

## Simple Strategies to Combat Tennis Elbow

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Tennis elbow, or lateral epicondylitis, refers to inflammation or degeneration of the tendons that attach to the outside (lateral) aspect of the elbow. Signs and symptoms typically include pain and tenderness at or just below the bone on the outside of the elbow (lateral epicondyle), and pain with extending the wrist or repetitive gripping or turning. Although common in tennis players (up to 50% may have it at some time in their careers), 95% of the cases of lateral epicondylitis occur in non-tennis players (Brotzman & Wilk 2003). Tennis causes can include poor backhand mechanics, improper string tension, or incorrect grip size. Other sports such as golf or baseball can also put athletes at risk for lateral epicondylitis. Non-sports causes include improper lifting technique, jobs that involve repetitive gripping or twisting, or poor computer ergonomics.

Surgery is typically used only as a last resort for tennis elbow, so with some patience and a proper rehab program you can be back on the court better than ever. You may wish to consult a physical therapist to help guide you through your rehab. He or she can apply advanced manual techniques and modalities that may be necessary to help resolve more complex cases. In addition, a complete biomechanical evaluation can be performed to help identify areas of tightness or weakness throughout your whole body. This can not only help to resolve your current condition, but may also prevent future injuries and improve overall performance.

**Early Phase:** When the pain and tenderness are severe, it is best to rest the injured area and allow time for proper healing. Avoid activities that aggravate the pain, including gripping and lifting with the painful side. If you have to lift an object, do so with your palms facing upwards to avoid stress to the forearm muscles that insert into the lateral epicondyle. The use of ice is very important, and should be done several times each day. It can be applied as an ice pack to the area for 15 minutes, or in the form of an ice massage. To do an ice massage, freeze a Dixie cup full of water and then peel off the top rim to expose the ice. Slowly massage around the painful area – 5 minutes should do the trick. In severe cases, a wrist splint may be recommended to hold the wrist in a neutral position and take all stress away from the wrist extensor muscles.

**Mid Phase:** Once the pain has become less severe it is time to begin more aggressive activities. Transverse friction massage (TFM) can be applied over the area where the tendon inserts into the bone. This is done by placing pressure with the fingertips of your opposite hand into the tendon and moving slowly across it in a perpendicular direction. This is started with gentle pressure, but as the tenderness diminishes more pressure should be used (see figure 1).



Figure 1

Gentle stretching should be started in this phase, for both the wrist extensors ( figure 2), and wrist flexors (figure 3). The elbow should remain straight, and the wrist can be rotated slightly to change the pull on the muscle. Hold each stretch to at least 30 seconds, repeat 4 times per session, at least 3 sessions per day.



Figure 2



Figure 3

Gentle, frequent stretching will cause better elongation of the muscle with less chance of re-injury, than will infrequent, aggressive stretching. Do not stretch to the point of pain!

A more advanced technique called Mobilisation With Movement (MWM) has been developed by New Zealand physiotherapist Brian Mulligan. This works especially well for those who have pain with gripping. To perform this technique, place your injured

arm against the side of a doorway, with the edge ending just above the elbow. Place your opposite hand against the inside of your forearm just below the elbow and apply firm pressure. While the pressure is maintained, repetitively squeeze a gripper or a ball. You should notice that you can grip with less pain when the force is applied. If gripping is still painful, change the angle of bend in your elbow, or the angle or amount of pushing force. If you can grip in this manner without pain, perform 3 sets of 10 reps, 2 times per day (see figure 4).



Figure 4

**Late Phase:** By this phase, the pain and tenderness should be minimal and it is time to think about fully resuming full activity and sports. If you are going to be successful, it is necessary to strengthen these muscles that have become deconditioned while at rest; however, it is very important not to begin the strengthening process too early. Before adding weight, make sure you can do wrist extensions without weight for 2 minutes straight with no increase in symptoms. Start out with light weight - 1# - and progress when you can do 3 sets of 20 reps without an increase in pain. One time per day is sufficient. Once you have advanced to heavier weights, continue your stretching daily, but only do your strengthening every other day.

Wrist Extension with Dumbbell – with your palm facing downward, slowly raise and lower a small dumbbell using only wrist movement (see figure 5)



Figure 5

Wrist Flexion with Dumbbell – performed in the same manner as wrist extension, except that the palm faces upward (see figure 6)



Figure 6

Pronation/Supination with a Hammer or Bat - Grasp a hammer or a baseball bat as far down on the handle as you feel comfortable. Keep your forearm supported on you thigh or a table and slowly let your forearm rotate until your palm faces up and the hammer/bat is parallel to the floor. Reverse directions and rotate your arm until it is fully in the palm down position. You can increase resistance by grasping further down on the handle or adding an ankle weight to the end of the hammer or bat. (see figure 7)



Figure 7

Wrist Rolls – You can use a commercially available device or attach a rope to one end of a dowel rod and a weight to the other. Slowly roll the weight up with the palms facing down to work the wrist extensors. With the palms facing up, the wrist flexors will be worked. Go to the point of fatigue in one direction, then reverse. Repeat this for 3 sets. (see figure 8)



Figure 8

Finger Extension with Rubber Band – Place a rubber band around the end of your fingers, near the base of your fingernails. Slowly expand all of your fingers. Once you can do 3 sets of 20 without pain, add another rubber band (see figure 9)

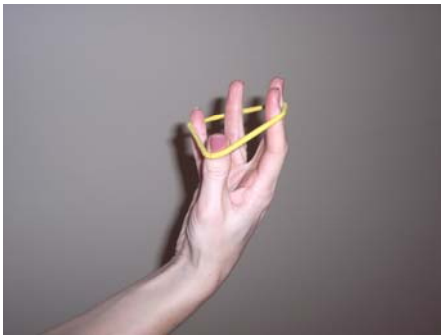


Figure 9

**Return to Sport:** The primary goal is to return to your full pre-injury level, and minimize the chance of recurrence. Proper warm-up before competition is crucial. Have a tennis pro or sports performance specialist look at your mechanics, especially the backhand stroke. Adjustments in your grip size, head size, or sting tension of you racquet could make the difference between a successful return to sport or starting back at square one after only one game. In some cases a counter force brace may be beneficial. This is a strap with a pad that is worn just below your elbow and serves to decrease the amount of force transferred to the tendon at its insertion into the bone.

Tennis elbow can be a complex and very limiting condition. With the proper rest and a gradually progressed rehab program, a safe return to sport can be achieved without surgery in the vast majority of cases.

### **Bibliography**

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Mulligan BR: Manual Therapy: “NAGS”, “SNAGS”, MWMS” etc. 95-99, 1999.