

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/start.

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 strength 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
- 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.

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 STRETCHING

The data tells us that one of the best ways to reduce the risk of hamstring injury is to maintain flexibility in the muscles around the lower back, gluteals and upper leg (hamstrings and quadriceps). These exercises are designed to help you achieve this goal.

SUPINE LUMBAR TWIST STRETCH

Lying flat on your back, cross one leg over the other by twisting your hips and spine. Keep your opposite arm outstretched. You can hold on to your knee to make the stretch stronger if you feel comfortable.

Repeat 3 times

Hold for 20 seconds



Video:

<http://youtu.be/BzYBkAvdCJY>



DOUBLE LEG BACK STRETCH

Lie flat on your back, and bend your knees towards your chest. Hold this position and feel a gentle stretch in your back. If you get any groin pain while doing this exercise, stop and inform your therapist. Relax, and repeat as necessary.

Repeat 3 times

Hold for 20 seconds



Video:

<http://youtu.be/ZEz80zykUv4>



LUMBAR AND THORACIC SIDE FLEXION SITTING

Sitting with good upright posture, run your arm down the side of the chair leg by side-bending your spine. Repeat to the other side. This is a good mobility exercise for the upper and lower back while sat down, if you feel your back is starting to get stiff.

Repeat 3 times

Hold for 20 seconds

Perform both sides



Video:

<http://youtu.be/Rze6cxJpOQ>



GLUTE STRETCH SUPINE 3

Lie on your back, and bend your knee to 90 degrees (i.e. pointing straight up). Place your ankle across your opposite knee and pull your knee towards your chest to feel a stretch in your bottom. You can also use a towel to assist you.

Repeat 3 times

Perform both sides



Video:

<http://youtu.be/zpaExOK4S8M>



EXTERNAL ROTATION TABLE GLUTE STRETCH

This is an alternate to lying on the floor. Place your foot on a table, with your leg turned inwards. Lean forwards slightly to feel a stretch in your buttock. Hold the stretch.

Repeat 3 times

Hold for 20 seconds

Perform both sides



Video:

http://youtu.be/Nh3gioc_x4I



FOAM ROLLER HAMSTRING STRETCH

Sit down placing a foam roller under your Hamstrings (back of the legs). Your feet should be off the ground, and you can balance using your arms. Roll the roller up and down your Hamstrings to create a stretch. You can cross your legs to emphasise the stretch on one side.



SETS

REPS

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