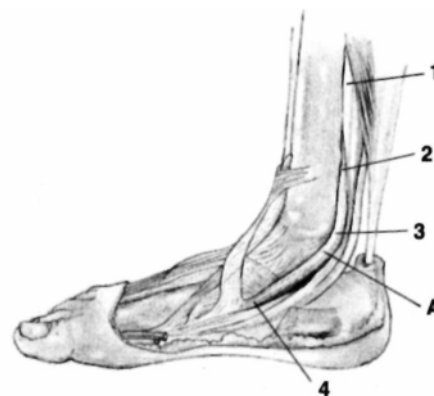


## WORKING WITH POSTERIOR TIBIALIS TENDINITIS

By Ben E. Benjamin PhD

### WHAT IS IT?

A strained posterior tibialis tendon often accompanies the posterior shin splints frequently experienced by runners and footballers. This is because the tendon (A) is the extension of the posterior tibialis muscle, which is injured when a person has what is commonly referred to as shin splints. (See Figure on right.) It is relatively easy to distinguish between these two injuries. Shin splints refers to pain felt high up at the medial aspect of the tibia. If, however, the client feels pain just above or behind the medial ankle--or on the foot itself several inches in front of the ankle along the tibialis tendon-- (1, 2, 3, or 4), posterior tibialis tendinitis is present. Although the pain can occur at any point along the tendon, it tends to be most intense behind and slightly above the medial ankle bone.



### HOW AND WHY

Posterior tibialis tendinitis usually develops slowly, and at first it may feel like an irritation behind the medial part of the ankle. As the demands of exercise activity increase, it gets progressively worse until, in some cases, it is difficult to walk without pain. In severe cases where trauma occurs suddenly, for instance as a result of a fall or being kicked, the inner ankle can become quite swollen. The swelling often encompasses a large area, making it difficult to assess the injury easily.

The posterior tibialis tendon is the only tendon in the body that causes this visible external swelling similar to a sprained ankle. It is a unique feature of posterior tibialis tendon strains, but the swelling only happens in severe cases.

This injury is largely caused by fatigue, which mainly occurs in aerobic sports or running. Lack of proper warm-up can contribute to this injury. In addition, if a client has excessive pronation of the feet, this muscle tendon unit must constantly strain to compensate for the pronation. Since the tendon is not designed for this constant extra stress, it is eventually injured.

Severe traumatic injuries are common in football, resulting from two players simultaneously hitting the ball with the inner ankle.

### INJURY VERIFICATION

In this injury, pain is usually felt while walking, running, or when rising on the ball of the foot. The inward movement (inversion) of the foot against resistance causes the most pain.

Resisted Inversion



### TEST

Sit in a chair facing the bottom of the client's foot. If the left foot is injured, place your right hand under the heel and grasp the heel for support. Then place your left hand on the inner arch just proximal to the toes. It does not matter if the foot is slightly flexed or extended. Now ask the client to forcefully push medially as you resist with equal force. If the tibialis posterior tendon is strained, this resisted movement should cause some pain or discomfort. However, if the client historically does not experience discomfort until after running for several miles, you will probably not get a positive reading from this test immediately. In such a case, have the person go out and run until some discomfort arises, and then perform the test again. (See photo to left).

Another, more subtle test adds palpation during the test. Ask the client to slightly resist in the same testing position as above so that the tendon is under some tension and protrudes a little. Now, while they hold that position, palpate the tendon with firm transverse friction strokes to see if it is tender. Then check the other foot to see if there is a difference. Obviously, this test works only if the other tendon is healthy; also, some people have sensitive tendons, so if there is not a clear difference from left to right you may get a false positive result. However, if one tendon is quite tender and the other is not, and the client points to that exact spot as the source of the pain, then you can be fairly sure the posterior tibialis is injured.

## TREATMENT CHOICES

### Self-Treatment

First, it's important to have the client stop doing activities that cause pain. Certain sports activities may be fine, while others may not. If he or she can, for example, play tennis, run or dance for a certain amount of time without pain or discomfort, it is good for the healing process that the person continue that activity. However, if there is pain during or immediately after the activity, that kind of exercise should be discontinued or slowed down. Remember that when tendons are warmed up, pain is often masked, so clients should take it slowly at first when exercising.

Rest and ice treatment with the rehabilitation exercise described below will help if the strain is not too severe. It's common for this injury to recur if it isn't treated properly and if the following appropriate measures are not taken to prevent it from recurring: not returning to full activity too soon, warming up thoroughly before vigorous sports, and correcting poor foot alignment, through exercises or orthotic devices, if needed.

Some clients ask the therapist to teach them how to do the friction therapy themselves. I do not recommend this. It takes a good deal of skill to perform the treatment in the correct location and with the sustained appropriate amount of pressure. Clients either work too hard and hurt themselves by injuring the finger they friction with, or they work too lightly, so the treatment fails.

### Professional Treatment

1. **Friction Therapy and Deep Massage:** The most common sites of this injury are at the musculo-tendinous junction (where the muscle joins the tendon) and in the tendon body behind or superior to the medial malleolus.

When performed by a trained therapist, deep massage and friction therapy is effective in both mild and severe cases. Massage, applied directly to the foot and leg, can reduce the swelling and help speed in fresh blood for healing. Gentle effleurage may begin right after the injury. When massage is combined with friction therapy to the injured tendon, treatment is much more effective. In recent sprains, the friction stimulates healing of the tendon while preventing unwanted adhesive scar tissue from forming. In chronic tendinitis, this treatment helps to break apart the malformed scar tissue.

Scar tissue begins to form within minutes of an injury. Therefore, prophylactic treatment of adherent scar tissue formation can theoretically begin the same day the injury occurs. I do not recommend friction treatment in the first two or three days, unless the therapist is very experienced and knowledgeable in treating these types of injuries. In the first few days, all that is needed to prevent adhesions is two or three well placed friction strokes. But done too harshly or for too long at this early stage, friction might interfere with the normal healing process. In most cases, however, a person is not seen until at least several weeks after an injury has occurred.

In each session, the therapist performs the friction therapy for ten or twelve minutes. I would suggest five or six minutes, a several minute break, then repeat the procedure. Go gently at first, increasing your pressure only slightly if discomfort is minimal. After the friction treatment, massage the entire leg and foot and the other leg as well, for it has probably been overworking. Treatment should be done twice a week for four to eight weeks depending on the severity of the injury and the healing capacity of the client.

Friction therapy has to be applied with an acute sensitivity to pressure. If the therapist uses too little pressure, the adhesive scar tissue will not be separated. If the therapist uses too much pressure, the client will be so sore that the injured area will be too sensitive and difficult to touch in the next session. The therapist, as well, must work within the appropriate pain sensitivity of the client. There are two guidelines the therapist must work within in order to find the appropriate manual pressure. First, the client should not be in a great deal of discomfort or pain during the treatment; the treatment should feel no more than slightly annoying. Second the client should not feel soreness in the area treated for more than 48 hours post-treatment. It is very important for the therapist to communicate these two important points in the first session. For example, at the beginning of the first session I say to each client, "The first session is an experiment to find the appropriate pressure. If you are sore in the area I treat for up to 48 hours, this is normal and appropriate.

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Some people are not sore at all and that is fine, too. Also, I'm not referring to sore to the touch but sore only in your normal movement throughout the day." I have found that when clients experience soreness, if you have told them of this possibility beforehand they believe you are a very competent and skilled therapist. However, if they are very sore for a day or two and you have not told them this might happen, they may believe you have hurt them and never return. In every case, if the client reports soreness for more than 48 hours post-treatment, you need to work more lightly and for a shorter period of time in the next session, building up very gradually over time.

As the client improves, cut the visits to once a week, then twice a month. When the client no longer has pain during daily activities, when the tendon is not overly sensitive to touch, and when the injury verification test is negative, the treatment can be discontinued.

#### Location and Friction of Posterior Tibialis Tendon

Stand at the side of the client's lower leg. Hold the client's foot at a right angle by grasping the inner side of the forefoot. With the hand holding the foot, place the leg in lateral rotation. Now place your fingers on the affected tendon, usually just above the medial ankle bone or an inch higher. Put the thumb on the lateral side of the lower leg to stabilize your hand, apply a squeezing force with your middle and index fingers, and friction in one direction using your thumb as a fulcrum. Move your whole arm and wrist, not your fingers. Have the client press the foot medially for a moment, as in the test, to make sure you are on the right spot. If the client complains of a sharp twinge of pain while you are working, you are hitting the nerve that passes behind the ankle. If you cannot figure out how to do the friction without this occurring, discontinue the treatment or get someone more skilled to help you.

2. **Orthotics:** If the client has excessively pronated arches, recommend seeing a sports podiatrist to inquire about orthotic devices. These devices protect the posterior tibialis muscle and tendon from further strain. Orthotics are thus often a crucial component of the treatment.

3. **Exercises:**

- **HEEL RAISES** - Stand holding onto something for balance. Without bending the knees, rise up onto the balls of the feet. Keep the feet parallel. Stay there for a moment and come down again. Begin with five repetitions and then repeat this same exercise with the knees slightly bent. Build it slowly to eight repetitions of five.
- **INNER-ANKLE LIFT** – (See photograph on right.) This is the main exercise for posterior tibialis tendinitis. For this exercise, some props are needed. Either use weights that attach to the foot in some way or use a small plastic shopping bag with a three to five-pound weight in it, or cans that total three to five pounds. If this is too much weight to start, use a lighter weight and gradually build up to somewhere between five and ten pounds over the course of the treatment. Sitting in a chair, cross the injured leg over the good leg, with either the weight apparatus or the loaded shopping bag across the front part of the foot just behind the toes. Now raise the foot toward the ceiling five or ten times. Repeat after a brief rest.



*Ben E. Benjamin holds a PhD in sports medicine and education and is founder and president of the Muscular Therapy Institute in Cambridge, Massachusetts. He is the author of dozens of articles on working with injuries and chronic pain, as well as the widely used books in the field, "Are You Tense?", "Exercise Without Injury" and "Listen To Your Pain: The Active Person's Guide to Understanding, Identifying and Treating Pain and Injury". Dr. Benjamin has been in private practice for over 35 years. He can be reached in Cambridge, Massachusetts at [BB@mtti.com](mailto:BB@mtti.com).*

*Look out for Dr Benjamin's article on "Lateral Coronary Ligament Sprain" in the next issue of OTMS.*

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