

Figuring Out Foot Pain

By Patrick Desrosiers, PT

Composed of 26 bones, 33 joints, and over one hundred ligaments, tendons, and muscles, the foot (and the adjacent ankle joint) is an incredibly complex, dynamic, and very important structure.

Due to the anatomical complexity of the foot, and the physical abuse they endure from holding up your body weight on a daily basis, there are numerous causes for foot pain.

For those of us who do not have foot or ankle pain, we don't think much about our feet once we put on our shoes. This often neglected area of our body actually accounts for one of the most commonly injured body parts in the United States (*ankle sprains alone account for 23,000 injuries per day!*²) Unfortunately, as we age, it is neglect which make our feet an area prone to pain and injury.

An incredible amount of force, whether generated internally by your own muscles, or externally, as in walking, running or landing from a jump, is translated through your feet. If any portion of your foot is not functioning properly, it may result in an uneven distribution of force which leads to tissue stress and pain. Anatomically, people are not all built the same, and as a result, many have pre-dispositions for certain diseases and disorders of the foot. Whether it is anatomical or genetic, not all feet are able to function in an ideal way to allow maximum performance. When

our bodies are young and resilient, most of us get away with doing whatever activity we want without feeling the effects of poor foot function. It seems that only when we become older do we finally realize the importance of taking care of our feet.

A very common source of pain in many is hyper-pronation of the subtalar joint of the foot, often termed a "fallen arch" or "flat foot." Pronation is a shock-absorption motion of the foot which is necessary for proper gait. However, when too much pronation occurs, certain structures of the foot are stressed and pain may result. (see *photo: normal on left; Hyper-pronation on right*)



Hyper-pronation may contribute to painful disorders of the foot including: plantar fasciitis, formation of a bunion, medial ankle sprain, shin-splints, or achilles tendonitis.

How does one avoid foot and ankle pain and injury? The underlying factor in avoiding many ankle and foot injuries is to allow and restore proper mechanics of the foot and ankle in order to reduce abnormal stress.

ONE

The first step is proper exercise of the foot and ankle including strengthening, stretching, and endurance exercise for the specific muscles of the foot and ankle. A biomechanical assessment of your feet by a physical therapist can provide you with an



individualized exercise program which can reduce and help prevent injuries.

TWO

A second, equally important step in establishing proper mechanics of the foot and ankle, is wearing appropriate shoes for the activities you choose to do. Shoes, although typically marketed as fashion statements, serve the purpose of producing a proper environment for our feet to function during any specific activity. Non-supportive and poorly designed shoes allow for an increase in abnormal foot and ankle mechanics which may lead to further pain and/or injury. Shoes such as high-heels or flip-flops may not be a good choice for people with abnormal foot mechanics, as the stresses applied on the feet will be magnified and lead to tissue breakdown and potential pain. Correcting improper foot mechanics using proper footwear is essential for maintaining the longevity of our feet.

THREE

The third step in allowing proper foot function is orthotic intervention. There is a wide variety of foot orthotics available to the consumer, including over-the-counter arch supports and shoe inserts. These products may be beneficial to many people, but what works for one, may not work for another. Ideally, foot orthotics should be custom fit for the structure and function of individual feet and with consideration of the patient's specific demands on their feet. *(For example – the*

foot orthotic designed for a soccer player with plantar fasciitis pain may be very different from an orthotic designed for a long-distance runner with bunion pain.)

Whatever your pain, injury or foot biomechanics, there are numerous healthcare practitioners available who are experts in the treatment of the foot. Physical therapists, orthopedists, podiatrists, and orthotists are trained in the biomechanical analysis of the foot and can diagnosis your problem, create an exercise plan, or create a custom pair of orthotics to help with your foot pain. Feel free to call our staff for your next foot evaluation.

1. Moore, K. 2005. Clinically Oriented Anatomy. (5th Edition). Lippincott Williams & Wilkins
2. Kannus P, Renstrom P. Treatment for acute tears of the lateral ligaments of the ankle: operation, cast, or early controlled mobilization. J Bone Joint Surg Am. 1991;73(2):305-312.

