



Muscle Contusion (Bruise)

A muscle contusion or muscle bruise is an injury to the soft tissue (muscle fibers, connective tissue and/or blood vessels and nerves) of the upper leg. The most commonly involved muscle is the quadriceps. The muscle contusion may be accompanied by bone contusion (bruise) or even a fracture (broken bone). These contusions are graded 1, 2, or 3 depending on the severity.

- **Grade 1 (mild):** A grade 1 muscle contusion produces mild bruising, little pain and no swelling at the site of impact. The knee moves normally or very close to normally. There may be some mild soreness when pressure is applied to the area of injury.
- **Grade 2 (moderate):** This injury is slightly deep than a grade 1 contusion and produces mild pain and a little swelling. People with a grade 2 quadriceps injury can only bend the knee part of the way and may walk with a slight limp. Pressure on the area of injury causes some pain.
- **Grade 3 (severe):** Severe muscle contusions are very painful and are accompanied by noticeable swelling. Individuals with this type of injury will usually develop obvious bruising at the sight of injury. A severe quadriceps contusion may result in a significant loss of motion in the knee and cause an obvious limp. People with a grade 3 contusion have pain with pressure at the site of injury and the surrounding area.

Causes

Muscle contusions occur when an individual receives one or more direct blows, to the body part, falls or jams of a body part against a hard surface. In essence, the muscles are compressed and crushed between the object or person delivering the blow and the underlying bone.

Signs & Symptoms

Signs and symptoms of muscle contusions include swelling and bruising at the injury site, muscle tightness, pain with or without movement, and inability to move a joint fully.

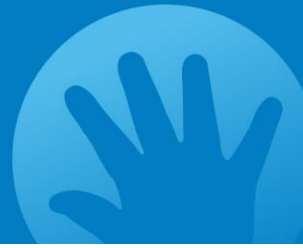
Diagnosis

A complete physical examination will determine the exact location and extent of the injury. Your child's doctor can tell you if they feel a gap within the muscle indicating a possible tear. X-rays of the bone are often taken to rule a fracture (broken bone) or other conditions. Additional tests such as ultrasound, CT scan or MRI may be required to determine the extent of the injury and to identify any additional injuries.

The results of the physical exam and other diagnostic tests allow your child's doctor to determine how severe this injury is; this is very important for guiding the treatment plan and making decisions about when it is safe for your child to return to athletics.

Treatment

Initial treatment includes rest and protecting the injury from further harm by stopping play or practice. Applying ice and elevating the injured area will help minimize injury to the muscle. For lower extremity injuries: if putting weight on the affected leg is painful, your child will need to use crutches to protect the injury site. Compressing the area with a soft



bandage and keeping the muscle in a slightly stretched position may be beneficial as well. Anti-inflammatory medications such as ibuprofen (ex.: Motrin or Advil) can be used for pain relief. Massage and heat should be avoided for at least the first week after injury.

If you notice numbness and weakness developing anywhere or rapidly increasing swelling in the injured area, you should seek immediate medical attention. Although this occurs very rarely, rapid bleeding into the muscle may cause a build-up of pressure in the thigh; this may require urgent surgery to drain blood from the thigh.

Once your child is able to comfortably bend their knee to 90 degrees or more, your child's physician will prescribe a physical therapy or rehabilitation program.

Returning to Activity & Sports

The time to return to activity and sports depends on the grade/severity of the injury and one's progress with stretching and strengthening exercises. Moderate-to-severe contusions take an average of 4-6 weeks to heal. Minor contusions take considerably less time. If your child puts too much stress on the injured area before it is healed, excessive scar tissue may develop.

Your physician will allow your child to return to contact sports when they get back their full strength, motion and endurance. Your child may need to wear a protective device or pad to prevent further injury to the area.