



The American Orthopaedic  
Society for Sports Medicine

## SPORTS TIP

# Overuse Injuries

EXPERT CONSULTANT: Matthew J. Matava, MD

### What is an overuse injury?

There are basically two types of injuries: acute injuries and overuse injuries. Acute injuries are usually the result of a single, traumatic event (macrotrauma). Common examples include wrist fractures, ankle sprains, shoulder dislocations, and hamstring muscle strain.

Overuse injuries are more subtle and usually occur over time. They are the result of repetitive microtrauma to the tendons, bones, and joints. Common examples include tennis elbow (lateral epicondylitis), swimmer's shoulder (rotator cuff tendinitis and impingement), Little League elbow, runner's knee, jumper's knee (infrapatellar tendinitis), Achilles tendinitis, and shin splints.

In most sports and activities, overuse injuries are the most common and the most challenging to diagnose and treat.

### Why do overuse injuries occur?

The human body has a tremendous capacity to adapt to physical stress. In fact, many positive changes occur as a result of this. With exercise and activity, bones, muscles, tendons, and ligaments get stronger and more functional. This happens because of an internal process called remodeling. The remodeling process involves both the break down and build up of tissue. There is a fine balance between the two and if break down occurs more rapidly than build up, injury occurs.

This can happen when you first begin a sport or activity and try to do too much too soon. If you begin playing tennis and

play for several hours in an attempt to improve rapidly, you are setting yourself up for an overuse injury. This is because you are trying to do too much and do not allow your body adequate time to recover. As a beginner, you may also have poor technique which may predispose you to tennis elbow. With overuse injuries, it often takes detective-like work to understand why the injury occurred.

### What factors are usually responsible for overuse injuries?

Training errors are the most common cause of overuse injuries. These errors involve too rapid acceleration of the intensity, duration or frequency of your activity. A typical example is a runner who has run several miles three times a week without any problem. That runner then begins advanced training for running in a marathon, running a longer distance every day at a faster pace. Injury or break down is inevitable. Overuse injuries also happen in people who are returning to a sport or activity after injury and try to make up for lost time.

There are also technical, biomechanical, and individual factors. Proper technique is critical in avoiding overuse injuries. Slight changes in form may be the culprit. For this reason, coaches, athletic trainers, and teachers can play a role in preventing recurrent overuse injuries.

Some people are more prone to overuse injuries and this is usually related to anatomic or biomechanical factors. Imbalances between strength and flexibility around certain joints predispose to

injury. Body alignment, like knock-knees, bow legs, unequal leg lengths, and flat or high arched feet, is also important. Many people also have weak links due to old injuries, incompletely rehabilitated injuries, or other anatomic factors.

Other factors include equipment, like the type of running shoe or ballet shoe, and terrain, hard versus soft surface in aerobic dance or running.

### How are overuse injuries usually diagnosed?

The diagnosis can usually be made after a thorough history and physical examination. This is best done by a sports medicine specialist with specific interest and knowledge of your sport or activity. In some instances, X-rays are needed and occasionally additional tests like a bone scan or MRI are needed.

### What is the treatment?

Treatment depends on the specific diagnosis. In general, for minor symptoms, cutting back the intensity, duration, or frequency of the offending activity brings relief. Adopt a hard/easy workout schedule and cross train with other activities that allow you to maintain overall fitness levels while your injured part recovers. This is very important for treating the early symptoms of overuse injuries.

Working with a coach or teacher or taking lessons can assure proper training and technique. Paying particular attention to proper warm up before activity and using ice after activity may also help. Aspirin or other over the counter anti-inflammatory



## Overuse Injuries

medications can also be taken to relieve symptoms.

If symptoms persist, a sports medicine specialist will be able to create a more detailed treatment plan for your specific condition. This may include a thorough review of your training program and an evaluation for any predisposing anatomic or biomechanical factors. Physical therapy and athletic training services may also be helpful.

### Can overuse injuries be prevented?

Most overuse injuries can be prevented with proper training and common sense. Learn to listen to your body. Remember that “no pain, no gain” does not apply here.

The 10 percent rule is very helpful. In general, you should not increase your training program or activity more than 10 percent per week. This allows your body adequate time for recovery and response. The 10 percent rule also applies to increasing pace or mileage for walkers and runners, as well as to the amount of weight added in strength training programs.

Seek the advice of a sports medicine specialist when beginning an exercise program or sport to prevent chronic or recurrent problems. Your program can also be modified to maintain overall fitness levels in a safe manner while you recover from your injury.