



*The following information was compiled by our friends at Stop Sports Injuries campaign. For more information on the campaign and preventing youth sports injuries, please visit [www.STOPSportsInjuries.org](http://www.STOPSportsInjuries.org) and [www.nlh.org](http://www.nlh.org).*

## **Common Upper Body Overuse Injuries**

### **Shoulder**

Some of the most common overuse injuries are seen in players' shoulders. One of the most common overuse injuries in the shoulder is called Little League Shoulder (overuse injury to the proximal humeral physis). Swimming, baseball, tennis, softball and volleyball are just some of the sports that result in frequent overuse injuries. Many injuries in the shoulder stem from muscular imbalances in the shoulder, rotator cuff, and upper back. These muscles stabilize the shoulder joint and are directly involved in the eccentric (muscle lengthening) and concentric (muscle firing) movements of the arm and shoulder (e.g., throwing a baseball or spiking a volleyball).

In most athletes, the muscles in the front of the arm and shoulder are stronger than those in the back of the joint, which are responsible for slowing the forward motion of the arm after a pitch or swing. The four rotator cuff muscles are strained from too much force or overuse in one direction.

Shoulder aches and pains during or after exercise should not be ignored. Rest, proper diagnosis, and rehabilitation are always best, but in general, using light weights to gradually strengthen and balance muscles in the upper body will help the shoulder recover.

### **Elbow**

Elbow injuries are typically seen in baseball and tennis players because of repetitive throwing or swinging motions. The problem arises from the inflammation and deterioration of ligaments and tendons in the elbow. This can lead to pain, tenderness, stress fractures, Ulnar Collateral Ligament (UCL) injuries, or permanent growth plate damage.

"Little League elbow" (overuse injury to the medial epicondyle apophysis) is an injury to the elbow that is caused by frequent forces (such a pitching) that overload the area. A common case involves a youth baseball pitcher who is throwing in too many innings, throwing inappropriate pitches for his/her age, or trying to throw too hard. It is important for athletes, parents, and coaches to know the signs of fatigue, such as consistently elevating pitches, changing the arm angle, missing locations more frequently, decreased velocity, and using the lower body less during the activity. This common injury has led youth organizations to impose maximum pitch counts and required rest periods for youth pitchers in order to protect them from injury.

It is important to follow these recommendations:

- Rotate playing other positions besides pitcher
- Avoid pitching on multiple teams with overlapping seasons
- Do not pitch with any elbow or shoulder pain
- Never use a radar gun, as it encourages over-throwing
- Emphasize control, accuracy, and good mechanics
- Do not rotate between pitcher-catcher or catcher-pitcher in the same game

- Master the fastball and change-up first before even considering breaking pitches, which torque the arm far more severely.

A general rule is not to throw breaking pitches until the player shaves. In other words, the pitcher has gone through puberty and his/her bones, cartilage and growth plates have matured.

Pitchers, tennis players, and javelin throwers often experience UCL injuries. This ligament is often stressed by repeated use, causing progressive deterioration or even a complete rupture. If unaddressed, this injury can progress and ultimately require the commonly known Tommy John surgery, a procedure where the UCL is replaced with a graft from another part of the body. The average recovery time for this procedure is 12 to 18 months.

Athletes should be aware of the potential long-term consequences resulting from this type of injury at a young age, such as chronic pain, joint instability, and loss of function. Although many overuse injuries can affect the upper body, shoulder and elbow injuries are the most common. Regardless of the injury, it is absolutely vital to stop and reverse the progression of overuse injuries.

Work with a physical therapist or athletic trainer to increase flexibility, as well as strengthen and balance the core and other relevant muscles before injuries occur. Additionally, emphasize the importance of proper technique, using the entire kinetic chain and muscles involved in a particular movement for optimal safety and performance.

## **Common Lower Body Overuse Injuries**

### **Knee/ACL**

Athletes in all different sports are susceptible to overuse injuries in the knee, primarily due to repetitive movements such as jumping, cutting, and sudden starts and stops. The factors that seem to make females more likely to injure their Anterior Cruciate Ligament (ACLs) are not fully understood.

Current research suggests that specific differences in movement patterns may be one of the culprits, but additional studies are needed. Common overuse injuries to the knee include patellar tendonitis and overuse damage to the tendon tissue.

Athletes also commonly sustain ACL injuries, a ligament that provides support to the knee. ACL injuries are commonly associated with a single event or “blow out.” Approximately 60% of these injuries occur from cutting with non-contact.

Strong hip abductors keep the legs stable and pelvis level when landing, preventing the knee from abnormal torque or twisting. Imbalances in abductor strength or the quad/hamstring ratio, which should be 2 to 1, will add further stress on the knee during jumping movements. It is commonly believed that strengthening the quadriceps prevents ACL injuries, and while this is partially true, athletes should not sacrifice strengthening the lower body as a whole.

Patellar tendonitis, like all overuse injuries, develops over time and arises from the inflammation of the patellar tendon that connects the kneecap to the shinbone. This tendon provides strength when the knee is straightened out during the jumping process. Often referred to as “jumper’s knee,” athletes will feel an ache below the kneecap after activity during the early stages of progression. Pain will continue to increase as the injury progresses. Patellar tendonitis can be treated to a certain degree with rest and ice and by developing effective flexibility in the quadriceps, lower leg, and hamstring muscles. Many athletes wear braces or supports called infrapatellar straps to support the tendon and improve stability.

A child’s body cannot take the stress that an adult’s body can. Stressing a premature bone, tendon, or ligament will often lead to short- and long-term injury, affecting an athlete’s performance later in life and possibly impairing growth.

### **Shins**

A very common overuse injury affecting players of all sports is shin splints.

Shin splints result from inflammation of the tissues surrounding the tibia. This is caused by a number of factors such as a

rapid increase in training, poor flexibility, or repetitive contact (jumping or running) on hard surfaces. In the early stages, athletes will notice mild tenderness around their shins, especially when the foot is bent downwards. If not addressed, athletes will further damage the area, creating discomfort eventually to a point where movement is greatly hindered. The treatment for this condition is a combination of rest, ice, and massage as well as proper flexibility/strength training.

If an athlete recognizes any early signs, consult an athletic trainer to treat, recover, and prevent reoccurrence. Shin splints can easily recur if not adequately cared for, and as with all injuries, coaches should emphasize the importance of resting the body and taking gradual and thorough measures to prevent further injury.

### **Achilles Tendon**

Achilles tendonitis is caused by repeated micro-tears to the Achilles tendon, leading to damage and loss of healthy tissue. Achilles tendonitis can progress either rapidly over a couple of days or gradually over several months. Athletes will often feel a gradual onset of pain before, during, and after exercise. The tendon and calf will often feel stiff and be sensitive to stretching when the foot is pointed upwards.

Athletes who try to reach high levels of performance too quickly, typically at the beginning of the season, are susceptible to Achilles tendonitis. Athletes with weak calves or other muscular strength and flexibility imbalances are at risk for a number of injuries as well as Achilles tendonitis.

Similar to all overuse injuries, rest and ice are essential in preventing further progression of Achilles tendonitis. Additionally, heel inserts or pads prevent the strain put on the Achilles tendon during everyday activities, but this is only for short-term use when the tendon is recovering. Consultation with a physical therapist or athletic trainer is necessary in order to recover, strengthen, and increase flexibility, as well as to assess the athlete for unique needs based on the structure of their foot.

### **Hip/Thigh**

Hip injuries are common in all sports, but are commonly seen in sports with repetitive, high intensity hip movements, such as track and gymnastics. Snapping hip syndrome is an overuse injury that occurs after large amounts of training and practice in a single sport, which leads to strength and flexibility imbalances. Tendons may audibly and painfully snap over the bones around the hip joint when the hip is raised upwards to the chest and back down. This condition has many variations depending on the muscles involved and underlying hip ailments.

A more serious overuse injury seen in athletes is a femoral neck stress fracture, which affects the top part of the thighbone. This stress fracture develops over time in athletes who have poor running mechanics, increase their training too quickly, lack of proper nutrition, or excessively train throughout the year.

Athletes developing a femoral neck stress fracture often have gradually intensifying groin pain during everyday activities. This pain will begin to focus onto a specific point as it develops. If diagnosed early enough by a doctor, athletes can reverse the progression with rest and physical therapy. In later development of the injury, an athlete will often be put on crutches for a period of time or even require surgery.

Once again, as with any injury, proper diagnosis and rest is the crucial first step in the recovery process. Strengthening the core and pelvis gradually and preventing other muscular imbalances is highly efficient in preventing overuse injuries at the hip.

### **Lower Abdomen**

Athletes may develop a weakening of the muscles or tendons of the lower abdominal wall, particularly in the region where the wall is quite thin, that results in a condition called sports hernia. While an inguinal hernia has a palpable hernia, that is not the case with this injury. The symptoms include pain in the lower abdomen, often radiating into the groin or testicles (in a male). These symptoms are exacerbated with stressful activities such as those related to sports (e.g., running, cutting and bending) as well as coughing or sneezing.

This injury is most common in athletes such as hockey players who are forced to maintain a forward lean, but it is also prevalent in high-stress sports such as soccer and football. While conservative treatments such as rest, ice, and physical

therapy may be used, unfortunately, surgery is often required to correct the problem.

### **Spotting an Overuse Injury and Recovering From It**

Many overuse injuries are easily recognizable by pain or a decrease in ability/loss of function. Make sure athletes report any discomfort or pain when warming up, playing, or resting after activity. Even if the pain is not affecting their performance now, ignoring pain will lead to further injury. Remember that it's better to miss one practice or game than the season.

Athletes may also feel grabbing, snapping, or popping, which is often an indicator of a developing overuse injury. Use the following system as a general guideline for classifying, grading the development, and assessing the progress of an overuse injury.

### **Classification of Tendinosis/Overuse Injuries**

**Stage 1:** Pain after activity, no functional impairment

**Stage 2:** Pain during and after activity with minimal functional impairment

**Stage 3:** Pain during and after activity that persists throughout the day, significant functional impairment

**Stage 4:** Significant functional impairment with all daily activities

Athletes will notice the beginning stages of tendinosis and most overuse injuries. It cannot be stressed enough how important it is to teach players that playing through any amount of pain will only cause further injury and likely longer periods of time away from their sport. Furthermore, it is the coach's and parent's job to know what activities and what amount of exercise puts their child at risk. Taking the necessary precautions will not only keep athletes healthy, but also increase their performance and enjoyment for years to come.