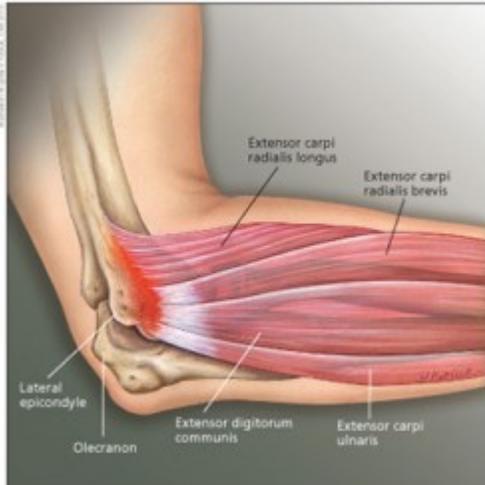


PRPLE

Lateral Epicondylitis (Tennis Elbow)

What is Tennis Elbow?

Chronic lateral epicondylopathy (tennis elbow) is an overuse injury to the tendons/muscles on the outside (lateral) aspect of the elbow. The muscle bellies of the forearm (red in figure below) narrow as they merge into tendons (white in figure below) creating highly focused stress where they insert into the bone of the elbow. Repetitive stress, where the tendon meets the bone, can break down the tendon over time.



Mechanism of Injury

Lateral epicondylitis

Injury to the lateral aspect of the elbow is the most common upper extremity tennis injury. Tennis elbow is generally caused by overuse of the extensor tendons of the forearm, particularly the extensor carpi radialis brevis. Commonly experienced by the amateur player, this injury is often a result of (1) a one-handed backhand with poor technique (the ball is hit

with the front of the shoulder up and power generated from the forearm muscles), (2) a late forehand swing preparation with resulting wrist snap to bring the racquet head perpendicular to the ball, or (3) while serving, the ball is hit with full power and speed with wrist pronation (palm turned downward) and wrist snap which increases the stress on the already taught extensor tendons.

It should be kept in mind that elbow epicondylitis is not limited to those persons playing tennis or swimming and can result from any activity that puts the lateral compartments of the elbow under similar repetitive stress and strain (e.g., hammering, turning a key, screw driver use, computer work, and excessive hand shaking).

Signs and Symptoms

General

- difficulty holding onto, pinching, or gripping objects
- pain, stiffness, or insufficient elbow and hand movement
- forearm muscle tightness
- insufficient forearm functional strength
- point tenderness at or near the insertion sites of the muscles of the lateral or medial elbow

Specific

Lateral Epicondylitis
painful resisted wrist extension
painful resisted supination (rotating forearm as if to hold a bowl of soup in your hand)
palpation tenderness of the lateral epicondyle

Rehabilitation - What You Can Expect

Epicondylitis is a common and often lingering pathologic condition. It is critical, therefore, that you progress your rehabilitation only when you experience minimal or no pain. For more on when and how to progress, see below.

As a general guideline, the more chronic or longer you have experienced the condition, the longer the recovery time is to be expected (up to 8 weeks).

Rehabilitation - What should I do, when should I do it, and how?

Epicondylitis often becomes a chronic problem if not cared for properly. For this reason, it must be stressed that the rehabilitation process should not be progressed until you experience little or no pain at the level you are performing. Regaining full strength and flexibility is critical before returning to your previous level of sports activity.

In general, the rehabilitation process can be divided into three phases:

PHASE 1

Goals: decrease inflammation and pain, promote tissue healing, and retard muscle atrophy. During the acute stage of your injury, whether the medial or lateral elbow is affected, follow the [RICE](#) principle:

- **Rest** - this means avoiding further overuse not absence of activity. You should maintain as high an activity level as possible while avoiding activities that aggravate the injury. Absolute rest should be avoided as it encourages muscle atrophy, deconditions tissue, and decreases blood supply to the area, all of which is detrimental to the healing process. Pain is the best guide to determine the appropriate type and level of activity.
- **Ice** - is recommended as long as inflammation is present. This may mean throughout the entire rehabilitation process and return to sports. Ice decreases the inflammatory process slows local metabolism and helps relieve pain and muscle spasm.
- **Compress and Elevate** if appropriate to assist venous return and minimize swelling.

PHASE 2

Goals: Improve flexibility, increase strength and endurance, increase functional activities and return to function.

Stretching weeks 0- 2

Gentle stretching exercises including wrist flexion and pronation. The elbow should be extended and not flexed to increase the amount of stretch as required. These stretches should be held for 20-30 seconds and repeated 5-10 times, at least twice a day. Vigorous stretching should be avoided - do not stretch to the point of pain that reproduces your symptoms.



Strengthening weeks 2-8 (6 week total)

With the elbow bent and the wrist supported perform the following exercises:

1. *Wrist Extensors.* Place 1 lb. weight in hand with palm facing downward; support forearm at the edge of a table or on your knee so that only your hand can move. Using your free hand, help raise your weighted hand to the starting position and slowly let weight pull you down to the flexed position (eccentric contraction). 3 sets of 10, three times daily.



2. *Forearm Supinators.* Place 1 lb. weight in hand, use your other hand to help rotate the weighted hand to the starting position and then slowly let your wrist fall into the palm down position. 3 sets of 10, three times daily.



After exercising, massage across the area of tenderness with an ice cube for about 5 minutes. You might also try filling a paper cup half-full with water and freeze; peel back a portion of the paper cup to expose the ice.

PHASE 3

Goals: Improve muscular strength and endurance, maintain and improve flexibility, and gradually return to prior level of sport or high level activity.

Continue the stretching and strengthening exercises emphasizing the eccentric contractions of wrist flexion and extension. In this regard, since the eccentric contractions are movements with gravity, do not let the weight drop too quickly; lower the weight in a controlled fashion.

When your symptoms are resolved and have regained full range of motion and strength, you may gradually increase your level of activity.

The Scoop on Bracing

Lateral counter-force bracing is believed to reduce the magnitude of muscle contraction which in turn reduces the degree of muscle tension in the region of muscular attachment. The counter-force brace is essentially an inelastic cuff that is worn around the proximal (near) forearm (against the forearm extensors for lateral epicondylitis).



In theory, the brace constrains full muscle expansion when the muscle contracts, diminishes muscle activity, and therefore the force generated by the muscle. An analogy is the fret on a guitar; when you exert pressure on a different fret along the neck of the guitar, it changes and reduces the tension on the guitar string above where the pressure is exerted.

The counter-force brace can be worn beginning in Phase 2 of your rehabilitation program. However, adhere to the following caution: do not become dependent on the counter-force brace and gradually wean yourself off its use during Phase 3. Counter-force bracing is a supplement to, not a replacement.

Protocol adopted from: <http://www.nismat.org/patients/injury-evaluation-treatment/other-upper-body/tennis-elbow-lateral-and-medial-epicondylitis>