

# Hamstring Strain

Hamstring injuries are relatively common, with hamstring strains having the highest frequency among athletes and non-athletes alike. Hamstring strains are also commonly known as a "pulled hamstring" and occur when one or more of the hamstring muscles is stretched past their individual tolerance. Sudden, dynamic movements such as sprinting, jumping, kicking, lifting, or lunging can increase the likelihood of a hamstring strain occurring. The diagnosis is based on clinical findings and can be enhanced by imaging such as ultrasound or MRI.

## **Key Points to Rehabilitation:**

- Avoiding activity of provocation until able to tolerate without the return of discomfort or symptoms
- Decrease tone in overused musculature
- Strengthen the hamstring as well as complimentary muscle groups to increase tolerance to load and impact

## **Guiding Principles of Exercise:**

### Decreasing Muscle Tone:

There are many root causes that can lead to a hamstring strain, one of which is due to increased muscle tone. Muscle tone through the hamstring group reduces its ability to stretch under quick loads which increases the risk of a strain. Massage, stretching and proper movement patterning of the lower extremity can help to reduce this risk.

### Progressive Eccentric Loading of The Hamstring:

The stronger a muscle group is, the more likely it will be able to tolerate the loads that you put through it. While progressing through strengthening exercises, it is imperative that exercises are performed in the optimal loading zone meaning that we are stressing the tissue enough to make a beneficial change without overloading the tendon and causing injury. Gradual and progressive strengthening will improve the muscles tolerance to load which will allow you to perform daily activities as well as compete in your sport without symptoms.

### Gradual Return To Activity:

When reintroducing load, it is important to progress from controlled load to the load of daily activities and eventually to the load that is required to perform your sports or activities. The sport or activities that was the initial cause of the injury is the most difficult to return to and must be gradual and progressively introduced. Typically, weekly progressions of 10% can be made without the worsening of symptoms

### Equipment Required:

- Theraband (@G23 Store) [Click here to order](#)
- Foam Roller
- Weights (Dumbbells)

## Level 1

### Potential Inclusion Criteria:

- Pain through the back of the thigh
- Mild swelling / Bruising
- Pain that gets worse with activities (Running or Jumping)

### Goals:

- Improve tolerance to tissue stretching
- Regain/ Maintain full Knee and Hip ROM

### Requirements For Progression:

- 10-14 days of adherence
- Significant decrease in pain/ discomfort

### Aerobic Exercise:

Avoid Running, Jumping or any exercise that provokes symptoms. You can continue exercise with non-weight bearing activities such as swimming or cycling if tolerated.

### 1. Heel Slides

**Sets:** 2-3 | **Reps:** 10-15 | **Frequency:** Daily

#### Preparation:

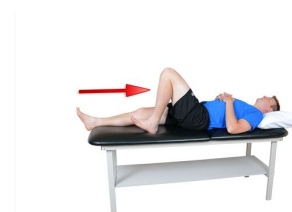
- Lie on back with knee straight

#### Execution:

- Keeping the heel in contact with the floor, slowly slide heel up toward buttocks
- Relax back to the start position.



Start Position



Slide heel up

### 2. Knee Flexion Isometric

**Sets:** 2-3 | **Reps:** 5-10 | **Hold:** 5-10 Seconds | **Frequency:** Daily

#### Preparation:

- Lie flat on your back with your knee slightly bent
- Point your toes straight ahead

#### Execution:

- Tighten the muscles on the back of your thigh by pulling your heel down into the floor or table
- Relax



Start Position



Pull Heel Down

### 3. Bridge | Arms Flat

Sets: 2-3 | Reps: 8-12 | Frequency: Daily

#### Preparation:

- Lie flat on your back with your arms straight beside you
- Bend knees up so that your feet are flat

#### Execution:

- Lift your hips up in the air to make a bridge using your arms to stabilize
- Lower down in a controlled manner



Start Position



Lift hips up

### 4. Single Leg Balance

Sets: 2-3 | Reps: 20-30 Seconds | Frequency: Daily

#### Preparation:

- Stand next to a wall, counter or chair if needed

#### Execution:

- Stand on one leg



Balance on one leg

## Helpful Hint

Record your progress in the G23 exercise logbook and bring it to your next appointment as your doctor / physiotherapist will ask for it.

## Stage 2

When Can I Start Level 2?

- Completed Level 1 Goals
- Improved tissue tolerance with full knee and hip ROM

Goals:

- Improved tolerance to tissue stretching
- Increased tolerance to light load and strengthening

Aerobic Exercise:

- Avoid Running, Jumping or any exercise that provokes symptoms. Continue exercise with non-weight bearing activities such as swimming or cycling if tolerated.

### 1. Hamstring Stretch

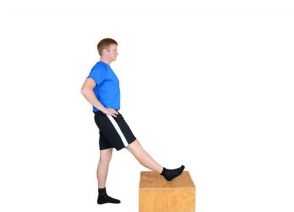
**Sets:** 2-3 | **Hold:** 20-30 Seconds | **Frequency:** Daily

#### Preparation:

- Stand with one leg on a medium sized stool as shown

#### Execution:

- Keeping your back straight, slowly lean forwards from the hips



Leg up on stool



Lean forward from the hips

### 2. Hamstring Release (Foam Roller)

**Duration:** 1-5 Minutes | **Frequency:** Daily

#### Execution:

- Roll your the back of thigh as shown
- Stop on tight portions of the muscle to allow them to release.



Roll back of thigh on foam roll



Stop over tight areas and let them melt away



Continue rolling

### 3. Knee Flexion (Band)

Sets: 2-3 | Reps: 8-12 | Frequency: Daily

#### Preparation:

- Lay flat on your stomach with your legs straight
- Attach a band to foot

#### Execution:

- Lift your heel up towards your buttocks, bending your knee against resistance



On stomach



Bend knee



Continue bending

### 4. Knee Extension Concentric (Band)

Sets: 2-3 | Reps: 8-12 | Frequency: Daily

#### Preparation:

- Sit in a chair with good posture with a band around your ankle

#### Execution:

- Straighten your knee
- Return your foot to the floor with control



Sit with good posture, band around ankle



Lift foot off the floor



Straighten knee as straight as you can

### 5. Front Squat Form

Sets: 2-3 | Reps: 8-12 | Frequency: Daily

#### Preparation:

- Stand with good posture, feet shoulder width apart
- Cross arms at shoulder height as shown

#### Execution:

- Perform a squat by bending at the hip
- Rise up by straightening at the hip



Start Position



Squat - Knees aligned over toes



Side view



Squat - Straight back, knees aligned over toes

## 6. Monster Walk (Band)

Sets: 2-3 | Reps: 8-12 | Frequency: Daily

### Preparation:

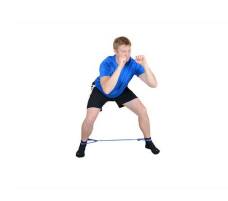
- Attach tubing to ankles as shown
- Wide stance, knees and hips slightly bent

### Execution:

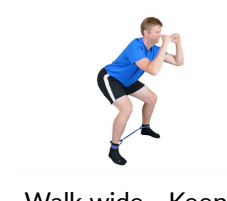
- Perform a partial squat
- Walk forward, keeping legs wide
- Keep tension on tubing throughout the whole exercise



Wide stance



Walk forward,  
keeping legs wide



Walk wide - Keep  
tubing under  
tension

## Stage 3

When Can I Start Level 3?

- Completed Level 2 Goals
- Improved tissue tolerance to light loads

Goals:

- Increase tolerance to load and able to tolerate full weight bearing activities without any pain or symptoms

Aerobic Exercise:

- Return to running or jumping activities as long as there is no pain or symptoms present before or during activity.  
Continue swimming and cycling.

### 1. Hamstring Release (Foam Roller)

Duration: 1-5 Minutes | Frequency: Daily

Execution:

- Roll your the back of thigh as shown
- Stop on tight portions of the muscle to allow them to release.



Roll back of thigh  
on foam roll



Stop over tight  
areas and let them  
melt away



Continue rolling

### 2. Hamstring Stretch

Duration: 1-5 Minutes | Frequency: Daily

Preparation:

- Stand with one leg on a medium sized stool as shown

Execution:

- Keeping your back straight, slowly lean forwards from the hips



Leg up on stool



Lean forward from the  
hips



### 3. Bridge | Towel Slide

Sets: 2-3 | Reps: 8-12 | Frequency: Alternate Days

#### Preparation:

- Lie on back, feet on towel

#### Execution:

- Lift hips to make a bridge
- Now slide feet out on the towel - Keep the bridge
- Now slide feet up again - Keep the bridge



Feet on towel



Lift hips to make a bridge



Slide feet out on towel



Slide feet up again

### 4. Deadlift | Single Leg and Arm (Dumbbell)

Sets: 2-3 | Reps: 8-12 | Frequency: Alternate Days

#### Preparation:

- Stand on one leg, dumbbell in the opposite hand as the stance leg

#### Execution:

- Bend at the hip, keeping the trunk aligned with the back leg
- Rise up from the hips



Stand tall, hold weight at side



Reach leg back, arm hangs straight down



Bend at the hip, back leg aligned with trunk

### 5. Squat (Dumbbells)

Sets: 2-3 | Reps: 8-12 | Frequency: Alternate Days

#### Preparation:

- Stand with good posture, feet shoulder width apart
- Free weight in either hand

#### Execution:

- Initiate squat by bending at the hips
- Rise up at the hips



Front view



Squat - Knees aligned over toes



Side view



Squat - Knees over toes, straight back

## Return to Activity / Achieving Your #RISEABOVE Goal(s)

---

Build back into your activity or sport, progressing time or intensity slowly by 10% per week. Be sure to discuss sport specific progressions with a G23 physiotherapist