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Definition Tennis elbow has many analogous terms, including lateral elbow pain, lateral epicondylitis, rowing elbow, tendonitis of the common extensor origin, and peritendonitis of the elbow. Tennis elbow is characterised by pain and tenderness over the lateral epicondyle of the humerus and pain on resisted dorsiflexion of the wrist, middle finger, or both. For the purposes of this review, tennis elbow was restricted to lateral elbow pain or lateral epicondylitis.

What are the effects of treatments for tennis elbow (lateral epicondylitis)?

Beneficial

Topical non-steroidal anti-inflammatory drugs for short term pain relief
One systematic review has found that topical non-steroidal anti-inflammatory drugs versus placebo significantly improve pain in the short term. Minor adverse effects have been reported. We found no randomised controlled trials (RCTs) comparing oral versus topical non-steroidal anti-inflammatory drugs.

Likely to be beneficial

Oral non-steroidal anti-inflammatory drugs
One systematic review found limited evidence of a short term improvement in pain and function with an oral non-steroidal inflammatory drug versus placebo. The review found some evidence that fewer people receiving an oral non-steroidal anti-inflammatory drug rather than a corticosteroid injection had self perceived improvement at four weeks, but an oral non-steroidal anti-inflammatory drug significantly reduced pain at 26 weeks.

Trade off between benefits and harms

Corticosteroid injections
We found one systematic review and two subsequent RCTs of corticosteroid injections, which found limited evidence of a short term improvement in symptoms with steroid injections versus placebo, a local anaesthetic, elbow strapping, or physiotherapy. It found no good evidence on long term effects of corticosteroids versus placebo or local anaesthetic. It found no evidence of a difference with corticosteroid injection versus mobilisation plus massage or elbow strapping in overall improvement at one year. However, one RCT identified by the review found significantly greater improvement in symptoms with physiotherapy versus an injection at 26 and 52 weeks. The review found limited evidence of greater self perceived improvement at four weeks with a corticosteroid injection versus an oral non-steroidal anti-inflammatory drug and found greater improvement in pain at 26 weeks with an oral non-steroidal anti-inflammatory drug.

Unknown effectiveness

Acupuncture
One systematic review and one subsequent RCT found insufficient evidence to assess the effects of acupuncture (either needle or laser).

Exercise and mobilisation
One systematic review found limited evidence of a better outcome with exercise versus ultrasound plus friction massage at eight weeks.

Extracorporeal shock wave therapy
One systematic review found conflicting evidence from two RCTs of the effects on symptoms of extracorporeal shock wave therapy versus sham treatment.

Non-steroidal anti-inflammatory drugs for longer term pain relief
We found insufficient evidence to assess the longer term effects of oral or topical non-steroidal anti-inflammatory drugs.

Orthoses
One systematic review found insufficient evidence about the effects of orthoses (braces).

Surgery
One systematic review found no RCTs of surgical treatment for tennis elbow.

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Treatment of tennis elbow: the evidence

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Tennis elbow is an overuse syndrome most prevalent in the fourth decade. Predominant symptoms of lateral elbow pain on gripping or resisted wrist dorsiflexion result in many consultations in primary care and days lost from work. Most patients will recover within a year.[1] This should be remembered when considering the results of this Clinical Evidence extract, which is based on a Cochrane review of the subject.

The review identified randomised controlled trials (RCTs) of numerous treatment modalities for lateral elbow pain. The risks of blindly accepting "evidence based medicine" are known,[2] and there are some limitations within the review. The only treatments shown to be beneficial or likely to be beneficial were oral and topical non-steroidal anti-inflammatory drugs, which are often the first line therapy in the early stage of the disease at a point when many cases would show spontaneous resolution. The full *Clinical Evidence* text (www.clinicalevidence.com) shows that some trials had small treatment groups, but the data could not be pooled because data collection, analysis, and presentation were not consistent between trials. Some trials had low validity scores, low power, and insufficient data. Recruitment of patients was inconsistent between trials; some patients had had symptoms for several weeks and some for many months, introducing the risk of lead time bias. For "second line" treatments such as surgery, the review identified a relative lack of RCTs. This is a reflection of the logistical difficulties encountered with RCTs of surgical treatments. For these reasons, the treatment of longstanding tennis elbow may best be considered separately.

Though the data may be of variable quality, certain recommendations for clinical practice can be made. In the early phase of the disease, taking non-steroidal anti-inflammatory drugs and avoiding provoking activities is likely to be beneficial. Corticosteroid injections may be helpful in breaking the pain cycle, but patients should be warned against inflicting further injury by reintroducing activity during the subsequent pain-free "honeymoon period." There is a worrying trend for symptoms to recur some months after steroid injection,[3 4] but in such cases surgical release of the extensor origin may give lasting relief: in a prospective non-randomised study, 51 of 57 patients had an excellent or good result 59 months (range 50 to 65 months) after surgery.[5]

The use of acupuncture, shock wave therapy, orthoses, and long term treatment with non-steroidal anti-inflammatory drugs is not supported by the evidence thus far. Further research is needed to clarify the role of these and other treatment modalities, in the form of well constructed RCT's: the primary care physician needs to know if topical non-steroidal anti-inflammatory drugs, acupuncture, steroid injections, or a wait and see policy are as successful as oral non-steroidal anti-inflammatory drugs in treating tennis elbow soon after onset. The orthopaedic community needs to consider the role of prolonged treatment with non-steroidal anti-inflammatory drugs and of physical therapies (orthoses, physiotherapy, and mobilisation) in treating established tennis elbow before reaching for the knife.

Competing interests: None declared.

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