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# Lateral Epicondylalgia

## Epicondylalgie : évaluation de l'acupuncture

Article connexe : [Evaluation des anti-inflammatoires non stéroïdiens](#) -

### 1. Systematic Reviews and Meta-Analysis

#### 1.1. Generic Acupuncture

##### 1.1.1. Campos 2024

Campos MGM, Maia LB, Mascarenhas RO, Lourenço BM, Henschke N, Oliveira VC. Effectiveness of non-invasive therapies on pain, maximum grip strength, disability, and quality of life for lateral elbow tendinopathy: A systematic review and meta-analysis. *Braz J Phys Ther.* 2024 Mar-Apr;28(2):100596. <https://doi.org/10.1016/j.bjpt.2024.100596>

<b>Background</b>	Lateral elbow tendinopathy is a common musculoskeletal disorder. Effectiveness of non-invasive therapies for this health condition are unclear.
<b>Objective</b>	To investigate the effectiveness of non-invasive therapies on pain, maximum grip strength, disability, and quality of life for lateral elbow tendinopathy.
<b>Methods</b>	Searches were conducted on MEDLINE, Embase, CINAHL, AMED, PEDro, Cochrane Library, SPORTDiscus and PsycINFO without language or date restrictions up to May 3rd, 2023. Randomized trials investigating the effectiveness of any non-invasive therapy compared with control or other invasive interventions were included. Two independent reviewers screened eligible trials, extracted data, and assessed the risk of bias of included trials and certainty of the evidence.
<b>Results</b>	Twenty-two different therapies investigated in 47 randomized trials were included in the quantitative analysis. Moderate certainty evidence showed that betamethasone valerate medicated plaster may reduce disability (mean difference -6.7; 95% CI -11.4, -2.0) in the short-term when compared with placebo. Low certainty evidence showed that <b>acupuncture</b> may reduce disability (MD -9.1; 95% CI -11.7, -6.4) in the short-term when compared with sham. Moderate to very low certainty of evidence also showed small to no effect of non-invasive therapies on pain intensity, maximum grip strength, and disability outcomes in the short-term compared to control or invasive interventions. Most therapies had only very low certainty of evidence to support their use.
<b>Conclusions</b>	Decision-making processes for lateral elbow tendinopathy should be carefully evaluated, taking into consideration that most investigated interventions have very low certainty of evidence. There is an urgent call for larger high-quality trials.

##### 1.1.2. Navarro-Santana 2021 ☆

Navarro-Santana MJ, Sanchez-Infante J, Gómez-Chiguano GF, Cummings M, Fernández-de-Las-Peñas C, Plaza-Manzano G. Effects of manual acupuncture and electroacupuncture for lateral epicondylalgia of musculoskeletal origin: a systematic review and meta-analysis. *Acupunct Med.* 2021

Oct;39(5):405-422. <https://doi.org/10.1177/0964528420967364>

<b>Objective</b>	The aim of this study was to evaluate the effect of acupuncture/electroacupuncture, alone or combined with other interventions, on pain intensity, pain-related disability, and strength in lateral epicondylalgia (LE) of musculoskeletal origin.
<b>Databases and data treatment</b>	Electronic databases were searched for randomized clinical trials, where at least one group received acupuncture or electroacupuncture for LE of musculoskeletal origin. To be eligible, trials had to include humans and collect outcomes on pain intensity or pain-related disability in LE. Data were extracted by two reviewers. The risk of bias (RoB) of the trials was assessed using the Cochrane RoB tool, methodological quality was assessed with the Physiotherapy Evidence Database (PEDro) score, and the level of evidence was summarized using the Grading of Recommendations Assessment, Development, and Evaluation (GRADE). Standardized mean differences (SMDs) using random effects were calculated.
<b>Results</b>	<b>A total of 14 trials (10 acupuncture) were included.</b> The meta-analysis found a moderate effect size of acupuncture (SMD = -0.66, 95% confidence interval (CI) = -1.22 to -0.10), but not electroacupuncture (SMD = -0.08, 95% CI = -0.99 to 0.83), in the reduction of elbow pain as compared to a comparative group. Acupuncture exhibited a significant moderate effect size (SMD = -0.51, 95% CI = -0.91 to -0.11) in the improvement of related-disability. Acupuncture (SMD = 0.36, 95% CI = 0.16 to 0.57), but not electroacupuncture (SMD = 0.34, 95% CI = -0.29 to 0.98), exhibited a significant but small effect size on strength. Most significant effects were in the short term. The RoB was low but the heterogeneity of trial results led to a downgrading of the GRADE evidence level.
<b>Conclusions</b>	<b>Low-level evidence suggests positive effects of acupuncture, but not electroacupuncture,</b> for pain, related-disability, and strength, in LE of musculoskeletal origin, in the short term.

### 1.1.3. Zhou 2020

Zhou Y, Gu, Zhou, Wu P, Liang F, Yang Z. Effectiveness of Acupuncture for Lateral Epicondylitis: A Systematic Review and Meta-Analysis of Randomized Controlled Trials. *Pain Res Manag.* 2020. [208519]. [doi](#)

<b>Objective</b>	This study aimed at assessing the clinical effectiveness of acupuncture for lateral epicondylitis (LE).
<b>Methods</b>	The following databases were systematically searched: China National Knowledge Infrastructure, Chinese Science and Technology Periodical Database, Wan Fang database, Chinese Biomedicine Literature, PubMed, EMBASE, and Cochrane Library from inception to May 2019. Randomized controlled trials (RCTs) meeting the inclusion criteria were included. RevMan 5.3 software was used to conduct meta-analyses. The study quality was evaluated with the Cochrane risk of bias.
<b>Results</b>	<b>Ten RCTs involving 796 individuals</b> were included in this meta-analysis. Three studies reported randomized methods with a specific description. For the analyses of the clinical efficacy rate, acupuncture outperformed sham acupuncture (two RCTs, n = 130, P=0.15), medicine therapy (two RCTs, n = 124, P=0.02), and blocking therapy (four RCTs, n = 427, P =0.0001). For the analyses of the visual analog scale, acupuncture outperformed sham acupuncture (two RCTs, n = 92, P=0.18), medicine therapy (two RCTs, n = 144, P < 0.00001), and blocking therapy (two RCTs, n = 132, P=0.03). The subgroup analyses comparing acupuncture with sham acupuncture therapy revealed heterogeneities. The follow-up information and adverse reactions were not analyzed because of the insufficient number of studies.

<b>Conclusions</b>	Acupuncture appears to be superior to drug or blocking therapy or sham acupuncture therapy for LE. However, considering the low quality of the available trials, further large-scale RCTs with a low risk of bias are needed in the future.
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**1.1.4. Lian 2019 Ø**

Lian J, Mohamadi A, Chan JJ, Hanna P, Hemmati D, Lechtig A, Nazarian A. Comparative Efficacy and Safety of Nonsurgical Treatment Options for Enthesopathy of the Extensor Carpi Radialis Brevis: A Systematic Review and Meta-analysis of Randomized Placebo-Controlled Trials. *Am J Sports Med.* 2019;47(12):3019-3029. [210808]. doi

**1.1.5. Gadau 2014 ★★★**

Gadau M, Yeung WF, Liu H, Zaslowski C, Tan YS, Wang FC, Bangrazi S, Chung KF, Bian ZX, Zhang SP. Acupuncture and moxibustion for lateral elbow pain: a systematic review of randomized controlled trials. *BMC Complement Altern Med.* 2014;14:136.doi: 10.1186/1472-6882-14-136. [170679]

<b>Purpose</b>	A comprehensive systematic review of randomized controlled trials (RCTs) including both English and Chinese databases was conducted to assess the efficacy of acupuncture and moxibustion in the treatment of LEP.
<b>Methods</b>	Revised STRICTA (2010) criteria were used to appraise the acupuncture procedures, the Cochrane risk of bias tool was used to assess the methodological quality of the studies. A total of <b>19 RCTs</b> that compared acupuncture and/or moxibustion with sham acupuncture, another form of acupuncture, or conventional treatment were included.
<b>Results</b>	All studies had at least one domain rated as high risk or uncertain risk of bias in the Cochrane risk of bias tool. Results from three RCTs of moderate quality showed that acupuncture was more effective than sham acupuncture. Results from 10 RCTs of mostly low quality showed that acupuncture or moxibustion was superior or equal to conventional treatment, such as local anesthetic injection, local steroid injection, non-steroidal anti-inflammatory drugs, or ultrasound. There were six low quality RCTs that compared acupuncture and moxibustion combined with manual acupuncture alone, and all showed that acupuncture and moxibustion combined was superior to manual acupuncture alone.
<b>Conclusion</b>	<b>Moderate quality studies suggest that acupuncture is more effective than sham acupuncture.</b> Interpretations of findings regarding acupuncture vs. conventional treatment, and acupuncture and moxibustion combined vs. manual acupuncture alone are limited by the methodological qualities of these studies. Future studies with improved methodological design are warranted to confirm the efficacy of acupuncture and moxibustion for LEP.

**1.1.6. Chang 2014 ★★**

Chang WD, Lai PT, Tsou YA. Analgesic effect of manual acupuncture and laser acupuncture for lateral epicondylalgia: a systematic review and meta-analysis. *Am J Chin Med.* 2014;42(6):1301-14. doi: 10.1142/S0192415X14500815. [111576]

<b>Purpose</b>	We conducted a systematic review and meta-analysis to compare the analgesic effect of laser acupuncture and manual acupuncture for the treatment of lateral epicondylalgia.
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<b>Methods</b>	We investigated studies published in the Medline, PubMed, and CINAHL databases from January 1980 to December 2013. This review included <b>9 randomized articles</b> . Six of them examined manual acupuncture and the others focused on laser acupuncture. We analyzed the meta-analysis results regarding the analgesic effect of the treatment, and observed substantial differences in 4 articles related to manual acupuncture.
<b>Results</b>	Manual acupuncture is effective in short-term pain relief for the treatment of lateral epicondylalgia; however, its long-term analgesic effect is unremarkable.
<b>Conclusion</b>	<b>Manual acupuncture is effective in short-term pain relief for the treatment of lateral epicondylalgia</b> ; however, its long-term analgesic effect is unremarkable. A suitable acupuncture point and depth can be used to treat lateral epicondylalgia. Manual acupuncture applied on lateral epicondylalgia produced stronger evidence of an analgesic effect than did laser acupuncture.

### 1.1.7. Bisset 2011 ★

Bisset L, Coombes B, Vicenzino B. Tennis elbow. BMJ Clin Evid. 2011 Jun 27;2011. pii: 1117. [70913]

<b>Introduction</b>	Lateral pain in the elbow affects up to 3% of the population, and is considered an overload injury of the extensor tendons of the forearm where they attach at the lateral epicondyle. Although usually self-limiting, symptoms may persist for over 1 year in up to 20% of people.
<b>Methods And Outcomes</b>	We conducted a systematic review and aimed to answer the following clinical question: What are the effects of treatments for tennis elbow? We searched: Medline, Embase, The Cochrane Library, and other important databases up to November 2009 (Clinical Evidence reviews are updated periodically, please check our website for the most up-to-date version of this review). We included harms alerts from relevant organisations such as the US Food and Drug Administration (FDA) and the UK Medicines and Healthcare products Regulatory Agency (MHRA).
<b>Results</b>	We found 80 systematic reviews, RCTs, or observational studies that met our inclusion criteria. We performed a GRADE evaluation of the quality of evidence for interventions.
<b>Conclusions</b>	In this systematic review we present information relating to the effectiveness and safety of the following interventions: <b>acupuncture</b> , autologous whole blood injections, corticosteroid injections, combination physical therapies, exercise, extracorporeal shock wave therapy, iontophoresis, low-level laser therapy, manipulation, non-steroidal anti-inflammatory drugs (oral and topical), orthoses (bracing), platelet-rich plasma injections, pulsed electromagnetic field treatment, surgery, and ultrasound.
Acupuncture	There is conflicting evidence about the value of acupuncture for tennis elbow, although some trials have demonstrated a small short-term benefit. There may be differences in efficacy between different forms of acupuncture, such as manual acupuncture and electroacupuncture.

### 1.1.8. Schleicher 2010 ★

Schleicher I, Szalay G, Kordelle J. [Treatment Of Epicondylitis - A Current Review]. Sportverletz Sportschaden. 2010;24(4):218-24. [156399] .

Lateral epicondylitis or tennis elbow is a common injury, which affects not only people who play tennis but occurs with many different activities. It reflects overuse of the extensor muscles of the forearm. There are some other pathologies which have to be separated from epicondylitis. The choice of different treatments is hard to overlook and there are only a few good clinical trials which support one treatment option by means of evidence based

medicine. **During the acute phase topical NSAIR, steroid injections, ultrasound and acupuncture are helpful.** There is no consensus about the effectiveness of physiotherapy, orthoses, laser, electrotherapy or botulinumtoxininjections. During the chronic phase none of the different treatment modalities is effective according to criterias of evidence based medicine. By now, it has not been proven whether patients profit during that time of physiotherapy, orthoses, extracorporeal shock wave therapy or an operationty.

### 1.1.9. Buchbinder 2007 Ø

Buchbinder R, Green S, Struijs P. Tennis Elbow. Am Fam Physician. 2007;75(5):701-2.[145486]

<b>Purpose</b>	What are the effects of treatments for tennis elbow?
<b>Methods</b>	Small, methodologically weak RCTs provided conflicting evidence about the effects of needle acupuncture, laser acupuncture, or electroacupuncture in persons with tennis elbow.
<b>Results</b>	Three out of <b>five RCTs</b> comparing acupuncture versus placebo or no treatment found a <b>small short-term benefit from acupuncture compared with placebo or no treatment</b> , whereas two RCTs found no significant difference among groups.Small, methodologically weak RCTs provided conflicting evidence about the effects of needle acupuncture, laser acupuncture, or electroacupuncture in persons with tennis elbow.
<b>Conclusion</b>	<b>Unknown effectiveness : Acupuncture</b> (for Short-term Pain Relief).

### 1.1.10. Bisset 2005 ★★★

Bisset L, Paungmali A, Vicenzino B, Beller E. A systematic review and meta-Analysis of clinical trials on physical interventions for lateral epicondylalgia. Br J Sports Med. 2005;39(7):4111-22. [140636]

<b>Purpose</b>	A systematic review of the literature on the effectiveness of physical interventions for lateral epicondylalgia (tennis elbow) was carried out.
<b>Methods</b>	Seventy six randomised controlled trials were identified, 28 of which satisfied the minimum criteria for meta-analysis.
<b>Results</b>	The evidence suggests that extracorporeal shock wave therapy is not beneficial in the treatment of tennis elbow. There is a lack of evidence for the long term benefit of physical interventions in general.
<b>Conclusion</b>	<b>There appears to be some evidence to support the efficacy of acupuncture over a placebo as a treatment for LE in short term outcomes. However, this benefit appears to be short lived that is, two to eight weeks.</b>

### 1.1.11. Trinh 2004 ★★

Trinh KV, Phillips SD, Ho E et al. Acupuncture for the alleviation of lateral epicondyle pain : a systematic review. Rheumatology (Oxford). 2004;43:1085-90. [135709]

<b>Purpose</b>	This review evaluates the effectiveness of acupuncture as a treatment for lateral epicondylitis using the appropriate analysis.
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<b>Methods</b>	Online bibliographic database searches in any language from Medline, PsychINFO, CINAHL, Healthstar, PMID, CAM, EMBASE, Cochrane Database of Systematic Review (3rd quarter 2003), articles listed in reference lists of key articles and the author's personal files were performed. Randomized and quasi-randomized controlled trials examining the effects of acupuncture on lateral epicondyle pain were selected. From the <b>six studies</b> that met inclusion criteria, the first author, year of publication, population studied, dropout rate, treatment plan, assessment scale and outcome measures were extracted. Study quality was determined by using the Jadad scale, in which all studies were rated as high quality. A best evidence synthesis approach was used to analyse the data presented in the six studies.
<b>Results</b>	All the studies suggested that <b>acupuncture was effective in the short-term relief of lateral epicondyle pain</b> . Five of six studies indicated that acupuncture treatment was more effective compared to a control treatment.
<b>Conclusion</b>	<b>There is strong evidence suggesting that acupuncture is effective in the short-term relief of lateral epicondyle pain.</b>

### 1.1.12. Trudel 2004 ★★

Trudel D, Duley J, Zastrow I, Kerr EW, Davidson R, MacDermid JC. Rehabilitation for patients with lateral epicondylitis: a systematic review. *J Hand Ther.* 2004;17(2):243-66. [167052]

<b>Objectifs</b>	The purpose of this systematic review was to determine the effectiveness of conservative treatments for lateral epicondylitis and to provide recommendations based on this evidence.
<b>Methods</b>	Five reviewers searched computerized bibliographic databases for articles on the conservative treatment of lateral epicondylitis from the years 1983 to 2003.
<b>Results</b>	A total of 209 studies were located; however, only 31 of these met the study inclusion criteria. Each of the articles was randomly allocated to reviewers and critically appraised using a structured critical appraisal tool with 23 items. Treatment recommendations were based on this rating and Sackett's Level of Evidence. <b>This review has determined, with at least level 2b evidence,</b> that a number of treatments, including <b>acupuncture</b> , exercise therapy, manipulations and mobilizations, ultrasound, phonophoresis, Rebox, and ionization with diclofenac all show positive effects in the reduction of pain or improvement in function for patients with lateral epicondylitis. There is also at least level 2b evidence showing laser therapy and pulsed electromagnetic field therapy to be ineffective in the management of this condition.
<b>Conclusions</b>	Practitioners should use the treatment techniques that have strongest evidence and ensure that studies findings are generalized to patients who are similar to those reported in primary research studies in terms of patient demographics and injury presentation.

### 1.1.13. Boisaubert 2004 Ø

Boisaubert B Et Al. Les traitements non chirurgicaux de la tendinopathie des épicondyliens. *Annales de Réadaptation et de Médecine Physique.* 2004;47(6):346-55. [131595].

<b>Objectifs</b>	Faire une revue de la littérature des traitements non chirurgicaux de la tendinopathie des épicondyliens (TE).
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<b>Méthodes</b>	Nous avons recherché dans la base de données Medline les articles concernant les traitements non chirurgicaux de la TE publiés de 1966 à décembre 2003. Seules les études randomisées et contrôlées ont été retenues. Les mots clés étaient Controlled clinical trial, tennis elbow on latéral epicondylitis, treatment.
<b>Résultats</b>	Nous avons retrouvé 46 études contrôlées et randomisées consacrées à 14 traitements non chirurgicaux de la TE ainsi que 11 revues de la littérature. L'infiltration de corticoïdes est le traitement le plus efficace à court terme, mais avec un fort pourcentage de récurrence à trois mois et un moins bon résultat à long terme que les exercices d'étirement et de renforcement progressif des épicondyliens. Il n'est pas prouvé que ces exercices modifient le cours naturel de l'évolution de la TE. Les US et les MTP sont souvent associés aux exercices d'étirement et de renforcement des épicondyliens. L'intérêt de cette association reste à démontrer. Les AINS ont une efficacité modeste, à court terme, au stade initial de la maladie. <b>Il n'y a pas suffisamment de preuve pour recommander actuellement l'utilisation de l'acupuncture</b> , des ondes de choc, des manipulations, du laser à basse énergie, des orthèses, des injections, de toxine botulique, de sulfate de glycosaminoglycanes ou de l'application de patch d'oxyde nitrique.
<b>Conclusion</b>	D'autres études sont nécessaires pour mieux apprécier les traitements proposés et en particulier juger de leur capacité à modifier le cours naturel de cette affection bénigne qu'est la TE.

#### 1.1.14. Assendelft 2004 Ø

Assendelft W, Green S, Buchbinder R, Struijs P, Smidt N. Tennis elbow. Clin Evid. 2004;11:1633-44. [136188]

We found insufficient evidence from small, methodologically weak RCTs about effects of needle acupuncture, laser acupuncture, or electro-acupuncture in people with tennis elbow.

#### 1.1.15. Green 2002 Ø

Green S, Buchbinder R, Barnsley L, Hall S, White M, Smidt N, Assendelft W. Acupuncture for lateral elbow pain. Cochrane Database Syst Rev. 2002;(1):CD003527.[101017]

<b>Purpose</b>	To determine the effectiveness of acupuncture in the treatment of adults with lateral elbow pain with respect to pain reduction, improvement in function, grip strength and adverse effects.
<b>Methods</b>	Search strategy : we searched MEDLINE, CINAHL, EMBASE and SCISEARCH and the Cochrane Clinical Trials Register and the Musculoskeletal Review Group's specialist trial database from 1966 to June 2001. Identified keywords and authors were searched in an effort to retrieve as many trials as possible. Selection criteria : two independent reviewers assessed all identified trials against pre-determined inclusion criteria. Randomised and pseudo randomised trials in all languages were included in the review provided they were testing acupuncture compared to placebo or another intervention in adults with lateral elbow pain (tennis elbow). Outcomes of interest were pain, function, disability, quality of life, strength, participant satisfaction with treatment and adverse effect. Data collection and analysis : for continuous variables means and standard deviations were extracted or imputed to allow the analysis of weighted mean difference, while for binary data numbers of events and total population were analysed and interpreted as relative risks. Trial results were combined only in the absence of clinical and statistical heterogeneity.

<b>Results</b>	Four small randomized controlled trials were included but due to flaws in study designs (particularly small populations, uncertain allocation concealment and substantial loss to follow up) and clinical differences between trials, data from trials could not be combined in a meta-analysis. One randomised controlled trial found that needle acupuncture results in relief of pain for significantly longer than placebo (WMD = 18.8 hours, 95%CI 10.1 to 27.5) and is more likely to result in a 50% or greater reduction in pain after 1 treatment (RR 0.33, 95%CI 0.16 to 0.69) (Molsberger 1994) . A second randomized controlled trial demonstrated needle acupuncture to be more likely to result in overall participant reported improvement than placebo in the short term (RR = 0.09 95% CI 0.01 to 0.64)(Haker 1990a) . No significant differences were found in the longer term (after 3 or 12 months). A randomized controlled trial of laser acupuncture versus placebo demonstrated no differences between laser acupuncture and placebo with respect to overall benefit (Haker 1990b). A fourth included trial published in Chinese demonstrated no difference between Vitamin B12 injection plus acupuncture, and Vitamin B12 injection alone (Wang 1997).
<b>Conclusion</b>	<b>There is insufficient evidence to either support or refute the use of acupuncture (either needle or laser) in the treatment of lateral elbow pain.</b> This review has demonstrated needle acupuncture to be of short term benefit with respect to pain, but this finding is based on the results of 2 small trials, the results of which were not able to be combined in meta-analysis. No benefit lasting more than 24 hours following treatment has been demonstrated. No trial assessed or commented on potential adverse effect. Further trials, utilising appropriate methods and adequate sample sizes, are needed before conclusions can be drawn regarding the effect of acupuncture on tennis elbow.

## 1.2. Special Acupuncture Techniques

### 1.2.1. Laser acupuncture

#### 1.2.1.1. Digemanse 2014 (laser-acupuncture, tens) ★

Dingemanse R, Randsdorp M, Koes BW, Huisstede BM. Evidence for the effectiveness of electrophysical modalities for treatment of medial and lateral epicondylitis: a systematic review. Br J Sports Med. 2014;48(12):957-65. [167051].

<b>Background</b>	Several treatments are available to treat epicondylitis. Among these are instrumental electrophysical modalities, ranging from ultrasound, extracorporeal shock wave therapy (ESWT), transcutaneous electrical nerve stimulation (TENS) to laser therapy, commonly used to treat epicondylitis.
<b>Objectives</b>	To present an evidence-based overview of the effectiveness of electrophysical modality treatments for both medial and lateral epicondylitis (LE).
<b>Methods</b>	Searches in PubMed, EMBASE, CINAHL and Pedro were performed to identify relevant randomised clinical trials (RCTs) and systematic reviews. Two reviewers independently extracted data and assessed the methodological quality. A best-evidence synthesis was used to summarise the results.

<b>Results</b>	A total of 2 reviews and <b>20 RCTs</b> were included, all of which concerned LE. Different electrophysical regimes were evaluated: ultrasound, laser, electrotherapy, ESWT, TENS and pulsed electromagnetic field therapy. Moderate evidence was found for the effectiveness of ultrasound versus placebo on mid-term follow-up. Ultrasound plus friction massage showed moderate evidence of effectiveness versus laser therapy on short-term follow-up. On the contrary, <b>moderate evidence was found in favour of laser therapy over plyometric exercises on short-term follow-up</b> . For all other modalities only limited/conflicting evidence for effectiveness or evidence of no difference in effect was found.
<b>Conclusions</b>	Potential effectiveness of ultrasound and laser for the management of LE was found. To draw more definite conclusions high-quality RCTs examining different intensities are needed as well as studies focusing on long-term follow-up results. Published by the BMJ Publishing Group Limited. For permission to use (where not already granted under a licence) please go to.

### 1.2.1.2. Chang 2010 ★★

Chang WD, Wu JH, Yang WJ, Jiang JA. Therapeutic Effects of Low-Level Laser on Lateral Epicondylitis from Differential Interventions of Chinese-Western Medicine: Systematic Review. Photomed Laser Surg. 2010;28(3):327-36. [70257].

<b>Purpose</b>	Low-level laser therapy (LLLT) is a conservative treatment for lateral epicondylitis (LE), but it is also an alternative intervention between the very different approaches of Chinese and Western medicine. The purpose of this study was to systematically review and meta-analyze the therapeutic effects of LLLT on LE.
<b>Methods</b>	We searched several electronic databases, including Medline, PubMed, and CINAHL, and explored studies that were randomized controlled trials on the therapeutic effects of LLLT on LE from 1990 to February 2009. These studies were systematically reviewed for the difference in therapeutic effects among various LLLTs on acupuncture points and on tender and myofascial trigger points (MTrPs). The reviewed therapeutic effects included pain, grip strength, range of motion (ROM), and weight tests, and were compared by meta-analysis.
<b>Results</b>	We selected <b>ten articles</b> , and in seven of them the irradiation was conducted on tender points or MTrPs in the experimental groups. In two other articles, the irradiation was conducted on acupuncture points, and the last one was conducted on both kinds of points. Only three articles provided sufficient data for meta-analysis. The results revealed that applying LLLT on tender points or MTrPs is an effective means to improve the effect size (ES) of pain release after treatment (pooled ES: 0.71, 95% CI: 0.82- approximately 0.60) and follow-up (pooled ES: 1.05, 95% CI: 1.16- approximately 0.94). LLLT application was also able to increase the grip force, ROM, and weight test ( $p < 0.05$ ).
<b>Conclusion</b>	We suggest that using <b>LLLT on tender points or MTrPs of LE could effectively improve therapeutic effects</b> .

### 1.2.1.3. Bjordal 2008 Ø

Bjordal JM, Lopes-Martins RA, Joensen J, Ljunggren AE, Couppe C, Stergioulas A, Johnson MI. A systematic review with procedural assessments and meta-analysis of low level laser therapy in lateral elbow tendinopathy (tennis elbow). BMC Musculoskelet Disord. 2008;9(1):75. [149113]

<b>Background</b>	Recent reviews have indicated that low level laser therapy (LLLT) is ineffective in lateral elbow tendinopathy (LET) without assessing validity of treatment procedures and doses or the influence of prior steroid injections.
<b>Methods</b>	Systematic review with meta-analysis, with primary outcome measures of pain relief and/or global improvement and subgroup analyses of methodological quality, wavelengths and treatment procedures.
<b>Results</b>	18 randomised placebo-controlled trials (RCTs) were identified with <b>13 RCTs (730 patients) meeting the criteria for meta-analysis</b> . 12 RCTs satisfied half or more of the methodological criteria. Publication bias was detected by EggerA's graphical test, which showed a negative direction of bias. Ten of the trials included patients with poor prognosis caused by failed steroid injections or other treatment failures, or long symptom duration or severe baseline pain. The weighted mean difference (WMD) for pain relief was 10.2 mm [95% CI: 3.0 to 17.5] and the RR for global improvement was 1.36 [1.16 to 1.60]. <b>Trials which targeted acupuncture points reported negative results, as did trials with wavelengths 820, 830 and 1064 nm</b> . In a subgroup of five trials with 904 nm lasers and one trial with 632 nm wavelength where the lateral elbow tendon insertions were directly irradiated, WMD for pain relief was 17.2 mm [95% CI: 8.5 to 25.9] and 14.0 mm [95% CI: 7.4 to 20.6] respectively, while RR for global pain improvement was only reported for 904 nm at 1.53 [95% CI: 1.28 to 1.83]. LLLT doses in this subgroup ranged between 0.5 and 7.2 Joules. Secondary outcome measures of painfree grip strength, pain pressure threshold, sick leave and follow-up data from 3 to 8 weeks after the end of treatment, showed consistently significant results in favour of the same LLLT subgroup ( $p < 0.02$ ). No serious side-effects were reported.
<b>Conclusions</b>	LLLT administered with optimal doses of 904 nm and possibly 632 nm wavelengths directly to the lateral elbow tendon insertions, seem to offer short-term pain relief and less disability in LET, both alone and in conjunction with an exercise regimen. This finding contradicts the conclusions of previous reviews which failed to assess treatment procedures, wavelengths and optimal doses.

### 1.3. Specific outcome

#### 1.3.1. Tang 2015 (articular function) ∅

Tang H, Fan H, Chen J, Yang M, Yi X, Dai G, Chen J, Tang L, Rong H, Wu J, Liang F. Acupuncture for lateral epicondylitis: a systematic review. Evid Based Complement Alternat Med. 2015;2015:861849.[165681].

<b>Purpose</b>	This systematic review aimed to assess the effectiveness and safety of acupuncture for lateral epicondylitis (LE).
<b>Methods</b>	Seven databases and the WHO International Clinical Trials Registry Platform Search Portal were searched to identify relevant studies. The data were extracted and assessed by two independent authors, and ReviewManager Software (V.5.3) was used for data synthesis with effect estimate presented as standard mean difference (SMD) and mean difference (MD) with a 95% confidence interval. The Grading of Recommendations Assessment, Development, and Evaluation (GRADE) was used to assess the level of evidence.
<b>Results</b>	<b>Four RCTs with 309 participants</b> were included with poor methodological quality. Participants who received acupuncture and acupuncture plus moxibustion with material insulation were likely to have an improvement in elbow functional status and/or myodynamia. The overall quality rated by GRADE was from very low to low. Two studies reported that the needle pain would be the main reason for the dropout.

<b>Conclusion</b>	For the small number of included studies with poor methodological quality, no firm conclusion can be drawn regarding the effect of acupuncture of elbow functional status and myodynamia for LE.
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## 2. Overviews of systematic reviews

### 2.1. Bonczar 2023 Ø

Bonczar M, Ostrowski P, Plutecki D, Dziedzic M, FLorek J, Michalik W, Przybycień W, Depukat P, Rutowicz B, Walocha E, Koziej M. Treatment Options for Tennis Elbow - An Umbrella Review. *Folia Med Cracov.* 2023 Oct 30;63(3):31-58. <https://doi.org/10.24425/fmc.2023.147213>

<b>Introduction</b>	The main goal of the present umbrella review was to provide the most up-to-date and evidence-based results regarding the various treatment options for tennis elbow (TE), which hopefully will significantly decrease the confusions existing in the literature. Furthermore, our study differs from past analytical studies because, as to the best of the authors' knowledge, is the first to provide independent (not in comparison to other treatment) statistical results regarding the effectiveness of each TE treatment.
<b>Materials and methods</b>	Major medical databases such as PubMed, Scopus, Embase, Web of Science, Google Scholar, Cochrane Library, BIOSIS, and EBSCO were searched. The overall search process was conducted in 3 stages.
<b>Results</b>	A total of 40 studies met the inclusion criteria and were included in this study. Out of those 40 meta-analyses, a total of 160 primary studies were screened in order to extract the data and perform a statistical analysis.
<b>Conclusion</b>	The present umbrella review underlines the efficiency of injection therapies, especially autologous blood, and platelet-rich plasma, while simultaneously proving the <b>ineffectiveness of acupuncture</b> and shock wave therapy as treatments for TE. Furthermore, the value of other known conservative treatment modalities, such as physical therapy, has been demonstrated.

## 3. Clinical Practice Guidelines

⊕ positive recommendation (regardless of the level of evidence reported)  
 Ø negative recommendation (or lack of evidence)

### 3.1. Duodecim EBM Guidelines (Finland) 2022 ⊕

Käden ja kyynärvarren rasisairaudet [Repetitive strain injuries of the hand and forearm]. 2022. Duodecim EBM Guidelines. 2022. <https://www.kaypahoito.fi/hoi50055>

Acupuncture compared to placebo may provide a small and short-term relief of pain caused by lateral elbow tendinopathy

### 3.2. Japanese Orthopaedic Association (JOA, Japan) 2019 Ø

The Japanese Orthopaedic Association. Japanese Orthopaedic Association (JOA). [Clinical Practice Guidelines On the Management of Lateral Epicondylitis] . Tokyo: Nankodo Co. Ltd.; 2019 [in Japanese] . Cited by Okawa Y, Yamashita H, Masuyama S, Fukazawa Y, Wakayama I. Quality assessment of

Japanese clinical practice guidelines including recommendations for acupuncture. *Integr Med Res.* 2022 Sep;11(3):100838. <https://doi.org/10.1016/j.imr.2022.100838>

Lateral Epicondylitis. Inconclusive because of no evidence

Amako M, Arai T, Iba K, Ikeda M, Ikegami H, Imada H, Kanamori A, Namba J, Nishiura Y, Okazaki M, Soejima O, Tanaka T, Tatebe M, Yoshikawa Y, Suzuki K. Japanese Orthopaedic Association (JOA) clinical practice guidelines on the management of lateral epicondylitis of the humerus - Secondary publication. *J Orthop Sci.* 2022;27(3):514-32. [223639]. #<https://doi.org/10.1016/j.jos.2021.09.003#>

Acupuncture: There is no clear evidence in support of this treatment. We cannot definitively recommend acupuncture treatment for lateral epicondylitis

### 3.3. Emblemhealth (insurance provider, USA) 2017 ☉

Acupuncture — Medicare Dual-Eligible Members Emblemhealth. 2017. [111547].

Members with the Medicare Dual-Eligible benefit are eligible for acupuncture when performed by an individual licensed by New York State to perform acupuncture and when performed for the following diagnoses: 1. Adult postoperative nausea and vomiting 2. Chemotherapy related nausea and vomiting 3. Pregnancy related nausea and vomiting 4. Carpal tunnel syndrome 5. **Epicondylitis (tennis elbow)** 6. Headache 7. Low back pain 8. Menstrual pain 9. Myofascial pain 10. Osteoarthritis

### 3.4. American College of Occupational and Environmental Medicine (ACOEM, USA) 2013 ☉

Elbow Disorders. American College of Occupational and Environmental Medicine. 2013. 190P. [181261].

Recommendation. Acupuncture for Select **Chronic Lateral Epicondylalgia**. Acupuncture is recommended for the treatment of select patients with chronic lateral epicondylalgia. *Indications* - Chronic epicondylalgia patients; patients who fail to sufficiently respond to treatment with NSAIDs (oral and/or topical), exercise, or patients who fail other treatments (e.g., insufficient pain relief with elbow straps and activity modification) may be ideal candidates. Glucocorticosteroid injections are also reasonable intervention(s) to attempt before acupuncture. Generally moderately to severely affected patients are thought to be better candidates. Overall benefits of acupuncture appear modest and efficacy appears to be transient, disappearing after a few weeks. *Frequency/Dose/Duration* - Various regimens have been utilized in the quality studies. The sites used were LI 4, 10, 11; LS, SJ5, Ah-Shi over muscle origin of lateral extensor group and the second used LI 4, 10, 11, 12, TW5. Both manually stimulated needles (de qi) placed for 15 to 20 minutes. Regimens were 2 to 3 treatments a week for 8 to 10 treatments. Patients should demonstrate benefit after 4 to 5 appointments otherwise either the technique should be altered or acupuncture discontinued. The two trials showing the most benefit utilized 10 to 12 treatments (1.0MHz, 1-2W/cm<sup>2</sup> for 5 to 10 minutes a session) over 4 to 6 weeks. There are no comparative trials for different regimens. *Indications for Discontinuation* - Resolution of pain, intolerance, lack of efficacy, or non-compliance. *Strength of Evidence* - Recommended, Insufficient Evidence (I).

Recommendation. **Acupuncture for Acute, Subacute, or Post-operative Lateral Epicondylalgia**. There is no recommendation for or against the use of acupuncture for the treatment of acute, subacute, or post-operative lateral epicondylalgia. *Strength of Evidence* - No Recommendation, Insufficient Evidence (I)

There is no recommendation for or against the use of acupuncture, biofeedback, manipulation and mobilization, massage, soft tissue massage, iontophoresis, and phonophoresis for the **treatment of acute, subacute, or chronic ulnar neuropathies at the elbow**. *Strength of Evidence* - No Recommendation, Insufficient Evidence (I)

**Radial nerve entrapment (including radial tunnel syndrome)** : No Recommendation, Insufficient Evidence (I) (acute sub-acute or chronic).

**Pronator syndrome (median neuropathies in forearm)**: No Recommendation, Insufficient Evidence (I) (acute sub-acute or chronic).

### 3.5. U.S. Navy Bureau of Medicine and Surgery (USA) 2013 ⊕

Acupuncture. U.S. Navy Bureau of Medicine and Surgery. 2013.17p. [180539].

Category B (limited evidence): Authorized but not recommended for routine use (consider as adjunct). Tennis elbow

### 3.6. American College of Occupational and Environmental Medicine (ACOEM, USA) 2011 ⊕

American College of Occupational and Environmental Medicine (ACOEM). Elbow disorders. Elk Grove Village (IL): American College of Occupational and Environmental Medicine (ACOEM). 2011; 169P. [166293].

*Lateral Epicondylalgia (Lateral Epicondylitis)*. Recommended: Acupuncture for select patients with chronic lateral epicondylalgia (I). No recommendation: Acupuncture for acute, subacute, or postoperative lateral epicondylalgia (I)  
*Ulnar Neuropathies at the Elbow (including Condylar Groove-Associated Ulnar Neuropathy and Cubital Tunnel Syndrome)*.. No recommendation: Acupuncture for acute, subacute, or chronic ulnar neuropathies at the elbow (I)

### 3.7. The Swedish Council on Technology Assessment in Health Care, Statens beredning för medicinsk utvärdering (SBU, Sweden) 2006 ⊕

Axelsson S, Boivie J, Eckerlund I, Gerdle B, Johansson E, Kristiansson M, List T, Lundberg B, Mannheimer C et al. Metoder för behandling av långvarig smärta [Methods of treating chronic pain]. SBU. Statens beredning för medicinsk utvärdering. The Swedish Council on Technology Assessment in Health Care; Stockholm. 2006:508p. [199760].

*Tennis elbow* . Acupuncture. Evidence Force 1 - Strong scientific evidence

## 4. Randomized Controlled Trials / Essais contrôlés randomisés

### 4.1. Sources

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3. **Zhou 2020**: Zhou Y, Gu, Zhou, Wu P, Liang F, Yang Z. Effectiveness of Acupuncture for Lateral Epicondylitis: A Systematic Review and Meta-Analysis of Randomized Controlled Trials. *Pain Res Manag.* 2020. [208519]. doi (n=10)
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  5. **Chang 2014**: Chang WD, Lai PT, Tsou YA. Analgesic effect of manual acupuncture and laser acupuncture for lateral epicondylalgia: a systematic review and meta-analysis. *Am J Chin Med.* 2014;42(6):1301-14. doi: 10.1142/S0192415X14500815. [111576] (n=9).
  6. **Gadau 2014**: Gadau M, Yeung WF, Liu H, Zaslowski C, Tan YS, Wang FC, Bangrazi S, Chung KF, Bian ZX, Zhang SP. Acupuncture and moxibustion for lateral elbow pain: a systematic review of randomized controlled trials. *BMC Complement Altern Med.* 2014;14:136.doi: 10.1186/1472-6882-14-136. [170679]. (n=19).
  7. **Bisset 2011**: Bisset L, Coombes B, Vicenzino B. Tennis elbow. *BMJ Clin Evid.* 2011 Jun 27;2011. pii: 1117. [70913] (n=10)

## 4.2. List

	RCT	Sources
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2019	Bostrom K, Maehlum S, Cvancarova Smastuen M, et al. Clinical comparative effectiveness of acupuncture versus manual therapy treatment of lateral epicondylitis: feasibility randomized clinical trial. <i>Pilot Feasib Stud</i> 2019; 5: 110	Navarro 2021
2018	W. Yuanli. [Clinical observation of electroacupuncture in treatment of refractory external humeral epicondylitis]. <i>AsiaPacific Traditional Medicine</i> , vol. 14, no. 8, pp. 165-166, 2018	Zhou 2020
	H. Hui, "Clinical observation on the treatment of external humeral epicondylitis by hysteresis acupuncture combined with acupuncture manipulation," <i>Journal of New Chinese Medicine</i> , vol. 50, no. 11, pp. 196-198, 2018	Zhou 2020
2017	Jeon J, Bussin E and Scott A. Temporal divergence of changes in pain and pain-free grip strength after manual acupuncture or electroacupuncture: an experimental study in people with lateral epicondylalgia. <i>Chin Med</i> 2017; 12: 22	Navarro 2021
	Liao Leshan. [Ironing combined with acupuncture therapy for 30 cases of tennis elbow]. <i>Journal of External Therapy of TCM</i> , vol. 26, no. 6, pp. 10-11, 2017	Zhou 2020
	Ural FG, Ozturk GT, Boluk H, et al. Ultrasonographic evaluation of acupuncture effect on common extensor tendon thickness in patients with lateral epicondylitis: a randomized controlled study. <i>J Altern Complement Med</i> 2017; 23(10): 819-822.	Navarro 2021
	Wong Ng EY, Fung PW, Mok KM, et al. Comparison of treatment effects on lateral epicondylitis between acupuncture and extracorporeal shockwave therapy. <i>Asia Pac J Sports Med Arthrosc Rehabil Technol</i> 2017; 7: 21-26.	Navarro 2021

	<b>RCT</b>	<b>Sources</b>
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<b>2015</b>	Zhang Xiaoyang and M. Huang. [Effect observation of 30 cases of tennis elbow treated by fire needle," Journal of Sichuan of Traditional Chinese Medicine, vol. 33, no. 4, pp. 168-170, 2015.	Zhou 2020
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	Xu LG. [Ginger moxibustion that leads to blisters treatment of lateral epicondylitis, efficacy observations ]. China Foreign Med Treat. J 2010, 22:49.	Gadau 2014
<b>2008</b>	Liu J. [63 cases of acupuncture-moxibustion in the treatment for lateral epicondylitis] . Shandong Med J. 2008, 48(38):97.	Gadau 2014
	Wang DL. [32 cases of warm needle acupuncture-moxibustion in the treatment for lateral epicondylitis ]. J Clin Anal Med. 2008, 24(05):36-37.	Gadau 2014
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<b>2005</b>	Jin Y. [80 cases of suppurative moxibustion treatment of tennis elbow ]. Zhejiang J Tradit Chin Med. 2005, 08:362.	Gadau 2014
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<b>2003</b>	Irnich D, Karg H, Behrens N, Lang PM, Schreiber MA, Krauss M, Kroeling P. Controlled trial on point specificity of acupuncture in the treatment of lateral epicondylitis (tennis elbow). Phys Med Rehab Kuror 2003, 13:215-219.	Navarro 2021, Zhou 2020, Gadau 2014
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Last update: 14 May 2024 07:19