

# Hamstring Muscle Strain

Hamstring muscle injuries, such as that of pulled hamstrings, tend to occur quite frequently in athletes. They tend to be more common in athletes participating in sports that require sprinting, such as that of soccer, track and basketball. Pulled hamstrings or strains are injuries to one or more of the muscles within the back part of the thigh. Most of the time, injuries will respond well to an array of nonsurgical/manual therapy treatments.

## Hamstring Muscle Strain Anatomy

Hamstring muscles run down the back portion of the thigh. Three hamstring muscles make up the area: the semitendinosus, biceps femoris and the semimembranosus. They begin at the bottom part of the pelvis in the ischial tuberosity. They cross along the knee joint and the end part of the lower leg. Hamstring fibers join together with the tough, connective tissue of the tendons near the place where the tendons are attached to the bones. The hamstring muscles work to help you extend the leg straight back and bend the knee.

## How is the Hamstring Injured?

In most cases, the load applied through the muscle is too great for the strength or flexibility of the muscle fibres. A hamstring that is flexible will have muscle fibres that are more stretchy, and so able to tolerate greater amounts of stretch force placed through them. Tight muscles if stretched quickly or forcibly are more likely to tear the muscle fibres, causing a strain. In the same way, weak muscle fibres will tear more easily if the load placed on them is too great.

A hamstring muscle strain can be mild, and just feel like aching at the back of the leg. Or it can be severe, with a full tear to the muscle (or even worse to the tendon). Muscle tears take longer to heal and tendon tears even longer still. Tears are typically graded I, II and III depending on their severity with III being a full tear/rupture of the muscle.



*Bruising following a hamstring tear*

## How to Treat a Hamstring Muscle Strain:

### 1. Rest for the First 24-48 Hours

Refrain from engaging in any activities other than gentle walking for the first two days. It might be necessary to use crutches to avoid placing any weight on the injured leg depending on the severity of the tear.

### 2. Ice

Apply ice to the injured area for five to 10 minutes at a time, three to five times per day. Avoid applying ice directly to the skin to avoid any burns. A hot water bottle can also be used, but you should discuss this with your therapist.

### 3. Immobilization

In occasional circumstances it might be necessary to wear a knee splint for a short period of time. This helps to keep the leg in a neutral position to aid in the healing process.

### 4. Physical Therapy

You should begin participating in physical therapy ASAP depending on the elite level of your sport. Very elite athletes will seek therapy the same day, but less high level sports people can wait up to 5 days before seeking help. Treatments may consist of electrotherapy, massage, and gentle stretching depending on the stage of the injury. Your therapist will also advise on an exercise program. These specific exercises can help to restore strength and movement in the muscles. The therapy program will begin by focusing on flexibility. A gentle stretch will help to improve movement. At some point in the healing process, strengthening exercises can slowly be implemented into the program. You will be provided with information on when it is safe to return to any sports activities.

### 5. Compression

To prevent any additional blood loss and swelling, you might need to wear an elastic compression bandage.

### 6. Elevation

To help reduce any swelling, recline and place your leg higher than your heart whenever you are sitting back and resting.

## Tips:

- Muscle overload tends to be one of the most common causes of hamstring strain. This happens when the muscle is stretched beyond normal capacity or challenged with a tremendous load out of the blue.
- When muscles are tight, they are vulnerable to strains. Athletes need to follow a year-round program of stretching exercises.
- If the muscles are weak, they aren't as capable of coping with the stress of exercise, which causes injuries.
- When one of the muscle groups are stronger than their opposing ones, the imbalance leads to strains.
- Fatigue causes the energy-absorbing capabilities of the muscles to be reduced, which makes them more prone to injury.
- Repeated hamstring muscle strains are usually the cause of an underlying problem such as chronic tightness, gross hamstring weakness, a biomechanical problem with the lower limb, or poor technique.