

# Essential Tips For Tackling Football Injuries

**Podiatrists frequently see a plethora of sports-related injuries. As football season kicks off, this author provides advice for dealing with sometimes debilitating injuries that occur on the gridiron.**

*By Richard T. Braver, DPM*

**H**igh contact. High intensity. It's no surprise that many injuries occur on the football field. An injury may occur as an athlete is blocking an opposing player or as he is being tackled by another player. Other injuries may occur when players either sprint downfield, make sharp cuts to avoid being tackled, or make other movements that involve much rotation in order to catch or deflect the football. Playing surfaces can also lead to injuries (see "Artificial Turf Vs. Natural Grass: Which Is Better?" on page 48).

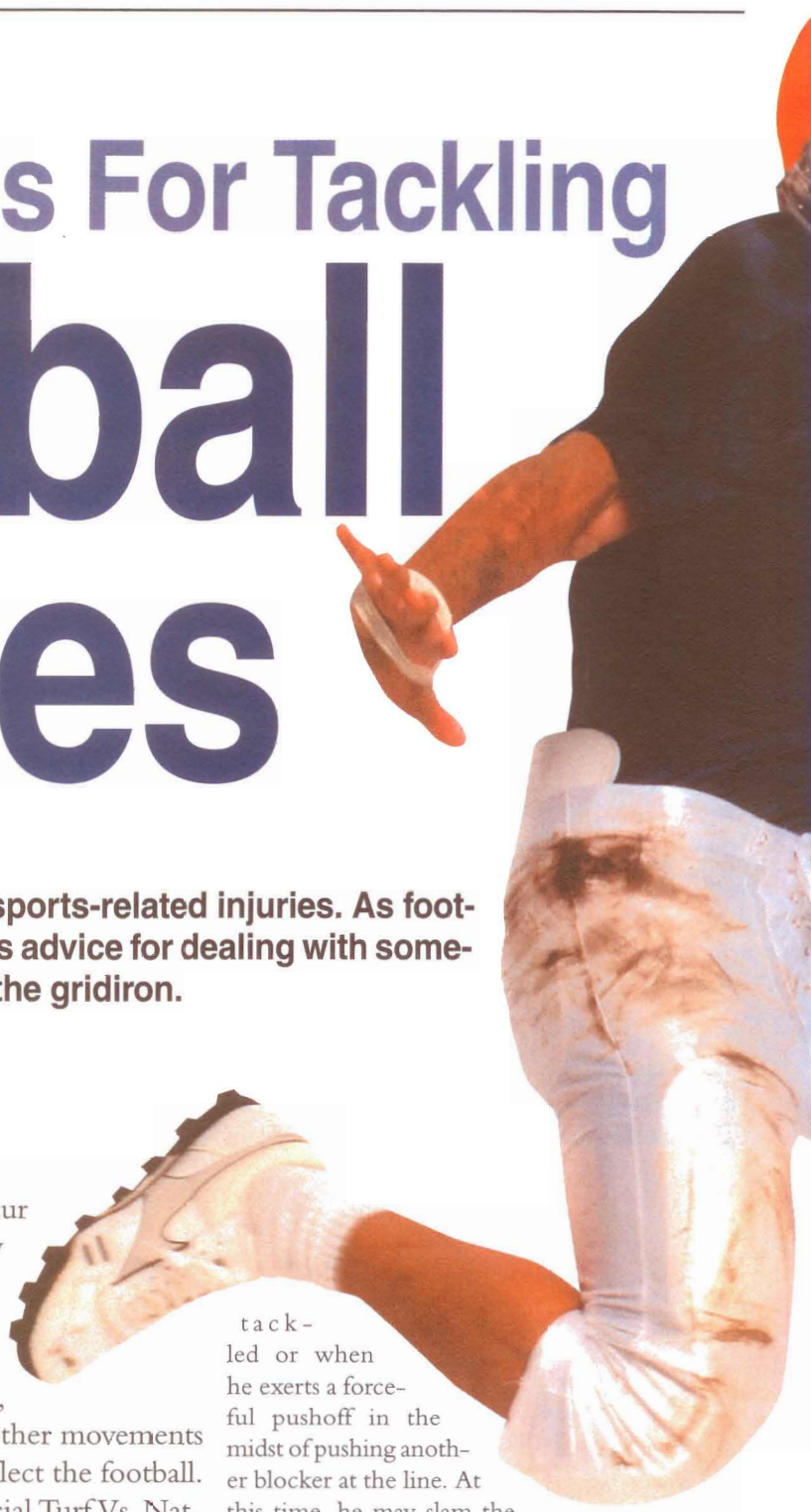
Certainly, the first metatarsal phalangeal joint is one of the most injured joints in football and there is a much higher incidence of these injuries on artificial surfaces as opposed to grass.

"The hallux injury can shut people down. They can't play without a functional big toe. I've seen it end careers," notes Stephen Kanter, PT, ATC, the Head Athletic Trainer for the New Jersey Gladiators Arena Football Team.

These first MPJ injuries can occur when a player is being

tackled or when he exerts a forceful pushoff in the midst of pushing another blocker at the line. At this time, he may slam the big toe into the hard artificial surface, which can cause an impaction injury to the cartilage of the

first MPJ. This rotation of the joint may be the result of external forces (such as being hit by an opponent) or general rotational forces, which occur when one is cutting sharply and the foot sticks to the surface. In the latter situation, the forces cause the hallux to stay glued to the turf and it leads to hyperextension of the first metatarsal. Typically, this causes an osteochondral compression injury or a fracture dorsally. Plantarily, there can be a stretching or rupture of the flexor capsule or tendons or fracture of the







sesamoid bones.

In addition, rotational forces may cause sprain or rupture of the medial or lateral collateral ligaments. Turf toe has been commonly used as a collective term to describe any pain around the big toe resulting from the big toe being bent beyond its normal range of motion.

### Treatment Essentials For First MPJ Injuries

In order to diagnose these injuries correctly, you should do a clinical examination, obtain X-rays and sometimes MRIs. In addition to getting standard and oblique X-rays, I always take raised lateral X-rays to see if there is a fracture at the

dorsal aspect of the base of the hallux. You can do this by placing a 1-inch roll of gauze under the big toe prior to taking the lateral X-rays. In addition, it is standard protocol to take axial sesamoidal views to help view the sesamoid-first metatarsal interface.

Treatment for these injuries ranges from immobilization to excision of bony fragments. Prophylactically, you can tape players with a Spica dressing or buddy splint the hallux to the adjacent toe. Semi-flexible turf toe plates are helpful for reducing the end range of motion where many of these athletes experience their pains. Of course, shoe selection is important. The more stable the shoe, the less twisting motions to the foot. However, this may hamper the athlete's ability for a quick pushoff.

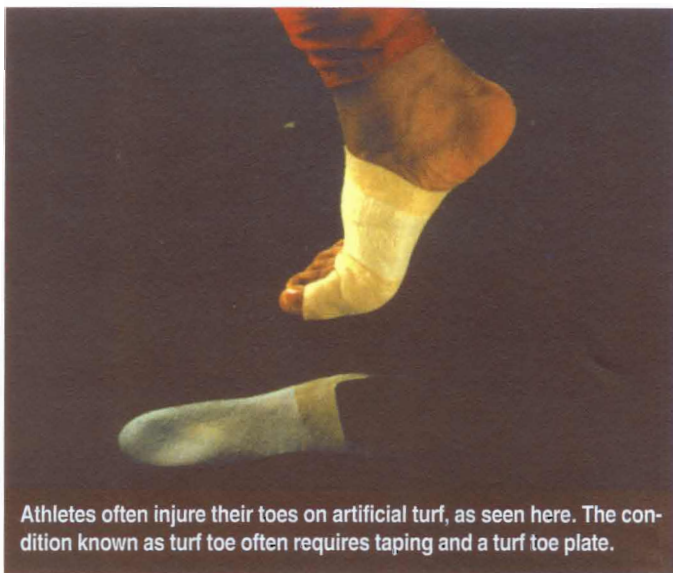
### What About Metatarsal Fractures?

Getting one's foot caught in a pileup or simply cutting hard can cause the metatarsal bone to snap. The football player's foot is certainly not immune to the Jones fracture. These fractures occur when the peroneus brevis tendon pulls on the base of the fifth metatarsal as the forefoot is planted, pivoting and adducting.

Tuberosity fractures of the fifth metatarsal

base are also endemic to the sudden turning and twisting involved in a player's path.

Generally speaking, when you're dealing with a fracture gap less than 2 to 3 mm in width, you can use cast immobilization. However, when the fractures are dislocated or there is a fracture gap greater than 3mm, you should proceed with ORIF. For fixation, I prefer to use a single screw to engage the base of the fifth metatarsal and catch the distal lateral cortex of the fifth metatarsal bone. When an avulsion of the peroneus brevis tendon is involved, I use a screw with a spiked washer to reoppose the tendon.



Athletes often injure their toes on artificial turf, as seen here. The condition known as turf toe often requires taping and a turf toe plate.

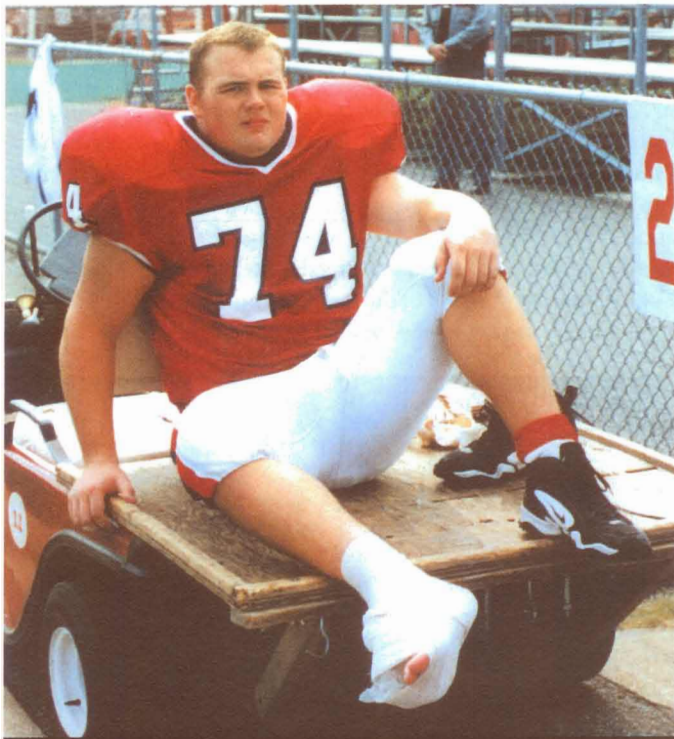
Plating of the fracture is also an acceptable treatment. However, this is more invasive and surgeons more often use this for older or more severe fractures that require bone grafting. External fixators are gaining in popularity, but they may have higher complication rates.

### Battling Contusion And Nail Injuries

There appears to be a much higher incidence of contusions in football than in other sports. Forefoot injuries have a variety of potential causes, which include a hard pushoff, increased weight demands upon the forefoot, and/or slamming the foot against the ground. This is especially prevalent in Arena Football League games in which the player is not just pushed out of bounds but pushed into the sideboards. Typically, the foot hits first, followed by the knee. These boards have contributed to numerous contusion-related injuries.

Any athletic trainer's war chest would include plenty of sesamoid pads and U-cutout pads to combat sesamoid contusions as well as metatarsal head bursitis and capsulitis. Podiatrists are also frequently called upon in the training room to fabricate custom orthotic devices in order to help reduce pain and pressure from the injured area. Certainly, you must decide on the strength and flexibility of the orthotic device for the individual athlete. Again, a device which is too stiff may hamper a player's ability to





This player suffered a Jones fracture. These fractures occur when the peroneus brevis tendon pulls on the base of the fifth metatarsal as the forefoot is planted, pivoting and adducting.

sprint quickly and reduce shock absorption while a more flexible device may not offer enough protection for the injured area.

While working with professional and college football players, I have seen a fair share of contusions to the toenail. It is common for the feet to get stepped on and equally as frequent for the toes to rub against the glove-tight football shoe gear.

Be aware, however, that often the athlete has a predisposing fungus toenail, which may become aggravated or injured during football activity. You must treat the acute injury as well as the underlying fungus or deformed nail to prevent recurrence. You would do this for both acute ingrown nails as well as those that are chronic in nature. With the advent of silicone gel, toe caps and topical as well as oral medications, you should be able to provide relief from painful nail syndromes during the season.

## Why Ankle Sprains Are So Common

Certainly, the ankle sprain is one of the most common injuries sustained in football. It is surprising to note that just like the ACL tear, many of these injuries do not occur while players are being tackled. Rather, these sprains may be accidentally self-induced, due to the sharp acceleration, deceleration and cutting involved in football activity.

Often, the upper body moves quicker than the foot, so to speak, and the foot remains planted on the surface, causing a twisting of the ligaments with the lateral side being more common. There may also be uneven divots within the grassy or turf surface. In addition, there may be seams within a turf field that create areas where players are more susceptible to injuries.

## Artificial Turf Vs. Natural Grass: Which Is Best?

The ongoing debate of artificial turf versus natural grass will likely continue for years to come. The dispute centers around the functionality of synthetic surfaces versus the more player-friendly natural grass surface. Obviously, synthetic surfaces are easy to maintain and show up well on TV. The artificial turf is obviously easy to maintain without the need for a lawn service contract.

However, it has been estimated that there are 50 percent more injuries to the foot, ankle and legs on artificial turf when compared to grass surfaces. There are two factors to consider in this controversy. Artificial turf provides excellent traction and the runners can sprint faster and cut quicker on the surface. However, because there is increased friction, the foot sometimes gets "glued" to this carpet when there is contact with another athlete. Instead of sliding as you would on grass when hit, the foot stays on the ground while the upper body moves. Therefore, there are many more strains and rotational forces applied to the foot, ankle and leg.

In addition, the other major problem with a turf field is most of them are placed over a concrete surface and there is no give as you would expect in a dirt field covered with grass.

The increasing popularity of the Arena Football League has also turned up the spotlight on turf toe injuries. In this sport, turf injuries may be accentuated because team members play both offense and defense; the field is less than half the size of a stadium field; and the running backs are required to sprint faster and make tighter cuts on the smaller field. The result is each play is much quicker and the potential for injury is increased.

In addition, of course, there is the multitude of injuries that occur while the foot is planted and while the player is being tackled. In treating these injuries, you should first get X-rays to determine the extent of injury. You can often employ physical therapy modalities to reduce swelling and pain, and regain range of motion.

I use a soft cast for the sprains, keeping the ankle everted in the case of a lateral ligament injury. Doing so allows for "active rest." In other words, the player can move his ankle up and down but the cast limits the lateral strain. Players often may receive physical therapy during this process but you definitely want to emphasize to the athlete that he should avoid inversion of the ankle. Sometimes, it is necessary to aspirate blood from the joint for quicker healing.

You would only use cortical steroid injections if the patient still has residual pain despite aggressive therapy and taping. Since it takes three weeks for soft tissues to heal, you should ensure that the ankle is firmly guarded against inversion for this time. However, if you employ proper taping, moleskin-type wrappings and athletic tape, the athlete may return to activity once the pain is under control and he can demonstrate adequate strength and ability to run without significantly favoring the injured ankle.



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The ankle sprain, as shown above, is one of the most common injuries in football. Often, these injuries are the result of the sharp acceleration, deceleration and cutting required to play football.

## How To Conquer Os Trigonum Injuries And Achilles Tendon Ruptures

It's important to be aware of the painful os trigonum injury behind the ankle. Linemen may complain of pain behind the ankle, either as a result of the ankle sprain or from their chronic three-point stance, which compresses the os trigonum/posterior process of the talus against the superior surface of the calcaneus. This may pinch soft tissue in this area, causing pain. Altering their stance or injecting the area with cortical steroid is usually helpful in alleviating this condition.

Monitoring the flexor hallucis longus tendon behind the ankle for signs of possible impingement from the os trigonum is also important and will be identified by resisted plantarflexion of the hallux, which causes pain behind the ankle. Performing direct palpation of the os trigonum is still the best way to differentiate this pain versus other posterior triangle ankle pains.

Football fans have also seen their share of Achilles ruptures on television. I do not believe this injury is as prevalent as other injuries. However, it is usually treated on an emergency basis. When you suspect these injuries, proceed to examine the Achilles tendon for a dell, apply the Thompson test (to see if squeezing the calf still allows for plantarflexion of the foot), and also see if the athlete can stand and rise up on the injured leg. This will help to identify the injury. Treatments range from surgical repair to conservative Achilles taping with the foot mildly plantarflexed. You may also employ heel lifts to reduce strain of the Achilles.

## Addressing Heel Pain Cases

Football players are not as susceptible to the overuse injuries seen in more vigorous running sports such as marathon training and soccer, so it is understandable that there is a smaller incidence of plantar fasciitis and arch strain. However, due to the size of some of the football players and the force transmitted through their feet, especially at pushoff from a three-point stance, it is not uncommon to see strains and partial tears of the fascia. For those with any history of previous injuries, you should emphasize prophylactic strengthening and flexibility exercises along with taping to reduce excessive strain.

It is widely known that orthotics are the mainstay of treatment for players with predisposing factors such as previous arch and/or heel pain injuries, flat feet or those who overly pronate. Make sure their feet are not abducting excessively, which would increase strain to the plantar fascia and



## What Physical Therapy Modalities Will Help?

**P**hysical therapy modalities can be very helpful for athletes. Some acute injuries certainly require physical therapy in order to reduce pain and swelling. However, recalcitrant injuries, such as the nagging sesamoid pains and Achilles tendon or other ankle tendon strains, require additional therapeutic care. I have found the electric muscle stimulator (H-Wave Corporation) to be very helpful in reducing chronic sesamoid pains. This device uses microcurrents to stimulate healing.

In addition, iontophoresis with dexamethasone solution has been helpful in stimulating superficial injuries (such as Achilles tendinitis and plantar fasciitis) to heal.

You can also employ these modalities concurrently with ultrasound therapy and contrast baths to further stimulate healing. Since these modalities need to be used on a daily or every-other-day basis, it is best left for the athletic trainer or physical therapist to provide a more detailed treatment plan for rendering these athletes pain-free.

posterior tibial muscle insertions.

Also be aware that certain cortisone injections and NSAIDs are banned by the NCAA and other conferences. John Davis, the Head Athletic Trainer at Montclair State University, says "Physi-

cians should check before injecting or prescribing medications." He says you can obtain information regarding banned medications by calling (800) 233-0393 or checking out the Web sites [www.usantidoping.org](http://www.usantidoping.org) or [www.drugfreesport.com](http://www.drugfreesport.com).

## Final Thoughts

You can help reduce injury levels by emphasizing proper conditioning and exercises (specifically those that involve flexibility and strengthening), proper protective equipment and appropriate shoe gear. It is also helpful to educate the athletes on the potential conditions and what they can do to avoid them.

I handle part of the preseason physical examination on the football teams we work with and we also make it a point to document previous injuries. Once the season begins, we strongly emphasize preventive care, including orthotics and taping for strained arches and plantar fascias, as well as prominent metatarsal bones or sesamoid injuries. Finally, you should anticipate performing surgery on those athletes who need it the day after the season ends. This gives the athlete the most recuperative time prior to the start of the next season. ■

*Dr. Braver is the team podiatric physician for the New Jersey Gladiators of the Arena Football League, as well as the Montclair State University Red Hawks football team. He is a Fellow of the American College of Foot and Ankle Surgeons. Dr. Braver practices in Englewood and Fair Lawn, N.J.*

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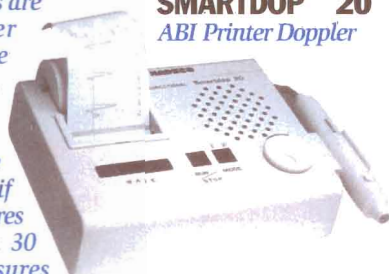
(1) Arterial Disease of the Lower Extremities, Buchbinder, D.; Flanagan, DP; Diagnosis, September 1986.

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