

# Management and Prevention of Lateral Ankle Sprains With Western and Eastern Methods

Ronda Wimmer, PhD, MS, LAc, ATC, CSCS, CSMS, SPS

Lateral ankle sprains are commonly seen in the sports medicine arena. Traditional treatment of this particular injury is initial symptom management from a Western perspective. I would like to review an integrated Western practice that can utilize Eastern strategies and philosophies. This combination will suggest more detailed evaluation and will lead to more optimal long-term recovery outcomes.

## Western Perspective

In sports medicine, most lateral ankle instability results from physiological (mechanical and functional) instability. It is necessary to compare normal ankle mechanics to abnormal mechanics, sequela to these sprains, and rate dysfunction of the surrounding tissues involved. The basic treatment protocol focuses on accurately assessing of joint function, increasing range of motion, and protecting the healing tissues where there may be excessive movement.

## Mechanical/Functional Chronic Ankle Instability Paradigm:

- Mechanical - anatomic changes resulting from initial ankle sprain.
- Degenerative changes - repetitive bouts of ankle instability or time.
- Pathological laxity - ankle ends up in vulnerable positions during functional activities (talocrural and subtalar joints).
- Arthrokinematic restrictions - excessive range of motion or decreased ROM.
- Synovial changes - impinged or hypertrophied synovial tissue between ankle complex bones.
- Impaired postural control - balance of synergistic muscle tissues.
- Impaired neuromuscular function - muscular recruitment patterns diminished.
- Impaired proprioception - synergistic ability of nerve conduction velocity diminished.
- Strength deficits - decreased strength of the surrounding muscle tissues.
- Mechanical and function instability creates recurrent ankle sprains.

Lateral ankle sprains, usually due to excessive inversion and supination, injure the anterior talofibular, calcaneofibular ligaments, and subtalar and tibiofibular articulations. Once a ligament is lengthened, over time if the tendon structures are not stabilized, residual dysfunction (hypermobility) may be come long lasting. Typical signs and symptoms include inflammation, pain, decreased range of motion, and swelling. Protocol treatments focus on restoring normal accessory joint motions and reducing subluxations, while simultaneously protecting damaged ligaments from external and internal stresses that may compromise the healing process. Thus, RICE (rest, ice, compression, elevation) is the key concept here so as to manage the edema, which can last up to three weeks. Focus then moves to restoring ligament stability by correcting subluxation and treating accessory motion restriction using joint mobilization. Exercises (closed and open chain) are then implemented to restore range of motion then we add resistance to restore strength. Once strength is restored, and we have established normal gait with normal joint mobility, the focus shifts to neuromuscular control in order to maximize dynamic and reflexive stability of the

surrounding tissues.

### Eastern Perspective

According to TCM, pre-existing factors that contribute to ankle sprains include the consuming of the *qi* and Blood (creating LV and K deficiency), accumulation of dampness, invasion of external pathogens (Wind, Cold, Damp), and, of course, Blood stagnation.

Injury mechanism, also plays a big part in differentiation among pre-existing factors creating an ankle sprain (chronic condition) versus direct or indirect trauma (acute condition). According to TCM, acute versus chronic represents external versus internal origins of the mechanism of injury. Chronic represents internal pre-existing problems that allow the external pathogens to invade more easily, disrupting the circulation of *qi* and Blood in that specific location.

### Qi/Blood Stagnation

The concept of TCM is to maintain the flow of *qi* and Blood circulation throughout the body. By maintaining this circulation of *qi*/Blood, the physiological manifestation of injuries and pain are non-existent. However, if this *qi*/Blood become stagnant, the flow within the channels around the affected joint becomes blocked and impaired creates pain along the affected joint. The main physiological manifestation includes pain that is stabbing and fixed for Blood stagnation and wandering and distended pain for *qi* stagnation.

### LV/K Deficiency

According to TCM, the LV supports the tendons by nourishing them through LV Blood, and the K nourishes the bones. Over years of overstraining, working long hours (standing all the time), constitutional weakness and/or prolonged illness, the *qi* and Blood depletes/consumes specifically the *qi* and Blood of the LV and K. In either case, the lack of nourishment of both the tendons and bones gives rise to ankle joint injuries. Once again, age is a factor. As we get older the LV/K functions decline and the K Jing and LV Blood are unable to nourish the tendons and bones sufficiently.

### Wind, Cold, Damp Invasion

Wind, Cold and Damp pathogens are able to invade through the joints because that is where *qi* enters and exits. Wind characteristics tend to be always moving and changing, and present with pain moving medial to laterally on the ankle. Cold characteristics create *qi* and Blood stagnation due to the contracting nature within the channels and tendons; and thus present with severe ankle pain. Damp characteristics create obstructions within the channels, due to the accumulation creating heaviness leading to stagnation, thus present with fixed ankle pain, swelling with a heavy sensation and possible numbness.

Pre-existing conditions that allow these external pathogens to invade include Yang and/or Yin Deficiency. Heat is another factor that can be a result of Wind, Cold Damp invasion. If an athlete has had long term W-C-D invasion and has accumulated sitting stagnation, this will generate heat. This also disrupts the *qi* and Blood circulation in the channels causing accumulation, and progresses to stagnation in the channels around the affected joint. In TCM, this is referred to as Damp Heat. Heat presents with redness, feeling of heat around the joint and swelling.

Athletes are exposed to environmental changes that result in possible internal deficiencies. Another factor that pre-disposes athletes to this condition is their diet. Athletes, especially high school and college, tend to eat on the run; constantly eating fast foods. Foods that impair the

Spleen's function include consuming too much fatty, greasy food, sweets, and alcohol. This internally gives rise to Damp Heat accumulation over time and this accumulation moves downward into the lower extremities and blocks the channels; thus giving rise to ankle injuries and pain.

	Qi/Blood Stagnation	LV/K Deficiency	Wind, Cold, Damp Invasion	Damp Heat
Scenario	<p>Direct or indirect trauma, swelling bruising medially and/ or laterally, decreased ROM, weakness of joint, fixed pain worse at night, and/ or movement and/or pressure</p> <p>Acute - T= no change; P= tight or wiry</p> <p>Chronic - T = light purple; P= choppy.</p>	<p>Long term pain, decrease ROM circumduction, Dorsi/plantar flexion, worse with standing, morning joint stiffness, aversion to cold, fatigue, low back pain</p> <p>T = white, thin coating P = wiry and deep with forceless in K/qi position</p>	<p><i>Wind</i> Wandering pain, worse with windy conditions, aversion to Wind, decreased ROM, chills greater than fever T = greasy, thin coating P = superficial, forceful</p> <p><i>Cold</i> Sever pain, worse with cold, aversion to cold, cold extremities, decrease ROM, pain better with application of warmth T = white coating P = slow, tight</p> <p><i>Damp</i> Heavy sensation, painful, swelling, fixed location, decreases ROM, worse in rainy and damp weather changes T = greasy, white coating P = slow, soft, slippery</p>	<p><i>Acute</i> Local burning sensation, redness, swelling, pain, worse with touch, decreased ROM T = yellow, greasy coat P = slippery, rapid</p> <p><i>Chronic</i> Redness, swelling, pain, worse with touch, decreased ROM, aversion to cold, general body aches, headache, fever T = yellow, greasy coat, red body P = slippery, superficial</p>

<p>Acupuncture points</p>	<p>Ah Shi points - regulates circulation of Qi and Blood in channels  SP10 - disperses Blood stagnation.  LI4 - Source point, dispels Blood stagnation, promotes circulation of Qi in the channels  LV3 - Source point, dispels Blood stagnation, promotes circulation of Qi in the channels  GB34 - Sea point, harmonizes movement of affected joints and strengthens tendons  SP6 - crossing point of the Three Yin Channels of the Foot  UB17 - gathering point of the Blood. Sedating method all points</p>	<p>K3 - Source point, strengthens bones and tonifies K. Tonify method  LV3 - Source point, strengthens tendons and tonifies LV. Even method  GB34 - Gathering point for Marrow. Even method  GB39 - Gathering point for tendons and reinforces tendons and bones. Tonify method  ST36 - Sea point of ST channel, promotes production of Blood and tonifies  SP/ST. Tonify method SP6 - crossing point three yin channels of the foot, tonifies Blood and strengthens SP/LV and K. Even method</p>	<p><i>Wind</i> - Sedating method  LI4 - relieve external Wind and symptoms  SJ5 - relieve external Wind and symptoms  UB12 - relieve external Wind and symptoms  SP6 - crossing point LV/SP/K channels, eliminates wind by regulating Qi/Blood  SP10 - improves circulation of Blood and is able to eliminate Wind through increasing Blood circulation  Ah Shi - regulating local circulation of Qi/Blood  GB40 - regulating local circulation of Qi/Blood  GB41 - regulating local circulation of Qi/Blood.</p> <p><i>Cold</i>  LI4 - relieve external Wind and symptoms. Sedate *  SJ5 - relieve external Wind and symptoms. Sedate *  UB12 - relieve external Wind and symptoms. Sedate  SP6 - crossing point LV/SP/K channels, eliminates wind by regulating Qi/Blood. Sedate  ST36 - Sea point, dispels cold, warms channels, and tonifies Qi. Tonify *  UB60 - local point, regulate Qi/Blood circulation Sedate *  UB63 - local point, regulate Qi/Blood circulation Sedate  GB40 - local point, regulate Qi/Blood circulation. Sedate *  Ah Shi - local point, regulate Qi/Blood circulation. Sedate  <i>Moxibustion</i> *</p> <p><i>Damp</i>  SJ6 - resolve damp, eliminate wind, eliminate cold  SP6 - Crossing point three yin channels, eliminate damp, activate SP/ST  SP9 - Sea point, eliminate damp, activate SP/ST  ST40 - Connecting point, eliminate damp, activate SP/ST  GB40 - Source point, local point, regulate circulation Qi/ Blood, eliminate damp  UB63 - Accumulation point, local point, regulate circulation Qi/Blood, eliminate damp  UB64 - Source point, local point, regulate circulation Qi/ Blood, eliminate damp  Sedating method</p>	<p>ST44 - eliminate Damp Heat, reduce fever  GB41 - eliminate Damp Heat, reduce fever  SP6 - crossing point three yin channels of foot, clear heat, eliminate damp in channels  SP9 - Sea point, clear heat, eliminate damp in channels  GB34 - Sea point, clear heat, eliminate damp in channels  GB40 - clear heat, eliminate damp in channels  UB60 - eliminate damp, promote urination, dispels external pathogenic factors  SJ6 - promotes circulation Qi in channels, reduces eat, eliminates damp, dispels external pathogens</p>
---------------------------	---	---	---	--

Patent Formulas	Xiao Huo Luo Dan (Minor Invigorate the Collaterals) Jin Gu Die Shang Wan (Muscle and Bone Traumatic Injury Pill)	Du Huo Ji Sheng Tang (Du Huo and Loranthus)	Feng Shi Tang (Wind Damp)	Feng Shi Xiao Tong Pain (Wind Damp Dispel Pain Pill) San Miao Wan (Three Marvel Pill)
-----------------	---	--	------------------------------	--

## Conclusions

Lateral ankle sprains are extremely common within the sports medicine arena, yet treatments only using the Western protocol are inadequate in the prevention of recurrent sprains. Understanding and appreciating the pathomechanics, anatomy and mechanics of the ankle complex, one should integrate and appreciate another level within treating lateral ankle sprains, by using licensed acupuncturists and the concept of Oriental medicine within the treatment strategy. The clinical management should include not only the symptoms of both mechanical and functional instabilities, but also address the integration of TCM, emphasizing the prevention and reducing the risk of chronic lateral ankle sprains.

## References

1. Xinnong, Cheng, Chief Editor. Chinese Acupuncture and Moxibustion, Foreign Languages Press, Beijing: 1990.
2. Maciocoa, Giovanni, Foundations of Chinese Medicine. Churchill Livingstone, New York, 1989.
3. Wiseman, Nigel, Ellis, Andrew. Fundamentals of Chinese Medicine, Paradigm, Brookline, 1985.
4. Maciocia, Giovanni. Tongue Diagnosis In Chinese Medicine 3rd ed., Eastland Press, Chicago, 1991
5. Hall, S. Basic Biomechanics, Mosby, St. Louis, 1995.
6. Hertling, D., Kessler, R. M. Management of Common Musculoskeletal Disorders: Physical Therapy Principles and Methods, 2nd ed., JB Lippincott, Philadelphia, 1990.
7. Prentice, W. E. Rehabilitation Techniques in Sports Medicine, 3rd ed., WCB Saunders, 1999.

MAY 2012