medications, such as aspirin and ibuprofen (do not take for the first 3 days after injury or if surgery planned in 7 days or less), or other minor pain relievers, such as acetaminophen, are often recommended. Take these as directed by your physician. Contact him/her immediately if any bleeding, stomach upset or an allergic reaction occurs.
- Topical ointments may be of benefit.
- Pain relievers may be prescribed as necessary by your physician. Use only as directed.
- Injections of corticosteroids may be given to reduce inflammation, though not usually for acute injuries.

HEAT AND COLD:

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

NOTIFY OUR OFFICE IF

- Symptoms get worse or do not improve in 2-4 weeks despite treatment
- New, unexplained symptoms develop. Drugs used in treatment may produce side-effects.