Table des matières

Post-stroke Shoulder-Hand Syndrome

Syndrome épaule-main post-AVC

Articles connexes: - algodystrophie -

1. Systematic Reviews and Meta-Analysis

1.1. Generic Acupuncture

1.1.1. Wang 2026 (combined with rehabilitation)

Wang X, Xiao L, Lin X, Zhang F, Zhang K, Dong B. Efficacy and safety of acupuncture or moxibustion combined with rehabilitation therapy for post-stroke shoulder-hand syndrome: a systematic review and meta-analysis of randomized controlled trials. J Stroke Cerebrovasc Dis. 2026 Jan;35(1):108509. https://doi.org/10.1016/j.jstrokecerebrovasdis.2025.108509

Background	This study evaluated the efficacy and safety of acupuncture or moxibustion combined with rehabilitation therapy for post-stroke shoulder-hand syndrome (SHS).
Methods	PubMed, Embase, Web of Science, Cochrane Library, China National Knowledge Infrastructure (CNKI), Wanfang, Chinese Scientific Journals Database (VIP), and SinoMed were searched from inception to March 5, 2025 for randomized controlled trials (RCTs). Cochrane Risk of Bias 2.0 (RoB2) tool was used to assess study quality, RevMan 5.4 software was employed for meta-analysis, GRADE criteria were applied to evaluate evidence quality.
Results	**46 RCTs involving 3730 participants** were included. Compared to rehabilitation alone, acupuncture or moxibustion combined with rehabilitation significantly improved efficacy rate (RR = 1.24, 95 % CI: 1.20 to 1.28), motor function (FMA: MD = 8.35, 95 % CI: 6.96 to 9.74), reduced pain (VAS: MD = -1.43, 95 % CI:1.65 to -1.21), and reduced SHS severity (SHSS: MD = -1.60, 95 % CI:1.99 to -1.22). Combination therapy also significantly reduced biomarkers (SP, BK, ET-1), increased CGRP (SMD = 1.27, 95 % CI: 0.53 to 2.02), decreased swelling volume (MD = -5.88, 95 % CI:9.25 to -2.50), and improved activities of daily living (MBI: MD = 13.31, 95 % CI: 9.10 to 17.53). However, the GRADE indicated low or very low certainty for most outcomes. Only six studies explicitly documented adverse events (none severe), warranting cautious interpretation.
Conclusions	Acupuncture or moxibustion combined with rehabilitation improves outcomes for post-stroke SHS. Nevertheless, conclusions require further validation through multicenter, large-sample RCTs due to evidence limitations.

1.1.2. Gao 2025

Gao H, Li Z, Chen W, Shen F, Lu Y. Effectiveness of acupuncture and moxibustion combined with rehabilitation training for post-stroke shoulder-hand syndrome: a systematic review and meta-analysis. Front Neurol. 2025 Jul 28;16:1576595. https://doi.org/10.3389/fneur.2025.1576595

Backgound	Post-stroke shoulder-hand syndrome (SHS) significantly impacts patients' quality of life and functional recovery. While both acupuncture and rehabilitation training have shown promise individually, their combined effect needs systematic evaluation.
Methods	A comprehensive search was conducted across seven databases (PubMed, Embase, Cochrane Library, Web of Science, Sinomed, CNKI, and Wanfang) for randomized controlled trials comparing combined acupuncture-moxibustion-rehabilitation therapy vs. rehabilitation alone. The primary outcomes included Fugl-Meyer Assessment (FMA) scale, visual analog scale (VAS), and Barthel Index (BI) scores. Risk of bias was assessed using the Cochrane tool.
Results	**Twenty-seven randomized controlled trials involving 2,175 participants** were included. Meta-analysis showed significant improvements in the combination therapy group compared to rehabilitation alone: VAS score (SMD = 1.62, 95% CI: 1.19-2.06), FMA scale (SMD = 1.78, 95% CI: 1.41-2.15), and BI/MBI scores (SMD = 1.01, 95% CI: 0.48-1.54). The combination therapy also showed superior effects on swelling reduction (SMD = -1.75, 95% CI: -2.08, -1.42) and total response rate (RR = 1.21, 95% CI: 1.01-1.44). Most studies demonstrated low to moderate risk of bias.
Conclusion	The combination of acupuncture and moxibustion with rehabilitation training appears to be more effective than rehabilitation alone for post-stroke SHS, improving motor function, pain relief, and activities of daily living. However, high heterogeneity warrants careful interpretation and further high-quality studies.

1.1.3. Shi 2025

Shi J, Chen F, Liu Y, Bian M, Sun X, Rong R, Liu S. Acupuncture versus rehabilitation for post-stroke shoulder-hand syndrome: a systematic review and meta-analysis of randomized controlled trials. Front Neurol. 2025 Apr 2;16:1488767. https://doi.org/10.3389/fneur.2025.1488767

Backgound	Shoulder-hand syndrome (SHS) is one of the common sequelae after stroke, which not only hinders the recovery of patients, but also increases the economic burden of the family. In the absence of effective treatment measures, acupuncture treatment has been widely used in China to treat post-stroke shoulder-hand syndrome, but the details are unclear. Therefore, this review aims to evaluate the true efficacy of acupuncture in patients with SHS.
Methods	We searched eight databases [PubMed, Embase, Web of Science, Cochrane library, China Biomedical Literature Database (CBM), China Science and Technology Journal (VIP) database, the China National Knowledge Infrastructure (CNKI) database, and Wan fang database] from its inception to March 2025, randomized controlled trials (RCTs) of SHS acupuncture treatment combined with rehabilitation (Rehab). Two investigators independently used pre-designed forms to extract valid data from eligible randomized controlled trials. Meta-analysis was implemented through the Rev. Man software (version 5.4). The strength of the evidence obtained was implemented using the GRADE profiler software. Adverse events (AEs) were collected by reading the full text and used to evaluate the safety of acupuncture treatment.
Results	**Forty-seven studies, involving 4,129 participants**, met the eligibility criteria, and were included in the review. Overall meta-analysis showed that combined acupuncture rehabilitation significantly improved motor function (upper-limb Fugl-Meyer Assessment (FMA): 41 studies, mean difference (MD) 9.50, 95% confidence interval (CI) [8.47, 10.53]) and pain reduction (visual analog score (VAS): 37 studies, MD: -1.49, 95% CI [-1.66, -1.33]). It also improved activities of daily living (ADL) compared to rehabilitation alone (ADL: 17 studies, MD: 11.94, 95% CI [8.26, 13.63]). There was no significant difference in the occurrence of adverse events (AEs) between acupuncture treatment combined with Rehab and Rehab alone ($p > 0.05$). The certainty of the evidence was rated low level because of flaws in the study design and considerable heterogeneity among the included studies.

Conclusion	This review found that acupuncture treatment combined with Rehab treatment may have a positive promoting effect on improving motor function, reducing pain, and improving daily living ability in SHS patients. However, due to the existing methodological quality issues, our findings should be treated with caution. Future high-quality studies are urgently needed to validate our findings.

1.1.4. Wang 2025 (combined with rehabilitation)

Wang X, Xiao L, Lin X, Zhang F, Zhang K, Dong B. Efficacy and safety of acupuncture or moxibustion combined with rehabilitation therapy for post-stroke shoulder-hand syndrome: a systematic review and meta-analysis of randomized controlled trials. J Stroke Cerebrovasc Dis. 2025 Nov 29:108509. https://doi.org/10.1016/j.jstrokecerebrovasdis.2025.108509

Background	This study evaluated the efficacy and safety of acupuncture or moxibustion combined with rehabilitation therapy for post-stroke shoulder-hand syndrome (SHS).
Methods	PubMed, Embase, Web of Science, Cochrane Library, China National Knowledge Infrastructure (CNKI), Wanfang, Chinese Scientific Journals Database (VIP), and SinoMed were searched from inception to March 5, 2025 for randomized controlled trials (RCTs). Cochrane Risk of Bias 2.0 (RoB2) tool was used to assess study quality, RevMan 5.4 software was employed for meta-analysis, GRADE criteria were applied to evaluate evidence quality.
Results	**46 RCTs involving 3730 participants** were included. Compared to rehabilitation alone, acupuncture or moxibustion combined with rehabilitation significantly improved efficacy rate (RR = 1.24, 95% CI: 1.20 to 1.28), motor function (FMA: MD = 8.35, 95% CI: 6.96 to 9.74), reduced pain (VAS: MD = -1.43, 95% CI: -1.65 to -1.21), and reduced SHS severity (SHSS: MD = -1.60, 95% CI: -1.99 to -1.22). Combination therapy also significantly reduced biomarkers (SP, BK, ET-1), increased CGRP (SMD = 1.27, 95% CI: 0.53 to 2.02), decreased swelling volume (MD = -5.88, 95% CI: -9.25 to -2.50), and improved activities of daily living (MBI: MD = 13.31, 95% CI: 9.10 to 17.53). However, the GRADE indicated low or very low certainty for most outcomes. Only six studies explicitly documented adverse events (none severe), warranting cautious interpretation.
Conclusion	Acupuncture or moxibustion combined with rehabilitation improves outcomes for post-stroke shoulder-hand syndrome. Nevertheless, conclusions require further validation through multicenter, large-sample RCTs due to evidence limitations.

1.1.5. Zhan 2023

Zhan J, Luo Y, Mao W, Zhu L, Xu F, Wang Y, Chen H, Zhan L. Efficacy of acupuncture versus rehabilitation therapy on post-stroke shoulder pain: A systematic review and meta-analysis of randomized controlled trials. Medicine (Baltimore). 2023 Jul 21;102(29):e34266. https://doi.org/10.1097/MD.0000000000034266

Background	Acupuncture and rehabilitation therapy (RT) have been widely used for post-stroke shoulder pain (PSSP), but the efficacy of acupuncture versus RT remains unclear. Our aim was to assess the efficacy of acupuncture versus RT for PSSP.

Methods	Six databases including PubMed, Cochrane Library, China National Knowledge Infrastructure, Chinese biological medicine database, Chinese Scientific Journal Database, and WAN FANG were searched from their inception to March 2022. Randomized controlled trials (RCTs) comparing acupuncture with RT on PSSP were included. Primary outcome was shoulder pain. Secondary outcomes were upper limb motor function, activities of daily living (ADL), and adverse events (AEs). We used RevMan Version 5.3 to pool data. We conducted data synthesis of all outcomes using the random effects model. The methodological quality of all studies was assessed by 2 independent reviewers using the risk of bias (ROB) assessment tool. We also performed subgroup analysis and sensitivity analysis. We assessed the publication bias using the Egger test and funnel plots.
Results	**Eighteen studies** were included in qualitative synthesis, fifteen (83%) studies with 978 patients were included in meta-analysis (MA) because of the outcomes of 3 studies were inappropriate. Nine (50%) studies were considered as moderate to high quality according to ROB assessment tool. The effectiveness of acupuncture for patients with PSSP was similar to that of RT on shoulder pain alleviation (standardized mean difference [SMD]: -0.41, 95% confidence interval [CI]: -0.91 to 0.08, P = .10), improvement of upper limb motor function (weighted mean difference [WMD]: 0.80, 95% CI: -1.19 to 2.79, P = .43), and ADL (WMD: -0.83, 95% CI: -3.17 to 1.51, P = .49). Two (11%) studied reported no acupuncture-related AEs, and fourteen (78%) studies did not mention AEs resulting from acupuncture.
Conclusions	Acupuncture is similar to RT in relieving shoulder pain, improving upper limb motor function and ADL in patients with PSSP. Either acupuncture or RT might be the optimal treatment of PSSP. More well-designed RCTs of this topic are needed in the future.

1.1.6. Zhan 2022 ☆

Zhan J, Wei X, Tao C, Yan X, Zhang P, Chen R, Dong Y, Chen H, Liu J, Lu L. Effectiveness of acupuncture combined with rehabilitation training vs. rehabilitation training alone for post-stroke shoulder pain: A systematic review and meta-analysis of randomized controlled trials. Front Med (Lausanne). 2022 Oct 4;9:947285. https://doi.org/10.3389/fmed.2022.947285

Background	Post-stroke shoulder pain (PSSP) is characterized by shoulder pain on the hemiplegic side, which can limit physical activity in patients with stroke. Acupuncture combined with rehabilitation training (AR) has been widely used in PSSP, but the evidence of its effectiveness is still unclear.
Objective	The study aimed to evaluate the effect and safety of AR vs. rehabilitation training (RT) alone on PSSP.

Methods	e searched PubMed, the Cochrane Library, the Chinese Biological Medicine Database (CBM), the Chinese Scientific Journal Database (VIP), China National Knowledge Infrastructure (CNKI), and the WAN FANG database for relevant studies from their inception to February 2022. Only randomized controlled trials (RCTs) comparing the effect of AR with RT alone on PSSP were considered. The primary outcome was shoulder pain. Secondary outcomes included upper limb motor function, activities of daily living (ADL), shoulder range of motion (ROM), and adverse events (AEs). Subgroup analysis and sensitivity analysis were also conducted. Quality assessment was implemented based on Cochrane risk of bias (ROB) criteria, which consist of seven items. When more than four items in a study were judged as low ROB, the overall quality of this study was co**nsidered low risk.| ^Results|A total of** 40 studies **were included in the qualitative analysis, and 35 (87.5%) studies with** 2,554 patients were included in the meta-analysis. Of the 40 studies, 14 (35.0%) were of moderate-to-high quality. The meta-analysis results showed that AR is better than RT alone in reducing shoulder pain (MD -1.32, 95% CI -1.58 to -1.07), improving upper limb motor function (MD 6.81, 95% CI 4.95-8.67), ADL (MD 11.17, 95% CI 9.44-12.91), and shoulder ROM (internal rotation: MD 10.48, 95% CI 8.14-12.83; backward extension: MD 7.82, 95% CI 6.00-9.64; anteflexion: MD 12.88, 95% CI 5.47-20.29; external rotation: MD 11.40, 95% CI 6.17-16.64; abduction: MD 16.96, 95% CI 8.61-25.31) without obvious AEs.
Conclusion	AR may be better than RT alone for the improvement of shoulder pain, upper limb motor function, ADL, and shoulder ROM, without obvious AEs in patients with PSSP. However, considering the clinical and statistical heterogeneity, our findings need to be interpreted with caution. More rigorous RCTs in this area should be conducted in the future.

1.1.7. Liu 2019 ☆

Liu S, Zhang CS , Cai Y , Guo X , Zhang AL , Xue CC , Lu C. Acupuncture for Post-stroke Shoulder-Hand Syndrome: A Systematic Review and Meta-Analysis. Front Neurol. 2019. [197941].

Background	Shoulder-hand syndrome (SHS) is prevalent in hemiplegic patients after stroke. Potential benefits of acupuncture were shown in recent clinical trials. This systematic review aimed to comprehensively evaluate the safety and efficacy of acupuncture for SHS in stroke patients.
Methods	Five English databases (PubMed, Embase, CINAHL, CENTRAL, and AMED) and four Chinese databases (CBM, CNKI, CQVIP, and WanFang) were searched from their inceptions to January 2019. Randomized, controlled trials that evaluated the add-on effects of acupuncture to rehabilitation for post-stroke SHS were identified.
Results	Thirty-eight studies involving 3,184 participants fulfilled the eligible criteria and were included in the review. The overall meta-analysis showed that acupuncture combined with rehabilitation significantly improved motor function (upper-limb Fugl-Meyer Assessment (FMA): 34 studies, mean difference (MD) 8.01, 95% confidence interval (CI) [6.69,9.33]), and reduced pain (visual analog scale (VAS): 25 studies, MD -1.59, 95%CI [-1.86,-1.32]). It also improved activities of daily living (ADL) when compared with rehabilitation alone (ADL: 11 studies, MD 9.99, 95%CI [5.91,14.06]). However, the certainty of evidence of all these outcomes was assessed as “low.” Subgroup analyses of acupuncture stimulation types and treatment duration all showed significant add-on effects comparing with rehabilitation alone. The safety of acupuncture was unclear because there is a lack of detailed reporting of adverse events in most of the included studies.

Conclusions	Acupuncture therapy seems effective for motor function, pain relief and activities of daily living in stroke patients with mild SHS, when it is used in combination with rehabilitation. The low certainty of evidence downgrades our confidence in making recommendations to clinical practice.

1.1.8. Peng 2018 ☆

Peng L, Zhang C, Zhou L, Zuo HX, He XK, Niu YM. Traditional manual acupuncture combined with rehabilitation therapy for shoulder hand syndrome after stroke within the Chinese healthcare system: a systematic review and meta-analysis. Clin Rehabil. 2018;32(4):429-39. [193285].

Objective	To investigate the effectiveness of traditional manual acupuncture combined with rehabilitation therapy versus rehabilitation therapy alone for shoulder hand syndrome after stroke.
Methods	DATA SOURCES: PubMed, EMBASE, the Cochrane Library, Chinese Biomedicine Database, China National Knowledge Infrastructure, VIP Information Database, Wan Fang Database and reference lists of the eligible studies were searched up to July 2017 for relevant studies. Randomized controlled trials that compared the combined effects of traditional manual acupuncture and rehabilitation therapy to rehabilitation therapy alone for shoulder hand syndrome after stroke were included. Two reviewers independently screened the searched records, extracted the data and assessed risk of bias of the included studies. The treatment effect sizes were pooled in a meta-analysis using RevMan 5.3 software.
Results	A total of **20 studies involving 1918 participants** were included in this study. Compared to rehabilitation therapy alone, the combined therapy significantly reduced pain on the visual analogue scale and improved limb movement on the Fugl-Meyer Assessment scale and the performance of activities of daily living (ADL) on the Barthel Index scale or Modified Barthel Index scale. Of these, the visual analogue scale score changes were significantly higher (mean difference = 1.49, 95% confidence interval = 1.15-1.82, $P < 0.00001$) favoring the combined therapy after treatment, with severe heterogeneity ($I2 = 71\%$, $P = 0.0005$).
Conclusion	Current evidence suggests that traditional manual acupuncture integrated with rehabilitation therapy is more effective in alleviating pain, improving limb movement and ADL. However, considering the relatively low quality of available evidence, further rigorously designed and large-scale randomized controlled trials are needed to confirm the results.

1.1.9. Chau 2018

Chau JPC, Lo SHS, Yu X, Choi KC, Lau AYL, Wu JCY, Lee VWY, Cheung WHN, Ching JYL, Thompson DR. Effects of Acupuncture on the Recovery Outcomes of Stroke Survivors with Shoulder Pain: A Systematic Review. Front Neurol. 2018. [100146].

Background	Poststroke shoulder pain limits stroke survivors' physical functioning, impairs their ability to perform daily activities, and compromises their quality of life. The use of acupuncture to manage shoulder pain after a stroke is believed to free the blockage of energy flow and produce analgesic effects, but the evidence is unclear. We therefore conducted a systematic review to summarize the current evidence on the effects of acupuncture on the recovery outcomes of stroke survivors with shoulder pain.

Methods	Fourteen English and Chinese databases were searched for data from January 2009 to August 2017. The review included adult participants with a clinical diagnosis of ischemic or hemorrhagic stroke who had developed shoulder pain and had undergone conventional acupuncture, electroacupuncture, fire needle acupuncture, or warm needle acupuncture. The participants in the comparison group received the usual stroke care only.
Results	**Twenty-nine randomized controlled trials were included**. Most studies were assessed as having a substantial risk of bias. Moreover, due to the high heterogeneity of the acupuncture therapies examined, pooling the results in a meta-analysis was not appropriate. A narrative summary of the results is thus presented. The review showed that conventional acupuncture can be associated with benefits in reducing pain and edema and improving upper extremity function and physical function. The effects of conventional acupuncture on improving shoulder range of motion (ROM) are in doubt because this outcome was only examined in two trials. Electroacupuncture might be effective in reducing shoulder pain and improving upper extremity function, and conclusions on the effects of electroacupuncture on edema, shoulder ROM, and physical function cannot be drawn due to the limited number of eligible trials. The evidence to support the use of fire needle or warm needle acupuncture in stroke survivors with shoulder pain is also inconclusive due to the limited number of studies.
Conclusion	Although most studies reviewed concluded that conventional and electroacupuncture could be effective for management of shoulder pain after stroke, the very high potential for bias should be considered. Further work in this area is needed that employs standardized acupuncture treatment modalities, endpoint assessments, and blinding of treatments.

1.1.10. Lee 2016 ☆

Lee SH, Lim SM. Acupuncture for Poststroke Shoulder Pain: A Systematic Review and Meta-Analysis.. Evid Based Complement Alternat Med. 2016. [187758].

Objectives	To summarize and evaluate evidence for the effectiveness of acupuncture in relieving poststroke shoulder pain.
Methods	Seven databases were searched without language restrictions. All randomized controlled trials that evaluated the effects of acupuncture for poststroke shoulder pain compared with controls were included. Assessments were performed primarily with the Visual Analogue Scale (VAS), Fugl-Meyer Assessment (FMA), and effective rates.
Results	In all, 188 potentially relevant articles were identified; **12 were randomized controlled trials that met our inclusion criteria**. Meta-analysis showed that acupuncture combined with rehabilitation treatment appeared to be more effective than rehabilitation treatment alone for poststroke shoulder pain, as assessed by VAS (weighted mean difference, 1.87; 95% confidence interval [CI], 1.20-2.54; <0.001); FMA (weighted mean difference, 8.70; 95% CI, 6.58-10.82; P < 0.001); and effective rate (RR, 1.31; 95% CI, 1.18-1.47; P < 0.001).
Conclusions	**Although there is some evidence for an effect of acupuncture on poststroke shoulder pain, the results are inconclusive**. Further studies with more subjects and a rigorous study design are needed to confirm the role of acupuncture in the treatment of poststroke shoulder pain.

1.1.11. Nie 2012 ☆

Nie Wen-Bin, Liu Zhi-Shun, Zhao Hong. [Systematic review of acupuncture for treatment of post-stroke shoulder pain]. Chinese Journal of Information on Traditional Chinese Medicine. 2012;4:25-28.

[186950].

Objectives	To evaluate the effectiveness of acupuncture therapy on post-stroke shoulder pain.
Methods	The review assessed the methodological quality of all eligible randomized or quasi-randomized trials of acupuncture for the treatment of post-stroke shoulder pain that identified by computerized and hand searches of the literature. The data was analysed by Review Manager software program.
Results	The evidence from randomised controlled trials so far confirmed that acupuncture therapy was effective in treating shoulder pain after stroke and benefited for limb motor recovery. But the quality of involved literature was low.
Conclusions	**Acupuncture is effective in treating post-stroke shoulder pain**, but the possibity of selection bias and measurement bias reduced the reliability of conclusion.

1.1.12. Lee 2012 ☆

Lee JA, Park SW, Hwang PW, Lim SM, Kook S, Choi KI, Kang KS.. Acupuncture for shoulder pain after stroke: a systematic review. J Altern Complement Med. 2012. 18(9):818-23. [157513].

Objectives	Shoulder pain, for which acupuncture has been used, is a common complication after a stroke that interferes with the function of the upper extremities. The aim of this systematic review is to summarize and evaluate the effects of acupuncture for shoulder pain after stroke.
Methods	Randomized controlled trials (RCTs) involving the effects of acupuncture for shoulder pain, published between January 1990 and August 2009, were obtained from the National Libraries of Medicine, MEDLINE(®), CINAHL, AMED, Embase, Cochrane Controlled Trials Register 2009, Korean Medical Database (Korea Institute of Science Technology Information, DBPIA, KoreaMed, and Research Information Service System), and the Chinese Database (China Academic Journal).
Results	Among the 453 studies that were obtained (300 written in English, 137 in Chinese, and 16 in Korean), **7 studies met the inclusion criteria** for this review. All of them were RCTs published in China and reported positive effects of the treatment. The quality of the studies was assessed by the Modified Jadad Scores (MJS) and the Cochrane Back Review Group Criteria List for Methodologic Quality Assessment of RCTs (CBRG); the studies scored between 2 and 3 points on MJS, and between 4 and 7 points on CBRG.
Conclusions	It is concluded from this systematic review that **acupuncture combined with exercise is effective for shoulder pain after stroke**. It is recommended that future trials be carefully conducted on this topic.

1.1.13. Lu 2009 ☆

Lu Yin-Ming, Fu Li-Xin, Mu Jiao, Xu Hong-Jun, Qi Ying-Zhou. [Acupuncture for post stroke shoulder hand syndrome: a systematic review]. Chinese Journal of Evidence-Based Medicine. 2009;9(9):976-8. [166899].

Objective	To assess the therapeutic effect of acupuncture for shoulder hand syndrome after stroke.

Methods	We searched MEDLINE (1966 to Sep. 2008), EMbase (1980 to Sept. 2008), CBM (1978 to Sept. 2008), VIP (1989 to Sept. 2008), WANFANG Database (1998 to Sept. 2008), CNKI (1979 to Sept. 2008) and handsearched relevant journals and conference proceedings. We included all randomized controlled trials (RCTs) and quasi-RCTs of acupuncture treatment for patients with shoulder hand syndrome. We evaluated the internal validity of the RCTs and quasi-RCTs. If all included trials were of high quality and homogeneity, then the meta-analysis was conducted.
Results	**Three RCTs were identified** but due to the defects in quality and clinical differences between the trials, data from these trials were not combined through meta-analysis, and a descriptive analysis was performed. The results showed that acupuncture was effective for treating shoulder hand syndrome.
Conclusions	The results of our review suggest that **acupuncture may be effective for treating houlder hand syndrome**, but because of the defects in the methodological quality of included trials, further large sample, double-blind RCTs are urgently needed.

1.2. Special Acupuncture Techniques

1.2.1. Comparison of Acupuncture techniques

1.2.1.1. Huang 2023

Huang T, Yao H, Huang J, Wang N, Zhou C, Huang X, Tan X, Li Y, Jie Y, Wang X, Yang Y, Liang Y, Yue S, Mao Y, Lai S, Zheng J, He Y. Effectiveness of acupuncture for pain relief in shoulder-hand syndrome after stroke: a systematic evaluation and Bayesian network meta-analysis. Front Neurol. 2023 Nov 17;14:1268626. https://doi.org/10.3389/fneur.2023.1268626

Background	Shoulder-hand syndrome (SHS) is a common complication after stroke, and SHS-induced pain significantly hampers patients' overall recovery. As an alternative therapy for pain relief, acupuncture has certain advantages in alleviating pain caused by SHS after stroke. However, choosing the best treatment plan from a variety of acupuncture options is still a serious challenge in clinical practice. Therefore, we conducted this Bayesian network meta-analysis to comprehensively compare the effectiveness of various acupuncture treatment methods.
Methods	We systematically searched for randomized controlled trials (RCTs) of acupuncture treatment in patients with post-stroke SHS published in PubMed, Embase, Cochrane, and Web of Science until 9 March 2023. We used the Cochrane bias risk assessment tool to assess the bias risk in the included original studies.
Results	A total of **50 RCTs involving 3,999 subjects** were included, comprising 19 types of effective acupuncture interventions. Compared to single rehabilitation training, the top three interventions for VAS improvement were floating needle [VAS = -2.54 (95% CI: -4.37 to -0.69)], rehabilitation + catgut embedding [VAS = -2.51 (95% CI: -4.33 to -0.68)], and other multi-needle acupuncture combinations [VAS = -2.32 (95% CI: -3.68 to -0.94)]. The top three interventions for improving the Fugl-Meyer score were eye acupuncture [Meyer = 15.73 (95% CI: 3.4627.95)], other multi-needle acupuncture combinations [Meyer = 12.22 (95% CI: 5.1919.34)], and traditional western medicine + acupuncture + traditional Chinese medicine [Meyer = 11.96 (95% CI: -0.59 to 24.63)].
Conclusion	Multiple acupuncture methods are significantly effective in improving pain and upper limb motor function in post-stroke SHS, with relatively few adverse events; thus, acupuncture can be promoted.

1.2.2. Electroacupuncture

1.2.2.1. Wei 2019

Wei X, He L , Liu J , Ai Y , Liu Y , Yang Y , Liu B. Electroacupuncture for Reflex Sympathetic Dystrophy after Stroke: A Meta-Analysis. J Stroke Cerebrovasc Dis. 2019;28(5):1388-1399. [198018].

Background	Reflex sympathetic dystrophy (RSD) is the common complication among stroke and cerebral injury patients, which is lack of safe and effective treatment. Electroacupuncture (EA) may potentially be a reliably therapy, but the evidence is insufficiency.
Methods	Cochrane Library, MEDLINE, Embase, Chinese National Knowledge Infrastructure, Wan Fang Data, the Chinese Biology Medicine disc, etc., were searched, until July 20, 2018. We included random control trials that contrast EA with conventional rehabilitation therapy for the treatment of RSD. Main outcomes were visual analog scale score and Fugl-Meyer upper limb motor function scoring scale, other outcomes such as Barthel index, and hand swelling score were also collected. Data in included studies were extracted into an excel and pooled by Stata/MP 14.1.
Results	We incorporated 13 studies involving 1040 RSD patients and outcomes were from 2 to 6 weeks' follow-up. The analgesic effect between 2 groups had statistically significant difference (weighted mean difference [WMD] = -1.122, 95% confidence interval [CI] [-1.682 to -.562], P = .000], a statistical difference existed in improving dysfunction between 2 groups: (WMD = 6.039, 95% CI [2.231-.916], P = .000). EA groups had a better effect on improving activities of daily life abilities (WMD = 12.170, 95% CI [6.657-17.682], P < .00011] and better detumescence effect (WMD = -.800, 95% CI [-1.972 to -.212], P = .000] contrast to conventional rehabilitation therapy.
Conclusions	This meta-analysis supports that EA has a positive effect on alleviating pain, improving limb dysfunction, and promoting activities of daily living. On account of moderate-quality random control trials and high heterogeneity, further high-quality studies are imperative to optimize the EA treatment program.

1.2.3. Moxibustion

1.2.3.1. Meng 2025

Meng X, Sun J, Su X, Seto DJ, Wang L, Li Y, Yu H, Zhao B, Zhao J. Efficacy and safety of moxibustion treatment for upper extremity pain disorder and motor impairment in patients with stage I post-stroke shoulder-hand syndrome: a systematic review and meta-analysis of randomized controlled trials. Front Neurol. 2025 May 23;16:1530069. https://doi.org/10.3389/fneur.2025.1530069

Backgound	Upper extremity pain disorder and motor impairment (UE-PDMI) in patients with stage I post-stroke shoulder-hand syndrome (SHS) is a common neurological comorbidity. Current interventions are with effect limitations or side effects. Moxibustion is utilized as an integrative treatment for UE-PDMI. A novel meta-analysis should be performed due to the increasing number of relevant randomized controlled trials published recently. This study aims to evaluate the efficacy and safety of moxibustion treatment for UE-PDMI.

Methods	Eight databases, including the Cochrane Library, Embase, PubMed, Web of Science, China National Knowledge Infrastructure (CNKI), SinoMed database, China Science and Technology Journal Database (VIP) and WanFang database, were systematically searched, from their inception through May 15 2024, to identify potentially relevant randomized controlled trials (RCTs) on moxibustion for UE-PDMI in SHS patients. The data from the eligible RCTs was extracted by two independent investigators. The RevMan software (version 5.4.1) was employed for conducting the meta-analysis. The online GRADEpro tool was applied for rating the quality of evidence.
Results	A total of **32 RCTs, involving 2,814 patients** with UE-PDMI, were included. The favorable results were considered to be reflected by reduced scores on a visual analog scale (VAS) (mean difference [MD] = -1.68, 95% CI - 2.08, -1.28, $p < 0.05$), improved scores on the Fugl-Meyer Assessment of the Upper Extremity (FMA-UE, MD = 8.76, 95% CI: 7.00, 10.53, $p < 0.05$), higher scores on the modified Barthel index (MBI, MD = 10.27, 95% CI: 6.16, 14.34, $p < 0.05$) or Barthel index (BI, MD = 8.06, 95% CI: 6.20, 9.91, $p < 0.05$), and lower scores for functional impairment on National Institute of Health Stroke Scale (NIHSS, MD = -2.34, 95% CI: -2.96, -1.72, $p < 0.05$) when moxibustion was combined with rehabilitation training (RT), in contrast to control groups that implemented RT alone. The better total effective rates (TERs) were achieved when moxibustion was combined with RT (risk ratio [RR] = 1.27, 95% confidence interval [CI]:1.21, 1.33, $p < 0.05$) or with western medicine (RR = 1.18, 95% CI: 1.02, 1.35, $p = 0.02$) in comparisons to corresponding control groups. There was no significant difference in the occurrence of adverse events (AEs) between corresponding experimental and control groups (RR = 1.62, 95% CI: 0.63, 4.16, $p > 0.05$).
Conclusion	This study demonstrates that moxibustion as an adjuvant therapy may play a positive role in relieving pain and improving upper extremity motor function for patients with stage I SHS, given its convenience in generating prolonged effects in communities. However, a larger number of rigorously designed, pre-registered RCTs are highly needed to verify its clinical efficacy with a higher level of certainty.

1.2.4. Jin's three needles puncture

1.2.4.1. Li 2017

Li Jun - Ping, Zhuang Li - Xing, He Jun. [Systematic Review of Jin's 3 needle Therapy for Shoulder Hand Syndrome after Stroke]. Journal of Clinical Acupuncture and Moxibustion. 2016;32(11):66. [188590].

Objective	To evaluate the curative effect and status of Jin' s 3-needle therapy in the treatment of shoulder hand syndrome(SHS) after stroke.
Methods	A systematic retrieval has been taken in Chinese National Knowledge Infrastructure, Chinese biomedical literature database, VIP journal full text database, Wanfang database, MEDLINE, Cochrane Library and Springer. Collect RCT literatures concerning the treatment of SHS after stroke with Jin's 3 -needle therapy. Characteristics of these literatures would be summarized. Risk and bias in them would be evaluated too. Meta-analysis would be made on the similar researches. If a single Literature was special to make Meta-analysis, a descriptive analysis would be performed on it.
Results	Totally **15 researches were included**. It showed that Jin's 3 needle therapy had the same efficacy as rehabilitation; Jin's therapy was superior to Xunjing Yuanqudong therapy; Jin's therapy combined with rehabilitation training was more effective than simple rehabilitation training. The efficacy of a variety of treatments including Jin's 3 -needle therapy was better than a simple therapy or certain types of therapies. The quality of the evidence was generally low, and the recommended levels were not intensified.

Conclusion	Jin's 3 - **needle therapy is effective to treat shoulder hand syndrome after stroke and is worthy of promotion**.

1.2.5. Bee Acupuncture

1.2.5.1. Lim 2015 ☆

Lim SM, Lee SH. Effectiveness of bee venom acupuncture in alleviating post-stroke shoulder pain: a systematic review and meta-analysis. J Integr Med. 2015. 13(4):241-7. [183381]

Background	Shoulder pain is a common complication of stroke. Bee venom acupuncture (BVA) is increasingly used in the treatment of post-stroke shoulder pain.
Objective	To summarize and evaluate evidence on the effectiveness of BVA in relieving shoulder pain after stroke.
Methods	Search strategy: Nine databases, namely MEDLINE, EMBASE, the Cochrane Library, the China National Knowledge Infrastructure (CNKI), the Japan Science and Technology Information Aggregator, Electronic (J-STAGE), and four Korean medical databases, namely, the National Assembly Library, the Research Information Service System, the National Discovery for Science Leaders, and OASIS, were searched from their inception through August 2014 without language restrictions. Inclusion criteria: Randomized controlled trials (RCTs) were included if BVA was used at acupoints as the sole treatment, or as an adjunct to other treatments, for shoulder pain after stroke. Data extraction and analysis: Two review authors independently selected trials for inclusion, assessed methodological quality and extracted data.
Results	A total of 138 potentially relevant articles were identified, **4 of which were RCTs that met our inclusion criteria**. The quality of studies included was generally low, and a preponderance of positive results was demonstrated. All four trials reported favorable effects of BVA on shoulder pain after stroke. Two RCTs assessing the effects of BVA on post-stroke shoulder pain, as opposed to saline injections, were included in the meta-analysis. Pain was significantly lower for BVA than for saline injections (standardized mean difference on 10-cm visual analog scale: 1.46 cm, 95% CI=0.30-2.62, P=0.02, n=86).
Conclusion	This review provided evidence suggesting that **BVA is effective in relieving shoulder pain after stroke**. However, further studies are needed to confirm the role of BVA in alleviating post-stroke shoulder pain. Future studies should be conducted with large samples and rigorous study designs.

1.2.6. Acupuncture combined with Chinese Materia Medica Iontophoresis

1.2.6.1. Li 2020

Li Nirong. [Systematic Analysis of Clinical Efficacy of Chinese Materia Medica Iontophoresis Combined with Acupuncture for Stroke Shoulder-Hand Syndrome]. Journal of Hunan University of Chinese Medicine. 2020. [212930].

Objective	To systematically evaluate the clinical efficacy of Chinese materia medica iontophoresis combined with acupuncture for the treatment of stroke shoulder-hand syndrome from evidence-based.

Methods	The databases of VIP, Wanfang, CNKI, CBM, PubMed, Cochrane library, Science Direct, etc. were searched, and the journal in the library of Hunan University of Chinese Medicine were manually retrieved for literatures on the randomized controlled literature on the clinical efficacy of Chinese materia medica iontophoresis combined with acupuncture for stroke shoulder-hand syndrome. Data was extracted and analyzed using RevMan 5. 3 software.
Results	A total of **7 studies** were included, involving**504 patients** with stroke shoulder-hand syndrome. Meta-analysis showed that compared with the control group, Chinese materia medica iontophoresis combined with acupuncture can improve the total clinical efficiency by 22% [RR=1. 22, 95% CI (1. 11, 1. 35), Z=3. 94, P<0. 000 1], relieve pain [MD=-1. 55, 95% CI (-2. 08, -1. 02), Z=5. 72, P<0. 000 01], enhance the motor function of the affected limbs [MD=6. 01, 95%CI (5. 15, 6. 87), Z=13. 73, P<0. 000 01], and improve patients' ability of daily activities [MD=9. 07, 95% CI (5. 95, 12. 19), Z=5. 69, P<0. 000 01].
Conclusion	Chinese materia medica iontophoresis combined with acupuncture for the treatment of shoulder-hand syndrome has a significant effect, can effectively relive pain, improve patient's motor function and quality of life, and is conducive to the promotion and application of featured technology of traditional Chinese medicine.

2. Overviews of Systematic Reviews

2.1. Lei 2022

Lei S, Dai F, Xue F, Hu G, Zhang Y, Xu X, Wang R, Zhang X, Cong D, Wang Y. Acupuncture for shoulder-hand syndrome after stroke: An overview of systematic reviews. Medicine (Baltimore). 2022 Nov 18;101(46):e31847. https://doi.org/10.1097/MD.0000000000031847.

Background	To provide evidence, this review evaluated the methodological quality, risk of bias, and reporting quality of SRs/MAs in the treatment of shoulder-hand syndrome after stroke with acupuncture.
Methods	Systematic reviews and Meta analyses (SRs/MAs) of acupuncture for shoulder and hand syndromes after stroke were retrieved from 6 databases from inception to May 1, 2022. Two reviewers independently screened the literature and extracted the data, then used Assessment of Multiple Systematic Reviews-2 (AMSTAR-2), Bias Risk in Systematic Review (ROBIS), and Preferred Report Item for Systematic review and Meta-analysis (PRISMA), Grading of Recommendations, Assessment, Development and Evaluation (GRADE) to assess methodological quality, risk of bias, quality of reporting, and quality of evidence.
Results	We included **7 SRs/Mas**, of which all SRs/MAs had very low AMSTAR-2 assessment quality and one study had a very low assessment bias risk. According to the PRISMA checklist, Protocol and registration, Synthesis of results, Summary of evidence, Conclusions and Funding were the main reporting limitations. GRADE evaluation showed a total of 37 results, but no high-quality evidence results, 6 results (16.22%) of the evidence quality were moderate, and supported acupuncture combined with exercise rehabilitation and drug therapy was better than exercise joint drug rehabilitation and rehabilitation, we also found that the result of limitations were the main factors that influence the evidence of low quality, followed by imprecision, inconsistency, and publication bias.

Conclusions	Acupuncture is a relatively safe and effective adjuvant therapy for shoulder and hand syndromes after stroke. However, because of the low quality of SRs/MAs evidence supporting these findings, high-quality randomized controlled trials should be conducted, and the quality of relevant SRs should be improved to provide evidence for clinical application.

3. Clinical Practice Guidelines

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

3.1. Canadian Stroke Best Practice Recommendations (CSBPR, Canada) 2025 ⊕

Canadian Stroke Best Practice Recommendations: Rehabilitation, Recovery and Community Participation following Stroke. Part Two: Delivery of Stroke Rehabilitation to Optimize Functional Recovery. 7th ed. Toronto (ON): Heart and Stroke Foundation of Canada; 2025. https://www.strokebestpractices.ca/-/media/1-stroke-best-practices/rrcp-part-2/csbpr7-rrcp-part-two-module-final-eng-2025.pdf?rev=1603f26d061b4069bfe7276f7c675549

Management of Hemiplegic Shoulder Pain: **Acupuncture** should be considered, in addition to conventional rehabilitation, in the treatment of hemiplegic shoulder pain [Conditional recommendation; High quality of evidence.
Complex Regional Pain Syndrome (CRPS) Management: **Acupuncture** may be considered as an adjunct therapy to reduce pain in individuals with CRPS [Conditional recommendation; Moderate quality of evidence].

3.2. Spanish Society of Neurorehabilitation (SSN, Spain) 2025 ⊕

Juárez-Belaúnde A, Colomer C, Dorado R, Laxe S, Miguens X, Ferri J, Rodríguez R, Pérez T, López C, Ríos M, González C, Pelayo R, Bernabeu M, Noé E, Gómez A, Quemada I. Guidelines: Basic principles of pain management in acquired brain injury. Recommendations of the Spanish Society of Neurorehabilitation. Neurologia (Engl Ed). 2025 Apr 10:S2173-5808(25)00028-8. https://doi.org/10.1016/j.nrleng.2025.04.005

Hemiplegic Shoulder Pain (HSP) after Stroke.
-**ICCPN**: Acupuncture may be helpful. Grade of recommendation: Moderate (B).
- **AHA/ASA**: The usefulness of acupuncture as a coadjuvant treatment for HSP is unclear. Grade of recommendation: Moderate (B).
- **UEMS-PRMS**: Management of HSP may include subacromial or glenohumeral corticosteroid injection, suprascapular nerve block, electrical stimulation of shoulder muscles, botulinum toxin injections targeting the subscapular and/or pectoral muscles, shoulder orthoses, oral anti-inflammatory drugs, massage, gentle mobilisation of the shoulder muscles, and acupuncture. Grade of recommendation: Low (IV).
- **IMSERSO**: Combination treatment with aromatherapy and acupressure is recommended to treat pain in HSP. Grade of recommendation: High (A).

3.3. Brazilian Academy of Neurology 2022 Ø

Minelli C, Bazan R, Pedatella MTA, Neves LO, Cacho RO, Magalhães SCSA, Luvizutto GJ, Moro CHC, Lange MC, Modolo GP, Lopes BC, Pinheiro EL, Souza JT, Rodrigues GR, Fabio SRC, Prado GFD, Carlos K,

Teixeira JJM, Barreira CMA, Castro RS, Quinan TDL, Damasceno E, Almeida KJ, Pontes-Neto OM, Dalio MTRP, Camilo MR, Tosin MHS, Oliveira BC, Oliveira BGRB, Carvalho JJF, Martins SCO. Brazilian Academy of Neurology practice guidelines for stroke rehabilitation: part I. Arq Neuropsiquiatr. 2022 Jun;80(6):634-652. https://doi.org/10.1590/0004-282X-ANP-2021-0354

Painful shoulder : Acupuncture, as an adjunctive treatment, has an uncertain value. (Recommendation IIb-B)

3.4. Stroke Foundation (Australia, New-Zealand) 2022 ⊕

Australian and New Zealand Clinical Guidelines for Stroke Management - Chapter 6: Managing complications. https://app.magicapp.org/#/guideline/WE8wOn

For stroke survivors with **shoulder pain**, acupuncture in addition to comprehensive rehabilitation may be used to reduce pain. (Liu et al 2019 [98]) [Weak recommendation].

3.5. Japan Stroke Society (JSS, Japan) 2021 ⊕

The Japan Stroke Society. [Japanese Guidelines for the Management of Stroke, 2021] . Kyowa Kikaku Co. Ltd.; 2021 [in Japanese] . *Cited b*y Okawa Y, Yamashita H, Masuyama S, Fukazawa Y, Wakayama I. Quality assessment of Japanese clinical practice guidelines including recommendations for acupuncture. Integr Med Res. 2022 Sep;11(3):100838. https://doi.org/10.1016/j.imr.2022.100838

Recommended for complex regional pain syndromes, in conjunction with training.

3.6. Canadian Partnership for Stroke Recovery (CPSR, Canada) 2018 ⊕

Evidence-based review of stroke rehabilitation: 18th edition, Canadian Partnership for Stroke Recovery (CPSR). 2018. [197578]. URL/

Hemiplegic Shoulder. There is Level 1a evidence that acupuncture reduces pain, increases range of motion, and improves motor function in the hemiplegic shoulder when compared to conventional therapy. There is Level 1b and Level 2 evidence that massage therapy, alone or with acupuncture, reduces hemiplegic shoulder pain. There is limited Level 1b evidence that a combination of acupressure and aromatherapy is more effective than dry acupressure in reducing hemiplegic shoulder pain.

3.7. American Heart Association/American Stroke Association (AHA, ASA, USA) 2016 Ø

Winstein CJ, Stein J, Arena R, Bates B, Cherney LR, Cramer SC, Deruyter F, Eng JJ, Fisher B, Harvey RL, Lang CE, MacKay-Lyons M, Ottenbacher KJ, Pugh S, Reeves MJ, Richards LG, Stiers W, Zorowitz RD et al. Guidelines for Adult Stroke Rehabilitation and Recovery: A Guideline for Healthcare Professionals From the American Heart Association/American Stroke Association. Stroke. 2016;47(6):e98-e169. [198716].

Usefulness of acupuncture as an adjuvant treatment for hemiplegic shoulder pain is of uncertain value. Iib B.