



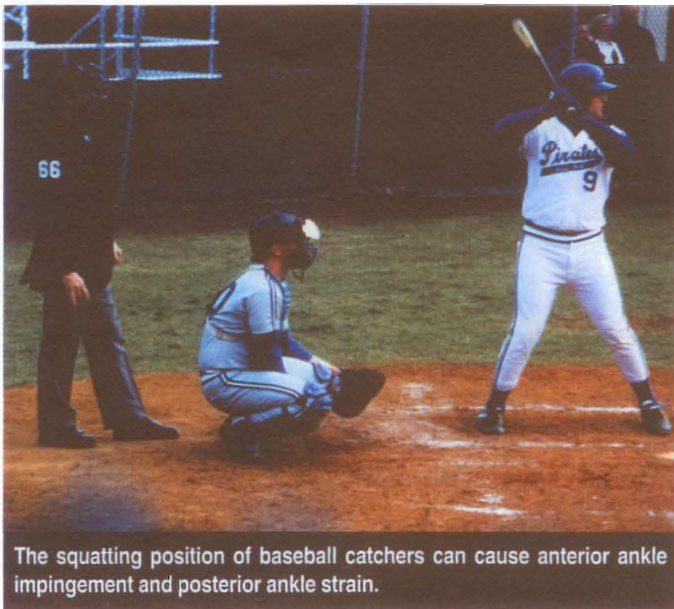
A Comprehensive Guide To

Baseball Injuries

As the national pastime shifts into full gear, an expert offers inside insights for treating a variety of foot, ankle and leg injuries common among baseball players.

By Richard T. Braver, DPM

Baseball-related injuries can occur acutely or insidiously and are just as prevalent in pre-season conditioning as they are during the regular season. They are just as common in youth leagues as they are in professional baseball. While we often hear about a sore pitcher's arm, ankle problems are just as prevalent. With that in mind, let's take a look at the kind of baseball-related injuries you may see in your practice.



The squatting position of baseball catchers can cause anterior ankle impingement and posterior ankle strain.

Ankle sprains are the most common acute injuries that you'll encounter. Ankle injuries often occur when an unfit player is focusing on the ball and winds up stepping on a drain or divot in the grass. A base runner rounding his turns may also invert or twist his ankle on the actual base bag. He may also twist his ankle when colliding with a defending baseman or when he is caught in a rundown between the bases. You'll see that any activity that involves quick response and pivoting increases the chance of turning one's ankle.

The vast majority of ankle injuries are related to inversion. The key to treatment is immediately reducing the swelling via ice and compression wraps. Given the patient's swelling and pain, it is often difficult, at first, to evaluate the injury so doing X-rays and getting an injury history is paramount.

To treat soft tissue sports injuries, I prefer using a "shotgun" approach, which includes a multitude of therapies (i.e. taping, physical therapy modalities, NSAIDS, aspiration of blood from the ankle joint and corticosteroid injections if needed). If it is an inversion sprain, I'll proceed to tape the ankle at a mildly everted position and keep it wrapped this way for three weeks in order to allow the ligaments a chance to re-oppose and heal.

In addition, I allow restricted (no inversion) ROM of the ankle to occur, with partial weightbearing at first and then I have the patient quickly progress to full weightbearing. When you allow for protected ankle motion in every step, you'll find that the swelling doesn't tend to stagnate in the ankle, which helps you facilitate a quicker recovery.

How To Handle Great Toe Joint Sprains And Fifth Metatarsal Fractures

First metatarsophalangeal joint injuries are also fairly common. With these injuries, you'll usually see hyperdorsiflexion of the hallux with a resulting fracture of the sesamoid bone(s). Often, your patient will have a sprain of one of the surrounding sesamoidal ligaments or a partial tear of the encapsulating

Two Common Injuries For Catchers

You'll find that tibiotalar impingement syndrome is fairly common among baseball catchers, given the repetitive up and down nature of their squatting positions. With this condition, you will notice an abnormal pull of the anterior ankle joint capsule from its insertion onto the anterior dorsal neck of the talus. Keep in mind that an exostosis may form over time. When this athlete runs or squats, he may have pain during forced dorsiflexion due to impingement of the dorsal talus against the distal tibia.

Taking a "charger" lateral x-ray view with the ankle flexed forward helps to reproduce the pain and enables you to document your clinical suspicions. Employing corticosteroid injections and physical therapies often helps to alleviate the patient's pain. You can perform arthroscopic surgery or opt for traditional surgery after the season.

The repetitive squatting position of baseball catchers also makes them vulnerable to an impingement of the posterior ankle. Be aware that this problem may become worse if your patient has an enlarged posterior process of the talus (Steida's process), an accessory bone (os trigonum) of this process or a previous history of injury.

Any therapeutic modalities you use should be geared toward reducing swelling and pain. Also do what you can to reduce excessive pronation/supination. Doing so helps prevent rubbing of the flexor hallucis longus against the enlarged talar process or accessory bone, which can often cause posterior ankle tendonitis.

Reducing excessive plantarflexion enables you to reduce the impingement syndrome even further. You'll also find that doing a surgical excision of an enlarged Steida's process or accessory os trigonum bone is a rather simple procedure when you perform it from the lateral approach.

flexor hallucis brevis tendon. In addition to this hyperextension injury of the plantar tissues, you'll notice compression at the dorsal aspect of this joint. Often, you'll see this result in an osteochondral fracture dorsally.

Some foot specialists collectively call this injury "turf toe," especially if it was the result of an athlete running on AstroTurf and falling forward with the foot firmly planted on the ground. As most of you are aware, sesamoid fractures are tough to heal as are osteochondral fractures.

For an acute fracture, I prefer to immobilize the great toe joint with a below-the-knee cast for about six weeks. In order for these fractures to heal, it is important to eliminate all motion of the first metatarsophalangeal joint. Also keep in mind that, regardless of your treatment course, there is a high rate of malunion. When you're dealing with recalcitrant cases, you can inject corticosteroid medication and provide accommodative orthotics to help reduce the patient's pain and inflammation.

Baseball is a sport that incorporates many quick action pivots. It is not unusual for the player to be on his toes while the pivoting is occurring. Unfortunately, the increased inversion may



With this "charger" X-ray view, you can see the anterior ankle impingement.

cause the peroneus brevis to avulse off of or avulse with a piece of bone from the base area of the fifth metatarsal.

These kinds of injuries may include the traditional Jones fracture, which is typically located 1.5cms from the most proximal aspect of the base of the fifth metatarsal bone. When it comes to treatment, it depends on the fracture gap. Usually, if the gap is greater than 3mm, then you should proceed with surgical intervention. Otherwise, applying a below-the-knee cast for six weeks is usually sufficient. Lately, I've started to ambulate patients with partial weightbearing in the cast after three weeks. Doing this has helped promote healing and reduces nonunion. This may be due to bone callous production or stimulation of blood circulation to the area.

Treatment Tips For Muscle Pulls, Toenail Injuries And Leg Abrasions

With all the lunging and sudden sprints from a stationary position, it is no wonder that there are so many calf and hamstring pulls and partial tears in the sport of baseball. Pitchers and first basemen are always stretching out their legs to throw or catch, respectively, and therefore are more inclined to pull a muscle.

However, you'll find that this injury is actually more prevalent in the weekend athlete or in those whose muscles are not properly warmed up or flexible. (You would rarely see these injuries among children.) Emphasizing proper conditioning can often prevent muscle pulls or tears. To treat these injuries, you would rely heavily on physical therapy modalities, compression wraps, NSAIDS and emphasize a corrective throwing/catching technique to patients.

When doctors treat baseball players, they often overlook toe-

nail contusions and acutely painful ingrown nails. Be aware that it is not uncommon for players to have their foot stepped on or hit by a baseball. Unfortunately, you'll notice that baseball shoes offer little protection to the toe area and traumatic nail avulsions are quite common. Also be aware that since baseball spikes have a rather glove-like fit, they tend to squeeze the toes together and any existing ingrown nail tendency can be greatly affected.

You should tell baseball-playing patients to keep their toenails cut short in order to avoid toenail trauma and subsequent contusions and avulsions. You should also examine the patient's shoe in order to ensure proper fit in length and width. Also, if your patient feels that his foot is sliding forward in the shoe, then you should provide accommodating inserts.

Baseball is a unique sport in that most players play both defense and offense. Everyone learns how to slide. However, leg abrasions still abound, whether caused by sliding in the infield or diving to make a catch. You should irrigate clean these wounds and use dressings with the appropriate antiseptic and nonstick gauze.

Get The Upper Hand On Blisters, Corns And Callouses

Due to the sudden starting and stopping involved in baseball, especially for players in the infield, there is frequent friction between the foot and shoe. Also keep in mind that if these players have any predisposing bone spur or deviation of the toes (especially between the toes or over the tops of the toes), you may see resulting skin irritation, abrasion or inflammation of an existing hyperkeratosis.

If one of your patients has an elongated or dropped metatarsal, you may see a callous develop under this prominence over a period of time. Unfortunately, if you provide sufficient irritation of the area, it may, quite unexpectedly, lead to acute bursitis or capsulitis.

You can address these problems with protective, silicone gel toe shields, Second Skin, accommodative paddings and Skin Lube ointment to prevent friction. If your patient has any metatarsal pain, you can temporarily treat it with a corticosteroid injection and follow up with customized orthotics to help prevent recurring pain.

When The Injuries Have A More Insidious Nature

When you're treating injuries that have developed insidiously, keep in mind that most of them are caused by a combination of

overuse and an underlying structural fault or muscle imbalance. These injuries are actually tougher to treat than the acute injuries because you must first detect the underlying cause of the problem. Also be aware that these problems are very likely to resurface and become chronic if you don't address them properly as opposed to acute injuries, which occur less frequently.

Any astute doctor should be able to detect these problems early, whether it's during a routine preseason physical and history or by observing the dilemma early in the season. Baseball is a running sport, and with any repetitive activity, any small structural discrepancy may become greatly exaggerated and lead to injury.

Essential Insights On Plantar Fasciitis

We usually see plantar fasciitis among adult athletes. This condition is related to strain of a torsional type mechanism that occurs where the plantar fascia inserts into the plantar calcaneal tubercle areas. You'll frequently see this condition among patients

You'll frequently see plantar fasciitis among patients who excessively pronate.

who excessively pronate. Your treatment options may include various physical therapies, especially ultrasound, soft tissue mobilization, heat and ice.

You should also understand that most plantar fascial pains are present when your patients push off, so make sure you address this area adequately. You may use tapings, paddings and in-shoe orthotic supports. Doing a few corticosteroid

injections may be necessary to help reduce pain and swelling.

The good news for these patients is that they'll rarely miss any playing time from this injury. As for the small percentage of severe chronic plantar fascial pains you'll encounter, you can treat these injuries in the offseason with extracorporeal shock wave therapy (orthotripsy), endoscopic or open heel surgery.

What You Should Know About Metatarsal Stress Fractures And Sesamoiditis

When your patient has excessive hypermobility of the foot, especially of the first ray, be aware that this leads to the development of increased pressures to the second, third and fourth metatarsals, which increases stress to these bones. Also be mindful that any predisposing structure, such as a long second metatarsal or dropped metatarsal, may further accentuate this process. You can see this via axial sesamoidal X-ray views, using a wire marker under the painful area.

As far as treatment goes, you need to stop the excessive pronation and/or float any affected metatarsal bone with an accommodative cutout in an orthotic support. If you don't reduce the stress via an orthotic inlay, there is a significantly high

incidence of recurring injury. Also make sure to check that a cleat on the bottom of the baseball shoe is not contributing a pressure spot to the fractured area. If so, you may need to grind the cleat shorter.

When you're treating players who have a high arched foot with a rigidly plantarflexed first ray, be on the lookout for inflammation of the soft tissues surrounding the sesamoid bones. You'll find that this injury can also be caused by the constant push off necessary to throw a ball. So it's no surprise that pitchers and infield players are particularly susceptible to these injuries.

To treat these injuries, you should combine therapeutic modalities along with immobilization. For active individuals, taping the great toe helps to limit extreme ranges of motion as does adding a flexible metal insert in the shoe. You'll also find it very helpful to use paddings or orthotics with an accommodation for the first metatarsal head as they reduce pressures to this area and facilitate healing.

If necessary, doing corticosteroid injections can offer significant help in reducing pain and swelling. However, you must minimize pressures to the sesamoids in order to achieve permanent relief.

Pertinent Pointers On Morton's Neuroma

When patients have Morton's neuroma, their plantar nerve that branches between the metatarsals may become irritated over time and become thickened with fibrotic tissues. It is commonly believed that neuromas are a result of a shearing force caused by a hypermobile foot with excessive pronation during the propulsive phase of the gait cycle. You should be aware that when these patients wear cleats (which tend to run narrower), it can compress and aggravate this injury.

You'll also find that neuroma pain and/or numbness of the involved metatarsals or toes are often accompanied by metatarsal bursitis/capsulitis. Keep in mind that this inflammation further irritates the nerve or vice versa. You can confirm this via a diagnostic ultrasound or MRI testing.

Emphasize that the patient wear a wider shoe if you think it is needed. Also keep in mind that placing a metatarsal arch support in the shoe or on the foot helps keep pressure off the metatarsal heads and splays apart the metatarsals. Therefore, you can prevent the pinching on the nerve(s).

Reducing the hypermobility and excessive pronation with an in-shoe orthotic device will usually give your patient significant benefit. Often, you'll find it necessary to use therapeutic modalities and a few corticosteroid injections to control this bothersome condition. If you determine that the patient needs surgical excision, you can perform it during the offseason.

How To Relieve Shin Splints

Due to a lack of flexibility and strength in their leg muscles, baseball players may have leg pain (especially of the medial and medial posterior surface) more frequently at the beginning of the season. Also keep an eye out for those who show poor running form with their foot toeing outward as these players are more likely to



Take note of the dorsal spur of the talus and the anterior distal spur of the tibia.

irritate the origin to insertion of the lower leg musculature. When this is the case, pay particular attention to the medial soleus and posterior tibial muscles and tendons.

When you have patients that excessively pronate, they are more susceptible to shin splints. As the arch collapses to the ground, the muscles pull away from their lining on the bone, which causes irritation and pain. Be aware that, over periods of time, this microtrauma may result in:

- inflammation of the periostium surrounding the bone;
- inflammation of the surrounding muscles with resultant myositis; or
- a micro-fracture of the bone indicative of a stress fracture.

For shin splints, you want to encourage patients to improve their running form and work on obtaining muscle strength and flexibility. If these patients have hyperpronation, you also want to restore appropriate structural support under the arches.

How To Tackle Calcaneal Apophysitis

Calcaneal apophysitis, which is believed to be a disorder of the growth plate, happens during the growing years and you'll note that the patient's pain is directly behind the heel. Common sense tells us that when the bones grow faster than the soft tissues, you'll see an abnormal pull of the soft tissues away from the bone, which

can cause a traction type of injury. Also be aware that tight calves may have the same affect. Excessive motion of the subtalar joint toward eversion of the heel bone would also cause this traction type of injury.

As far as treatment goes, you want to reduce excessive heel motion and elevate the heel to reduce tension of the Achilles upon its insertion. You can achieve this through various taping techniques as well as adding heel lifts.

Usually, this condition only lasts for a few weeks. However, if problems persist, it is very important to use orthotics with a deep heel-stabilizing cup. You may incorporate this with an orthotic that is posted to reduce excessive eversion, if present.

Important Insights On Achilles Tendinitis And Patella Tendinitis

When baseball players get older, their Achilles and calves tend to become tighter, making them more vulnerable to strain. You'll find that this is especially the case when they are playing on softer surfaces. Also be aware that players are more vulnerable if their feet have inherent structural deviations of pes planus, pes cavus or hypermobility of the joints. These structural deviations subject the Achilles to increased torsional (twisting) or tension (direct pull) strains.

Due to the poor blood supply of the Achilles, it is a slow healer. While some of the etiology may be similar to calcaneal apophysitis, physical therapy may be the best way to go for adult patients, since you may see plenty of scar tissue develop between the Achilles and the paratenon. To eliminate the symptoms, you should emphasize restoring proper flexibility, playing on firmer surfaces and reducing excessive motion of the heel.

Keep in mind that patella tendinitis, which is sometimes called "jumper's knee," can develop at any age. When you see it in younger patients, be aware that it is associated with Osgood-Schlatter's disease. The thinking is that it's a problem with the tibial tubercle growth plate area. It is similar to the calcaneal apophysitis.

Your treatment goal is to reduce knee flexion and reduce the valgus and varus positions of the knee. To reduce inflammation, strengthen the surrounding knee musculature and use the appropriate therapeutic modalities. Ensuring flexibility of the hamstrings is paramount if you're going to reduce tension upon the patella tendon.

You'll often see this injury among patients who have increased genu valgum and flat feet. When treating these patients, using orthotic supports can significantly cut down the healing time. When you use forefoot posted full length orthotic supports, you should note immediate improvement in the structural alignment to the arches and patella. This should help to eradicate this injury and prevent recurrence. ■

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