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Diabetic Peripheral Neuropathy

Neuropathie diabétique

Articles connexes : - neuropathies périphériques - diabète -

1. Systematic Reviews and Meta-Analysis

1.1. Generic Acupuncture

1.1.1. Rajput 2026

Rajput JPS, Deb R, Saiyad SS, Jamal Z, Sah SK, Vara A, Sandhu N, Rochlani D, Saiyed TA, Pathan AA, Sagar A, Virola T. Therapeutic and Diagnostic Landscape of Diabetic Neuropathy: A Systematic Review of Clinical Studies. Cureus. 2026;18(2):e102825. https://doi.org/10.7759/cureus.102825

Background	Diabetic neuropathy (DN) is one of the most prevalent complications of diabetes mellitus, affecting up to half of patients and contributing to disability, poor quality of life, and the risk of foot ulceration. Despite extensive research, its heterogeneous manifestations and complex pathophysiology continue to challenge timely diagnosis and effective treatment.
Objective	This systematic review aimed to synthesize recent clinical evidence on diagnostic and therapeutic strategies for DN.
Methods	A comprehensive search of PubMed, EMBASE, CENTRAL, and Web of Science identified 76 eligible clinical studies published between 2020 and 2025, including randomized controlled trials, observational studies, and case reports. Data extraction and risk-of-bias assessment were performed according to PRISMA guidelines.
Results	Pharmacological agents, particularly pregabalin, duloxetine, and α-lipoic acid, demonstrated the most consistent efficacy, with significant pain reduction and improvements in nerve conduction velocity. Neuromodulation with high-frequency spinal cord stimulation provided sustained pain relief in refractory cases, while structured, exercise-based rehabilitation improved gait velocity and balance. Advanced wound care strategies, such as platelet-rich plasma dressings and bioengineered skin substitutes, accelerated ulcer healing. Complementary therapies (e.g., **acupuncture** and balneotherapy) and emerging biologics (e.g., gene- and cell-based interventions) showed preliminary promise but require further validation. Nerve conduction studies and validated scoring instruments remain the most reliable diagnostic tools, with biomarker- and microvascular-based measures emerging as valuable adjuncts.
Conclusion	Current evidence underscores the value of integrating pharmacological, device-based, and rehabilitative strategies, while highlighting critical gaps in small-fiber and autonomic neuropathies. Robust, multicenter trials are needed to establish disease-modifying therapies and optimize comprehensive care pathways for DN.

1.1.2. Lan 2025

Lan L, Wang L, Sadeghirad B, Tang J, Liu Y, Couban RJ, Ma W, Busse JW. Acupuncture for the

Management of Chronic Diabetic Peripheral Neuropathy: A Systematic Review and Meta-Analysis of Randomized Controlled Trials. Curr Pain Headache Rep. 2025 Apr 12;29(1):74. https://doi.org/10.1007/s11916-025-01386-z

Aim	Diabetic peripheral neuropathy (DPN) affects up to half of all patients with diabetes mellitus. Acupuncture is often used to manage chronic pain, but its' effects on DPN are uncertain. We conducted a systematic review and meta-analysis of randomized clinical trials (RCTs) to assess the effectiveness of acupuncture for DPN.
Methods	We searched databases from inception to September 30, 2024. Paired reviewers independently extracted data and assessed risk of bias. We used random effects models for all meta-analyses and the GRADE approach to assess the certainty of evidence.
Results	We included **14 RCTs** (1,169 participants, 45% female). Low certainty evidence suggests that, compared to sham, acupuncture may reduce pain (weighted mean difference [WMD] -1.44 cm on a 10 cm VAS, 95%CI -1.72 to -1.15; modelled risk difference [RD] for achieving the minimally important difference [MID] of 1.5 cm: 45%, 95%CI 35-54%). Comparted to sham or usual care, low certainty evidence suggests that acupuncture may reduce overall neurological symptom severity (WMD - 1.22 [95%CI -1.85, -0.59] on the 19-point Toronto Clinical Scoring System [TCSS]), and provide little to no difference in physical functioning, mental functioning, or adverse events. Low certainty evidence suggests that, compared to amitriptyline or pregabalin, acupuncture may reduce pain associated with DPN.
Conclusions	Acupuncture for DPN may reduce pain when compared to sham acupuncture and may reduce neurologic symptom severity and result in little to no difference in physical functioning, mental functioning or adverse events, when compared with sham acupuncture or usual care.

1.1.3. Ge 2024

Ge R, Liu R, He M, Wu J, Zhang F, Huang C. The efficacy of acupuncture for diabetic peripheral neuropathy: a systematic review and meta-analysis of randomized controlled trails. Front Neurol. 2024 Dec 20;15:1500709. https://doi.org/10.3389/fneur.2024.1500709

Objective	To systematically evaluate the clinical efficacy of acupuncture in the treatment of diabetic peripheral neuropathy (DPN).
Methods	Randomized controlled trial (RCT) of acupuncture for diabetic peripheral neuropathy in Chinese Knowledge Network (CNKI), Wanfang database, VIP database (VIP), PubMed, web of science, cochrane library, AMED and CINAHL were searched by computer since the establishment of the database. All publications in English and Chinese as of 30 December 2023 will be searched, without country or article type restrictions. Study selection, data extraction and evaluation were performed independently by two researchers. Risk of bias was assessed using the Cochrane risk assessment tool, and Meta-analysis was performed using RevMan5.3 software.

Results	DPN has good effective rate in acupuncture than conventional western medicine alone. However, the above conclusions need to be verified by larger samples and higher quality randomized controlled trials. ① Acupuncture treated DPN more effective than drug (RR = 1.38, 95%CI = 1.26 ~ 1.51, Z = 6.93, p < 0.00001), DPN of patients with acupuncture plus drug (RR = 1.38, 95%CI = 1.05 ~ 1.82, Z = 2.28, p = 0.02), There was no significant difference between acupuncture and usual care (RR = 2.41, 95%CI = 0.70 ~ 8.29, Z = 1.39, p = 0.16); ② Acupuncture treatment is superior to drug group in improving the SNCV of the median nerve (MD = 1.65, 95%CI = 0.74 ~ 2.57,Z = 3.55, p = 0.0004), sham needle treatment (MD = 0.50, 95%CI = 0.17 ~ 0.83, Z = 2.95, p = 0.003), Acupuncture plus drug was superior to drug in improving the SNCV of the median nerve (MD = 3.29, 95%CI = 2.55 ~ 4.03, Z = 8.70, p < 0.00001); ③ Acupuncture treatment is superior to drug group in improving the MNCV of the median nerve (MD = 2.24, 95%CI = 0.50 ~ 3.98, Z = 2.52, p = 0.01), and sham needle treatment (MD = 0.20, 95%CI = -0.03 ~ 0.43, Z = 1.69, p = 0.09), Acupuncture plus drug was superior to drug group in improving the MNCV of the median nerve (MD = 2.63, 95%CI = 1.83 ~ 3.42, Z = 6.46, p < 0.00001); ④ Acupuncture is better to drug group in improving SNCV of common peroneal nerve (MD = 1.67, 95%CI = 0.21 ~ 3.13, Z = 2.24, p = 0.02); ⑤ Acupuncture treatment is superior to drug group in improving the MNCV of the common peroneal nerve (MD = 2.03, 95%CI = 1.37 ~ 0.69, Z = 6.04, p < 0.00001), Acupuncture plus drug outperformed MNCV in improving the common peroneal nerve (MD = 4.23, 95%CI = -0.16 ~ 8.62, Z = 1, 89, p = 0.06); ⑥ Acupuncture treatment is superior to drug group in improving the SNCV of the tibial nerve (MD = 1.58, 95%CI = 0.85 ~ 2.30, Z = 4.26, p < 0.0001); ⑦ There was no significant difference between acupuncture treatment and drug group in improving the MNCV of the tibial nerve (MD =1.55, 95%CI = -0.59 ~ 3.68, Z = 1.42, p = 0.16); ⑧ Acupuncture plus drug is better than medication in reducing VAS (MD = -2.35, 95%CI = -3.78 ~ -0.93, Z = 3.23, p = 0.001), Acupuncture plus usual care is superior to usual caret (MD = -28.70, 95%CI = -39.50 ~ 17.90, Z = 5.21, p < 0.00001), There was no significant difference between acupuncture and sham needle treatment (MD = -4.00, 95%CI = -18.32 ~ 10.32, Z = 0.55, p = 0.58).
Conclusion	Compared with drug, usual care, and sham AT, AT has a better response rate and more favorable effect in improving nerve conduction velocity. The combination of AT and drug demonstrates a more significant improvement compared to drug alone. The combination of AT and usual care improves DPN symptoms more effectively than usual care. However, the above conclusions need to be verified by larger samples and higher quality randomized controlled trials.

1.1.4. Liu 2024

Liu J, Lin Y, Huang Y, Yang Q, Li X, Ye Y, Zheng B, Song W. Efficacy and safety of acupuncture for painful diabetic neuropathy: a systematic review and meta-analysis. Front Neurol. 2024 Jun 5;15:1402458. https://doi.org/10.3389/fneur.2024.1402458

Backgound	Painful diabetic neuropathy (PDN) is a common chronic neurological complication of diabetes mellitus. Medications are often used to relieve pain, but with significant side effects. Acupuncture is now a component of pragmatic and integrative treatment for PDN. An increasing number of relevant randomized controlled trials have been published in recent years, but a comprehensive meta-analysis has not yet been performed. The aim of this paper is to verify the effectiveness and safety of acupuncture for PDN by meta-analysis and trial sequential analysis (TSA).

Methods	All participants in this study should have had a PDN diagnosis and the trial group was treated with acupuncture. Eight databases, including EMbase, PubMed, Web of science, Cochrane Library, China Biology Medicine disc (CBM), China National Knowledge Infrastructure (CNKI), Wanfang and Chongqing VIP (CQVIP) were retrieved from inception to 5 April 2023. Meta-analysis was conducted utilizing RevMan 5.3 and Stata 15.0. TSA was performed to assess the adequacy of sample size for the outcomes.
Results	A total of **36 studies, comprising 2,739 PDN patients**, were included. Among them, 1,393 patients were assigned to the trial group and 1,346 patients were treated in the control group. Outcomes covers the primary indicator Total effective rate (RR = 1.42, 95%CI [1.34, 1.52], p < 0.00001), with 21 studies reported, Pain intensity (SMD = -1.27, 95%CI [-1.58, -0.95], p < 0.00001), with 23 studies reported, and other outcomes, including motor nerve conduction velocity (MCV; MD = 3.58, 95%CI [2.77, 4.38], p < 0.00001), sensory nerve conduction velocity (SCV; MD = 3.62, 95%CI [2.75, 4.49], p < 0.00001), Depression score (SMD = -1.02, 95%CI [1.58, 0.46]), Toronto clinical scoring system (TCSS; MD = -2.41, 95%CI [-3.37, -1.45], p < 0.00001), Quality of life (SMD = 1.06, 95%CI [0.66, 1.46]), traditional Chinese medicine (TCM) syndrome score (MD = -4.99, 95%CI [-6.79, -3.18], p < 0.00001), suggesting that acupuncture have an ameliorating effect on PDN in various respect. Egger's test revealed publication bias for four outcomes. TSA showed that as for Total effective rate, Pain Intensity, MCV and SCV, the number of included studies was sufficient to support the conclusions.
Conclusion	Acupuncture demonstrates significant effectiveness in improving PDN outcomes, including Total effective rate, Pain intensity, MCV, SCV, Depression score, TCSS, Quality of life, TCM syndrome score. But the Adverse events rate is no different in trail group and control group. The publication bias presented in Total effective rate, Pain intensity, MCV and SCV can be remedied by Trim and filling method.

1.1.5. Wang 2024

Wang C, Fan Y, Liang G, Wang Q, Gao H, Duan J. Acupuncture for the treatment of painful diabetic peripheral neuropathy: A systematic review and meta-analysis. Complement Ther Clin Pract. 2024 Nov;57:101889. https://doi.org/10.1016/j.ctcp.2024.101889

Background	A growing number of studies have investigated the efficacy of acupuncture in the treatment of painful diabetic peripheral neuropathy (PDPN), but the findings of these studies have generated conflicting results. This study therefore aimed to assess the efficacy of acupuncture for treating PDPN so as to offer more conclusive results.
Methods	Seven databases were systematically searched for studies published up until December 1, 2023. All randomized controlled trials (RCTs) of acupuncture for PDPN with visual analog scale (VAS) for pain score were included. Study selection, data extraction, and evaluation were conducted independently by researchers. The Risk of Bias 2 (RoB2) tool was employed to assess the risk of bias. From this sample, the mean difference (MD), 95 % confidence intervals (CI), publication bias, and heterogeneity were then computed.
Results	The manual acupuncture group exhibited a significant decrease in the VAS for pain score compared with the routine care group (p < 0.0001; MD = -1.45 [95 % CI, -1.97 to -0.93], I2 = 84 %). The real acupuncture group demonstrated a greater reduction in VAS scores than the sham acupuncture group (p = 0.004; MD = -0.97 [95 % CI, -1.63 to -0.31], I2 = 65 %). Additionally, the acupuncture group showed improvements in sensory nerve conduction velocity (SNCV, p < 0.0001; MD = 2.29 [95 % CI, 1.79 to 2.78], I2 = 14 %) as well as motor nerve conduction velocity (MNCV, p < 0.0001; MD = 2.87 [95 % CI, 2.46 to 3.27], I2 = 0). Different durations of acupuncture treatment, including 6–10 weeks and 3–4 weeks, demonstrated a significant reduction in VAS scores compared with the routine care group.

Conclusion	This meta-analysis provides preliminary evidence for the claim that acupuncture has the potential to alleviate PDPN symptoms and improve SNCV and MNCV. However, high-quality RCTs are needed to offer further evidence and thus better substantiate such a contention.

1.1.6. Li 2023

Li X, Liu Y, Jing Z, Fan B, Pan W, Mao S, Han Y. Effects of acupuncture therapy in diabetic neuropathic pain: A systematic review and meta-analysis. Complement Ther Med. 2023 Nov;78:102992. https://doi.org/10.1016/j.ctim.2023.102992

Objective	To evaluate the effectiveness of acupuncture in relieving diabetic neuropathic pain and to establish a more reliable and efficient foundation for acupuncture practice in diabetes care.
Methods	The Chinese National Knowledge Infrastructure, Wanfang database, Chongqing Weipu, Chinese Biomedical Literature Database, PubMed, Embase, and Cochrane Library were all searched for a randomized controlled trial research of acupuncture for DNP. Two researchers independently performed literature screening, quality evaluation, and data extraction. After selecting studies and extracting data, we conducted the data analysis using RevMan 5.4 and Stata 14.0. The quality was assessed using the Cochrane Risk of Bias Assessment Tool.
Results	An extensive review of **19 studies involving 1276 patients** up to April 29, 2023, found that acupuncture was successful in improving pain intensity [MD= -1.09; 95% CI (-1.28, -0.89), P < 0.00001], clinical efficacy indicating pain changes [RR= 1.22; 95% CI (1.15, 1.29), P < 0.00001], and clinical neuropathy [MD= -1.55; 95% CI (-3.00, -0.09), P = 0.04] in DNP patients. Quality of life was also improved, with few side effects reported.
Conclusion	According to this meta-analysis, acupuncture therapy significantly improved the clinical efficacy of pain intensity, pain changes, and clinical neuropathy in patients with DNP, improved the quality of life of patients to a certain extent, and had lower side effects. This discovery provides evidence-based and practical recommendations for the treatment of DNP patients.

1.1.7. Yu 2021 ☆

Yu B, Li M, Huang H, Ma S, Huang K, Zhong Z, Yu S, Zhang L. Acupuncture treatment of diabetic peripheral neuropathy: An overview of systematic reviews. J Clin Pharm Ther. 2021 Jan 28. doi: 10.1111/jcpt.13351. doi

What is known and objective:	To evaluate the clinical efficacy of acupuncture through a review and analysis of systematic reviews of acupuncture for the treatment of diabetic peripheral neuropathy.
Methods	Systematic reviews of acupuncture treatment for diabetic peripheral neuropathy were collected by searching CNKI, VIP, Wanfang database, Chinese Biomedical Literature Database (CBM), PubMed, Web of Science and the Cochrane Library. The retrieval period was from the establishment of the database to February 14, 2020. After literature selection and extraction, included reports were evaluated in terms of the quality of the methodology and of the report using criteria from the AMSTAR2 scale and the PRISMA statement.

Results and discussion:	Eighty eight reviews were retrieved. The inclusion criteria were a published systematic evaluation/meta-analysis/systematic review of acupuncture treatment for diabetic peripheral neuropathy, which included subjects meeting the diagnostic criteria for diabetic peripheral neuropathy, and which compared acupuncture treatment with non-acupuncture treatment. After the inclusion criteria had been applied, 18 reviews were finally included. According to the PRISMA statement, 3 reports were relatively complete, 12 reports had certain defects, 3 reports had considerable information missing, and 18 reports had extremely low methodological quality according to the AMSTAR2 scale. Current evidence shows that acupuncture improves diabetic peripheral neuropathy and increases nerve conduction velocity. However, the methodological quality of the reviews is generally extremely low, and most of the reviews had certain defects, showing that there is still much room for improvement in terms of the methodology and quality of the research reports.
What is new and conclusion:	**Acupuncture appears to have an effect on DPN, effectively improving nerve conduction and clinical symptoms.** Although the methodological quality of the included studies was generally very low and defects were frequent, our study highlights areas where improvement in methodology is required. There is a need for further study of the pathogenesis of DPN, and for developing a unified standard for methods of acupuncture treatment, acupoint selection, and adverse reactions reporting. Traditional Chinese medical practices such as acupuncture should adopt an evidence-based approach to provide greater confidence in their use.

1.1.8. Jiang 2020

Jiang HL, Jia P, Fan YH, Li MD, Cao CC, Li Y, Du YZ. Manual Acupuncture or Combination with Vitamin B to Treat Diabetic Peripheral Neuropathy: A Systematic Review and Meta-Analysis of Randomized Controlled Trials. Biomed Res Int. 2020. [218675]. doi

Background and Objective	The efficacy of mecobalamin (vitamin B12) alone in the treatment of diabetic peripheral neuropathy (DPN) is often unsatisfactory, while acupuncture treatment is also controversial. This study compares manual acupuncture to vitamin B in DPN treatment.
Methods	Randomized controlled trials on manual acupuncture treatment of DPN were retrieved from the Medline, Web of Science, PubMed, Cochrane Library, EMBASE, CNKI, WanFang, and VIP databases. Extracted research data were summarized in the tables, and methodological assessment was performed using the risk-of-bias assessment tool of Cochrane. Meta-analysis was performed by Revman 5.3, Stata 14.0, and TSA 0.9.5.10 Beta software.
Results	A total of **18 randomized clinical trials (RCTs)** were recruited: (1) 11 RCTs were acupuncture alone compared with vitamin B; (2) 7 RCTs were acupuncture combined with vitamin B compared with vitamin B, involving 1200 participants. Acupuncture alone improved clinical efficacy ($P < 0.05$) and nerve conduction velocity of the four peripheral nerves: peroneal nerve, tibial nerve, median nerve, and ulnar nerve ($P < 0.05$), but there was no significant difference between the group of acupuncture alone and the group of vitamin B ($P = 0.36 > 0.05$) in improving median nerve SCV (sensory nerve conduction velocity). Acupuncture combined with vitamin B improved clinical efficacy and nerve conduction velocity of the three peripheral nerves, peroneal nerve, tibial nerve, and median nerve ($P < 0.05$), and decreased the scores of the Toronto clinical scoring system (TCSS) ($P < 0.05$).
Conclusion	Acupuncture alone and vitamin B combined with acupuncture are more effective in treating DPN compared to vitamin B. However, more high-quality RCTs on vitamin B combined with acupuncture are required to confirm our results.

1.1.9. Amato Nesbit 2019 Ø

Amato Nesbit S, Sharma R, Waldfogel JM, Zhang A, Bennett WL, Yeh HC, Chelladurai Y, Feldman D, Robinson KA, Dy SM. Non-pharmacologic treatments for symptoms of diabetic peripheral neuropathy: a systematic review. Curr Med Res Opin. 2019;35(1):15-25. [208775]. doi

Objective	To systematically assess benefits and harm of non-pharmacologic interventions for diabetic peripheral neuropathy (DPN) symptoms.
Methods	MEDLINE, Embase, and the Cochrane Central Register of Controlled Trials were searched from 1966 to May 24, 2016 for randomized controlled trials. Two reviewers evaluated studies for eligibility, serially abstracted data, evaluated risk of bias, and graded strength of evidence (SOE) for critical outcomes (pain and quality-of-life).
Results	Twenty-three trials were included. For pain, alpha-lipoic acid was more effective than placebo (moderate SOE) and frequency-modulated electromagnetic stimulation was more effective than sham (low SOE) in the short-term but not the long-term. Electrical stimulation (including transcutaneous) was not effective for pain (low SOE). Spinal cord stimulation was more effective than usual care for pain (low SOE), but had serious complications, and studies had no sham arm. Evidence for cognitive behavioral therapy and **acupuncture** was insufficient; no exercise or physical therapy trials met inclusion criteria. No interventions reported sufficient evidence on quality-of-life. Most studies were short-term with unclear risk of bias.
Conclusions	Alpha-lipoic acid and spinal cord stimulation were effective for pain; studies were short-term with quality deficits. Spinal cord stimulation had serious adverse events. Further research should address long-term outcomes and other non-pharmacologic treatments.

1.1.10. Nash 2019

Nash J, Armour M, Penkala S. Acupuncture for the treatment of lower limb diabetic peripheral neuropathy: a systematic review. Acupuncture in Medicine. 2019;37(1):3-15. [203215].

Objective	To examine evidence for acupuncture interventions in the management of diabetes-related peripheral neuropathy (DPN) symptoms.
Methods	Five electronic databases were searched up to June 2017 for studies that included participants with symptoms of DPN, used an acupuncture intervention, and reported before-and-after DPN-related outcome measures. Two reviewers independently performed the data extraction. The level of homogeneity was assessed, and studies were appraised using the Cochrane Risk of Bias tool, the STRICTA guidelines for acupuncture reporting and the NICMAN scale for acupuncture quality.
Results	**Ten studies with 432 participants** were included: three randomised controlled trials (RCTs), two pilot RCTs, three uncontrolled clinical trials, one quasi-RCT and one prospective case series. Improvements in DPN pain symptoms were reported by all studies. Heterogeneity of outcome measures prevented a meta-analysis. Variations were found in needle retention time and point selection, as well as total number and frequency of treatments. Common acupuncture point selections were ST36 and SP6. Half of the studies used local point selection. Studies conducted outside China had better acupuncture reporting and quality according to the STRICTA checklist and NICMAN scales, respectively. Risk of bias was high or unclear in the majority of studies for all domains except attrition bias.

Conclusions	Acupuncture for DPN appears to improve symptoms. However, the application of acupuncture varies greatly, and the quality of included studies was generally low. Available studies have varying methodologies and different outcome measures. Further, suitably powered studies using appropriate DPN outcome measures are required.

1.1.11. Li 2015 Ø

Li Jun, Jin Yanrong, Xue Yaoming. [Influence on Acupuncture Treatment of Diabetic Peripheral Neuropathy-A Systematic Review of Randomized Controlled Trials]. World Science and Technology-Modernization of Traditional Chinese Medicine. 2015;4:819-828. [187071].

Objectives	This study was aimed to evaluate the efficacy and safety of acupuncture treatment for diabetic peripheral neuropathy.
Methods	MEDLINE, EMBASE, China National Knowledge Infrastructure (CNKI), and Wanfang database were searched. The study endpoints included clinical total efficacy, peripheral nerve conduction velocity and adverse reactions. The Review Manager software 5. 2 was used in the bias and risk assessment as well as efficacy. GRADE profiler software was used to evaluate quality of evidences.
Results	The results showed that there were **18 randomized controlled trials (RCTs) with 1158 patients included**. The clinical total efficacy rate of acupuncture treatment was obviously better than the drug control group [RR: 1. 38, 95%CI (1. 25, 1. 53), P < 0. 000 01]. The sensory nerve conduction velocity was that for nervus medianus, the acupuncture treatment group was superior to the drug control group [MD = 2. 55, 95%CI (1. 23, 3. 87), P = 0. 000 1]; for nervus peroneus communis, the acupuncture treatment group was superior to the drug control group [MD = 3. 42, 95%CI (2. 56, 4. 28), P < 0. 000 01]. The motor nerve conduction velocity was that for nervus medianus, the acupuncture treatment group was superior to the drug control group [MD = 4. 10, 95%CI (1. 01, 7. 19), P = 0. 009); for the nervus peroneus, the acupuncture treatment group was superior tothe drug control group [MD = 3. 09, 95%CI (1. 99, 4. 19), P < 0. 000 01]. The adverse reactions and safety indicators were that no adverse reaction was reported in both studies with no abnormal safety indicator. The quality of evidence showed that the sensory nerve conduction velocity for nervus peroneus communis was moderate; the motor nerve conduction velocities for nervus medianus and nervus peroneus communis were low. While, the clinical efficacy rate and the quality of evidence for sensory nerve conduction velocity of nervus medianus were relatively low.
Conclusions	It was concluded that the current clinical evidences were **uncertain for the efficacy and safety of acupuncture in diabetic peripheral neuropathy** treatment.

1.1.12. Liu 2014 ☆

Liu Meijun, Liu Zhicheng, Xu Bin. [Systematic Review of Acupuncture Treatment on Type 2 Diabetes Peripheral Neuropathy]. Journal of Zhejiang University of Traditional Chinese Medicine. 2014;11:1326-133. [187028].

Objectives	To evaluate the acupuncture treatment of type 2 diabetes peripheral neuropathy clinical curative effect and safety.

Methods	Computer retrieval of the CENTRAL, Cochrane, Web Of Science, CBM, CNKI, VIP database, find al about acupuncture and moxibustion treatment of type 2 diabetic gastroparesis of randomized control ed trial (RCT), build library retrieval time until March 19, 2014. At the same time ShouJian into literature references. According to inclusion and exclusion criteria, independently by two researchers after RCT extraction and filtering, data quality evaluation, using Revman5. 2 Meta-analysis software, use the GRADE system for quality evaluation of evidence.
Results	**Seven studies involving 364 patients** were included. Meta-analysis showed: (1) effective rate: the acupuncture compared with drugs, the results between the two groups were statistical y significant (RR=3. 35, 95% CI= (2. 05, 5. 48)], suggesting that acupuncture treatment can improve efficiency for the treatment of type 2 diabetes peripheral neuropathy. (2) MNCV: the median nerve, and results showed that the statistical significance was found between the two groups [MD=2. 29, 95%CI= (0. 61, 3. 98)]. Including philalways nervous, the result showed that between the two groups had statistical significance [MD=2. 16, 95% CI= (0. 16, 4. 16)]. (3) SNCV: includ-ing median nerve, the results showed that the statistical significance was found between the two groups [MD=1. 79, 95% CI= (0. 57, 3. 02)]. Including philalways nervous, the result showed that the two groups had statistical significance [MD=3. 59, 95%CI= (2. 28, 4. 91)]. Based on GRADE system, al the evidence was at low level and weak recommendation.
Conclusions	Acupuncture-moxibustion for the type 2 diabetes peripheral neuropathy is **better than the conventional medicine treatment**. Limited by the quality of the inclusive literalures, it needs more high quality, large sample of RCT further argument.

1.1.13. Chen 2013 Ø

Chen W, Yang GY, Liu B, Manheimer E, Liu JP. Manual Acupuncture for Treatment of Diabetic Peripheral Neuropathy: A Systematic Review of Randomized Controlled Trials. Plos One. 2013. e73764. [160414].

Objectives	Manual acupuncture has commonly been used in China, either alone or in combination with conventional medicine, to treat diabetic peripheral neuropathy (DPN). The objective of this study was to perform a systematic review to evaluate the potential benefits and harms of manual acupuncture for DPN to justify its clinical use.
Methods	We searched for published and unpublished randomized controlled trials of manual acupuncture for DPN till 31 March 2013. Revman 5.2 software was used for data analysis with effect estimate presented as relative risk (RR) and mean difference (MD) with a 95% confidence interval (CI).
Results	A total of **25 trials involving 1649 participants** were included. The methodological quality of included trials was generally poor. Meta-analysis showed that manual acupuncture had better effect on global symptom improvement compared with mecobalamin (RR 1.31, 95%CI 1.21 to 1.42), vitamin B1 and B12 (RR 1.55, 95%CI 1.33 to 1.80), and no treatment (RR 1.56, 95%CI 1.31 to 1.85), and that the combination of manual acupuncture and mecobalamin had better effect compared with mecobalamin alone on global symptom improvement (RR 1.56, 95%CI 1.28 to 1.90). Adverse events were not reported in any trials. The asymmetric funnel plot suggested publication bias.
Conclusions	Despite the number of trials of manual acupuncture for DPN and their uniformly positive results, no clinically relevant conclusions can be drawn from this review due to the trials' high risks of bias and the possibility of publication bias. Clearly defined and internationally acknowledged outcome measures are required for future study. There remains an urgent need for training Chinese researchers in conducting unbiased trials as well as prospectively registering all initiated Chinese trials to avoid publication bias.

1.1.14. Cao 2011 ☆

Cao Ping, Yang Ren-da. [Acupuncture for diabetic peripheral neuropathy: meta-analysis]. Guiding Journal of Traditional Chinese Medicine and Pharmacology. 2011;1:97-101. [186971].

Objectives	To systematic reviews of acupuncture treatment of diabetic peripheral neuropathy.
Methods	Acupuncture treatment in diabetic peripheral neuropathy in a systematic evaluation of randomized controlled trials, Data were analyzed using special software RevMan4.
Results	**Ten RCTs involving 696 patients** were included, Meta-analysis showed that the efficiency of acupuncture treatment of DPN are better than the control group (P<0. 00001). Acupuncture for the improvement of nerve conduction velocity DPN is also better than the control group (motor nerve conduction velocity P<0. 00001, sensory nerve conduction velocity P=0. 0005 or P<0. 00001).
Conclusions	The system evaluation results show that, compared with western medicine, acupuncture and moxibustion on diabetic peripheral neuropathy symptoms, signs and nerve conduction velocity have **better effect**. However, due to low methodological quality of trials, not yet fully certain that high-quality trials need to be further confirmed.

1.2. Special Clinical Forms

1.2.1. Diabetic peripheral neuropathy in the elderly

1.2.1.1. Zhang 2024

Zhang X, Xiao L, Qin Y, Yang H, Wei X, Li L, Zhao S, Dai X. Acupuncture for the treatment of diabetic peripheral neuropathy in the elderly: a systematic review and meta-analysis. Front Med (Lausanne). 2024 Jun 14;11:1339747. https://doi.org/10.3389/fmed.2024.1339747

Backgound	Diabetic peripheral neuropathy (DPN) is one of the most common complications of diabetes mellitus, often causing pain or numbness in the patient's limbs and even leading to amputation and death. Elderly patients with DPN usually have higher morbidity and more severe results. Acupuncture has been widely used as an effective treatment for DPN in China. However, the efficacy of acupuncture in the treatment of DPN remains unclear. In this review, we aimed to explore the impact of acupuncture in alleviating symptoms of DPN.
Methods	Six databases were searched from inception to October 2023. We searched Medline, EMBASE, Cochrane Central Register of Controlled Trials (CENTRAL), and three Chinese databases, namely China National Knowledge Infrastructure (CNKI), SinoMed, and Wanfang. All randomized controlled trials related to the effect of acupuncture on DPN were included. There was no restriction in language or publication year. The primary outcome was the response rate. The secondary outcomes were the Toronto clinical scoring system (TCSS), nerve conduction velocities (NCVs), and blood glucose before and after the treatment. Two researchers independently conducted study selection, data extraction, and quality assessment. RevMan V5.1.0 software was used to assess the risk of bias and synthesize data.
Results	A total of 4518 studies were screened, among which **9 RCTs** were considered eligible. Overall, acupuncture treatment had a higher response rate than controls (relative risk (RR), -2.87 [95% confidence interval (CI), -5.27 to -0.48], p = 0.02) and significantly alleviated DPN symptoms, reduced blood glucose levels, and improved nerve conduction velocities compared with the control group.

Conclusion	The results suggested that acupuncture might be effective in improving symptoms of DPN in elderly patients. Owing to the overall low quality of the included literature, further large-sample, high-quality, and low-bias studies are required to confirm these findings.

1.3. Special Acupuncture Techniques

1.3.1. Comparison of Acupuncture techniques

1.3.1.1. Hu 2025

Hu J, Wang H, Hao X, Pan T, Li X, Zhou X, Wang S, Gong Y, Wu L, Dong S, Chen X, Wang X. Traditional Chinese medicine for diabetic peripheral neuropathy: a network meta-analysis. Front Endocrinol (Lausanne). 2025 Aug 27;16:1596924. https://doi.org/10.3389/fendo.2025.1596924

Background	Background: Diabetic peripheral neuropathy (DPN) is a common complication of diabetes mellitus, characterized by high morbidity and significant disability. Traditional Chinese medicine (TCM) has shown potential in relieving symptoms and improving neurological function through multi-targeted mechanisms; however, the efficacy and safety of different TCM therapies have yet to be systematically evaluated.
Objective	Objective: This study aims to provide evidence-based medicine for treating DPN with TCM therapy by network meta-analysis (NMA).
Methods	Methods: This study comprehensively searched nine databases constructed up to November 2024. The quality and evidence of the included RCTs were assessed using the risk of bias assessment tool and GRADE pro, and pairwise meta-analysis and NMA were performed using RevMan, Stata, and R Studio. The results showed that 95 RCTs involving 8194 patients were included, containing 9 TCM therapies.
Results	Results: TCM Decoration + Acupuncture ranked highest in improving the motor conduction velocity of the common peroneal nerve (SUCRA = 0.81), followed by TCM Decoction + Chinese Herbal Footbath (SUCRA = 0.80), electroacupuncture (SUCRA = 0.75). Regarding the sensory conduction velocity of the common peroneal nerve, TCM Decoration + Chinese Herbal Foot (SUCRA=0.87) ranked first, followed by TCM Decoction + Acupuncture (SUCRA = 0.83), and TCM Decoction (SUCRA = 0.51). Electroacupuncture (SUCRA = 0.83) ranks first in improving median nerve motor conduction velocity, followed by TCM Decoction + Acupuncture (SCURA = 0.98), TCM Decoction (SUCRA = 0.55). TCM Decoration + Acupuncture (SUCRA=0.98) ranks first in improving the sensory conduction velocity of the median nerve, followed by electroacupuncture (SUCRA = 0.51), and Chinese Patent Medicine (SUCRA = 0.51). TCM Decoration + Chinese Herbal Footbath (SUCRA = 0.85) ranked first in improving overall clinical symptoms of DPN.
Conclusion	Conclusion: The effectiveness and safety of traditional Chinese medicine therapy in treating DPN have been preliminarily verified. In clinical practice, conservative clinical stratification selection can be made based on the results of this study and the actual situation. In addition, due to the limited quality of the included studies, larger sample sizes and high-quality research are still needed.

1.3.1.2. Lin 2025

Lin S, Qin Y, Li M, Zhu M, Wen H, Liu Y, Lin H, Lu L. Acupuncture for diabetic peripheral neuropathy: A systematic review and Bayesian network meta-analysis. Medicine (Baltimore). 2025 Aug 8;104(32):e43796. https://doi.org/10.1097/MD.0000000000043796

Background	Diabetic peripheral neuropathy (DPN) has emerged as a global health challenge with increasing prevalence rates over the past 3 decades. Acupuncture has been increasingly utilized for the treatment of DPN in recent years. However, whether any specific acupuncture intervention should be considered a priority in the treatment of patients is still unclear. We aimed to summarize the latest evidence concerning the benefits and harms of acupuncture-related therapies to identify an optimal acupuncture intervention for DPN patients.
Methods	This systematic review and network meta-analysis searched databases from inception to October 2024 for randomized controlled trials (RCTs) evaluating acupuncture interventions in patients with DPN receiving mecobalamin therapy. We performed random-effects Bayesian network meta-analyses to synthesize evidence from eligible RCTs.
Results	Our systematic search identified 1831 citations with 62 eligible RCTs involving 5942 participants. Electroacupuncture may be the most effective at improving motor nerve conduction velocity (mean difference [MD]: 10.65; 95% confidence interval [CI]: 4.6-16.7), followed by acupoint injection (AI) combined with traditional Chinese medicine (TCM), AI, herbal fumigation (HF), manual acupuncture (MA), MA combined with HF, and MA combined with moxibustion, with MDs of (10.37; 95% CI: 6.17-14.61), (4.67; 95% CI: 2.57-6.82), (4.72; 95% CI: 1.31-8.14), (3.36; 95% CI: 2.1-4.64), (5.93; 95% CI: 2.53-9.33), and (4.8; 95% CI: 1.69-7.94). AI may be the most effective at improving sensory nerve conduction velocity (MD: 3.94; 95% CI: 2.33-5.57), followed by acupoint injection combined with TCM, bloom needle, HF, MA, MA combined with HF, MA combined with moxibustion, and MA combined with TCM, with MDs of 8.69 (95% CI: 3.72-13.61), 5.6 (95% CI: 2.2-8.99), 4.58 (95% CI: 1.49-7.71), 3.72 (95% CI: 2.62-4.85), 25 (95% CI: 1.64-6.85), 3.58 (95% CI: 1.13-6.08), and 5.7 (95% CI: 4.24-7.17), with low certainty evidence.
Conclusion	Electroacupuncture may be the most effective therapy for improving motor nerve conduction function, and AI may be the best therapy for improving sensory nerve conduction function in patients with DPN.

1.3.2. Xu 2023 (Chinese Medicine External Treatment Methods Combined with Mecobalamin)

Xu L, Zang D, Li H, Sulitang A, Li Y, Ma J, Wang K, Ma L. Five Traditional Chinese Medicine External Treatment Methods Combined with Mecobalamin for Diabetic Peripheral Neuropathy: A Network Meta-Analysis. Evid Based Complement Alternat Med. 2022 Dec 16;2022:4251022. https://doi.org/10.1155/2022/4251022

Background	Diabetic peripheral neuropathy (DPN) is one of the most common chronic complications of diabetes. Traditional Chinese medicine (TCM) external treatment has been widely used in China as adjunctive treatment, and some small sample clinical studies have proved its effectiveness. However, due to the limited number of studies, we used network meta-analysis to compare the effectiveness of 5 commonly used external treatment methods of traditional Chinese medicine in the treatment of diabetic peripheral neuropathy.
Methods	We searched PubMed, EMBASE, The Cochrane Library, Web of Science, CNKI, CBM, WanFang Knowledge Service Platform, and VIP databases and collected and screened randomised controlled trials on the external treatment of traditional Chinese medicine combined with mecobalamin in the treatment of DPN according to the inclusion and exclusion criteria. The search period was from 2011 to May 2021. The quality of included studies was assessed using the revised Cochrane risk-of-bias tool for randomized trials. The outcome indicators are Toronto score, median nerve sensory conduction velocity, and median nerve motor conduction velocity.

Results	A total of **22 publications** were included in the study. The results of the network meta-analysis showed that acupuncture combined with mecobalamin was superior to other TCM external treatments combined with mecobalamin in terms of decreasing the Toronto score (MD = -2.8, 95% CI: -5.2~-0.49), improving median nerve sensory conduction velocity (MD = 3.6, 95% CI: 2.4~4.9), and median nerve motor conduction velocity (MD = 4.5, 95% CI: 2.6~6.5). The SUCRA value and probability ranking chart showed that among the three outcome indicators, acupuncture combined with mecobalamin was the best, followed by acupoint injection combined with mecobalamin.
Conclusion	In this network meta-analysis, acupuncture combined with mecobalamin shows the best results in the treatment of DPN, followed by acupoint injection combined with mecobalamin.

1.3.3. Moxibustion

1.3.3.1. Du 2026

Du D, Wang S, Chen X, Wang J, Zhang X, Gao Y. Moxibustion combinations for diabetic peripheral neuropathy: a network meta-analysis of 40 randomised trials. Front Endocrinol (Lausanne). 2026;17:1941999. https://doi.org/10.3389/fendo.2026.1941999

Background	Moxibustion, an external treatment used in traditional Chinese medicine, is increasingly applied to diabetic peripheral neuropathy (DPN). This study compared the effectiveness of the principal moxibustion-containing treatment combinations for this condition.
Methods	Randomised controlled trials (RCTs) available up to 14 April 2026 were searched in PubMed, EMBASE, the Cochrane Library, Web of Science, China National Knowledge Infrastructure (CNKI), Wanfang Medical Database and VIP Database. The network meta-analysis (NMA) evaluated moxibustion (MOXI) and combinations with acupuncture therapy (ACU), massage therapy (MT), internal herbal medicine (IHM), external herbal medicine (EHM) or conventional treatment (CT). Outcomes included common peroneal and median motor nerve conduction velocity (MNCV), sensory nerve conduction velocity (SNCV), Toronto Clinical Scoring System (TCSS) score and markedly effective rate. Random-effects models in Stata MP 17.0 generated mean differences (MDs) and risk ratios (RRs). Evidence certainty was assessed using GRADE.
Results	**Forty studies involving 3,718 participants** were included. Moderate-certainty evidence favoured MOXI+EHM over CT for common peroneal MNCV (MD = 6.14 m/s, 95% CI 3.82 to 8.46). MOXI+EHM also improved median MNCV (MD = 6.35 m/s, 95% CI 2.35 to 10.36) and common peroneal SNCV (MD = 8.44 m/s, 95% CI 4.80 to 12.08). For median SNCV, MOXI+ACU outperformed CT (MD = 6.61 m/s, 95% CI 1.29 to 11.92), as did MOXI+EHM (MD = 4.32 m/s, 95% CI 1.01 to 7.63); certainty ranged from moderate to very low. Moderate-certainty evidence also showed that MOXI+EHM reduced TCSS scores (MD = -2.55 points, 95% CI -3.81 to -1.30). MOXI+EHM (RR = 1.74, 95% CI 1.27 to 2.40) and MOXI+ACU (RR = 1.59, 95% CI 1.05 to 2.41) increased the markedly effective rate versus CT.
Conclusion	Moderate-certainty evidence suggests that MOXI+EHM may improve nerve conduction, clinical symptoms and signs, and the markedly effective rate in patients with DPN. Moxibustion-based combination therapy may therefore offer a useful adjunct to conservative DPN management, although the findings require confirmation in rigorous trials.

1.3.3.2. Tan 2020

Tan Y, Hu J, Pang B, Du L, Yang Y, Pang Q, Zhang M, Wu Q, Zhang Y, Ni Q. Moxibustion for the treatment of diabetic peripheral neuropathy: A systematic review and meta-analysis following PRISMA guidelines. Medicine (Baltimore). 2020;99(39). [212662]. doi

Background	At present, the effect of western-medicine (WM) therapy to treat diabetic peripheral neuropathy (DPN) is limited. Moxibustion is a representative external treatment in traditional Chinese medicine that has been beneficial to DPN. We aim to systematically assess the efficacy and safety of moxibustion in treating DPN, following PRISMA guidelines.
Methods	Eight electronic databases were searched to acquire information on eligible trials published from inception to June 1, 2019. We included randomized controlled trials (RCTs) applying moxibustion therapy with a minimum of 14-days treatment duration for DPN patients compared with placebo, no intervention, or conventional WM interventions. The primary outcomes in our study include the sensory-nerve conduction velocity (SNCV) and motor-nerve conduction velocity (MNCV). We used the Cochrane Collaboration Risk of Bias tool to assess the methodological quality of eligible RCTs. Statistical analyses were conducted using Review Manager 5.3. Risk ratios (RR) and mean differences (MD) were calculated with a 95% confidence interval (CI). The χ test was applied to assess the heterogeneity.
Results	In total, **11 RCTs were included that involved 927 DPN patients**. Compared with the control group, there was an increase in median MNCV (MD = 6.26, 95% CI 2.64-9.89, Z = 3.39, P = .0007) and peroneal MNCV (MD = 6.45, 95% CI 5.30-7.61, P < .00001). There was also an increase in median SNCV (MD = 6.64, 95% CI 3.25-10.03, P = .0001) and peroneal SNCV (MD = 3. 57, 95% CI 2.06-5.09, Z = 4.63, P < .00001) in the treatment groups. The treatment groups receiving moxibustion therapy indicated a more significant improvement in total effectiveness rate (RR = 0.25, 95% CI 0.18-0.37, Z = 7.16, P < .00001). Toronto Clinical Scoring System indicated a significant decrease in the treatment groups (MD = -2.12, 95% CI -2.82 to 1.43, P < .00001). Only 1 study reported that treatment groups experienced no adverse reactions. The other 10 studies did not mention adverse events.
Conclusions	Moxibustion therapy may be an effective and safe option for DPN patients but needs to be verified in further rigorous studies.

1.3.4. Electroacupuncture

1.3.4.1. Xiong 2016 Ø

Xiong WJ, Feng X, Liu JP, Chen W. Electroacupuncture for treatment of diabetic peripheral neuropathy: A systematic review of randomized controlled trials. Journal of Traditional Chinese Medical Sciences. 2016;3(1): 9-21. [162003].

Objective	To assess the effectiveness and safety of electroacupuncture for the treatment of diabetic peripheral neuropathy (DPN). Clinical studies in China have shown the beneficial effect of electroacupuncture compared with conventional medicine. However, the effectiveness of electroacupuncture has not been well acknowledged internationally.

Methods	We searched the following databases from their inception through February 2016: MEDLINE, the Cochrane Central Register of Controlled Trials (April, 2015), SinoMed, China National Knowledge Infrastructure, VIP, Wanfang Database, Chinese Important Conference Papers Database, and the Chinese Dissertation Database. Randomized controlled trials (RCTs) were included if they compared electroacupuncture to conventional medicine, placebo, or no treatment on DPN patients. RevMan 5.3 software was used for data analysis, with effect estimate presented as relative risk (RR) and mean difference (MD) with a 95% confidence interval (CI).
Results	**Eleven RCTs involving 837 participants** were included. The methodological quality of included RCTs was generally poor in terms of sequence generation, allocation concealment, blinding, incomplete outcome data, and selective outcome reporting. Meta-analysis showed that electroacupuncture had a better effect on global symptom improvement than methylcobalamin (RR = 1.29; 95% CI: 1.14–1.46) and vitamin B (RR = 1.60; 95% CI: 1.33–1.94). Only two RCTs reported adverse events.
Conclusions	Because of the high risk of bias of included trials, **we cannot make a conclusion on the effectiveness of electroacupuncture for DPN**. More rigorously designed and conducted multicenter double-blind RCTs are needed to support the use of electroacupuncture for DPN.

1.3.5. Pharmaco-acupuncture

1.3.5.1. Yu 2026

Yu Y, Zhou T, Li L, Liu X, Yin Y, Yu R. Acupoint injection increases the efficacy of vitamin B12 for diabetic neuropathy: a meta-analysis and trial sequential analysis. Eur J Clin Nutr. 2026 Jan;80(1):7-15. https://doi.org/10.1038/s41430-025-01631-z

Objective	This study aims to systematically evaluate the efficacy and safety of vitamin B12 acupoint injections compared to other administration routes in treating diabetic neuropathy (DN).
Methods	Twenty randomized controlled trials published before March 1, 2024 were included, sourced from eight public databases, involving 1688 participants. Basic study data were extracted, risk of bias was assessed, and both meta-analysis and trial sequential analysis (TSA) were conducted.
Results	Meta-analysis showed that compared with other vitamin B12 administration routes, acupoint injection significantly improved clinical effectiveness (RR 1.28, 95% CI 1.22–1.35), peroneal nerve motor nerve conduction velocity (MD 4.43 m/s, 95% CI 2.83–6.03), peroneal sensory nerve conduction velocity (MD 3.82 m/s, 95% CI 3.23–4.41), median nerve motor nerve conduction velocity (MD 5.48 m/s, 95% CI 4.71–6.24), and median nerve sensory nerve conduction velocity (MD 4.62 m/s, 95% CI 3.84–5.39). No significant effects were observed on fasting blood glucose (MD −0.18, 95% CI −0.44 to 0.08), 2-h postprandial blood glucose (MD −0.02, 95% CI −0.36 to 0.33), or adverse event incidence (RR 1.44, 95% CI 0.44–4.70). TSA indicated that all outcomes except fasting blood glucose, 2-h postprandial blood glucose, and adverse events reached conclusiveness.
Conclusion	Compared with other administration routes of vitamin B12, acupoint injection improves neurological function in patients with diabetic neuropathy without increasing adverse events or economic burden. These findings suggest that acupoint injection may represent an optimal administration route for vitamin B12 in diabetic neuropathy.

1.3.5.2. Wang 2018 (¤ST36)

Wang LQ, Chen Z, Zhang K, Liang N, Yang GY, Lai L, Liu JP. Zusanli (¤ST36) Acupoint Injection for Diabetic Peripheral Neuropathy: A Systematic Review of Randomized Controlled Trials. Journal of Alternative and Complementary Medicine. 2018;24(12):1138-1149. [209326]. doi

Background	Acupuncture point (acupoint) injection is a common practice in China. Some trials showed that Chinese herbal extracts and/or conventional medication are injected at the Zusanli (¤ST36) acupoint for the treatment of diabetic peripheral neuropathy (DPN). The study aimed to assess the effectiveness and safety of acupoint injection for DPN at the ¤ST36 by systematically evaluating the evidence published to date.
Methods	Six databases were searched for randomized controlled trials (RCTs) of ¤ST36 injection for DPN with primary outcome of pain, global symptom improvement, and quality of life. Methodological quality was assessed by the Cochrane risk of bias (ROB) tool. Data were analyzed using RevMan 5.3.
Results	**Fourteen RCTs involving 1,071 participants** with DPN were included. All RCTs were assessed as unclear or high ROB. Few RCTs adequately reported methodology-related items and needling details according to Consolidated Standards of Reporting Trials (CONSORT) and Standards for Reporting Interventions in Controlled Trials of Acupuncture (STRICTA) statement. Medications injected at ¤ST36 included conventional medications (11 RCTs) and Chinese herbal extracts (3 RCTs). The authors of this study did not perform any meta-analysis due to the heterogeneity of medications used for injections. Two individual RCTs favored ¤ST36 injection in relieving pain compared with intramuscular injection of the same medication. For global symptom measured by Toronto clinical scoring system, one RCT showed that ST36 injection of Fufang Danggui was more effective than intramuscular injection of vitamin B12, two RCTs demonstrated that ST36 injection of mecobalamin or Danhong with cointervention was superior, while one RCT showed no significant differences between ST36 injection and intramuscular injection of mecobalamin. For improving nerve conduction velocity (NCV), three of four individual RCTs showed that ST36 injection was better than intramuscular or intravenous injection of the same medication, two RCTs favored ST36 injection with cointervention, and one RCT favored ST36 injection without cointervention. Four RCTs reported monitoring adverse events, all of which showed no significant difference between groups.
Conclusions	Limited evidence suggests that ST36 injection appears to be safe, and potentially effective in reducing pain score and improving NCV compared with intramuscular injection of the same medication. However, poor methodological and reporting quality reduced confidence in the findings. Rigorously designed and well-reported RCTs evaluating the effectiveness of ST36 injection for DPN are warranted.

1.3.6. TCM foot bath combined with acupoint massage

1.3.6.1. Fu 2020

Fu Q, Yang H, Zhang L, Liu Y, Li X, Dai M, Yang Y, Yang S, Xie Y, Liu Y, Fu L, Liu Z, Zhang Q. Traditional Chinese medicine foot bath combined with acupoint massage for the treatment of diabetic peripheral neuropathy: A systematic review and meta-analysis of 31 RCTs. Diabetes Metab Res Rev. 2020;36(2). [215726]. doi

Objective	In this study, we aim to evaluate the efficiency and safety of traditional Chinese medicine foot bath combined with acupoint massage for the treatment of diabetic peripheral neuropathy.

Methods	A total of eight online databases were searched to collect studies published up to February 2019. Study quality of each included article was evaluated by the Cochrane Collaboration risk of bias tool. Systematic reviews and meta-analyses were conducted based on the Cochrane systematic review method by using the RevMan 5.3 software. Traditional Chinese medicine foot bath combined with acupoint massage was the main therapy in experimental group. Interventions in control groups include western medicine, oral traditional Chinese medicine, other symptomatic treatment of western medicine, and blank control. Primary outcomes in this study include sensory nerve conduction velocity (SNCV), motor nerve conduction velocity (MNCV), total effective rate, and neuropathic syndrome score.
Results	Finally, 31 trials involving 3284 participants were included. The results of systematic reviews and meta-analyses showed that traditional Chinese medicine foot bath combined with acupoint massage was significantly better compared with the control groups in terms of the total effective rate, SNCV, MNCV, and neuropathic syndrome score. No case of adverse effect was reported.
Conclusions	These findings show that traditional Chinese medicine foot bath combined with acupoint massage may be safer and more effective for the treatment of DPN. However, due to the low methodological quality, further research with randomized controlled trials (RCTs) of higher quality is required to prove its efficacy and better evidence for clinical treatment.

1.4. Specific outcome

1.5. Liu 2016 (nerve conduction velocity) ☆

Liu Ji-Qin, Ke Zong-Ping, Xie Dan-Dan, Ke Xing-Mei, Li Xue-Feng. [Influence of acupuncture-moxibustion on the peroneal nerve conduction velocity in type 2 diabetic peripheral neuropathy□a meta-analysis]. Shanghai Journal of Acupuncture and Moxibustion. 2016;35(1):105-110. [187054].

Objectives	To systematically evaluate the influence of acupuncture-moxibustion on the peroneal nerve conduction velocity in type 2 diabetic peripheral neuropathy (DPN), and to provide clinical references for acupuncture-moxibustion treatment for DPN.
Methods	By searching the CBM, CNKI, VIP, Wanfang, Pubmed, Springer and Medline databases, randomized controlled trials (RCT) of acupuncture-moxibustion for the type 2 DPN published from January 2000 to January 2014 were retrieved and the relevant data of the peroneal nerve conduction velocity were collected for methodological evaluation. RevMan 5. 1 software was adopted to conduct the meta-analysis.
Results	Totally **10 RCTs were recruited with 685 cases involved, including 355 cases in the treatment group and 330 cases in the control group**. The meta-analysis results indicated that acupuncture-moxibustion can produce a better effect in improving the motor nerve conduction velocity (MNCV) and sensory nerve conduction velocity (SNCV) of peroneal nerve in type 2 DPN than the treatments used in the control group, and the differences were statistically significant between the two groups [MD=3. 55, 95%CI (0. 79, 6. 31); MD=4. 10, 95%CI (0. 22, 7. 99)].
Conclusions	**Acupuncture-moxibustion can improve the peroneal nerve conduction velocity in type 2 DPN**, and thus is worth application in clinic. Due to the limitation of the included studies, such as small sample size and low quality of the articles and high probability of bias, RCTs of large sample size and high quality are required to confirm the above conclusions.

2. Overviews of of systematic reviews

2.1. Jiang 2024

Jiang J, Shen H, Zhang Y, Li Y, Jing Y, Chen X, Wu H, Xie Y, Liu H. Acupuncture treatment of diabetic peripheral neuropathy: an overview of systematic reviews based on evidence mapping. Front Neurol. 2024 Oct 2;15:1420510. https://doi.org/10.3389/fneur.2024.1420510

Objective	The study attempted to evaluate the meta-analyses (MAs) of the acupuncture treatment of diabetic peripheral neuropathy (DPN) to provide a basis for clinical decision-making.
Methods	Eight databases, such as PubMed, Cochrane Library, Embase, Web of Science, CNKI, Wanfang Data, CQVIP, and CBM, were searched from database creation to December 22, 2023. The MAs of DPN treatment using acupuncture or acupuncture combined with conventional Western medicine were included. AMSTAR-2 and PRISMA 2020 helped evaluate the methodological and reporting quality of the included studies. The GRADE methodology helped assess the evidence quality of outcome indicators. Evidence mapping was performed to display evaluation results.
Results	A total of **18 MAs involving 23,240 DPN patients** were included. Based on the methodological quality evaluation, four MAs were of “moderate” quality, seven had a quality grade of “low,” and another seven were of “critically low” quality. The evidence quality evaluation showed that among studies of acupuncture vs. conventional Western medicine, four had an evidence quality of “moderate,” 18 had an evidence quality of “low,” and 17 had an evidence quality of “critically low” and that among studies of acupuncture + conventional Western medicine vs. conventional Western medicine, 12 had an evidence quality of “moderate,” 29 had an evidence quality of “low,” and 33 had an evidence quality of “critically low.” Compared with conventional Western medicine, simple acupuncture and acupuncture + conventional Western medicine significantly improved total effective rate (TER) and nerve conduction velocity (NCV).
Conclusion	Acupuncture treatment of DPN significantly improves TER and NCV with proven safety. However, the MAs of the acupuncture treatment of DPN must strictly refer to relevant standards and specifications regarding methodological and reporting quality, along with the design, execution, and reporting of primary randomized controlled trials (RCTs).

2.1.1. Fan 2021

Fan Wei-jingLiang Shi-bing Liu Guo-bin. Review of systematic reviews of acupuncture for diabetic peripheral neuropathy. Journal of Acupuncture and Tuina Science. 2021;19(2):95 - 103. [218462]. doi

Objective	To review the systematic reviews of acupuncture for diabetic peripheral neuropathy (DPN) and to provide evidence for clinical decisions.
Methods	Published systematic reviews targeting acupuncture treatment of DPN were searched using computer through both Chinese and English databases till July 1, 2019. Two researchers screened the papers based on inclusion and exclusion criteria and conducted report quality evaluation, methodological quality assessment and evidence quality grading using the preferred reporting items for systematic reviews and meta-analyses (PRISMA), assessment of multiple systematic review 2 (AMSTAR 2) and grading of recommendations assessment, development and evaluation (GRADE).

Results	Ten systematic reviews were included, involving 11 outcome measures. According to PRISMA, 6 items were sufficiently reported while 1 item was not; AMSTAR 2 appraised that all the included systematic reviews were of low quality in the methodological evaluation; according to GRADE, of the 30 clinical evidences, only 5 were graded moderate while the remained were graded low or extremely low. Descriptive analysis showed that acupuncture can significantly improve DPN symptoms, accelerate the conduction velocities of sensory and motor nerves, and up-regulate the content of plasma nitric oxide (NO), while the adverse reaction rate was low.
Conclusion	Acupuncture can produce satisfactory clinical efficacy in treating DPN, but the existing problems, such as low-quality evidence, unitary outcome measures, poor methodological quality of systematic reviews and nonstandard reporting, need to be treated cautiously; meanwhile, more high-quality clinical trials are required to elevate the level of evidence.

2.1.2. Lin 2021

Lin T, Huang F, Zhao S, Qiu M, Wen J, Liu M. Acupuncture for diabetic peripheral neuropathy: An overview of systematic reviews. Complement Ther Clin Pract. 2021. [218678]. doi

Background	Acupuncture has been widely used to treat diabetic peripheral neuropathy (DPN) in China as a complementary and alternative therapy. This study aims to summarize the characteristics and evaluate the methodology quality of the systematic reviews (SRs) regarding acupuncture for DPN.
Methods	A comprehensive literature search was performed from inception to February 2020. We assessed the methodological quality of the included SRs with the Assessment of Multiple Systematic Reviews 2 (AMSTAR 2) tool, adopted the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) checklist to evaluate the reporting characteristics of included SRs, and utilized the Grading of Recommendations, Assessment, Development and Evaluation (GRADE) approach to evaluate the quality of evidence for outcomes including total effective rate, sensory nerve conduction velocity, motor nerve conduction velocity and adverse events. One-way analysis of variance and multiple linear regression were conducted to evaluate the associations between characteristics and two index scores (PRISMA and AMSTAR 2).
Results	**Eighteen SRs** were included in this overview. The methodology quality of the included SRs ranged from very low to high. Only protocol registration and funding source reported were associated with the AMSTAR 2 index scores, while no variable showed significant difference in the PRISMA scores. The overall quality of evidence in included SRs ranged from “very low” to “moderate”.
Conclusion	This overview suggested beneficial effects of acupuncture on DPN, whereas the results should be interpreted with cautious owing to methodology flaws, providing reference for further improvement of the study design.

3. Clinical Practice Guidelines

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

3.1. American Society of Pain and Neuroscience (ASPN) 2024 ⊕

Sayed D, Deer TR, Hagedorn JM, Sayed A, D'Souza RS, Lam CM, Khatri N, Hussaini Z, Pritzlaff SG, Abdullah NM, Tieppo Francio V, Falowski SM, Ibrahim YM, Malinowski MN, Budwany RR, Strand NH, Sochacki KM, Shah A, Dunn TM, Nasseri M, Lee DW, Kapural L, Bedder MD, Petersen EA, Amirdelfan K,

Schatman ME, Grider JS. A Systematic Guideline by the ASPN Workgroup on the Evidence, Education, and Treatment Algorithm for Painful Diabetic Neuropathy: SWEET. J Pain Res. 2024 Apr 13;17:1461-1501. https://doi.org/10.2147/JPR.S451006

Acupuncture. *Statement*: Acupuncture may be considered in patients with PDN. Some studies including RCTs indicate possible benefit with low adverse event rates. *Evidence Level*: II. *Level of Certainty*: Moderate. *Grade*: B

3.2. Michigan medicine. University of Michigan 2017 ⊕

Management of Type 2 Diabetes Mellitus. Guidelines for Clinical Care Ambulatory. Michigan medicine. University of Michigan. 2017:33P. [197536].

Acupuncture and TENS. Several studies have shown the efficacy of using traditional acupuncture for the treatment of painful diabetic neuropathy. Transcutaneous Electrical Nerve Stimulation (TENS) has also been evaluated and has been shown to reduce lower extremity pain associated with PDN.

3.3. American Academy of Neurology et al (AAN, USA) 2011 Ø

Bril V , England J, Franklin GM, Backonja M, Cohen J, Del Toro D, Feldman E, Iverson DJ, Perkins B, Russell JW, Zochodne D; American Academy of Neurology et al. Evidence-based guideline: Treatment of painful diabetic neuropathy: report of the American Academy of Neurology, the American Association of Neuromuscular and Electrodiagnostic Medicine, and the American Academy of Physical Medicine and Rehabilitation. Neurology. 2011;76(20):1758-65. [192689]. .

Other interventions such as exercise and acupuncture do not have any evidence for efficacy in treating PDN.

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