Table des matières

Subacromial Impingement Syndrome

Syndrome sous-acromial

1. Systematic Reviews and Meta-Analysis

1.1. Generic Acupuncture

1.1.1. An 2024

An SJ, Shin WC, Joo S, Cho JH, Chung WS, Song MY, Kim H. Effects of acupuncture on shoulder impingement syndrome: A systematic review and meta-analysis. Medicine (Baltimore). 2024 Sep 13;103(37):e39696. https://doi.org/10.1097/MD.0000000000039696

Backgound	Shoulder impingement syndrome (SIS) is a common condition that causes chronic shoulder pain. The effectiveness of acupuncture in treating chronic shoulder pain has been documented in previous studies; however, existing systematic reviews and meta-analyses have often excluded Chinese databases and combined different types of acupuncture interventions, such as electroacupuncture, warm acupuncture, pharmacopuncture, and acupotomy. Thus, this study specifically examines the exclusive impact of manual acupuncture on SIS.
Methods	Several databases, including PubMed, Cochrane Central, Embase, 1 Chinese database (China National Knowledge Infrastructure), and 5 Korean databases (ScienceON, Oriental Medicine Advanced Searching Integrated System, KoreaMed, Korean Studies Information Service System, and KMBASE), were systematically searched for relevant studies. The quality of the included studies was evaluated using the Cochrane Assessment Tool for Risk of Bias Version 2. Data collected from the selected studies were synthesized for meta-analysis. The primary outcome was a pain scale score, and the secondary outcomes were shoulder function and disability.
Results	This study included **5 randomized controlled trials**. The primary outcome assessment revealed significantly reduced pain (standardized mean difference [SMD] = -0.50, 95% confidence interval [CI] = -0.74 to -0.27) and improvements in shoulder function and disability (SMD = -0.57, 95% CI = -0.96 to -0.19). A subgroup analysis based on treatment duration indicated that short-term acupuncture treatment (≤4 weeks) exhibited a high level of confidence with low heterogeneity (SMD = -0.37, 95% CI = -0.73 to -0.02).
Conclusion	Manual acupuncture is effective for relieving pain and improving shoulder function and disability in patients with SIS. However, further research is necessary to validate these findings owing to the limited number of patients and heterogeneity among the studies reviewed.

1.1.2. Babatunde 2021 (network meta-analysis) ☆☆

Babatunde OO, Ensor J, Littlewood C, Chesterton L, Jordan JL, Corp N, Wynne-Jones G, Roddy E, Foster NE, van der Windt DA. Comparative effectiveness of treatment options for subacromial shoulder conditions: a systematic review and network meta-analysis. Ther Adv Musculoskelet Dis. 2021 Sep

9;13:1759720×211037530. https://doi.org/10.1177/1759720X211037530

Background	There are currently many treatment options for patients with subacromial shoulder conditions (SSCs). Clinical decision-making regarding the best treatment option is often difficult. This study aims to evaluate the comparative effectiveness of treatment options for relieving pain and improving function in patients with SSCs.
Methods	Eight databases [including MEDLINE, Embase, CINAHL, AMED, PEDro, Cochrane Database of Systematic Reviews and World Health Organization (WHO) International Clinical Trials Registry] were searched from inception until April 2020. Randomised clinical/controlled trials of adult patients investigating the effects of nonsurgical (e.g. corticosteroid injections, therapeutic exercise, shockwave therapy) and surgical treatment for SSCs, compared with each other, placebo, usual care or no treatment, were retrieved. Pairs of reviewers screened studies independently, quality appraised eligible studies using the Cochrane risk of bias tool, extracted and checked data for accuracy. Primary outcomes were pain and disability in the short term (⩽3 months) and long term (⩾6 months). Direct and indirect evidence of treatment effectiveness was synthesised using random-effects network meta-analysis.
Results	The review identified 177 eligible trials. Summary estimates (based on 99 trials providing suitable data, 6764 patients, 20 treatment options) showed small to moderate effects for several treatments, but no significant differences on pain or function between many active treatment comparisons. The primary analysis indicated that exercise and laser therapy may provide comparative benefit in terms of both pain and function at different follow-up time-points, with larger effects found for laser in the short term at 2-6 weeks, although direct evidence was provided by one trial only, and for exercise in the longer term [standardised mean difference (SMD) 0.39, 95% confidence interval (CI) 0.18, 0.59 at 3-6 months] compared with control. Sensitivity analyses excluding studies at increased risk of bias confirmed only the comparative effects of exercise as being robust for both pain and function up until 3-month follow-up.
Conclusion	Current evidence shows small to moderate effect sizes for most treatment options for SSCs. Six treatments had a high probability of being most effective, in the short term, for pain and function [**acupuncture**, manual therapy, exercise, exercise plus manual therapy, laser therapy and Microcurrent (MENS) (TENS)], but with low certainty for most treatment options. After accounting for risk of bias, there is evidence of moderate certainty for the comparative effects of exercise on function in patients with SSCs. Future large, high-quality pragmatic randomised trials or meta-analyses are needed to better understand whether specific subgroups of patients respond better to some treatments than others.

1.1.3. Choi 2021 (Rotator Cuff Disease)

Seoyoung Choi, Jisun Lee, Seunghoon Lee, Gi Young Yang, Kun Hyung Kim. Acupuncture for Symptomatic Rotator Cuff Disease: A Systematic Review and Meta-Analysis. J Acupunct Res. 2021;38(1):20-31. [219977]. doi

Objective	The objective was to evaluate the effectiveness and safety of acupuncture for patients with rotator cuff diseases.

Mehtods	There were 12 electronic databases and 3 trial registries searched up to November 30th, 2019. All randomized trials were eligible, regardless of language, date of publication, or settings. The primary outcomes were pain, shoulder function, and proportion of improved participants assessed within 12 weeks of randomization of the trial. The Cochrane risk of bias for the studies was assessed. Effects sizes were presented as a risk ratio, mean difference, or standardized mean difference with a 95% confidence intervals. Grading of Recommendations Assessment, Development and Evaluation approach was adopted to rate certainty of evidence.
Results	Of the 3,686 records screened, **28 randomized trials (2,216 participants)** were included in this review. The types of acupuncture included manual acupuncture, dry needling, electroacupuncture, acupotomy, warm needle acupuncture, and fire needle acupuncture. All of the studies had an unclear or high risk of bias related to more than 1 domain. Significant benefits of acupuncture in terms of pain and shoulder function were observed in all comparisons, however, the proportion of improved participants was not described in 2 comparisons. There was substantial heterogeneity among meta-analyzed trials. No serious harm was observed. For primary outcomes, the overall certainty of evidence was very low.
Conclusions	There was very low certainty of evidence for the benefits of acupuncture for patients with rotator cuff diseases. The safety of acupuncture remains unclear due to the incompleteness of reporting. Future well-designed randomized trials with transparent reporting are required.

1.1.4. Choi 2018 (Rotator Cuff Disease) ~

Choi HM, Han SY, Hwang DR, et al. Acupuncture treatment for rotator cuff disorder: a systematic review. J Korean Med Rehab. 2018;28:11-20. [167876].
http://www.e-jkmr.org/journal/view.html?doi=10.18325/jkmr.2018.28.4.11

Objectives	To systematically explore the effects of acupuncture treatment for rotator cuff disorders and review the clinical trials.
Methods	We searched 9 electronic databases (PubMed, Cochrane central, Embase, China National Knowledge Infrastructure [CNKI], Korea Institute of Science and Technology Information [KISTI], National Digital Science Library [NDSL], Korean studies Information Service System [KISS], Research Information Sharing Service [RISS], Oriental Medicine Advanced Searching Integrated System [OASIS]) to find randomized controlled trials that used acupunture treatment for rotator cuff disorders. We assessed the designs of the randomized controlled trials and the method of acupuncture treatment according to the Standards for Reporting Interventions in Clinical Trials of Acupuncture (STRICTA). The methodological quality of randomized controlled trials were assessed using the Cochrane Risk of Bias (RoB) tool.
Results	Total **5 trials** were reviewed. 4 out of 5 randomized clinical trials reported meaningful effects of acupuncture treatments compared to control group. However risk of bias seemed high.
Conclusions	Although the results suggest that acupuncture treatment has favorable effects for rotator cuff disorders, most of the studies included methodologically high risk of bias. Thus, well designed randomized clinical trials which evaluate the effects of acupuncture treatment for rotator cuff disorders should be encouraged.

1.1.5. Haik 2016 ∅

Haik MN, Alburquerque-Sendín F, Moreira RF, Pires ED, Camargo PR. Effectiveness of physical therapy treatment of clearly defined subacromial pain: a systematic review of randomised controlled trials. Br

J Sports Med. 2016;50(18):1124-34. [192090].

Aim	To summarise the current evidence regarding the effectiveness of physical therapy on pain, function and range of motion in individuals with subacromial pain syndrome (SAPS).
Methods	DESIGN: Systematic review. DATA SOURCES: PubMed, Web of Science, CINAHL, Cochrane, Embase, Lilacs, Ibecs and Scielo databases. ELIGIBILITY CRITERIA FOR SELECTING STUDIES: Randomised controlled trials (RCTs) investigating physical therapy modalities for SAPS on pain, function/disability or range of motion were included.
Results	64 high-quality RCTs were included. Exercise therapy provided high evidence of being as effective as surgery intervention and better than no treatment or placebo treatment to improve pain, function and range of motion in the short, mid and long terms. The combination of mobilisation and exercises provided high evidence to decrease pain and improve function in the short term. There is limited evidence for improvements on the outcomes with the isolated application of manual therapy. High level of evidence was synthesised regarding the lack of beneficial effects of physical resources such as low-level laser, ultrasound and pulsed electromagnetic field (PEMF) on pain, function or range of motion in the treatment of SAPS. There is limited evidence for microwave diathermy and transcutaneous electrical nerve stimulation. There is moderate evidence to no benefits with taping in the short term. Effects of diacutaneous fibrolysis and **acupuncture** are not well established yet.
Conclusions	Exercise therapy should be the first-line treatment to improve pain, function and range of motion. The addition of mobilisations to exercises may accelerate reduction of pain in the short term. Low-level laser therapy, PEMF and taping should not be recommended.

1.1.6. Dong 2015 ★★

Dong W, Goost H, Lin XB, Burger C, Paul C, Wang ZL, Zhang TY, Jiang ZC, Welle K, Kabir K. Treatments for shoulder impingement syndrome: a Prisma systematic review and network meta-analysis. Medicine (Baltimore). 2015 Mar;94(10):e510. [178966].

Purpose	Many treatments for shoulder impingement syndrome (SIS) are available in clinical practice; some of which have already been compared with other treatments by various investigators. However, a comprehensive treatment comparison is lacking.
Methods	Several widely used electronic databases were searched for eligible studies. The outcome measurements were the pain score and the Constant–Murley score (CMS). Direct comparisons were performed using the conventional pair-wise meta-analysis method, while a network meta-analysis based on the Bayesian model was used to calculate the results of all potentially possible comparisons and rank probabilities. Included in the meta-analysis procedure were 33 randomized controlled trials involving 2300 patients. Good agreement was demonstrated between the results of the pair-wise meta-analyses and the network meta-analyses.

Results	Regarding nonoperative treatments, with respect to the pain score, combined treatments composed of exercise and other therapies tended to yield better effects than single-intervention therapies. Localized drug injections that were combined with exercise showed better treatment effects than any other treatments, whereas worse effects were observed when such injections were used alone. Regarding the CMS, most combined treatments based on exercise also demonstrated better effects than exercise alone. Regarding surgical treatments, according to the pain score and the CMS, arthroscopic subacromial decompression (ASD) together with treatments derived from it, such as ASD combined with radiofrequency and arthroscopic bursectomy, showed better effects than open subacromial decompression (OSD) and OSD combined with the injection of platelet-leukocyte gel. Exercise therapy also demonstrated good performance.
Conclusion	Exercise and other exercise-based therapies are the most important treatment options for SIS patients. **For those patients who seek nonoperative treatment option at an early stage of SIS**, exercise combined with other therapies should be recommended. Among these therapies, kinesio taping, specific exercises, and **acupuncture therapy should be considered as the firstline choices**, whereas pulsed electromagnetic field therapy, localized corticosteroid injection, diacutaneous fibrolysis, and ultrasound therapy may be considered as the second-line treatment choices; however, low-level laser therapy and the localized injection of NSAIDs are not recommended. For patients with chronic SIS, operative treatment options may be considered. In this case, standard arthroscopic subacromial decompression surgery is a relatively superior option to open subacromial decompression and arthroscopic bursectomy. Notably, however, the decision for operative treatment should be made cautiously because similar outcomes may also be achieved by the implementation of exercise therapy.

1.1.7. Van Der Sande 2013

Van Der Sande R, Rinkel WD, Gebremariam L, Hay EM, Koes BW, Huisstede BM. Subacromial impingement syndrome: effectiveness of pharmaceutical interventions-nonsteroidal anti-inflammatory drugs, corticosteroid, or other injections: a systematic review. Arch Phys Med Rehabil. 2013. 94(5):961-76. [169928].

Objective	To present an evidence-based overview of the effectiveness of pharmaceutical interventions, including nonsteroidal anti-inflammatory drugs, corticosteroid injections, and other injections, used to treat the subacromial impingement syndrome (SIS). An overview can help physicians select the most appropriate pharmaceutical intervention, and it can identify gaps in scientific knowledge.
Methods	Data Sources: The Cochrane Library, PubMed, Embase, PEDro, and CINAHL databases. Study Selection: Two reviewers independently selected relevant reviews and randomized clinical trials. Data Extraction: Two reviewers independently extracted the data and assessed the methodologic quality.

Data Synthesis	A best evidence synthesis was used to summarize the results. Three reviews and 5 randomized clinical trials were included. Although we found limited evidence for effectiveness in favor of 2 sessions with corticosteroid injections versus 1 session, for the effectiveness of corticosteroid injections versus placebo, nonsteroidal anti-inflammatory drugs, or **acupuncture**, only conflicting and no evidence for effectiveness was found. Moderate evidence was found in favor of immediate release oral ibuprofen compared with sustained-released ibuprofen in the short-term. Also, moderate evidence for effectiveness was found in favor of glyceryltrinitrate patches versus placebo patches in the short-term and mid term. Furthermore, injections with disodium ethylene diamine tetraacetic acid plus ultrasound with ethylene diamine tetraacetic acid gel were more effective (moderate evidence) than was placebo treatment in the short- and long-term.
Conclusions	This article presents an overview of the effectiveness of pharmaceutical interventions for SIS. Some treatments seem to be promising (moderate evidence) to treat SIS, but more research is needed before firm conclusions can be drawn.
Acupuncture	There is no evidence for the effectiveness of corticosteroid injections versus acupuncture plus moxibustion in the short term (4wk).

1.1.8. Michener 2004 Ø

Michener LA, Walsworth MK, Burnet EN. Effectiveness of rheabilitation for patients with subacromial impingement syndrome: a systematic review. J Han Ther. 2004;17(2):152-164.[145567].

Purpose	Prior systematic reviews of rehabilitation for non descript shoulder pain have not yielded clinically applicable results for those patients with subacromi al impingement syndrome (SAIS). The purpose of this study was to examine the evidence for rehabilitation interventions for SAIS.
Methods	The authors used data source as the method. The computerized bibliographic databases of Med line, the Cumulative Index to Nursing and Allied TIealth Literature (CINAHL), and the Cochrane Database of Systematic Reviews were searched from 1966 up to and including October 2003. Key words used were “shoulder,” “shoulder impingement syndrome,” “bursitis,” and “rotator cuff” combined with “rehabilitation,” “'Physical therapy,” “electrotherapy,” “ultrasound,” “acupuncture,” and “exercise,” limited to clinical trials. Randomized clinical trials that investigated physical interventions used in the rehabilitation of patients with SAIS with clinically relevant outcome measures of pain and quality of life were selected.
Results	The search resulted in 635 potential studies, 12 meeting inclusion criteria. Two independent reviewers graded all 12 trials with a quality checklist averaged for a final quality score. The mean quality score for 12 trials was 37.6 out of n possible 69 points. Various treatments were evaluated: exercise in six trials, joint mobilizations in two trials, laser in three trials, ultrasound in two trials, and **acupuncture in two trials**.
Conclusion	The limited evidence currently available suggests that exercise and joint mobilizations are efficacious for patients with SA IS. Laser therapy appears to be cif benefit only when used in isolation, not in combination with therapeutic exercise. Ultrasound is of no benefit, and **acupuncture trials present equivocal evidence**.'I'he low to mediocre methodologic quality, small sample sizes, and general lack of long-term follow-up limit these findings for the development of useful clinical practice guidelines.

1.1.9. Johansson 2002 ★

Johannsson K et al. A combination of systematic review and clinicians’ beliefs in interventions for subacromial pain. Br J Gen Pract. 2002;52(475):45-52.[101027].

Purpose	The aim of the study is to determine which treatments for patients with subacromial pain are trusted by general practitioners (GPs) and physiotherapists, and to compare trusted treatments with evidencefrom a systematic critical review of the scientific literature
Methods	A two-step process was used: a questionnaire (written case simulation) and a systematic critical review. The questionnaire was mailed to 188 GPs and 71 physiotherapists in Sweden. The total response rate was 72% (186/259). The following treatments were trusted: ergonomics/adjustments at work, corticosteroids, non-steroidal anti-inflammatory drugs, movement exercises, acupuncture, ultrasound therapy, strengthening exercises, stretching, transcutaneous electric nerve stimulation, and superficial heat or ice therapy. The review, including efficacy studiesfor the treatments found to be trusted, was conducted using the CINAHL, EMBASE and MEDLINE databases. Evidence for efficacy was recorded in relation to methodological quality and to diagnostic criteria that labelled participants as having subacromial pain or a non-specific shoulder disorder.
Results	**Forty studies were included**. The methodological quality varied and only one treatment had definitive evidence for efficacy for non-specific patients, namely injection of corticosteroids. The trust in corticosteroids, injected in the subacromial bursa, was supported by definitive evidence for short-term efficacy. **Acupuncture had tentative evidence for short-term efficacy in patients with subacromial pain**. Ultrasound therapy was ineffectivefor subacromial pain.
Conclusion	This is supported by tentative evidence and, together with earlier reviews, this questions both the trust in the treatment and its use. The clinicians' trust in treatments had a weak association with available scientific evidence.

2. Clinical Practice Guidelines

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

2.1. American College of Occupational and Environmental Medicine (ACOEM, USA) 2016 ⊕

Shoulder Disorders Guideline. American College of Occupational and Environmental Medicine. 2016. 379P. [181260].

Recommendation: **Acupuncture for Chronic Rotator Cuff Tendinopathies, including Impingement Syndrome, or Post-operative Pain**. Acupuncture is recommended for select use in chronic rotator cuff tendinopathies or postoperative pain only as an adjunct to more efficacious treatments. *Indications* - As a tertiary treatment if INSAIDs, active exercises, injections, and surgery (if indicated) fail to resolve or sufficiently improve pain. *Frequency/Duration* - Frequency and duration pattern in the quality trial was weekly for 8 weeks. An initial trial of 4 appointments would appear reasonable in combination with a conditioning program of aerobic and strengthening exercises. An additional 4 appointments should be tied to improvements in objective measures after the first 4 treatments, for a total of 8 (Guerra de Hoyos 04). If acupuncture is trialed in a patient, objective functional improvement should be demonstrated after 6 visits. *Indications for Discontinuation* - Resolution, intolerance, non-compliance including non-compliance with aerobic and strengthening exercises, no functional gains demonstrated. *Strength of Evidence* - Recommended, Evidence (C) .

Recommendation: **Post-operative Acupuncture for Rotator Cuff Tendinopathy Post-operative.** Acupuncture is recommended particularly for post-operative rotator cuff tendinopathy patients with significant pain as an adjunct to an active exercise rehabilitation program (Gilbertson 03) Frequency/Duration - See Acupuncture Medical Treatment Gudeilines for recommended frequency, duration, and discontinuation. *Strength of Evidence* - Recommended, Evidence (C) .

2.2. Dutch Orthopaedic Association 2014 (DOA, Netherlands) ∅

Diercks R, Bron C, Dorrestijn O, Meskers C, Naber R, de Ruiter T, Willems J, Winters J, van der Woude HJ; Dutch Orthopaedic Association. Guideline for diagnosis and treatment of subacromial pain syndrome: a multidisciplinary review by the Dutch Orthopaedic Association. Acta Orthop. 2014 Jun;85(3):314-22. 2014;85(3):314-22. [175888].

Acupuncture treatment appears to be no more effective than placebo and exercise therapy (Green et al. 2005).

2.3. Accident Compensation Corporation (ACC, New-Zealand) 2011 ∅

Hardaker N, Ayson M. Pragmatic Evidence Based Review. The efficacy of acupuncture in the management of musculoskeletal pain. Accident Compensation Corporation (ACC, New-Zealand). 2011. [182414].

The evidence for the effectiveness of acupuncture is most convincing for the treatment of chronic neck and shoulder pain. In terms of other injuries, the evidence is either inconclusive or insufficient. The state of the evidence on the effectiveness of acupuncture is not dissimilar to other physical therapies such as physiotherapy, chiropractic and osteopathy.
General
- There is insufficient evidence to make a recommendation for the use of acupuncture in the management of acute neck, back or shoulder pain
- There is emerging evidence that acupuncture may enhance/facilitate other conventional therapies (including physiotherapy & exercise-based therapies)
- There is a paucity of research for the optimal dosage of acupuncture treatment for treating shoulder, knee, neck and lower back pain
- Studies comparing effective conservative treatments (including simple analgesics, physical therapy, exercise, heat & cold therapy) for (sub) acute and chronic non-specific low back pain (LBP) have been largely inconclusive.
Shoulder
- There is good evidence from one pragmatic trial that acupuncture improves pain and mobility in chronic shoulder pain
- There is limited evidence for the efficacy of acupuncture for frozen shoulder
- **There is contradictory evidence for the efficacy of acupuncture for subacromial impingement syndrome**

3. Randomized Controlled Trials

3.1. Sources

1. Acudoc2: RCTs identified in the Acudoc2 database but not included in the cited SRs.
2. **Babatunde 2021**. Babatunde OO, Ensor J, Littlewood C, Chesterton L, Jordan JL, Corp N, Wynne-Jones G, Roddy E, Foster NE, van der Windt DA. Comparative effectiveness of treatment options for subacromial shoulder conditions: a systematic review and network meta-analysis. Ther Adv Musculoskelet Dis. 2021 Sep 9;13:1759720×211037530. https://doi.org/10.1177/1759720X211037530 (n=7)
3. **Choi 2021**.Seoyoung Choi, Jisun Lee, Seunghoon Lee, Gi Young Yang, Kun Hyung Kim. Acupuncture for Symptomatic Rotator Cuff Disease: A Systematic Review and Meta-Analysis. J Acupunct Res. 2021;38(1):20-31. [219977]. doi (n=7)

4. **Choi 2018**. Choi HM, Han SY, Hwang DR, et al. Acupuncture treatment for rotator cuff disorder: a systematic review. J Korean Med Rehab. 2018;28:11-20. [167876]. http://www.e-jkmr.org/journal/view.html?doi=10.18325/jkmr.2018.28.4.11 (n=5)
5. **Haik 2016**. Haik MN, Alburquerque-Sendín F, Moreira RF, Pires ED, Camargo PR. Effectiveness of physical therapy treatment of clearly defined subacromial pain: a systematic review of randomised controlled trials. Br J Sports Med. 2016;50(18):1124-34. [192090] (n=4).
6. **Dong 2015**. Dong W, Goost H, Lin XB, Burger C, Paul C, Wang ZL, Zhang TY, Jiang ZC, Welle K, Kabir K. Treatments for shoulder impingement syndrome: a Prisma systematic review and network meta-analysis. Medicine (Baltimore). 2015 Mar;94(10):e510. [178966] (n=2)
7. **Van Der Sande 2013**. Van Der Sande R, Rinkel WD, Gebremariam L, Hay EM, Koes BW, Huisstede BM. Subacromial impingement syndrome: effectiveness of pharmaceutical interventions-nonsteroidal anti-inflammatory drugs, corticosteroid, or other injections: a systematic review. Arch Phys Med Rehabil. 2013. 94(5):961-76. [169928]. (n=1)
8. **Michener 2004**. Michener LA, Walsworth MK, Burnet EN. Effectiveness of rheabilitation for patients with subacromial impingement syndrome: a systematic review. J Han Ther. 2004;17(2):152-164.[145567]. (n=2)
9. **Johannsson 2002**. Johannsson K et al. A combination of systematic review and clinicians' beliefs in interventions for subacromial pain. Br J Gen Pract. 2002;52(475):45-52.[101027]. (n=1)

3.2. List

	RCT	Sources
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2019	Yang X. [Clinical observation of warm needle acupuncture on Neer type I & II subacromial impingement syndrome]. Tradit Chin Med Res. 2019;32:59–61.	Choi 2021
2018	Chen Z, Lin D, Liu Y. [Observation on treating shoulder impingement syndrome by small needle knife]. Clin J Chin Med. 2018;10:92–93.	Choi 2021
2017	Arias-Buria JL, Fernandez-de-Las-Penas C, Palacios-Cena M, Koppenhaver SL, Salom-Moreno J. Exercises and Dry Needling for Subacromial Pain Syndrome: A Randomized Parallel-Group Trial. J Pain. 2017;18:11–18. [172134].	Choi 2021,
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2014	Tu Feng. [Efficacy of acupuncture with thrusting manipulation for subacromial impingement syndrome]. Shanghai Journal of Acupuncture and Moxibustion. 2014;33(11):1046. [184844].	Acudoc2
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1980	Berry H, Fernandes L, Bloom B, Clark RJ, Hamilton EB. Clinical study comparing acupuncture, physiotherapy, injection and oral antiinflammatory therapy in shoulder-cuff lesions. Curr Med Res Opin 1980;7:121-6. [2439].	Babatunde 2021, Van Der Sande 2013, Michener 2004