Dynamic Chiropractic

SPORTS / EXERCISE / FITNESS

Sports Tuina and the Treatment for Foot Conditions Associated with Hyperpronation

Sports tuina is an ancient healing art and a hands-on technique implementing combinations of acupressure, acupoint identification, soft tissue massage and bonesetting techniques. In this literature review, modern Westernized diagnosis and its nomenclature is synthesized with Eastern oriental views of energy systems and treatment management.

Sports tuina prevents and treats disease by applying manual methods to remove obstructions in the meridian pathways (traditional Chinese healing philosophy) by promoting an increase of vital energy or life force (ch'i) and blood circulation; reducing slight displacement of joints and healing soft tissue injuries; adjusting the functions of the internal organs and nerve regulation; joint mobility; and cellular tissue flushing. The philosophy of tuina stems from direct experience. People who practice this art in depth are said to be in touch with the inner mechanisms of their bodies. Their beliefs are derived from subjective experiences, from an inner assurance of truth. The Chinese philosophy of Tao is grounded on awareness, rather than strictly based on logical theories and rational premises.

Abnormalities of the Foot

Biomechanical alterations of the foot may be present in combination with intense training, which creates excessive or unusual stress on various structures of the entire lower extremities. In running, for example, one of the most critical biomechanical factors is the amount and timing of inversion and eversion of the subtalar joint during a stride.

Since running biomechanics has been studied extensively, the following information is nothing new. During foot strike, the initial contact is made with the lateral aspect of the shoe and the foot is supinated and the tibia externally rotated. After foot strike, the foot is loaded, where pronation of the subtalar joint occurs (this being a maximal load approximately 40% of the support stance phase). This is followed by an obligatory internal rotation of the tibia and the femur at pronation of the subtalar joint. The femur and tibia externally rotate just after the swinging leg passes the stance, causing a return to supination of the subtalar joint and locking or stabilization of the transverse tarsal joint. Normally the foot must not remain pronated during heel rise, but an inversion of the heel must occur.

Pronation is a normal occurrence allowing adaptation to the running surface by unlocking the midtarsal joint and making the foot more flexible. Limitations of pronation are due to the shape of the subtalar joint and the ligamentous support and to a less degree the support of intrinsic and extrinsic muscles. Excessive or prolonged pronation may occur due to anatomic reasons: for example, pes planus (flat feet), pes cavus (high arch), weakness of the gastrocnemius-soleus musculature, or a compensatory leg length discrepancy. Plantar fascitis can be caused either by abnormal pronation or supination. In pes planus with excessive pronation, the plantar aponeurosis is subjected to repetitive stretch, resulting in fascial strain.

Biomechanical alterations also contribute to the development of stress fractures in particular. Gymnasts, for example, often develop stress fractures of the foot. Vaulters are particularly

susceptible to foot fractures due to repetitive approaches and take-offs from the vaulting board. Long jumpers and triple jumpers are also prone to stress foot fractures.

Anatomically, the foot with its numerous bones, tendons, nerves and arches is a complex area. Most instances of tendinitis and arch strain result from repetitious actions whereby muscular endurance was not efficient.

Management of Foot Injuries with Sports Tuina

Sports tuina applies manual methods, acupoint identification and acupressure and specific manual hand techniques by the practitioner. The sports tuina maneuvers are applied for one minute at each location, applying moderate to deep pressure, or pressure suitable to patient sensitivity to pain. The following procedures provide the student of tuina proper methods to manage foot problems:

- Ma (slipping): The doctor puts the palmar aspect of his/her thumb or thumbs closely on the surface of the skin and then slips back and forth, to the left and right or along the curved contours of the foot. A moderate and even force should be exerted during the treatment. Implement ma or slipping on the dorsum of the foot.

- An Rou (an = pressing; rou = stationary circular movement): Press acupoints or certain parts of the foot (arch or calcaneus, etc.) by thumb, palm, digital joint with gradual increasing force. The direction of the force should be perpendicular to the tissues pressed. The an (pressing) method can produce stronger stimulation, so it is often combined with the rou (stationary circular pressing). Press for a certain time to let the pressure go into deeper tissues; then make stationary circular movements. This method relieves pain in the joints and muscles.

An excellent method to reduce pain and swelling of the foot is an rou on the sole in the depression when the foot is in plantar flexion, approximately at the junction of the anterior third and posterior two thirds of the sole.

Rou is a gentle and slow stationary circular movement made on acupoints by the thumb or fingers or palm of the doctor's hand to press the subcutaneous tissues to move together. The frequency is about 120 to 160 times per minute. Rou is commonly applied to the foot to break up blood stasis and muscular spasms due to traumatic injury. The action of rou is to regulate the vital flow, remove stagnation, activate blood circulation, subside swelling and stop pain.

- Ba (traction). Traction of the toes or heel exerts a steady force that is continuous without a sudden violent force. The traction method in sports tuina treats disorders as adhesions, contractures of soft tissues as well as displacement of small joints.

Pain in the heel often happens among many athletes who often complain of the pain at the bottom of the heel while standing and walking. Some causes of heel pain are excessive jumping or running that injures the infra-calcaneal bursa, therefore causing inflammation.

Plantar fascitis is still another cause of heel pain. The plantar fascia is inserted at the tuberosity of the calcaneus, causing inflammation and eventual degeneration. Often a hard cord-like mass can be palpated.

The treatment plan has the patient in a prone position with the patient's knee on the affected side bent in 90 degrees and the sole facing upwards. The practitioner stands on the involved side and applies tui or pushing by the thumb in the direction from the heel to the toes along the plantar

fascia for a couple of times while fixing the patient's foot with the other hand. Next the practitioner applies rou or stationary circular pressing strongly (deep) on the tenderness around the tuberosity of the calcaneus for a couple of times. This is followed by ji or beating with the practitioner's fist on the bottom of the heel about five times.

An Rou for these Acupoints of the Foot

- K2: anterior and inferior to the medial malleolus in the depression on the lower border of the tuberosity of the navicular bone.

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- G41: in the depression distal to the junction of the fourth and fifth metatarsal bones on the lateral side of the tendon of extensor digiti minimi of the foot. Indicated for pain and swelling of the foot, spastic pain of the foot and toes.

- SP2: on the medial side of the big toe, distal and inferior to the first metatarsodigital joint at the junction of the red and white skin.

- B60: in the depression at the external malleolus and tendocalcaneus.

- K3: along the tendocalcaneus-superior medial malleolus.

References

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