

TENNIS ELBOW

Tennis elbow, a chronic inflammation of the wrist extensors (muscles) at their attachments to the humerus (upper arm) near the lateral condyle, is caused by repeated extension of the wrist against resistance—particularly with the arm fully extended. With long-term excessive use, the tendon develops micro-tears, resulting in a so-called overuse injury. Inflammation (swelling) and tissue proliferation result. Eventually pain can occur whenever stress is put on the wrist extensors—not only hitting tennis balls but also when lifting virtually any object, holding a glass, even shaking hands—activities in which the extensors must contract to stabilize the wrist.

Tennis elbow on the lateral (outer) side has been considered a problem of less skilled players with a poor backhand. It is more likely, however, that anyone who hits enough tennis balls can get tennis elbow. (In fact, many of the best professionals have severe cases of tennis elbow.) Age is another factor. With age, the extensor tendons appear to react more to stress. Most people with tennis elbow are 35–50 years of age and have been hitting a lot of balls.

Treatment of Tennis Elbow

1. **REST.** A period of rest, without playing tennis, using a hammer or screwdriver, or lifting heavy objects with the affected hand, helps. Ideally you should rest your elbow for at least 6 weeks, but it is often impossible to fully suspend activities of daily living that require use of the hand and arm.
2. **MEDICATIONS.** Take aspirin or a nonsteroidal anti-inflammatory drug such as Advil for 1 week to 10 days to reduce inflammation. These medications should be taken after eating to reduce the chance of stomach upset. Do not take these medications if you have ulcers.
3. **ICE.** Apply ice to the affected area, particularly after activity. Here is an easy way to ice your elbow: Freeze water in a small paper cup, then peel the sides back and rub the ice on the painful area for 20–30 minutes. (Don't worry about frostbite: It takes longer than 20–30 minutes to freeze your skin!)
4. **EXERCISE.** With rest only, muscles become weak and may be easily aggravated once tennis is resumed. Therefore, a program of graduated resistance exercises to strengthen the forearm muscles facilitates tissue repair and helps to prevent recurrence of tennis elbow. An exercise program can begin once severe pain subsides. Physical therapists can prescribe and supervise an exercise program. Exercises to strengthen and stretch muscles on both sides of the forearm will prevent a muscle imbalance.

Deep friction massage: Apply deep transverse massage across the tender area of your elbow for at least 2 minutes, 3–5 times daily.

Grip: Repetitively grasp a ball of putty, grip apparatus, or small rubber ball for 5 minutes, ____ times per day.

Extensor muscles stretch: Straighten the elbow completely. With palm facing down, grasp the back of the hand and pull the wrist down as far as possible. Hold for a count of 10. Release and repeat 10 times, ____ sets, ____ days per week.



Reverse wrist curls: Support your forearm on a table with your hand off the edge and palm down. While holding a weight or a hammer, lower your hand as far as possible. Then curl your wrist up slowly as high as possible. Hold for a count of 2.

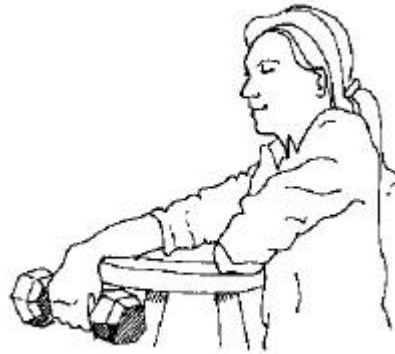
Start with ____ lbs., ____ repetitions, ____ sets per day, ____ days per week.

Progress to ____ lbs., ____ repetitions, ____ sets per day, ____ days per week.

Minor discomfort during the exercise is acceptable. If pain is felt during or after the exercises, either:

- Decrease weight held
- Decrease the number of repetitions done
- Do exercises every other day

(After pain resolves, do 15 repetitions, 3 sets, 3 days per week, year round or at least during the 2 months preceding and during participation in the aggravating sport/activity.)



5. **TENNIS ELBOW BRACE.** Placing a counterforce brace around the upper forearm disperses the pull of the forearm muscles on the elbow. The brace can be used while playing tennis and for daily activities, if pain is constant.
6. **CHANGING TENNIS EQUIPMENT.** Decreasing your racquet's string tension may lessen the shock to the elbow. String tension may need to be set as low as 55 lbs. Larger racquet heads increase the size of the center "sweet spot" and lessen shock to the elbow. Certain types of racquet construction absorb vibration better than others. A tennis pro can provide guidance in choosing a proper racquet. Proper grip size can be determined by measuring from the mid-palm to the end of the long finger.
7. **CHANGING TENNIS TECHNIQUE.** You might want to have a tennis pro analyze your tennis technique. The ball should be hit in front of your body, using the wrist, elbow, and shoulder as one unit. This results in a more effective stroke and a lesser likelihood of developing tennis elbow than does a quick flick of the wrist that catches the ball from behind.

8. **STEREROID INJECTION.** Steroid injections are used for tennis elbow much less often than they were a decade ago. The treatment program outlined in this article often results in improvement, and an injection is unnecessary. If pain is severe and well-localized, you may want to try one injection and avoid using the affected arm for 2 weeks before starting an exercise program.
9. **SURGERY.** Surgery should be considered only for patients who after appropriate conservative care still cannot play tennis or perform other accustomed activities. Most patients who undergo surgery have had symptoms for 9 to 12 months. Although a good result is likely, surgery is no guarantee of a cure and will not enable the patient to return to tennis quickly. Rehabilitation exercises are also needed after an operation.

During the procedure, a 1- to 2-inch incision is made on the lateral (outer) side of the elbow. Abnormal tissue such as scar tissue is resected. The elbow is immobilized temporarily, and then an exercise program is begun. Tennis balls can be hit about 10–12 weeks after surgery.

In summary, tennis elbow is a tendonitis or inflammation of the tissue between the forearm muscles and their attachment to the humerus. Combined treatment with rest, medications, icing, exercises, tennis elbow braces, and changing tennis technique and equipment usually provides relief or reduction of pain and prevents the need for an operation.

—*Suzanne M. Tanner, M.D.*