

essential skills

BY BEN E. BENJAMIN



PULLED HAMSTRING, PART 2

In Part 1 of this article, we began our discussion of the hamstrings by taking a look at the anatomy, how and why these muscles are frequently injured, and how to assess precisely where the various hamstring injuries occur in the posterior thigh. Now, in Part 2, we'll cover the specific friction therapy treatment techniques and rehabilitation exercises.

TREATMENT CHOICES

SELF-TREATMENT

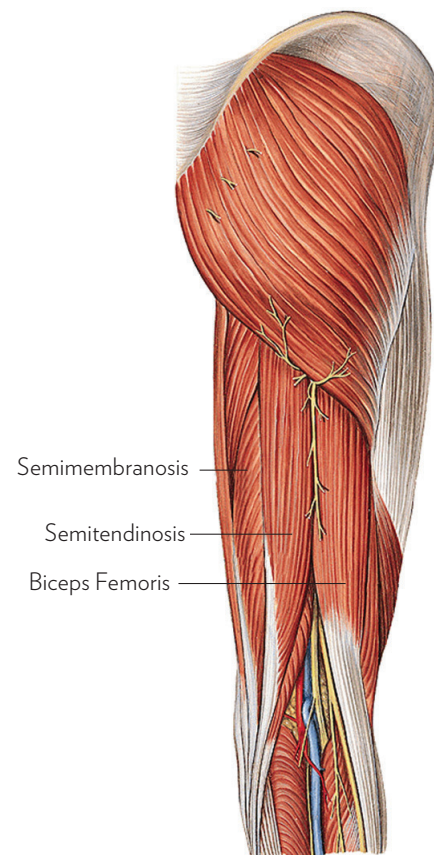
Whenever possible, it is important to avoid activities that create pain. The client should not stretch, except as described in the exercise here, or until he or she feels no pain for two weeks. Even then, stretching must be done gently at first. The use of ice for 15 minutes at a time throughout the day may also be helpful. Flexing and extending the knee of the injured leg 10–15 times right after icing helps to prevent the formation of new, unwanted scar tissue.

The entire healing process should take between 1–6 weeks, depending on the severity of the injury. If self-treatment does not help within two weeks, professional treatment should be sought.

FRICTION THERAPY

These treatments are very effective for reducing adhesive scar tissue and inhibiting re-formation of poorly formed scar tissue. I will describe friction massage for the three most injured areas: the muscle belly, the common tendon at or near the ischial tuberosity, and the distal portion of the hamstrings behind the knee.

Friction therapy to the muscle belly. When treating the muscle belly, there is often a broad area of adhesive scar tissue that requires treatment. With the client lying prone, the practitioner stands facing the injured thigh. Depending on the size of the area that needs to be worked, the practitioner may use just a few fingers to friction the injured portion of the muscle or all of the fingers of both hands. Place the fingertips on the medial side of the painful area and anchor the hand by resting the thumb of the working hand(s) on the lateral aspect of the thigh (Image 1). Press downward into the thigh and pull the fingertips toward you, moving horizontally across the hamstring muscle. Do not move over the skin as you would when using oil; just move as far as you can, taking the skin with you as you friction the muscle fibers. Always begin gently and increase your pressure as the tissue becomes less sensitive. Pressure may be increased over the course of 5–10 minutes or over several weeks



Sobotta: *Atlas der Anatomie des Menschen*
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in more severe cases. Friction for 5–6 minutes, take a rest, and repeat the sequence in the opposite direction. Practitioners often go to the other side of the table to reverse direction, because pulling toward yourself is easier than pushing medially away from yourself. After the friction massage is done, apply deep massage to the hamstring muscles for 8–10 minutes.

Friction therapy to the proximal attachment. To effectively friction the superior portion of the tendon or the common tendon attachment to the ischia, the hamstring is best treated in a slightly stretched position. To accomplish this, the client should be lying supine with the knee and hip joint bent at a 90 degree angle. Several pillows should be placed on the table so that the calf can rest comfortably, supporting the leg in this position (Image 2). The practitioner then sits on a stool or chair to be at the proper height for better body mechanics. The practitioner may also sit on the table and place the client's ankle on his or her shoulder to maintain the 90 degree angle at the knee (Image 3). Using the thumb or fingers, whichever is more comfortable, friction the precise area of the tendon that is painful. This may be right against the ischial attachment if the injury is at the tenoperiosteal junction or slightly distal in the tendon body. The scarred, painful area is usually easy to find in this position. Friction, as described above, then proceed to deep massage of the thigh.

Friction therapy to the distal tendon. If the distal portion of the tendon is injured in the lower thigh or in the area behind the knee, the client lies prone and friction is applied, as described, in the belly muscle above using one or several fingers (Image 4). This depends on the portion of tendon in need of treatment. Try finding the tendons

If you would like to learn the friction therapy techniques and protocol guidelines in two brief videos, go to www.benbenjamin.com/HamstringFriction and www.benbenjamin.com/FrictionGuidelines.



on yourself right now as you sit in a chair. If your knee is bent and you place your fingers behind your knee, you will feel the hamstring tendons as they transition from the muscle across the posterior knee to their attachments. See if you can identify all three. When this part of the tendon is strained, it is often a smaller segment that is affected. If the strain is in the biceps femoris tendon, the precise area of the injury is usually easy to locate. When the injury is located on the medial aspect of the thigh, however, it is more challenging to differentiate whether it is the semimembranosus or the semitendinosus. They are right next to each other with the semimembranosus being most medial.

EXERCISE

This five-part program is very effective in accelerating the healing process. It is done once a day for the first two weeks, then twice a day for six weeks, and is designed to help the muscle and the tendon repair without the reformation of adhesive scar tissue. The length of the program will, of course, vary depending on the severity of the condition, but in general it should be followed for 6–8 weeks and up to at least two weeks after the cessation of pain. Remember to check if giving exercises to clients is within your scope of practice of massage therapy in the state where your practice is located.

1. Warm-up. The client gently bends and extends the injured knee for 2–3 minutes in a range that is comfortable. No pain should be felt while doing this movement.

2. Stretch. To stretch the hamstrings, the client lies on his or her back and wraps a towel, strap, or rope around the foot. With the knee straight or slightly bent, the client pulls the leg up into the



air, stretching the hamstrings (Image 5). If he or she feels a stretch directly behind the knee or at the ischium, the knee should be bent until the pull is felt throughout the muscle. The stretch can also be done while sitting on the floor with the legs spread about two feet apart and stretching forward to touch the foot of the affected leg, again, bending the knee slightly if the stretch is felt only at the distal or proximal ends. Each gentle stretch is held for 30 seconds and is repeated five times with a 5–10 second rest between each stretch. There should be no pain, only a pulling sensation.

or when there is no fatigue in the third set of 10, increase the weight by 1–2 pounds. Over the 6–8 weeks, the amount of weight gradually increases.

4. Stretch. Repeat step 2.

5. **Recovery.** Use ice or heat on the injured area for 5 minutes after completing the final set of stretches. (Be sure to instruct the client in the proper use of ice. Remember there are certain conditions when ice is contraindicated or must be used with great caution, for example diabetes or Raynaud's disease.) **m&b**

3. **Exercise.** The most important part of this exercise program is determining the appropriate starting weight for the exercise segment. The client is going to complete three sets of 10 repetitions for a total of 30 repetitions. If the correct weight is being used, the person feels a sense of stress or fatigue somewhere during the third set of 10. If nothing is felt, more weight is necessary and an adjustment should be made the next day. If it is too much weight, the client will feel discomfort or tire before the third set of 10. If this occurs, use a lighter weight. In order to determine the correct starting weight for this exercise, the client should only do this portion of the program for several days or until he or she determines the appropriate weight.

6 Ben E. Benjamin, PhD, holds a doctorate in education and sports medicine, and is founder of the Muscular Therapy Institute. Benjamin has been in private practice for more than 45 years and has taught extensively across the country on topics including orthopedic massage, Active Isolated Stretching and Strengthening, and ethics. He is the author of *Listen to Your Pain* (Penguin, 2007), *Are You Tense?* (Pantheon, 1978), and *Exercise Without Injury* (MTI, 1979), and coauthor of *The Ethics of Touch* (Sohnen-Moe Associates, 2003). Presently, he is offering continuing education for massage therapists around the world via webinars. He can be contacted at Ben@BenBenjamin.com.

Editor's note: *Massage & Bodywork* is dedicated to educating readers within the scope of practice for massage therapy. Essential Skills is based on author Ben E. Benjamin's years of experience and education. The column is meant to add to readers' knowledge, not to dictate their treatment protocols.



Lying face down with a weight wrapped around the ankle of the injured leg, the client bends the knee about 80 degrees and then slowly straightens the knee again, stopping just an inch short of returning the foot to the table (Image 6). Another variation is to keep the leg straight and raise the entire leg up about a foot off the table while in the prone position (Image 7). This method is not advisable if there is a back injury present. Three sets of 10 repetitions are completed before going to step four. After about a week,