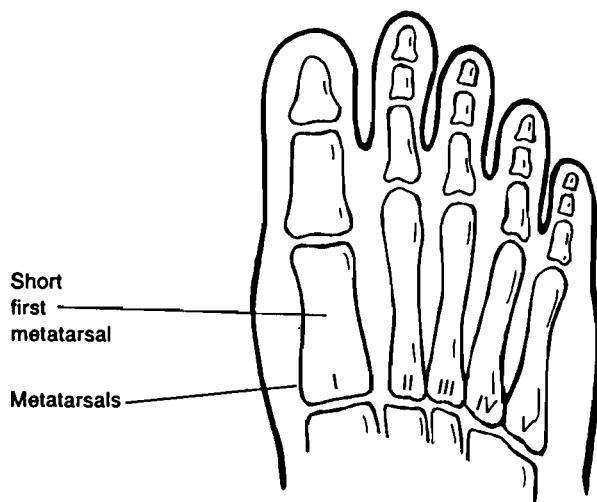


## **Morton's Syndrome and Morton's Neuroma: Two Different, but Often Confused, Problems**

There are many reasons for the development of forefoot pain in athletes. Morton's syndrome and Morton's neuroma are frequently mistaken as being the same condition.

### **Morton's Syndrome**

In 1935 Dr. D.J. Morton initially described a heredity-related syndrome that involved a shortened first metatarsal, a posterior displacement of the sesamoids (two small bones located under the first metatarsal head), and hypertrophy of the second metatarsal (Figure 4.3). The external appearance of this foot type includes a first toe that is abnormally short when compared to the second toe. It may present plantar calluses under the second and possibly the third metatarsal heads and a mild to moderate bunion deformity of the big toe joint.



**Figure 4.3** Morton's syndrome has a short first metatarsal.

Pain in the forefoot is the most frequent complaint; however, a burning sensation is usually reported after activity, due to the

abnormal, excessive weight-bearing stress placed under the lesser metatarsal heads. The shortened first metatarsal is not able to provide the support that is required for normal function. Arch fatigue and discomfort throughout the foot are common complaints, because excessive pronation almost always accompanies this problem.

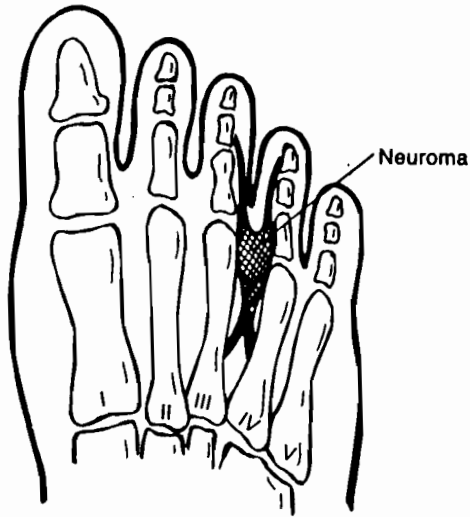
### **Treatment of Morton's Syndrome**

Treatment of Morton's syndrome depends on the severity and progression of the deformities and symptoms. Early detection in children can be treated with prescription foot orthoses, which significantly help prevent the associated degenerative changes from occurring. In adults, orthoses allow for better function and less discomfort, but do nothing to help correct imbalances.

For the athlete who still relates painful foot problems after receiving orthoses, surgery can help return the foot to a more normal weight-bearing alignment. A great deal of surgical expertise, with careful preoperative clinical and x-ray evaluation as well as postoperative orthoses, is essential. The athlete can expect a minimum recovery period of 6 to 8 weeks before returning to exercise. In most cases, swimming and cycling can be resumed earlier, in 3 to 4 weeks.

### **Morton's Neuroma**

Morton's neuroma (neuralgia) was first described by T.G. Morton in 1876. It presents as a benign nerve tumor that produces an assortment of painful symptoms involving the third intermetatarsal space and the adjacent third and fourth toes (Figure 4.4). Patients have described tingling, numbness, cramping, burning, and even an electrical-like shooting sensation to the end of these toes. Neuromas are less frequently found in other intermeta-



**Figure 4.4** Morton's neuroma has a thickening of the nerve between the metatarsals.

tarsal spaces, the outer side of the first metatarsalphalangeal joint, and the inside portion of the heel. Women are affected more often than men, possibly due to tighter fitting and higher heeled shoes. A neuroma can develop anywhere that a normal nerve is subjected to constant trauma. The third intermetatarsal space is the most common location for this lesion, because two nerve branches combine to form a nerve larger than usual between the third and fourth metatarsal heads. Over an extended period of abuse, this nerve enlarges and can become entrapped in the surrounding scar and inflamed tissue.

### **Treatment of Morton's Neuroma**

The most important concept in treating a neuroma is to begin as soon as any symptoms are observed. Early attention may allow the nerve to return to normal function and prevent permanent damage.

Initial treatment includes the disposal of all foot gear that is symptomatic (both athletic and street shoes). The appearance of neuromas has lessened over the past 20 years, due to the attention given to better fitting shoes. Running and other sports shoes have become quite specialized to accommodate many different types of feet; however, athletes are still plagued with painful neuromas. A shoe that

seems to fit well in the store may be injurious during activity. The human foot absorbs an enormous amount of stress and undergoes certain changes that must be allowed by the shoe. As the foot pronates and the arch lowers, the overall length of the foot increases, and it moves forward in the shoe. The foot also slightly enlarges with increasing intensity of activity, lateness in the day, and increasing temperature and humidity. All of these factors can produce a poor-fitting shoe that compresses the metatarsal heads together, traumatizing the nerve. It is recommended that there should be at least  $\frac{1}{2}$  to  $\frac{3}{4}$  of an inch of additional room between the tip of the longest toe and the end of the shoe for the athlete bothered by neuroma. This space may vary, depending on the nature of the involved sport.

Other treatments to reduce neuroma discomfort have to do with altering the biomechanics of the foot. Prescription foot orthoses are helpful, due to their controlling excessive pronation. Also, the placement of a felt pad between the third and fourth metatarsal heads is helpful. Other shoe modifications include skipping the lower eyelets when lacing the shoe and even removing the sock liner to provide additional room.

Local injections of cortisone mixed with an anesthetic, such as Xylocaine®, may reduce inflammation and pain if there has not been any permanent damage to the nerve. In cases that are unresponsive after two or three injections, surgical removal is indicated. This can be done in a properly equipped office under local anesthesia, or in a hospital. The excision of the damaged portion of the nerve produces only minimal loss of sensation between the third and fourth toes, without any decrease in muscle strength or function. Patients are ambulatory the same day, but 5 to 6 weeks of healing are required before attempting to return to full activity. However, swimming and cycling can be started in 3 weeks.

### **Conclusion**

There has been confusion in the past in regard to these two problems that cause forefoot pain. They are two different problems, described by two different persons with the same last name. Dr. D.J. Morton's syndrome is a heredity con-

dition that results in a short first metatarsal and an apparently long second toe. Dr. T.G. Morton's neuroma is of functional and traumatic origin, causing nerve inflammation and

pain, usually in the third and fourth toes. Still, either condition adversely affects an athlete, but early and appropriate treatment usually provides complete relief of symptoms.