

Tennis Elbow

From [Jonathan Cluett, M.D.](#),

What is tennis elbow?

Tennis elbow, or lateral epicondylitis, is the most common injury in patients seeking medical attention with the complaint of elbow pain. Exactly what causes tennis elbow is unknown, but it is thought to be due to small tears of the tendons that attach the muscles of the forearm to the arm bone at the elbow joint.

The muscle group involved, the wrist extensors, function to cock the wrist back. Specifically, the extensor carpi radialis brevis, has been implicated in causing the symptoms of tennis elbow.

What are the symptoms of tennis elbow?

Patients with the tennis elbow syndrome experience pain on the outside of the elbow that is worsened by grasping objects and cocking back the wrist. The most common symptoms of tennis elbow are:

- Pain over the outside of the elbow
- Pain when lifting objects
- Pain radiating down the forearm

The pain associated with tennis elbow usually has a gradual onset, but may also come on suddenly.

Most patients with tennis elbow are between the ages of 35-65 years old, and it affects about an equal number of men and women. Tennis elbow occurs in the dominant arm in about 75% of patients. Anyone can be affected, but tennis elbow is most commonly seen in two groups of patients:

- **Manual Laborers**
People who work with their hands, manual laborers, are at risk of developing tennis elbow. Jobs that may lead to tennis elbow include plumbers, painters, gardeners, and carpenters.
- **Sports Participants**
Sports participants, including racquet sport players, are prone to developing tennis elbow. Probably 1/3 of regular tennis players experience tennis elbow at some point in their career. In addition to racquet sports, tennis elbow is seen in golfers, fencers, and other sports participants.

Are special tests needed to diagnose tennis elbow?

X-rays of patients who have the diagnosis of tennis elbow are almost always normal. Other studies such as an EMG are sometimes obtained if there is confusion about the diagnosis.

Other causes of pain over the outside of the elbow include instability of the joint, elbow arthritis, and [radial tunnel syndrome](#). The symptoms of these conditions are usually distinct, but in some cases they can be confusing.

What is the problem occurring in tennis elbow?

No one knows for certain, but there are several ideas. It is known that tennis elbow is not simply an "inflammation" of the tendons around the joint. Rather, the problem is thought to be more of a degenerative process either the result of aging, or repetitive use. The symptoms may be the result of an incomplete healing response in an area that does not have good blood flow, and therefore difficulty accessing nutrition and oxygen necessary for healing. This leads to degeneration of the tendon causing small tears.

When do I need to see the doctor for tennis elbow?

Symptoms that you should bring to the attention of your doctor include:

- Inability to carry objects or use the arm
- Elbow pain that occurs at night or while resting
- Elbow pain that persists beyond a few days
- Inability to straighten or flex the arm
- Swelling or significant bruising around the joint or arm
- Any other unusual symptoms

What is the treatment of tennis elbow?

There are several available treatments for tennis elbow. These usually start off conservatively, and work to more involved treatments. Nonoperative treatment is successful in over 90% of patients.

- **Lifestyle Modification**
Lifestyle modification is important if tennis elbow does not resolve or if it recurs. With athletes, often an improvement in technique (see below) can resolve the problem.
- **Changing Stroke Mechanics & Racquet**
Tennis racquets should be sized properly, including grip size. Higher stringing tensions may contribute to tennis elbow. Playing on harder surfaces also increases the risk of developing tennis elbow. Stroke mechanics should be evaluated to ensure patients are hitting the ball in the center of the racquet and players should not lead the racquet with a flexed elbow.

See a tennis pro/instructor for a swing and racquet evaluation.

- **[Anti-inflammatory Medications](#)**
Anti-inflammatory medications are often used to help control pain and inflammation. The oral forms of these medications are easy to take, and often help control the inflammation as well as manage the pain associated with tennis elbow.
- **[Cortisone Injections](#)**
If these conservative measures fail, a steroid (cortisone) injection is a reasonable option. If a person has tried more than two cortisone injections without relief, it is unlikely that additional injections will benefit the patient.
- **[Elbow Brace and Exercises](#)**
An [elbow orthosis](#), called an elbow clasp, can be worn. The theory behind using this elbow clasp is that the brace will redirect the pull of malaligned muscles. Patients often find relief of pain when using the clasp during activities.

Some [simple exercises](#) can also be helpful in controlling the symptoms of tennis elbow. These exercises should not cause pain, and if they do the exercises should not be done until the pain resolves. By strengthening the muscles and tendons involved with tennis elbow, you can help prevent the problem from returning.

- **[Surgery](#)**
Surgery to release the damaged tendon may be needed in a small percentage of patients. A significant trial of conservative treatment should be attempted prior to surgery. Surgery is usually successful, but rarely needed; about 95% of patients with tennis elbow can be treated without surgery.

There are several possible surgical treatments that have been successful. These include removing a portion of the damaged tendon or releasing the attachment of the affected tendon. A repair of the healthy portion of tendon is sometimes carried out as well.

- **[Possible New Treatments](#)**
 - *Extracorporeal Shock Wave Therapy*
Shockwave therapy is a controversial treatment option for tennis elbow. The idea behind shockwave therapy is to use sound waves to induce so-called 'microtrauma' to tissues. This microtrauma initiates a healing response and helps to decrease inflammation. Shockwave therapy is also used in the treatment of [heel spurs](#) and [kneecap tendonitis](#).

The results of studies investigating this treatment have been mixed. Unfortunately, there are no good studies that show this is a better treatment than other conservative treatment options. One of the better designed studies found [there was no benefit from using shockwave therapy](#) for tennis elbow. Some insurance companies will not pay for this treatment either.

- *Autologous Blood Injection*
A [recent article](#) in the *Journal of Hand Surgery* reported the results of a small group of patients who underwent [injection of their own blood](#) into the location of lateral epicondylitis. The idea proposed by the authors is that the blood injection supplies the necessary healing components to help cure the problem.

The study fails to compare this treatment to more standard treatments, and the number of patients investigated is quite small. That said, the [authors report good results](#), and this may become a more standard treatment option. More investigation is needed before this should be considered a standard treatment.

Who should consider surgery for tennis elbow?

A small percentage of patients diagnosed with tennis elbow will ultimately require surgical treatment. Patients may consider surgery in the treatment of tennis elbow if more conservative treatments are not effective after a period of 6-12 months. Furthermore, all other possible causes of pain in this region should be considered prior to undergoing surgery for tennis elbow.

How is surgery for tennis elbow performed?

There are many surgical procedures that have been described for the treatment of tennis elbow. The underlying similarity between these treatments is to remove the damaged tissue, and stimulate a healing response in the area of damaged tendon.

An incision is made over the outside of the joint. The area of damaged tendon is identified, and this portion of tendon is removed.

The underlying bone is exposed and blood flow to this region is stimulated. Some surgeons will repair the remaining tendon by using sutures anchored into the bone. The incision is then closed, and the patient placed in a splint.

What is the post-operative management after tennis elbow surgery?

After surgery, a sterile bandage and splint is placed on the elbow. Patients will remain in a splint for about one week to allow the incision to heal. After that point, the splint is removed, and the patient can begin gentle motion of the wrist and elbow.

How long is the rehabilitation after tennis elbow surgery?

Patients will begin light exercises within several weeks of surgery and can begin strengthening after about 6 weeks. Patients who want to return to athletic activities can begin to do so after about 12 weeks from surgery.

What are the results of tennis elbow surgery?

Most patients will never need surgery for tennis elbow. Of the small percentage of patients who have tennis elbow who eventually need surgery, between 80 and 90% will find improvement with surgical treatment.

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