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carpal tunnel syndrome

Syndrome du canal carpien : évaluation de l'acupuncture

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1. Revue systématiques et méta-analyses

1.1. Generic Acupuncture

1.1.1. Zhang 2025

Zhang J, Chen J, Li X, Yan Z, Zhang Q, Gao P, Tang F. Effect of three traditional conservative treatment techniques on patients with mild-to-moderate carpal tunnel syndrome: A systematic review and meta-analysis. J Hand Ther. 2025 Mar 13:S0894-1130(25)00002-X. https://doi.org/10.1016/j.jht.2025.01.001

Backgound	Carpal tunnel syndrome (CTS) is a common peripheral nerve entrapment syndrome that can be treated in a variety of ways, including manual therapy, massage, and acupuncture.
Purpose	Traditional conservative treatment techniques have been widespread used for treatment of patients with mild-to-moderate carpal tunnel syndrome (CTS), such as manual therapy, massage, and acupuncture. However, there appears to be no consensus about the benefits of traditional conservative treatment techniques for patients with CTS. This systematic review and meta-analysis were aimed to analyze the effectiveness of three traditional conservative treatment techniques (manual therapy, massage, and acupuncture) on the patients with mild-to-moderate CTS.
Study design	Intervention systematic review with meta-analysis.
Methods	Randomized controlled clinical trails were searched from the inception of PubMed, Web of Science and CNKI up to May 22, 2024. Mean differences (MD) or standardized mean differences (SMD) were used as effect sizes by us and 95% confidence intervals (CI) were used to analyze these studies. Analyses were performed using RevMan 5.3 software. Funnel plots and Egger's test were used to assess publication bias.
Results	A total of **14 articles with 1110 patients** with mild-to-moderate CTS satisfied the inclusion criteria in this systematic review and meta-analysis. The meta-analysis found that the three traditional conservative treatment techniques can significantly reduce the Boston Carpal Tunnel Syndrome Questionnaire (BCTQ) [MD = -1.55, 95% CI (-2.15, -0.95), p < 0.00001], Symptom Severity Scale (SSS) [MD = -0.90, 95% CI (-1.28, -0.51), p < 0.00001], Functional Status Scale (FSS) [MD = -0.85, 95% CI (-1.17, -0.54), p < 0.00001] and pain [SMD = -2.03, 95% CI (-2.75, -1.30), p < 0.00001] scores, and improve sensory nerve conduction velocity (SNCV) [MD = 5.37, 95% CI (2.43, 8.32), P = 0.0004] compared with the control group.
Conclusions	This study demonstrated that three traditional conservative treatment techniques can effectively improve the severity of symptoms, functional status, pain levels, and sensory nerve conduction velocity on patients with mild-to-moderate CTS.

1.1.2. Dong 2023 ☆

Dong Q, Li X, Yuan P, Chen G, Li J, Deng J, Wu F, Yang Y, Fu H, Jin R. Acupuncture for carpal tunnel syndrome: A systematic review and meta-analysis of randomized controlled trials. Front Neurosci. 2023 Feb 23;17:1097455. https://doi.org/10.3389/fnins.2023.1097455.

Background	The evidence for the effectiveness of acupuncture for patients with carpal tunnel syndrome (CTS) is insufficient. Therefore, this systematic review and meta-analysis aimed to evaluate the effectiveness of acupuncture on CTS through a comprehensive literature search.
Methods	English and Chinese databases were searched from their inceptions until 27 October 2022 to collect randomized controlled trials (RCTs) that investigated the effect of acupuncture on CTS. Two reviewers independently selected studies that met the eligibility criteria, extracted the required data, assessed the risk of bias using version 2 of the Cochrane risk-of-bias tool for randomized trials (ROB 2), and evaluated the quality of reporting for acupuncture interventions using the Revised Standards for Reporting Interventions in Clinical Trials of Acupuncture (STRICTA). The primary outcomes were symptom severity and functional status, while secondary outcomes included pain intensity, responder rate, and electrophysiological parameters. Review Manager software (version 5.4.1) was used for data analysis. The certainty of the evidence was rated with GRADEpro (version 3.6) software.
Results	We included **16 RCTs with a total of 1,025 subjects**. The overall risk of bias was rated as low in one RCT, some concerns in 14, and high in one. Compared with night splints, acupuncture alone was more effective in relieving pain, but there were no differences in symptom severity and functional status. Acupuncture alone had no advantage over medicine in improving symptom severity and electrophysiological parameters. As an adjunctive treatment, acupuncture might benefit CTS in terms of symptom severity, functional status, pain intensity, and electrophysiological parameters, and it was superior to medicine in improving the above outcomes. Few acupuncture-related adverse events were reported. The above evidence had a low or very low degree of certainty.
Conclusion	Acupuncture as an adjunctive treatment may be effective for patients with CTS. Additionally, more rigorous studies with objective outcomes are needed to investigate the effect of acupuncture in contrast with sham acupuncture or other active treatments.
GRADE	⊕⊕⊖⊖ Low / ⊕⊖⊖⊖ Very low

1.1.3. Hu 2021

Huh JH, Jeong HI, Kim KH. Effect of Manual Acupuncture for Mild-to-Moderate Carpal Tunnel Syndrome: A Systematic Review. J Pharmacopuncture. 2021 Dec 31;24(4):153-164. https://doi.org/10.3831/KPI.2021.24.4.153

Objectives	Despite the low cost and high accessibility of manual acupuncture (MA) treatments for the carpal tunnel syndrome (CTS), this intervention has not been uniformly evaluated in systematic reviews (SR), and no SR has evaluated MA monotherapy for CTS. This review was conducted to summarize the findings and undertake a quality assessment of randomized controlled trials (RCTs) of acupuncture treatment methods for mild-to-moderate CTS to identify clinical evidence for the use of MA in CTS.

Methods	We searched five databases for articles on relevant RCTs that were published until June 2021 without imposing specific restrictions, such as age or sex, on CTS patients. RCTs that evaluated MA were included without any restriction on comparator interventions. Measurement tools for evaluating pain reduction and functional improvement or for evaluating efficacy using electrophysiological indicators were included as outcome measures.
Results	We included **seven RCTs**, of which three studies reported both post-treatment improvement effects and statistical significance using p-values for all outcomes. Five studies reported statistically significant intergroup differences (p-values for all outcomes) in post-treatment improvement. None of the studies reported severe adverse effects of MA. In all of the RCTs, the reporting rates of the 2c, 2a, and 6a items of STRICTA 2010 were 14%, 29%, and 29%, respectively. PC7 (Daereung) was used to treat CTS in all of the included studies.
Conclusion	MA can be used for CTS treatment without serious adverse effects. PC7 was the most commonly used acupoint. In order to ensure objective and reliable reporting, accurate standardization of acupuncture treatment methods acupoint terms should be undertaken in future RCTs.

1.1.4. Wu 2020 ☆☆

Wu IX, Lam VC, Ho RS, et al. Acupuncture and related interventions for carpal tunnel syndrome: systematic review. Clin Rehabil. 2020;34(1):34-44. [204222]. doi

Objective	To synthesize evidence on the effectiveness of acupuncture and related therapies for primary carpal tunnel syndrome (CTS) by conducting a systematic review of randomized controlled trials (RCTs).
Methods	Nine databases were searched for potential RCTs from their inception till July 2019. RCTs which reported at least one of the three outcomes were included: symptom severity, functional status and pain. Included RCTs were appraised using the Cochrane Risk of Bias Tool.
Results	A total of **10 RCTs (728 participants)** were included. Majority were at high risk of bias for blinding of participants, personnel and outcome assessors. When compared to conventional medications, manual acupuncture showed significant superior effect in reducing symptom than ibuprofen (mean difference (MD) on Symptom Severity Scale (SSS) = –5.80, 95% confidence interval (CI): −7.95 to −3.65) and prednisolone (MD = −6.50, 95% CI: −10.1, −2.86). Electroacupuncture plus splinting was more effective in reducing symptom severity than splinting alone (SSS score: MD = −0.20, 95% CI: −0.36 to −0.03). Manual acupuncture showed significantly superior effect than ibuprofen in improving functional status (Functional Status Scale (FSS): MD = −1.84, 95% CI: −2.66 to −1.02).The combination of electroacupuncture and splinting showed more improvement in functional status compared to splinting alone (FSS: MD = −6.22, 95%CI: −10.7 to −1.71). Triple treatment of acupuncture, magnetic spectrum heat lamp and splinting showed stronger pain relief than splinting alone.
Conclusion	For both symptom relief and function improvement, manual acupuncture is superior to ibuprofen while electroacupuncture plus splinting outperforms splinting alone. Limited evidence showed electroacupuncture's potential role in pain reduction.

1.1.5. Wang 2019 ☆☆

Wang Qingsong, Zhang Jun, Chen Huaxian, Ding Xudong. [Acupuncture in patients with carpal tunnel syndrome: a meta-analysis]. Journal of Modern Medicine & Health. 2019;4:514-517. [201733].

Objective	To evaluate the efficiency of acupuncture in patients with carpal tunnel syndrome.
Methods	The databases such as the ISI Web of Knowledge databases, PubMed, Embase, Cochrane Central Register of Controlled Trials(CENTRAL),CBM,CNKI and WanFang from establishment to October 1,2017 were searched, and the randomized controlled trials(RCTs)about acupuncture in patients with carpal tunnel syndrome were collected. After study selection, meta-analysis was performed by using the RevMan 5.2software.In accordance with the principles of relevant inclusion and exclusion criteria, the level of evidence was assessed by using the GRADE system.
Results	**Five studies involving 160 patients were included**. The results of meta-analysis showed that compared with the non-acupuncture group, distal motor latency shortened obviously(SMD=-1.56,95%CI-2.21–0.91,P<0.000 01),distal sensory latency shortened obviously(SMD=-0.62,95%CI-1.08–0.16,P=0.008),nerve conduction velocity fast obviously(MD=3.12,95%CI1.52-4.72,P=0.000 1),global symptom score heightened obviously(MD=0.29,95%CI0.13-0.45,P=0.000 3).
Conclusion	Acupuncture is effective in carpal tunnel syndrome. However, because of the low quality of the original research, we suggest that the acupuncture method should be carefully selected in clinical practice.

1.1.6. Choi 2018 Ø

Choi GH, Wieland LS, Lee H, Sim H, Lee MS, Shin BC. Acupuncture and related interventions for the treatment of symptoms associated with carpal tunnel syndrome. Cochrane Database Syst Rev. 2018. [193265].

Background	Carpal tunnel syndrome (CTS) is a compressive neuropathic disorder at the level of the wrist. Acupuncture and other methods that stimulate acupuncture points, such as electroacupuncture, auricular acupuncture, laser acupuncture, moxibustion, and acupressure, are used in treating CTS. Acupuncture has been recommended as a potentially useful treatment for CTS, but its effectiveness remains uncertain. We used Cochrane methodology to assess the evidence from randomised and quasi-randomised trials of acupuncture for symptoms in people with CTS.
Objectives	To assess the benefits and harms of acupuncture and acupuncture-related interventions compared to sham or active treatments for the management of pain and other symptoms of CTS in adults.
Methods	SEARCH METHODS: On 13 November 2017, we searched the Cochrane Neuromuscular Specialised Register, CENTRAL, MEDLINE, Embase, AMED, CINAHL Plus, DARE, HTA, and NHS EED. In addition, we searched six Korean medical databases, and three Chinese medical databases from inception to 30 April 2018. We also searched clinical trials registries for ongoing trials. SELECTION CRITERIA: We included randomised and quasi-randomised trials examining the effects of acupuncture and related interventions on the symptoms of CTS in adults. Eligible studies specified diagnostic criteria for CTS. We included outcomes measured at least three weeks after randomisation. The included studies compared acupuncture and related interventions to placebo/sham treatments, or to active interventions, such as steroid nerve blocks, oral steroid, splints, non-steroidal anti-inflammatory drugs (NSAIDs), surgery and physical therapy. DATA COLLECTION AND ANALYSIS: The review authors followed standard Cochrane methods.

Main results	We included **12 studies with 869 participants**. Ten studies reported the primary outcome of overall clinical improvement at short-term follow-up (3 months or less) after randomisation. Most studies could not be combined in a meta-analysis due to heterogeneity, and all had an unclear or high overall risk of bias.Seven studies provided information on adverse events. Non-serious adverse events included skin bruising with electroacupuncture and local pain after needle insertion. No serious adverse events were reported.One study (N = 41) comparing acupuncture to sham/placebo reported change on the Boston Carpal Tunnel Questionnaire (BCTQ) Symptom Severity Scale (SSS) at three months after treatment (mean difference (MD) -0.23, 95% confidence interval (CI) -0.79 to 0.33) and the BCTQ Functional Status Scale (FSS) (MD -0.03, 95% CI -0.69 to 0.63), with no clear difference between interventions; the evidence was of low certainty. The only dropout was due to painful acupuncture. Another study of acupuncture versus placebo/sham acupuncture (N = 111) provided no usable data.Two studies assessed laser acupuncture versus sham laser acupuncture. One study (N = 60), which was at low risk of bias, provided low-certainty evidence of a better Global Symptom Scale (GSS) score with active treatment at four weeks after treatment (MD 7.46, 95% CI 4.71 to 10.22; range of possible GSS scores is 0 to 50) and a higher response rate (risk ratio (RR) 1.59, 95% CI 1.14 to 2.22). No serious adverse events were reported in either group. The other study (N = 25) did not assess overall symptom improvement.One trial (N = 77) of conventional acupuncture versus oral corticosteroids provided very low-certainty evidence of greater improvement in GSS score (scale 0 to 50) at 13 months after treatment with acupuncture (MD 8.25, 95% CI 4.12 to 12.38) and a higher responder rate (RR 1.73, 95% CI 1.22 to 2.45). Change in GSS at two weeks or four weeks after treatment showed no clear difference between groups. Adverse events occurred in 18% of the oral corticosteroid group and 5% of the acupuncture group (RR 0.29, 95% CI 0.06 to 1.32). One study comparing electroacupuncture and oral corticosteroids reported a clinically insignificant difference in change in BCTQ score at four weeks after treatment (MD -0.30, 95% CI -0.71 to 0.10; N = 52).Combined data from two studies comparing the responder rate with acupuncture versus vitamin B12, produced a RR of 1.16 (95% CI 0.99 to 1.36; N = 100, very low-certainty evidence). No serious adverse events occurred in either group.One study of conventional acupuncture versus ibuprofen in which all participants wore night splints found very low-certainty evidence of a lower symptom score on the SSS of the BCTQ with acupuncture (MD -5.80, 95% CI -7.95 to -3.65; N = 50) at one month after treatment. Five people had adverse events with ibuprofen and none with acupuncture.One study of electroacupuncture versus night splints found no clear difference between the groups on the SSS of the BCTQ (MD 0.14, 95% CI -0.15 to 0.43; N = 60; very low-certainty evidence). Six people had adverse events with electroacupuncture and none with splints. One study of electroacupuncture plus night splints versus night splints alone presented no difference between the groups on the SSS of the BCTQ at 17 weeks (MD -0.16, 95% CI -0.36 to 0.04; N = 181, low-certainty evidence). No serious adverse events occurred in either group. One study comparing acupuncture plus NSAIDs and vitamins versus NSAIDs and vitamins alone showed no clear difference on the BCTQ SSS at four weeks (MD -0.20, 95% CI -0.86 to 0.46; very low-certainty evidence). There was no reporting on adverse events.

Authors' conclusions	Acupuncture and laser acupuncture may have little or no effect in the short term on symptoms of CTS in comparison with placebo or sham acupuncture. It is uncertain whether acupuncture and related interventions are more or less effective in relieving symptoms of CTS than corticosteroid nerve blocks, oral corticosteroids, vitamin B12, ibuprofen, splints, or when added to NSAIDs plus vitamins, as the certainty of any conclusions from the evidence is low or very low and most evidence is short term. The included studies covered diverse interventions, had diverse designs, limited ethnic diversity, and clinical heterogeneity. High-quality randomised controlled trials (RCTs) are necessary to rigorously assess the effects of acupuncture and related interventions upon symptoms of CTS. Based on moderate to very-low certainty evidence, acupuncture was associated with no serious adverse events, or reported discomfort, pain, local paraesthesia and temporary skin bruises, but not all studies provided adverse event data.

1.1.7. Sim 2011 ☆

Sim H, Shin BC, Lee MS, Jung A, Lee H, Ernst E. Acupuncture for carpal tunnel syndrome: a systematic review of randomized controlled trials. J Pain. 2011;12(3):307-14. [135962]

Objectifs	Acupuncture is a widely used symptomatic treatment for carpal tunnel syndrome (CTS). The objective of this systematic review was to evaluate the evidence of the effectiveness of acupuncture and acupuncture-like treatments for CTS.
Méthodes	Systematic searches were conducted on 11 electronic databases without language restrictions. All randomized controlled trials (RCTs) of acupuncture as a treatment of CTS were included. Methodological quality was assessed using the Cochrane risk of bias tool.
Résultats	**Six RCTs met our inclusion criteria**. Their methodological quality was generally low. Two RCTs compared the effectiveness of acupuncture with a sham control. The others used active controls. **A meta-analysis of acupuncture versus steroid block therapy favored acupuncture** (2 studies, n = 144; risk ratio, 1.28; 95% CI, 1.08 to 1.52; P = .005; heterogeneity, I(2) = 10%) in terms of responder rate.
Conclusions	Our systematic review and meta-analysis demonstrate that the **evidence for acupuncture as a symptomatic therapy of CTS is encouraging but not convincing**. The total number of included RCTs and their methodological quality were low. Further rigorous studies are required to establish whether acupuncture has therapeutic value for this indication. *Perspective*: This systematic review of RCTs focused on clinical trials testing the effectiveness of acupuncture for CTS. The existing evidence is not convincing enough to suggest that acupuncture is an effective therapy for CTS. Further RCTs should overcome the limitation of previous studies.

1.1.8. Ashworth 2010 Ø

Ashworth NL. Carpal tunnel syndrome. BMJ Clin Evid. 2010;2010.pii:1114. [159449].

Introduction	Carpal tunnel syndrome is a neuropathy caused by compression of the median nerve within the carpal tunnel. However, the severity of symptoms and signs does not often correlate well with the extent of nerve damage.

Methods And Outcomes	We conducted a systematic review and aimed to answer the following clinical questions: What are the effects of drug treatments, non-drug treatments, surgical treatments, and postoperative treatments for carpal tunnel syndrome? We searched: Medline, Embase, The Cochrane Library, and other important databases up to July 2011 (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).
Results	We found 57 systematic reviews, RCTs, or observational studies that met our inclusion criteria. We performed a GRADE evaluation of the quality of evidence for interventions
Conclusions	In this systematic review we present information relating to the effectiveness and safety of the following interventions: **acupuncture**, carpal tunnel release surgery (open and endoscopic), diuretics, internal neurolysis, local and systemic corticosteroids, massage therapy, nerve and tendon gliding exercises, non-steroidal anti-inflammatory drugs (NSAIDs), pyridoxine, therapeutic ultrasound, and wrist splints.
Acupuncture	[We found no clinically important results from RCTs about the effects of acupuncture in the treatment of carpal tunnel syndrome.]

1.1.9. Carlson 2010 ☆

Carlson H, Colbert A, Frydl J, Arnall E, Elliot M, Carlson N. Current options for nonsurgical management of carpal tunnel syndrome. Int J Clin Rheumtol. 2010;5(1):129-142.[155539].

> Carpal tunnel syndrome (CTS) is the most common of the entrapment neuropathies. Surgical decompression is commonly performed and has traditionally been considered the defnitive treatment for CTS. Conservative treatment options include physical therapy, bracing, steroid injections and alternative medicine. While CTS is often progressive, patients may get better without formal treatment. The resolution of symptoms is not necessarily related to the severity of the clinical findings and self-limited activity is common. The current literature suggests that bracing and corticosteroid injections may be useful in the nonsurgical treatment of CTS, although the benefits may be short term. **There is limited evidence regarding the efficacy** of other treatments, such as therapy, exercise, yoga, **acupuncture**, lasers and magnets, and further studies are needed. Surgery is recommended for progressive functional deficits and significant pain.

1.1.10. Muller 2004 Ø

Muller M, Tsui D, Schnurr R, Biddulph-Deisroth L, Hard J, MacDermid JC.. Effectiveness of hand therapy interventions in primary management of carpal tunnel syndrome: a systematic review. J Hand Ther. 2004;17(2):210-28. [169141].

> The purpose of this study was to determine the effectiveness of hand therapy interventions for carpal tunnel syndrome (CTS) based on the best available evidence. A qualitative systematic review was conducted. A literature search using 40 key terms was conducted from the earliest available date to January 2003 using seven databases. Articles were randomly assigned to two of five reviewers and evaluated according to predetermined criteria for inclusion at each of the title, abstract, and article levels. Included studies were independently scored by two reviewers using a structured effectiveness quality evaluation scale and also graded according to Sackett's Levels of Evidence. There were 2027 articles identified from the literature search, of which 345 met the inclusion criteria. Twenty-four studies were used to formulate 30 recommendations. Current evidence demonstrates a significant benefit (grade B recommendations) from splinting, ultrasound, nerve gliding exercises, carpal bone mobilization, magnetic therapy, and yoga for people with CTS.

1.2. Thérapeutiques particulières

1.2.1. Laser-acupuncture

1.2.1.1. O'Connor 2003 Ø

O'Connor D, Marshall S, Massy-Westropp N. Non-surgical treatment (other than steroid injection) for carpal tunnel syndrome. Cochrane Database Syst Rev. 2003;CD003219.185656

Background	Non-surgical treatment for carpal tunnel syndrome is frequently offered to those with mild to moderate symptoms. The effectiveness and duration of benefit from non-surgical treatment for carpal tunnel syndrome remain unknown.
Objectives	To evaluate the effectiveness of non-surgical treatment (other than steroid injection) for carpal tunnel syndrome versus a placebo or other non-surgical, control interventions in improving clinical outcome.
Methods	Search Strategy. We searched the Cochrane Neuromuscular Disease Group specialised register (searched March 2002), MEDLINE (searched January 1966 to February 7 2001), EMBASE (searched January 1980 to March 2002), CINAHL (searched January 1983 to December 2001), AMED (searched 1984 to January 2002), Current Contents (January 1993 to March 2002), PEDro and reference lists of articles. Selection Criteria. Randomised or quasi-randomised studies in any language of participants with the diagnosis of carpal tunnel syndrome who had not previously undergone surgical release. We considered all non-surgical treatments apart from local steroid injection. The primary outcome measure was improvement in clinical symptoms after at least three months following the end of treatment. Data Collection and Analysis. Three reviewers independently selected the trials to be included. Two reviewers independently extracted data. Studies were rated for their overall quality. Relative risks and weighted mean differences with 95% confidence intervals were calculated for the primary and secondary outcomes in each trial. Results of clinically and statistically homogeneous trials were pooled to provide estimates of the efficacy of non-surgical treatments.

Main Results	Twenty-one trials involving 884 people were included. A hand brace significantly improved symptoms after four weeks (weighted mean difference (WMD) -1.07; 95% confidence interval (CI) -1.29 to -0.85) and function (WMD -0.55; 95% CI -0.82 to -0.28). In an analysis of pooled data from two trials (63 participants) ultrasound treatment for two weeks was not significantly beneficial. However one trial showed significant symptom improvement after seven weeks of ultrasound (WMD -0.99; 95% CI -1.77 to - 0.21) which was maintained at six months (WMD -1.86; 95% CI -2.67 to -1.05). Four trials involving 193 people examined various oral medications (steroids, diuretics, nonsteroidal anti-inflammatory drugs) versus placebo. Compared to placebo, pooled data for two-week oral steroid treatment demonstrated a significant improvement in symptoms (WMD -7.23; 95% CI -10.31 to -4.14). One trial also showed improvement after four weeks (WMD -10.8; 95% CI -15.26 to -6.34). Compared to placebo, diuretics or nonsteroidal anti-inflammatory drugs did not demonstrate significant benefit. In two trials involving 50 people, vitamin B6 did not significantly improve overall symptoms. In one trial involving 51 people yoga significantly reduced pain after eight weeks (WMD -1.40; 95% CI -2.73 to -0.07) compared with wrist splinting. In one trial involving 21 people carpal bone mobilisation significantly improved symptoms after three weeks (WMD -1.43; 95% CI -2.19 to -0.67) compared to no treatment. In one trial involving 50 people with diabetes, steroid and insulin injections significantly improved symptoms over eight weeks compared with steroid and placebo injections. Two trials involving 105 people compared ergonomic keyboards versus control and demonstrated equivocal results for pain and function. Trials of magnet therapy, **laser acupuncture**, exercise or chiropractic care did not demonstrate symptom benefit when compared to placebo or control.
Reviewer's Conclusions	Current evidence shows significant short-term benefit from oral steroids, splinting, ultrasound, yoga and carpal bone mobilisation. **Other non-surgical treatments do not produce significant benefit**. More trials are needed to compare treatments and ascertain the duration of benefit.
Laser acupuncture	Evidence on ergonomic keyboards and vitamin B6 is unclear, while trials so far have **not shown benefit** from diuretics, non-steroidal anti-inflammatory drugs, magnets, **laser acupuncture**, exercise or chiropractic.

1.2.1.2. Goodyear-Smith 2004 ☆

Goodyear-Smith F, Arroll B. What can family physicians offer patients with carpal tunnel syndrome other than surgery? a systematic review of nonsurgical management. Ann Fam Med. 2004;2(3):267-73. [141308]

Background	We undertook a literature review to produce evidence-based recommendations for nonsurgical family physician management of carpal tunnel syndrome (CTS).
Methods	Study design was systematic review of randomized controlled trials (RCTs) on CTS treatment. Data sources were English publications from all relevant databases, hand searches, and guidelines. Outcomes measured were nonsurgical management options for CTS.
Results	We assessed 2 systematic reviews, 16 RCTs, and 1 before-and-after study using historical controls. A considerable percentage of CTS resolves spontaneously. There is strong evidence that local corticosteroid injections, and to a lesser extent oral corticosteroids, give short-term relief for CTS sufferers. **There is limited evidence** to indicate that splinting, **laser-acupuncture**, yoga, and therapeutic ultrasound may be effective in the short to medium term (up to 6 months). The evidence for nerve and tendon gliding exercises is even more tentative. The evidence does not support the use of nonsteroidal anti-inflammatory drugs, diuretics, pyridoxine (vitamin B6), chiropractic treatment, or magnet treatment

Conclusions	For those who are not able to get surgery or for those who do not want surgery, there are some conservative modalities that can be tried. These modalities include ones for which there is good evidence. It would be reasonable to try some of the techniques with less evidence if the better ones are not successful. Reconsideration of surgery must always be kept in mind to avoid permanent nerve damage.

1.2.1.3. Gerritsen 2002 Φ

Gerritsen AA, de Krom MC, Struijs MA, Scholten RJ, de Vet HC, Bouter LM. Conservative treatment options for carpal tunnel syndrome: a systematic review of randomised controlled trials. J Neurol. 2002;249(3):272-80. [101047]

Abstract Carpal tunnel syndrome (CTS) is a common disorder, for which various conservative treatment options are available. The objective of this study is to determine the efficacy of the various conservative treatment options for relieving the symptoms of CTS. Computer-aided searches of MEDLINE (1/1966 to 3/2000), EMBASE (1/1988 to 2/2000) and the Cochrane Controlled Trials Register (2000, issue 1) were conducted, together with reference checking. Included were randomised controlled trials evaluating the efficacy of conservative treatment options in a study population of CTS patients, with a full report published in English, German, French or Dutch. Two reviewers independently selected the studies. Fourteen randomised controlled trials were included in the review. Assessment of methodological quality and data-extraction was independently performed by two reviewers. A rating system, based on the number of studies and their methodological quality and findings, was used to determine the strength of the available evidence for the efficacy of the treatment. Diuretics, pyridoxine, non-steroidal anti-inflammatory drugs, yoga and **laser-acupuncture seem to be ineffective in providing short-term symptom relief** (varying levels of evidence) and steroid injections seem to be effective (limited evidence). There is conflicting evidence for the efficacy of ultrasound and oral steroids. For providing long-term relief from symptoms there is limited evidence that ultrasound is effective, and that splinting is less effective than surgery. In conclusion, there is still little known about the efficacy of most conservative treatment options for CTS. To establish stronger evidence more high quality trials are needed.

1.2.2. Traditional Korean Medicine Therapy

1.2.2.1. Jung 2015 Φ

Jung Hyun Kim, Ho Sueb Song. [Traditional Korean Medicine Therapy for Treating Carpal Tunnel Syndrome in Patients with Wrist Pain: A Systematic Review]. The Acupuncture. 2015;32(2):59-64. [152933].

Objectives	This study aims to evaluate current clinical evidence of traditional Korean medicine treatment on wrist pain with carpal tunnel syndrome.
Methods	Ten Korean databases were searched for prospective clinical trials of traditional Korean medicine therapy on wrist pain with carpal tunnel syndrome from the time of their inception to February, 2015. Studies conducted in Korean, Chinese and English were searched. Risk of bias in included non-randomized controlled trials was assessed by the Cochrane handbook procedure.
Results	Four non-randomized controlled trials were included. A high risk of bias was observed in all trials. All of the included studies reported favorable effects being experienced by an intervention group compared to a baseline or control group. Included studies never described any occurrence of adverse events.

Conclusions	There is no evidence that traditional Korean medicine treatments are effective for treating wrist pain associated with carpal tunnel syndrome. All of the included studies lacked appropriate methodological qualities and internal validity. Future well-designed clinical trials that evaluate the effects and safety of traditional Korean medicine treatment for patients with carpal tunnel syndrome are needed.

2. Overviews of systematic reviews

2.1. Liu 2024

Liu Y, Wang C, Wang Q, Zhang Q, Ning S, Zhang Q. Effectiveness and safety of acupuncture for carpal tunnel syndrome: An overview of systematic reviews and meta-analyses. Integr Med Res. 2024;13(4):101088. https://doi.org/10.1016/j.imr.2024.101088

Background	Several systematic reviews and meta-analyses have evaluated acupuncture for carpal tunnel syndrome (CTS), but their conclusions are inconsistent and their methodological quality varies. This overview aimed to critically appraise these reviews and synthesize the available evidence regarding the effectiveness and safety of acupuncture for CTS.
Methods	Seven databases were searched from inception to April 25, 2024 using the keywords “acupuncture”, “carpal tunnel syndrome”, and “systematic review”. Methodological quality was assessed with AMSTAR 2, reporting quality with PRISMA, risk of bias with ROBIS, and certainty of evidence with GRADE.
Results	**Nine systematic reviews/meta-analyses were included**. According to AMSTAR 2, eight reviews were rated as critically low quality and one as low quality. Based on PRISMA, seven reviews adequately reported more than 70% of checklist items, but none reported all items. ROBIS identified four reviews with low risk of bias and five with high risk of bias. GRADE assessments found the certainty of evidence to be low or very low. Descriptive analyses suggested that acupuncture may reduce pain intensity. However, findings were inconsistent regarding responder rate, symptom severity, functional status, and electrophysiological outcomes. No serious acupuncture-related adverse events were reported.
Conclusion	Acupuncture may provide benefit for patients with CTS, particularly for pain reduction. Nevertheless, the current evidence base is limited by the low methodological quality of available reviews and the low certainty of evidence. Further high-quality research is required to confirm the efficacy and safety of acupuncture for CTS.

3. Clinical Practice Guidelines

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

3.1. American Academy of Orthopaedic Surgeons (AAOS, USA) 2024 Ø

Management of Carpal Tunnel Syndrome. Evidence-Based Clinical Practice Guideline. American Academy of Orthopaedic Surgeons. 2024.
https://www.aaos.org/globalassets/quality-and-practice-resources/carpal-tunnel/carpal-tunnel-2024/cts-cpg.pdf

Non-operative treatments vs. Placebo/control/ : Evidence suggests that the following non-operative treatments do not demonstrate superiority over control or placebo: **acupressure**, insulin injection, heat therapy, magnet therapy, nutritional supplementation, oral diuretic, oral NSAID, oral anticonvulsant, phonophoresis. *Quality of Evidence:* High. *Strength of Option*: Limited (Downgraded)

3.2. 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

3.3. American College of Occupational and Environmental Medicine (ACOEM, USA) 2016 Ø

Hand, wrist and forearm disorder guideline. American College of Occupational and Environmental Medicine. 2016; 650P. [182053].

Recommendation. Acupuncture for Acute, Subacute, or Chronic CTS(carpal tunnel syndrome) ; Acupuncture is not recommended for treatment of acute, subacute, or chronic CTS. Strength of Evidence - Not Re-commended, Evidence (C); Level of Confidence – Low;

3.4. American Academy of Orthopaedic Surgeons (AAOS, USA) 2016 Ø

Clinical Practice Guideline on The Treatment of Carpal Tunnel Syndrome. The American Academy of Orthopaedic Surgeons. 2016:982P. [197685].

Further research in acupuncture is warranted. In a prospective randomized double-blind controlled study, Yao et al evaluated the efficacy of acupuncture (weekly sessions for 6 weeks) versus placebo to treat carpal tunnel syndrome. No significant measures of improvement were noted.

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). Carpal tunnel syndrome

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

American College of Occupational and Environmental Medicine (ACOEM). Carpal tunnel syndrome. Elk Grove Village (IL): American College of Occupational and Environmental Medicine (ACOEM). 2011; : 73P. [165999].

No recommendation : Acupuncture for acute, subacute, or chronic CTS (I)

3.7. Massachusetts Department of Industrial Accidents (DIA, USA) 2009 ⊕

Carpal Tunnel Syndrome (CTS) Treatment Guideline Massachusetts Department of Industrial

Accidents (DIA). 2009. [145149].

Acupuncture is commonly used when pain medication is reduced or not tolerated. It may be used as an adjunct to physical rehabilitation and/or surgical intervention for pain relief when there is delayed recovery. Requirements: 1. Acupuncture may be authorized when it is ordered by a licensed MD, DC, DO, PA, NP or PT. The ordering practitioner cannot also be the provider of the service. 2. Acupuncture must be performed by an acupuncturist licensed by the Board of Registration in the state where the service will be provided. 3. Time to produce effect: six (6) visits in first eight (8) weeks. 4. After six (6) visits the ordering practitioner may request additional visits if functional clinical progress is documented. Maximum visits are not to exceed sixteen (16) visits in twelve (12) weeks.

3.8. American Academy of Orthopaedic Surgeons (AAOS, USA) 2008 Ø

Clinical Practice Guideline on The Treatment of Carpal Tunnel Syndrome. The American Academy of Orthopaedic Surgeons. 2008:85p. [197676].

Recommendation 4e The following treatments carry no recommendation for or against their use: activity modifications, **acupuncture**, cognitive behavioral therapy, cold laser, diuretics, exercise, electric stimulation, fitness, graston instrument, iontophoresis, laser, stretching, massage therapy, magnet therapy, manipulation, medications (including anticonvulsants, antidepressants and NSAIDs), nutritional supplements, phonophoresis, smoking cessation, systemic steroid injection, therapeutic touch, vitamin B6 (pyridoxine), weight reduction, yoga. (Inconclusive, Level II and V).

4. Randomized Controlled Trials

4.1. Sources

1. **Acudoc2** : RCT listed in the Acudoc2 database, but not currently included in a source systematic review..
2. **Wu 2020**: Wu I et al. Acupuncture and related interventions for carpal tunnel syndrome: systematic review. Clinical Rheabilitation. 2020;34(1):34-44.[001]
3. **Wang 2019**: Wang Qingsong, Zhang Jun, Chen Huaxian, Ding Xudong. [Acupuncture in patients with carpal tunnel syndrome: a meta-analysis]. Journal of Modern Medicine & Health. 2019;4:514-517. [201733].
4. **Choi 2018**: Choi GH, Wieland LS, Lee H, Sim H, Lee MS, Shin BC. Acupuncture and related interventions for the treatment of symptoms associated with carpal tunnel syndrome. Cochrane Database Syst Rev. 2018; 12:110P:CD011215. doi: 10.1002/14651858.CD011215.pub2. [193265].
5. **Sim 2011** : Sim H, Shin BC, Lee MS, et al. Acupuncture for carpal tunnel syndrome: a systematic review of randomized controlled trials. J Pain. 2011; 12(3): 307–314. [135962]
6. **Carlson 2010**: Carlson H, Colbert A, Frydl J, Arnall E, Elliot M, Carlson N. Current options for nonsurgical management of carpal tunnel syndrome. Int J Clin Rheumtol. 2010;5(1):129-142.[155539].
7. **Muller 2004**: Muller M, Tsui D, Schnurr R, Biddulph-Deisroth L, Hard J, MacDermid JC.. Effectiveness of hand therapy interventions in primary management of carpal tunnel syndrome: a systematic review. J Hand Ther. 2004;17(2):210-28. [169141].
8. **OConnor 2003**: O'Connor D, Marshall S, Massy-Westropp N. Non-surgical treatment (other than steroid injection) for carpal tunnel syndrome. Cochrane Database Syst Rev. 2003;CD003219.[185656]

4.2. List

	RCT	Comparator	Sources
2019	Juan CW, Chang MH, Lin TH, Hwang KL, Fu TC, Shih PH, Chang CM, Yang CP. Laser Acupuncture for Carpal Tunnel Syndrome: A Single-Blinded Controlled Study. J Altern Complement Med. 2019;25(10):1035-1043. doi: 10.1089/acm.2019.0169.		acudoc2
2017	Maeda Y, Kim H, Kettner N, et al. Rewiring the primary somatosensory cortex in carpal tunnel syndrome with acupuncture. Brain. 2017; 140(4): 914–927. [192228].		Wu 2020
	Chen L, Xue L, Li S, Kang T, Chen H, Hou C. [Clinical research on mild and moderate carpal tunnel syndrome treated with contralateral needling technique at distal acupoints and acupuncture at local acupoints]. Chinese Acupuncture and Moxibustion. 2017;12;37(5):479-482. doi: 10.13703/j.0255-2930.2017.05.007.[42677]		acudoc2
2016	Chung VC, Ho RS, Liu S, Chong MK, Leung AW, Yip BH, Hon SM, Zee BC, Wu JC, Sit RW, Lau AY, Wong SY. Electroacupuncture and splinting versus splinting alone to treat carpal tunnel syndrome: a randomized controlled trial. CMJ. CMAJ. 2016; [186302][186302]		Choi 2018
	Cai Y, Zheng J. [Grain-sized moxibustion combined with acupuncture for mild and moderate carpal tunnel syndrome]. Zhongguo Zhen Jiu. 2016 ;36(4):387-8. [186710]		Wu 2020
2015	Hadianfard M, Bazrafshan E, Momeninejad H, et al. Efficacies of acupuncture and anti-inflammatory treatment for carpal tunnel syndrome. J Acupunct Meridian Stud. 2015; 8(5): 229–235. [184385]		Wu 2020, Choi 2018
2014	Koca I, Boyaci A, Tutoglu A, et al. Assessment of the effectiveness of interferential current therapy and TENS in the management of carpal tunnel syndrome: a randomized controlled study. Rheumatol Int. 2014; 34(12): 1639–1645. [001]		Wu 2020
2013	Ding Q, Shen F. Effects of acupuncture and moxibustion of Yangchi point on carpal tunnel syndrome. Int J Trad Chin Med. 2013; 35(2): 117–119 (in Chinese).		Wu 2020
2012	Yao E, Gerritz Pk, Henricson E, Abresch T, Kim J, Han J, Wang K, Zhao H. Randomized controlled trial comparing acupuncture with placebo acupuncture for the treatment of carpal tunnel syndrome. PM R. 2012;4(5)::367-73. [169302]		Wu 2020, Wang 2019, Choi 2018
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	Khosrawi S, Moghtaderi A and Haghighat S. Acupuncture in treatment of carpal tunnel syndrome: a randomized controlled trial study. J Res Med Sci. 2012; 17(1): 1–7. [165870]		Wang 2019
2011	Feng YP, Shi L. Fifty cases with acupuncture treatment for carpal tunnel syndrome [50]. Chinese Journal of Basic Medicine in Traditional Chinese Medicine 2011;17(6):670–1.		Choi 2018

	RCT	Comparator	Sources
	Yang CP, Wang NH, Li TC, et al. A randomized clinical trial of acupuncture versus oral steroids for carpal tunnel syndrome: a long-term follow-up. J Pain 2011; 12(2): 272–279.		Wu 2020, Wang 2019
	Zhang LY. Laser acupuncture in patients with carpal tunnel syndrome [ ]. Guangzhou University of Chinese Medicine 2011.		Choi 2018
	Jin Ling-Qing, Lang Bo-Xu. [Effect of electroacupuncture plus acupoint injection in treating carpal tunnel syndrome of early stage]. Shanghai Journal Of Acupuncture And Moxibustion. 2011;30(7):464. [176783].		Choi 2018
	Li M. Study on the electrophysiological assessment of the efficacy of electric acupuncture in treatment of mild and moderate carpal tunnel syndromes. Guangzhou University of Traditional Chinese Medicine, Master's degree 2011.		Choi 2018
2010	Kumnerddee W, Kaewtong A. Efficacy of acupuncture versus night splinting for carpal tunnel syndrome: a randomized clinical trial. J Med Assoc Thai. 2010; 93(12): 1463–1469. [156110]		Wu 2020, Wang 2019
2009	Zhang CY, Wang YX. [Observation on therapeutic effects of acupuncture combined with TDP irradiation and Chinese herbal steaming and washing therapy for treatment of carpal tunnel syndrome in early stage]. Zhongguo Zhen Jiu. 2009; 29(9): 708–710. [154863]		Wu 2020
	Yang CP, Hsieh CL, Wang NH, et al. Acupuncture in patients with carpal tunnel syndrome: a randomized controlled trial. Clin. J. Pain 2009;25:327–333. [136484]		Choi 2018, Wang 2019, Sim 2011, Carlson 2010
2007	Cai DF: Acupuncture treatment and releasing manipulation of carpal tunnel syndrome. Traditional Chinese Medicine Information 24:56, 2007.		Sim 2011, exclu de Choi 2018 [Types of interventions: this study did not use the same cointerventions in each intervention group]
2006	Shi YS, Fang W, Zhao XY: Control study on effect of pricking collateral blood therapy combined with massage on mild carpal tunnel syndrome. Chin J Integrated Traditional Western Med 26:497-499, 2006.		Sim 2011
2003	Weinstein A, Pan J, Richardson P. A controlled pilot trial of acupuncture for carpal tunnel syndrome. Clin Acupunct Orient Med. 2003;4:48.		Choi 2018, Sim 2011
2002	Naeser MA, Hahn KA, Lieberman BE, Branco KF. Carpal tunnel syndrome pain treated with lowlevel laser and microamperes transcutaneous electric nerve stimulation: a controlled study. Arch. Phys. Med. Rehabil 2002;83:978–988.		Carlson 2010

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2000	Hu NW, Liu JY, Wang FM. Clinical observation of acupuncture treatment for carpal tunnel syndrome. Acta Chin Med Pharmacol :57, 2000.		Sim 2011, exclu de la revue de Choi 2018 [Types of interventions: this study did not use the same cointerventions in each intervention group (acupuncture with steaming, watering and washing with herbs versus steroid nerve blocks)]
1999	Aigner N, Zoch G, Petje G. Results of laser-acupuncture in carpal tunnel syndrome: a prospective, randomised and blinded study [Laserakupunktur bei der praoperativen schmerzbekampfung beim karpaltunnelsyndrom: eine prospektiv randomisierte studie]. Deutsche Zeitschrift für Akupunktur 1999;42:70–5. [59631]		Choi 2018, Sim 2011, O'Connor 2003
	Branco K, Naeser MA. Carpal tunnel syndrome: clinical outcome after low-level laser acupuncture, microamps transcutaneous electrical nerve stimulation, and other alternative therapies – an open protocol study. J. Altern. Complement. Med 1999;5:5–26. [PubMed: 10100028]		Carlson 2010

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Last update: **22 Jun 2026 18:04**