



ANKLE SPRAINS

Back to Health Chiropractic Centre

Ankle Sprains

The ankle is **one of the most common sites** for musculoskeletal injuries, sprains account for **75 percent** of ankle injuries. Acute ankle trauma is responsible for 10 to 30 percent of sports-related injuries in young athletes. Each year an estimated 1 million persons present to health care practitioners with acute ankle injuries. More than 40 percent of ankle sprains have the potential to cause chronic problems.

The ankle is made of three bones. The bones are called the tibia, fibula, and talus. These bones form a socket in which the ankle joint moves. The tibia, fibula and talus are connected to each other by ligaments. Think of ligaments as thick rubber bands that hold bones together, so that joints are stable and function properly. When an ankle is sprained, a ligament is either stretched, partially torn or completely torn. Muscle and tendon structures surround the ligaments. These structures provide motion of the ankle joint for walking and running. Blood vessels, nerves and skin overlie the ligaments and tendons. The ankle joint moves the foot upward and downward. Just below the ankle joint is the ball and socket type joint that allows inward and outward motion.

The most common mechanism of injury is **inward rotation** (inversion) and **downward movement** of the foot (plantar flexion). The stabilizing ligaments on the outside portion of the ankle take the abrupt stress of this injury. These are known as the anterior talofibular, calcaneofibular and posterior talofibular ligaments. The anterior talofibular is the most easily injured. Injury to this ligament and the calcaneofibular ligament can result in appreciable instability. The posterior talofibular ligament is the strongest of

the lateral complex and is rarely injured in this type of sprain. (See picture on the board at the front).

Ankle sprain symptoms vary depending on severity. Often, the ankle is tender, swollen, and discolored. The ankle can be quite painful to touch. Walking is usually hindered and may become difficult depending on the severity of the sprain. A feeling of instability may occur, especially in severe ankle sprains, when the ligament is torn.

Ankle sprains are classified by "types" and range from mild to moderate to severe. Classifying ankle sprains helps the health care provider diagnose the specific structures involved in the injury. This also helps determine appropriate treatment plans for each type of ankle sprain. **Type 1** ankle sprain, the least severe, occurs when the ligament fibers have been stretched or torn slightly. A **Type 2** sprain occurs when some of the fibers or ligaments are completely torn. A **Type 3**, the most severe, occurs when the entire ligament is torn and there is significant instability of the ankle joint. Fractures of the ankle bone or the outside foot bone may be present. Fractures require immediate diagnosis and attention for appropriate treatment.

The mechanism of injury, amount of swelling and bruising, if the individual can weight bear, and numerous tests that the chiropractor performs, will determine if the patient requires x-rays. Not all people who sprain their ankle need to go for an x-ray.

The Role of Acupuncture in the Treatment of Ankle Sprains

Acupuncture for ankle sprains can do three things. First of all, it increases the local (micro-) circulation which relieves the swelling, that enhances the healing process and alleviates pain at the same time. Secondary, acupuncture decreases pain by increasing a patient's tolerance and stimulates the release of endorphins. Thirdly, overall function can be improved thus milder pain

is experienced.

The acupuncture needles once inserted are left in for 15-20 minutes. The number of treatments is dependant on the severity of the ankle sprain, as well as how fast the patient's body responds to the acupuncture treatments. For ankle sprains most patients obtain the best results with 4 to 8 acupuncture treatments.

**Back to Health
Chiropractic Centre**
240 Catherine St. Ste. 100
Ottawa, Ont.

K2P 2G8
237-3306

www.Back2Health4you.com

Dr. Barbara Rodwin B.Sc., D.C.,
D.Acu., A.R.T.
Dr. Tracy Schlachta B.A., D.C.,
A.R.T.

Keri-Lyn Dudgeon B.Sc. (H.K.)

Trevor Nootenboom R.M.T., A.R.T.
Rina McNairn R.M.T., A.R.T.
Jenny Wolfram R.M.T., A.R.T.

Special points of interest:

- We are on the Web!
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Healing Phases for Ankle Sprains

Injuries to the ligaments in the ankle undergo a series of phases during the healing process: hemorrhage (bleeding) and inflammation, fibroblastic (cell) proliferation, collagen protein formation, and collagen maturation. The more severe the ligament injury, the greater the time required to progress through the stages of healing. Early mobilization of joints following a ligament injury actually stimulates collagen bundle orientation and promotes healing (tissue repairing). Prolonged immobilization of ankle sprains is a common treatment error. Functional rehabilitation begins on the day of injury and continues until pain-free gait (walking) and activity are attained. The four components of rehabilitation are: range of motion rehabilitation, progressive muscle-strengthening exercises, proprioceptive training and activity-

specific training. Full ligament strength is not re-established for several months.

Chronic ankle sprain problems can cause injuries in the leg as well as to the knee, shin, hip and/or back. This is due to the altered biomechanics of the foot during the gait/walking cycle. Be sure to have the feet checked for balance to ensure no further injuries take place. Several tests can be performed by your chiropractor to determine if there are problems in your ankle from old sprains. Also a foot scan or gait analysis should be performed by Keri-Lyn, the kinesiologist. This will determine if you have an altered gait mechanism due to a prior ankle sprain. If there are old problems present they can be worked on via different exercises to ensure future injuries do not occur!

Early Things to do for an Ankle Sprain

The standard early treatment following an acute ankle sprain is 'PRICEMMM' .

Protection with a ankle sprain brace to prevent re-injury and to hold the ankle in a slightly outward rotation which allows the ligaments to rejoin and heal.

Rest for the injured ankle until normal heel-toe gait is restored.

Ice on the ankle to decrease swelling and relieve pain. Use of an ice pack for 10-15 minutes every 1-2 hours the first day of the sprain. After this try to ice 4-5 times per day.

Compression as soon as possible to decrease swelling, with the use of a ankle sprain brace, a tensor bandage works too.

Elevation: the initial step for reducing swelling. At night the top mattress should be elevated approxi-

mately 6-10 inches so that the whole leg is elevated. This will aid in decreasing the swelling at a faster pace.

Medication: for pain relief and reduction of the swelling.

It is very important to follow the PRICEMMM protocol to ensure proper healing of the ankle!

Mobilization early on when pain free to expedite return to play and lessen chronic problems with the ankle.

Modalities: acupuncture for ligament healing and decreasing swelling and pain, massage therapy to the muscles that tighten from the sprain so that you do not develop adhesions or scar tissue, exercise (maintains flexibility and assists lymphatic drainage) and proprioceptive training (for balance and postural control) to prevent re-injury (we have ankle sprain sheets explaining the phases of rehabilitation, please ask for one).

Massage Therapy for Treating Ankle Sprains

During the early phase of an ankle sprain a massage therapist would concentrate on drainage of the swelling, as well as loosening the muscles of the lower leg which tighten when a sprain occurs. Work would be performed to the compensatory muscles and surrounding tissue to increase drainage and thus increase the overall healing.

Later in the treatment process the specific ligaments that were damaged can be worked on. This is to decrease the amount of

scar tissue/adhesions that form. Certain muscles often tighten with ankle sprains. These are the: peroneals, gastrocnemius, soleus, tibialis anterior /posterior (shins and calf muscles), as well as all the other muscles that cross over the ankle joint. A combination of massage therapy and the Active Release Technique (ART) would be utilized to aid in releasing the tight musculature. If you are not familiar with The Active Release Technique there are pamphlets in the office you can pick up and read.