

Manual Loading for Lateral Epicondylopathy

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I've heard many practitioners state that their outcomes for treating tennis elbow using forms of manual loading such as Graston Technique, ART, friction massage, etc., are varied in terms of results. Sometimes the patient is pain-free within eight visits, 20 visits or anywhere in between; sometimes they don't improve at all. Obviously, more studies are necessary to compare techniques and determine the exact effect of various forms of mechanical load. There are numerous theories, but this article is not written for the purpose of evaluating them.

Clinically speaking, we know manual loading is effective. Until more double-blind studies appear, what is important at this stage is to at least understand more about the area we are attempting to treat. Knowledge of anatomy is extremely important before using our hands or instruments on an area. The extensor carpi radialis brevis (ECRB) is considered to be the prime muscle involved in lateral epicondylopathy. If we only pay attention to its origin and insertion regarding where we use our manual load, outcomes may not be as satisfactory as they could be.

Briggs and Elliott [dissected 139 limbs](#) from embalmed specimens to reveal the attachments of extensor muscles in the area of the lateral epicondyle.¹ On only 29 limbs did they find a direct attachment of the ECRB to the lateral epicondyle. In all the other limbs, the ECRB had attachments to the extensor carpi radialis longus, extensor digitorum communis, supinator, radial collateral ligament, orbicular ligament, capsule of the elbow joint and deep fascia. Friction massage for what was called lateral epicondylitis was originally directed only to the lateral epicondyle and the musculotendinous portion of the ECRB.

This was the only area I treated for years, and many patients improved. Utilizing a Graston instrument on a difficult case, I scanned over the lateral supracondylar ridge of the humerus, proximal to the lateral epicondyle where the extensor carpi radialis longus (ECRL) originates, and found a restricted tender area. Treatment of this area resulted in complete alleviation of the pain in two visits. The ECRB is beneath the ECRL and attaches to it. Clearly, the restriction proximal to the site of pain was involved.

Muscle attachments to bone are called entheses and represent regions of high-stress concentration commonly affected by [overuse injuries in sport](#).² There is now the concept of what is called an "enthesis organ," a collection of tissues adjacent to the enthesis itself that jointly serve a common function as a stress dissipation area. An important function of fascia, to which many muscles directly attach, is to [dissipate stress concentration at the entheses](#) and act as a protective sheet for underlying structures.³ Many tendons and ligaments flare out at their attachment sites as fascia to gain a wider grip on the bone.

So, for lateral epicondylopathy, for example, as in other enthesis areas, since tendinosis appears to be the tissue pathology and aggravated tendinosis palpates as a tender area, it is necessary to palpate proximally and distally to the involved area. Based on the anatomy and the fascial and muscular attachments, we should be looking for all surrounding tender areas that relate to the problem area and localizing our treatment on these sites. While resisted wrist extension happens to

be a key test for determining that a lateral epicondylopathy exists, it pays to perform tests on associated areas that relate to the common tendon, such as resisted supination, extensor digitorum comminus (resisted finger extension) and even resisted wrist radial deviation.

With each test, ask the patient where they feel the pain. These painful sites represent areas for mechanical load treatment. As the condition improves, the patient often, on resisted testing, points only to the epicondyle where the remaining tenderness occurs. It is important to palpate in a circular manner all around the epicondyle for localized areas of pain. Often, treatment has to be directed to each site over several visits until resisted testing and local palpation for pain normalize. In my opinion, poor results may occur if we do not completely manually debride all of the pathological areas to allow final remodeling and healing.

References

1. Briggs CA, Elliott BG. [Lateral epicondylitis. A review of structures associated with tennis elbow.](#) *Anat Clin*, 1985;7:149-153.
2. Shaw HM, Benjamin M. [Structure-function relationships of enthuses in relation to mechanical load and exercise.](#) *Scand J Med Sci Sports*, 2007;17(4):303-15.
3. Benjamin M. [The fascia of the limbs and back: a review.](#) *J Anat*, 2009;214:1-18.

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