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What I Have Learned About Ankle Injuries

By Richard Lebert, RMT

As a Registered Massage Therapist, it excites me to have the skill set to make a difference in the quality of life for someone who is in pain or is suffering from an injury. There are times when orthopedic testing may not give a clear indication as to what may be causing a patient's pain. Other times, a patient may present with a seemingly straightforward injury, yet months of treatment bring no improvement to their condition. Drawing from five lessons I have learnt from my colleagues, this article will examine the ankle and present some clinical pearls for the reader.

1. Shoes dampen incoming sensory information

A surge in the popularity of minimalist shoes can be attributed to the 2009 book *Born to Run* by Christopher McDougall. This book profiles a group of runners from the Tarahumara tribe in Mexico who run either in bare feet or in minimalist footwear. Running with minimalist footwear naturally leads to a high cadence and short stride running form, which has been shown to reduce the incidence of repetitive strain injuries. One of the reasons that kicking off the running shoes can decrease injuries is that the ankle is densely populated with mechanoreceptors, and shoes dampen incoming sensory information. Switching to shoes like Vibram Five Fingers will by no means be a panacea for running injuries, but it is good to have options if high-stability shoes are not your thing. If you or your patients are making the transition to minimalist footwear, it is important to make a slow transition to avoid injuries.

2. Some people have extra bones

Earlier in the year, a varsity soccer player came to see me because of ongoing lateral ankle pain. After an intake and orthopedic assessment, it was still not clear what could be causing this ankle pain. The patient had pain on plantar flexion and was unable to perform a full squat due to limited ankle range of motion. To treat the ankle, I used a variety of manual techniques including joint mobilization and IASTM (instrument assisted soft-tissue mobilizations). There was a slow improvement in the ankle's range of motion, but the pain was still there. A couple weeks later after a MRI and an ultrasound, the physician made the diagnosis of an inflamed os trigonum.

The os trigonum is an extra bone behind the talus, often connected to the talus by a fibrous band. The presence of an os trigonum in one or both feet is congenital; only a small number of people have this extra bone and it is more common in women. It can become evident during adolescence, when one area of the talus does not fuse with the rest of the bone, creating a small extra bone. Medically speaking, these extra bones are called accessory ossicles; they are secondary ossifications that are separate from the adjacent bone. In most cases they have been there since birth, but there are conditions when they may occur as a result of local degenerative disease or trauma (myositis ossificans). Accessory ossicles are not an uncommon finding throughout the body; it is usually only if they become inflamed that you will notice these extra bones.

3. Some prefer RICE, some prefer MEAT

Most can relate to the swelling, bruising and subsequent pain resulting from rolling



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your ankle. This is a very common sports injury, and most people have a full recovery in six weeks. Traditional treatment of an ankle sprain consists of "RICE" (rest, ice, compression, elevation). In the past couple of years, many have suggested moving toward a "MEAT" protocol (movement, exercise, analgesics, treatments). It is important to note that the RICE protocol does not have to be tossed aside in favour of MEAT; elements of both protocols remain useful. Remind the patient that "motion is lotion" when it comes to joint health, and encourage optimal loading of the joint and tissue around the affected joint. In my personal experience, one of the most effective ways to mitigate the swelling and discomfort

of an ankle injury is electro-acupuncture. Stimulation of the tibialis anterior muscle and the peroneal muscles creates continuous passive movement at the ankle, which makes an immediate change in the amount of swelling, leading to a faster recovery.

4. Some people have buttons in their ankle

A high ankle sprain, also known as a syndesmotic sprain, is a sprain of the syndesmosis and/or ligaments that connect the tibia and fibula; they comprise approximately 15 per cent of all ankle sprains. A syndesmosis is a slightly movable fibrous joint in which bones are joined together by connective tissue. High ankle sprains are described as high because they are located above the ankle in the distal tibiofibular joint. Unlike the common lateral ankle sprains,

when ligaments around the ankle are injured through an inward twisting, high ankle sprains are caused when the lower leg and foot externally rotates. Syndesmosis sprains have received increasing recognition during recent years because of a heightened awareness of the mechanism, symptoms and signs of injury.

There are three tests I recommend including in any assessment of a suspected high ankle sprain:

- i) the Squeeze test
- ii) the External rotation test
- iii) the Passive dorsiflexion test

Patients with high-grade syndesmosis injuries often cannot perform a single-leg heel raise. Patients report pain over the anterior and often posterior distal fibular joint. If the syndesmosis is torn apart as a result of bone fracture, surgeons will sometimes fix the bones together with a syndesmotic screw, temporarily replacing the syndesmosis. When the natural articulation is healed, the screw may be removed.

Another surgical method is tightrope fixation, which is aimed at stabilizing the syndesmosis to reduce the instability at the distal tibiofibular joint. This is completed by threading a wire through the tibia and fibula, which is then held in place by two suture buttons. The benefit of this procedure is that it reduces the need for any further surgery to remove the screws following an internal fixation. After a tightrope fixation, there may be a numb patch around the operation site and soft tissue irritation where the tightrope buttons are left in. As a massage therapist, it is important to be aware that a traumatic injury to the ankle will increase the likelihood of post-traumatic osteoarthritis developing in the future.

5. A stress fracture of the talus is unlikely to show up on an X-ray

A stress fracture of the talus is uncommon but can develop in runners and triathletes who accumulate high mileage. Symptoms of a stress fracture of the talus include pain on the outside of the ankle, which develops gradually. The pain will get worse with exercise and will

ease with rest. Other symptoms may include night ache, pain during certain movements of the foot and ankle, or pain on firmly touching the talus. There is likely to be tenderness and possibly swelling over the sinus tarsi, which is a small canal where nerves pass into the ankle. Bone scans and CT scans can confirm the diagnosis, as a stress fracture is unlikely to show up on an X-ray until healing has begun.

Conclusion

On paper, the assessment and treatment of ankle injuries may seem straightforward. However, management of musculoskeletal injuries requires more than just knowledge of orthopedic injuries; it requires the ability to assess and treat the patient through a biopsychosocial lens. Patient presentation may not always be reflective of what is described in books and articles.

The key to the assessment and treatment of any injury is a deep knowledge of the

form and function of the human body. It is important to keep an eye out for novel ways to treat musculoskeletal injuries. I have had a great experience treating sports injuries with unconventional modalities such as electroacupuncture, cupping and IASTM. I really enjoy working in a multidisciplinary setting because there is an opportunity every day to add to my knowledge of sports injuries. MT

Additional reading

1. Hermans JJ, Beumer A, de Jong TAW, Kleinrensink GJ. Anatomy of the distal tibiofibula syndesmosis in adults: a pictorial essay with a multimodality approach. *J Anat* 2010;217:633-645.
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“Treatment requires the ability to assess and treat through a biopsychosocial lens.”

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