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# Tourette Syndrome

## Syndrome de Gilles de la Tourette : évaluation de l'acupuncture

### 1. Systematic Reviews and Meta-Analysis

#### 1.1. Generic Acupuncture

##### 1.1.1. Lai 2025

Lai S, Wan H, Deng F, Li Y, An Y, Peng J, Yang XN. Efficacy and Safety of Acupuncture for Tourette Syndrome in Children: A Meta-Analysis and Systematic Review. Clin Pediatr (Phila). 2025 Jun;64(5):719-735. <https://doi.org/10.1177/00099228241283279>

Background	Despite the widespread use of acupuncture, its effectiveness and safety in treating Tourette syndrome (TS) remain controversial. Our research seeks to further evaluate the safety and effectiveness of acupuncture as a replacement therapy approach for children with TS.
Methods	We conducted a comprehensive search for studies published from their inception to October 2023. The statistical analysis and subgroup analysis were conducted by software. Conduct a meta-analysis on the extracted data using the appropriate effect models.
Results	The meta-analysis was conducted on <b>26 studies consisting 1862 pediatric patients</b> , which were selected from 976 identified articles. Acupuncture group demonstrated a significantly lower risk with a risk ratio (RR) of 0.29 (95% confidence interval [CI] = 0.19, 0.44, P < .0001), with only 5% of participants experiencing adverse reactions. Acupuncture treatment resulted in an 18% improvement in total effectiveness rates (RR = 1.18, 95% CI = [1.12, 1.25], P < .00001). The pooled data demonstrated that acupuncture therapy had a significant advantage in reducing the total score with the weighted mean difference (WMD) -4.92 (95% CI = [-6.38, -3.45], P < .00001) of the Yale Global Tic Severity Scale (YGTSS), the motor tic scores (WMD = -2.24, 95% CI = [-3.14, -1.35], P < .00001), the vocal tic scores (WMD: -2.34, 95% CI = [-3.31, -1.37], P < .00001), and the Traditional Chinese Medicine Syndrome Scores (TCMSS) (WMD: -2.47, 95% CI = [-2.87, -2.07], P < .0001).
Conclusion	This meta-analysis reveals that acupuncture is more effective than most existing treatments in mitigating the symptoms of motor and vocal tics in children with TS, while also reducing the incidence of adverse reactions.

##### 1.1.2. Zhou 2025

Zhou QQ, Li ZC, Hu ZY, Tang J, Tang P, Wu QR, Deng ZQ, Ma WB, Lan L. The effectiveness of acupuncture in the treatment of Tourette syndrome in Chinese children: a systematic review and meta-analysis. Front Public Health. 2025 Oct 2;13:1677592. <https://doi.org/10.3389/fpubh.2025.1677592>.

<b>Objective</b>	As a prominent complementary and alternative therapy, acupuncture is widely used to treat Tourette syndrome in children. This review aims to evaluate its clinical efficacy and provide evidence-based support for acupuncture in pediatric Tourette syndrome.
<b>Methods</b>	We systematically searched six databases: China National Knowledge Infrastructure, Wanfang Database, VIP Information Chinese Journal Service Platform, PubMed, Cochrane Central Register of Controlled Trials, and Embase, from their inception to 10 April 2025. Randomized controlled trials comparing acupuncture alone versus medication, or acupuncture plus other treatments versus other treatments alone, for children tic disorder were included.
<b>Results</b>	<b>Thirty-two studies were included, with 2,201 participants.</b> Acupuncture may be more effective in improving motor tics symptoms than dopamine agonist [WMD -3.04, 95% CI (-3.77, -2.31), RD 0.38 (0.29, 0.46)], slightly improving vocal tics [WMD -2.39, 95% CI (-3.51, -1.26), RD 0.21 (0.10, 0.35)] and overall condition [WMD -5.56, 95% CI (-7.28, -3.83), RD 0.05 (0.02, 0.09)], but having little difference in functional impairment [WMD -2.27, 95% CI (-3.58, -0.96), RD 0.14 (0.09, 0.20)]. Acupuncture may be more effective than blank treatment on basis of other therapies in improving motor tics [WMD -2.51, 95% CI (-3.54, -1.49), RD 0.31 (0.19, 0.41)] and vocal tics [WMD -2.56, 95% CI (-3.66, -1.45), RD 0.28 (0.15, 0.40)], but slightly improving functional impairment [WMD -2.91, 95% CI (-4.64, -1.19), RD 0.13 (0.05, 0.23)] and overall symptom severity [WMD -5.57, 95% CI (-7.47, -3.68), RD 0.11 (0.06, 0.17)].
<b>Conclusion</b>	Chinese children with Tourette syndrome using acupuncture may experience more improvement in motor tics symptoms than those using dopamine agonist. Acupuncture combined with other therapies may bring Chinese children with Tourette syndrome symptom relief in motor tics and vocal tics more than those alone. All results are supported by low-quality evidence.

### 1.1.3. Li 2024

Li J, Li C, Ma Y, Yuan M, Liu Y. Efficacy and Safety of Acupuncture Combined with Herbal Medicine for Children and Adolescents with Tourette Syndrome: A Systematic Review and Meta-Analysis. *Complement Med Res.* 2024;31(1):40-55. English. <https://doi.org/10.1159/000534115>

<b>Background</b>	With the increasing prevalence of Tourette syndrome (TS), the search for alternative therapy for TS is a growing public concern. In recent years, a growing number of randomized controlled trials (RCTs) have revealed the value of acupuncture combined with herbal medicine for the treatment of TS; however, its holistic efficacy and safety remains unclear. This study aimed to evaluate the efficacy and safety of acupuncture combined with herbal medicine and to provide preliminary evidence for clinical practice.
<b>Methods</b>	Eight databases were searched from their establishment to November 27, 2022, to collect RCTs of acupuncture combined with herbal medicine for TS treatment. Two researchers independently completed the study screening, data extraction, and risk of bias assessment by using NoteExpress, Excel, and Cochrane Risk of Bias Tool 2.0 (RoB 2.0). Stata 15.0 software was applied to conduct meta-analysis.
<b>Results</b>	A total of <b>1,400 participants in 18 RCTs</b> were included. Compared with the Western medicine, acupuncture combined with herbal medicine had better curative effect in the field of effective rate (risk ratio [RR] = 1.18, 95% CI: [1.12, 1.23], $p < 0.05$ , $I^2 = 0\%$ ), Yale Global Tic Severity Scale (YGTSS) total score (mean difference [MD] = -3.91, 95% CI: [-5.49, -2.33], $p < 0.05$ , $I^2 = 96.4\%$ ), TCM syndrome total score (MD = -2.42, 95% CI: [-3.71, -1.13], $p < 0.05$ , $I^2 = 87.1\%$ ), and serum IgE negative rate (RR = 3.41, 95% CI: [1.69, 6.87], $p < 0.05$ , $I^2 = 0\%$ ). Furthermore, acupuncture combined with herbal medicine reduced the adverse reaction rate (RR = 0.20, 95% CI: [0.14, 0.30], $p < 0.05$ , $I^2 = 0\%$ ) and the recurrence rate (RR = 0.27, 95% CI: [0.13, 0.52], $p < 0.05$ , $I^2 = 0\%$ ).

<b>Conclusion</b>	This study demonstrated the efficacy and safety of acupuncture combined with herbal medicine, which is probably a better alternative therapy for TS. However, the small number, low quality, and potential bias of the included studies caused the limitations of our results. More high-quality RCTs are required to provide supplementary evidence in the future.
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#### 1.1.4. Zhu 2020

Zhu Bochang. [Efficacy of acupuncture and moxibustion for treating Tourette syndrome: a meta analysis]. Journal of Modern Medicine & Health-. 2020. [212904].

<b>Objective</b>	To systematically evaluate the clinical efficacy of acupuncture and moxibustion in the treatment of Tourette syndrome.
<b>Methods</b>	The clinical randomized controlled trials of acupuncture and moxibustion in the treatment of Tourette syndrome with oral Western medicine as the control were retrieved from the databases of CNKI, Weipu Information Chinese periodical service platform (VIP), Wanfang database, Pubmed and Cochrane Library by computer. The retrieval time was from the establishment of the database to October 6, 2018. Acupuncture and moxibustion adopted the Cochrane system evaluation method and the RevMan 5. 3 software was used to systematically evaluate the included data.
<b>Results</b>	A total of <b>19 papers</b> involving <b>1 544 patients</b> with Tourette syndrome were included. The total effective rate of acupuncture and moxibustion for treating Tourette syndrome was significantly higher than that of oral Western medicine. The improvement of YGTSS score in the acupuncture and moxibustion had significant superiority than oral Western medicine, and the difference between them was statistically significant ( $P < 0.05$ ).
<b>Conclusion</b>	Acupuncture and moxibustion is effective in the treatment of Tourette syndrome. Compared with oral Western medicine, it has certain curative effect advantages. However, the quality of the included literatures is low and there are some biases. A large number of high-quality randomized controlled trials are needed for further support.

#### 1.1.5. Chung 2016

Chung Sun-Yong, Noh Byoung Jin, Lee Chang-Won, Hwang Man Ki et al. Acupuncture for Tourette syndrome: A systematic review and meta-analysis. European Journal of Integrative Medicine. 2016;8(5): 809-816. [207401].

<b>Introduction</b>	Tourette syndrome (TS) is a tic disorder with multiple motor and vocal or phonic tics. The effect of acupuncture for TS has not been well established.
<b>Methods</b>	English, Japanese, Korean and Chinese databases, were explored systematically for randomized controlled trials investigating the use of acupuncture for treating TS, up to August 2016, without language restrictions. All studies evaluating the effects of acupuncture were identified. Studies assessing the effect of moxibustion were excluded. All ages were considered. Data were extracted independently using predefined data fields, including study quality indicators. All pooled analyses were based on random-effects models. The authors individually evaluated risk of bias with the Cochrane Collaboration's tools.
<b>Results</b>	Nineteen Studies (N = 1483) were systematically reviewed. A significant benefit was observed for studies comparing acupuncture versus medication (pooled the risk ratio showed improvement by 1.17; 95% confidence interval: 1.10–1.25, $p < 0.00001$ ). Reporting of adverse events was poor with only one study which reported that there were no adverse events in their acupuncture treatment group.

<b>Conclusions</b>	This analysis provided limited evidence from studies for the practice of acupuncture in treating TS. However, the conclusions were limited by a high risk of bias. Future studies are needed to verify the superior features of acupuncture. Further study into the efficacy and safety of acupuncture is warranted.
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#### 1.1.6. Yu 2016 ☆

Yu J, Ye Y, Liu J, Wang Y, Peng W, Liu Z. Acupuncture for Tourette Syndrome: A Systematic Review. Evid Based Complement Alternat Med. 2016;1834646. [158338].

<b>Objectives</b>	Tourette syndrome (TS) is a neuropsychiatric disorder that affects both children and adults.
<b>Methods</b>	We searched for randomised controlled trials (RCTs) using acupuncture to treat TS written in English or Chinese without restrictions on publication status. Study selection, data extraction, and assessment of study quality were conducted independently by two reviewers. Meta-analyses were performed using Review Manager (RevMan) 5.3 software from the Cochrane Collaboration. Data were combined with the fixed-effect model based on a heterogeneity test.
<b>Results</b>	Results were presented as risk ratios for dichotomous data and mean differences (MDs) for continuous data. This review included <b>7 RCTs with a total of 564 participants</b> .
<b>Conclusions</b>	The combined results showed that <b>acupuncture may have better short-term effect than Western medicine for TS and that acupuncture may be an effective adjuvant therapy in improving the effect of Western medicine on TS</b> , but the evidence is limited because of existing biases. Rigorous high-quality RCTs are needed to verify these findings.

## 1.2. Special Acupuncture Techniques

### 1.2.1. Scalp acupuncture

#### 1.2.1.1. Lin 2025

Lin H, Chen X, Wang Z, Sun L. Efficacy and safety of scalp acupuncture in the treatment of Tic disorders in children: A meta-analysis based on randomized controlled trials. Explore (NY). 2025 Nov-Dec;21(6):103242. <https://doi.org/10.1016/j.explore.2025.103242>

<b>Background</b>	This study evaluates the efficacy and safety of scalp acupuncture in treating tic disorders.
<b>Methods</b>	We conducted a meta-analysis using data from <b>19 randomized controlled trials (RCTs) involving 1463 patients</b> , sourced from various databases up to May 16, 2023. Stata15.0 was used to assess clinical efficacy rate, YGTSS score, TCM syndrome score, adverse reactions, and long-term efficacy.
<b>Results</b>	Scalp acupuncture significantly reduced YGTSS and TCM syndrome scores and improved clinical efficacy rates compared to controls [YGTSS: RR=-3.54, 95 % CI (-5.16, -1.93), P < 0.05; TCM: RR=-1.86, 95 % CI (-2.60, -1.13), P < 0.05; Efficacy: RR=1.14, 95 % CI (1.06, 1.23), P < 0.05]. Adverse reaction rates were lower in the treatment group (7.29 % vs. 12.61 % in controls), but not statistically significant [OR=0.69, 95 % CI (0.40, 1.18), P > 0.005]. Long-term efficacy was also stable [RR=-1.98, 95 % CI (-3.57, -0.39), P < 0.05].

Conclusion	Scalp acupuncture is effective in improving tic disorder symptoms, increasing treatment efficacy, and maintaining long-term benefits. However, due to the low quality of included RCTs and potential publication bias, further high-quality, large-sample, multicenter RCTs are needed for a more robust evaluation.
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