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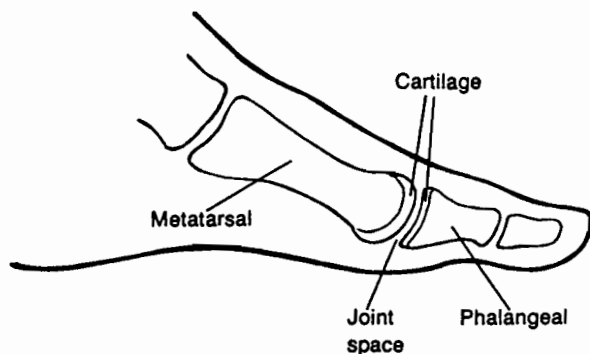
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# Stiff Toe (*Hallux Rigidus*; *Hallux Limitus*)

Hallux rigidus and hallux limitus are conditions in which motion in the first toe is gradually lost, usually due to arthritic changes. This loss of motion occurs at the joint formed by the first metatarsal of the foot and the phalangeal bone of the first toe. This joint is called the metatarsal phalangeal joint (Figure 4.12). The terms *hallux rigidus* and *hallux limitus* are derived from "hallux," which refers to the first toe; "limitus," having a limited motion in the joint; and "rigidus," meaning rigid or motionless.

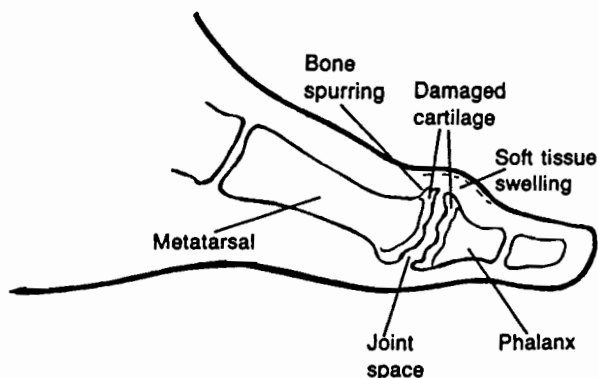


**Figure 4.12** Normal first metatarsal phalangeal joint.

Loss of motion begins to occur usually after an injury. This may be either a sudden, severe injury—such as dropping a heavy object on the toe—or it may be due to repeated, minor injuries—such as catching the toe in the grass while playing soccer. Generally the problem starts with hallux limitus and progresses to hallux rigidus.

The initial injury causes damage to the articular cartilage lining the joint as well as a resultant inflammatory change. The articular cartilage is the smooth lining of the joint, which allows the joint to glide smoothly and freely. When the cartilage is damaged by an injury or becomes rough due to chronic inflammation, motion is gradually lost and hallux limitus results. If the damage continues, with inflammation and swelling within the

joint, this causes a pulling on the bone by the capsule that surrounds the joint; the body responds by forming new bone. This new bone forms a lipping or spurring around the joint, which impinges on free motion of the joint and results in hallux rigidus (Figure 4.13).



**Figure 4.13** Abnormal changes in first metatarsal phalangeal joint that result in a stiff toe (hallux limitus or hallux rigidus).

During the development of hallux limitus or rigidus, there are all the signs of inflammation within the joint, including pain, redness, and swelling—as well as the gradual loss of motion. These signs, even if they appear to be minor, should not be ignored, because this problem tends to become progressively worse.

Early treatment for hallux limitus or rigidus begins by trying to identify any factors that are irritating the joint. If it is an improperly fitted shoe, a shoe change is necessary. If a certain sport seems to be the primary cause, it may be best to consider an alternative sport. Frequently, a hallux limitus indicates that there may be a biomechanical imbalance within the foot or lower extremity. Therefore, when this problem occurs, an early evaluation by a podiatrist may be indicated. If there is a biomechanical problem, it may be controlled by an orthotic device; this may stop the progression of the hallux limitus.

If the hallux limitus was caused by a sudden injury, there may be a small bone fragment in

the joint from a small fracture, or a piece of the cartilage may have broken off and it may be floating in the joint. Either of these conditions causes a chronic inflammation in the joint and increasing bony proliferation around the joint, with a decreasing range of motion. An x-ray usually identifies these problems. When they occur, surgery is generally necessary to remove the fragment, or there will be continued damage to the joint.

Occasionally, due to work or other commitments, it is not possible for the athlete to have surgery on this joint initially. If the joint is

painful after activity, it should first be treated with rest, ice, compression, and elevation. A shoe modification or orthotic device should be fabricated. Physical therapy helps resolve the symptoms; when temporary relief is needed, cortisone injections can be considered. Cortisone should not be used to treat this problem repeatedly, because it increases the potential for more damage to the joint.

A hallux limitus or rigidus can cause limitation of activity in an athlete. The damage that can occur to the joint can be limited by early recognition and treatment of this condition.