Being a prospective candidate for a surgical procedure is seldom a comforting proposition. Even if the target area is one of our feet, concerns about costs, complications, and recovery are serious considerations. In fact, many patients search for a less-intrusive alternative, or simply choose to live with the discomfort caused by the condition for as long as possible.

Happily, in the case of several common foot complaints, non-surgical options exist which may effectively reduce the symptoms of discomfort and acute or chronic pain, as well as targeting the causes of the complaint. Custom-made orthotic support is one option, as we shall see in the examples below.

**Interdigital Neuroma**

In cases where a patient evaluation shows symptoms of pain in the forefoot there is a considerable likelihood that the source is a neuroma located in the interdigital area. Treatment of a neuroma through the combination of chiropractic care and proper pedal support can prove to be a successful alternative to more invasive methods of treatment.

*Description.* A neuroma is a benign overgrowth of a nerve. In the case of the interdigital (Morton’s) neuroma this overgrowth develops in the space between the metatarsal bones of the foot. This growth of nerve cells is in the established interdigital nerve where it branches into contiguous aspects of the digits, usually between the third and the fourth toe. As this area becomes irritated, the nerve responds by thickening itself with a protective encasement. The result of this process is that the relative space in the metatarsal head/transverse metatarsal ligament region is smaller in the web spaces, supporting the notion that mechanical factors contribute to the formation of interdigital neuroma. As the enlargement grows, it
will experience transmission interference as the sheathed nerve makes contact with and becomes locked between the two metatarsal heads.

**Discussion.** The primary cause of interdigital neuroma development is found in the area of the transverse or metatarsal arch, best described as a biomechanical dysfunction of the forefoot — specifically, excessive rotational and transverse movements of the metatarsals. The result is a reduced spacing between the metatarsal heads, increasing the likelihood of the interdigital nerve irritation that causes the neuroma to develop.

Symptoms of Morton’s neuroma can manifest in both acute and chronic cases. In more acute cases, patients may report numbing, burning, and shooting pain that courses between the metatarsals into the digits. In more chronic cases, the patient may report dull discomfort under the foot which progresses to an intermittent, cramping pain which can be aggravated by extended standing and walking.

One test for an interdigital neuroma is called the Morton’s Test. While this test is not specific indicator of neuroma, the test does demonstrate the need for proper foot support against metatarsal and other biomechanical stress. The test involves squeezing the metatarsal heads with transverse pressure, which will often cause a sharp pain in the forefoot. Further examination of the foot and toes will find variable sensory changes to pinprick and light touch testing, and passive extension of the metatarsophalangeal joints may increase the pain or recreate the numbness/burning in the toes. Evaluation of the patient’s feet while standing and walking to evaluate the extent of arch collapse is also a very effective method.

**Non-invasive care.** Interdigital neuroma can be effectively addressed through the combination of proper footwear and proper support of the metatarsal heads. Shoes that are too tight in the forefoot can contribute to transverse compression of the metatarsal area. Appropriate footwear should thus be wide in the toe box and have adequate cushioning with heels no higher than one inch in height.

Custom-made, stabilizing orthotics can be particularly effective at providing the needed metatarsal support to address the cause of the neuroma. Such orthotics will address the metatarsal arch as well as both the lateral and medial longitudinal arches. The metatarsal arch will elevate and separate the metatarsal heads, thereby preventing compression and irritation of the digital nerve. Proper arch elevation and support will also reduce the rotational and transverse movements of the metatarsal heads.

**Heel Spurs**

**Description.** When referring to the formation of heel spurs, it is important to note the reasons why a heel spur develops. Along the plantar surface of the foot lies the plantar aponeurosis or plantar fascia, a dense connective tissue that arises from the medial tuberosity of the calcaneus and flares outward as it extends distally to the five metatarsal heads. This tissue can become stretched or elongated by injury or developmental formation. The loss of the proper plantar fascial support for the bones of the medial arch can result in hyperpronation. With excessive pronation, there is an increase of tensile stress at the insertion of plantar aponeurosis, and over time, a calcaneal outcropping of bone or spur may develop.

**Discussion.** No universal link has yet been established between the spur formation and acute pain. Spurs occur in 50 to 75% of heels afflicted with painful plantar fasciitis; however, they have also been found in 63% of asymptomatic heels. There is increasing agreement that heel spurs are not the symptomatic source of heel pain, as studies have pointed out that over 50% of patients who had heel spurs surgically removed continued to have pain afterward. Addressing a heel spur through surgical means will, at best, treat the symptoms of the acute pain, but may not be addressing the originating source of pain and inflammation.

**Non-invasive care.** Initial treatment of a plantar fasciitis/heel spur combination begins with adjustments to the symptomatic foot to reduce acute pain. These adjustments, however, will only temporarily address the symptoms, not the underlying cause of ligamentous support loss. Figure-eight taping to support the medial arch will provide short-term relief of the affected area by reducing tensile stress on the plantar fascia. Taping will also demonstrate the effectiveness of proper orthotic support as a long-term solution for the patient.

Custom-made, stabilizing orthotics can successfully address plantar fasciitis as well as symptomatic heel spurs. Orthotics can provide long-term relief by reducing abnormal stress on the plantar fascia. By providing custom support to the arches of the patient’s feet, the long-term tensile forces against the plantar fascia can be effectively reduced. An additional result of proper orthotic support is a “tucking” effect that can reduce overall pressure on a potentially symptomatic heel spur. A heel spur feature can be added to prevent any upward pressure directly on the inflamed tissues. Campbell and Inmann reported a 94% success rate (reducing pain in patients with chronic plantar fascitis) by fitting their 33 patients with orthotics.
Orthotics

Surgery Not Always Required

Proper foot and arch support through custom-made orthotic support is often an effective and reliable option to surgery or other invasive procedures. Appropriate footwear and proper sizing are also crucial to both alleviating the sources of foot pain and providing a stable foot platform for the orthotic supports. By utilizing orthotics to focus on both the root cause as well as the symptoms of the complaint, patient satisfaction can be consistently provided.

References

About the Author
Dr. Brian Jensen, a graduate of the University of Nebraska and Palmer College of Chiropractic, practiced in Nebraska for 17 years. He speaks on a wide variety of topics, including orthotic therapy, structurally based chiropractic care, breaking free of the medical model of health care, and innovations in nutrition. Dr. Jensen is currently the Assistant Director of Professional Education at Foot Levelers, Inc.

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