

The Whole Story on Hamstrings

*By Stana Landon
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The hamstrings are a group of three muscles located on the back of the thigh. They originate on the hip and pelvis and insert on the lower leg bones. This means they aid in the function of both the hip and the knee. Good strength and flexibility in these three muscles can increase performance and decrease injury and soreness. Anyone who has experienced a hamstring strain knows the level of frustration the injury can cause. What most people don't know is that weakness or inflexibility in the hamstrings can affect a number different body areas.

What does inflexibility mean?

Healthy muscles in your body have some of the same properties as a rubber band. They contract and relax as needed. When the muscle is tight or inflexible, it acts more like a string. Everyone knows that more stress can be put on a rubber band before it breaks than on a piece of string. The same philosophy is true with muscles. An inflexible muscle will strain more easily because it doesn't have as much elasticity as the flexible muscle.

What about weakness?

Injury happens when the body is not able to handle the demands placed upon it. In short, this means if a muscle is weak, it can be injured through repetition or one stressful incident much more easily than if it is well conditioned. For example, if a person has been inactive for a long period of time he or she may feel very sore after a set of lunges. A person who has been training will not be sore after the same set of lunges. Along the same lines, the inactive person is at a greater risk of injury from normal training activities because his or her muscles are not capable of handling the training demands.

Hamstrings and the Lower Back

Poor flexibility in the hamstrings has been identified as a contributor to pain in the lower back. Essentially, inflexibility in the hamstrings puts stress on the hips and pelvis, where they originate. This stress can be great enough to impact the angle of the pelvis and lumbar, or lower, vertebrae. This may create muscle spasms and strain in the low back musculature. Increasing the strength and flexibility of the hamstring and lower back muscles can relieve many cases of lower back pain.

Injury Prevention

The best way to prevent injury is to stretch and strengthen your muscles. Stretching all the muscles of the hips and thighs for 15 to 30 seconds at least once per day is a good start. Stretching should ideally be done after a mild warm-up when the muscles are more elastic. When blood flow increases to the muscle, as it does with exercise, they become more pliable. Flexibility exercises can be done before and after activity, but stretching following activity is generally more productive. Stretching more than once per day is safe and may produce faster results.

Strengthening, on the other hand, should be done every other day. When a muscle is stressed through strength training activities, it sustains tiny micro tears. Strength gains occur during the 24 to 48 hours following strength training when the muscle repairs itself as it responds to the stress. The following are some simple exercises that can be done at home in only 10 to 15 minutes. They will not only strengthen all three hamstring muscles, but they also target some muscles in the lower back.

Here are some exercises to help you strengthen those hamstrings:

1. Hamstring Hold

- a. Lie on the floor with feet on the ball and hands by the sides
 - b. Tighten the stomach and raise the hips off of the floor so they are in line with feet and shoulders
 - c. Raise one leg straight off of the ball, balancing with the other leg. Hold two to three seconds and repeat on the other side. Complete three sets of 30 (15 each leg)
2. Hamstring Curl- Repeat steps a and b from exercise one.
- a. Curl both legs toward the body. As you get stronger, challenge yourself by doing one leg at time. Complete three sets of 15.
3. Hamstring Triple Threat- Begin with steps a and b from exercise one.
- a. Curl legs in toward the body
 - b. Lift hips up so they are in line with knees and shoulders. Hold for two to three seconds and release hips.
 - c. Straighten the legs while keeping the hips off the ground and in line with the feet and shoulders.
 - d. Relax the hips and return to starting position. Complete three sets of 15 to 30, depending on your strength level.

Stana Landon has been a certified athletic trainer for eight years. She is also a Certified Strength and Conditioning Specialist, recognized by the NSCA. She was employed as the Head Athletic Trainer at Eastern Oregon University and for VibrantCare Rehabilitation prior to her current position as an Assistant Athletic Trainer at University of Puget Sound. Stana received her Bachelor's degree from University of Montana-Western in Environmental Science/Biology and Sports Medicine. She received her Master's degree in Physical Education and Athletic Training from Eastern Oregon University. Stana is currently enrolled in a Doctoral program in Education from Walden University. She enjoys all running, biking, and most outdoor activities.

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