

HAMSTRING STRAIN

Hamstring strains or tears are a common injury and frequently result in prolonged symptoms and time missed from activity. They can be stubborn to heal and present a significant risk of re-injury. The hamstring muscles cross 2 joints (the hip and knee) and function to help bend the knee and extend the hip. Hamstring strains usually occur as a result of rapid hip flexion and knee extension in activities such as sprinting.

Hamstring injuries can occur at any level in the hamstring tendon unit. The muscle may be affected near the ischial tuberosity (sit bone), mid-substance of the muscle, or along the insertion close to the back of the knee. The hamstring unit is a set of 3 muscles on the back of the thigh which originate from the ischial tuberosity (sit bone) at the hip. There are two medial hamstring muscles (attaching on the inner part of your tibia/shin bone) including the semimembranosus and semitendinosus. The biceps femoris is the lateral hamstring (outer part of the back of the thigh), which is the most commonly injured hamstring muscle.

Symptoms of an Injured Hamstring

- Hamstring injuries usually cause a sudden, sharp pain in the back of your thigh
- Patients may also describe feeling a popping or tearing sensation
- Swelling and tenderness will typically develop shortly following the injury
- Stiff and painful walking
- Bruising and discoloration over the back of the thigh
- May have palpable mass at the back of the thigh
- Muscle weakness or an inability to put weight on the injured leg

Hamstring Muscle Strain, Grades I-III

Muscle tears are graded based on the severity from Grade 1 (micro-tearing) to Grade 3 (complete rupture). The location and grade of injury largely determines prognosis and time to return to play or activity.

Diagnostic Imaging

- X-rays can diagnose associated avulsion fractures (hamstring tendon tearing off the bone at the attachment)
- Ultrasound and MRIs can visualize tears in your hamstring muscles and tendons
- MRI can show the severity “grading” and can predict return to play or activity

How are Hamstring Strains Treated?

- Rest, ice, anti-inflammatories, and protected weight-bearing are recommended for at least the first 72 hours after injury
- Progressive stretching and strengthening in physical therapy, followed by a gradual re-introduction of activity
- Return to play or activity when pain-free and strength is at least 90% of opposite side to avoid further injury

Operative Treatment

In certain circumstances, including complete ruptures or avulsion type injuries, operative treatment is most appropriate. In these cases, the surgeon will sew together the torn muscle and/or reattach the muscle to bone. Surgery also may be appropriate for patients who fail six months of conservative treatment.

How to Prevent Hamstring Injuries?

In order to prevent hamstring injuries, it is important to make sure that you participate in regular exercise that emphasizes balance, muscle strength, flexibility, and core stability. In addition, hamstring injuries may be avoided by proper warm-up and cool down. Certain strengthening regimens such as the “Nordic hamstring exercise” have been shown to reduce the incidence of these injuries. It is also theorized that many athletes return to play too soon which places them at increased risk for re-injury. It is important to make sure you are fully rehabilitated before returning to full activity.

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