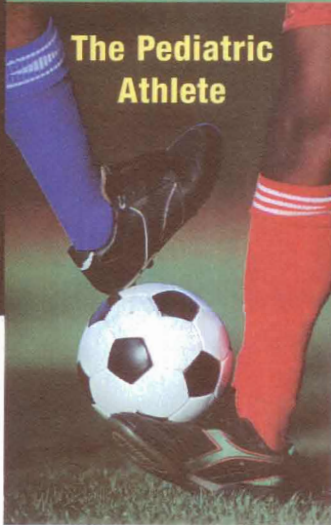


Managing and Treating Turf Toe Injuries

Hallux problems that are common among professional and collegiate athletes also afflict youths who play football, soccer, lacrosse and other sports. A podiatrist specializing in sports medicine outlines a treatment plan.

SPECIAL FOCUS:

The Pediatric Athlete



As podiatrists, we often are called upon to treat acute sports injuries of the foot, ankle and leg in young athletes. And because “the foot bone’s connected to the leg bone,” our successful treatment of foot-related problems also spares them from future knee and hip problems.

Turf toe injury, one of the most prevalent types of problems among athletes, is a capsular or ligamentous sprain of the metatarsophalangeal joint (MPJ). Unfortunately, the name “turf toe” has become a “garbage can” term for any great-toe pain.

Turf toe tops the list of injuries football players most often encounter, followed by shin splints and ankle sprains. And while the problem is common to older professional athletes who play on artificial turf—hence the name—it can affect younger people and can occur on natural surfaces as well.

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BY RICHARD T. BRAVER, DPM, FACFAS

Many turf toe injuries can be promptly treated in the podiatrist’s office. As the team podiatrist for local college football teams who play on artificial playing surfaces, I have treated a multitude of hallux injuries, and have been able to get countless athletes back in the lineup as a result.

Let’s look at the common causes of sports-related turf toe injuries and discuss possible courses of treatment based on their severity.

Etiology of turf toe injuries

Unlike the grassy field that gets slippery at the hint of moisture, an artificial turf field has a high coefficient of friction and does not liberally allow for sliding.

In fact, in any athletic event, be it football, soccer, lacrosse or field hockey, injuries might occur when the athlete attempts to stop, pivot or make a sharp turn.

It is then, while the foot is firmly planted on the playing surface, that either the body’s momentum or contact from another athlete forces the body forward upon the fixed foot. This causes a hyperdorsiflexion injury, jamming the cartilage at the dorsal aspect of the first MPJ. Often an osteochondral injury may include a fleck of cartilage being shorn from the bone.

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TABLE 1**Turf Toe Injuries:
Treatment Protocols**

Depending on the problem's severity, podiatrists can employ the following treatments to manage turf toe injuries:

- Place a steel-spring inlay within the football shoe to limit end range of first MPJ motion.
- Perform a spica taping, utilizing tape around the first MPJ to limit motion. In addition, a sesamoid pad (first metatarsal head cutout) may be applied directly to the foot in order to keep weight off this area.
- Include a first metatarsal head cutout within a full-length orthotic device for those with sesamoid or plantar first MPJ pain.
- Switch the player into a stiffer shoe or cleat to further prevent excessive motion of the painful joint.
- Consider corticosteroid injection and/or NSAIDs if pain or inflammation is significant.
- Therapeutic modalities including contrast baths, pneumatic compression sleeve therapy, electrical stimulation or ultrasound are also useful for reducing pain or to accelerate healing.

Plantarly, the ligaments, joint capsules and flexor tendons under the first MPJ are significantly stretched. A possible fracture or diastasis injury of the sesamoid bone(s) may also occur. Furthermore, if the foot engages in any rotary motion while the injury is occurring, additional soft tissues or bony structures may be damaged.

Because the phrase "hallux turf toe" has been associated with great-toe joint pain, the term also has been used to indicate a first MPJ hyperplantarflexion injury. For example, a football player gets tackled or hit from behind as he is running downfield. As he falls forward, the ankle and/or great toe flexes downward and gets caught on the carpet, and the leg keeps going forward until the athlete falls, causing the hyperplantarflexion injury. Avulsion injury of cartilage from the first MPJ's dorsal aspect is possible along with strains to the dorsal joint capsule, ligaments and extensor tendons.

Grass fields usually provide a more slippery surface, which causes young athletes to slide without the usual hyperflexion injury. Grass surfaces, however, increase the odds of "accidental" slips, falls and sprains. And, as the game progresses, there are more divots upon which the athlete can twist his or her foot or ankle.

How common are turf toe injuries among football players? John Davis, head athletic trainer at Montclair State University in New Jersey, whose football team totals 98 players, says that he sees on average five turf toe injuries per year. These athletes consider their great-toe sprains bothersome, yet the majority continues to play despite the injuries.

Mike Colello, while assistant trainer of the National Football League's New York Giants, recalls having six players in one season with sesamoid fractures as well as several others with capsular sprains of the first MPJ. He even remembers a condylar fracture of the first metatarsal head from a forced hyperextension injury.

These injuries occur because many NFL and collegiate athletes wear light mesh shoes that bend like a soft pretzel. (High school and younger football players typically wear rigid, plastic cleated shoes.) And because stability and safety are compromised for flexibility, an injury can occur at any opportunity, including when pushing off at the three-point stance.

If a fracture line is noted on an X-ray, the differential diagnosis of a bipartite sesamoid with a diastasis injury or a true fracture of the sesamoid bone must be considered. Oblique, raised hallux and axial sesamoid views often are helpful along with contralateral comparison films.

Magnetic resonance imaging and dynamic ultrasonography can help the podiatrist differentiate from soft tissue involvement. Bone scans usually reveal hot spots in both cases.

Treatment for the range of turf toe injuries that affect ankle and foot function include



Accommodative orthotic with first metatarsal head cut out to reduce pressure to sesamoids and metatarsal head.

full-length flexible orthotic supports and steel-spring plates. Accommodations with these inlays greatly enhance players' abilities to return to play.

Sesamoid bone fractures are difficult to heal, even with a below-knee cast. And once applied, the cast potentially ends the young athlete's season. Therefore, a hard cast usually is not my first

Sesamoid pain might remain chronic despite judicious care, so the podiatrist must consider the use of bone-growth stimulation in cases involving a known fracture. Surgery to explore and remove a pathologic sesamoid bone or osteochondral MPJ fracture, or to repair a defect, should be instituted after allowing for a reasonable healing time. The procedure, however, should be per-



line of treatment. Taping, splinting, medications, physical therapy and changing to a stiffer shoe also can augment treatment (see "Turf Toe Injuries: Treatment Protocols," p. 40).

G rass fields allow young athletes to avoid hyperflexion injury, but slips, falls and sprains are a problem."

formed well in advance of the upcoming season. This is followed with a rehabilitation protocol similar to those listed on page 40.

Foot-related sports injuries prohibit the athlete's peak performance on the playing field. Young athletes look to podiatrists to get them "back in the game." By properly identifying both the etiology and injury, the podiatrist can institute an effective treatment plan and, in many cases, keep young players from missing a beat. □

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