



Lateral ankle sprains are very common in both athletes and sedentary people. There are more than two million acute ankle injuries in the United States each year and perhaps as many as three times that number in unreported cases.

In athletes, four out of 10 sports-related injuries are lateral ankle sprains. In the general population, sprained ankles make up about 15 percent of all injuries associated with sports and recreation. Therefore, the likelihood of encountering patients for the treatment of chronic ankle instability and pain is very high.

Once properly diagnosed, acute treatment of lateral ankle sprains is critical to favorable short- and long-term outcomes. Misdiagnosis, inadequate acute treatment and no follow-up care can turn a single lateral ankle sprain into a chronic disorder of the ankle. In this situation the ankle is prone to many sprains, fractures and perhaps long-term disability.

The original trauma of a lateral ankle sprain may lead to two types of dysfunction—mechanical instability and functional instability. The mechanical instability is made up of the “hardware” component—the active and passive structures surrounding the ankle. This includes the muscles, joints, tendons and ligaments affected by acute ankle sprains.

The functional instability is made up of the “software” component, which is the operating system or neural programming behind muscle activation and coordinated action between muscles to produce smooth movement and provide stabilization of the joint. The hardware is where we have mainly focused our education, training and in-office therapies.

We have neglected the software side of treatment due to limited understanding and tools necessary to have a therapeutic impact within this category. It is often more the software aspect of dysfunction that leads to the long-term deficits associated with chronic ankle instability.

It is also important to note that changes in functional instability may occur without the clinical presentation of mechanical instability. For this reason and others, the software or functional component of instability related to ankle sprains and chronic ankle instability should be targeted specifically with treatment. Chronic ankle instability can be defined as repetitive giving away of the ankle during normal and athletic activities. Clinically this is categorized as a deficit in neuromuscular control.

Deficits in neuromuscular control occur because of an alteration of the peripheral and central nervous system’s accurate perception of where the joint is in space and when proper muscle activation should occur in response to movement demands. These altered actions lead to altered activities and movement patterns, increasing the likelihood of further injury.

So what does tape have to do with all of this? The use of kinesiology tape, a specialized type of elastic breathable tape that can be applied for continuous wear over multiple days, can offer an enhanced framework of care for conservative management of chronic ankle instability

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Tale of the Tape

Kinesiology taping interventions for the treatment of chronic ankle instability

By Kevin D. Jardine, DC, Med.Ac

Under normal circumstances, the ability of the static and dynamic stabilizers of the ankle to work in concert to maintain ankle stability is integral to normal movement and gait. When movements and the forces associated exceed the normal limitations of the structures providing stability to the ankle, injury occurs.

Lateral ankle sprains are among the most common musculoskeletal injuries. These sprains occur when one or more of the three major ligaments of the ankle are stressed and injured. Lateral ankle sprains usually occur when the foot is planted and immobile yet the leg moves sideways and the ankle rolls toward the outer side of the foot.

Without proper diagnosis and treatment, lateral ankle sprains lead to chronic, ongoing ankle problems. Proper treatment should begin as soon as possible following the injury. Rehabilitation and manual therapies are often warranted to rehabilitate and prevent future injury. The purpose of this article is to develop an enhanced understanding of the sequence of problems that occur after an ankle sprain as well as to touch upon the clinical value of using kinesiology taping for such conditions and the emerging science that supports it.

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by providing a therapeutic effect in the software category of dysfunction. The tactile stimulation of tape on the skin results in improved muscle activation, restoring functional joint stabilization through the activation of inhibited muscles via mechanisms involved with sensory gating and neuroplasticity.

Fully designed and ready-to-apply kinesiology tape is available specifically for the ankle. It can be applied easily by following the instructions and worn for multiple days continuously by the patient. The ability to withstand continuous wear during bathing and exercise differentiates kinesiology tape from other traditional taping methods and is also a large component of how this form of tape achieves its therapeutic potency.

Structural-based kinesiology taping applications are intended to improve postures as well as prevent potentially harmful ranges of motion.

Plantar Flexion With Inversion

In the case of chronic ankle instability, the range of motion we are trying to limit is plantar flexion with inversion. This is the most common motion involved in the mechanism of injury.

The portion of tape over the plantar fascia is applied using a "neurosensory" method of application to enhance muscle activation, which was negatively affected due to the initial trauma and subsequently has not resolved, contributing to the presentation of chronic ankle instability.

Since the changes associated with muscle activation following an ankle sprain and chronic ankle instability have been shown to result from neural mechanisms and not actual strength of the muscle, it is plausible that treatments that act by engaging neural mechanisms should be utilized in order to achieve the clinical results you are looking for.

This article has touched on building an understanding of the sequence of problems and limitations that can occur in the clinical presentation of chronic ankle instability.

It has also discussed the therapeutic use of kinesiology taping as an important consideration for treatment of ankle sprains to prevent a cycle of recurrent injury often associated with this type of injury. The tape essentially becomes the treatment for the software, or neural component of dysfunction associated with chronic ankle instabilities.

Kinesiology taping is beneficial, not only in the treatment of ankle problems, but also in the prevention and therapeutic intervention for most musculoskeletal conditions.

It is important to note that use of kinesiology taping is a synergistic therapy and should be combined with effective conditioning and neuromuscular training exercises to achieve the greatest outcomes. ■

Kevin D. Jardine is a practicing chiropractor, working mainly in the field of sports therapy and performance treating and consulting with numerous athletes and teams. He is the creator of SpiderTech™, pre-designed and ready-to-apply kinesiology taping applications engineered to reduce pain and improve strength while protecting against further injury. Dr. Jardine is the Chief Medical Officer of NuCap Medical Inc. and owner of The Urban Athlete, a multidisciplinary treatment and training facility in Toronto, Canada, and is an expert in the field of kinesiology taping along with integrative manual and rehabilitative therapy.