

Bisset L, Paungmali Q et al. A systematic review and meta-analysis of clinical trials on physical interventions for lateral epicondylalgia. Br J Sports Med 2005;39:411-422.

Design: Meta-analysis/systematic review of clinical trials

Databases/selection and rating of articles:

- 28 randomized trials of physical (not solely pharmacological or surgical) interventions for lateral epicondylitis
- Databases searched included Medline, CINAHL, EMBASE, Web of Science, and PEDro, without language restrictions (translators were used when needed)
- Criteria for studies were diagnosis of lateral epicondylitis as confirmed by lateral elbow pain which increased on palpation and/or resisted extension of wrist dorsiflexion, and at least one of the interventions was a relevant physical intervention
- Studies were required to be randomized, with at least one clinically relevant outcome measure such as pain, grip strength, or global improvement
- Search was conducted in September 2003
- Quality was measured on a 15 point modified PEDro scale by two independent raters, with each criterion being worth 1 point; papers with a score of at least 8/15 were included in the review
- Summary statistics were the standard mean difference (SMD—how many standard deviations separated two treatment groups on the outcome measure); 0.8 SD is a large effect; 0.5 SD is a moderate effect, and 0.2 SD is a small effect

Main outcome measures:

- 2629 articles were screened for retrieval; 150 articles were retrieved for more detailed evaluation; 76 potentially appropriate articles had a full text evaluation, and 28 were included in the systematic review
- Summary statistics for most interventions could not be derived because large differences in outcome measures and timing of measurements precluded pooling with the techniques of meta-analysis
- Exercise was usually studied as a co-intervention which was applied with other modalities; the results of these studies could not be attributed solely to exercise and were not compared
- One study of exercise compared a 6-8 week program of isotonic and isometric stretches and exercises to pulsed ultrasound; SMD in favor of exercise was 0.97 for pain at rest and 0.66 for pain under strain; grip strength was not significantly different between exercise and pulsed US
- Local elbow manipulation data were pooled in two studies; the pooled SMD of 1.28 showed a large immediate effect in favor of manipulation over placebo on pain-free grip strength and a moderate effect (SMD 0.49) on pressure pain threshold; the research was limited because there was no long-term follow-up and there was only one treatment session
- No conclusion can be made about the long-term effect of manipulation

- Two articles on orthotics and taping (elbow brace) were not conclusive regarding their effectiveness
- Four studies of acupuncture showed greater efficacy of acupuncture over placebo in the short-term (2 weeks) but not at 2 months; there was no apparent benefit of acupuncture over ultrasound, although there was only one study making this comparison
- Six studies of laser therapy showed no evidence of effectiveness of laser over placebo in the short term or long term
- Of eight studies of extracorporeal shock wave therapy, only two were methodologically adequate, and they did not show a benefit of ESWT over placebo; there were more side effects in the ESWT participants than in the placebo participants, most of them minor
- Pulsed electromagnetic field therapy, saline iontophoresis, corticosteroid iontophoresis, and NSAID ionization were not well enough studied to allow for conclusions about their effectiveness to be drawn
- For ultrasound, two studies compared US with placebo US, and reported that pain, but not maximum grip strength or global improvement, was better with US than placebo at three months follow-up
- Phonophoresis outcomes were also not shown clearly to be effective for pain, grip strength, or global improvement
- Combined ultrasound, massage, and exercise for 6 weeks were marginally better than corticosteroid injection at 6 months, but were not significantly better than watchful waiting

Authors' conclusions:

- There is surprisingly little consensus on management of tennis elbow despite its prevalence and substantial work loss
- The literature has failed to elucidate any long term benefit of a range of physical interventions in the long term
- The use of ESWT is apparently not effective
- Manipulation and exercise require more long term follow-up for treatment of tennis elbow

Comments:

- Search of databases and documentation of methods of selection is satisfactory
- The authors state that 28 articles with quality scores of 8/15 or greater were used, but Table 1 shows 30 articles with such qualifying scores
- Issue of publication bias is not discussed; it is not clear whether such bias would be positive or negative in direction in this context
- Some pooled estimates appear to cite the same authors: two studies that evaluated elbow manipulation and two studies of ultrasound vs. placebo ultrasound had different lead authors but same authorship otherwise
- The authors interpret a study of physical therapy vs. wait-and-see to show a lack of benefit of PT, but my reading of this study comments that the power of the study to make the pronouncement of ineffectiveness was not clear

- Most treatments were not amenable to pooled estimates of effect by meta-analysis due to issues which are well-documented and discussed by the authors

Assessment: Adequate in methods, and may support an evidence statement that shock wave is unlikely to be beneficial, and that laser is unlikely to be beneficial