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## Sports Injuries Issue: From Painful Toenails To Achilles Tendon Ruptures

**In this issue of Foot Notes, as the fall school sports season begins, we are going to discuss multiple kinds of injuries athletes can sustain in their feet and ankles. The foot and ankle are no strangers to sports injuries, as many sports involve running of some form.**

To start things off, we will discuss toenail pain. Toenail pain as a sports injury? Yes, you read that right. Toenail pain can affect athletes of many different sports, and can be surprisingly painful and limiting on an athlete's performance. Toenail pain can be caused by multiple different conditions. The most common cause is from the good old fashioned ingrown toenail. Ingrown toenails are very common. One is born with a nail this shape, or one develops it after damage occurs to the nail root cells growing the nail out. The damage can be something as simple as getting the toe stepped on, or even subtle long term pressure damage from a tight shoe. Most of the time, an ingrown toenail does not hurt. However, once something irritates the skin next to the toenail, such as when one stubs the toe or is stepped on, or when one cuts back on the nail too far and nicks some skin, the resulting skin inflammation leads to pain with pressure on the nail as well as infection. The

more one tries to 'dig this out' on their own, the worse the nail and skin get.

Another common cause of toenail pain includes pressure damage to the toenail that results in bleeding under the nail. The so-called bruised toenail is in actuality a result of a direct smashing injury to the nail, either through stubbing the toe or having someone or



something crush the toenail. In its lightest form, this is simply a small amount of partial bruising due to the pressure of the toe in the shoe when running. In more serious forms due to a crushing injury, the bruise forms underneath the entire nail and is severely painful due to the pressure of the liquid blood pushing up on the nail above. Until the fluid is properly drained, this pressure can be very painful, and can even force the nail to lift off of the skin bed it sits over. Sometimes

immediate proper treatment is necessary in these cases as the bleeding could be caused by a cut in the skin bed surface under the nail from a spike of bone broken during the injury. Since this bone is exposed through skin (even if it is still technically under the nail), it is considered an open fracture and needs to be treated differently to prevent bone infection.

Another injury than can lead to toenail pain is from a direct force coming in from the front tip of the nail that lifts, or shears, the nail off of the skin bed surface. This kind of injury often occurs when one is barefoot and kicks the edge of something flat and hard. The nail either lifts off partially, or it completely rips off.

One final common cause of toenail pain has to do with the shape of the toenail. Toenails, particularly the big toenail, can be painful if the toenail is simply thickened. Thick toenails can be the result of chronic pressure on the nail root cells, which causes damage and a permanent change in the nail growth pattern, leading to abnormally thick nail tissue. Tight shoes and frequent stubbing injuries contribute to this. Nail fungus infections can also deform the nail, making them thick and painful, as well as loose.

## Mythbuster: Debunking Common Myths About Foot and Ankle Problems

**This month, we will bust a myth that claims podiatrists use expensive shoe inserts to treat everything.**

Part of the unique advantages of a podiatrist over another specialist who has cross-treatment of foot problems is the podiatrist's education and understanding of the field of biomechanics. The foot has a unique structural, physiological, and engineering relationship with the ground as it pertains to body movement.

Biomechanics involves the study of that relationship. Part of a podiatrist's education is understanding this relationship, how it factors into foot disease and injury, and how it can be manipulated to prevent injury and disease. One of the greatest advances in this field in the last fifty years has been the development of the orthotic. Although any store-bought insert is now called an orthotic, the traditional and more accurate description of an orthotic is a molded plastic or composite insert that was formed over a model of one's foot. This foot is manipulated during the modeling process such that the foot joint that controls flattening and excessive arching is held in an accepted zero degree position, thus ensuring the resulting orthotic will hold the arch in a biomechanically ideal position. Since many common foot injuries are related to excessive foot flattening, or less commonly a high arch, orthotics have a role in stabilizing and preventing that disease process. Orthotics are used as part of a treatment plan for many foot conditions, but are not a panacea for everything, and therefore use is limited to conditions for which they will be of benefit. As a prescription device, they unfortunately are expensive (comparable with many high quality eyeglasses). However, they are durable, and should last many years as long as one's foot structure does not change much over time. For many athletes, including a high number of professionals, these are essential to keep performance at a high level.



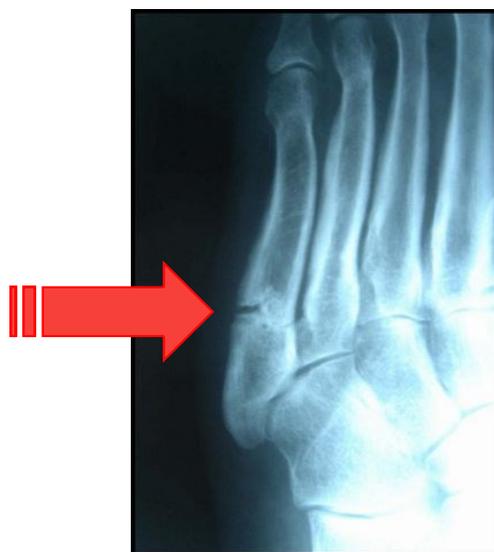
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## Foot Fractures and Athletes

Foot fractures occur like any other bone fracture in the body: stress on the bone so great that it surpasses the bone's ability to resist such force. Bone is very hard, and allows us to stand up right, move, and protect our inner organs. However, it is not metal or stone, and can fracture provided enough force is applied to it. The foot in particular, with just under 30 bones (give or take a few extra small bones some people have), is subjected to a large amount of force daily simply with the act of walking. When one puts their foot into an abnormal motion during an injury, the resulting force can crack, split, or shatter bone.

Some fractures are not immediately visible on standard x-ray. Some foot fractures are more subtle, or involve bones that are not easily visible on x-ray due to overshadowing of bones immediately next to the fractured bone, making incomplete or thin bone cracks hard to see. An MRI looks at bone and softer tissue in three dimensions, and can show fractures that are not visible on a two dimensional x-ray.

Most bones in the foot take six weeks to mend under stable conditions, where the bone fracture is not moving around too much. This stability is imparted either externally through a cast, splint, or walking boot, or internally through metal hardware like screws, plates, or pins. In highly active individuals, like a professional or other high level athlete, the decision is often made to go to surgery to stabilize fractures that would otherwise heal on their own because the healing time is often reduced. Some fractures can take longer than six weeks to mend, and many professional athletes or high level athletes do not have that kind of time to spare. They accept the risk of surgery in order to have a chance to return faster. While this is always an option for those with less active and public professions, most people elect to have their foot fractures heal over time with proper support, and most doctors do not operate unless there is a specific indication for it (keeping in mind that some fractures in the foot and ankle absolutely have to have surgery for repair, especially if the bone has moved out of place too far or a joint is involved).



## Turf Toe

Turf toe is a common sports injury that involves a sprain to the great toe joint. It is called turf toe as it is commonly experienced by those who play on artificial turf surfaces. This injury can have two different causes. More commonly, the toe is injured when it is pulled upward on a hard surface, causing tearing of the tissue on the bottom of the joint. Less commonly, the toe is injured when it is flexed downward and tissue on the top of the toe is torn. The injury may be minor enough that it is not really noticed at first, and the pain may be dull enough that the athlete continues to play on it. This eventually leads to a worsening of the injury, and can make healing time far more extended.



Common symptoms include pain, and swelling of the big toe joint, especially when the toe is pushing off of the ground. The motion of the joint can eventually become restricted due to the pain, and the skin around the joint can appear black and blue due to bleeding incurred from tissue tearing. The toe will be more painful while barefoot or in lighter, more flexible shoes, and up to half of the people who develop this injury will have long term pain issues.

Treatment is centered on the individual needs of each injury and the sport involved. Most of the time, some combination of icing, rest, anti-inflammatory medications, and stiff shoes is used. Strapping or taping the toe can help an athlete return to activity quicker, and the use of a prescription orthotic insert can provide support for the great toe joint from underneath. The time away from the sport varies by the severity of the injury. Minor cases may only need a few days of rest, while more significant cases may need one to two months of rest. Severe cases may need cast immobilization or surgery outside of rest from sports to allow for full healing.

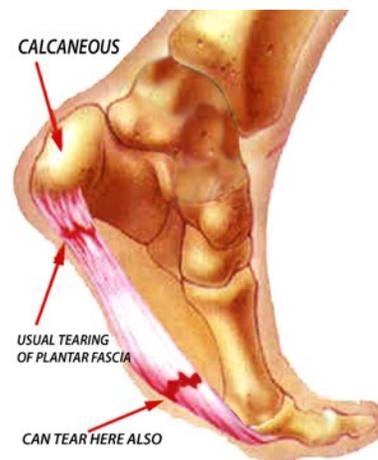
## Why Is A Plantar Fascia Tear and How Does It Differ From Plantar Fasciitis?



### Dr. Kilberg Responds:

Plantar fascia tears are injuries involving a ligament on the bottom of the foot in the arch, and can cause significant pain and disability in sports and daily activity. For athletes, it usually is an injury that sidelines most lower level athletes and makes daily walking difficult for non-athletes.

The plantar fascia is a series of three tight rubbery bands that stretches from the heel bone to the ball of the foot. It acts as a stabilizer of the arch as well as tissue that helps contain the vital structures of the bottom of the foot. Strain and damage to this tissue is the most common cause of heel pain and arch soreness, and occurs in many people on a chronic, daily basis. This is known as plantar fasciitis. Actual tearing or rupturing of the plantar fascia fibers is a far less frequent injury. It can occur in a chronically strained fascia that simply ruptures out of weakness. More commonly in athletes, it occurs as a direct result of force that drives the front part of the foot up, with the back part of the foot near the arch remaining stable. This results in excessive stretch to the plantar fascia, and the fibers that compose this tissue tear in a partial manner. Stepping on a small blunt object can also sometimes force a rupture of the fascia.



The plantar fascia will not typically tear all the way across it's width, as it is composed of several bands. However, a tear can sometimes form lengthwise and run along the distance of the arch.

Symptoms include a sudden popping or snapping sensation in the bottom of the arch, or a sensation that something there 'gave'. It is followed by significant pain in the heel or arch, and swelling and bruising may also be seen. Simple pressure into the arch may produce excessive pain, as does simple standing and walking.

Treatment of plantar fascia ruptures essentially involves rest, icing, and immobilization of the foot in a walking boot or less commonly in a cast with crutches. As the fascia tear heals over the course of a month, it may require further treatment to improve its tissue integrity and flexibility, including physical therapy. Orthotic shoe inserts are of great importance to keep the fascia stable after the tear has healed, and help prevent re-injury. High level athletes may be able to advance their recovery with concentrated taping and continuous therapy programs, but most people will need about 4-6 weeks to recover from this injury. In some cases, pain can persist in the form of chronic plantar fasciitis, and require a different kind of treatment in the long term to relieve pain. Finally, surgery may be needed in rare cases that do not respond to any other kind of treatment.

## High Ankle Sprains: More Than Just Your Standard Ankle Sprain

Did you know that there is another type of ankle sprain than the typical sprain most people know about, one that is more complex?

Syndesmotic ankle injuries, otherwise known as a “high ankle sprain,” occur when an excessive force is applied in an upward and outward direction to the foot and ankle. There are multiple ligaments that make up the 'syndesmotic complex' which keeps the two lower leg bones (the tibia and fibula) together. Injuries to this complex have symptoms similar to other ankle injuries, such as swelling, bruising and pain. These injuries usually occur with more pain in front of the ankle, compared to the typical ankle sprain which usually presents with more outside ankle pain.

High ankle sprains are treated similarly to other sprains, with resting, icing, compression, and elevation (also called RICE therapy). These injuries can be treated more aggressively with immobilization in splints or boots, and also with a period of non weight bearing with crutches if needed.

The majority of these high ankle sprains do improve with conservative RICE therapy, but in some instances complete rupture of these ligaments leads to gapping and separation of the tibia and fibula. In these instances surgery is needed to stabilize the tissue. Typical surgery includes insertion of a screw across the fibula and tibia. The screw is then removed in 2 – 3 months. A newer procedure is available that uses a suture button to cross the two bones. This device is called Tightrope. The benefit of this technique is that the suture button does not need to be removed when the ligament is healed.

## Achilles Tendon Ruptures: A Devastating and Debilitating Injury

The Achilles tendon is a strong strap-like band found on the back of the heel. Its function is vital to the foot moving and staying stable on the ankle, and that is why it is so strong. Without this tendon, it is very difficult to walk. This tendon connects the muscles in the back of the leg (calf) with the foot, and allows these muscles to move the foot by bending it downward. The reason this motion is important is the ground tends to force the foot upward when one is walking. The Achilles tendon helps stop the foot from flopping uncontrollably upward. Without it, the foot cannot remain stable and also cannot propel off the ground.

Ruptured Achilles tendon



Ruptures of the Achilles tendon can occur in a number of different ways. Ruptures can occur as a result of injury during activity or sports, often when the ankle is forced upwards while the tendon is actively trying to contract it downward. The tendon can also be torn through direct blunt force. Yet another way this tendon can rupture is due to weakness and degeneration of this tendon from chronic tendonitis (inflammation of the tendon). This can occur in people who are not athletic at all, and simply have long term tendon inflammation. The Achilles tendon can also rupture due to the effects of certain medications, as well as due to the administration of steroid injections near the tendon.

When one has an Achilles tendon rupture, it can feel like a sudden violent kick to the back of the heel. This can be accompanied by sharp pain, and maybe even the sensation of snapping or popping. The foot suddenly becomes floppy, and walking becomes extremely difficult (if not impossible).

Achilles tendon ruptures generally require surgery to physically repair the torn tissue ends. During this surgery, the torn ends are placed back together, and a special sewing technique is used to keep the ends tightly together so the body can complete the healing and seal the torn ends together as one again. The best time to repair this tendon is in the dozen or so hours immediately after the injury before swelling has a chance to set in. Otherwise, one may have to wait a week or two to allow for swelling to go down, as swelling can make the skin healing process difficult. If one does not seek immediate treatment and delays care for several weeks, the tendon has a good chance of retracting up into the leg. This makes it hard to repair it, and scar tissue can also then limit the natural mobility of the tendon. When this occurs, further work may need to be done to fix the tear. This may include procedures to lengthen the tendon or the tissue near the calf muscle, as well as special graft techniques to strengthen the damaged tendon. Recovery takes several months at least to regain the ability to safely walk. High level athletes will take even longer to regain full strength and mobility given the stress and demand on their body while playing their respective sport, and even then a full return to pre-injury levels may not always be possible.

## Talking About Insurance..... HMO Plans

As healthcare plans continue to change, so do the requirements for patients prior to visiting healthcare specialists like Indiana Podiatry Group.

Many HMO plans require the patient to select one primary care physician. All of your health care services go through that doctor. That means that you will need a referral from your primary care physician before you can see any other health care professional (except in an emergency). This is required for you to receive the maximum coverage from your HMO. Visits to health care professionals outside of your network typically aren't covered by your HMO insurance or result in higher out of pocket costs. Stay within the HMO network for optimal coverage and lower co-pay amounts.

Our front office staff will assist you with any questions or concerns regarding HMO coverage prior to your office visit. Please let us know that you are enrolled in an HMO plan when scheduling your next appointment. 317-773-7787 or 765-377-1148.

Some of the HMO's we frequently process at Indiana Podiatry Group include Anthem-Blue Cross Blue Shield, Advantage Health Solutions, United HealthCare, Humana, Cigna and Aetna. A list of Licensed HMO's can be found at [www.IN.GOV](http://www.IN.GOV).

## Our Locations

### Indianapolis

Shadeland Medical Center  
7430 N. Shadeland Suite 290  
Indianapolis, IN 6250  
317-841-7990



### Noblesville

Riverview Hospital Surgical Pavilion  
325 Westfield Road Suite B  
Noblesville, IN 46060  
317-773-7787



### Tipton

Doctors Park  
410 Fairgrounds Road  
Tipton, IN 46072  
765-377-1148



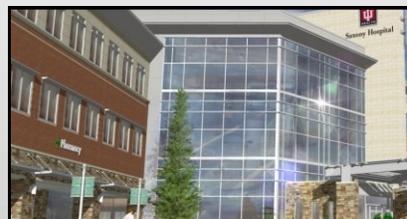
### Richmond

1201 S A Street  
Richmond, IN 47374  
765-377-1148



### Fishers

I U Health Saxony Hospital  
13100 E 136th Street, Suite 3600  
Fishers, IN 46037  
317-773-7787



## Visit us at [www.inpodiatrygroup.com](http://www.inpodiatrygroup.com)

We would love to tell you more about foot and ankle conditions. Below are links to many of our web-based resources for foot and ankle information. If there is any topic you want discussed but cannot find on one of our sites, feel free to write us with your request and we would be happy to add an article on that topic.

Our website's [Learning Library](#) contains many articles on foot and ankle conditions.



### *Melissa's Corner*

Hello to all! It's back to school - AGAIN!!!! These years are just zipping by. This year is a little different. We at Indiana Podiatry Group are growing. We thought we would extend our good fortune by seeing if there are any of you stay at home moms/dads that may be interested in a part time job. We are looking for pleasant people with an interest in learning something new or just keeping their skills up to speed. We are implementing a scheduling/call center and need a few hours from several people. If this sounds like something that you might be interested in, please contact [wandaipg@aol.com](mailto:wandaipg@aol.com), send in a resume and let us know why you would like to work for us. You can visit [www.inpodiatrygroup.com](http://www.inpodiatrygroup.com) to learn more about us. Please feel free to share with your friends and families. Stay safe!

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