



**Central States  
Orthopedics**

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# SPORTS MEDICINE MONTHLY

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*Surgical & Non-Surgical Care. Sports Medicine. Physical Therapy.*

## HAND AND WRIST INJURIES



Research usually lists hand and wrist injuries as 9-11% of total injuries occurring in competitive high school and collegiate athletics. However, given that most athletes consider injuries to the hand and wrist to be minor injuries that will just get better with time, true injury rates are usually underreported. And even though a majority of injuries usually get better with

time, hand and wrist injuries often go underreported, mistreated by the athlete or coach, and can actually cause long-term deficits to hand and wrist function.

In evaluating the anatomy of the wrist, 15 different bones come together in the space of about three inches long by three inches wide to create numerous quantities of joints. Likewise, each joint has a vast arrangement of ligaments supporting the bone structure. In addition, multiple muscles, tendons, nerves, and blood vessels also pass through this area.

In regard to the hand and fingers, 19 bones along with numerous ligaments, tendons, muscles, nerves, and blood vessels support and supply the intrinsic control and the dexterity of the area.

In summary, there is a lot of anatomy in the very small space of the hand and wrist. And, with the hand intricacies that are involved in throwing a softball pitch, shooting a basketball, or gripping a tennis racquet, the injuries to the hand and the wrist that do go underreported and misdiagnosed usually are significantly debilitating to overall athletic performance. In short, if any injury is not seeing steady improvement, it is always best for it to be professionally examined.

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## Gamekeeper's Thumb

Probably one of the most common injuries to the thumb, and also the most under diagnosed and treated, is what most refer to as a simple thumb sprain. Medically speaking, a sprain is defined as an injury (i.e. tearing) to a ligament. In this case, the ligament involved in gamekeeper's thumb is known as the Ulnar Collateral Ligament (UCL). This single ligament is crucial in providing palm-side stabilization to the joint between the thumb and the hand (i.e. first metacarpal phalangeal (MCP) joint).



Most commonly seen in skiers, goalies, cheerleaders, catchers, and volleyball setters, gamekeeper's thumb occurs when a force is applied to the thumb that pushes the thumb away from the center of the hand. As all ligaments have a tensile load that they can withstand, if the force of the volleyball, soccer ball, or fast ball is greater than what the UCL can hold, the UCL subsequently tears.

Comparatively speaking, the tearing of the UCL is much like tearing the medial collateral ligament (MCL) in the knee. In doing so, the joint is greatly destabilized. However, because the first MCP joint is also so important in grip strength and dexterity, gross injuries to this ligament in the thumb can easily render the thumb almost useless. Much like the injury to the knee, rupturing of the UCL in the thumb requires immobilization and sometimes surgical repair. Contrary to popular practice, this cannot be accomplished with simple taping of the joint. The ligament must actively be stabilized. If this doesn't happen, long-term grip strength and utilization of the joint will be grossly hindered.

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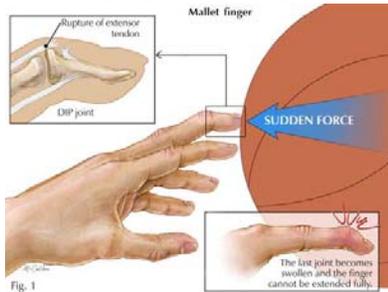
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## Tendon Ruptures

Given the high quantity of tendons prevalent in the hand and wrist, tendon injuries are quite commonplace in athletic competition. And usually, the rupture of a tendon is somewhat hard to miss. Tendons connect muscle to bones and thereby transfer the force created by the muscle to the bone to thereby move a joint. As such, tendon ruptures can be identified when despite actively attempting to move a joint, the athlete is unable to do so.

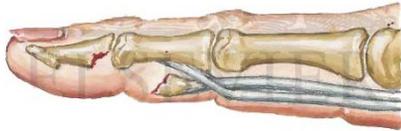
### **Mallet Finger**

Classified as a rupture of the distal terminal end of the extensor tendon of a finger, a mallet finger basically occurs when the finger's extending tendon is under a load to extend the finger while it is simultaneously being forced the opposite direction by a greater force. As a result of placing more force on the tendon than it can withstand, the tendon subsequently ruptures.



### **Jersey Finger**

Classified as a rupture of the flexor tendon of a finger, the exact same mechanism is present as the mallet finger, just in reverse. While the finger is actively flexing, it is simultaneously being pulled in the opposite direction, thus stressing and subsequently rupturing the flexor tendon.



When these tendons rupture, or in the picture above where the tendon pulls a piece of bone off the finger, surgical repair is not uncommon. Although conservative management of 6-12 weeks in a splint can be effective, surgical repair is often necessary to restore function and dexterity to the finger.

Images obtained from Google Images

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## Jammed Fingers

Prevalent in most any sport, "jamming a finger" is probably the most common finger injury occurring in sports. And, although the term "jamming" defines the injury mechanism, it does not accurately identify the injury itself. Because of this, that's also why pulling on a "jammed" finger doesn't fix the problem.

Much like other hinge joints in the body (i.e. knee, elbow, etc...), the joints of the fingers are supported by collateral ligaments. This basically means that each hinge joint in each finger has a ligament on the medial and lateral sides. When a finger is jammed or loaded by a hard force from the tip, commonly one or both of these ligaments tear. Consequently, most athletes with a jammed finger tend to lose their range of motion, their strength, and because the joint itself is destabilized, they also lose overall function of the joint as well.



Injuries to the collateral ligaments in the fingers are not extensively severe and the answer is simple rest for a few days, progressive range of motion exercises, and additional stabilization for usually 1-2 weeks. This is most commonly accomplished by buddy taping the injured finger to the next largest finger beside it. However, as buddy taping still allows the joint to continue in its movement, the likelihood that the ligament will scar back down and the joint will regain its overall integrity is lessened. Consequently, this also increases the likelihood of decreased functionality of the joint and it can predispose the joint to arthritis at an earlier age.

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