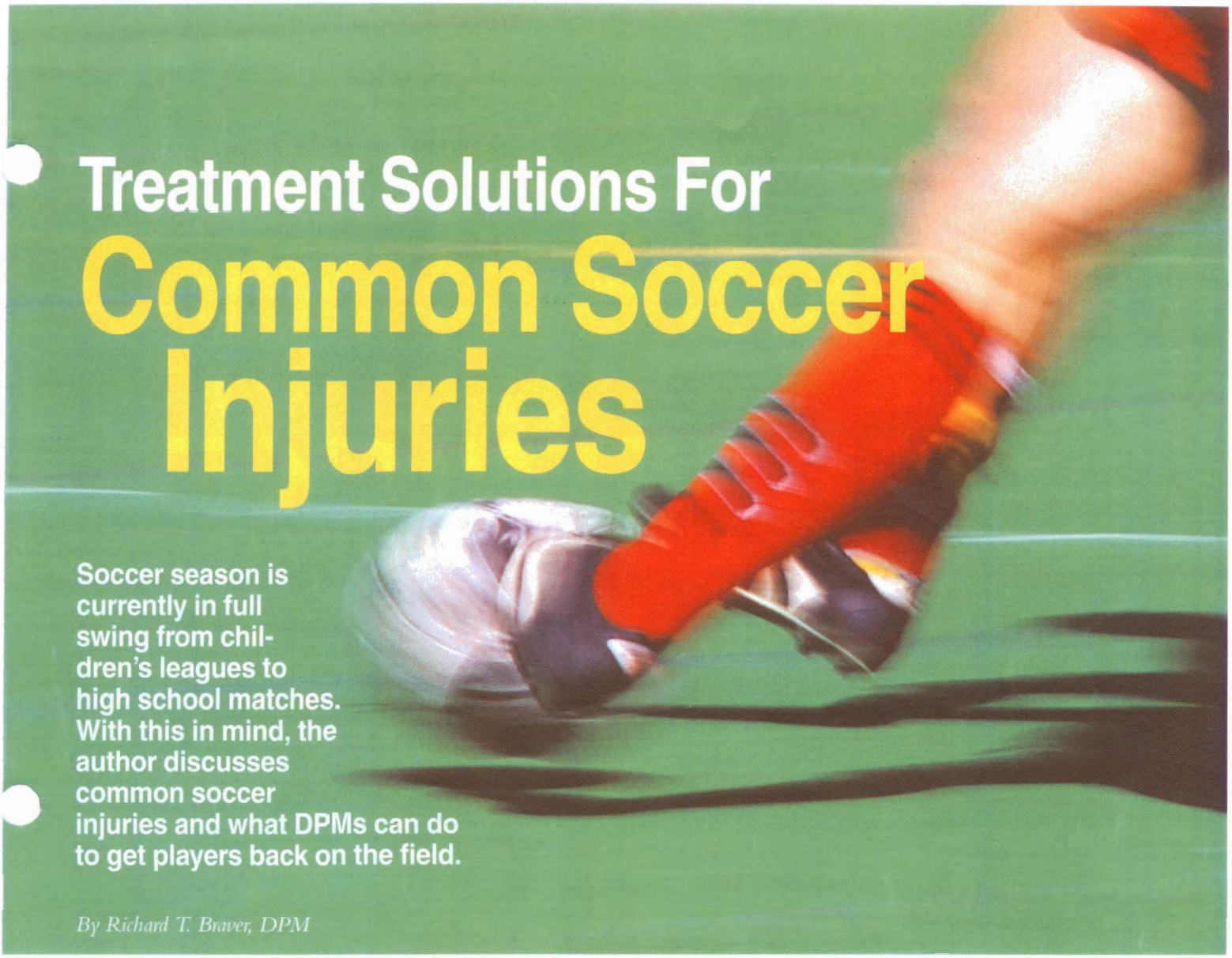
Treatment Solutions For Common Soccer Injuries



Soccer season is currently in full swing from children's leagues to high school matches. With this in mind, the author discusses common soccer injuries and what DPMs can do to get players back on the field.

By Richard T. Braver, DPM

Soccer is the most widely played sport in the world. There are two good reasons for the popularity of youth soccer versus other American sports such as football. It is more appealing to female participants and there are far fewer traumatic injuries. However, there is still an abundance of soccer injuries. In particular, there is a higher incidence of shin splints and plantar fasciitis among women and a higher incidence of contusions among men. Podiatric physicians who treat sports injuries have also seen an abundance of posterior heel pain in children.

With this in mind, let's take a closer look at common soccer-related ailments and other injuries that can occur with these athletes.

Ankle sprains are among the most common injuries sustained by soccer athletes. These injuries may occur:

- when an athlete is running downfield and his or her foot hits an unexpected rut in the surface;
- when the athlete is making a sharp turn;
- when he or she challenges for a ball and gets a foot tangled with another player's leg; or
- when the player simply twists his or her ankle when coming down from a header or other jump.

The majority of these injuries are inversion related. It is important to reduce the swelling immediately by using ice and compression wraps. Often, it is difficult, initially, to evaluate the injury. Obtaining X-rays can help detect an ankle fracture.

Essential Insights For Ankle Sprains

Typical treatment for an initial ankle sprain may include wrapping the foot in a soft cast such as a Jones compression wrap, including an Unna boot or compressive ankle taping. I prefer to keep the ankle mildly everted after a lateral ligament injury in order to restrict inversion while allowing dorsiflexion and plantarflexion. Using this "active rest" approach allows motion, which helps prevent stiffness and facilitates a faster recovery. However, one should emphasize limited ambulation with crutches. If there is a significant amount of ankle effusion or hematoma, then you may have to aspirate blood from the joint.

During the first few days after the injury, the patient should be utilizing the crutches in a toe-touch type of walking pattern.

Doing so promotes range of motion while ensuring limited weightbearing. After approximately three days, re-wrap the ankle again in order to limit inversion and allow for other motions. Allow weightbearing while emphasizing an increased intensity of the patient's rehabilitation. Emphasize NSAIDs for the first week to help reduce pain and inflammation.

After the first week, you may tape the ankle or wrap it with an Unna boot. However, an elastic wrap and Aircast-type stirrup are usually all that is necessary to keep the ankle mildly inverted, allowing the ligaments a chance to re-oppose and heal. Continue this course for approximately three weeks. However, be aware that, depending on the severity of the injury, some athletes return to activity much quicker. For those with residual pain and weakness, a corticosteroid injection may be necessary to further reduce areas of swelling and/or initiate a better healing response.

How To Address Shin Splints

Shin splints are more prevalent in women with higher quadricep angles (Q-angles). However, shin splints are also common among those athletes who are not in the best of shape when they begin a high level of activity. Shin pain at the medial and medial posterior surface of the tibia may occur due to a lack of flexibility and strain in the leg muscles. These muscles simply cannot keep up with the demands placed upon them and fatigue sets in, causing unwanted muscle strain.

In addition, be aware of players with predisposing factors for shin pain. This includes those who may have knock-knees and excessive pronation. This is further aggravated by those who run with their feet out-toed, which may place undue tension on the medial soleus and posterior tibial muscles. In addition, the origin of these leg muscles may pull away from their attachment to the Sharpey's fibers and periosteum of the tibia. Through chronic stress, this microtrauma can lead to a stress fracture within the tibia.

After analyzing the soccer player's alignment and running form, you should emphasize a strengthening program for the lower leg muscles and augment the soccer shoes with orthotic supports to improve his or her structural alignment.

Shin pains may also be related to increased shock forces particularly present during off-field training, especially when the athlete trains on harder surfaces. However, he or she may also experience this pain on turf surfaces laid over concrete. In these situations, add a shock absorbing insert to the orthotic or soccer shoe. The insert should be a viscoelastic, polymer or other rubber-based product.

Above, you can see genu valgum in a soccer player with pes planus. On the bottom, one can see the soccer player standing on orthotics. Orthotics can help realign the knee in athletes with genu valgum.

Treating Contusions, Muscle Spasms, Abrasions And Lacerations

Soccer players are notorious for chasing a ball down. However, when two players challenge for the ball at the same time, there is a good chance one player may accidentally kick the opponent's leg while trying to strike the ball. While soccer players do wear shin guards, there are certain gray zones including the Achilles, just below the shin guard at the ankle and above the shin guards to the leg and thigh. Unfortunately, many pickup soccer games are played without protective padding and lower leg contusions occur.

During a routine ankle X-ray for a sprain in adults, it is not unusual to see calcifications within the diastasis between the tibia and fibula bones distally. This may be caused by older contusions to this area similar to myositis ossificans, which are soft tissue calcifications found more commonly in larger muscles such as the calf.

If typical therapeutic modalities such as electrical muscle stimulation, ice and heat packs do not adequately resolve the painful condition, it is often necessary to obtain a MRI to determine the extent of intramuscular or intratendonous injury. X-rays and/or bone scans may also be necessary to differentiate soft tissue versus bone injury.

Muscle spasms are a common sequella immediately following a contusion. In order to treat the spasms, one may opt for the spray and stretch method. Using ethyl chloride or another cold spray substitute and following up with stretching of the injured area may help reduce the spasm. One may also use a combination of electrical muscle stimulation and soft tissue mobilization. Once the surrounding spasm is reduced, one can better define the localized site of injury.

Leg abrasions are also common injuries. They usually occur when a player attempts to slide into the ball to push or kick it out of the way from the opponent. Some refer to this as a slide tackle. Unfortunately, the skin of the leg scrapes against the turf or irregular surface of a grassy field, which may have small rocks or other protruding objects. One should treat the resulting abrasion like an open wound or burn and include the use of antibiotic cream, especially Silvadine cream. When dealing with lacerations, you should clean them and use steristrips or sutures as needed.

What About Jones Fifth Metatarsal Fractures And Stress Fractures?

Soccer players are constantly challenging opponents for the soccer ball. They are also sprinting and cutting fast to cut off another player or to gain control of a ball. Given these movements, there is a lot of stress placed upon the metatarsal bones. A Jones fracture, just distal to the base of the fifth metatarsal, may occur when the athlete plants his or her forefoot and pivots the forefoot into adduction. The peroneus brevis tendon pulls hard at its insertion into the base of the fifth metatarsal and a fracture can occur.

Just how common are these injuries? Shawn Hendi, ATC, an Athletic Trainer for Soccer at the University of Maryland, says the team suffered two acute Jones fractures and three stress fractures of the base area of the fifth metatarsal during this past soccer season. The acute injuries were treated with ORIF and external bone stimulation.

He felt the stress fractures at the fifth metatarsal base were aggravated by athletes wearing soccer shoes that were too small. Certain-

Calcaneal Apophysitis: An Emerging Trend Among Kids In Soccer?

Calcaneal apophysitis, a growth plate disorder, is characterized by a pain directly behind the heel in children. It has two probable causes. When bones grow faster than the soft tissues, there is an abnormal pull of the soft tissues away from the bone, which leads to a traction type of injury. Tight calves may have a similar effect although children usually have adequate flexibility.

Young soccer players typically play on grassy fields and I have noticed an increase in the incidence of calcaneal apophysitis during rainy stretches. After it rains, the field is softer and the foot is more vulnerable to excessive motions, whether they are toward pronation or supination. This excessive teeter-tottering of the heel and/or foot may cause irritation of the Achilles tendon against the heel bone near its insertion or of the plantar fasciitis near its origin. When treating this condition, you should focus on reducing the excessive motions of the heel and elevating the heel to reduce tension of the Achilles and plantar fascia at its attachments to the growth plate area.

Posterior heel straps and/or taping are extremely effective for limiting excessive heal motion. Adding heel lifts further reduces Achilles tension. Once you have reduced the initial pain, you should consider fabricating orthotic devices with a deep heel cup to help prevent recurrence.

ly, it is important to check that the foot is not hanging over the edge of the sole of the cleat as this will certainly cause instability and increased inversion of the lateral foot, which may lead to stress fractures.

You should also look for predisposing factors that may lead to stress fractures. Be vigilant when it comes to a long second toe or long second metatarsal, also known as a Morton's foot. If there is a long second metatarsal, one should incorporate a metatarsal pad or cutout into the shoe or orthotic.

When dealing with acute fractures of the base at the fifth metatarsal area, it is important to evaluate the gap between the fracture site. When the gap is less than 2 to 3 mm in width, you can use cast immobilization to allow for healing. However, ORIF is indicated for the larger fractures. You can use a single screw to reoppose the fracture or use a screw with a spiked washer when there is an avulsion of the peroneus brevis tendon.

What You Should Know About Treating Ball Of Foot Pains

The constant twisting motions in soccer and the possibility of striking the ball with the foot in an awkward position can lead to injuries of the metatarsophalangeal joints and sesamoid bones, resulting in ball of foot pain.

For acute conditions of the first MPJ, it is important to obtain X-rays (including a raised lateral view) to rule out any fracture at the dorsal aspect of this joint. Axial sesamoidal views also help to determine injury at the sesamoid–first metatarsal joint interface.

Here you can see a calcified ankle diastasis that resulted from a soccer player sustaining repeated contusions. Sometimes a routine ankle X-ray, perhaps one that you obtain while treating a sprain, can reveal this condition.

Treatments for acute injuries range from immobilization to excision of any bony fracture fragments. Treatment for chronic injuries of the metatarsal head areas may involve metatarsal padding and/or orthotic supports. Taping of MPJs via a Spica dressing to limit motion is helpful. Semi-flexible metal or carbon graphite turf toe plates are often used to reduce the painful range of dorsiflexion, particularly in the metatarsophalangeal joint injuries.

Therapeutic modalities such as an ultrasound and different intensities of electrical muscle stimulation are typically instituted to reduce pain of the sesamoid and the MPJ.

How To Resolve Plantar Fasciitis

Plantar fasciitis is more common in adults and in female athletes. It is more frequent in those

athletes who excessively pronate, which leads to increased torsion of the plantar fascia.

Be aware that running on softer surfaces, such as a wet grassy field, allows for increased pronation, which can lead to repetitive strain. You'll commonly see this as a bilateral injury. Female athletes with increased Q-angles and knock-knees, who tend to overpronate, are more susceptible to this injury.

Treatment should consist of tapings, paddings and orthotic supports along with physical therapy modalities. Providing corticosteroid injections may be necessary for recalcitrant pain and swelling. A change in shoe gear (including the use of turf shoes as opposed to cleats) for practice sessions is often helpful. For chronic cases of plantar fasciitis, employing extracorporeal shockwave therapy or surgical intervention may be necessary.

Pearls For Treating Ingrown Toenails And Blisters

One of the best pieces of advice for soccer players is to cut their nails short to prevent rubbing of the nail plate against the soccer shoe. Typical injuries include subungual hematoma, which one would treat with immediate aspiration, usually utilizing a disposable pen-like cautery device.

Reinforce proper nail care with these athletes. Explain how rounding of the edges can help prevent ingrown toenails. With the advent of the silicone toe pads and sleeves, players can protect areas of prominent corns over the tops of toes or distal aspect of a toe. These pads can help prevent rubbing and irritation within the shoe. Furthermore, using cushioned insoles or a blister protection pad like Blister Guard, Compeed products, Second Skin or using Skin Lube helps ward off friction and reduce blister recurrence.

Final Thoughts

When it comes to treating soccer players, it is important to evaluate their shoe gear and fit (see "A Guide To Evaluating Soccer Shoes" below), the surfaces they are playing on and their intensity of activity. Heeding the aforementioned advice should enable you to keep the soccer player active and healthy, and get injured players back on the field as soon as possible.

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A Guide To Evaluating Soccer Shoes

It is important to evaluate proper shoe fit when treating soccer players. Soccer players want to feel the ball and often want the soccer shoe to feel like a tight glove. However, improper fitting shoes cause toenail problems.

To evaluate an athlete's shoe fit, have him or her stand straight. Check to see that the tips of the toes are not protruding into the leather distally. There should be a small amount of room from the longest toe to the tip of the shoe. Check that the foot is not hanging over the edge of the sole of the soccer cleat, either too much laterally or medially. Here, instability can lead to sprain or stress injury.

If this is the case, then either recommend a different cleat or remove the inlay within the soccer shoe and replace it with a more stable orthotic device. You may need to rip out the inlay within the soccer shoe and, using a straight edge screwdriver, proceed to remove any unwanted foam material that still adheres. This allows you to insert an orthotic without crowding the foot and causing other problems.

Check that the heel counter is still firm. When a shoe is worn for a period of time and subjected to the elements of rain, mud, etc., the heel counter may weaken and no longer be supportive for the foot. A weak heel counter enables the foot to go through excessive motions that may aggravate conditions such as calcaneal apophysitis, plantar fasciitis and Achilles tendinitis.

Set the shoe on a countertop and make sure the upper portion of the shoe is still firmly mounted on the sole and the shoe does not have excessive eversion or inversion lean. Check the cleats of the shoe for excessive wear. When treating patients who have metatarsal pain, make sure there is no cleat protruding upward through the sole of the shoe, irritating the involved metatarsal area

Finally, check the tongue of the shoe, making sure it remains well cushioned and centered underneath the laces. Soccer players like to optimally strike the ball with the instep of their foot and if the tongue is no longer providing cushioning, this may cause irritation to the dorsum of the foot over a period of time.