

Tennis Elbow – Evaluation, treatment and management

Tennis elbow is a common elbow injury. It involves pain and tenderness at the attachment of muscles to the lateral epicondyle of the elbow. The epicondyle is a rounded protrusion bone on the upper arm. There is one on the medial side of the elbow, and one on the lateral side (see figure). Because of the location of the pain, the medical term for this injury is often lateral epicondylalgia (meaning pain of the lateral epicondyle) or lateral epicondylosis (meaning condition of the lateral epicondyle).

The older name for tennis elbow, “lateral epicondylitis”, refers to inflammation of the lateral epicondyle. This term, epicondylitis, is falling out of favor because research shows that tennis elbow involves degeneration of tissue and not inflammation as it was once thought.

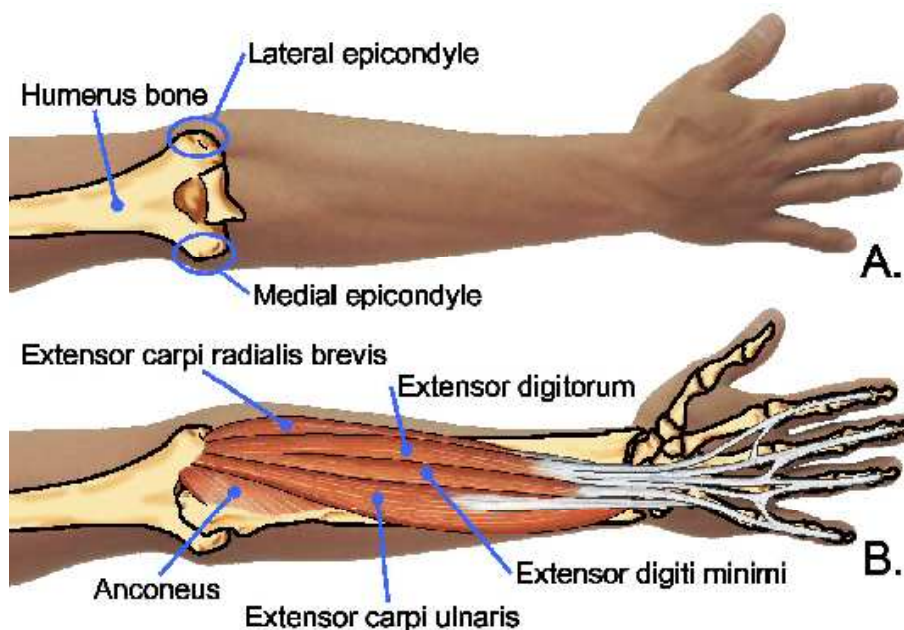


Figure 1A: The epicondyles of the humerus (upper arm bone). 1B: Muscles of the lateral epicondyle.

Cause of Tennis Elbow

Tennis elbow often results from certain work- or sports-related activities that involve repetitive strain. This strain usually involves excessive amounts of monotonous and/or quick motions that involve gripping or eccentric contractions (contraction of a muscle as it lengthens) of the muscles in the forearm. The injury results in microtears and degeneration in the tendons. The most common muscle affected is the “extensor carpi radialis brevis” (ECRB) muscle.

When the injury occurs from playing tennis, it may be related to hitting the ball too late during the backhand stroke or extending the wrist in the follow through. Both these motions places more strain on the forearm muscles.

Symptoms

The symptoms are a combination of lateral elbow pain and a reduction of pain-free grip strength. The pain and tenderness can be at the lateral epicondyle, but could also be above or below it.

Activities such as grasping or picking up objects, or shaking people's hand often reproduce the pain. If it is allowed to progress, tennis elbow may eventually lead to pain even at rest.

Evaluation

Diagnosis is usually straightforward with a clinical examination of the elbow than includes testing the strength and lengthening of the muscles in the forearm. However, there are a number of conditions that also cause elbow pain that should be ruled out for a proper diagnosis. Such conditions include lateral collateral ligament strain, olecranon bursitis, referred pain from a neck injury, arthritis, etc.

Elbow x-rays are of limited value (as they do not show muscle or tendon). And although more expensive diagnostic imaging tests are available, their use does not seem to result in improved outcomes, or faster recovery.

Treatment

It is important to identify and modify any contributing factors to a person's injury. Ergonomic changes at work, measuring the hand for proper tennis racquet grip size, tennis coaching and other interventions where relevant can reduce these factors from causing re-injury.

The research on the best treatment for tennis elbow is still inconclusive. Often newer, high-tech treatments, such as extracorporeal shock wave therapy, braces, or laser therapy, are not shown to be superior to a rehabilitation program^{1,2,3,4}. However it is important to seek treatment sooner because those who wait longer are often more difficult to treat and have a poorer prognosis⁵. In fact research shows that the "wait-and-see" approach (which usually means oral anti-inflammatory medications plus simple ergonomic advice) fares worse than getting professionally supervised rehabilitation⁶. Furthermore, although there is less pain with steroid injection(s) in the short term, over time the clinical course of those who had injections can be inferior to wait-and-see which is inferior to rehabilitation⁶. One study even showed that for some people steroid injections may even be inferior to placebo⁷.

Despite the controversy there are still numerous conservative treatment options for tennis elbow^{2,4}. These include joint manipulation/mobilization (of the elbow, wrist and sometimes the neck if indicated), soft tissue therapy (such as cross friction massage), ultrasound therapy, acupuncture and specific exercises. The exercises should target the ECRB muscle if that is the primary muscle involved. Some researchers have even suggested treating different areas for lateral epicondylalgia depending on its presentation. For example if the prevailing symptom is reduced pain-free grip strength versus elbow tenderness then the treatment might be quite different⁸.

Although research has not shown a single best treatment, it should be prompt, include correction of causative activities and should be tailored to the specifics of the injury. The rehabilitation program can include multiple modalities but should incorporate specific exercises to stretch and strengthen the muscle(s) involved.

Disclaimer: The information is provided for general knowledge only. As each person is different and other conditions cause elbow pain, this information may not apply to you. If you are seeking information, advice or treatment please contact the clinic for an appointment.

References

1. Ho C. Extracorporeal shock wave treatment for chronic lateral epicondylitis (tennis elbow). *Issues Emerg Health Technol.* 2007 Jan;(96 (part 2)):1-4.
2. L Bisset, A Paungmali, B Vicenzino, E Beller. A systematic review and meta-analysis of clinical trials on physical interventions for lateral epicondylalgia. *Br J Sports Med* 2005;39:411–422.
3. Struijs PAA, Smidt N, Arola H, van Dijk CN, Buchbinder R and Assendelft WJJ. Orthotic devices for tennis elbow: a systematic review. *BJ of General Practice*, 2001, 51, 924-929.
4. Johnson G, Cadwallader K, Scheffel S and Epperly T. Treatment of lateral epicondylitis. *Amer Fam Phys* September 2007;76:6 843-8.
5. Hudak P, Cole D and Haines AT. Understanding prognosis to improve rehabilitation: the example of lateral elbow pain. *Arch Phys Med Rehabil* 1996;77:586-93.
6. Bisset L, Smidt N, Van der Windt DA, Bouter LM, Jull G, Brooks P and Vicenzino B. Conservative treatments for tennis elbow – do subgroup of patients respond differently? *Rheumatology* 2007;46:1601–1605.
7. Price R, Sinclair H, Heinrich I, and Gibson T. Local injection treatment of tennis elbow--hydrocortisone, triamcinolone and lignocaine compared. *Br J Rheumatol* 1991;30:39-44.
8. Vicenzino B, Cleland J and Bisset L. Joint manipulation in the management of lateral epicondylalgia: a clinical commentary. *The Journal of Manual & Manipulative Therapy* 2007;15: 50–56.