

Bunions and Hallux Limitus

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Not many of us sit around pondering the power, strength and importance of our big toe, unless of course, you are one of the few that have an injury to this area. One of the injuries common to this area for runners, is a condition known as hallux limitus. Hallux limitus is a condition where there is a limitation in the range of motion of the big toe. These motions are plantar flexion, pointing downward, and dorsiflexion, which is bringing the toes upward.

Hallux limitus is a condition that can be extremely painful or can present itself with no pain whatsoever. Even in a pain-free state, an injury to the big toe is something to be concerned about, as it can create compensation in other areas of the body.

Hallux limitus can result from a variety of mechanisms. Certainly trauma can cause an injury such as this. It doesn't take a line drive to the toe to cause hallux limitus in most runners. Over pronation, speed-work, running steep hills, sharp turns and more commonly, wearing a shoe that is too short are the typical means which runners develop such a condition.

Running steep hills can cause a hyperextension injury of the first metatarsal phalangeal joint especially with shoes that have a very flexible forefoot. Sharp turns and Overpronation cause an increase in weight bearing upon the first metatarsal and the big toe. It also creates a rotated position of the joint and forces the joint into extension in a diagonal direction across the joint. In other words, the big toe is forced to extend in a direction that it is not meant to go. The person wearing the slightly short shoe may not even realize there is a problem. With each successive step, the foot expands with the loading of the body's weight lowering the longitudinal arch. This lengthens the foot knocking the end of the big toe into the toe box of the shoe.

All causes create repetitive compression upon the metatarsal phalangeal joint causing capsular inflammation and early breakdown of the cartilage protecting the ends of the two bones. Without treatment the degenerative process continues by forming cartilaginous spurs. With progression these cartilage structures calcify into bony spurs, (figure 1). The end-stage of this disorder is a condition known as hallux rigidus, where the joint virtually fuses and no motion is left within the joint.

Much of the difficulty with hallux limitus is not the injury to the metatarsal phalangeal joint, but the compensation that takes place elsewhere in the body. Because of the lack of dorsiflexion of the big toe, the body has difficulty carrying itself over the foot upon toe-off. Therefore, to allow the body to carry over the big toe, the foot will toe out excessively to avoid forceful dorsiflexion of the hallux (figure 2).

The most common result of toe out is over-pronation. Over-pronation in itself can cause hallux limitus and will certainly worsen it. Therefore, you have a negative feedback loop of hallux limitus creating pronation and pronation further deterioration the hallux limitus. Furthermore, as over-pronation worsens, it can cause injuries in a wide variety of regions. The most common regions being the knee, the medial tibia, the iliotibial band and in some cases, the achilles.

Hallux limitus can usually be treated conservatively with self-mobilization, pronation controlled shoes and in some cases orthotics and manipulation and physiotherapy.

The first noticeable change with hallux limitus is loss of ability to dorsiflex. Normal range is approximately 65 degrees or more, (figure 2). If you notice limitations or pain in the big toe joint with dorsiflexion or running. Take heed and treat this problem properly. Don't be a Dizzy Dean and allow a little p