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Asthma

Asthme : évaluation de l'acupuncture

Articles connexes: - allergies respiratoires - conduites thérapeutiques - pathologie - acupuncture expérimentale - qigong -

1. Systematic Reviews and Meta-Analysis

1.1. Generic Acupuncture

1.1.1. Wang 2024

Wang Q, Xie Y, Dong F, Zhou L, An B, Wang J, Chen B, Xu N, Wu Q. Evaluation of Clinical Efficacy of Acupuncture and Moxibustion for Asthma: Systematic Review and Meta-Analysis. Altern Ther Health Med. 2024;30(10):119-127. https://pubmed.ncbi.nlm.nih.gov/38401063

Background	The effectiveness of manual acupuncture for treating bronchial asthma is still debatable and broad, and the effects of different acupuncture points, treatment durations, or illness trajectories have never been rigorously assessed. The objective of this revised systematic review and subgroup meta-analysis of randomized controlled trials (RCTs) is to ascertain the clinical efficacy of manual acupuncture on bronchial asthma and whether these effects varied depending on the acupuncture points, length of treatment, or course of the disease.
Methods	PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) criteria were followed for creating a systematic review and meta-analysis. From the beginning through March 25, 2022, six electronic databases were checked. For the treatment of asthma, all RCTs contrasting acupuncture therapy along with conventional treatment against conventional treatment alone were chosen. The information was examined using Review Manager version 5.3 and Comprehensive Meta-Analysis version 3. Clinical efficacy (including the effective rate and the recurrence rate) was the primary outcome, and pulmonary function (including FEV1%, PEF) and the secondary results were T-lymphocyte immunity (containing CD3+, CD4+, and CD8+). Based on the acupuncture points, length of therapy, and nature of the condition, subgroup analyses were carried out.
Results	There were a total of **21 RCTs that enrolled 2510 individuals**. According to the meta-findings, manual acupuncture in addition to conventional treatment significantly increased the effective rate when compared to conventional treatment alone [OR = 5.14 95% CI 3.58-7.38, P < .00001], lung functions [FEV1% (MD = 6.18, 95% CI 2.40-9.96, P = .001) and PEF (MD = 0.45 95% CI 0.18-0.73, P = .001)], immune functions [CD3+ T lymphocytes (MD = 7.55 95% CI 6.55-8.56, P < .00001), CD4+ T-lymphocytes (MD = 5.11 95% CI 4.09-6.13, P < .00001), T-lymphocyte CD8+ (MD = -0.37.11 95% CI -3.62–2.51, P < .00001)] and noteworthy reduction in the recurrence rate (OR = 0.19 95% CI 0.10-0.38, P < .00001). Results from the subgroup analysis were consistent.

Conclusion	Manual acupuncture combined with Western Medicine is more effective than conventional treatment alone for bronchial asthma. Combination therapy can significantly improve clinical efficacy, lung function, and immune function while reducing the relapse rate. But to further support the results of this investigation, high-quality RCTs with long-term outcomes are still required, taking into account the inherent limitations of the included studies.

1.1.2. Pang 2023 (vs sham)

Pang J, Shergis JL, Zheng L, Liu S, Guo X, Zhang AL, Lin L, Xue CC, Wu L. Clinical evidence for acupuncture for adult asthma: Systematic review and meta-analysis of randomised sham/placebo-controlled trials. Complement Ther Med. 2023 Aug;75:102956. https://doi.org/10.1016/j.ctim.2023.102956

Objective	Acupuncture is a widely used asthma therapy, but the benefits remain uncertain. This study aimed to access the effectiveness of acupuncture for treatment of asthma in adults.
Methods	Five English databases and four Chinese databases were searched from inception to November 2021. Randomised sham/placebo-controlled trials meeting inclusion criteria were included. Risk of bias was evaluated according to the Cochrane Review Handbook, and data analysis was performed in RevMan 5.4.1. Quality of evidence was assessed using the Grading of Recommendations Assessment, Development and Evaluations (GRADE) profiler.
Results	**Sixteen randomised controlled trials (RCTs)** were included in the meta-analysis. Results indicated that acupuncture was well-tolerated and could improve FEV1% compared with sham/placebo acupuncture [MD 6.11, 95% CI 0.54-11.68, I2 = 93%, number of participants (n) = 603]. Acupuncture also improved Cai's Asthma Quality of Life Questionnaire (AQLQ) (MD 7.26, 95% CI 5.02-9.50, I2 = 0, n = 358), and reduced the asthma symptom score (SMD -2.73, 95% CI -3.59 to -1.87, I2 = 65%, n = 120). One study showed acupuncture increased the Asthma Control Test (ACT) score (MD 2.00, 95% CI 0.90-3.10, n = 111), and decreased exacerbation frequency (MD -1.00, 95% CI -1.55 to -1.45, n = 111). Other lung function and medication use parameters were not statistically significant.
Conclusions	Acupuncture versus sham/placebo control appeared to improve quality of life, FEV1%, symptoms, and asthma control, and reduced exacerbation frequency per year. Further studies with appropriate controls, more participants, and high-quality evidence are needed.

1.1.3. Jiang 2019 ☆☆

Jiang C, Jiang L, Qin Q. Conventional Treatments plus Acupuncture for Asthma in Adults and Adolescent: A Systematic Review and Meta-Analysis. Evid Based Complement Alternat Med. 2019. [193330].

Objectives	The efficacy of conventional treatments plus acupuncture for asthma in adult and adolescent is uncertain. Literature reports are conflicting; therefore, the aim of this study was to determine the efficacy of conventional treatments plus acupuncture versus conventional treatments alone using a meta-analysis of all published randomized clinical trials (RCTs).

Methods	Two reviewers independently performed a comprehensive literature search from multiple electronic sources (1990-2018), including PubMed, EMBASE, the Cochrane Library, Web of Science, China National Knowledge Infrastructure, and WanFang databases. RCTs in which adult and adolescent patients with asthma (age ≥12 years) were divided into conventional treatments plus acupuncture and conventional treatments alone were included.
Results	**Nine studies were included**. The results showed that conventional treatments plus acupuncture as a complementary therapy could improve the symptom response rate (OR = 7.87, 95% CI = [4.13, 14.99], p < 0.00001) and significantly decrease interleukin-6 (IL-6) levels (MD = -11.42; 95% CI = [-15.28, -7.56], p < 0.00001). However, indices of pulmonary function, including the forced expiratory volume in one second (FEV1) (MD = 0.22, 95% CI = [-0.11, 0.56], p = 0.19) and FEV1/forced vital capacity (FVC) (MD = 8.62, 95% CI = [-0.35, 17.59], p = 0.06), failed to be improved with conventional treatments plus acupuncture.
Conclusion	Conventional treatments plus acupuncture are associated with significant benefits for adult and adolescent patients with asthma. Therefore, we suggest the use of conventional treatments plus acupuncture for asthma patients.

1.1.4. Li 2018 ☆

Li Meng-Yuan, Wang Hong-Feng, Wang Zhao-Hui. [Meta-Analysis of Acupuncture Treatment of Bronchial Asthma Clinical Literature]. Lishizhen Medicine and Materia Medica Research. 2018;(8). [176450].

Objective	To systematically evaluate the effectiveness of acupuncture in treating asthma.
Methods	A computer-based online search of Pubmed, Chinese Journal Full-text Database (CNKI),VIP database and Wanfang database was conducted from October 2010 to October 2017 on clinical research of acupuncture for bronchial asthma. Randomized controlled trials were selected for meta-analysis.
Results	A total of 7 articles were included in the literature, with a total of 658 patients with bronchial asthma. The analysis showed that the total effective rate of acupuncture in treating bronchial asthma was better than that of the control group [OR = 4. 20,95% confidence interval CI(2. 54,6. 95),P < 0. 00001], suggesting that the difference between the two groups was statistically significant.
Conclusion	Acupuncture and moxibustion as the main treatment can significantly improve the total effective rate of treatment, but there are fewer articles involved and the literature is biased. Therefore, more high-quality articles are needed for further study.

1.1.5. Yu 2010 ☆

Yu L, Zhang Y, Chen C, Cui HF, Yan XK. [Meta-analysis on randomized controlled clinical trials of acupuncture for asthma]. Chinese Acupuncture and Moxibustion. 2010. 30(9):787-92. [155070].

Objective	To assess the efficacy of acupuncture and moxibustion for asthma by meta-analysis of randomized controlled clinical trials.
Methods	A literature search in VIP, CNKI, PubMed and HighWire was performed to retrieve clinic trials documents about acupuncture for asthma from 2000 to 2009. The meta-analysis was conducted on RCT and CCT documents that meet the enrolling requirements.

Results	**Twenty-two trials including 3058 cases** of asthma patients were included in this study. The findings indicates that the total effective rate in acupuncture group was significantly superior to control group [OR 4.18, 95% CI (3.36, 5.20), Z = 12.85, P < 0.00001]; there was no significant difference in FEV1 measurements between two groups [OR = 0.20, 95% CI (-0.37, 0.76), Z = 0.68, P = 0.50]; there was profound significant difference in PEFR measurements between two groups [OR = 0.42, 95% CI (0.22, 0.62), Z = 4.06, P < 0.0001]; there was profound significant difference in FVC measurements between two groups [OR = 0.45, 95% CI (0.17, 0.72), Z = 3.22, P = 0. 001]; there was profound significant difference in FEV1/FVC measurements between two groups [OR = 9.58, 95% CI (8.14, 11.02), Z = 13.03, P < 0.00001].
Conclusion	**Acupuncture and moxibustion therapy can significantly improve the total effective rate of acupuncture for asthma**. PEFR, FVC, FEV1 /FVC can be used as effectiveness indicators for evaluating the treatment for asthma. The FEV1 measurements did not have statistic significance. Due to the small number of RCT/CCT documents, the bias of the literatures and the lack of high-quality, large sample and multi-center reports, further studies are needed to explore the evidence of the findings.

1.1.6. Passalacqua 2006 Ø

Passalacqua G, Bousquet Pj, Carlsen Kh, Kemp J, Lockey Rf, Niggemann B, Pawankar R, Price D, Bousquet J. Aria Update: I-Systematic review of complementary and alternative medicine for rhinitis and asthma. J Allergy Clin Immunol. 2006;117(5):1054-62. [141267]

Background	Complementary-alternative medicines are extensively used in the treatment of allergic rhinitis and asthma, but evidence-based recommendations are lacking.
Methods	To provide evidence-based recommendations, the literature was searched by using MedLine and the Cochrane Library to March 2005 (Key words: Asthma [OR] Rhinitis, [AND] Complementary [OR] Alternative Medicine, [OR] Herbal, [OR] **Acupuncture**, [OR] Homeopathy, [OR] Alternative Treatment). Randomized trials, preferably double-blind and published in English, were selected. The articles were evaluated by a panel of experts. Quality of reporting was assessed by using the scale validated by Jadad. The methodology of clinical trials with complementary-alternative medicine was frequently inadequate.
Results	**Meta-analyses provided no clear evidence for the efficacy of acupuncture in rhinitis and asthma**. Some positive results were described with homeopathy in good-quality trials in rhinitis, but a number of negative studies were also found. Therefore it is not possible to provide evidence-based recommendations for homeopathy in the treatment of allergic rhinitis, and further trials are needed. A limited number of studies of herbal remedies showed some efficacy in rhinitis and asthma, but the studies were too few to make recommendations. There are also unresolved safety concerns.
Conclusions	Therapeutic efficacy of complementary-alternative treatments for rhinitis and asthma is not supported by currently available evidence.

1.1.7. Györik 2004 ~

Györik SA, Brutsche MH. Complementary and alternative medicine for bronchial asthma: is there new evidence? Curr Opin Pulm Med. 2004;10(1):37-43. [161182].

Purpose	Complementary and alternative medicine is widely used in bronchial asthma. Data on efficacy of these treatment modalities are lacking.

Recent findings	Studies published since June 2002 on complementary and alternative medicine in bronchial asthma were systematically reviewed. **Studies do not support the use of homeopathy, air ionizers, manual therapy, or acupuncture for asthma**. These methods bear some risks to patients related to undertreatment and side effects. There might be a possible, but so far not clearly established, role for antioxidant dietary supplementation, and some natural antiinflammatory and immunomodulatory remedies. However, their effect size compared with the classical treatment and side-effect profile is not clearly established. Strategies influencing breathing technique or perception, such as breathing or retraining exercises, need to be studied over the next few years to establish their additive role in the treatment of asthma. Breathing exercises could improve lung function and quality of life in different studies. Psychotherapy-related methods such as relaxation, hypnosis, autogenic training, speleotherapy, and biofeedback might have a small effect in selected cases, but have not proven to be superior to placebo.
Conclusions	Nevertheless, more randomized controlled trials of good methodological quality are required to allow firm conclusions.

1.1.8. Mccarney 2003 Ø

Mccarney RW, Brinkhaus B, Lasserson TJ, Linde K. Acupuncture for chronic asthma. Cochrane Database of Systematic Reviews. 2003. [141319].

Background	Acupuncture has traditionally been used to treat asthma in China and is used increasingly for this purpose internationally.
Objectives	The objective of this review was to assess the effects of acupuncture for the treatment of asthma or asthma-like symptoms.
Methods	Search strategy We searched the Cochrane Airways Group Specialised Register(searched August 2005), the Cochrane Complementary Medicine Field trials register, the Alternative Medicine Database (August 2005) and reference lists of articles. We also contacted trialists and researchers in the field of complementary and alternative medical research. Selection criteria Randomised and possibly randomised trials using needle acupuncture or other forms of stimulation of acupuncture. Any form of control treatment was considered (no treatment in addition to conventional asthma treatment, sham or placebo interventions, active comparator interventions). Studies were included provided outcome was assessed at one week or more. Data collection and analysis At least two reviewers independently assessed trial quality. A reviewer experienced in acupuncture assessed the adequacy of the active and sham acupunctures used in the studies. Study authors were contacted for missing information.
Main results	**Eleven studies met the inclusion criteria with 324 participants**. Trial reporting was poor and trial quality was deemed inadequate to generalise findings. There was variation in the type of active and sham acupunctures, the outcomes measured and time-points presented. The points used in the sham arm of some studies are used for the treatment of asthma according to traditional Chinese medicine. Two studies used individualised treatment strategies and one study used a combination strategy of formula acupuncture with the addition of individualised points. No statistically significant or clinically relevant effects were found for acupuncture compared to sham acupuncture. Data from two small studies were pooled for lung function (post-treatment FEV1): Standardised Mean Difference 0.12,95% confidence interval -0.31 to 0.55).
Authors' conclusions	**There is not enough evidence to make recommendations about the value of acupuncture in asthma treatment**. Further research needs to consider the complexities and different types of acupuncture.

1.1.9. Steurer-Stey 2002 Ø

Steurer-Stey C, Russi EW, Steurer J. Complementary and alternative medicine in asthma: do they work? Swiss Med Wkly. 2002; 132(25-26):338-44. [164539].

Objective	An increasing number of patients with asthma are attracted by complementary and alternative medicine (CAM). Therefore, it is of importance that scientific evidence about the efficacy of this type of therapy is regarded.
Method	We searched the electronic databases Medline, Embase and the Cochrane Library for controlled trials and systematic reviews to evaluate the evidence of the most popular alternative therapies, i.e. **acupuncture**, homeopathy, breathing techniques, herbal and nutritional therapies.
Results	**Claims that acupuncture is effective for the treatment of asthma are not based on well-performed clinical trials**. The role of homeopathy in the treatment of asthma needs further evaluation. Breathing techniques, e.g. improved control of breathing by yoga, may contribute to the control of asthma symptoms, but due to the small number of controlled trials and due to the small number of patients it is not possible to make firm judgments. Herbal remedies cannot be recommended based on the available evidence. Recommendations for a diet high in vitamin C and marine fatty acids are not harmful, but evidence for clinically meaningful effects are scant.
Conclusion	Up to now evidence is lacking that alternative forms of medicine are more effective than placebo in asthma. However, lack of evidence does not always mean that treatment is ineffective, but it could mean that effectiveness has not been adequately investigated. High quality research as in conventional therapy should be fostered in complementary medicine.

1.1.10. Martin 2002 Ø

Martin J et al. Efficacy of acupuncture in asthma : systematic review and meta-analysis of published data from 11 randomised controlled trials. Eur Respir J. 2002. 20(4):846-52. [111353].

Background	Contradictory results from randomised controlled trials of acupuncture in asthma suggest both a beneficial and detrimental effect.
Methods	The authors conducted a formal systematic review and meta-analysis of all randomised clinical trials in the published literature that have compared acupuncture at real and placebo points in asthma patients. The authors searched for trials published in the period 1970-2000. Trials had to measure at least one of the following objective outcomes: peak expiratory flow rate, forced expiratory volume in one second (FEV1) and forced vital capacity. Estimates of the standarised mean difference, between acupuncture and placebo were computed for each trial and combined to estimate the overall effect. Hetereogeneity was investigated in terms of the characteristics of the individual studies.
Results	**Twelve trials met the inclusion criteria** but data from one could not be obtained. Individual patient data were available in only three. Standardised differences between means ranging from 0.071 to 0.133, in favour of acupuncture, were obtained. The overall effect was not conventionally significant and it corresponds to an approximate difference in FEV1 means of 1.7. After exploring hetereogenenity, it was found that studies where bronchoconstriction was induced during the experiment showed a conventionally significant effect.

Conclusions	**This meta-analysis did not find evidence of an effect of acupuncture in reducing asthma**. However, the meta-analysis was limited by shortcomings of the individual trials, in terms of sample size, missing information, adjustment of baseline characteristics and a possible bias against acupuncture introduced by the use of placebo points that may not be completely inactive. There was a suggestion of preferential publication of trials in favour of acupuncture. There is an obvious need to conduct a full-scale randomised clinical trial addressing these limitations and the prognostic value of the aetiology of the disease.

1.1.11. Linde 1998 Ø

Linde K, Jobst K, Panton J. Acupuncture for the treatment of asthma bronchiale. Cochrane Database Of Systematic Reviews. 1998;CD000008. [95961].

Background	Acupuncture has traditionally been used to treat asthma in China and is used increasingly for this purpose internationally.
Objectives	The objective of this review was to assess the effects of acupuncture for the treatment of asthma or asthma-like symptoms. Search strategy: We searched the Cochrane Airways Group trials register, the Cochrane Complementary Medicine Field trials register and reference lists of articles. Selection criteria: Randomised and possibly randomised trials using acupuncture to treat asthma and asthma-like symptoms. Acupuncture could involve the insertion of needles or other forms of stimulation of acupuncture points. Data collection and analysis: Trial quality was assessed by at least two reviewers independently. A reviewer experienced in acupuncture assessed the adequacy of the sham acupuncture. Study authors were contacted for missing information.
Main results	Seven trials involving 174 people were included. Trial quality varied and results were inconsistent. No statistically significant or clinically relevant effects were found for acupuncture compared to sham acupuncture. However the points used in the sham arm of some studies are used for the treatment of asthma according to traditional Chinese medicine. Only one study used individualised treatment strategies. Lung function could be compared statistically in only 3 trials. Peak expiratory flow rate showed a statistically insignificant increase of 8.4 litres/minute weighted mean difference (95% confidence interval -29.4 to 46.2) when acupuncture was compared to sham acupuncture.
Reviewers' conclusions	There is not enough evidence to make recommendations about the value of acupuncture in asthma treatment. Further research needs to consider the complexities and different types of acupuncture.

1.1.12. Vickers 1997 ~

Vickers AJ et al. Analysis of the evidence profile of the effectiveness of complementary therapies in asthma: a qualitative survey and systematic review. Complementary Therapies in Medicine. 1997. 5(4):202-9. [68172].

Objectives	To provide information necessary for the strategic planning of research on the effectiveness of complementary therapies in asthma.

Design	A qualitative study of the views of patient representatives, researchers, doctors and complementary practitioners followed by a systematic review of randomized trials of complementary therapy interventions in asthma. Main outcome measure Qualitative study : views on research priorities in complementary medicine and asthma ; Systematic review : intervention, number of treatments, number of patients, control group, blinding, length of follow-up, patients and outcome measures.
Results	Qualitative study : randomized trials were seen as essential ; there was disagreement about the role of placebos with some respondents wanting to know whether particular therapies had specific effects whilst others sought information about the overall effects of a treatment; there was support for trials where interventions are examined as they are practised ; it was thought that outcome assessment needed to be longterm. Systematic review : Thirty-five papers were included in the review, 29 of which examined either acupuncture of self-regulation techniques such as yoga or relaxation. With the exception of the latter, most studies were small, short-term, placebo-controlled, assessed lung function rather than patient-assessed symptoms and investigated a treatment not widely found in clinical practice. Trials on self-regulation techniques tended to be larger, involved longer-term follow-up and investigated the techniques normally used by practitioners.
Conclusions	There are numerous points of disparity between what is sought from research on complementary medicine in asthma and what has been published. Future research should be problem-led.

1.1.13. Linde 1996 Ø

Linde K, Worku F, Stör W, et al. Randomised clinical trials of acupuncture for asthma - a systematic review. Forsch Komplementärmed. 1996;3:148-55. [170705].

Objective	To provide an overview of the evidence from randomized clinical trials about the efficacy and effectiveness of acupuncture in the treatment of asthma.
Methods	Data Sources: Relevant articles were identified through Medline, Embase and databases of complementary medicine, checking of references in articles and contacts with researchers. Study Selection: Randomized clinical trials of acupuncture in asthma patients. Data Extraction and Quality Assessment: Trial characteristics were extracted by two independent observers on standardized forms. Description and adequateness of the investigated acupuncture strategy were assessed by four experienced acupuncturists in a blind fashion. Methodological quality was assessed by two unblinded reviewers using two scales for internal validity.
Results	**15 eligible trials** (all with a 'dummy acupuncture' control condition and patients blinded, 10 with evaluators blinded, 8 with cross-over) including a total of 307 patients (range 12 to 39) were identified. The trials differed considerably regarding patients, study models, treatment and control interventions, methodological quality, adequateness of acupuncture, and outcome measures precluding quantitative meta-analysis. Study results were highly contradictory.
Conclusions	**There is insufficient data to draw reliable conclusions about the effectiveness of acupuncture treatment for asthma**. As acupuncture is frequently applied in this condition there is urgent need for further research, which should focus on pragmatic, clinically relevant questions

1.1.14. Kleijnen 1991 ~

Kleijnen J et al. Acupuncture and asthma : a review of controlled trials. Thorax. 1991. 46(11):799-802. [70051].

Background	published controlled trials of acupuncture in asthma have often contained a small number of subjects and the results are contradictory. Controlled trials have been reviewed to determine whether clearer conclusions could be obtained by assessing as many studies as possible according to methodological criteria.
Methods	a literature search produced 13 trials on the efficacy of acupuncture in the treatment of patients with asthma. These studies were reviewed on the basis of 18 predefined methodological criteria. A maximum of 100 points for study design could be earned in three main categories: (a) adequate study population, (b) adequate intervention, and © adequate measurement of effects.
Results	the quality of even the eight better studies (more than 50% of the maximum score) proved to be mediocre. No study earned more than 72% of the maximum score. The results from the better studies are highly contradictory.
Conclusions	claims that acupuncture is effective in the treatment of asthma are not based on the results of well performed clinical trials.

1.2. Special Acupuncture Techniques

1.2.1. Meridian-based Intervention

1.2.1.1. Wang 2019

Wang MH, Chen C, Yeh ML, Lin JG. Using Traditional Chinese Medicine to Relieve Asthma Symptoms: A Systematic Review and Meta-Analysis. Am J Chin Med. 2019;47(8):1659-1674. [208485]. doi

Background	Studies have demonstrated the effect of acupoint-based interventions in relieving the clinical symptoms of asthma. However, the effect of meridian-based interventions in asthma symptom relief is unknown.
Methods	This systematic review and meta-analysis determined the effect of multiplex meridian interventions in asthma symptom relief. Eight electronic databases were searched for relevant randomized controlled trials (RCTs) that involved patients with asthma, were published before March 2018, used acupoint stimulation interventions targeting acupoints that correspond to meridians, and considered asthma symptom relief as an outcome. In 204 RCTs that were identified and used in a meta-synthesis, meridians were used 521 times, with the bladder meridian being the most frequently used. Furthermore, 23 RCTs were included in the meta-analysis. Egger's and inconsistency tests revealed no significant differences among the studies (P>0.05). However, the interventions differed significantly in terms of asthma symptom relief effect, as demonstrated by pairwise (odds ratio [OR]=0.28, 95% confidence interval=0.21-0.37) and network (OR=0.18, 95% credibility interval=0.08-0.41) meta-analyses. Surface under the cumulative ranking (SUCRA) revealed that the bladder-conception vessel-governor vessel-stomach multiplex meridian intervention was more effective than non-meridian interventions in relieving asthma symptoms. Additionally, either bladder-conception vessel-stomach or bladder-conception vessel-governor vessel-kidney multiplex meridians may be selected in interventions.
Conclusions	This study suggests that practitioners target multiplex meridians, especially the meridians of the bladder and conception vessel, to effectively relieve asthma symptoms.

1.2.2. Acupoint Herbal Patching

1.2.2.1. Liu 2022 (as an add-on to asthma medication)

Liu X, Li J. Effects of acupoint herbal patching as an add-on to asthma medication during Sanfu days, as the hottest days in summer, on the acute attack, the immunological response, and the pulmonary function in asthmatic children: A meta-analysis. Medicine (Baltimore). 2022 Sep 16;101(37):e30247. https://doi.org/10.1097/MD.0000000000030247

Background	A meta-analysis was performed to evaluate the effect of acupoint herbal patching as an add-on to asthma medication during Sanfu days, as the hottest days in summer, on the acute attack, immunological response, and the pulmonary function in asthmatic children.
Methods	A systematic literature search up to July 2021 was performed and **13 studies** included **1166 asthmatic children** at the start of the study; 587 of them were using acupoint herbal patching as an add-on to asthma medication during Sanfu days and 579 were given asthma medication only.
Results	Acupoint herbal patching as add-on to asthma medication had significantly lower frequency of acute attack (mean difference [MD], -1.57; 95% confidence interval [CI], -2.28 to -0.85, P < .001), lower asthma relapse (odds ratio, 0.13; 95% CI, 0.04-0.43, P < .001), and higher forced expiratory volume in 1 second (MD, 1.72; 95% CI, 0.89-2.65, P < .001), higher peak expiratory flow rate (MD, 1.15; 95% CI, 0.37-1.93, P = .004), lower immunoglobulin E after treatment (MD, -123.81; 95% CI, -185.60 to -62.02, P < .001), and higher interferon-gamma after treatment (MD, 7.17; 95% CI, 2.42-11.92, P = .003) compared to asthma medication only in asthmatic children.
Conclusions	Acupoint herbal patching as an add-on to asthma medication during Sanfu days had a significantly lower frequency of acute attack, lower asthma relapse, higher forced expiratory volume in 1 second, higher peak expiratory flow rate, and higher interferon-gamma after treatment in asthmatic children compared to asthma medication only in asthmatic children.

1.2.2.2. Hu 2021 (combined with western medicine therapy)

Hu J, Zhang C, Zhao S, Ge K, Di K, Wang H, Liu L. A systematic review and meta-analysis of acupoint application combined with western medicine therapy in the treatment of bronchial asthma. Ann Palliat Med. 2021 Nov;10(11):11473-11481. https://doi.org/10.21037/apm-21-2507

Background	This study aimed to evaluate and compare the efficacy and safety of acupoint application therapy (AAT) with conventional western medicine therapy (CWMT) and CWMT in the treatment of bronchial asthma. Since there are several researches reporting AAT with CWMT for bronchial asthma and there is little comprehensive analysis on this topic, we conducted this research.
Methods	Randomized controlled trials on the use of AAT with CWMT in the treatment of bronchial asthma published between 2009 and 2020 were retrieved from the PubMed, Embase, Cochrane Library, and CNKI (Chinese National Knowledge Institute) databases. Studies meeting the inclusion criteria were selected for meta-analysis. Forest plot, sensitivity analysis and publication bias assessment were carried out in this article.

Results	**Eight studies involving 1,520 patients** were included in the meta-analysis. The clinical effect of AAT with CWMT in the treatment of asthma was superior to that of CWMT [mean difference (MD) =2.66 with 95% confidential interval (CI) (2.03, 3.49); overall effect P value <0.00001 and I2=89%]. There was no difference in adverse events between AAT with CWMT and CWMT [odds ratio (OR) =1.45; 95% CI: 0.62, 3.39; I2=0% and P of overall effect =0.4]. CWMT had higher ineffectiveness rate than AAT with CWMT (OR =0.29; 95% CI: 0.22, 0.38; P=0.33; I2=13%). According to the statistical analysis results, the AAT with CWMT group had higher overall effectiveness rate than the CWMT group (OR =0.29; 95% CI: 0.22, 0.38; P=0.33, fixed-effects model), with low heterogeneity (P=0.29; I2=13%).
Discussion	AAT with CWMT has a superior clinical effect to CWMT in patients with asthma, and there is no difference in adverse events between the two treatments. Therefore, AAT with CWMT should be promoted as a treatment for bronchial asthma.

1.2.2.3. Wei 2020

Wei C, Zhang X, Li P, Li W. Acupoint herbal patching during Sanfu Days on reducing frequency of acute asthma attack in children: A systematic review and meta-analysis. Medicine (Baltimore). 2020;99(5). [205632]. DOI

Objective	Acupoint herbal patching (AHP) is an external therapy of Traditional Chinese Medicine. This systematic review and meta-analysis sought to evaluate whether AHP during Sanfu Days has additional benefits in children with asthma.
Methods	A comprehensively electronic literature search was performed in the Cochrane Library, PubMed, Embase, CNKI, VIP, and WanFang databases from their inception to March 2019. Randomized controlled trials that evaluated the AHP during Sanfu Days treatment for pediatric asthma were included. The main outcome measures were frequency of acute asthma attack, relapse of asthma, and pulmonary function.
Results	Eleven trials involving 882 children with asthma were identified. White mustard seed, rhizoma corydalis, and radix kansui were the most frequently used herbs. Adjunctive treatment with AHP significantly reduced the frequency of acute asthma attack (mean difference [MD] -1.62 times/year; 95% confidence intervals [CI] -2.13 to -1.11). Moreover, AHP improved the peak expiratory flow (standardized mean differences [SMD] 0.61; 95% CI 0.39-0.82) and forced expiratory volume in 1 s (SMD 0.48; 95% CI 0.31-0.66).
Conclusions	Application of AHP during Sanfu Days has additional benefits in reducing the frequency of acute attack and improving pulmonary function in children with asthma. However, the current findings should be interpreted with caution owing to the methodological flaws of the analyzed trials.

1.2.2.4. Luo 2018 ☆

Luo Ming, Yang Ren-Da, Sun Lu, Lan Wei, Zhu Chong-Zheng, Huang Wen-Tao. [Meta-analysis on Randomized Controlled Clinical Trials of Dog Days Plaster for Asthma]. Chinese Journal of Basic Medicine in TCM. 2018;24(10):1460. [192356].

Objective	To evaluate the clinical efficacy of dog days plaster in the treatment of asthma by meta-analysis.

Methods	Computer was used to retrieval China national knowledge internet (CNKI), VIP database (VIP), Wanfang database (WF), Cochrane Library, PubMed and Web of Science. Setting the search time was up to August 18, 2017. All randomized controlled trials of dog days plaster in the treatment of bronchial asthma was retrieved. Meta-analysis was performed using Review Manager 5.3.
Results	A total of ll articles were included. It was founded by meta analysis that treatment group compared with the control group:the total efficiency [OR = 3.27, 95% CI(2. 19, 4. 87) , Z = 5. 82, P <0. 000011, maximum expiratory flow (PEF) [OR = 0. 28 , 95% CI (0. 08 , 0. 47) , Z = 2. 81, P = 0. 005 <0. 051 , the first second forced expiratory volume ratio the forced vital capacity (FEV1/FVC) L OR = 7. 28 , 95% CI (9. 41 , 13. 93) , Z =10. 87, P < 0. 000011 had statistically significant difference between the two groups. The first second forced expiratory volume (FEVI) [OR = -0.05, 95% CI(-0.21, 0. 21) , Z = 0.01 , P = 0.99 >0. 051 had no statistically difference between the two groups.
Conclusion	Dog days plaster is effective in treating asthma and is superior to other therapies, such as western medicine and acupuncture. Which can improve PEF, FEV1/ FVC, but has no obvious effect on FEV1. Due to the small number of literature and the lack of high quality clinical RCT, and the literature may be exist published bias, so the conclusion should to be further researched.

1.2.2.5. Zhou 2017 ☆

Zhou F, Liang N, Maier M, Liu JP. Sanfu acupoint herbal patching for stable asthma: A systematic review and meta-analysis of randomised controlled trials. Complement Ther Med. 2017; : 40-53. [191947].

Objectives	Sanfu acupoint herbal patching (SAHP) is extensively used in people with stable asthma in China. However, the evidence available is scarce. This systematic review aims to evaluate the preventive and therapeutic effect and safety of SAHP in people with stable asthma.
Methods	We searched seven electronic databases for randomised controlled trials (RCTs). The Cochrane risk of bias tool was utilised to evaluate the methodological quality of the included studies and RevMan 5.3 and GRADEpro 3.6.1 were applied to perform data analyses.
Results	A total of **34 RCTs involving 3313 participants were included**. The overall methodological quality of the trials was of high risk of bias. SAHP plus conventional therapy (CT) decreased the mean frequency (times per year) of asthma exacerbations compared with CT alone (MD: -1.42; 95% CI: -2.19 to -0.65; 7 RCTs), and similar effect was found for SAHP versus sham SAHP (MD: 0.42; 95%CI: 0.26-0.69; 1 RCT). For lung function (including PEF%, FEV1% and FEV1/FVC), SAHP plus CT showed better effect than CT alone, and so did SAHP versus sham SAHP on PEF and PEF%. Adverse effects in the SAHP groups were reported to be mild and well tolerated.
Conclusions	**SAHP alone or combined with CT appears to be more effective than sham SAHP or CT on reduction of asthma exacerbations**, improving lung function, and SAHP seems to be safe. However, the findings should be interpreted with caution due to limitations in trial quality. Further, rigorously designed, large-scale trials are warranted for robust evidence.

1.2.2.6. Su 2016 ☆☆

Su L, Meng L, Chen R, Wu W, Peng B, Man L. Acupoint application for asthma therapy in adults: a systematic review and meta-analysis of randomized controlled trials. Forsch Komplementmed. 2016;23(1):16-21. [167029]

Purpose	To evaluate the evidence available on the effects of acupuncture point (acupoint) application for asthma therapy in adults.
Methods	Six electronic databases were searched up to May 2014 to identify relevant studies. Randomized controlled trials, which assessed the effects of acupoint application for asthma treatment in adults, were included in our review. The methodological quality of eligible studies was assessed by the Cochrane Collaboration's tool. The standardized mean difference (SMD) and 95% confidence intervals (CI) of a random-effects model were calculated. The heterogeneity was assessed using I2 statistics.
Results	**Eight studies** were included in our review. The aggregated results indicated that acupoint application improved forced expiratory volume in 1 second (FEV1) (SMD,0.32; 95% CI 0.04–0.60; p = 0.03), FEV1/forced vital capacity (SMD, 0.89; 95% CI 0.70–1.09; p < 0.00001), interleukin (SMD,–0.26; 95% CI –0.50 to –0.01; p = 0.04) and immunoglobulin E(SMD, –0.49; 95% CI –0.83 to –0.16; p = 0.004) in patients with asthma, but not eosinophilic cation protein (SMD, –0.58;95% CI –1.42 to 0.26; p = 0.18). There was no sufficient evidence for the follow-up effects of acupoint application for asthma therapy in adults
Conclusion	**Acupoint application may be a valid complementary and alternative therapy for asthma in adults**. It contributes especially to improving pulmonary function and reducing the levels of interleukin and immunoglobulin E.

1.2.2.7. Lee 2016 ☆

Lee SH, Chang GT, Zhang X, Lee H. Acupoint Herbal Patching for Asthma: A Systematic Review and Meta-analysis of Randomized Controlled Trials. Medicine (Baltimore). 2016;95(2):1-12. [173798].

Objectives	Acupoint herbal patching (AHP), which involves local point stimulation with a herbal medicine patch, has long been used to treat patients with asthma in East Asian countries. However, its evidence is equivocal. This systematic review aims to summarize and critically evaluate the efficacy and safety of AHP for asthma.
Methods	A literature search was conducted in PubMed, EMBASE, the Cochrane library, and the China National Knowledge Infrastructure for studies published on or before April 2014, which were randomized controlled trials (RCTs) examining AHP therapy by itself or in combination with other treatments in asthma patients. Trials needed to report pulmonary function outcomes to be included in analyses. The risk of bias of included studies was assessed using the Cochrane risk of bias assessment tool. For statistical pooling, risk ratio, mean difference (MD), or standardized MD was calculated with 95% confidence intervals (CIs) in a random-effects model.
Results	We ultimately included **16 RCTs with 1287 asthmatic patients** in analyses. Treatment with AHP improved forced expiratory volume in 1second (FEV1) by 13% (MD=12.99%, 95% CI 5.17%-20.81%) and asthmatic symptoms by 60% (risk ratio of unchanged or getting worse symptoms with AHP=0.4, 95% CI 0.27-0.58) over that observed with placebo. However, evidence is limited due to the heterogeneity and paucity of data. When added to conventional therapies, AHP significantly improved the FEV1/forced vital capacity ratio by 11.6% (95% CI 8.49%-14.79%) and reduced the risk of asthmatic symptoms by 69% (95% CI 0.16-0.58). Compared with conventional medication, AHP significantly improved FEV1 (standardized MD=0.46, 95% CI 0.05-0.87), but a substantial heterogeneity was detected (I=53%). When added to Chinese herbal medicine, there were no additional benefits of AHP on pulmonary function or global symptom improvement. No serious adverse events were associated with AHP.

Conclusions	**Evidence for AHP efficacy is encouraging, but not conclusive**, because of clinical diversity and the high risk of bias in the examined studies. Further clinical and basic research is needed to determine the role of AHP in lung function and symptom improvement in patients with asthma.

1.2.2.8. Chan 2015 ☆

Chan CW, Lee SC, Lo KC, Wong HK, Li L. Tian jiu therapy for the treatment of asthma in adult patients: a meta-analysis. J Altern Complement Med. 2015; 21(4):200-7. [160451].

Objectives	To review and evaluate the efficacy and safety of tian jiu therapy on san fu tian for adults with asthma.
Methods	A literature search through August 31, 2013, was done to identify comparative studies evaluating effective rate, pulmonary function, immune response, recurrence rate, quality of life, and adverse events. The Cochrane Library, PubMed, EMBASE, and Chinese National Knowledge Infrastructure were searched; only randomized controlled trials with treatment groups using tian jiu therapy were included. Cochrane Collaboration's risk of bias tool and Review Manager software, version 5.2, were used for the data synthesis.
Results	**Six studies involving 657 patients were identified**. Tian jiu therapy was more effective than the control intervention (odds ratio [OR], 3.51; 95% confidence interval [CI], 2.05-6.00; p<0.00001; I(2)=18%). The treatment group had a bigger decrease in IgE level (standard mean difference [SMD], -1.40; 95% CI, -2.18 to -0.63; p=0.0004; I(2)=85%) and Eosinophil (Eos) level (SMD, -4.26; 95% CI, -6.28 to -2.23; p<0.00001; I(2)=91%) compared with the control group. Included studies had a high risk of bias. Few adverse effects were reported in the included studies, and no serious adverse responses occurred. Adverse effects did not result in any dropouts.
Conclusions	**All studies indicated that tian jiu therapy has a positive effect on adults with asthma** and that it is relatively safe because of its noninvasive nature. However, the limitations of the research design of the existing studies resulted in high risk of bias. More randomized controlled trials of better methodologic quality are needed to further confirm efficacy and safety of this therapy.

1.2.2.9. Wen 2015 ☆

Wen CYZ, Liu YF, Zhou L, Zhang HX, Tu SH. A Systematic and Narrative Review of Acupuncture Point Application Therapies in the Treatment of Allergic Rhinitis and Asthma during Dog Days. Evidence-Based Complement Alternat Med. 2015. ID 846851, [184039].

Introduction	Acupuncture point application therapies, including San-Fu-Tie and San-Fu-Jiu, have been widely employed to **treat diseases with attacks in winter during dog days** in China. The therapies combine Chinese herbal medicine and acupuncture points with the nature. However, the previous studies were reported to be unsystematic and incomplete.
Methods	To develop a more comprehensive understanding of the effects of acupuncture point application therapies on allergic rhinitis and asthma, a systematic review of the literature up to 2015 was conducted.

Results	After filtering, **eighteen randomized controlled trials (RCTs) involving 1,785 subjects** were included. This systematic and narrative review shows that acupuncture point application therapies have been extensively applied in the treatment of allergic rhinitis and asthma with advantages of favorable treatment effect, convenient operation, receiving patients' good acceptability and compliance, and few side effects. Meanwhile, the study elaborated the operating process of San-Fu-Tie and San-Fu-Jiu in detail.
Conclusion	The review may provide a reference for clinical application in future. However, the efficacy, safety, and mechanisms of San-Fu-Tie and San-Fu-Jiu in treating the above diseases need to be validated by more well-designed and fully powered RCTs in a larger population.

1.2.2.10. Bi 2013 ☆☆

Bi Wen-Qing, Zhuang Li-Xing, He Jun. [Meta - analysis on acupoint application therapy of "treating winter diseases in summer" for preventing and curing asthma]. Journal of Clinical Acupuncture and Moxibustion. 2013. 29(9):44. [175396].

Objective	To evaluate the efficacy of acupoint application therapy of "treating winter diseases in summer" for preventing and curing asthma.
Methods	A comprehensive literature search combining computer and manually in CBMdisc, CNKI, Chongqing VIP, PubMed database of all published randomized controlled clinical research on acupoint application therapy of "treating winter diseases in summer" for preventing and curing asthma, then take a Meta-analysis.
Results	**15 trials were included, a tota1 of 1636 cases of asthma patients**. The findings indicated that the tota1 effective rate in acupoint application group was significantly superior to control group (OR =3. 45 ,95% CI[2.51, 4.74], Z =7.61, P <0. 000 01) ; there was a profoundly significant difference in FEVI/FVC measurements between two groups (WMD = 15. 85, 95% CI[11.82, 19.88], Z =7.70, P <0. 000 01) ; there was no significant difference in FEV1 measurements between two groups (WMD = 12.87, 95%CI[-0.65, 26.40], Z = 1.87, P= 0.06) ; the difference of AQLA between two groups was statistically significant, too (WMD =7. 25 ,95% CI[3.65, 10.85], Z =3.95, P <0. 000 1).
Conclusion	Acupoint application therapy of "treating winter diseases in summer" can significantly improve the total effective rate for the treatment of asthma, improve the patient's lung function indicators like FEV1/FVC, improve the quality of patient life, but they can not show the improvement of effectiveness in FEV1.

1.2.3. Moxibustion

1.2.3.1. Chen 2016 (Heat-sensitive Moxibustion) ☆

Chen Xinyu, Shu Hua, Wu Zhiyan, Zhang Shiying, Liu Youzuo, Cai Huzhi, Wang Xiaoying, Li Zuo. [Systematic Review of Curative Effect of Heat-sensitive Moxibustion on Bronchial Asthma]. Journal of Clinical Acupuncture and Moxibustion. 2016;32(5):51-55. [185897].

Objective	To systematically assess the clinical research of heat sensitive moxibustion(NSM)on bronchial asthma.

Methods	Log in National Knowledge Infrastructure(CNKI), V1P, Wanfang Data Knowledge Service Platform and China Biology Medicine disc(CBM)and search the literatures that are relevant to IISM treatment on bronchial asthma and screen and eliminate the Literatures we received. Use Review manager 5. 3 software version for the homogeneous research references to process the Meta-analysis.
Results	The result of Meta-analysis showed that the combined OR of total effective rate of HSM treatment on bronchial asthma was 1.88, 95%C1[1.23,2.86□□with the combined effect Z=2.94 (P<0.003); the comparison of FEVI improvement combined MD was 1.57, 95%CI[-0.58,3.73□with the combined effect Z=1.43 (P=0. 15).
Conclusion	Compared with the conventional treatment, the HSM is more effective on bronchial asthma.

1.2.3.2. Xiong 2014 (Heat-sensitive Moxibustion) ☆

Xiong J, Liu Z, Chen R, Xie D, Chi Z, Zhang B. Effectiveness and safety of heat-sensitive moxibustion on bronchial asthma: a meta-analysis of randomized control trials. J Tradit Chin Med. 2014. 34(4):392-400. [174960].

Objective	To systematically evaluate the effectiveness and safety of heat-sensitive moxibustion (HSM) on asthma.
Methods	Large databases in China and overseas were searched by electronic and manual means to collect information on randomized controlled trials (RCTs). Two evaluators independently extracted data and evaluated the quality of RCTs according to Cochrane Review Handbook v5.0. RevMan v5.0.20 was used for statistical analyses.
Results	Fourteen RCTs involving 637 patients were collected. **Thirteen RCTs compared the effects of HSM and Western Medicine**. After 3-month treatment and after 6-month follow-up, there was no significant difference in effective rate [relative risk (RR) = 1.01, 95% CI (0.92, 1.12), and 1.12, (0-93, 1.36), respectively], in the asthma control test score of asthma symptoms [weighted mean difference (WMD) = - 1.54, 95% CI (- 3.54, 0.47), and 1.41, (- 0.48, 3.29), respectively] and in the forced expiratory volume in 1 second (FEV1) and peak expiratory flow (PEF). **One RCT compared the effect of HSM with warm-suspended moxibustion**. After 6-month follow-up, there was a significant difference in FEV1 and PEF [WMD = 0.51, 95% CI (0.10, 0.92), and 1.78, (1.06, 2.50), respectively]. After 3-month treatment, there was no significant difference between the two groups. One RCT compared the effect of HSM with acupoint application. After 3-month treatment, there was no significant difference in the effective rate [RR = 0.68, 95% CI (0.42, 1.12)].
Conclusion	**HSM did not show superiority to conventional Western Medicine and acupoint application in terms of curative effects, and may be superior to warm-suspended moxibustion with regard to long-term curative effects**. Because of low quality of the included RCTs, this conclusion must be bolstered with higher-quality RCTs.

1.2.4. Laser Acupuncture

1.2.4.1. Zhang 2012 (Children) Ø

Zhang J, Li X, Xu J, Ernst E. Laser acupuncture for the treatment of asthma in Children: a systematic review of randomized controlled trials. J Asthma. 2012. 49(7):773-7. [168485]. |

Background and Objectives	Laser acupuncture has often been recommended as a treatment of asthma. The technique is noninvasive, and seems particularly suitable for children. However, the results from several clinical trials are contradictory. The objective of this review was to assess the effectiveness of laser acupuncture in the treatment of childhood asthma.
Methods	Literature searches of electronic database were conducted in The Cochrane Library, Medline, EMBASE, AMED, CINAHL, and two Chinese literature databases (CNKI and VIP) up to February 2012. Randomized controlled trials (RCTs) testing laser acupuncture for asthma in children were included. No language restrictions were applied. Three authors independently selected articles, extracted data, and assessed trial quality.
Results	Our searches identified 13 potential eligible studies, of which **three with a total number of 176 patients met our inclusion criteria**. The quality of included RCTs were low. One RCT with a parallel group design showed positive results, while two crossover RCTs generated negative results. There was variation in the type of patients, the interventions, and outcome measures. Because of the significant clinical and methodological heterogeneity, no meta-analysis was performed.
Conclusions	The number of RCTs and their total sample sizes are small; and their methodological quality is low. Therefore, **no compelling evidence exists to suggest that laser acupuncture is not an effective treatment for childhood asthma**. Further rigorous studies are warranted.

1.2.5. Pharmaco-acupuncture

1.2.5.1. Bang 2017

Bang M, Chang Seju, Kim Hyun et al. Pharmacopuncture for asthma: A systematic review and a meta-analysis of randomized controlled trials. European Journal of Integrative Medicine. 2017;11: 6-17. [206028]. doi

Introduction	Pharmacopuncture, a new type of acupuncture treatment in traditional East Asian medicine combining acupuncture and the injection of herbal medicine, is widely used for asthma in China and Korea. However, the evidence is equivocal. This systematic review aims to summarize and evaluate the efficacy of pharmacopuncture for asthma.
Methods	Eleven electronic databases and five journals were searched. Randomized controlled trials (RCTs) assessing the efficacy of pharmacopuncture for asthma were included. The risk of bias was assessed using the Cochrane risk of bias assessment tool. Data analysis was conducted using RevMan Rsoftware (version 5.3).
Results	**Eighteen RCTs involving 1624 patients** with asthma were included for qualitative synthesis. Data from 12 RCTs were used for meta-analysis. There were various types of pharmacopuncture used. Use of Chuankezhi pharmacopuncture (CKZ PA) and Huangqi pharmacopuncture (HQ PA) usually overlapped among included studies. Subgroup analysis was conducted after dividing experimental groups into two groups: CKZ PA and HQ PA. When added to conventional therapy, pharmacopuncture significantly improved the response rate (RR = 1.18, 95% CI: 1.12–1.24, I2 = 0%), forced expiratory volume in 1 s (FEV1) (SMD = 1.31, 95% CI: 0.59–2.03, P = 0.0004, I2 = 94%) and peak expiratory flow (PEF) (SMD = 0.62, 95% CI: 0.22–1.01, P = 0.002, I2 = 76%).
Conclusions	Evidence of pharmacopuncture efficacy for asthma is encouraging, but not conclusive, because of the low methodological qualities, substantial heterogeneity, and small sample sizes of the examined studies. Further research using large-scale, rigorous study designs should be conducted

1.2.5.2. Pei 2016 ☆

Pei Xue, Liqiong Wang, Mei Han, Wenyuan Li, Jianping Liu. Acupoint injection for asthma: Systematic review of randomized controlled trials. Journal of Traditional Chinese Medical Sciences. 2016;3(1):22-36. [158943].

Objective	To assess the effectiveness and safety of acupoint injection for the treatment of asthma.
Methods	Six electronic databases were searched for randomized controlled trials (RCTs) of acupoint injection for asthma. Two authors extracted data and assessed methodological quality independently using the Cochrane Collaboration Risk of Bias tool. Data were evaluated using RevMan v5.2.
Results	**Eighteen RCTs involving 1913 participants** with asthma were identified. Overall methodological quality of the RCTs was classified as unclear risk of bias. Western medicine (12 RCTs) was injected most frequently into acupoints, followed by Chinese herbal medicine (four RCTs), vitamins (one RCT), and Chinese herbal medicine combined with Western medicine (one RCT). Four RCTs used only one acupoint [ST36 (two RCTs), BL13, CV22], whereas the other RCTs selected multiple acupoints (among which BL13 was used most frequently). One RCT reported mortality, no RCT reported quality of life, 15 RCTs reported the symptom improvement rate, one RCT reported asthma control test (ACT) data, one RCT reported the duration of asthma, three RCTs reported the mean time that asthma was controlled (MTAC), and 13 RCTs reported lung-function tests (LFTs). Some RCTs showed acupoint injection may improve the attack time of asthma, MTAC, and LFTs. Five RCTs reported the outcome of adverse events and showed no significant differences between the acupoint injection group and control group.
Conclusions	The findings suggest that **acupoint injection may be effective for improving ACT data, duration of asthma, MTAC and LFTs**. However, the evidence is insufficient owing to the poor methodological quality of the RCTs.

1.2.5.3. Shen 2011 ☆

Shen FY, Lee MS, Jung SK. Effectiveness of pharmacopuncture for asthma: a systematic review and meta-analysis. Evid Based Complement Alternat Med. 2011;678176. [158623].

Objectives	Pharmacopuncture is a new needle therapy that integrates acupuncture and herbal therapies, and it has the potential to treat many diseases. A systematic review was performed to summarize and critically evaluate clinical trial evidence regarding the effectiveness of pharmacopuncture for asthma.
Methods	Eight electronic databases and six journals were searched in this study. Randomized clinical trials (RCTs) in which human patients with asthma were treated with pharmacopuncture were included. The selection of studies, data extraction, and validation were performed independently by two reviewers.
Results	**Four RCTs met our inclusion criteria**, and the evidence from all RCTs in this study was positive. The meta-analysis showed statistically significant effects of pharmacopuncture compared to conventional treatment (n = 341, Risk Ratio = 1.13, 95% CI of 1.05 to 1.23, P = .002, heterogeneity: $\chi(2) = 3.55$, P = .31, $I(2) = 16\%$). Two trials showed favorable effects of pharmacopuncture on peak expiratory flow (PEF). However, few rigorous trials have tested the effects of pharmacopuncture on asthma.
Conclusions	**The results of our systematic review point to the potential benefits of pharmacopuncture for adults with asthma**, and we suggest further RCTs and the development of a standard method of pharmacopuncture therapy.

1.2.6. Comparison of Acupuncture techniques

1.2.6.1. Wang 2023

Wang X, Zeng S, Li Z, Li Y, Jia H. A network meta-analysis of different acupuncture modalities in the treatment of bronchial asthma. BMC Pulm Med. 2023 Sep 22;23(1):357. https://doi.org/10.1186/s12890-023-02645-8

Background	Glucocorticoids and Beta-2 receptor agonists are commonly used for the treatment of asthma in clinical practice, while these agents are accompanied by adverse reactions of different kinds. Studies have shown that acupuncture is effective in treating bronchial asthma. However, different acupuncture modalities have different costs and skill requirements, and there remains a lack of comparisons between different acupuncture modalities. This study aims to assess the efficacy of various acupuncture modalities in the treatment of asthma.
Methods	The following databases were searched for randomized controlled trials (RCTs) on acupuncture for the treatment of bronchial asthma from database inception to August 26, 2022: PubMed, Embase, The Cochrane Library, Web of Science, Chinese Journal Full-text Database (CNKI), Wanfang Database (Wanfang Date), VIP Database (VIP), China Biology Medicine disc (CBM). Stata 15.1 software was used to conduct network meta-analysis. The risk of bias in the included studies was evaluated using the Cochrane Risk of Bias Assessment Tool 2 (RoB2).
Results	A total of 8,693 relevant studies were found, and **30 RCTs** were included, involving **2,722 patients** with bronchial asthma and eight acupuncture modalities: manual acupuncture, moxibustion, electroacupuncture, ignipuncture, flying needle acupuncture, acupoint catgut embedding, acupoint application, and warm-needle moxibustion. The other 29 studies had certain risks, with the quality graded as “moderate”. Among the pair-wise comparisons of statistical significance ($p < 0.05$), acupoint application was the most effective in improving pulmonary function (FEV1: Traditional medicine therapy-acupoint application [-7.29 (-12.11,-2.47)]; acupoint application-moxibustion [7.20 (0.28,14.11)]; FVC: acupoint application-Traditional medicine therapy [8.02 (2.54,13.50)]). Acupoint catgut embedding was the most effective in improving the ACT score of the patients (Traditional medicine therapy-acupoint catgut embedding [-4.29 (-7.94, -0.65)]; acupoint catgut embedding-moxibustion [5.52 (1.05,9.99)]).
Conclusion	Acupoint application has evident merits in improving the clinical response rate and pulmonary function, while acupoint catgut embedding can improve other secondary indicators. For the clinical treatment of asthma, acupoint application can be selected as a complementary and alternative therapy, while the other acupuncture therapies can also be considered according to the examination results of the patients.

1.3. Special Clinical Forms

1.3.1. Asthma in Children

1.3.1.1. Wang 2025

Wang J, Fan S, Su K, Zhang J, Lu X, Guo S, Hu S. Effectiveness and safety of acupuncture and related therapies for pediatric asthma: a systematic review and meta-analysis. Front Med (Lausanne). 2025;12:1626830. https://doi.org/10.3389/fmed.2025.1626830

Background	Objectives: This study aims to investigate the efficacy and safety of acupuncture and related therapies as an adjunct to standard treatment (ST) in children with asthma.
Methods	Randomized controlled trials (RCTs) comparing acupuncture combined with ST versus ST alone for pediatric asthma have been included. 8 databases and 3 clinical trial registries were searched, with the search completed up to January 31, 2025. The risk of bias in the included studies was assessed using the Risk of Bias 2 (RoB 2) tool. Data from the included studies were analyzed using R software version 4.4.2. The quality of evidence was evaluated using the Grades of Recommendations, Assessment, Development, and Evaluation (GRADE) approach.
Results	A total of **16 randomized controlled trials involving 1,675 participants** have been included. Compared to ST, the addition of acupuncture has significantly improved the percent predicted values of forced expiratory volume in 1 second (FEV1pred%) [MD = 6.02, 95% CI (1.28, 10.76), p = 0.0128]. No significant effect on forced expiratory volume in 1 second/forced vital capacity (FEV1/FVC) has been observed [MD = 3.36, 95% CI (-0.76, 7.48), p = 0.1097]. In addition, acupuncture has significantly reduced serum immunoglobulin E (IgE) levels [SMD = -0.88, 95% CI (-1.21, -0.55), p < 0.0001]. It has significantly increased serum immunoglobulin A (IgA) levels [MD = 0.31, 95% CI (0.22, 0.41), p < 0.0001]. It has also significantly improved serum immunoglobulin G (IgG) levels [MD = 1.71, 95% CI (1.39, 2.02), p < 0.0001]. Acupuncture has significantly increased peak expiratory flow (PEF) [MD = 3.15, 95% CI (1.16, 5.14), p = 0.0019]. It has significantly reduced serum interleukin-4 (IL-4) levels [SMD = -2.40, 95% CI (-2.75, -2.05), p < 0.0001]. Acupuncture has significantly decreased eosinophil (EOS) levels [MD = -1.06, 95% CI (-1.68, -0.43), p = 0.0010]. However, acupuncture has shown no significant effect on the pediatric asthma quality of life questionnaire (PAQLQ) scores [MD = 0.01, 95% CI (-0.39, 0.40), p = 0.9778].
Conclusion	Acupuncture has shown positive effects on certain serum immune and inflammatory biomarkers and FEV1 in pediatric asthma. It has not shown beneficial effects on FEV1/FVC. A substantial proportion of the evidence has been of low quality, and confidence in the results has been downgraded due to a serious risk of bias and inconsistency. The actual effects may differ substantially from the findings of this study. High-quality randomized controlled trials are still needed to confirm these findings in the future.

1.3.1.2. Zhang 2025

Zhang J, Ye Z, Guo F, Ye Y, Yu X, Song Z, Zhang F, Gu N, Ao M, Liu Q. Efficacy of non-pharmacological interventions for childhood asthma: a systematic review and network meta-analysis. BMC Pediatr. 2025;25(1):927. https://doi.org/10.1186/s12887-025-06115-4

Background	Childhood asthma is a prevalent chronic respiratory disease. While inhaled corticosteroids and β-agonists remain cornerstone treatments, growing evidence highlights the complementary role of non-pharmacological interventions in improving asthma outcomes. This study aimed to systematically evaluate the efficacy of diverse non-pharmacological approaches through a network meta-analysis (NMA).
Methods	Seven English and Chinese databases were searched from their inception to April 1, 2025, for randomized controlled trials (RCTs) related to non-pharmacological intervention in childhood asthma. The risk of bias was assessed using the Cochrane risk of bias tool (ROB). Network meta-analysis was conducted using R 4.2.0 and Stata 14.0 software.

Results	A total of 41 studies with 3164 participants were included. Involved structured exercise programs, controlled breathing techniques, **traditional moxibustion therapy**, psychological interventions, and traditional therapeutic massage adjuvant treatment measures. Five asthma outcome indicators were focused on: FEV1, FVC, PEF, PAQLQ, and FeNO. The ROB was low in the included studies. The NMA of two-by-two comparisons showed that all non-pharmacological adjunctive interventions were able to improve asthma symptoms better, with exercise training improving FEV1 (MD = 3.67, 95%CI [1.39, 5.95]), PEF (MD = 6.07, 95%CI [1.07, 11.07]), and PAQLQ (MD = 0.93, 95%CI [0.33, 1.52]) with statistical significance ($p < 0.05$).
Conclusion	Five non-pharmacological interventions for childhood asthma demonstrated consistent efficacy across all modalities in alleviating asthma symptoms. Psychological interventions emerged as the optimal adjunctive therapy for improving FEV1, while exercise training exhibited the most potent therapeutic effect on FVC. Furthermore, massage therapy demonstrated superior efficacy in enhancing PEF, PAQLQ scores, and FeNO levels.

1.3.1.3. Wei 2020

Wei C, Zhang X, Li P, Li W. Acupoint herbal patching during Sanfu Days on reducing frequency of acute asthma attack in children: A systematic review and meta-analysis. Medicine (Baltimore). 2020;99(5). [205632]. DOI

Objective	Acupoint herbal patching (AHP) is an external therapy of Traditional Chinese Medicine. This systematic review and meta-analysis sought to evaluate whether AHP during Sanfu Days has additional benefits in children with asthma.
Methods	A comprehensively electronic literature search was performed in the Cochrane Library, PubMed, Embase, CNKI, VIP, and WanFang databases from their inception to March 2019. Randomized controlled trials that evaluated the AHP during Sanfu Days treatment for pediatric asthma were included. The main outcome measures were frequency of acute asthma attack, relapse of asthma, and pulmonary function.
Results	Eleven trials involving 882 children with asthma were identified. White mustard seed, rhizoma corydalis, and radix kansui were the most frequently used herbs. Adjunctive treatment with AHP significantly reduced the frequency of acute asthma attack (mean difference [MD] -1.62 times/year; 95% confidence intervals [CI] -2.13 to -1.11). Moreover, AHP improved the peak expiratory flow (standardized mean differences [SMD] 0.61; 95% CI 0.39-0.82) and forced expiratory volume in 1 s (SMD 0.48; 95% CI 0.31-0.66).
Conclusions	Application of AHP during Sanfu Days has additional benefits in reducing the frequency of acute attack and improving pulmonary function in children with asthma. However, the current findings should be interpreted with caution owing to the methodological flaws of the analyzed trials.

1.3.1.4. Liu 2015 ☆

Liu CF, Chien LW. Efficacy of acupuncture in children with asthma: a systematic review. Ital J Pediatr. 2015.[176658].

Background	We performed a systematic review of the efficacy of various types of acupuncture in the treatment of asthma in children.

Methods	We searched the MEDLINE, Embase, and Cochrane Library databases up to October 20, 2014. Randomized controlled trials (RCTs) of children and adolescents (<18 years of age) with asthma were included. Data extraction was applied, and methodologic quality was assessed.
Results	A total of 32 articles were assessed for eligibility, and **seven studies comprising 410 patients** were included in the systematic review. Two RCTs showed significant improvement in peak expiratory flow (PEF) variability for acupuncture (traditional and laser) vs. Control, with one showing significant improvement in asthma-specific anxiety level, but no significant differences in other lung function parameters or quality of life. Another RCT reported significant benefits of laser acupuncture on lung function parameters but did not describe or report statistical analyses. One crossover RCT showed significant improvements in response to both acupuncture and placebo acupuncture, with better improvements with acupuncture compared to placebo acupuncture (forced exhaled volume in 1 s [FEV1], PEF). Two additional crossover RCTs showed no significant differences between single sessions of laser acupuncture and placebo acupuncture on baseline, postacupuncture, and postinduced bronchoconstriction values (% predicted FEV1, maximum expiratory flow). A recent study showed a significant effect of acupuncture paired with acupressure on medication use and symptoms in preschool-age children. Methodologic and reporting variability remains an issue. However, the results suggest that acupuncture may have a beneficial effect on PEF or PEF variability in children with asthma.
Conclusions	**The efficacy of acupuncture on other outcome measures is unclear**. Large-scale RCTs are needed to further assess the efficacy of acupuncture in the treatment of asthma in children.

1.3.2. Cough-Variant Asthma

1.3.2.1. Xiong 2021

Xiong J, Qi W, Yang H, Zou S, Kong J, Wang C, Zhou Y, Liang F. Acupuncture Treatment for Cough-Variant Asthma: A Meta-Analysis. Evid Based Complement Alternat Med. 2021. [218248]. doi

Background	In recent years, there have been many clinical reports on acupuncture treatment of cough-variant asthma, but no researcher has objectively analysed and evaluated the efficacy and safety of acupuncture treatment of cough-variant asthma from the perspective of evidence-based medicine.
Objective	To systematically evaluate the clinical efficacy and safety of acupuncture in treating cough-variant asthma and to provide reference values for clinical decision-making.
Methods	The comprehensive computer retrieval Chinese journal full-text database (CNKI), Chinese science and technology periodical database (VIP), ten thousand data knowledge service platform (WanFang Data), PubMed, Embase, and the Cochrane Library were used to collect literature for relevant randomized controlled trials (RCT) of acupuncture treatment of cough-variant asthma, as well as to retrieve papers and add reference retrieval after literature review, in accordance with the standard of literature filtering, data extraction, and quality evaluation. The data were meta-analysed using ReviewManager5.3 software recommended by Cochrane.
Results	A total of **11 randomized controlled clinical** studies were screened and included, comprising **929 patients**. The results of the meta-analysis showed that, compared with the control group, acupuncture intervention on CVA could enhance the total clinical effectiveness rate, reduce the relapse rate of drug withdrawal, relieve symptoms of cough, phlegm, and diaphragmatic congestion, and improve lung function-related indicators and immune inflammation indicators. There were statistically significant differences in all efficacy evaluation criteria.

Conclusion	The clinical curative effect of acupuncture treatment for cough-variant asthma is precise and has certain advantages in relieving symptoms and reducing the recurrence rate. However, the low quality of the evaluation in the RCT research literature is a problem, and more high-quality clinical randomized controlled trials are needed to further verify the comprehensive clinical efficacy and safety of this treatment.

2. Overviews of systematic reviews

2.1. Zhu 2025

Zhu Y, Yang J. Effectiveness and safety of acupuncture therapy for bronchial asthma: a systematic review and meta-analysis. J Asthma. 2025;62(10):1717-1728. https://doi.org/10.1080/02770903.2025.2513630

Background	Objective: This systematic review and meta-analysis aimed to evaluate the effectiveness and safety of various acupuncture therapies for bronchial asthma.
Methods	A comprehensive literature search was conducted in multiple databases to identify systematic reviews and meta-analyses investigating acupuncture therapies for asthma. The therapies included traditional acupuncture, electroacupuncture, warm needling, moxibustion, cupping, auricular acupuncture, scalp acupuncture, acupoint embedding, and acupoint injection. The primary outcome was total efficacy rate, with secondary outcomes including symptom relief rate, pulmonary function tests (FEV1, FVC, FEV1/FVC, PEF), and other relevant measures. The methodological quality of evidence was evaluated using the AMSTAR 2 tool.
Results	**Fourteen systematic reviews encompassing 167 primary studies with a total of 15,088 participants** were included. The meta-analysis revealed that acupuncture therapies significantly improved the total efficacy rate compared to control interventions (Risk Ratio = 1.11, 95% CI: 1.03-1.20, p = 0.006), with remarkably low heterogeneity among studies (I2=0.0%). Acupuncture also showed benefits in symptom relief and some pulmonary function parameters. Regarding safety, only three of the 14 included reviews reported safety outcomes, in addition to an overall low to moderate quality of evidence as assessed by AMSTAR 2, and safety reporting was notably insufficient.
Conclusion	This systematic review and meta-analysis suggest that acupuncture therapies may be effective in improving symptoms and some functional outcomes in patients with bronchial asthma. However, due to the limitations in study quality, heterogeneity, and inadequate safety reporting, further high-quality research is needed to confirm these findings and establish optimal acupuncture protocols for asthma management.

3. Clinical Practice Guidelines

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

3.1. University of Michigan Health System (UM-HS, USA) 2021 Ø

Ambulatory Adult and Pediatric Care Asthma Guideline. University of Michigan Health System. 2021;:63P. [219373]. URL

Recommendation: Non-traditional treatments have not shown significant beneficial effects for asthma.
Non-traditional treatments, including manual therapy, acupuncture, Vitamin C, herbal interventions, and avoidance of monosodium glutamate (MSG), have not shown significant beneficial effects for asthma.

3.2. National Asthma Council Australia 2020 (NACA, Australia) Ø

Australian Asthma Handbook. Australia's national guidelines for asthma management (version 2.1). National Asthma Council Australia. 2020. [202402]. URL

Acupuncture : Insufficient or conflicting evidence.

- **GERA comments**. References : Mccarney 2003, Passalacqua 2006.

3.3. Scottish Intercollegiate Guidelines Network (SIGN, Scotland) 2016 Ø

British guideline on the management of asthma. 2016. Scottish Intercollegiate Guidelines Network (SIGN). 2016:214P. [196466].

A Cochrane review of 21 trials highlighted many methodological problems with the studies reviewed. A later systematic review and meta-analysis of 11 randomised controlled trials found no evidence of an effect in reducing asthma severity but a suggestion that where bronchoconstriction was induced to establish efficacy of acupuncture there was a beneficial effect.

3.4. U.S. Navy Bureau of Medicine and Surgery (USA) 2013 ⊕

Acupuncture. U.S. Navy Bureau of Medicine and Surgery. 2013.17p. [180539].

Category B (limited evidence): Authorized but not recommended for routine use (consider as adjunct). Asthma

3.5. Michigan medicine University of Michigan (USA) 2011 Ø

Asthma. Guidelines for Clinical Care Ambulatory. Michigan medicine University of Michigan. 2011:25P. [198388].

Non-traditional treatments, including manual therapy, acupuncture, and Chinese herbal medicine, have not shown significant beneficial effects.

3.6. National Asthma Education and Prevention Program (NAEPP, USA) 2007 Ø

Expert Panel Report 3 (EPR-3): Guidelines for the Diagnosis and Management of Asthma–Summary Report 2007. J Allergy Clin Immunol 2007;120:). 2007;120:S94-138. [197395].

Acupuncture is not recommended for the treatment of asthma.

3.7. Registered Nurses' Association of Ontario (RNAO, Canada) 2004 Ø

Adult Asthma Care Guidelines for Nurses: Promoting Control of Asthma. Registered Nurses' Association of Ontario. 2004:122p. [197065].

People with asthma frequently search for complementary therapies to treat their asthma. Whether these treatments are used solely or as adjuvant, there is insufficient evidence demonstrating clinical benefit from complementary therapies (homeopathy, chiropractic, **acupuncture**, hypnosis and relaxation techniques, herbal medicine as well as Chinese, Japanese and Indian medicines) (Level I or II, depending on the therapy).

3.8. Haute Autorité de Santé (HAS, France) 2001 Ø

HAS. Éducation thérapeutique du patient asthmatique adulte et adolescent (argumentaire). Paris: Haute Autorité de Santé (HAS). 2001. 109p. [168267].

II.6. Les traitements qui n'ont pas fait la preuve de leur efficacité. La spéléothérapie (séjour dans un environnement souterrain tel que caves, mines) en vogue dans certains pays de l'Europe centrale et de l'Europe de l'Est, les manipulations, **l'acupunctur**e et les techniques posturales (technique d'Alexander) ont été analysées par la Cochrane Library. Il n'a pas été retrouvé d'études satisfaisantes sur le plan méthodologique permettant d'en préciser les indications.

3.9. Canadian Medical Association 1999 Ø

Boulet LP, Becker A, Bérubé D, Beveridge R, Ernst P. Canadian Asthma Consensus Report, 1999. Canadian Asthma Consensus Group. CMAJ. 1999;161(11 Suppl):S1-61. [197388].

There is no objective evidence of any benefit, apart from placebo effect, from the more frequently used unconventional therapies such as acupuncture, chiropractic, homeopathy, naturopathy, osteopathy and herbal remedies (level I or III, depending on the therapy).