



CHRONIC / ACUTE CONDITIONS

## Treating Sprained Ankles With Chiropractic Care

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Ankle injuries are not only common, but also costly for many people. According to [a study](#) published in 2013, in the United States alone, an estimated 2 million acute ankle sprains occur each year, averaging \$318 to \$914 per sprain.<sup>1</sup> Ankle sprains are significant because if not treated properly, the patient will lose mobility and arthritis will be accelerated down the road. Another major concern with ankle sprains is the likelihood of recurrence. In fact, "the most common predisposition to suffering a sprain is the history of having suffered a [previous ankle sprain](#)."<sup>2</sup>

The best place to start is with a review of the anatomy. "Understanding biomechanics of the normal and arthritic ankle joint can aid in analysis of an underlying clinical problem and provide a strategic basis for a more optimal management."<sup>3</sup> A closer study of the anatomy gives you the confidence to know when and how to treat this area.

### Anatomy and Movement

The ankle includes three joints: the talocrural joint, the subtalar joint and the inferior tibiofibular joint. The movements produced at this joint are dorsiflexion and plantarflexion of the foot. The talocrural joint is a synovial hinge joint that connects the distal ends of the tibia and fibula in the lower limb with the proximal end of the talus. The joint between the tibia and the talus bears more weight than between the smaller fibula and the talus.

The ankle joint is supported by the strong deltoid ligament and three lateral ligaments:

- The *deltoid ligament* supports the medial side of the joint and is attached at the medial malleolus of the tibia. It connects in four places: to the sustentaculum tali of the calcaneus, calcaneonavicular ligament, navicular tuberosity and medial surface of the talus.
- The *anterior* and *posterior talofibular ligaments* support the lateral side of the joint, from the lateral malleolus of the fibula to the dorsal and ventral ends of the talus.
- The *calcaneofibular ligament* is attached at the lateral malleolus and the lateral surface of

the calcaneus.



Though it does not span across the ankle joint itself, the syndesmotic ligament makes an important contribution to the stability of the ankle. This ligament spans the *syndesmosis*, which is the term for the articulation between the medial aspect of the distal fibula and the lateral aspect of the distal tibia. An isolated injury to this ligament is often called a high ankle sprain. When [caring for a high ankle sprain](#), conservative therapy is appropriate for grade I and II injuries, while grade III injuries often require surgical intervention.<sup>4</sup>

The bony architecture of the ankle joint is most stable in dorsiflexion. Thus, a sprained ankle is more likely to occur when the ankle is plantarflexed, as ligamentous support is more important in this position. The classic ankle sprain involves the anterior talofibular ligament (ATFL), which is also the most commonly injured ligament during inversion sprains. Another ligament that can be injured in a severe ankle sprain is the calcaneofibular ligament.

#### Ramifications of *Typical* Ankle Sprain Treatment

I want you to think about the people in your life. They could be your family, friends or your patients. Now I want you to think of how many of those people have sprained their ankles at some point. Off the top of your head, you can probably think of a few, perhaps yourself included. Ankle sprains are so common and most people have suffered at least one in their life.

What is so interesting is that once a person sprains their ankle, they usually consult their allopathic medicine practitioner. The doctor might take some X-rays and examine it. Most of the ankle sprain cases do not result in any type of fracture, but will stretch and sometimes tear the ligaments described above.

Typical treatment involves waiting for 2-4 weeks for the pain and swelling to go down. Sometimes,

crutches or a boot come into the picture to immobilize and take pressure off the ankle joint. Pain-killers, anti-inflammatories and the usual players come out in an effort to make the symptoms go away. Eventually, some motion is introduced by the patient or a physical therapist for therapy and rehab.

What the average person does not realize is that the talus, calcaneus, cuboid, navicular and the rest of the foot bones generally shift out of their healthy alignment during an ankle sprain. Alignment of these bones is hardly ever considered in typical medical treatments. This is where you come in as the chiropractor. You are poised to help these patients differently because of your knowledge of biomechanics and joint health.

### Chiropractic Care Strategies

Most patients have no idea that chiropractic treats anything but the spine, but you have the knowledge to treat many other areas of the body, like the extremities. Utilizing your foot / ankle ROM, orthopedic testing (to rule out serious ligament tears, fractures, etc.) and palpation skills, you will find that most sprains of the ankle are well within your arena of chiropractic knowledge and treatment abilities.

When performing your palpation and ROM of the involved sprained ankle, there are interesting motion patterns. Obviously, a swollen ankle will be difficult to move through its range. However, once the swelling has reduced or very early after the sprain, you generally find that inversion of the foot feels fairly normal, while eversion is limited and often painful on the lateral ankle, below the malleolus. Here are some suggestions on how you can treat the ankles:

1. *Physiotherapy modalities:* I have gravitated toward using my class IV laser more and more over the past four years. Ultrasound, muscle stim, and ice / heat are also viable treatment tools. Depending on how acute, swollen and painful the ankle sprain is will determine which therapy you choose to use.
2. *Adjustments:* You are going to adjust all 26 bones of the foot. How do you know which way the bones have misaligned? Invert your right foot as you are sitting or standing and feel the stress on those bones. You can feel how they would misalign. *Your* body is your cheat sheet. Use your hands to motion palpate the bones and confirm your findings.
3. *Rehabilitation and home care:* Common care modalities include [ice / heat](#) and passive / active ranges of motion (PROM / AROM), progressing to ankle strengthening and stabilization. I find that having the patient trace upper- and lowercase letters of the alphabet with their big toe works on ROM and strengthening at the same time. In some cases, a wobble board is excellent for ankle strength and balance as well.
4. *Foot support and orthotics:* In my experience, one of the prime reasons patients sprain their ankles is due to fallen, collapsed arches, attributable to overpronation of the feet. As a result, I see patients who present after a traumatic sprain in which they landed with their foot turning in.

An important point to remember here is that dropped arches from excessively pronated feet make the person more susceptible to an ankle sprain. The ankle is already weakened and strained on the medial side due to the fallen arches. This lack of medial ankle support makes it easier for the foot to turn inward and damage the ligaments and soft tissue of the medial ankle region.

Providing custom-molded, three-arch, flexible orthotics will effectively support all of the foot arches and the plantar vault of the foot. Stabilizing the feet then helps the ankles transmit ground force through the center of the ankle mortise, instead of the medial edge. Thus, the ankles will be more stable with any weight-bearing activity.

Remember that our patients are largely dealing with the myth that "no pain means you are fine." You have seen patients with past or chronic ankle sprains who have not been treated properly. They have biomechanical problems, hypomobility of the foot / ankle joints and some level of chronic pain that comes and goes. The absence of pain does not mean they are fine; in fact, it can mean quite the opposite. Use your knowledge and skills to get these people feeling better, the chiropractic way.

### *References*

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