

A GUIDE TO HAMSTRING STRAIN

**KAPI'OLANI
ORTHOPAEDIC
ASSOCIATES**

*Pediatric Orthopaedics
Spine Deformity
Sports & Dance Medicine
Young Adult Hip Preservation*

1319 Punahou Street
Suite #630
Honolulu, Hawaii 96826
Phone: (808) 945-3766
FAX: (808) 942-9837
www.kapiolani.org

Robert C. Drukin, M.D.
Division Head
Pediatric Orthopaedics
Associate Clinical Professor
Department of Surgery, John A.
Burns School of Medicine,
University of Hawaii

William E. Burkhalter, M.D.
Pediatric Orthopaedic Surgeon
Assistant Clinical Professor
Department of Surgery, John A.
Burns School of Medicine,
University of Hawaii

Jennifer R. King, D.O.
Pediatric Sports Medicine
Assistant Clinical Professor
Department of Surgery, John A.
Burns School of Medicine,
University of Hawaii

What is hamstring strain?

A strain is a stretch or tear of a muscle or tendon. People commonly call such an injury a “pulled” muscle.

Your hamstring muscle group is in the back of your thigh and allows you to bend your knee. It is made up of three large muscles: the biceps, semimembranosus, and semitendinosus.

How does it occur?

A hamstring muscle strain usually occurs when these muscles are contracted forcefully during activities such as running or jumping.

What are the symptoms?

You will often feel a burning or a popping as the injury occurs. You will have pain when walking or when bending or straightening your leg. A few days after the injury, you may have bruising on your leg just below the injury.

How is it diagnosed?

Your doctor will examine your leg and find tenderness at the site of the injury.

How is it treated?

Treatment may include:

- Applying ice packs to your hamstrings for 20 to 30 minutes every 3 to 4 hours for 2 to 3 days or until the pain goes away
- Elevating your leg by placing a pillow underneath it
- Wrapping an elastic bandage around your leg for compression to keep the swelling from getting worse
- Taking anti-inflammatory medication according to your doctor's prescription
- Using crutches if it is too painful to walk.

As you return to your activity, you may be given an elastic thigh wrap to give extra support to your hamstrings. While you are recovering from your injury, you will need to change your sport or activity to one that does not make your condition worse. For example, you may need to swim or bicycle instead of run.

When can I return to my sport or activity?

The goal of rehabilitation is to return you to your sport or activity as soon as is safely possible. If you return too soon you may worsen your injury, which could lead to permanent damage. Everyone recovers from injury at

a different rate. Return to your sport or activity will be determined by how soon your leg recovers, not by how many days or weeks it has been since your injury occurred. In general, the longer you have symptoms before you start treatment, the longer it will take to get better.

You may safely return to your sport or activity when starting from the top of the list and progressing to the end, each of the following is true:

- You have full range of motion in the injured leg compared to the uninjured leg.
- You have full strength of the injured leg compared to the uninjured leg.
- You can jog straight ahead without pain or limping.
- You can sprint straight ahead without pain or limping.
- You can do 45-degree cuts, first at half-speed, then at full-speed.
- You can do 20-yard figures-of-eight, first at half-speed, then at full-speed.
- You can do 90-degree cuts, first at half-speed.
- You can do 10-yard figures-of-eight, first at half-speed, then at full-speed.
- You can jump on both legs without pain and you can jump on the injured leg without pain.

How can I prevent a hamstring strain?

A hamstring strain is best prevented by warming up properly and stretching your hamstring muscles prior to your activities. This is especially important in sprinting or jumping. You should be able to lie on your back and raise your leg to 90°.

Hamstring Strain Rehabilitation Exercises

You can begin gently stretching your hamstring right away by doing exercise 1, the standing hamstring stretch. Make sure you do not feel any sharp pain, only a mild discomfort in the back of your thigh when you are doing the stretch.

After the standing hamstring stretch has become easier, you can do exercise 2, the hamstring stretch on a wall. You should also stretch your calf muscle because it attaches near where your stretch on a wall. You should also stretch your calf muscle because it attaches near where your hamstring ends. Use exercise 3, the standing calf stretch.

Next, start strengthening your hamstrings using exercises 4, 5, and 6 when the pain is gone. After your hamstrings have become stronger and you feel your leg is stable, you can begin strengthening the quadriceps (the muscles in the front of the thigh) by doing exercise 7, the wall slide.

1. **Standing hamstring stretch:** It is generally easiest to begin stretching your hamstring by placing the heel of your injured leg on a stool about 15 inches high. Lean forward, bending at the hips until you feel a mild stretch in the back of your thigh. Make sure you do not roll your shoulders and bend at the waist when doing this or you will stretch your lower back instead. Hold the stretch 30 to 60 seconds. Repeat 3 times.
2. **Hamstring stretch on wall:** Lie on your back with your buttocks close to a doorway and your legs extended straight out in front of you and through the doorway. Raise your injured leg and rest the heel against the door frame. Your uninjured leg should still be extended through the doorway. You will feel a very strong stretch in the back of your thigh. Hold this stretch for 60 seconds. Repeat 3 times.
3. **Standing calf stretch:** stand facing a wall with your hands on the wall at about chest level. Your injured leg should be about 12 to 18 inches behind your uninjured leg. Keep your injured leg straight with your heel on the floor, and lean into the wall. Bend your front knee until you feel a stretch in the back of the calf muscle of your injured leg. Hold this position for 30 to 60 seconds. Repeat 3 times.
4. **Prone knee bends:** you can begin gently strengthening your injured hamstring by lying on your stomach with your legs straight out behind you and bending your knee so that your heel comes toward your buttocks your knee so that your heel comes toward your buttocks. Bring it back down to the starting position. Repeat 10 times. Do 3 sets of 10. As this becomes easier you can wear ankle weights.
5. **Thera-Band hamstring curls:** Sit in a chair facing a door and about 3 feet from the door. Loop and tie one end of the tubing around the ankle of your injured leg. Tie knot in the other end of the Thera-band and shut the knot in the door. Bend your knee so that your foot slides along the floor and moves back underneath the chair, stretching the tubing. Slowly let your foot slide forward again. Repeat 10 times. Do 3 sets of 10.
6. **Standing heel raise:** Balance yourself while standing behind a chair or other stable object. Raise your body up onto your toes and lift your heels off the floor. Hold this for about 2 seconds and then slowly lower your heels back down to the floor. Repeat 10 times. Do 3 sets

of 10. You can challenge yourself by standing only on your injured leg and lifting your heel off the floor. Do 3 sets of 10.

7. Wall slide: Stand with your back, shoulders, and head against a wall and look straight ahead. Keep your shoulders relaxed and your feet 1 foot away from the wall and a shoulder's width apart. Keeping your head against the wall, slide down the wall, lowering your buttocks toward the floor until your thighs are almost parallel to the floor. Hold this position for 20 seconds. Make sure to tighten the thigh muscles as you slowly slide back up to the starting position. Repeat 10 times. Increasing the amount of time you are in the lowered position helps strengthen your quadriceps muscles.