Assessment and Treatment of
Lateral Ankle Sprain

by Dr. Ben Benjamin
Introduction

These techniques are based on soft-tissue assessment and treatment principles pioneered by Dr. James Cyriax, with whom Dr. Benjamin, Founder of the Muscular Therapy Institute, studied in the 1970s. Dr. Benjamin’s unique contribution has been to integrate this protocol with a strong understanding of the roles of friction therapy and other types of bodywork into a course of material that is presented in an easy-to-learn format for hands-on therapists. With this information, you’ll be able to isolate and treat problems such as tendon and ligament injuries that often confuse and frustrate health practitioners. You’ll also greatly enhance your palpation skills and refine your bodywork approach in general.

General terminology

**Adhesive scar tissue formation** is a primary mechanism of chronic injury. When adhesive scarring occurs in an injured tissue, that structure is weakened, because scar tissue can be easily torn again and again. Our treatment protocols are designed to eliminate extraneous scar tissue formation and to help the new tissue become strong, organized, and mobile. This is discussed further in *Principles of Frictioning*. There are two types of scar tissue we work with:

- **Internal** — scarring within a particular ligament or tendon
- **External** — scarring that attaches the injured structure to another structure inappropriately

**Referred pain** is relatively common with injuries to central parts of the body, but rarely originates from distal parts of the extremities. In some parts of the body — notably the neck, shoulders, hips, and low back — the analysis of referred pain is an indispensable part of the assessment.

There are four rules of referred pain:

- Referred pain does not cross the midline of the body.
- Pain refers distally not proximally.
- Pain is referred within the dermatome.
- The distance pain refers is proportional to the severity of the injury.

**Ligament laxity** makes joints (and the ligaments themselves) unstable and more prone to injury. This is an extremely common problem and can be very serious, particularly when found in the ligaments of the ankle and the knee.

**Poor alignment** causes the affected structures to be injury-prone.

**Chronic muscle tension** creates a vulnerability to injury.

**Muscle spasm** is a secondary phenomenon to tissue injury.

**Pain in relation to assessment**

Pain feels clear and specific when superficial tissues are injured. When a deeper structure is damaged, the pain is more amorphous (harder to pin down).

**Passive versus resisted tests**

- **Passive tests** assess injuries to ligaments, joints, and bursae — passive structures
- **Resisted tests** assess injuries to tendons and muscles — contractile structures
Assessment terminology

• A **major indicator**, also called a sign, tells you what is injured and will be represented by the letters MI.

• An **auxiliary indicator** is helpful in steering you toward the correct conclusion, but is not as definitive as a major indicator. It will be represented by the letters AXI.

• **Minor indicators**, or minor signs, are test results that are potentially confusing. They’re included in the presentation to head off this confusion. They will be represented by the letters mi (lower case).

Effective treatments

**Friction therapy.** This is discussed more fully under *Principles of Frictioning*.

**Massage therapy.** Massage increases circulation and neuromuscular repatterning. It’s extremely helpful in conjunction with friction and exercise therapy.

**Exercise therapy.** We’ll be discussing specialized exercise programs that work extremely well to aid the healing of injured tendons and muscles. In some cases, we’ll also discuss exercise programs that are helpful in recovering from other types of injuries.

**Injections**

• **Corticosteroids** — These anti-inflammatory injections can be very useful in helping inflamed areas to heal, whether they’re ligaments, tendons, joints, or bursae. Unfortunately, relatively few doctors are experts in using them; they need to be applied very precisely, which requires exceptional diagnostic skill.

• **Proliferants** — These injections are used to strengthen and tighten injured and loosened ligaments and tendons. Generally, a mixture of dextrose, xilocaine, glycerine, and phenol is used. Proliferants stimulate cells in the relevant tissues to multiply. Their effective application requires great skill. They’re used to regenerate ligaments, tendons, bone, cartilage, and muscle.

**Manipulation of a loose body.** In some cases, manipulation by a chiropractor or osteopath can re-align bones and alter the position of a painfully trapped piece of chipped bone.
Outline of the nine-step training for each injury

The format of these learning programs is consistent from section to section. Here is what we do, in the order we generally follow:

- Pretest to see what you already know
- Review the anatomy of the relevant structures
- Draw all of the anatomical structures
- Learn the relevant assessment test protocols
- Palpate the relevant structure
- Learn the theory of the most common injury in that part of the body
- Learn treatment protocols for those injuries
- Learn therapeutic exercises for injuries where appropriate
- Posttest to see what you have learned

I. Self-testing

<table>
<thead>
<tr>
<th>Pretest</th>
<th>Posttest</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1.</td>
</tr>
<tr>
<td>2.</td>
<td>2.</td>
</tr>
<tr>
<td>3.</td>
<td>3.</td>
</tr>
<tr>
<td>4.</td>
<td>4.</td>
</tr>
<tr>
<td>5.</td>
<td>5.</td>
</tr>
<tr>
<td>6.</td>
<td>6.</td>
</tr>
<tr>
<td>7.</td>
<td>7.</td>
</tr>
<tr>
<td>8.</td>
<td>8.</td>
</tr>
<tr>
<td>9.</td>
<td>9.</td>
</tr>
<tr>
<td>10.</td>
<td>10.</td>
</tr>
</tbody>
</table>
II. Anatomy of the Lateral Ankle

Fibula
Talus
Calcaneus
Anterior talofibular ligament
Calcaneofibular ligament
Peroneous tendons

III. Lateral Ankle Sprain Tests

1. Passive supination
2. Passive dorsiflexion
3. Passive plantar flexion
4. Passive inversion (of the heel)

IV. Theory

Major indicators
Anterior talofibular ligament: Pain on passive supination
Calcaneofibular ligament: Pain on passive inversion

Auxiliary indicators
Pain and limitation on plantar flexion and dorsiflexion
Swelling

Treatment
Friction therapy, massage therapy, injection
V. Principles of Frictioning

Deep cross-fiber frictioning, or transverse friction massage, is a very precise form of medical massage developed by a legendary British orthopedic physician, Dr. James Cyriax. It is remarkably effective in treating most muscle, tendon, and ligament injuries. Of course, if the lesion (injury) site is inaccessible to the therapist’s fingers, this treatment can’t be applied, and another must be chosen.

When microscopic tears occur in muscles, tendons, and ligaments, scar tissue — a type of connective tissue — forms to mend the damaged structures. It does this in an indiscriminate fashion, so the resulting scar has much less integrity and uniformity of structure than the original tissue it replaces.

Cross-fiber friction therapy works by breaking down this adhesive scar tissue that prevents proper healing within muscles, tendons, and ligaments. It also separates ligament-to-bone adhesions and allows normal healing to occur. It promotes the formation of properly aligned and mobile tissue. Friction therapy also increases the blood supply to areas that normally have very little circulation. It accomplishes this through a mild, controlled trauma to the injury site.

∗ ∗ ∗

Friction treatment protocol

When clients are receiving friction therapy, they should come for treatment two or three times per week. This consistency aids the correct formation of the tissue. In general, a fresh injury takes 4–6 weeks to heal with treatment, and a long-standing injury takes 8–12 weeks. These are, of course, generalizations, and the actual situation will vary according to: (1) the age of the injury; (2) whether it’s a repetitive injury; (3) the client’s general health; and (4) whether the client is able to avoid re-injury during the period of treatment and recovery. You can lessen the frequency of treatment as recovery proceeds.

You may begin treatment two or three days after a traumatic injury. Very little frictioning will be needed at this stage as not much scar tissue will exist. Thirty seconds to one minute of gentle friction should be all that’s needed. In general, you won’t see clients who are so recently injured. Most friction treatment will last between 5 and 15 minutes. The duration of the treatment depends on the client’s tolerance, the severity of the injury, and the number of injured areas.

After you have frictioned a structure for 3 to 4 minutes, hyperemia sets in, and the area may become somewhat numb. At this time, you’ll be able to work more deeply without producing excessive discomfort. If a structure is very sensitive, you can divide up the frictioning time into two or three short segments and intersperse it with icing, gentle movements of the structure, or other treatments.

Massage generally follows frictioning.

It’s important to explain to your client what you’re going to do. Explain that since your intention is to break up scar tissue, the treatment may be a little uncomfortable. Watch your client’s face and breathing during the frictioning. Make sure that he or she knows to tell you if your pressure is too great — it pays to keep your client comfortable! Check in frequently during the treatment, especially if you suspect that your client may be reluctant to tell you to lighten up.

Guidelines for frictioning

1. Bring the structure into an accessible position.
2. Use no lubricants. Frictioning is done dry.
3. The direction of friction strokes is across (perpendicular to) the fibers at the lesion site.
4. Apply pressure in one direction only (i.e., a complete friction stroke is composed of a movement done with pressure and an opposite movement done without pressure). You may alternate the direction of pressure as often as needed for your own comfort.
5. Your fingernails must be very short.
6. Use fingertips, thumbs, reinforced fingertips, and reinforced thumbs.
8. Move your whole hand, not just your fingers.
9. “Snap through” the tendon, muscle, or ligament.
10. You may choose to move the client’s body while your finger remains stationary, as in pronating and supinating the forearm while holding pressure on a wrist tendon.
11. The client’s skin moves with your finger; don’t slide over the skin while frictioning.
12. If a deeper part of the structure is injured, you’ll need to press harder.
13. You’ll usually be pressing the lesion against a bone when frictioning.
14. Be sure that the client is in a comfortable position so that you can perform the therapy without unnecessary stress.
It is quite possible to overtreat with friction. Tell your client that he or she may be sore for 1 to 2 days after treatment. If post-treatment soreness lasts longer than that, or if the client simply can’t put up with the soreness, cut back on the pressure and/or duration of treatment.

Because this work is so precise and repetitive, you may find yourself getting sore. Build up your hand strength gradually by doing only short periods of frictioning and by exercising them to build strength.

∗ ∗ ∗

Friction therapy
Anterior talofibular ligament
Hold the foot in an inverted position with one hand while using the thumb of the other hand to friction the anterior talofibular ligament. Friction at the inferior anterior aspect of the lateral malleolus.

Calcaneofibular ligament
The calcaneofibular ligament is located directly below the lateral malleolus and runs vertically down and slightly back to the calcaneus. The tear may be throughout the length of the ligament but is usually just below the malleolus. Frictioning is done by pressing the ligament up under the inferior edge of the malleolus or against the calcaneus. Sometimes both this ligament and the anterior talofibular ligament are sprained. In these cases, alternate a minute or so on each ligament and come back to each place two or three times.

VI. Massage Techniques
Under cuboid
Over cuboid
Crack
Under lateral
Sweep the ankle

VII. Exercise Program (client instructions)
Circles
Sitting in a chair, cross your injured leg over your good one. Rotate your foot in as wide as circle as you can, both clockwise and counterclockwise. Begin with 10 circles in each direction. This is a particularly good exercise for injuries to the ankle.

Ankle flexion
Still sitting in a chair with your legs crossed, flex your ankle so your toes come toward your knee. Hold this for 2 seconds. Now point your foot and hold that position for 2 seconds. Begin with five repetitions of flexing and pointing before resting. This is particularly helpful for injuries to the ankle, front and back of the foot, and lower leg.

Heel raises
Stand and hold on to something beside you for balance. Without bending your knees, rise up onto the balls of your feet. Keep your feet parallel. Stay there for a moment and come down again. Begin with five repetitions, and then repeat the same exercise with your knees slightly bent. Bending the knees works the soleus muscle. If you injured your Achilles tendon or calf, these exercises are especially important.
Inner ankle lift

For this exercise you’ll need some props. You can either buy special weights that attach to the foot or use a small shopping bag (preferably plastic) containing a two- to five-pound weight or cans that total three to five pounds. Sitting in a chair, cross your injured leg over your good leg with either the weight apparatus or the loaded shopping bag across the front part of your foot just behind your toes, as illustrated. Now raise the front of your foot toward the ceiling 5 or 10 times, repeating after a rest. This exercise is good for injuries to the inner ankle, foot, or lower leg.

Outer ankle lift

You will need the same props for this exercise that you used in the inner ankle lift. Lie on your side on a bed or couch with your knees bent. The injured ankle should be on top. Now extend the top leg off the end of the bed or couch. Wearing the weight or the shopping bag, lift the outside of your foot toward the ceiling, keeping your foot extended. Begin this exercise with 10 repetitions. Then do it again, but this time keep your foot flexed. This is a good exercise for injuries to the lateral ankle as well as the outside of the lower leg.