

Hamstring Strain

What is a 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 and extend your hip. 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?

There is often a burning feeling or a popping when the injury occurs. You 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 health care provider 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 health care provider'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, then at full-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.

Hamstring Strain Rehabilitation Exercises

You can begin gently stretching your hamstring right away by doing 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 this stretch.

- **Standing hamstring stretch:** Place the heel of your leg on a stool about 15 inches high. Keep your knee straight. 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 for 15 to 30 seconds. Repeat 3 times.

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

- **Hamstring stretch on wall:** Lie on your back with your buttocks close to a doorway, and extend your legs straight out in front of you along the floor. Raise the injured leg and rest it against the wall next to the door frame. Your other leg should extend through the doorway. You should feel a stretch in the back of your thigh. Hold this position for 15 to 30 seconds. Repeat 3 times.
- **Standing calf stretch:** Facing a wall, put your hands against the wall at about eye level. Keep the injured leg back, the uninjured leg forward, and the heel of your injured leg on the floor. Turn your injured foot slightly inward (as if you were pigeon-toed) as you slowly lean into the wall until you feel a stretch in the back of your calf. Hold for 15 to 30 seconds. Repeat 3 times. Do this exercise several times each day.

When the pain is gone, start strengthening your hamstrings using the next 3 exercises.

- **Prone knee bends:** Lie on your stomach with your legs straight out behind you. Bend your knee so that your heel comes toward your buttocks. Hold 5 seconds. Relax and return your foot to the floor. Do 3 sets of 10. As this becomes easier you can add weights to your ankle.
- **Elastic tubing hamstring curls:** Sit in a chair facing a door (about 3 feet from the door). Loop and tie one end of the tubing around the ankle of your injured leg. Tie a knot in the other end of the tubing 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. Do 3 sets of 10.

You can challenge yourself by moving the chair farther away from the door and increasing the resistance of the tubing.

- **Chair lifts:** Lie on your back with your heels resting on the top of the a chair. Slowly raise both hips off the floor. Hold for 2 seconds and lower slowly. Do 3 sets of 15.

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

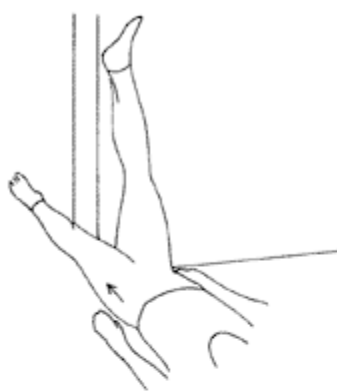
After your hamstrings have become stronger and you feel your leg is stable, you can begin strengthening the quadriceps (the muscles in the front of the thigh) by doing the wall slide.

- **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 10 seconds. Make sure to tighten the thigh muscles as you slowly slide back up to the starting position. Do 3 sets of 10. Increasing the amount of time you are in the lowered position helps strengthen your quadriceps muscles.

Hamstring Strain Exercises



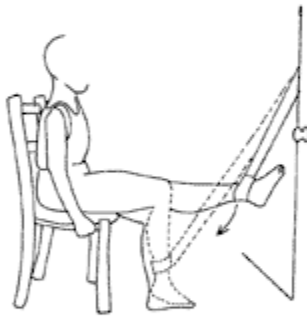
Standing hamstring stretch



**Hamstring stretch
on wall**



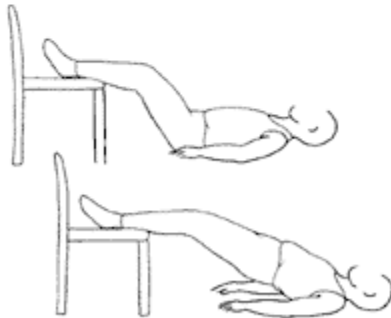
Standing calf stretch



Elastic tubing hamstring curls



Prone knee bends



Chair lifts



Wall slide