

Treatment For Common Running/Walking Foot Injuries

Larry W. McDaniel, Dakota State University, USA
Calin Haar, Dakota State University, USA
Matt Ihlers, Dakota State University, USA
Allen Jackson, Chadron State College, USA
Laura Gaudet, Chadron State College, USA

ABSTRACT

Whether you are a weekend warrior or a serious athlete, most runners fear the possibility of being injured. For those who are physically active or stand on their feet all day, healthy feet are important. Highly conditioned runners spend many hours performing foot maintenance to prevent unnecessary injuries. Some of the common foot injuries are: Plantar Fasciitis, Metatarsal Stress Fractures, blisters, Metatarsalgia, Morton's Syndrome, Turf Toe, and Sesamoiditis. Most runners realize that shoes wear from the inside out. Runners should frequently check the inside of the shoe. Attention should focus on the pads of the insole, stitching, toe, heel, and instep areas. Properly lacing the shoe strings may save wear and tear on the shoes and feet. RICE (rest-ice-compression-elevation) treatments are a very important part of healthy foot maintenance and treatment; treatments should be done sooner rather than later. Many running problems may be prevented by focusing attention on your feet. Frequently inspect ones feet before and after running or walking. Foot pain is not normal when running or walking; seek medical assistance as soon as possible. If your goal is to enjoy running for a lifetime, it is sometimes more important to use your head than your feet. If you want to run tomorrow, take care of your feet today!

Keywords: Athletes, blisters, foot injuries, metatarsal stress fractures, Morton's syndrome, plantar fasciitis, runners, running shoes, Sesamoiditis, stress fractures, turf toe

INTRODUCTION

Whether you are a weekend warrior or a serious athlete, most runners fear the possibility of being injured. For those who are physically active or stand on their feet all day, healthy feet are important. Our legs and feet provide the primary mode of locomotion or participation in physical activities. Olympic conditioned runners spend many hours performing foot maintenance to prevent unnecessary injuries. Some of the common foot injuries are: Plantar Fasciitis, Metatarsal Stress Fractures, blisters, Metatarsalgia, Morton's Syndrome, Turf Toe, and Sesamoiditis. This paper will provide suggestions for how to properly care for common foot injuries.

PLANTAR FASCIITIS

Plantar Fasciitis (*Figure 1*) is characterized by pain in the inferior heel or origin of the arch ligament when weight is placed on the foot. This inhibits the runners' ability to flex the foot because the pain is too great for the individual (Cole, 2005). However, there are various methods to rehabilitate this injury. The most important issue for an individual's quick recovery would involve decreasing the amount of swelling and inflammation in the joint. This may be done by reducing exercise and resting the injured foot (Cosca, 2007). While runners reduce mileage, recovery may be expedited by placing the foot in ice or cold water. The individual may choose to use anti-inflammatory medication to assist in the reduction of swelling in the injured foot. Anti-inflammatory medication may assist in the process of preventing injuries to the other foot (Plantar Fasciitis Rehabilitation, 2008). Heel lifts should be used to prevent further damage to the foot.



Figure 1 (National Library of Medicine, 2006)

Since the runner developed Plantar Fasciitis in one foot, the other foot may be susceptible to the same injury. The injured person should stretch each foot by dorsi flexing (moving the foot towards the tibia and fibula) both feet at the same time. This process should be followed by alternating one foot at a time. Rehabilitation therapy includes plantar flexing both feet (heel raises) using a towel to assist in the process of stretching the Achilles tendon. To increase muscular strength and muscular endurance to the injured area swimming, running in the water, or using a stationary bike is recommended (Cole, 2005). The above recommended exercises increase muscular activity in both the foot and calf muscles.

METATARSAL STRESS FRACTURES

Metatarsal Stress Fractures (*Figure 2*) are caused by overuse of the foot. The treatment for these injuries reduces the amount of activity and pressure on the injured foot. Since this is a fracture of one of the metatarsal bones, walking or jogging will cause pain (Cohen 2007). In some cases crutches and wearing a protective boot will reduce pressure on the metatarsals. Biking is recommended to maintain strength and endurance in the lower body, because it places less pressure on the metatarsal bones and increased blood flow may expedite healing. The healing process usually takes from 3–12 weeks in order for the individual to fully recover.



Figure 2 (Value Brace, 2008)

BLISTERS

Blisters (*Figure 3*) are generated by constant friction against the skin, which causes a fluid filled pocket to form on the affected area. Blisters are the most common injury among runners, athletes, and others who exercise.

Blisters are caused by shoes that are not built just for ones feet, but are mass produced. Most people do not take the proper time to break in their shoes correctly (Mitnick, 2008). In early blister formation, pain relief may occur by removing the shoe to allow the area to cool down. The runner may cover the area to help reduce the friction on the foot. Second skin, tape, and other forms of bandages may be applied to help protect the blister from becoming worse (Mitnick). After a blister has formed, the runner should decide if it makes walking painful. If the blister does not inhibit walking, then the blister should be allowed to heal on its own. The runner may use a form of second skin to help prevent the blister from getting worse. If the blister has reached a point where it hurts while one is walking and doing daily activities, then it is recommended to puncture the blister and allow the excess fluid to drain (Mitnick, 2008). The runner should not remove the skin of the blister, because by doing so the blister may become infected.



Figure 3 (Relags, 2008)

METATARSALGIA

Metatarsalgia (Figure 4) is mainly caused by the shape of your foot. The reason that the shape of the foot causes Metatarsalgia is unclear, but researchers and therapists know how to reduce the incidences of Metatarsalgia. This is an easy injury to take care of as it is localized in the metatarsal joints that are inflamed and causing pain. Since this condition involves inflamed joints, the best advice would be to rest the foot, ice, and take pain medication that reduces inflammation (Cohen, 2007). Other treatments to prevent Metatarsalgia from occurring are to change running shoes and increase padding. Shoe inserts may also be used to relieve pressure on the metatarsals (Cohen, 2007). If discomfort in the foot still exists, it may be necessary to consult their local physical therapist for other options such as ultrasound, a form of deep heat, to help fight off the pain and inflammation.



Figure 4 (Try Care, 2008)

MORTON'S SYNDROME

Morton's Syndrome (Figure 5) is the inflammation of a nerve found between the third and fourth metatarsal which produces pain in the toes (Cosca 2007). This condition may cause the inability to move the toes. Treatment for this injury varies with the degree of severity. Surgery for Morton's Syndrome is a last resort

(Morton's Neuroma, 2008). Therapists are recommended to experiment with various forms of therapy and techniques to assist individuals in the process of recovering from Morton's syndrome. These techniques include having the patient change the type of shoe wear, purchase shoe inserts to increase the padding in the shoe, or the medical specialist may prescribe orthotics. Orthotics relieves the pressure on the inflamed nerve (Morton's Neuroma, 2008). Another form of therapy involves icing the foot and taking non-steroidal anti-inflammatory drugs. These chemicals decrease the swelling of the nerve in the foot.



Figure 5 (Google 2008)

TURF TOE

Turf toe (*Figure 6*) occurs when the great toe is severely hyper-extended. This is a sprain of the metatarsophalangeal joint. Therapy related to Turf Toe includes rest, ice on the injured foot, and the use of crutches to keep pressure off the foot (Edell, 2006). To maintain strength and increase circulation, in the injured area, many experts recommend the use of an exercise bike. If the individual's goal is to increase overall strength, he or she should perform exercises that do not involve pressure on the injured toe. This pressure will cause more damage to the toe. To relieve pain and allow the injured athlete to begin running, the toe may be strapped with tape to decrease flexion in the range movement of the injured toe (Edell, 2006).



Figure 6 (Edell 2008)

SESAMOIDITIS

Sesamoiditis is an inflammation of the Sesamoid bones and joints which are located near the great toe (Cosca 2007). The injured runner will have difficulty flexing or bending their great toe. In some cases if the injury is severe the Sesamoid bones may be fractured (Sesamoid Fracture, 2008). Surgery related to this type of injury is rare; however, in some cases surgery may be the primary method to expedite recovery. To reduce pain and inflammation in the great toe, it is important to rest the foot, take over-the-counter pain medication, and apply ice to the injured area. During recover it may be beneficial to wear low healed shoes that have extra padding (Sesamoid Fracture, 2008). Tape is often used to immobilize the Great Toe which decreases recovery time. Rest and ice may

be the most important therapeutic modality. Sesamoiditis injuries may have a huge impact on runners. Hopefully after reading this information, runners will be able recognize common runner's injuries and seek properly care before the injuries become to severe.



Figure 7 (Aertex World Wide, 2008)

SUMMARY

The purpose of this article was to share with others some of the ways common foot injuries may be treated. Most runners realize that shoes wear from the inside out. Runners should frequently check the inside of the shoe. Attention should focus on the pads of the insole, stitching, toe, heel, and instep areas. Properly lacing the shoe strings may save wear and tear on the shoes and the runner's feet. Runners should start lacing with the eyelets closest to the toe and individually lace each set of eyelets all the way up until the shoe strings are tied. RICE (rest-ice-compression-elevation) treatments are a very important part of healthy foot maintenance and treatment; treatments should be done sooner rather than later. Many running problems may be prevented by focusing attention to your feet. Frequently inspect ones feet before and after running or walking. Foot pain is not normal when running or walking; seek medical assistance as soon as possible. If your goal is to enjoy running for a lifetime, it is sometimes more important to use your head than your feet. If you want to run tomorrow, take care of your feet today!

AUTHOR INFORMATION

Larry W. McDaniel, Ed.D. is an Associate Professor of Exercise Science at Dakota State University Madison, SD. USA. Dr. McDaniel was a First Team All-American football player (USA Football), a Hall of Fame Athlete, and Hall of Fame Wrestling Coach.

Allen Jackson, M. Ed., is an Assistant Professor of Physical Education and Health at Chadron State College in Chadron, Nebraska (USA) who is well known for his presentations & publications at international conferences focusing on Leadership, Curriculum, and Health.

Dr. Laura Gaudet, Ph.D., is a Professor and Chair of the Department of Counseling, Psychology and Social Work at Chadron State College, Chadron NE. She is well known for her publications and presentations at international conferences focusing on various topics in the field of psychology.

Matt Ihlers & Calin Haar are outstanding student enrolled at Dakota State University. Their goal is to someday work as a physical therapist or athletic training.

REFERENCES

1. Aids for Metatarsalgia [Photograph found in Try Care]. (n.d.). Retrieved December 21, 2008, from <http://www.trycare.co.uk/chiroprpodists/techdata/mometpad.gif>
2. Aids for Morton's Syndrome [Photograph]. (n.d.). Retrieved December 21, 2008, from <http://www.sdri.net/shop/images/met%20pad%202.jpg>
3. Cohen, J. (2007, September 6). Metatarsalgia - Causes, Symptoms, and Treatment Methods. *ArticleBASE Technologies, LLC*. Retrieved December 21, 2008, from <http://www.articlebase.com>
4. Cole, C., Seto, C., & Gazewood, J. (2005). Plantar Fasciitis: Evidence-Based Review of Diagnosis and Therapy. *American Family Physician*, 72(11), 2237-2243. Retrieved December 21, 2008, from Proquest.
5. Cosca, D. (2007). Common Problems in Endurance Athletes. *American Family Physician*, 76(2), 237-246. Retrieved December 21, 2008, from www.aafp.org/afp
6. Edell, D. (2006, April 6). Turf - Toe. *The Athletic Advisor*. Retrieved December 21, 2008, from <http://www.athleticadvisor.com>
7. Edell, D. (2006, June 4). *Turf - Toe Taping* [Photograph]. *Athletic Advisor*. Retrieved December 21, 2008, from http://www.athleticadvisor.com/Injuries/LE/Foot&Ankle/turf-toe_taping.htm
8. Foot Boot [Photograph found in Value Brace]. (n.d.). Retrieved December 21, 2008, from <http://www.kneebracedirect.com/ProductImages/medtherapieslowtopwalker%5B1%5D.jpg>
9. Metatarsal Stress Fracture. (2005, November). *Merck & Co., Inc.* Retrieved December 21, 2008, from <http://www.merck.com>
10. Mitnick, M. (n.d.). How to Treat a Foot Blister. *WikiHow - The How-to Manual That You Can Edit*. Retrieved December 21, 2008, from <http://www.wikihow.com/>
11. Morton's Neuroma. (2008). *Healthy Feet for an Active Life - FootPhysicians.com*. Retrieved December 23, 2008, from <http://www.footphysicians.com>
12. Plantar Fasciitis [Photograph found in U.S. National Library of Medicine, Bethesda, MD]. (2006, September 21). Retrieved December 21, 2008, from <http://www.nlm.nih.gov/medlineplus/ency/images/ency/fullsize/19568.jpg>
13. Plantar Fasciitis Rehabilitation. (2008). *UPMC Sports Medicine, UPMC | University of Pittsburgh Medical Center, Pittsburgh, PA USA*. Retrieved December 21, 2008, from <http://sportsmedicine.upmc.com>
14. *Relief to Sesamoiditis* [Photograph found in Aetrex Worldwide, Inc.]. (n.d.). Retrieved December 21, 2008, from <http://www.foot.com/images/template/reliefProducts.gif>
15. *Second Skin* [Photograph found in Relags]. (n.d.). Retrieved December 21, 2008, from http://www.relags.com/IMG/PRODUKTBILDER/400/210600_1.jpg
16. Sesamoid Fracture and Sesamoiditis. (2008). *iHealthSpot*. Retrieved December 21, 2008, from <http://www.iHealthSpot.com>