

Conquest Chronicles Hey Dude...You can't take my calls?

The Injury Clinic - The McKnight Injury

 by **Paragon SC** on **Oct 17, 2008 4:00 AM PDT** in **The Injury Clinic**

It was **announced late yesterday** that Joe McKnight will not make the trip to Pullman because of his turf toe injury

Turf Toe is becoming more and more prevalent in football. It sidelined Beanie Wells earlier in the season and not it appears that it will sideline Joe McKnight

Turf Toe is also known as metatarsalphalangeal (MTP) joint sprain. It is a hyperdorsiflexion injury to the joint and connective tissue between the foot and the big toe.

Injury Epidemiology:

From **The Athletic Advisor**.



The injury usually results from a **hyperflexion mechanism**; the toe is bent to far upward. This can result from a hard push off on a rigid surface, having the toe forcibly flexed while being tackled, or by stopping short allowing the toe to jam in the toe box of the shoe. These mechanisms cause damage to the ligaments of the joint and the joint capsule.

The 1st MTP joint is instrumental in all sports that involve foot contact with the ground. The Great Toe is the final structure in contact with the ground on push-off. Due to this, up to 8 X a person's body weight may be transferred through the 1st MTP joint. Contact sport athletes are at a greater risk of injury of the 1st MTP due to the possibility that during contact, the joint may be forcibly hyperflexed.

The joint is comprised of 4 bones, 9 ligaments, and 3 muscular attachments. This makes for a very complex joint. Of the 4 bones, 2 are sesamoid bones that are encapsulated within tendon. A common example of a sesamoid is the patella or knee cap. Sesamoids serve as fulcrums to increase the power of the muscles that cross them.

The sesamoids are contained within the Flexor Hallucis Brevis tendon and are connected to the under side of the toe by a ligament. Other muscles of the Great Toe are the Adductor Hallucis and Abductor Hallucis. The ligaments of the 1st MTP are comprised of 2 collaterals (located on either side of the joint) and two plantar (on the underside) ligaments. Their attachments combined with the muscular attachments make the great toe a strong yet flexible structure.

It is the amount of flexibility that may lead to easier injuries. The great toe usually has approximately 80° of flexion. It is when this normal range is passed that injury occurs. Another factor in the injury process is the amount of support offered by the athlete's shoes. Worn out shoes allow too much freedom of motion in the forefoot area. This lack of support will assist in transference of forces from the shoe to the foot, increasing the likelihood of injury.

This injury didn't start to get attention until both college and pro football went to playing on artificial surface in the late 1960's. As artificial turf became popular in sports such as football, the incidence of MTP joint injuries appeared to increase.

The injury occurs when someone or something falls on the back of the calf while that leg's knee and tips of the toes are touching the ground. The toe is hyperextended and thus the joint is injured. Additionally, athletic shoes that tend to have very flexible soles combined with cleats that "grab" the turf will cause over extension of the big toe. It should be noted that this can occur on the lesser toes as well.

Turf toe injuries are divided into three grades by severity.

Grade	Signs & Symptoms	Tissue Damage
1	Plantar or medial pain, minimal swelling, negative x-rays	Stretched joint capsule and ligaments
2	General tenderness, moderate swelling, loss of motion, bruising	Partially torn capsule and ligaments, with no joint surface injury
3	Severe pain, severe swelling, & bruising, loss of motion	Ruptured ligaments, joint surface injury, possible joint dislocation

The severity of the injury usually predicts the length of time lost to playing.

Symptoms:

- Pain and tenderness in the ball of the foot and the big toe
- Swelling and bruising of the ball of the foot and the big toe
- Inability to bear weight on the ball of the injured foot
- Inability to push off on the big toe
- Reduced range of motion in the big toe

The immediate treatment for all grades of sprains is the same, Rest, Ice, Compression, and Elevation. This is the standard for acute care of any athletic injury.

First Degree Sprains

A 1^o sprain usually results in very little time loss. The athlete must be able to run and change direction properly prior to return to competition. Application of ice and taping the toe may be enough treatment for return to competition on the day of the injury. Also, spring steel shoe inserts can be of great benefit to reduce the forces applied to the joint.

Second Degree Sprains

This type of injury often leads to time loss. This is due to the greater amount of tissue damage suffered. This athlete may need crutches for walking, and should be seen by a physician to rule out a bony fracture. When the athlete can run and change direction with out pain and loss of mobility, he/she may return to participation with the toe taped and a steel shoe insert.

Third Degree Sprains

These injuries are severe and may be a season ending injury. It must be determined if the joint surfaces have been damaged. If so, early return to participation may result in severe degenerative arthritis, and the loss of a career. Surgery may be required to repair the torn ligaments and tendons.

Diagnosis:

Turf toe is not a difficult diagnosis to make. The first step is for the doctor to obtain an accurate patient history. This will help determine how the injury happened. The patient usually states that a snapping sound was heard at the time of injury. It needs to be determined that the big toe was extended too much in an upwards direction, accompanied by pain and swelling. Depending on the severity of the injury, the big toe may have bruises on it and decreased range of motion when examined. Range of motion means the degree in which a person can move a body part. An x-ray of the foot is taken to make sure there are no breaks.

Rarely, a magnetic resonance imaging (MRI) scan or a bone scan may be performed to make sure there are not other causes for the foot pain. MRI scans produce extremely detailed pictures of the inside of the body by using very powerful magnets and computer technology. A bone scan is a scanning technique used to produce pictures specifically of bones.

Treatment:

Non-Surgical Rehabilitation

Rehabilitation for this injury is fairly simple. Acutely, ice and restriction of motion of the joint is critical in the healing process. As mentioned previously, crutches for walking may be necessary for a period of 1 - 2 weeks.

After the acute stage, it is necessary to return full strength and range of motion to the toe, foot, and ankle. During the acute phase lower body strength and endurance will decrease. Utilizing a stationary bicycle for aerobic conditioning is advised. Strength training in a non-weight bearing fashion on the affected limb is also appropriate. The strength of the foot and ankle should be addressed with Theraband® and range of motion exercises.

For the 1st MTP itself, gentle range of motion exercises should be instituted as pain allows. These are necessary to prevent Hallux Rigidus, a condition that arises when the joint is not moving properly. This can also result in degenerative arthritis of the MTP. Have the athlete bend the toe gently within the limits of pain. As the pain decreases, the amount of motion increases.

Surgical:

Surgery is only needed to repair turf toe if:

- A small piece of bone has been broken off by the injury to the ligament
- A ligament is torn completely



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COMMENTS

Turf Toe

I refuse to believe that artificial turf is the sole reason for more athletes getting turf toe. I have been playing football on artificial turf for years and i have never had or seen a turf toe injury in my career. I can't say that artificial turf isn't partially to blame but i believe that the quality of footwear has a part in it as well. With most athletes choosing more light weight and flexible cleats, their chances of getting turf toe are larger.

by [Monty J](#) on Oct 17, 2008 7:44 AM PDT · [reply](#) 0 recs

Not the sole reason but it does play a role

I recently saw a preliminary draft of a study that also thinks Turf is one possible reason that ACL injuries are up.

I would not be surprised if the shoes had something to do with it as well.

Conquest Chronicles

by [Paragon SC](#) on Oct 17, 2008 10:56 AM PDT · [up](#) · [reply](#) 0 recs

Not the "sole" reason?

That's funny. Ha ha ha.

Bitchen write up Paragon. Again. Not wanting to be charming at all in this, but your "Injury Clinic" is SB Nation's BEST CONTINUING AND UPDATED posting under their umbrella. You get a "WOW!" and a "BANANAS!" superlative for the day. The one and only time it's been done. Keep up the peerless work Paragon.

"Surround yourself with people who can't live without football" - 1st tenet of 3 for Bear Bryant's 3 Rules of Coaching

by [BixBeiderbecke](#) on Oct 17, 2008 4:49 PM PDT · [up](#) · [reply](#) 0 recs

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