

Supplementary File 1. PRISMA 2020 Checklist

Section and Topic	Item #	Checklist item	Location where item is reported
TITLE			
Title	1	Identify the report as a systematic review.	Page 1
ABSTRACT			
Abstract	2	See the PRISMA 2020 for Abstracts checklist.	Page 2
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of existing knowledge.	Page 3, 4
Objectives	4	Provide an explicit statement of the objective(s) or question(s) the review addresses.	Page 4
METHODS			
Eligibility criteria	5	Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses.	Page 5
Information sources	6	Specify all databases, registers, websites, organisations, reference lists and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted.	Page 5
Search strategy	7	Present the full search strategies for all databases, registers and websites, including any filters and limits used.	Page 5
Selection process	8	Specify the methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process.	Page 6
Data collection process	9	Specify the methods used to collect data from reports, including how many reviewers collected data from each report, whether they worked independently, any processes for obtaining or confirming data from study investigators, and if applicable, details of automation tools used in the process.	Page 6
Data items	10a	List and define all outcomes for which data were sought. Specify whether all results that were compatible with each outcome domain in each study were sought (e.g. for all measures, time points, analyses), and if not, the methods used to decide which results to collect.	Page 6
	10b	List and define all other variables for which data were sought (e.g. participant and intervention characteristics, funding sources). Describe any assumptions made about any missing or unclear information.	Page 6
Study risk of bias assessment	11	Specify the methods used to assess risk of bias in the included studies, including details of the tool(s) used, how many reviewers assessed each study and whether they worked independently, and if applicable, details of automation tools used in the process.	Page 6
Effect measures	12	Specify for each outcome the effect measure(s) (e.g. risk ratio, mean difference) used in the synthesis or presentation of results.	Page 7
Synthesis methods	13a	Describe the processes used to decide which studies were eligible for each synthesis (e.g. tabulating the study intervention characteristics and comparing against the planned groups for each synthesis (item #5)).	Page 7
	13b	Describe any methods required to prepare the data for presentation or synthesis, such as handling of missing summary statistics, or data conversions.	Page 7
	13c	Describe any methods used to tabulate or visually display results of individual studies and syntheses.	Page 7
	13d	Describe any methods used to synthesize results and provide a rationale for the choice(s). If meta-analysis was performed, describe the model(s), method(s) to identify the presence and extent of statistical heterogeneity, and software package(s) used.	Page 7
	13e	Describe any methods used to explore possible causes of heterogeneity among study results (e.g. subgroup analysis, meta-regression).	Page 7
	13f	Describe any sensitivity analyses conducted to assess robustness of the synthesized results.	Page 7
Reporting bias assessment	14	Describe any methods used to assess risk of bias due to missing results in a synthesis (arising from reporting biases).	Page 7
Certainty assessment	15	Describe any methods used to assess certainty (or confidence) in the body of evidence for an outcome.	Page 7
RESULTS			

Section and Topic	Item #	Checklist item	Location where item is reported
Study selection	16a	Describe the results of the search and selection process, from the number of records identified in the search to the number of studies included in the review, ideally using a flow diagram.	Page 7, 8 Figure 1
	16b	Cite studies that might appear to meet the inclusion criteria, but which were excluded, and explain why they were excluded.	Page 7, 8 Figure 1
Study characteristics	17	Cite each included study and present its characteristics.	Page 8, Table 1
Risk of bias in studies	18	Present assessments of risk of bias for each included study.	Page 8, 9 Figure 2
Results of individual studies	19	For all outcomes, present, for each study: (a) summary statistics for each group (where appropriate) and (b) an effect estimate and its precision (e.g. confidence/credible interval), ideally using structured tables or plots.	Page 9-11 Figure 3-5
Results of syntheses	20a	For each synthesis, briefly summarise the characteristics and risk of bias among contributing studies.	Page 9-11
	20b	Present results of all statistical syntheses conducted. If meta-analysis was done, present for each the summary estimate and its precision (e.g. confidence/credible interval) and measures of statistical heterogeneity. If comparing groups, describe the direction of the effect.	Page 9-11
	20c	Present results of all investigations of possible causes of heterogeneity among study results.	Page 9-11
	20d	Present results of all sensitivity analyses conducted to assess the robustness of the synthesized results.	Page 9-11
Reporting biases	21	Present assessments of risk of bias due to missing results (arising from reporting biases) for each synthesis assessed.	Page 8-11
Certainty of evidence	22	Present assessments of certainty (or confidence) in the body of evidence for each outcome assessed.	Page 11
DISCUSSION			
Discussion	23a	Provide a general interpretation of the results in the context of other evidence.	Page 11, 12
	23b	Discuss any limitations of the evidence included in the review.	Page 14, 15
	23c	Discuss any limitations of the review processes used.	Page 14, 15
	23d	Discuss implications of the results for practice, policy, and future research.	Page 14
OTHER INFORMATION			
Registration and protocol	24a	Provide registration information for the review, including register name and registration number, or state that the review was not registered.	Page 4
	24b	Indicate where the review protocol can be accessed, or state that a protocol was not prepared.	Page 4
	24c	Describe and explain any amendments to information provided at registration or in the protocol.	Page 4
Support	25	Describe sources of financial or non-financial support for the review, and the role of the funders or sponsors in the review.	Page 16
Competing interests	26	Declare any competing interests of review authors.	Page 16
Availability of data, code and other materials	27	Report which of the following are publicly available and where they can be found: template data collection forms; data extracted from included studies; data used for all analyses; analytic code; any other materials used in the review.	Page 16, 17

From: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ* 2021;372:n71. doi: 10.1136/bmj.n71

For more information, visit: <http://www.prisma-statement.org/>

Supplementary File 2. Search Strategies

Appendix 1. Pubmed

“Fu's Subcutaneous Needling” [Title/Abstract] OR “Fu's Acupuncture” [Title/Abstract] OR “Floating Needle” [Title/Abstract] OR “Fu Needling” [Title/Abstract] OR “Floating-Acupuncture” [Title/Abstract] OR “FSN” [Title/Abstract]

Limiters

- Article type: Randomized Controlled Trial

Appendix 2. Web of Science

All Fields (Topic)= “Fu's Subcutaneous Needling” OR “Fu's Acupuncture” OR “Floating Needle” OR “Fu Needling” OR “Floating-Acupuncture” OR “FSN”

Limiters

- Documents type: Clinical Trial

Appendix 3. Scopus

Title Abstract Keyword = “Fu's Subcutaneous Needling” OR “Fu's Acupuncture” OR “Floating Needle” OR “Fu Needling” OR “Floating-Acupuncture” OR “FSN”

Limiters

- Academic Discipline: Medicine
- Documents type: Article

Appendix 4. Cochrane library

Title Abstract Keyword = “Fu's Subcutaneous Needling” OR “Fu's Acupuncture” OR “Floating Needle” OR “Fu Needling” OR “Floating-Acupuncture” OR “FSN”

Appendix 5. Embase

All Fields = "Fu Subcutaneous Needling" OR "Fu Acupuncture" OR "Floating Needle"
OR "Fu Needling" OR "Floating-Acupuncture" OR "FSN"

Limiters

- Evidence Based Medicine: Randomized Controlled Trial

Appendix6. Clinical Trials. gov

Other terms = "Fu's Subcutaneous Needling" OR "Fu's Acupuncture" OR "Floating
Needle" OR "Fu Needling" OR "Floating-Acupuncture" OR "FSN"

Limiters

- Study Results: With results

Supplementary File 3. List of Studies Excluded After Full-Text Review with Reasons for Exclusion

Study ID (Author, Year)	Full Title of the Excluded Study	Primary Reason for Exclusion
Yang et al., 2024	Understanding tightened muscle in knee osteoarthritis and the impacts of Fu's subcutaneous needling: A pilot trial with shear-wave elastography and near-infrared spectroscopy	Not RCT
Xia et al., 2004	Combination of Fu needling with electric acupuncture for tennis elbow	Not RCT
Zhang et al., 2024	Treatment of sudden sensorineural hearing loss with tinnitus with Fu subcutaneous needling: A case report	Not RCT
Jiang et al., 2023	Relationship between the inserting sites of Fu's subcutaneous needling and traditional acupoints: revelation to acupuncture and moxibustion	Not RCT
Qu et al., 2024	Treatment of primary restless legs syndrome with Fu's subcutaneous needling: A case report	Not RCT
Gao et al., 2023	Treatment of postsurgical trigeminal neuralgia with Fu's subcutaneous needling therapy resulted in prompt complete relief: Two case reports	Not RCT
Liang et al., 2023	Treatment of postsurgical gastroparesis syndrome with Fu's subcutaneous needling: A case report	Not RCT
Bao et al., 2021	Treatment effect and mechanism of Fu's subcutaneous needling among patients with shoulder pain: A retrospective pilot study	Not RCT
Yu et al., 2019	Treatment of varicocele with Fu's subcutaneous needling A case report	Not RCT
Huang et al., 2020	Fu's subcutaneous needling for subcutaneous adhesions and scar hyperplasia in the neck region A case report	Not RCT
Shi et al., 2024	Fu's subcutaneous needling combined with monkshood cake-separated moxibustion for primary dysmenorrhea with cold congealing and blood stasis: a randomized controlled trial	Multicomponent intervention
Tao et al., 2024	Fu's subcutaneous needling for non-acute idiopathic facial paralysis : a randomized	Multicomponent intervention

	controlled trial	
Wang et al., 2024	Fu's subcutaneous needling combined with scalp acupuncture for shoulder-hand syndrome phase I after cerebral infarction: a randomized controlled trial.	Multicomponent intervention
Yang et al., 2015	The effect of floating-needle therapy combined with rehabilitation training for the hand function recovery of post-stroke patients	Multicomponent intervention
Zhou et al., 2014	Post-stroke shoulder-hand syndrome treated with floating-needle therapy combined with rehabilitation training: a randomized controlled trial	Multicomponent intervention
Huang et al., 2022	Efficacy of Fu's Subcutaneous Needling on Myofascial Trigger Points for Lateral Epicondylalgia: A Randomized Control Trial	Indefinite diagnosis
Chen et al., 2021	Study on the therapeutic effect of floating needle therapy combined with pressing acupoint embedding for female stress urinary incontinence after childbirth: a randomized trial	Indefinite diagnosis
Fu et al., 2007	Fu's subcutaneous needling: Possible clinical evidence of the subcutaneous connective tissue in acupuncture	Inappropriate control group
Zheng et al., 2021	Therapeutic observation on Fu's acupuncture for cervical spondylosis of vertebral artery type based on Tongtuo method	Inappropriate control group
Wang et al., 2013	Observation on the clinical efficacy of shoulder pain in post-stroke shoulder-hand syndrome treated with floating acupuncture and rehabilitation training	Inappropriate control group
Yang et al., 2020	Effect of subcutaneous needling on visual analogue scale, IgG and IgM in patients with lumbar disc herniation Study protocol clinical trial	Incomplete data
Li et al., 2024	The Impact of Fu's Subcutaneous Needling on Lower Limb Muscle Stiffness in Knee Osteoarthritis Patients: Study Protocol for a Pilot Randomized Controlled Trial	Incomplete data
Li et al., 2024	Effects of Fu's subcutaneous needling at myofascial trigger points on pain and lumbar mobility in patients with lumbar disc herniation: a randomized controlled trial.	Incomplete data

Huang et al., 2024	Biomechanically based Fu's subcutaneous needling treatment for senile knee osteoarthritis: protocol for a randomized controlled trial	Incomplete data
Chiu et al., 2021	Evaluating Effectiveness of Fu's Subcutaneous Needling for the Pain Nature and Quality of Life in Patients with Knee Osteoarthritis: A Study Protocol of Randomized Clinical Trial	Incomplete data
Xu et al., 2023	Effect of Fu's subcutaneous needling for cancer pain management: protocol for a pragmatic randomised controlled trial	Incomplete data
Liu et al., 2019	Therapeutic effect of Fu's subcutaneous needling for hemiplegic shoulder pain among stroke survivors Study protocol for a randomized controlled trial	Incomplete data
Ge et al., 2019	Floating needle therapy for postoperative functional rehabilitation in patients with surgical neck fracture of humerus: a randomized controlled trial	Incomplete data