

Tennis Elbow / Lateral Epicondylalgia

Tennis elbow, also known as lateral epicondylitis or lateral epicondylalgia, are terms describing a number of symptoms at the lateral elbow. Less than 10% of these patients play tennis.

This condition, though common, can have a complex series of intrinsic and extrinsic causative factors.

Intrinsic Factors	Extrinsic Factors
1. Overload of the normal musculoskeletal tissues	Relate to the decompensation of the peripheral nervous system. Diagnosis and treatment requires attention to the mechanics of the cervicothoracic spine, or points of radial nerve entrapment
2. Articular dysfunction at the elbow (the abducted ulna)	

An example of musculoskeletal overload includes the 35 - 64% of all cases involving repetitive manual tasks at work. Insufficient wrist extensor strength going into an ambitious exercise program or household task can also lead to overload.

The abducted ulna is often the result of a fall onto an outstretched hand (FOOSH injury). The resultant increase in carrying angle of the elbow forces the radius distally and increases the stress on the extensor mechanism.

Neurologic decompensation is most commonly seen at the C5-6 or C6-7 segments. Nerve root irritation and local inflammation leads to decreased axoplasmic flow. Dysfunction at the neuromuscular endplate follows such that the muscle becomes contracted even when electrically silent. Findings include taut muscle bands exhibiting local twitch responses, dermatomal changes such as trophedema, pilomotor reflex and sensory changes.

The radial nerve may be entrapped in the supinator muscle (the Arcade of Frohse), contributing to lateral elbow symptoms.

The following list of muscles and their nerve derivations is helpful when palpating tight, painful muscular bands.

Muscle	Nerve Derivation
Infraspinatus, supraspinatus	C5,6
Deltoid	C5,6
Biceps	C5,6
Brachioradialis	C5,6
Pectoralis major	C5-8, T1
Triceps	C6-8, T1
Extensor carpi radialis	C6-8
Flexor carpi radialis	C6-8
Pronator quadratus	C8, T1
Flexor carpi ulnaris	C7,8, T1
Dorsal interossei	C8, T1

What We See

- Pain on resisted testing of the wrist and/or finger extensors with the elbow in extension and the forearm in pronation.



- Tenderness on palpation of the lateral epicondyle and/or the common extensor tendon. Careful palpation may include tender muscle bands in the wrist and finger extensors and supinator muscle



- The abducted ulna presents with an increased carrying angle and a decrease in radial deviation.



What We Do

- Hypomobility of the cervicothoracic spine is reported in 57 to 90% of patients with lateral epicondylalgia. We use manual therapy techniques to restore or improve arthrokinematics of the spine, shoulder, elbow and wrist.
- The technique called movement with mobilization involves a passive lateral glide of the elbow with painfree grip exercise. A study of chronic lateral epicondylalgia showed immediate increases in painfree grip force and pressure sensitivity.
- Treat neuropathic muscles (if present). We use a variety of soft tissue techniques, including IMS (Intramuscular Stimulation)
- Stretch and strengthen the musculature of the forearm, wrist and hand. Particular attention is paid to the extensor carpi radialis longus and brevis, supinator and extensor digitorum muscles.
- Address mobility of the peripheral nervous system where required.

References

- Vicenzino B, Cleland JA, Bisset L. Joint Manipulation in the Management of Lateral Epicondylalgia: A Clinical Commentary: JMMT. 2007;15(1):50-56.
- Paungmali A, O'Leary S, Souvlis T, Vicenzino B. Hypoalgesic and Sympathoexcitatory Effects of Mobilization with Movement for Lateral Epicondylalgia. Phys Ther. 2003;83(4):374-383.