

# HAMSTRING MUSCLE INJURIES IN RUNNERS

## THE INJURY

Runners are often guilty of showing their hamstrings no love, until they demand it. Hamstring issues usually arise because the muscles are weak. Long and weak or short and tight hamstrings all pose injury risks, as do muscle imbalances with over-powering quadriceps on the front of your thigh.

The hamstring consists of 3 muscles, that run down the back of your thigh from your buttock to just below your knee. They work over two joints – both flexing (bending) the knee and extending (straightening) the hip joint. The hamstrings work throughout each stride,

but are especially active when you are bending your knee and extending your hip at the same time, for example when driving yourself up hills, and powering into the finish. Approximately 7% of running injuries are hamstring-related. Pushing through hamstring pain can morph into a debilitating tear.

Running-related hamstring injuries can be one of two things: a more commonly known hamstring strain (pulled/torn muscle) or an overuse injury called hamstring tendinopathy.



## Hamstring Strain

An acute injury that usually occurs during dynamic running activities: sprinting, jumping, fast stop/starts.

The strain is graded:

Grade 1 – minor tear of a few muscle fibres

Grade 2- tearing of a larger number of fibres but muscle still intact

Grade 3 – complete rupture of the muscle

## Symptoms:

- Sudden onset of pain whilst running
- Sharp, stabbing, possibly even a snap or pop sound
- Bruising on back of the thigh
- Swelling
- Can have associated back and buttock pain
- In Grade 2 or 3 injuries you may have difficulty walking

## Management:

### Acute phase:

- R.I.C.E – rest, ice, compression, elevation and refer yourself to a physical therapist after 48-72 hours
- Physical therapy to promote tissue healing and ensure minimal scar tissue formation
- Massage and manual therapy to release tight surrounding structures and address any underlying back or hip issues
- Exercise therapy – slow and progressive over stages depending on the severity of the initial tear

### Rehabilitation:

- Strengthen pelvis and core including the gluteus (buttock) muscles as they work together with the hamstrings.
- Manage any muscle imbalances in weakness or flexibility through exercise correction
- Neural mobilisation stretches
- Progression to full leg strengthening exercises, squats, deadlifts and finally eccentric strengthening of the hamstring.

## Training:

- Complete rest may be advised depending on severity of injury. Otherwise reduce intensity and training volume
- Avoid speed and hill work
- Find a comfortable pace and distance that elicits no pain and stick to that 3 x week with a rest day in between
- Train on softer surfaces like grass and dirt roads
- Cross train with cycling, water running, swimming, elliptical trainer
- Address underlying contributing factors like biomechanics (do you need orthotics for your arches?) or a leg length discrepancy.

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## Hamstring Tendinopathy

An overuse/overloading of the muscle tendon attachment at the origin of the hamstring on the ischial tuberosity deep in your buttocks. History of increased load, more hill running, increased speed work, unaccustomed deep lunges, yoga and deadlifts. The tendon has poor bloodflow which makes healing and recovery slow.

### Symptoms:

- Buttock pain
- Point-specific pain on, or just below, the ischial tuberosity (sitting bone)
- Chronic stiffness
- Aggravated by periods of sitting and driving, deep lunges, hamstring stretches and running at high speeds and uphill
- Stiffness or soreness first thing in the morning followed by a 'warming up period' where the pain disappears
- Following exercise pain may be delayed by 24-48 hours

### Management:

#### Early stages:

- Icing regularly through the day
- Stop stretching your hamstring as this compresses/squashes the tendon
- Sit as little as possible, use a cushion under your buttock to relieve pressure on the tendon
- Physical therapy to mobilise tight structures and promote tissue healing using massage, acupuncture and other modalities
- Isometric exercises 2-3 x week especially if still painful

#### Rehabilitation:

- Load modification. Manage muscle imbalances in weakness and flexibility through exercises.
- Strengthen the core, pelvis and gluteus (buttock) muscles
- Neural mobilisation stretches
- Eccentric strengthening in latter stages of rehabilitation.

### Training:

- Complete rest may be advised depending on severity of injury. Otherwise reduce intensity and training volume
- Avoid speed and hill work
- Find a comfortable pace and distance that elicits no pain and stick to that 3 x week with a rest day in between
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## PREVENTION

Healthy hamstrings are vital for running performance. Hamstring injuries can be stubborn and take anywhere from 6 weeks to 9 months to fully recover.

Prevent the injury by:

1. Strengthening your hamstrings, back, gluteus muscles and core – they work together stabilising your pelvis and pushing power through your legs when you run
2. Good flexibility and neural mobility
3. Regular massage to maintain healthy tissue and pick up any tight niggles early
4. Compression tights during or after running to aid blood flow and recovery
5. Treat underlying back problems through physical therapy will help you avoid hamstring injury
6. Eccentric strengthening is proven effective in injury recovery and prevention. These are advanced exercises that may need some initial guidance and should only be done 2-3 x week
7. Warm up before a run
8. Graduate training load and intensity increases.

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## HAMSTRING CONDITIONING

The most important aspect of preventing hamstring injury is to build hamstring strength and ensure there is no neural tension in the nerves running from your spine, down your leg. These exercises will help achieve this.

### SCIATIC NERVE GLIDE FLOSS

Sit with good posture, and straighten your affected leg and bend your ankle towards you, as you extend your neck. Then bring your neck towards your chest as you relax the ankle. This will glide the sciatic nerve.



SETS

REPS



Video:

<http://y2u.be/IIQrOc15MBY>

### BALL BRIDGE

Lie flat on your back, with your feet resting on a Swiss ball, and your arms by your side (palms face down). Squeeze your bottom muscles and lift your back upwards. Make sure you maintain good posture and contract the deep abdominal muscles. To make the exercise easier, move the ball towards your body, and to make it harder, move the ball away from your body.



Repeat 5 times | Perform both sides



Video:

<http://y2u.be/QGXYFVa1AHc>

### LEG SWING

Hold on to a table, and swing your leg in front of you and then behind you in a controlled way. It's a great way to dynamically warm up your leg and hip, but also used to gain more mobility to your hip joint. As you swing your leg forward in front of you, pull your foot upwards and slouch your back and tuck chin to chest. (slump) Then as you swing leg back behind you straighten your back up. This is a dynamic nerve stretch.



Repeat 5 times | Perform both sides



Video:

<http://y2u.be/7jo8dODpXWo>

### HAMSTRING STRETCH

Place the foot of your affected leg onto a chair, keep a bend in your knee and bend forward to feel the stretch, repeat with your toes facing inward and outward



Repeat 3 times | Perform both sides



Video:

<http://y2u.be/MK1LSHghmFI>

### ROMANIAN DEAD LIFT

Keep your knees just slightly bent, shoulder width apart, and place a dowel rod or barbell on the blocks. Keep your back straight/flat as you bend your knees more towards the bar. Hold the bar shoulder width apart or slightly narrower, with one palm facing up, one palm down (or both palms facing down). Lift the bar up by straightening the legs and extending the back at the same time. Keep the bar close to your shins during the movement. If you lack flexibility you may need to bend your knees a little. Squeeze the shoulder blades at the top of the movement. Return to the start position.



Repeat 5 times | Perform both sides

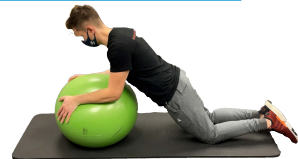


Video:

<http://y2u.be/5aEuQz0SsWk>

### NORDIC HAMSTRING CURL

This exercise is best done with an exercise ball for stability. Kneel on the ground—it's best if it's padded, anchor your feet and lower your body using your hamstrings and the ball as slowly as possible keeping your back straight i.e. rigid. Your goal is to control the descent for as long as possible. Start with very low repetitions i.e. 2-4 repetitions a day and only build on this if and when you're not too sore.



SETS 1

REPS 2-4



Video:

<http://y2u.be/7eMdXhjrUug>

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