

Owner's Manual: Big Toe. Big Deal!
sports medicine

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Have you ever wondered why a football player can't play in a game because of a turf toe injury? If you have ever had a problem with your big toe you can sympathize, but everyone else questions the toughness of the player. During forward motion, the first toe carries twice the load of the lesser toes. The maximum force across the joint is 40 – 60 percent of the body weight. During running, the forces can be increased by two to three times. During the stance and propulsion phase of the stride, the big toe is rapidly flexing upward under great stress. Any factor that affects this motion will alter the gait.

While the footballer's turf toe (sprain) is an uncommon running injury, several other toe problems do often affect runners.

Sesamoids

Two small bones under the ball (head) of the first metatarsal are known as the sesamoids. These bones are in the flexor tendon to the big toe and act as fulcrums for flexing the toe; they are weight bearing structures. Runners may experience several sesamoid problems.

Inflammation of one or both sesamoids is known as sesamoiditis; increasing mileage, doing speed work and hill repeats, and poor footwear may all contribute to this problem. The affected sesamoid will be very tender to touch and pain may occur when the big toe is flexed upward. Swelling may be present under the first joint. Treatment includes application of ice to the area, anti-inflammatory medications and protective padding (dancer's pad) that is cut out at the tender area, eliminating pressure on the sesamoids. If this relieves pain, easy running may continue. Sesamoiditis usually resolves in two to four weeks. If there is pain with pushing off, cross training should be performed to avoid an abnormal gait and the myriad of injuries that it may cause. On occasion, immobilization may be necessary to eliminate sesamoiditis.

Sesamoid pain may be due to a stress fracture of one of the bones. A bone scan is often needed to diagnose this injury. It is not uncommon for one of the sesamoids to naturally be in two pieces (bipartite); this does not cause pain, but may create a diagnostic challenge if a sesamoid fracture is suspected. Treatment is similar to sesamoiditis, though impact activities should be minimized. The sesamoids have a poor blood supply, so stress fractures may take several months or longer to heal. On occasion, there is persistent pain; as a last resort, the affected sesamoid may be surgically excised.

Bunions

A bunion is a lump on the inside of the first toe joint due to an abnormal alignment of the joint. The first metatarsal points inward and the big toe points toward the other toes. In addition to the bony deformity, the soft tissues over the lump may swell, making the lump larger. As the big toe moves outward, it places pressure on the other toes, and in severe cases may move under the second toe.

Running does not cause bunions, but a bunion may create problems for a runner. Bunions are not always painful and symptoms are often controlled by wearing a shoe with a wide enough toe box to accommodate the deformity. A spacer between the first and second toes may be helpful; a bunion pad worn directly over the bump may reduce pain. An orthotic may provide relief of symptoms due to the change in the alignment of the joint. Appropriately fitted shoes should be worn at all times, not just while running. If pain becomes severe enough to restrict activities, surgery may be necessary. Typically limited cross training may be started several weeks following surgery; running may be started two to three months following the surgery, depending on the procedure performed and the course of recovery.

Hallux Limitus

Hallux limitus is restricted motion of the first toe joint. This is usually due to arthritis from previous trauma (turf toe, etc.) or a condition such as gout; a bone spur may be present on the top of the joint. Pain occurs with activities that require significant upward flexion of the big toe. Initially, ice, anti-inflammatory medications and a shoe insert with a stiff portion at the first joint may be beneficial in controlling symptoms. Working on range of motion of the joint may help preserve motion for a while. Surgery to remove the spur on the top of the joint may result in improvement in motion. As the arthritis progresses over time, hallux rigidus develops. The same treatment measures should continue. Running becomes difficult due to an abnormal toe-off. A cortisone injection in the joint may help decrease the pain temporarily. A stiff orthotic may allow continued running. If the pain becomes too severe, surgery may be necessary.

Gout

Gout is a metabolic condition in which uric acid crystals accumulate in a joint due to overproduction or undersecretion of uric acid. An attack is often associated with consumption of a rich, fatty meal and alcohol. The first toe joint is the most commonly affected joint. Over the course of several hours, the joint will become red, swollen and exquisitely tender. Aspiration of fluid from the joint will reveal uric acid crystals, confirming the diagnosis and ruling out an infection, which is similar in appearance. Anti-inflammatory medications are used to treat an acute episode of gout. Symptoms should improve over several days. Recurrent episodes of gout may cause significant damage to a joint and require the use of chronic medications.

In sum, the big toe is a very big deal. This relatively small joint allows us to run freely. It handles a great deal of stress with ease until a problem develops; then it can become a debilitating problem. Make sure that your shoes fit well and keep them in good repair to lower your risk for big toe problems.

