

### What is it?

A hamstring muscle strain refers to a tear in the muscle group which covers the back of the thigh. See figure 1.



### What are the symptoms?

When the hamstring muscle is strained, the first sensation you feel is sudden pain in the back of the thigh due to damage to muscle fibres. See figure 1. At the same time you may have a 'tearing' sensation. With a minor strain you may be able to continue participation with minimal restriction. As the muscle cools down following activity pain may gradually increase as bleeding and swelling around the injured muscle continues. This may be associated with progressive tightening and stiffening of the hamstring muscle group. In more severe cases these sensations may be exaggerated such that you are unable to continue participation due to excessive pain in the thigh, muscle tightness, weakness and spasm. In these cases the pain may be so intense that you may be unable to walk without a limp. There may also be obvious swelling and a visible deformity in the muscle.

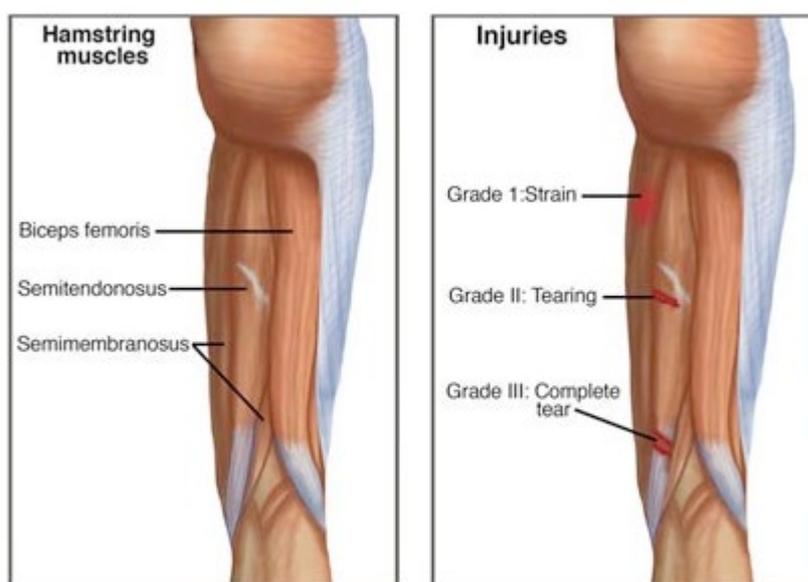


Figure 1 Note comparison between the healthy hamstring on the left and the one on the right indicating a tear or strain within the muscle.

### How did I get it?

A hamstring muscle strain / tear typically occurs in 3 ways.

- 1) High speed injuries occur with sprinting and changing direction. The classic example is a sprinter. The muscle is contracted with excessive force, the injury usually occurs in the middle third of the muscle. The timeframe to return to the activity is relatively quick with these type of injuries.
- 2) High stretch injuries occur with dance and gymnastics. The classic example is a ballet dancer going into a deep stretch or swinging the leg above the head. This injury is due to excessive stretch and usually occurs in the top of the muscle near the buttock and is unfortunately associated with a more severe injury and a slower return back to the activity.
- 3) Mixed injuries occur when there is both running and stretching involved. An example is an AFL player sprinting and simultaneously bending over to pick up a ball from the ground. In this position, the hamstring muscle group is stretched over the back of the hip and knee joints. At the same time this muscle group is working hard to slow down the forward swinging leg while secondly propelling your body forward.



Go online for more information

These YouTube links provide examples of some of the more common hamstring injuries.

[www.youtube.com/watch?v=eIA73A7H8G4](http://www.youtube.com/watch?v=eIA73A7H8G4)

[www.youtube.com/watch?v=nuaOja-Ld8](http://www.youtube.com/watch?v=nuaOja-Ld8)

[www.youtube.com/watch?v=kkHILZARF\\_o](http://www.youtube.com/watch?v=kkHILZARF_o)

[www.youtube.com/watch?v=LFO7kaMmxVs](http://www.youtube.com/watch?v=LFO7kaMmxVs)

## What should I do?

To limit the severity of this injury, it is advisable you stop your activity immediately and start initial treatment. Treatment in the first 24-48 hours is important for both recovery time and preventing longer term effects. Swelling is a necessary step in the healing process however too much swelling can delay healing and cause further tissue damage. To control the amount of swelling and limit the degree of damage to the hamstring muscle, the RICE regime should be commenced (Rest, Ice, Compression, and Elevation). This will help to reduce blood flow to the injured area thereby reducing the extent of swelling and tissue damage. You should continue the RICE regime until you consult a sports medicine professional preferably within 2 days of the initial injury. Following a hamstring muscle strain you should avoid any activity which increases blood flow to the hamstring muscle. These include hot showers, hamstring stretching, heat rubs, massage, consumption

of alcohol and excessive activity. These can increase muscle bleeding, resulting in further pain and an extended recovery period. It may be worthwhile avoiding anti-inflammatory drugs such as Nurofen during this time as there is some evidence that it can delay the healing process. Although most hamstring muscle strains heal without complication within a number of weeks, some can result in longer-term effects which would depend on the extent of damage and any inappropriate early management of the injury. When the hamstring muscle is torn a number of structures contained within and around the muscle may also be injured. Injury to these structures may delay return to the activity. This could result in a tight or weakened hamstring muscle group that is prone to re-injury when returning to activity. Re-injury has a high probability of occurring with a 25% chance of re injury within the first 2 years. Appropriate rehabilitation is required to decrease this risk.

## What does rehab involve?

An appropriate diagnosis and estimation of return to play time frames is important. Rehab should be exercise-based and include a graded return to running. The L protocol by Dr Askling is a simple but ground-breaking exercise regime which can dramatically decrease time to return to sport.  (<https://www.youtube.com/watch?v=ONCSNxMQTzE>)

Once running again it is important to shift focus to preventing further injury and addressing any underlying factors which may have predisposed you to injury. Nordic hamstring curls are an excellent exercise for preventing hamstring injury and build eccentric muscle strength. There is strong evidence to support this. It will be important however to assess and address any other deficiency that may predispose you to injury such as poor core or hip control etc.

## How is a diagnosis made?

A hamstring tear is a relatively obvious diagnosis. Imaging is not required to make the diagnosis except in very rare cases. Imaging with MRI is increasingly being used to grade an injury and predict return to play time frames. This unfortunately can be unreliable and its accuracy can be poor. Time to walk pain free and the location of the injury (proximity to the buttock) are better indicators than the MRI. Diagnosing any underlying cause for the injury will also be important and need to be focused on in later stage rehabilitation.

**Do you have a question?** Email [info@sportsclinicnq.com.au](mailto:info@sportsclinicnq.com.au)

