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obesity:

Obésité : évaluation de l'acupuncture

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

1. Systematic Reviews and Meta-Analysis

1.1. Generic Acupuncture

1.1.1. Li 2025

Li Y, Yang J, Li Y, Hu H, Ung COL. Efficacy and safety of acupuncture for weight management: A systematic review and meta-analysis of randomized controlled trials. Complement Ther Med. 2025 Apr 4:103171. https://doi.org/10.1016/j.ctim.2025.103171

Introduction	Obesity is a chronic health problem worldwide, leading to an increased focus on weight management. Acupuncture is widely used in weight loss as traditional and complementary medicine because of its economy, simplicity, and safety. This study aimed to identify the latest evidence on acupuncture for weight loss and evaluate the efficacy and safety of the included randomized controlled trials (RCTs).
Methods	Seven databases were searched to identify RCTs published since January 2013 on using acupuncture for weight management. The STRICTA, CONSORT, and Cochrane Collaboration's Risk of Bias tools were used to evaluate the included trials' quality and risk of bias. All eligible trials were included in this meta-analysis.
Results	**Sixty-four trials** were included. Compared to control groups, acupuncture had a significant effect on BMI (mean difference (MD) = -2.15, 95% confidence interval (CI) = -2.86 to -1.44, P < 0.01), body weight (MD = -2.67, 95% CI = -4.07 to -1.28, P < 0.01), waist circumference (MD = -3.61, 95% CI = -4.72 to -2.50, P < 0.01), and some blood test indicators. Serious adverse events were not observed. However, the quality of the included trials was generally poor, and the risk of bias was uncertain.
Conclusions	Our study showed that acupuncture is effective for weight management. However, there are no clear conclusions regarding its safety. Studies of higher quality and longer duration are needed to improve the evidence base of acupuncture in weight management for clinical reference.

1.1.2. Zhao 2024

Zhao X, Wang Y, Li X, Hu P, Pan XF, He B, Liu Y, Hu Y, Zhu T. Acupuncture as an Adjunct to Lifestyle Interventions for Weight Loss in Simple Obesity: A Systematic Review and Meta-Analysis. Diabetes Metab Syndr Obes. 2024 Nov 20;17:4319-4337. https://doi.org/10.2147/DMSO.S484565

Objective	This study aims to evaluate the efficacy of acupuncture as an adjunct to lifestyle interventions on weight loss in simple obesity.

Methods	Potentially eligible studies that assessed anthropometric outcomes as well as glucose and lipid metabolism following acupuncture combined with lifestyle interventions in simple obesity patients were searched from eight databases from inception to October 2023. All analyses were performed using the Review Manager software v5.4 and Stata software v17.0.
Results	Herein, **25 randomized controlled trials (RCTs) involving 2018 patients** were included. Generally, acupuncture combined with lifestyle interventions outperformed lifestyle interventions alone in terms of body weight (MD = -4.73, 95% CI [-6.32, -3.13], p < 0.00001), body mass index (BMI) (MD = -2.11, 95% CI [-2.75, -1.48], p < 0.00001), waist circumference (WC) (MD = -4.96, 95% CI [-6.89, -3.03], p < 0.00001), body fat percentage (BF %) (MD = -2.61, 95% CI [-4,51, -0.71], p = 0.007), fasting plasma glucose (FPG) (SMD = -0.66, 95% CI [-1.02, -0.31], p = 0.0002), fasting serum insulin (FINS) (SMD = -1.12, 95% CI [-1.44, -0.81], p < 0.00001), homeostasis model assessment-insulin resistance (HOMA-IR) (MD = -1.22, 95% CI [-1.50, -0.94], p < 0.00001), total cholesterol (TC) (SMD = -1.14, 95% CI [-1.83, -0.45], p = 0.001), triglyceride (TG) (SMD = -1.31, 95% CI [-2.07, -0.56], p = 0.0006), and low-density lipoprotein cholesterol (LDL-C) (SMD = -1.81, 95% CI [-3.11, -0.51], p = 0.006). Subgroup analysis based on three subgroup variables (types of acupuncture and lifestyle interventions as well as treatment durations) could partially explain the heterogeneity of the results.
Conclusion	Acupuncture demonstrated an enhancing effect on the benefits of lifestyle interventions for weight loss in patients with simple obesity, including reducing body weight and improving glucose and lipid metabolism. This finding suggests its potential value as a complementary therapy alongside lifestyle interventions in a clinical setting. However, further validation with rigorously designed and high-quality RCTs is still needed in the future.

1.1.3. Kim 2022 (network meta-analysis) ☆☆

Kim SY, Shin IS, Park YJ. Comparative effectiveness of a low-calorie diet combined with acupuncture, cognitive behavioral therapy, meal replacements, or exercise for obesity over different intervention periods: A systematic review and network meta-analysis. Front Endocrinol (Lausanne). 2022 Aug 26;13:772478. https://doi.org/10.3389/fendo.2022.772478.

Objective	The aim of this study was to evaluate the comparative effectiveness of a low-calorie diet (LCD) combined with acupuncture, cognitive behavioral therapy (CBT), meal replacements (MR), and exercise on weight loss.
Methods	The electronic databases MEDLINE, EMBASE, CENTRAL, CNKI, RISS, and KISS were searched systematically. Randomized controlled trials (RCTs) that directly compared the effect of a low-calorie diet (LCD)-combined acupuncture, CBT, and exercise and an MR-based diet on weight loss with LCD-alone for adults with simple obesity (body mass index [BMI] > 25) published before August 2021 were included in the study. Two investigators extracted and coded the data using a template. Any disagreements between investigators were resolved through discussion. Changes in BMI or weight were transformed to Hedges' g values with a 95% CI, and network meta-analyses using a Bayesian random-effects model were conducted.

Results	A total of **thirty-two trials involving 3,364 patients** were finally included in the study. The effect sizes of four interventions were medium, in the order of acupuncture (Hedges' g = 0.48, 95% CI = 0.25 - 0.71), CBT (Hedges' g = 0.42, 95% CI = 0.20 - 0.63), MR (Hedges' g = 0.32, 95% CI = 0.19 - 0.45), and exercise (Hedges' g = 0.27, 95% CI = 0.06 - 0.46).In terms of intervention period, acupuncture was effective in the short period (≤ 12 weeks, Hedges' g = 0.39, 95% CI = 0.12 - 0.67) and the long period (>12 weeks, Hedges' g = 0.89, 95% CI = 0.37 - 1.40), whereas CBT (Hedges' g = 0.51, 95% CI = 0.26 - 0.76) and exercise (Hedges' g = 0.37, 95% CI = 0.12 - 0.59) were effective only in the long period. MR was effective only in the short period (Hedges' g = 0.35, 95% CI = 0.18 - 0.53).
Conclusions	This study suggests that acupuncture, CBT, MR, and exercise for simple obesity show a medium effect size, and their effectiveness differs according to the intervention period.

1.1.4. Yin 2022 ☆

Yin Y, Zhao Q, Li S, Jiang H, Yin C, Chen H, Zhang Y. Efficacy of acupuncture and moxibustion therapy for simple obesity in adults: A meta-analysis of randomized controlled trials. Medicine (Baltimore). 2022 Oct 28;101(43):e31148. https://doi.org/10.1097/MD.0000000000031148. https://pubmed.ncbi.nlm.nih.gov/36316908.

Background	To evaluate the clinical efficacy of acupuncture and moxibustion therapy compared to non-acupuncture therapy in the treatment of simple obesity in adult.
Methods	Randomized clinical trials concerning acupuncture and moxibustion therapy as a treatment of simple adult obesity were searched in the following Chinese and English databases: Chinese National Knowledge Infrastructure, China Science and Technology Journal Database, WanFang Database, Chinese Biomedical Literature Database, PubMed, Web of Science, Embase, Medline and Cochrane Library. Two researchers independently screened suitable literature according to inclusion and exclusion criteria, extracted data, and evaluated the quality of included studies using the Jadad score scale. After that, data analysis was performed using RevMan 5.4.1 software, Stata 17.0 software and SPSS 25.0 software.
Results	A total of **14 studies involving 1116 adults** with simple obesity were included in the meta-analysis. Results revealed that BMI, body weight, waist circumference, total effective rate, triglyceride in the acupuncture group were superior to those in the non-acupuncture group, while there was no statistical difference in improving low density lipoprotein, high density lipoprotein and total cholesterol. As to the selection of acupoints, the acupoints of the stomach meridian of Foot Yangming have the highest frequency of use, with a frequency of 30 times, accounting for 35%. The acupoints can be divided into three clusters: the first category: RN9-SP9-SP6-RN4; the second category: ST40-RN6-SP15-ST36; the third category: ST25-RN12.
Conclusion	Acupuncture and moxibustion is effective in treating adult simple obesity; however, due to the low score of the included studies, we still expect the results of higher-quality literature to provide a higher-level evidence-based basis for clinical decision-making. Furthermore, for the treatment of adult simple obesity, acupoints analysis revealed that Tianshu (ST25), Zhongwan (RN12), Zusanli (ST36), Fenglong (ST40) and Qihai (RN6) can form the basis for the treatment of simple obesity in adult.

1.1.5. Chen 2020 ☆

Chen J, Chen D, Ren Q, Zhu W, Xu S, Lu L, Chen X, Yan D, Nie H, Zhou X. Acupuncture and related techniques for obesity and cardiovascular risk factors: a systematic review and meta-regression analysis. Acupuncture in Medicine. 2020;38(4):227-234. [216361]. doi

Objective	To assess how acupuncture and related techniques affect weight-related indicators and cardiovascular risk factors compared with non-acupuncture interventions in overweight and obese patients.
Methods	We searched PubMed, Embase and CENTRAL up to 19 April 2018 and included relevant randomised controlled trials (RCTs). Weighted mean differences (WMDs) and 95% confidence intervals (CI) were pooled using the inverse variance method with random-effects model. Prespecified hypotheses were tested in meta-regression to investigate the source of heterogeneity. Statistical software packages used were RevMan 5.3.5 and Stata 14.0.
Results	**Thirty-three RCTs** were included (**n=2503 patients**). Compared with non-acupuncture interventions, acupuncture produced a greater reduction in body weight (WMD -1.76 kg, 95% CI -2.22 to -1.30, I2=77%; moderate quality), body mass index (WMD -1.13 kg/m2, 95% CI -1.38 to -0.88, I2=85%; low quality) and waist circumference (WMD -2.42 cm, 95% CI -3.22 to -1.62, I2=75%; moderate quality). Acupuncture plus lifestyle intervention resulted in a greater reduction in body weight than acupuncture alone (MD -1.94 kg, 95% CI -3.17 to -0.70). Acupuncture also led to a greater reduction in total cholesterol (WMD -12.87 mg/dL, 95% CI -22.17 to -3.57, I2=87%; very low quality) and low-density lipoprotein cholesterol (WMD -13.52 mg/dL, 95% CI -21.47 to -5.58, I2=74%; low quality). The differences were not statistically significant for blood glucose or blood pressure.
Conclusion	In the short term, acupuncture and related techniques may produce a small but statistically significant degree of weight loss based on moderate- to low-quality evidence, and improve serum lipid parameters based on low- to very-low-quality evidence. Their effects on blood glucose and blood pressure remain uncertain.

1.1.6. Pan 2020 ☆☆☆

Pan Junjun, Fan Su, Zhang Zhenyu. [Meta Analysis on Efficacy of Acupuncture in the Treatment of Simple Obesity]. Journal of Clinical Acupuncture and Moxibustion. 2020;36(8):54. [214541].

Objective	To investigate the effect of acupuncture in the treatment of simple obesity by meta - analysis.
Methods	Chinese and English electronic databases were systematically searched to review RCTs, which investigated the effect of acupuncture on simple obesity and using sham acupuncture as control. The difference of treatment effect between acupuncture and sham acupuncture was assessed by calculating the weighted mean difference (WMD) and 95 % CI of obesity - related anthropometric, hormone and biochemical indexes.
Results	A total of **16 studies** comprising **1 ,109 patients** with simple obesity were included. Results of pooling analysis showed that acupuncture intervention could more effectively reduce body weight (WMD = -1.44, 95%CI □ -2.26 to - 0.63, P<0.001), BMI (WMD= - 0.61, 95%CI= - 2.26 to - 0.63, P<0. 001) and waist circumference (WMD = - 2.03, 95%CI = - 3.26 to - 0. 79, P =0. 001) compared to sham acupuncture. In addition, acupuncture could reduce leptin level (WMD = - 2. 78, 95% CI = - 5. 13 to - 0. 43, P = 0. 021) but had no effect on the other obesity - related hormones. Only a small number of mild adverse events occurred and no serious adverse events happened. Subgroup ana1ysis showed that auricular acupuncture, body acupuncture and acupoint catgut embedding were all effective in reducing weight.
Conclusion	The present meta - analysis only included RCTs using sham acupuncture as controls, so as to reduce the placebo effects. The results demonstrated the effectiveness of acupuncture on reducing weight and the long - term effect needs further investigation.

1.1.7. Vilares Santos 2020 ☆

Vilares Santos R, Magalhães Rodrigues J, Irene Jesus M. Review on the effects of obesity treatment with acupuncture and phytoacupuncture. World Journal of Acupuncture-Moxibustion. 2020;30(3):223-228. [212403]. doi

Objective	The purpose of this study is to review the impact on the usage of traditional Chinese medicine in the treatment of obesity, specifically the usage of acupuncture and phytoacupuncture.
Methods	PubMed and Google Scholar databases were searched to identify randomized controlled trials, which the methodology focused on the use of acupuncture and phytoacupuncture for the treatment of obesity from the beginning of these databases to February 2018, supplementing with literature retrospective and manual searches.
Results	A total of **8 trials including 566 participants** met the selected criteria. In the alterations of the body mass index and waist circumference, acupuncture and phytoacupuncture seems to have a positive effect as opposed to the subjects who received superficial acupuncture or none. However, there were other parameters that showed promising results such as improvements in the levels of (1) serum total cholesterol, low-density lipoprotein and serum fasting triglyceride, (2) serum insulin and leptin, plasma ghrelin and cholecystokinin and (3) serum pro-oxidant antioxidant balance, as well as improvements in (4) skin fat thickness in the upper limbs, trunk and abdomen, (5) abdominal fat and deep subcutaneous fat tissue. The main acupoints employed in the selected studies are found along several meridians such as the stomach, spleen and conception vessel, and the plants used had the main objective of accelerating the metabolism, reducing appetite and resolving the unbalances in the genesis of obesity.
Conclusion	It is suggested that acupuncture and phytoacupuncture can be useful tools for weight loss. When combined with a life-style change, they can contribute to achieve better results than just a life-style change by itself. Nevertheless, the need for further studies to clarify mechanisms of action and adequacy of protocols in order to obtain more homogeneous results is also present.

1.1.8. Yin 2020

Yin YH, Liu JYW, Välimäki M. Effectiveness of non-pharmacological interventions on the management of sarcopenic obesity: A systematic review and meta-analysis. Exp Gerontol. 2020. [218272]. doi

Background	Sarcopenic obesity is a combination of both sarcopenia and obesity, which potentiate each other and maximize the negative influences of each, such as physical disability, morbidity, or even mortality.
Objectives	To describe the criteria used to identify people with sarcopenic obesity and the components of the non-pharmacological interventions used to manage it, and to evaluate the effectiveness of those interventions.
Methods	Randomized controlled trials (RCTs) in Cochrane Library, Scopus, EMBASE, PscyINFO, CINAHL and PubMed were searched. The risk of bias was examined using the Cochrane risk of bias tool. The template for intervention description and replication (TIDieR) checklist was used to summarize the intervention components. Meta-analyses were conducted using random-effect models to pool estimates of the effects of the non-pharmacological interventions on body composition, BMI, grip strength, and gait speed.

Results	**Sixteen papers (12 RCTs) with 863 participants** were included. Diverse diagnostic criteria were used in the studies. Four categories of interventions were used: exercise (aerobic exercises, resistance exercises and exercise machines), nutritional interventions (supplements or dietary control), combined intervention and electrical acupuncture. Intervention durations varied from 8 to 28 weeks. Meta-analyses revealed that exercise with or without nutritional interventions had significant effects on grip strength (exercise: mean difference (MD): 1.63 kg, 95% confidence interval (CI): 0.94, 2.32, P< 0.00001; exercise + nutrition: MD: 1.24 kg, 95% CI: 0.48, 1.99, P = 0.001) and gait speed (exercise: MD: 0.13 m/s, 95% CI: 0.08, 0.18, P < 0.00001, I2 = 0%; exercise + nutrition: MD: 0.04 m/s, 95% CI: 0.02, 0.06, P = 0.0002). Exercise had significant effects on reducing the percentage of body fat (PBF) compared to usual care (MD: -1.08%, 95% CI: -1.99, -0.17, P = 0.02), while exercise combined with nutritional interventions showed no superiority over exercise solely on decreasing PBF (P = 0.49). Exercise combined with nutritional interventions had significant effects on increasing appendicular skeletal muscle mass (MD: 0.43 kg, 95% CI: 0.20, 0.66, P = 0.0003). Low-caloric high-protein diets showed no superiority over low-caloric low-protein diets in increasing fat-free mass. Subgroup analyses showed that using different formulas to estimate the skeletal muscle mass index may lead to significant differences in determining the effects of exercise on grip strength.
Conclusion	The diagnostic criteria for sarcopenic obesity used in future studies should refer to the latest consensus definition. Exercise tended to be the most effective method of improving grip strength and physical performance (e.g. gait speed). The combined effects of exercise and nutritional interventions on muscle mass and muscle strength require further exploration. Electrical acupuncture also exhibited potential effects on body composition.

1.1.9. Zhong 2020 ☆☆

Zhong YM, Luo XC, Chen Y, Lai DL, Lu WT, Shang YN, Zhang LL, Zhou HY. Acupuncture versus sham acupuncture for simple obesity: a systematic review and meta-analysis. Postgrad Med J. 2020;96(1134):221-227. [216566]. doi

Background	Obesity is a growing chronic health problem worldwide. Studies about acupuncture for obesity treatment are many. But there are some doubts about the effectiveness of acupuncture versus sham acupuncture in treating obesity due to its lack of medical evidence. Therefore, the aim of this study is to assess the efficacy of acupuncture for obesity treatment and provide clinic evidence.
Methods	Four English databases (PubMed, EMBASE, Web of Science and Cochrane Central Register of Controlled Trials) and four Chinese databases (China National Knowledge Infrastructure, Chinese BioMedical Database, Chinese Scientific Journal Database and Wan-Fang Data) were searched from their receptions to August 2019. Randomized controlled trials (RCTs) using the comparison between acupuncture and sham acupuncture to treat simple obesity were included. The primary outcome of body mass index (BMI) would be used to measure the effect of acupuncture on obesity. According to the trial data extraction form based on the Cochrane Handbook, two reviewers separately extracted the data. Risk of bias of the RCTs was assessed by the Cochrane Risk of Bias Tool.

Results	The study included **8 RCTs with 403 patients**. When compared with sham acupuncture, acupuncture showed obviously effect in BMI reduction (MD=1.0kg/m2, 95% CI=0.6 to 1.4, P<0.001). There was also significant reduction in body weight (MD=1.85kg, 95%CI=0.82 to 2.88, p<0.001), WC (MD=0.97cm, 95%CI=0.24 to 1.71, p=0.01) and body fat mass percentage (MD=1.01, 95%CI=0.25 to 1.77, p<0.05). However, WHR (MD=0.01, 95%CI=0 to 0.03, p>0.05) was not statistically and significantly different between the acupuncture and control groups. Adverse effects were reported in 3 studies.
Conclusions	The review suggests that acupuncture is an effective therapy for simple obesity rather than a placebo effect. This potential benefit needs to be further evaluated by longer-term and more rigorous RCTs.

1.1.10. Yao 2019

Yao J , He Z , Chen Y , Xu M , Shi Y , Zhang L , Li Y. Acupuncture and weight loss in Asians: A PRISMA-compliant systematic review and meta-analysis. Medicine (Baltimore). 2019;98(33). [200769].

Background	Acupuncture is effective for reducing body weight; however, evidence in Asian populations is lacking. We performed a systematic review and meta-analysis to evaluate the efficacy of acupuncture for body weight reduction in Asians.
Methods	The Medline, Embase, Cochrane library, and Chinese databases were searched for relevant studies through October 20, 2018. Publications describing randomized controlled trials (RCTs) comparing acupuncture with other treatments for the reduction of body weight were compiled. Reviewers assessed bias and collected data on trial characteristics and outcomes. The study was conducted based on the reporting items of the guidelines for systematic evaluation and meta-analysis (PRISMA). Review Manager 5.2 software was used to calculate weight mean difference (WMD) and 95% confidence intervals (Cis).
Results	Twelve RCTs involving 1151 subjects were included. Compared with the control groups, the acupuncture groups exhibited significantly greater reductions of body mass index (BMI) (WMD -1.23 kg/m; 95% CI -1.94, -0.51) and waist circumference (WMD -2.56 cm; 95% CI -4.43, -0.69). In the subgroup analyses, significant differences in the reduction of BMI and the reduction of waist circumference were observed between the acupuncture and sham acupuncture groups, the acupuncture plus diet and exercise, and the diet and exercise groups, and the acupuncture and no intervention groups, but not between the acupuncture plus exercise and exercise groups.
Conclusions	Our study demonstrates that acupuncture is effective in the intervention of overweight/obesity in Asians; however, compared with exercise alone, acupuncture combined with exercise had no effect on the BMI or waist circumstance in the short term. Long-term studies are needed to evaluate the efficacy of acupuncture in weight reduction in Asians.

1.1.11. Kim 2018 ☆

Kim SY, Shin IS, Park YJ. Effect of acupuncture and intervention types on weight loss: a systematic review and meta-analysis. Obes Rev. 2018;19(11):1585-1596. [189955].

Objective	This study aimed to evaluate the effect of acupuncture and intervention types on weight loss.
Methods	We searched electronic databases, including Embase, PubMed, CENTRAL, RISS, KISS and CNKI, for randomized controlled trials that used acupuncture to treat obesity before June 2017.

Results	We found **27 trials** involving 32 intervention arms and **2,219 patients**. Acupuncture plus lifestyle modification (LM) was more effective than LM alone (Hedges' g = 1.104, 95% CI = 0.531-1.678) and sham acupuncture plus LM (Hedges' g = 0.324, 95% CI = 0.177-0.471), whereas acupuncture alone was not more effective than sham acupuncture alone and no treatment. Auricular acupuncture (Hedges' g = 0.522, 95% CI = 0.152-0.893), manual acupuncture (Hedges' g = 0445, 95% CI = 0.044-0.846) and pharmacopuncture (Hedges' g = 0.411, 95% CI = 0.026-0.796) favoured weight loss. Finally, acupuncture treatment was effective only in subjects with overweight (25 ≤ body mass index < 30, Hedges' g = 0.528, 95% CI = 0.279-0.776), not in subjects with obesity (body mass index ≥30).
Conclusions	Our study suggests that the effect of acupuncture on weight loss may be maximized when auricular and manual acupuncture or pharmacopuncture treatment is combined with LM in patients with overweight.

1.1.12. Wang 2018

Wang Lihua, Huang Wei, Zhang Yanji, Ran Guoping, Shuai Kuang, Zhou Zhongyu. [Systematic Review and Meta-analysis on Acupuncture for Obesity Complicated with Type 2 Diabetes Mellitus]. Chinese Archives of Traditional Chinese Medicine. 2018;8:1882-1888. [201756].

Objective	To systematically evaluate the clinical efficacy of acupuncture for obesity complicated with type 2 diabetes mellitus(T2 DM).
Methods	The clinical literature of acupuncture treating obesity complicated with T2 DM were retrieved from CNKI, WANGFANG, VIP, CBM, Pubmed, Cochrane, Embase from 1991 to 2017. According to inclusion criteria, we screened the articles, extracted data, analyzed the risk of bias and adopted Meta-analysis by Review Manager 5. 3.
Results	Totally **14 articles were acquired with 1127 cases involved**. The Meta-analysis results showed that acupuncture was superior to that without treatment in effective rate, BMI, weight, TG, FPC. However, there was no statistic difference in waist, TC or Hb A1 C. The analysis of evidence grade(GRADE) presented that the effects of acupuncture on FPG, weight and TC were rated moderate and others were rated low or very low.
Conclusions	Acupuncture treatment of obesity with T2 DM has certain advantages, but because the evidence quality research is not high, the future still need to carry out randomized controlled trials of high quality and large sample size to further confirm the results of this study.

1.1.13. Zhang 2018 ☆

Zhang Y, Li J, Mo G, Liu J, Yang H, Chen X, Liu H, Cai T, Zhang X, Tian X, Zhou Z, Huang W. Acupuncture and Related Therapies for Obesity: A Network Meta-Analysis. Evid Based Complement Alternat Med. 2018. [182498].

Objectives	Obesity is a worldwide public health problem. Currently, increasing evidence suggests acupuncture and related therapies are effective for obesity. This network meta-analysis (NMA) was performed to compare the effectiveness of different acupuncture and related therapies.
Methods	We searched potential randomized controlled trials (RCTs) in three international databases. Thirty-four trials involving 2283 participants were included.

Results and conclusions	Pairwise meta-analysis showed that acupuncture and related therapies were superior to lifestyle modification and placebo in reducing weight and body mass index (BMI). Based on decreases in body weight, results from NMA showed that acupoint catgut embedding (standard mean difference [SMD]: 1.26; 95% credible interval [95% CI], 0.46-2.06), acupuncture (SMD: 2.72; 95% CrI, 0.06-5.29), and combination of acupuncture and related theories (SMD: 3.65; 95% CrI, 0.96-6.94) were more effective than placebo. Another NMA result indicated that acupoint catgut embedding (SMD: 0.63; 95% CI, 0.25-1.11), acupuncture (SMD: 1.28; 95% CrI, 0.43-2.06), combination of acupuncture and related therapies (SMD: 1.44; 95% CrI, 0.64-2.38), and electroacupuncture (SMD: 0.60; 95% CrI, 0.03-1.22) were superior to lifestyle modification in decreasing BMI. Combination of acupuncture and related therapies was ranked the optimal method for both reducing weight and BMI. Further studies will clarify which combination of acupuncture and related therapies is better.

1.1.14. Zhang 2018 ☆☆

Zhang RQ, Tan J, Li FY, Ma YH, Han LX, Yang XL. Acupuncture for the treatment of obesity in adults: a systematic review and meta-analysis. Postgrad Med J. 2017;93(1106):743-751. [171724].

Objective	Meta-analysis was used to assess the clinical efficacy of acupuncture treatment for simple obesity and to provide evidence-based medical data for treating obesity with acupuncture.
Methods	A comprehensive search of studies on MEDLINE, EMBASE, the Cochrane Central Register of Controlled Trials and Chinese databases (Wan Fang, CNKI and VIP) from 1 January 1915 through 30 November 2015 (MEDLINE search updated through 31 December 2015) was performed. We included only randomised controlled trials (RCTs) that used acupuncture and sham acupuncture to treat simple obesity. The effect of acupuncture on simple obesity was measured using body mass index (BMI), body fat mass (BFM), waist circumference (WC), hip circumference (HC), and body weight (BW). The Jadad scale was used to assess methodological quality. The random effects model was used in the pooled analysis to adjust for the heterogeneity of the included studies, and funnel plots were used to examine publication bias. The differences between treatment groups were reported as mean differences (MD).
Results	**Eleven RCTs** were selected after all relevant literature from the electronic databases had been screened. There were 338 and 305 participants in the acupuncture and sham acupuncture groups, respectively. Auricular and electro acupuncture were both able to reduce BMI in obese patients (MD 0.47 kg/m2, 95% CI 0.35 to 0.58, p<0.001; MD 0.50 kg/m2, 95% CI 0.38 to 0.62, p<0.001). BFM change after acupuncture treatment compared with sham treatment was statistically significant (MD 0.66 kg, 95% CI 0.51 to 0.80, p<0.001). There were also significant differences in WC and HC between the acupuncture and sham acupuncture groups (MDwc2.02 cm, 95% CI 0.21 to 3.83, p=0.03; MDHC2.74 cm, 95% CI 1.21 to 4.27, p=0.0004). BW was not statistically significantly different between the acupuncture and sham acupuncture groups (MD 0.60 kg, 95% CI -0.20 to 1.39, p=0.14). Begg's test and funnel plots showed that the potential publication bias of the included studies was very slight (p>0.05).
Conclusion	Acupuncture for simple obesity appeared to be an effective treatment, but more studies on the safety of acupuncture used to treat simple obesity are required.

1.1.15. Zhang 2018 ☆☆☆

Zhang K, Zhou S, Wang C, Xu H, Zhang L. Acupuncture on Obesity: Clinical Evidence and Possible Neuroendocrine Mechanisms. Evid Based Complement Alternat Med. 2018. [168634].

Objective	Acupuncture, as one of the complementary and alternative medicines, represents an efficient therapeutic option for obesity control. We conducted a meta-analysis to investigate the effectiveness of acupuncture in obesity and also summarized the available studies on exploring the mechanisms.
Design	We searched six databases from the inception to April 2017 without language restriction. Eligible studies consisted of acupuncture with comparative controls ((1) sham acupuncture, (2) no treatment, (3) diet and exercise, and (4) conventional medicine). The primary outcomes consisted of BMI, body weight reduction, and incidence of cardiovascular events (CVD). Secondary outcomes included waist circumference (WC), waist-to-hip ratio (WHR), body fat mass percent, body fat mass (kg), total cholesterol (TC), triglyceride (TG), glucose, low density lipoprotein cholesterol (LDL-c) reduction, high density lipoprotein cholesterol (HDL-c) increase, and adverse effects. The quality of RCTs was assessed by the Cochrane Risk of Bias Tool. Subgroup analyses were performed according to types of acupuncture. A random effects model was used to adjust for the heterogeneity of the included studies. Publication bias was assessed using funnel plots.
Main Results	We included **21 studies with 1389 participants**. When compared with sham acupuncture, significant reductions in BMI (MD=-1.22, 95%CI=-1.87 to -0.56), weight (MD=-1.54, 95%CI=-2.98 to -0.11), body fat mass (kg) (MD=-1.31, 95%CI=-2.47 to -0.16), and TC (SMD=-0.63, 95%CI=-1.00 to -0.25) were found. When compared with no treatment group, significant reductions of BMI (MD=-1.92, 95%CI=-3.04 to -0.79), WHR (MD=-0.05, 95%CI=-0.09 to -0.02), TC (MD=-0.26, 95%CI=-0.48 to -0.03), and TG (MD=-0.29 95%CI=-0.39 to -0.18) were found. When compared with diet and exercise group, significant reduction in BMI (MD=-1.24, 95%CI=-1.87 to -0.62) and weight (MD=-3.27 95%CI=-5.07 to -1.47) was found. Adverse effects were reported in 5 studies.
Conclusions	We concluded that acupuncture is an effective treatment for obesity and inferred that neuroendocrine regulation might be involved.

1.1.16. Fang 2017☆☆

Fang S, Wang M, Zheng Y, Zhou S, Ji G. Acupuncture and Lifestyle Modification Treatment for Obesity: A Meta-Analysis. Am J Chin Med. 2017;45(2):1-16. [52168].

Background	Obesity is an epidemic health hazard associated with many medical conditions. Lifestyle interventions are foundational to the successful management of obesity. However, the body's adaptive biological responses counteract patients' desire to restrict food and energy intake, leading to weight regain. As a complementary and alternative medical approach, acupuncture therapy is widely used for weight control.
Objective	The objective of this study was to assess the efficacy of acupuncture treatment alone and in combination with lifestyle modification.
Methods	We searched the MEDLINE, EMBASE, CENTRAL and Chinese Biomedical Literature Databases for relevant publications available as of 24 October 2015 without language restriction. Eligible studies consisted of randomized controlled trials for acupuncture with comparative controls.
Results	A total of 23 studies were included with 1808 individuals. We performed meta-analyses of weighted mean differences based on a random effect model. Acupuncture exhibited a mean difference of body mass index reduction of 1.742[Formula: see text]kg/m2 (95% confidence interval [Formula: see text]) and 1.904[Formula: see text]kg/m2 (95% confidence interval [Formula: see text]) when compared with untreated or placebo control groups and when lifestyle interventions including basic therapy of both treatment and control groups. Adverse events reported were mild, and no patients withdrew because of adverse effects.

Conclusions	Overall, our results indicate that acupuncture is an effective treatment for obesity both alone and together with lifestyle modification.

1.1.17. Kim 2016 ☆

Kim J, Trinh KV, Krawczyk J, Ho E. Acupuncture for obesity□a systematic review. Journal of Acupuncture and Tuina Science. 2016;4:257-273. [186983].

Background	Obesity has become a major health challenge for both patients and family physicians. Well-known methods of weight reduction such as diet and exercise are often difficult to comply with due to lifestyle and quality of life issues. Other methods such as diet pills or surgery have potentially serious side effects and often do not show long-term benefit. In an attempt to find a less invasive and effective modality of treatment, traditional Chinese medicine, particularly acupuncture and auriculotherapy, has become a topic of research in this field.
Methods	The authors conducted a review of the current evidence regarding the use of auricular and body acupuncture in the treatment of obesity from their beginning to June 2014. Any published trial using randomized assignment to the intervention and control groups, in full text were included.
Results & conclusions	Overall, **moderate evidence in favor of acupuncture over exercise in the treatment of obesity was found**. However, due to the limitations of the published studies in this field, it is necessary to conduct a large high quality randomized controlled trial in order to determine whether acupuncture should be used as a treatment modality to achieve weight loss in obese individuals.

1.1.18. Wang 2014 ☆

Wang Dong-Yan, Sun Ai-Jie. [Meta Analysis on Clinical Effectiveness of Acupuncture Treatment on Simple Obesity]. Journal of Clinical Acupuncture and Moxibustion. 2014;30(10):69. [174849].

Objectives	For an objective,quantitative evaluation of clinicaily curative effect of each acupuncture and rnoxibustion therapy on simple obesity in order to provide some practical,evidence-based medicine bases for clinic,
Methods	Retrieve related literature by computer and filter docurnents based on the inclusion and exclusion criteiia,then assess the docurnentation quality and extract information and data,finally statistically analyze the relevant data by the Review Manager5.0 meta analysis software.
Results	Through meta-analysis of data, it showed electro-acupuncture therapy and acupuncture therapy, two kinds'acupuncture iri combination therapy and one acupuncture therapy,embedding therapy and acupuncture therapy,needle knife therapy and electro- acupuncture therapy,acupuncture combined with diet control therapy and simple diet control therapy , for the treatment of simple obesity the clinical effect had a statistically significant difference. As to the embedding therapy and electro-acupuncture therapy,the clinical efficacy'treatment on siinple obesity was without statistically significant difference.

Conclusions	The clinical efficacy of electro-acupuncture therapy on simple obesity is superior to the acupuncture therapy. The clinical efficacy of two kinds of acupuncture in combination therapy on simpie obesity is superior to the one acupuncture therapy. The clinical efficacy of embedding therapy on simple obesity is superior to the acupuncture therapy. **The clinical efficacy'embedding therapy on simple obesity is quite equal to the electro-acupuncture therapy. The clinical efficacy of needle knife therapy on simple obesity is superior to the electro-acupuncture therapy**. The clinical efficacy of acupuncture combined with diet therapy on simple obesity is better than simple diet therapy.

1.1.19. Sui 2012 ☆

Sui Y, Zhao HL, Wong VC, Brown N, Li XL, Kwan AK, Hui HL, Ziea ET, Chan JC.. A Systematic Review on Use of Chinese Medicine and Acupuncture for Treatment of Obesity. Obes Rev. 2012. 2012;13(5):409-30. [158026].

Objectives	Obesity is a major health hazard and despite lifestyle modification, many patients frequently regain any lost body weight. The use of western anti-obesity drugs has been limited by side effects including mood changes, suicidal thoughts, and gastrointestinal or cardiovascular complications. The effectiveness and safety of traditional Chinese medicine including Chinese herbal medicine (CHM) and acupuncture provide an alternative established therapy for this medical challenge.
Methods	In this systematic review, we used standard methodologies to search, review, analyse and synthesize published data on the efficacy, safety and relapse of weight regain associated with use of CHM and acupuncture. We also examined the rationale, mechanisms and potential utility of these therapies. A total of 12 electronic databases, including Chinese, English, Korean and Japanese, were searched up to 28 February 2010. Randomized controlled trials (RCTs) for CHM and/or acupuncture with comparative controls were considered. We used the Jadad scale to assess methodological qualities, the random effect model in the pooled analysis of therapeutic efficacy to adjust for heterogeneity and funnel plots to explore publication bias. .
Results	After screening 2,545 potential articles from the electronic databases, we identified 96 RCTs; comprising of 49 trials on CHM treatment, 44 trials on acupuncture treatment and 3 trials on combined therapy for appraisal. There were 4,861 subjects in the treatment groups and 3,821 in the control groups, with treatment duration ranging from 2 weeks to 4 months. Of the 77 publications written in Chinese, 75 had a Jadad score <3, while 16 of the 19 English publications had a Jadad score of >3. Efficacy was defined as body weight reduction ≥ 2 kg or body mass index (BMI) reduction ≥ 0.5 kg/m^2) . Compared with placebo or lifestyle modification, CHM and acupuncture exhibited respective 'risk ratio' (RR) of 1.84 (95% CI: 1.37-2.46) and 2.14 (95% CI: 1.58-2.90) in favour of body weight reduction, with a mean difference in body weight reduction of 4.03 kg (95% CI: 2.22-5.85) and 2.76 kg (95% CI: 1.61-3.83) and a mean difference in BMI reduction of 1.32 kg/m^{-2} (95% CI: 0.78-1.85) and 2.02 kg/m^{-2} (95% CI: 0.94-3.10), respectively. Compared with the pharmacological treatments of sibutramine, fenfluramine or orlistat, CHM and acupuncture exhibited an RR of 1.11 (95% CI: 0.96-1.28) and 1.14 (95% CI: 1.03-1.25) in body weight reduction, mean difference in body weight reduction of 0.08 kg (95% CI: -0.58 to 0.74) and 0.65 kg (95% CI: -0.61 to 1.91), and mean difference in BMI reduction of 0.18 kg/m^{-2} (95% CI: -0.39 to 0.75) and 0.83 kg/m^{-2} (95% CI: 0.29-1.37), respectively. There were fewer reports of adverse effects and relapses of weight regain in CHM intervention studies conducted in China than studies conducted outside China.

Conclusions	**CHM and acupuncture were more effective than placebo or lifestyle modification in reducing body weight**. They had a similar efficacy as the Western anti-obesity drugs but with fewer reported adverse effects. However, these conclusions were limited by small sample size and low quality of methodologies

1.1.20. Lin 2009 ☆

Lin XM, Li B, Du YH, Xiong J, Sun P.[Systematic Evaluation of Therapeutic Effect of Acupuncture for Treatment of Simple Obesity]. Chinese Acupuncture and Moxibustion. 2009;29(10):856-60. [154673].

Objectives	To evaluate the therapeutic effect of acupuncture for treatment of simple obesity, and to analyze the current situation of clinical studies.
Methods	Randomized controlled trials (RCTs) involving acupuncture treatment for simple obesity were searched from PubMed (1979-2008), OVID (1979-2008), EBSCO (1973-2008), Cochrane Library (Issue 2, 2008), CBM (1978-2008), CNKI (1979-2008), VIP (1989-2008) and WanFang Database (1998-2008). Literatures were enrolled focusing on RCTs related to acupuncture treatment for simple obesity; the quality of literatures were evaluated by two evaluators unaidedly. Meta-analyses were conducted with the Cochrane Collaboration's RevMan 4.2.8 software.
Results	Eight papers including 1,017 cases, conformed with the enrolled criteria. Meta-analyses showed that there were significant difference between acupuncture groups and western medicine groups in the effective rate [combined RR (fixed effects model) = 1.11, 95% CI (1.05, 1.18), P=0.0006]. There was a significant difference between acupuncture and Sibutramine in the body mass [combined WMD (fixed effects model) = 1.94, 95%CI (1.73, 2.16), P<0.00001] and body mass index (BMI) [combined WMD (fixed effects model) = 0.52, 95% CI (0.33, 0.70), P<0.00001]. However, acupuncture was not superior to Sibutramine in hip circumference (HC) [combined WMD (fixed effects model) = -0.35, 95% CI (-0.56, -0.15), P<0.0007].
Conclusions	For treating simple obesity, besides reasonable diet and exercise, **acupuncture is safe and effective, which may be more effective than routine western medicine**. The quantity of literature was limited and the quality of some literatures was low. Thus, more high-quality and large-scale of RCTs are needed.

1.1.21. Cho 2009 ☆

Cho SH, Lee JS, Thabane L, Lee J. Acupuncture for Obesity: A Systematic Review and Meta-Analysis. Int J Obes (Lond). 2009;33(2):183-96. [153227].

Objectives	Acupuncture is widely used in complementary and alternative medicine to reduce body weight. However, a systematic review and meta-analysis to assess an effect of acupuncture has not yet been performed. Aim of this study is to critically assess evidence for reduction of body weight and to evaluate adverse events of acupuncture therapy based on the results of randomized controlled trials (RCTs) that evaluate the effect of various types of acupuncture therapies.

Methods	DATA SOURCES: A total of 19 electronic databases, including English, Korean, Japanese and Chinese databases, were systematically searched for RCTs of acupuncture for reduction of body weight or improvement in obesity up to March 2008 with no language restrictions. METHODS: RCTs for acupuncture compared either with placebo controlled or with comparator intervention were considered. Studies' methodological qualities were assessed using the Jadad scale. If no evidence of heterogeneity existed across study results, statistical pooling of data was performed using a fixed effects model; otherwise, a random effects model was used. Publication bias was assessed using funnel plots. Subgroup analyses were performed according to types of acupuncture.
Results	A total of **31 studies, which comprised a total of 3013 individual cases**, were systematically reviewed. Owing to insufficient data in 2 RCTs, 29 RCTs were used for meta-analysis. About two-thirds of the trials (20 out of 31) showed the lowest score of the Jadad. Compared to control of lifestyle, acupuncture was associated with a significant reduction of average body weight (95% confidence interval, CI) of 1.72 kg (0.50-2.93 kg) and associated with an improvement in obesity (relative risk=2.57; 95% CI, 1.98-3.34). Acupuncture significantly reduced a body weight of 1.56 kg (0.74-2.38 kg), on average, compared to placebo or sham treatments. Acupuncture also showed more improved outcomes for body weight (mean difference=1.90 kg; 1.66-2.13 kg), as well as for obesity (relative risk=1.13; 1.04-1.22), than conventional medication. Only four RCTs reported acupuncture-related adverse events, which were mostly minimal.
Conclusions	Our review suggests that **acupuncture is an effective treatment for obesity**. However, the amount of evidence is not fully convincing because of the poor methodological quality of trials reviewed. In conclusion, there is an urgent need for well-planned, long-term studies to address the effectiveness of acupuncture for treating obesity.

1.1.22. Pittler 2005 Ø

Pittler MH, Ernst E. Complementary Therapies for Reducing Body Weight: A Systematic Review. Int J Obes Relat Metab Disord. 2005;29(9):1030-8.[136453].

Objectives	The prevalence of obesity is increasing at an alarming rate and a plethora of complementary therapies are on offer claiming effectiveness for reducing body weight. The aim of this systematic review is to critically assess the evidence from randomized controlled trials (RCTs) and systematic reviews of complementary therapies for reducing body weight.
Methods	Literature searches were conducted on Medline, Embase, Amed, and the Cochrane Library until January 2004. Hand-searches of relevant medical journals and bibliographies of identified articles were conducted. There were no restrictions regarding the language of publication. Trial selection, quality assessment and data abstraction were performed systematically and independently by two authors. Data from RCTs and systematic reviews, which based their findings on the results of RCTs, were included.
Results	**Six systematic reviews and 25 additional RCTs** met our inclusion criteria and were reviewed. The evidence related to acupuncture, acupressure, dietary supplements, homeopathy and hypnotherapy. Except for hypnotherapy, Ephedra sinica and other ephedrine-containing dietary supplements the weight of the evidence is not convincing enough to suggest effectiveness. For these interventions, small effects compared with placebo were identified. In conclusion, our findings suggest that **for most complementary therapies, the weight of the evidence for reducing body is not convincing**. Hypnotherapy, E. sinica and other ephedrine-containing dietary supplements may lead to small reductions in body weight. However, the intake of E. sinica and ephedrine is associated with an increased risk of adverse events.

Conclusions	Interventions suggesting positive effects in single RCTs require independent replication.

1.1.23. Ernst 1997 Ø

Ernst E. Acupuncture/Acupressure for Weight Reduction.? A Systematic Review. Wienier Klinishe Wochenschrift. 1997;109(2):60-2. [48456].

Objectives	Acupuncture and acupressure are often advocated and used as a means of controlling appetite and reducing body weight, supported by case-series and uncontrolled studies that show encouraging results.
Methods	This paper reviews placebo/sham-controlled clinical trials published on this topic. Two independent literature searches identified four such studies.
Results	None of these is without significant methodological flaws and their results are contradictory. The two relatively rigorous trials show no effect on body weight. On balance, **no clear picture emerges to show that acupuncture / acupressure is effective in reducing appetite or body weight**.
Conclusions	Claims that these forms of treatment have specific effects on these conditions are therefore not based on well-performed clinical trials.

1.2. Specific Outcome

1.2.1. Park 2017 (serum leptin levels)

Park Kyoung Sun, Park Kang In, Suh Hae Sun, Hwang Deok Sang et al. The efficacy and safety of acupuncture on serum leptin levels in obese patients: A systematic review and meta-analysis. European Journal of Integrative Medicine. 2017;11:45-52. [206033]. doi

Introduction	Obesity is characterized by hyperleptinemia and leptin resistance. Numerous animal and clinical studies on obesity previously demonstrated a reduction in leptin levels using acupuncture. In this study, we aimed to evaluate the available evidence regarding the efficacy and safety of acupuncture on serum leptin levels in obese patients.
Methods	We searched 10 data bases EMBASE, MEDLINE, CENTRAL, KoreaMed, China National Knowledge Infrastructure (CNKI), Chinese Science and Technology Periodical Database (VIP), Wanfang, Allied and complementary medicine database (AMED), Cumulative index to nursing and allied health literature (CINAHL), and Japan medical abstracts society (JAMAS). Our study included randomized controlled trials(RCTs) that measured serum leptin level to evaluate the efficacy of acupuncture in obese patients. Risk of bias in each article was assessed according to Cochrane risk of bias tool for RCTs. A meta-analysis was performed using the Review Manager software (RevMan v5.3).
Results	**Eight RCTs (n = 468)** were finally included in this meta-analysis, and most showed low or unclear risk of bias. Compared to the control arm receiving no treatment (95% confidence interval (CI) [7.79, 12.31]; P < 0.00001), oral anorexiant (95% CI [3.49, 9.11]; P < 0.0001), diet therapy or exercise (95% CI [0.17, 6.88]; P = 0.04), acupuncture significantly reduced serum leptin levels. However, compared to sham acupuncture, acupuncture showed no significant reduction of serum leptin levels (95% CI [-2.41, 8.76]; P = 0.26).

Conclusions	Our review suggests that acupuncture for obesity has beneficial effect on serum leptin levels compared to no treatment or oral anorexiant. Additional acupuncture treatment on diet therapy or exercise demonstrated greater reduction in serum leptin levels, whereas no significant difference was shown between the acupuncture and sham acupuncture groups. Although the results are of limited value due to the moderate quality and clinical heterogeneity, acupuncture can be used as an effective and safe treatment in obese patients.

1.3. Special Clinical Forms

1.3.1. Childhood Obesity

1.3.1.1. Cui 2025

Cui F. Acupuncture and moxibustion as effective treatments for simple obesity in children: a meta-analysis. Am J Transl Res. 2025 Mar 15;17(3):1522-1537. https://doi.org/10.62347/GWMP1676

Objective	To systematically review published studies on the application of acupuncture and moxibustion in the treatment of simple obesity in children and evaluate its effectiveness.
Methods	A comprehensive search was conducted in the Wanfang, CNKI, Chinese Biomedical Literature, VIP, Embase, PubMed, Cochrane Library, and Web of Science for studies on the effects of acupuncture and moxibustion in treating simple obesity in children, published between December 2003 and October 2024. Primary clinical outcomes included blood lipids, fasting blood glucose, fasting insulin, weight-related indicators, clinical effects, leptin, body fat-related indicators, and traditional Chinese medicine (TCM) syndromes. Data were extracted and summarized, and a meta-analysis was performed using Revman 5.3 software and Stata 13.1.
Results	A total of **20 studies** met the inclusion criteria, all involving acupuncture and moxibustion therapy. Compared with the control group, acupuncture and moxibustion significantly reduced total cholesterol (TC) (SMD = -0.53; 95% CI: -0.95 to -0.12, P<0.0001, I2 = 87.3%), triglyceride (TG) (SMD = -0.27; 95% CI: -0.54 to -0.01, P = 0.002, I2 = 66.7%), and fasting blood glucose levels (SMD = -0.61; 95% CI: -1.08 to -0.13, I2 = 82.2%, P = 0.001). Compared to metformin group, semaglutide combined with metformin led to significant reductions in body mass indexes (BMI) (SMD = -0.49, 95% CI: -0.80 to -0.18, I2 = 81%). Additionally, acupuncture treatment resulted in a decrease in TCM syndrome scores compared to control therapy (SMD = -1.49; 95% CI = -2.73 to 0.25; I2 = 96.4%, P<0.0001).
Conclusion	Acupuncture and moxibustion treatment for simple obesity in children significantly reduced fasting blood glucose, waist circumference, TCM syndromes score, BMI and lipid levels.

1.3.1.2. Quan 2023 (children and adolescents)

Quan T, Su Q, Luo Y, Su X, Chen Q, Yang J, Tang H. Does acupuncture improve the metabolic outcomes of obese/overweight children and adolescents?: A systematic review and meta-analysis. Medicine (Baltimore). 2023 Oct 6;102(40):e34943. https://doi.org/10.1097/MD.0000000000034943.

Background	Although increasing evidence has revealed the efficacy of acupuncture in obesity/overweight, actual improvement in metabolism in children and adolescents is unclear. Therefore, we conducted a meta-analysis to evaluate this correlation.

Methods	A comprehensive search was conducted using multiple databases, including Medline, Cochrane, Embase, Web of Science, Chinese Biomedical Literature Database, China National Knowledge Infrastructure, Chinese Scientific Journal Database, and Wan-fang Data, to identify relevant randomized controlled trials published before February 1, 2023. General information and data for the descriptive and quantitative analyses were extracted.
Results	**Fifteen randomized controlled trials of 1288 obese/overweight children and teenagers** were included. All the trials were conducted in China and South Korea. Regarding quality assessment, no other significant risk of bias was found. The acupuncture groups were more likely to have improved metabolic indicators of obesity/overweight than the control groups, in terms of body mass index (standardized mean difference [SMD] = -0.45, 95% confidence interval [CI]: -0.69 to -0.21, I2 = 71.4%), body weight (SMD = -0.48, 95% CI: -0.92 to -0.05, I2 = 84.9%), and serum leptin (SMD = -0.34, 95% CI: -0.58 to -0.10, I2 = 91.8%). The subgroup analysis showed that for body mass index, the results were consistent regardless of the intervention duration, body acupuncture or auricular acupuncture combined with other interventions.
Conclusion	Our results suggest that acupuncture is effective in improving metabolic outcomes of obese/overweight children and adolescents. Owing to the limited number of trials included in this study, the results should be interpreted with caution.

1.3.1.3. Lee 2022 ☆

Lee B, Kwon CY. Comparative Effectiveness of East Asian Traditional Medicine for Childhood Simple Obesity: A Systematic Review and Network Meta-Analysis. Int J Environ Res Public Health. 2022 Oct 11;19(20):12994. https://doi.org/10.3390/ijerph192012994

Background	Childhood obesity leads to various comorbidities and usually persists into adulthood, increasing socioeconomic burden. In the absence of a clearly effective treatment, East Asian traditional medicine (EATM) therapies have been widely used.
Objective	We aimed to analyze the comparative effectiveness and safety of EATM techniques for children with simple obesity through network meta-analysis (NMA).
Methods	Twelve databases were searched for randomized controlled trials (RCTs) evaluating the effect of EATMs on childhood simple obesity. Individual EATMs were ranked based on the surface under the cumulative ranking curve. The risk of bias in the individual studies and publication bias in the NMA were evaluated.
Results	Thirty-three RCTs were included. **Acupuncture**, chuna, chuna plus acupressure, cupping plus acupressure, herbal medicine (HM), and HM plus acupuncture significantly reduced BMI compared with lifestyle management. Based on the treatment ranking, cupping plus acupressure was optimal for BMI reduction compared with a non-medical management, followed by chuna and HM. The quality of evidence for individual findings was usually moderate to low, and no serious adverse events of EATM were reported. **Cupping plus acupressure** might have a large beneficial effect, and chuna or HM probably have a moderate beneficial effect on reducing BMI in children with simple obesity.

1.4. Special Acupuncture Techniques

1.4.1. Comparison of acupuncture techniques

1.4.1.1. Kim 2024

Kim Y, Park HI, Chu H, Jin H, Leem J. Effectiveness and safety of acupuncture modalities for overweight and obesity treatment: a systematic review and network meta-analysis of RCTs. Front Med (Lausanne). 2024 Aug 21;11:1446515. https://doi.org/10.3389/fmed.2024.1446515

Introduction	The effectiveness and safety of acupuncture in the treatment of obesity have not been assessed. This poses a challenge for clinicians who choose to use acupuncture in the treatment of obesity, as they are unable to prioritize this approach based on outcome variables.
Methods	In May 2024, a literature search of five databases was conducted. Only randomized controlled trials evaluating body weight (BW), body mass index, waist circumference (WC), and adverse events in patients with a body mass index (BMI) of 25 or higher for various acupuncture modalities were included. The risk of bias was assessed using the Cochrane risk-of-bias tool for randomized trials, version 2. Pairwise meta-analysis (PMA) and Bayesian network meta-analysis (NMA) were performed using a random effects model for quantitative synthesis.
Results	**Fourteen studies (n = 868)** were included. The included studies evaluated the following acupuncture modalities: electroacupuncture (EA) (N = 6), laser acupuncture (LA) (N = 2), auricular acupuncture (AA) (N = 5), and manual acupuncture (MA) (N = 3). The PMA found that adding EA to usual care (UC), compared to UC alone, reduced BW (MD = 2.46, 95% CI = 1.12 to 3.80, I 2 = 58%, REM, N = 3, n = 157). The NMA of BW showed the following effect sizes for UC alone versus each acupuncture modality combined with UC: LA (MD = 2.09, 95% CI = 0.04 to 3.86), EA (MD = 2.04, 95% CI = 0.88 to 3.50), AA (MD = 1.69, 95% CI = -0.11 to 3.58), and MA (MD = 1.02, 95% CI = -0.82 to 2.94). The probability of each modality being the optimal treatment was evaluated using the surface under the cumulative ranking curve. EA was the most efficacious for BW and BMI, while LA was the most efficacious for WC.
Discussion	EA and LA can effectively complement clinical obesity management. The number of included studies was limited, and publication bias may have occurred, necessitating a cautious interpretation of the results. Furthermore, most studies lasted between six and 12 weeks. Future clinical studies of acupuncture for obesity should include longer follow-up periods.

1.4.1.2. Chen 2022

Chen J, Gu Y, Yin L, He M, Liu N, Lu Y, Xie C, Li J, Chen Y. Network meta-analysis of curative efficacy of different acupuncture methods on obesity combined with insulin resistance. Front Endocrinol (Lausanne). 2022 Sep 2;13:968481. https://doi.org/10.3389/fendo.2022.968481

Objective	This study aims to systematically evaluate the curative efficacy of different acupuncture methods in the treatment of obesity combined with insulin resistance in randomized clinical trials (RCTs) by network meta-analysis.

Methods	Four Chinese databases (CNKI, WanFang Data, VIP, and SinoMed) and four English databases (PubMed, Embase, the Cochrane Library, and www.clinicaltrial.gov) were electronically searched to identify qualified studies. Two reviewers independently screened the literature in accordance with the inclusion/exclusion criteria by EndNote 20 software and extracted data by ADDIS1.16.8 software, and then the risk of bias of the included studies were evaluated by the Cochrane tool. Network meta-analysis was performed by Stata 15.1 software. The primary outcomes included fasting blood glucose (FBG), fasting serum insulin (FINS), homeostasis model assessment-insulin resistance (HOMA-IR), and body mass index (BMI). The secondary outcomes included waistline, waist-hip ratio, triglyceride (TG), total cholesterol (TC), high-density lipoprotein (HDL), and low-density lipoprotein (LDL).
Results	**Five RCTs with a total of 410 patients** with obesity combined with insulin resistance were included. The results of the network meta-analysis showed that, compared with the control group, three kinds of acupuncture methods (electropuncture, acupoint catgut embedding, and acupuncture point patch) had significant efficacy in reducing FBG [electropuncture (MD = -0.44, 95% CI: -0.83, -0.05) and acupoint catgut embedding (MD = -0.36, 95% CI: -0.51, -0.21)], FINS [electropuncture (MD = -6.17, 95% CI: -9.69, -2.65), acupoint catgut embedding (MD = -5.87, 95% CI: -6.92, -4.82), and acupuncture point patch (MD = -5.86, 95% CI: -11.40, -0.32)], HOMA-IR [electropuncture (MD = -1.59, 95% CI: -2.73, -0.45) and acupoint catgut embedding (MD =-0.91, 95% CI: -1.07, -0.75)], BMI [electropuncture (MD = -1.68, 95% CI: -2.70, -0.66), acupoint catgut embedding (MD = -3.39, 95% CI: -4.38, -2.40), and acupuncture point patch [MD = -2.90, 95%CI: -4.93, -0.87)], and waistline [electropuncture (MD = -5.49, 95% CI: -8.56, -2.42) and acupoint catgut embedding (MD = -4.91, 95% CI: -7.51, -2.31)] in obese patients with insulin resistance, suggesting that their efficacy was better than that of the western medicine group in some of the outcome indicators. For the index related to blood lipid, the efficacy of electropuncture was significantly better than behavioral therapy and western medicine. Except that acupoint catgut embedding was superior to electroacupuncture in reducing the BMI, there was no statistically significant difference in efficacy among the three acupuncture methods.
Conclusions	The results showed that the therapeutic effect of acupuncture methods was superior to conventional western treatment alone. Acupuncture methods could serve as an alternative or adjunctive treatment in obese patients with insulin resistance.

1.4.2. Warm Needle

1.4.2.1. Xu 2018

Xu L, Ding C, Chen J , Tan R , Chen D , Xu S , Zhou X. [Efficacy difference between warming acupuncture and other acupuncture methods for primary obesity: a Meta-analysis]. Chinese Acupuncture and Moxibustion. 2018;38(9):1019-26. [197529].

Objective	To systematically evaluate the efficacy difference between warming acupuncture and other acupuncture methods in the treatment of primary obesity.
Methods	A computer-based retrieval was conducted at PubMed, EMBASE, CENTRAL, CINAHL, Alt HealthWatch, CNKI, CBM, WANFANG database and VIP database. Retrieval time was from the establishment date of database to October 4, 2017. Randomized controlled trial (RCT) of warming acupuncture comparing with other acupuncture methods for the treatment of primary obesity were included. The relative risk (RR) and weighted mean difference (WMD) were used as combined effects for categorical variables and continuous variables, respectively.

Results	Totally 13 RCTs were included involving 878 patients. The Meta-analysis indicated compared with other acupuncture methods, warming acupuncture could more reduce weight (WMD: -1.49 kg, 95% CI: -2.53 to -0.45, P=0.005), improve the total effective rate (RR=1.16, 95% CI: 1.09 to 1.24, P<0.000 01), reduce BMI (WMD: -1.24 kg/m, 95% CI: -2.34 to -0.14, P=0.03), reduce waist circumference (WMD: -1.65 cm, 95% CI: -2.53 to -0.76, P=0.02) and reduce hip circumference (WMD: -2.86 cm, 95% CI: -4.37 to -1.35, P=0.000 2), but had no significant influence on total cholesterol (WMD: -0.05 mmol/L, 95% CI:-0.98 to 0.88, P=0.91).
Conclusion	The warming acupuncture has better efficacy on primary obesity than other acupuncture methods, but less effects on lipid indicators.

1.4.3. Moxibustion

1.4.3.1. Kim 2024

Kim H, Kim H, Shin WC, Kim S, Cho JH, Song MY, Chung WS. Effect of Moxibustion Combined with Other Interventions on Body Weight Reduction in the Treatment of Obesity: A Systematic Review and Meta-Analysis. J Integr Complement Med. 2024 Jun;30(6):576-587.
https://doi.org/10.1089/jicm.2022.0826

Backgound	Moxibustion has been used in the treatment and prevention of obesity. However, there has been no systematic review or meta-analysis conducted on the use of moxibustion on obesity treatment. This study aimed to evaluate the role of moxibustion in the treatment of obesity.
Methods	The Cochrane Central Register of Controlled Trials, EMBASE, and MEDLINE/PubMed databases were searched to identify all randomized controlled trials (RCTs) that evaluated the effect of moxibustion on obesity. The primary outcome was body weight. The secondary outcomes were the body mass index (BMI), waist circumference (WC), hip circumference (HC), and waist-to-hip ratio (WHR). The risk of bias assessment and meta-analysis were conducted using the Cochrane Collaboration tool.
Results	**Eleven RCTs involving 761 participants** were included in this systematic review and meta-analysis. Other interventions that were included in the analyses were manual acupuncture, electroacupuncture, embedding therapy, herbal medicine, and diet control. Moxibustion combined with other interventions resulted in a significant improvement in body weight reduction (mean difference [MD] -3.32, 95% confidence interval [CI: -4.25 to -2.38]; I2 = 17%), BMI (MD -1.51, 95% CI [-1.88 to -1.14]; I2 = 76%), and WC (MD -2.82, 95% CI [-3.50 to -2.13]; I2 = 75%), but did not improve HC (MD -2.05, 95% CI [-4.21 to 0.11]; I2 = 0%) or WHR (MD -0.01, 95% CI [-0.03 to 0.01]; I2 = 57%).
Conclusions	Moxibustion can be used with other interventions to improve body weight, BMI, and WC in people with obesity. However, the conclusions of this review should be cautiously applied to clinical practice because most of the included studies had a high or unclear risk of bias.

1.4.4. Electroacupuncture

1.4.4.1. Kang 2024

Kang J, Shin WC, Kim KW, Kim S, Kim H, Cho JH, Song MY, Chung WS. Effects of electroacupuncture on obesity: A systematic review and meta-analysis. Medicine (Baltimore). 2024 Jan 12;103(2):e36774.

https://doi.org/10.1097/MD.0000000000036774

Backgound	This systematic review and meta-analysis evaluated the efficacy of electroacupuncture for the treatment of obesity.
Methods	We searched 8 electronic databases for articles published between 2005 and 2021, including only randomized controlled trials (RCTs) in the review. The intervention groups received either electroacupuncture alone or electroacupuncture with standard care, whereas the control groups received sham electroacupuncture, standard care, or no treatment. The primary outcome was the body mass index (BMI), and the secondary outcomes were the body weight (BW), waist circumference (WC), hip circumference, waist-to-hip ratio (WHR), body fat mass, body fat percentage, and adverse effects. Continuous outcome data are presented as mean differences (MDs) with 95% confidence intervals (CIs).
Results	This systematic review and meta-analysis included **13 RCTs involving 779 participants**. Results revealed that the BMI (MD: -0.98; 95% CI: -1.35 to -0.61), BW (MD: -1.89; 95% CI: -2.97 to -0.80), WC (MD: -2.67; 95% CI: -4.52 to -0.82), and WHR (MD: -0.03; 95% CI: -0.06 to -0.01) were significantly improved in the intervention groups compared with those in the control groups. Adverse effects were reported in 5 studies. The most commonly used acupoint in the abdomen was ST25, whereas the most commonly used acupoints in other regions were ST36 and SP6 for the treatment of obesity. ST25 was the most commonly used acupoint connected by electroacupuncture.
Conclusion	This systematic review and meta-analysis suggested that electroacupuncture is an effective and safe therapy for simple obesity. To increase the reliability of this study, further detailed, long-term studies should be conducted on the effects of electroacupuncture on obesity.

1.4.4.2. Teng 2023

Teng JQ, Chen J, Yu X, Huo XX. Electroacupuncture for obesity: A systematic review and meta-analysis. Asian J Surg. 2023 Nov;46(11):4844-4845. https://doi.org/10.1016/j.asjsur.2023.05.130

Letter

1.4.4.3. Gao 2020

Gao Y, Wang Y, Zhou J, Hu Z, Shi Y. Effectiveness of Electroacupuncture for Simple Obesity: A Systematic Review and Meta-Analysis of Randomized Controlled Trials. Evid Based Complement Alternat Med. 2020. [212317]. doi

Objective	To evaluate the effectiveness of electroacupuncture in the treatment of simple obesity.
Methods	Randomized clinical trials concerning electroacupuncture as a treatment of simple obesity published prior to October 31, 2019, were searched in the following Chinese and English databases: Chinese National Knowledge Infrastructure (CNKI), WanFang Database, China Science and Technology Journal Database (VIP), Chinese Biomedical Literature Database (CBM), PubMed, Cochrane Library, Web of Science, and Scopus. After data collection and quality evaluation, meta-analysis was performed using RevMan 5.3 software and Stata 15.0 software.

Results	A total of **13 studies involving 937 patients** with simple obesity were included in the meta-analysis. Results revealed that the total effective rate (RR = 1.29, 95% CI [1.13, 1.48]; P=0.0002), BMI (MD = -1.82, 95% CI [-2.21, -1.43]; P < 0.000), waist circumference (MD = -2.39, 95% CI [-3.95, -0.84]; P=0.003), hip circumference (MD = 0.31, 95% CI [-2.37, 2.99]; P=0.82), waist-hip ratio (MD = -0.05, 95% CI [-0.07, -0.03]; P < 0.00), and body fat rate (MD = -1.56, 95% CI [-2.35, -0.78]; P=0.0001) in the electroacupuncture group were superior to those in the control group. Analysis of acupoint clustering and correlation using SPSS 24.0 and Clementine 12.0 revealed the highest statistical support for acupoint groups CV12-CV4 and CV12-ST25-CV4, while ST36-CV12-ST25, SP6, and ST40-ST24-SP15-ST37-CV4 were found to be validly clustered acupoints.
Conclusion	For treating simple obesity, electroacupuncture is superior to other interventions such as acupuncture, acupoint catgut embedding therapy, and simple lifestyle modification for improvement in body fat rate, waist circumference, and waist-hip ratio, although not hip circumference. Acupoint analysis revealed that ST25, CV12, CV4, SP6, and ST36 can form the basis for electroacupuncture therapy for the treatment of simple obesity.

1.4.4.4. Lee 2020 ☆

Soo Jin Lee, Da Yoon Oh, Jae Eun Park, Min Cheol Lee, Myung Kyu Jeon, Yeong Suk Jang, Hyeon Jin Kim, Jae Young Ahn, Noo ri Hong, Woo Young Kim. Electroacupuncture Treatment for Women with Primary Obesity: A Review of Randomized Controlled Trials. J Acupunct Res. 2020;37(2):79-87. [219942]. doi

Purpose	The purpose of this review was to evaluate the effectiveness of electroacupuncture treatment for women with “primary obesity.” Primary obesity is caused by an imbalance in energy intake and consumption due to abnormal eating and living habits in the absence of specific diseases causing the obesity.
Methods	A literature review (up to December 2019) of randomized controlled trials (RCT) of electroacupuncture treatment for women with “primary obesity” was performed. Relevant clinical studies were retrieved from several databases, and interventions and results were analyzed.
Results	There were **6 RCTs** that fitted the inclusion criteria for this review. The intervention for the treatment group of the selected 6 RCT was electrical stimulation applied to acupoints. Interventions for the control groups included non-treatment, general acupuncture, and so on. Indicators for assessing treatment effects varied from study to study. Four out of 5 studies used body mass index (BMI) as an assessment tool and showed a significant decrease in BMI following electroacupuncture treatment. There were 4 studies using waist circumference as an indicator of abdominal obesity and these studies showed a significant decrease in waist circumference following electroacupuncture treatment.
Conclusions	Electroacupuncture treatment used in primary obese women had a clinically significant effect, however, further RCT are needed.

1.4.4.5. Wang 2020

Wang Yulin. [Meta-analysis of Electro-acupuncture in Treatment of Simple Obesity]. Liaoning Journal of TCM. 2020. [212916].

Objective	To evaluate the clinical efficacy of electro-acupuncture in the treatment of simple obesity in the last 20 years.

Methods	From January 1, 1999 to November 30, 2018, the randomized controlled trials on electro-acupuncture for simple obesity were searched in all kinds of databases, and the papers that met the inclusion criteria were screened. The body weight, BMI, waist circumference and hip circumference were analyzed systematically by Rev Man 5. 3 software
Results	A total of **903 patients** were included in **15 papers**. The results of Meta-analysis showed that the clinical effective rate of the electro-acupuncture group was higher than that of the control group [OR = 2. 18, 95% CI (1. 49, 3. 19), Z = 4. 00, P < 0. 0001], and the weight loss[MD = 1. 21, 95% CI (0. 49, 1. 92), Z = 3. 31, P = 0. 0009], BMI[MD = 1. 24, 95% CI (0. 59, 1. 88), Z = 3. 75, P = 0. 0002], waist circumference [MD = 1. 93, 95% CI (0. 73, 3. 14), Z = 3. 16, P = 0. 002] and hip circumference[MD = 0. 81, 95% CI (0. 14, 1. 47), Z = 2. 37, P = 0. 02]decreased. There was a significant difference. The electro-acupuncture treatment was superior to other methods of treatment.
Conclusion	The electro-acupuncture therapy is effective in the treatment of simple obesity, but because the quality of literature is not high, we still need large samples and high-quality research samples to verify it.

1.4.5. Auricular Acupuncture

1.4.5.1. Hua 2024

Hua K, Usichenko T, Cummings M, Bernatik M, Willich SN, Brinkhaus B, Dietzel J. Effects of auricular stimulation on weight- and obesity-related parameters: a systematic review and meta-analysis of randomized controlled clinical trials. Front Neurosci. 2024 Aug 6;18:1393826. https://doi.org/10.3389/fnins.2024.1393826

Backgound	Over the last three decades, the number of randomized controlled trials (RCTs) using stimulation of auricular vagal sensory nerves by means of electrical stimulation, auricular acupuncture, or acupressure to support weight loss has increased markedly. This systematic review focuses on the effects of auricular stimulation (AS) on anthropometric parameters and obesity-related blood chemistry.
Methods and analysis	The following databases were searched until November 2021: MEDLINE (PubMed), EMBASE, Cochrane Central Register of Controlled Trials (CENTRAL), ISI Web of Science, and Scopus Database. Data collection and analysis were conducted by two reviewers independently. Quality and risk assessment of included studies was performed using the risk of bias tool of the Cochrane Handbook, and the meta-analysis of the effect of the most frequently assessed biomarkers was conducted using the statistical software RevMan.
Results	The full texts of 1,274 studies were screened; 22 contained data on obesity-related outcomes, and **15 trials with 1,333 patients** were included in the meta-analysis. The overall quality of the included trials was moderate. AS significantly reduced body mass index (BMI) (mean difference (MD) = -0.38 BMI points, 95% CI (-0.55 to -0.22), p < 0.0001), weight (MD = -0.66 kg, 95% CI (-1.12 to -0.20), p = 0.005), waist circumference (MD = -1.44 cm, 95% CI (-2.69 to -0.20), p = 0.02), leptin, insulin, and HOMA insulin resistance compared to controls. No significant reduction was found in body fat, hip circumference, ratio of waist/hip circumference, cholesterol, LDL, triglycerides, adiponectin, ghrelin, and glucose levels. The AS was safe throughout the trials, with only minor adverse reactions.
Conclusion	The study results suggest that a reduction of weight and BMI can be achieved by AS in obese patients; however, the size of the effect does not appear to be of clinical relevance. The effects might be underestimated due to active sham trials.

1.4.5.2. Mendonça 2020

Mendonça CR, Coelho Dos Santos LS, Noll M, Silveira EA, Arruda JT. Effects of auriculotherapy on weight and body mass index reduction in patients with overweight or obesity: Systematic review and meta-analysis. Complement Ther Clin Pract. 2020. [211186]. doi.

Objective	Auriculotherapy is based on the stimulation of reflex points in the ear. However, little is known about its weight-reducing effects. The aim of the present systematic review and meta-analysis was to investigate the effects of auriculotherapy on weight and/or (BMI) reduction in overweight or patients with obesity.
Methods	Twelve articles were selected for systematic review. Four randomized controlled trials (RCTs) investigating weight reduction and five investigating BMI reduction were selected for the meta-analyzes.
Results	The results revealed an association between auriculotherapy and weight reduction (WMD, 1.507; 95% CI, 0.606-2.407; $p < 0.000$). Auriculotherapy was also significantly associated with BMI reduction (WMD, 0.865; 95% CI, 0.533-1.196; $p < 0.004$).
Conclusions	We found that auriculotherapy was effective in reducing weight and/or BMI in overweight or patients with obesity. However, the findings should be interpreted with caution due to heterogeneity.

1.4.6. Auricular acupression

1.4.6.1. Xue 2015 ☆

Xue Dong-Qun, Su Chun-Xiang, Kang Dong-Qin, Yue Shu-Jin. [Effect of auricular pressure therapy for simple obesity in adult: a meta-analysis]. Chinese Journal of EBM. 2015;15(10):1182-9.[168312].

Objectives	To systematically review the efficacy of auricular pressure therapy for simple obesity in adult.
Methods	We electronically searched databases including The Cochrane Library (Issue 4, 2015), PubMed, Web of Science, MEDIINE (Ovid), CNKI , VIP, CBM and WanFang Data databases to collect randomized controlled trials (RCTs) of auricular pressure therapy for simple obesity from inception to March 2015. Two reviewers independently screened literature, extracted data and assessed the risk of bias of included studies. Then, meta-analysis was performed by using RevMan 5.3 software.
Results	A total of 17 RCTs involving 1 246 patients were included. The results of meta-analysis showed that: (1) Compared with the blank control group, the auricular pressure therapy group was superior in weight reduction (MD= –2.50, 95%CI –3.53 to –1.47, P<0.01), BMI reduction (MD= –1.50, 95%CI –2.52 to –0.48, P=0.004), and waist circumference reduction (MD= –3.20, 95%CI –4.38 to –2.02, P<0.01); (2) Compared with the placebo control group, the auricular pressure therapy group was superior in weight reduction (MD= –1.39, 95%CI –1.46 to –1.31, P<0.01), BMI reduction (MD= –0.65, 95%CI –0.91 to –0.38, P<0.01), body fat percentage reduction (MD= –0.58, 95%CI –0.67 to –0.49, P<0.01), and waist circumference reduction (MD= –2.34, 95%CI –4.23 to –0.46, P=0.01); (3) There were no significant differences between the auricular pressure therapy group and the body acupuncture group in weight reduction, BMI reduction, and waist circumference reduction (all P values >0.05); (4) Compared with the body acupuncture group, the auricular pressure combined with body acupuncture group was superior in BMI reduction (MD= –1.67, 95%CI –2.48 to –0.85, P<0.01); (5) Three RCTs reported adverse reactions including cyanotic skin, erythema near auricular pressure etc., and all adverse reactions were mostly mild and recovered after treatment.

Conclusions	Current evidence indicates that **auricular pressure therapy for simple obesity is superior to placebo and blank control, but similar to body acupuncture**; the auricular pressure combined with body acupuncture is superior to body acupuncture alone in BMI reduction. Due to the limited quantity and quality of included studies, more high quality studies are needed to verify the above conclusion.

1.4.7. Electroacupuncture + auricular acupuncture

1.4.7.1. Chang 2014

Chang Baoxia, Meng Fanjie,. [Meta-analysis on effect of electro-acupuncture combined with auricular point plaster therapy for patients with simple obesity]. Chinese Nursing Research. 2014;7:884-887. [186965].

> 目的]评价电针配合耳穴贴压治疗单纯性肥胖症的疗效。［方法]计算机检索Cochrane图书馆临床对照试验数据库□PubMed及中文科技期刊全文数据库 (VIP)□中国学术期刊全文数据库 (CNKI)□中国生物医学文献数据库 (CBM)等，查找符合纳入标准的随机对照试验，文献检索时间均从建库截至2012年7月，并按Jadad质量评分法评价纳入研究的方法学质量，之后提取相关数据用RevMan5. 0软件进行Meta分析。［结果]最终纳入6篇随机对照试验，共467例。与单纯电针治疗相比，电针配合耳穴贴压治疗单纯性肥胖症的临床疗效较好 [OR=1. 69, 95%CI (1. 02, 2. 80), P=0. 04];体重指数也有显著效果 [MD=-0. 56, 95%CI为 (-0. 93, -0. 20), P=0. 002];体脂百分比、腰围的改变也有较好效果 [MD (95%CI) 分别为0. 98 (0. 33, 1. 63), P=0. 003;3. 41 (2. 84, 3. 98), P<0. 000 01]□ [结论]现有证据证明电针配合耳穴贴压治疗单纯性肥胖症有一定疗效且相对安全，但入选的绝大部分试验质量不高，降低了该结论的可靠性.

Automatic translation	
Objective	To evaluate the therapeutic effect of electroacupuncture combined with auricular acupoint pressing therapy on simple obesity.
Methods	The Cochrane Database, PubMed, VIP, CNKI and CBM were searched by computer to find out the randomized controlled trials which were in accordance with the inclusion criteria. [Methods] The data were collected from the Cochrane Central Register of Clinical Trials The quality of the included studies was evaluated according to the Jadad Quality Score. Meta-analysis was performed using RevMan 5.0 software.
Results	Six randomized controlled trials were included. Compared with electroacupuncture alone, the clinical curative effect of electroacupuncture combined with auricular acupoint stitching in the treatment of simple obesity was better [OR = 1.69, 95% CI (1. 02, 2.80), P = 0.04] ; Body mass index, waist circumference changes also have a good effect [MD = -0.56, 95% CI (-0.93, -0.20), P = 0.002] (95% CI) were 0.98 (0.33, 1.63), P = 0.003; 3.41 (2.84, 3.98), P <0.01.
Conclusion	The existing evidence proves that electroacupuncture combined with auricular acupoint pressing has certain curative effect and relatively safe, but most of the selected trials are of low quality, which reduces the reliability of this conclusion.

1.4.8. Catgut Embedding

1.4.8.1. Yue 2024

Yue JH, Li XL, Zhang YY, Yang GH, Mah JZ, Li A, Zhao WW, Wang YL, Zhang QH, Huang JQ. Comparing verum and sham acupoint catgut embedding for adults with obesity: A systematic review and meta-analysis of randomized clinical trials. Medicine (Baltimore). 2024 Jan 26;103(4):e36653. https://doi.org/10.1097/MD.0000000000036653

Backgound	Previous clinical trials have reported that acupoint catgut embedding (ACE) is a useful modality for weight loss. However, no study has specifically investigated the effectiveness and safety of comparing verum and sham ACE in adults with obesity. Thus, this study aimed to evaluate the effectiveness and safety of comparing verum and sham ACE in obese adults.
Methods	A comprehensive literature search was conducted in the electronic databases of PUBMED, EMBASE, Cochrane Library, Web of Science, China National Knowledge Infrastructure, Wanfang, China Science and Technology Journal Database, and China Biomedical Literature Service System from inception to April 1, 2022. Randomized clinical trials that focused on evaluating the effectiveness of comparing verum and sham ACE in adults with obesity were included. The primary outcomes included reduction in body weight, body mass index, hip circumference, and waist circumference. The secondary outcomes consisted of a decrease in body fat percentage and the occurrence rate of adverse events. The methodological quality of the included randomized clinical trials was evaluated using the Cochrane Risk-of-bias tool. Statistical analysis was performed using RevMan 5.4 software.
Results	**Six trials involving 679 adults** with obesity were included in this study and entered in the data analysis of systematic review and meta-analysis. Results of the meta-analysis revealed significant reduction in body weight (mean difference [MD] = -1.68, 95% confidence intervals (CI) [-2.34, -1.01], I2 = 51%, P < .001), body mass index (MD = -0.51, 95% CI [-0.81, -0.21], I2 = 74%, P < .001), hip circumference (MD = -1.11, 95% CI [-1.67, -0.55], I2 = 0%, P < .001), waist circumference (MD = -2.42, 95% CI [-3.38, -1.45], I2 = 68%, P < .001), and decrease in body fat percentage (MD = -0.83, 95% CI [-1.30, -0.36], I2 = 16%, P < .001) in comparing verum and sham ACE. However, no significant difference was identified in AEs (odds ratio = 1.53, 95% CI [0.80, 2.95], I2 = 0%, P = .20) between the 2 groups.
Conclusion	ACE is effective in the treatment of obesity in adults with safety profile. Further studies with higher quality and larger sample size are warranted to confirm the current findings.

1.4.8.2. Gao 2023

Gao P, Xu X, Zhou M, Cui J, Yi T, Zhu T. The impact of acupuncture combined with acupoint catgut embedding on simple obesity: A systematic review and meta-analysis. Medicine (Baltimore). 2023 Jul 14;102(28):e34234. https://doi.org/10.1097/MD.0000000000034234

Background	Obesity is a widespread chronic metabolic disease that significantly impairs quality of life. Studies have demonstrated the efficacy of both acupuncture and acupoint catgut embedding (ACE) in the management of obesity. However, the superiority of acupuncture combined with ACE over acupuncture alone remains a subject of controversy. This study aims to elucidate this controversy and provide robust clinical evidence.
Methods	A comprehensive search of relevant literature from the initiation to July 2022 was carried out in 8 databases (PubMed, EMBASE, Cochrane database, Web of Science, CBM Database, CNKI, Wan-fang Database, and VIP Database). We included randomized controlled trials (RCTs) that investigated the treatment of simple obesity using acupuncture paired with ACE, with acupuncture alone as the control group. The pooled outcomes included body mass index (BMI), body weight (BW), %BF, waist circumference (WC), hip circumferences (HC), waist-to-hip ratio (WHR), therapeutic effective rate (TER), and adverse events. Two independent reviewers performed screening (using EndNote X9) and quality assessment (using the Cochrane Risk of Bias tool) for the included studies. with the software RevMan 5.3 was used to perform pooling of effect sizes. The certainty of the evidence was assessed using the Grading of Recommendations Assessment, Development, and Evaluation (GRADE).

Results	A total of **20 trials involving 15 datasets (1616 participants)** were included. The findings demonstrated significant improvements in outcome measures when acupuncture was combined with ACE, compared with acupuncture alone (BMI: MD = -1.49 kg/m2, 95% confidence interval [CI] = -1.93 to -1.04, P < .01; BW: MD = -2.38, 95% CI = -3.86 to -0.89, P < .01; %BF: MD = -2.19, 95% CI = -3.23 to -1.15, P < .01; WC: MD = -2.01, 95% CI = -3.66 to -0.35, P < .05; HC: MD = -0.83, 95% CI = -1.64 to -0.02, P < .05; WHR: MD = -0.02, 95% CI = -0.03 to -0.01, P < .01; TER: OR = 2.68, 95% CI = 1.93-3.74, P < .01). Adverse effects were reported in 4 studies.
Conclusion subsections	The results of this meta-analysis indicate that acupuncture combined with ACE is superior to acupuncture alone in the treatment of obesity, which is supported by the subgroup analysis. The assessment of efficacy may have been influenced by variations in study quality, potentially amplifying the observed effects. RCTs with larger sample sizes and improved methodological quality are needed to enhance the validity of the findings.

1.4.8.3. Jiali 2022

Jiali W, Lily L, Zhechao L, Jianping L, Mei H. Acupoint catgut embedding versus acupuncture for simple obesity: a systematic review and Meta-analysis of randomized controlled trials. J Tradit Chin Med. 2022 Dec;42(6):839-847. https://doi.org/10.19852/j.cnki.jtcm.2022.06.001

Objective	To evaluate the clinical effectiveness and safety of acupoint catgut embedding and acupuncture on simple obesity by Meta-analysis.
Methods	Studies on clinical randomized controlled trials of acupoint catgut embedding for simple obesity which were published from January 2015 to November 2020 were searched in Cochrane Central Register of Control Trials (Central), PubMed, China Science and Technology Journal Database, China National Knowledge Infrastructure Database and Wanfang data-bases. And those that met the inclusion criteria were screened. RevMan5.3 was used for Meta-analysis. The “Risk of Bias” tool was used to evaluate the quality of included studies. R studio software was used for the measurement of publication bias.
Results	A total of **33 studies** were included for Meta-analysis, including **2685** patients with simple obesity. Meta-analysis results showed the comparison of effectiveness rate was relative risk () = 1.12, 95%(1.08, 1.16), body mass index (BMI) was mean difference () = -1.12, 95% (-2.09, -0.14), waist circumference was = -2.14, 95% (-4.22, -0.06), and body mass was = -2.36, 95% (-3.99, -0.73). On the basis of diet and exercise intervention, the effectiveness rate [= 1.12, 95% (1.05, 1.19)], BMI [= -0.88, 95% (-1.35, -0.40)], waist circumference [= -1.10, 95%(-4.27, 2.07)], and body mass [= -0.68, 95%(-2.90, 1.54)]. The risk of bias of included literatures was low.
Conclusions	Acupoint catgut embedding therapy was slightly better than acupuncture therapy in most of the outcomes. Moreover, the treatment frequency of acupoint catgut embedding is less with larger stimulation intensity, which is more conducive to clinical promotion

1.4.8.4. Wang 2022

Wang ZY, Li XY, Gou XJ, Chen CL, Li ZY, Zhao C, Huo WG, Guo YH, Yang Y, Liu ZD. Network Meta-Analysis of Acupoint Catgut Embedding in Treatment of Simple Obesity. Evid Based Complement Alternat Med. 2022 May 23;2022:6408073. https://doi.org/10.1155/2022/6408073

Objective	To evaluate the clinical efficacy of acupoint catgut embedding in the treatment of simple obesity through network meta-analysis.

Methods	PubMed, Cochrane, Embase, China National Knowledge Infrastructure (CNKI), Wanfang, and VIP database (VIP) were searched by using computer from 2011 to August 2021, and 35 RCT studies were retrieved. The quality of the literature was evaluated using the modified Jadad scoring table, and Stata 15.0 software was used for traditional meta-analysis and network meta-analysis.
Results	**Thirty-five RCTs (3040 cases in total)** were included. Acupoint embedding, acupuncture, electroacupuncture, TCM, acupoint embedding + acupuncture, acupoint embedding + exercise diet therapy, acupoint embedding + TCM, exercise diet therapy, acupoint embedding + moxibustion, and acupoint embedding + cupping were investigated in the studies. The results of network meta-analysis were as follows: in terms of total effective rate, acupoint catgut embedding was superior to acupuncture, electroacupuncture, and exercise diet therapy ($P < 0.05$); electroacupuncture, acupoint catgut embedding + acupuncture, acupoint catgut embedding + exercise diet therapy, acupoint catgut + TCM, acupoint catgut + moxibustion, and acupoint catgut + cupping were superior to acupuncture ($P < 0.05$); acupoint catgut + moxibustion was superior to electroacupuncture ($P < 0.05$); acupoint catgut + TCM, acupoint catgut + moxibustion, and acupoint catgut + cupping were superior to TCM treatment ($P < 0.05$); and electroacupuncture, acupoint catgut, acupoint catgut + acupuncture, acupoint catgut + exercise diet therapy, acupoint catgut + TCM, acupoint catgut embedding + moxibustion, and acupoint catgut embedding + cupping were superior to sports diet therapy ($P < 0.05$). Regarding weight loss, acupuncture treatment was superior to acupoint catgut embedding therapy ($P < 0.05$); acupoint catgut embedding + exercise diet therapy, acupoint catgut embedding + TCM, acupoint catgut embedding + moxibustion, and acupoint catgut embedding + cupping were superior to acupuncture and electroacupuncture treatment ($P < 0.05$); acupoint catgut embedding + exercise diet therapy, acupoint catgut embedding + TCM, and acupoint catgut embedding + moxibustion were superior to TCM treatment ($P < 0.05$); and acupoint catgut embedding, acupoint catgut embedding + acupuncture, catgut embedding + exercise diet therapy, acupoint catgut embedding + TCM, acupoint catgut embedding + moxibustion, and acupoint catgut embedding + cupping were superior to exercise diet therapy ($P < 0.05$). In terms of BMI reduction, acupoint catgut embedding + moxibustion and acupoint catgut embedding + cupping were more evident than acupuncture treatment ($P < 0.05$); and acupoint catgut embedding + moxibustion was more evident than electroacupuncture treatment ($P < 0.05$).
Conclusion	Acupoint catgut embedding and its combination with other therapies are the first choice for the treatment of simple obesity.

1.4.8.5. Wujie 2022

Wujie YE, Jingyu X, Zekai YU, Xingang HU, Yan Z. Systematic review and Meta-analysis of acupuncture and acupoint catgut embedding for the treatment of abdominal obesity. J Tradit Chin Med. 2022 Dec;42(6):848-857. https://doi.org/10.19852/j.cnki.jtcm.2022.06.002

Objective	To systematically review and analyze the effect of acupuncture and acupoint catgut embedding in treatment of abdominal obesity to provide a more reasonable clinical treatment regimen.

Methods	Ten databases were searched as of August 2022: the English databases PubMed, Embase, Cochrane Library, Web of Science, Wiley, and Scopus and the Chinese databases China National Knowledge Infrastructure Database, China Science and Technology Journal Database, Wanfang, and SinoMed/Chinese Biomedical Literature Database. Randomized controlled trials (RCTs) of acupuncture and acupoint catgut embedding as the main interventions to treat abdominal obesity were extracted. The investigators imported the citations into EndNote version X9.1 for deduplication, screening, extraction, and integration. The risk of bias in the included RCTs was assessed according to the Cochrane Handbook. RevMan 5.4 software was used to conduct a Meta-analysis of RCTs that met the inclusion criteria.
Results	**Thirteen RCTs (1069 patients)** were included in this study, and the data of eleven RCTs (966 patients) were include in the Meta-analysis. The results showed that acupoint catgut embedding can significantly change the weight and waist circumference of patients with abdominal obesity when compared to sham acupuncture or no treatment [mean difference () = 2.32, 95% confidence interval () (1.88, 2.76), < 0.000 01], [= 3.47, 95% (1.99, 4.94), < 0.000 01]. The change in hip circumference after acupuncture was also significant [= 0.89, 95% (0.12, 1.66), = 0.02].
Conclusion	This study found that acupuncture and acupoint catgut embedding can effectively treat abdominal obesity, therefore, these interventions can be used as clinical supplements and alternative therapies. The diagnostic criteria of the existing studies and the intervention measures of the control group are not unified. It will be necessary to improve the clinical study protocols and expand the sample size to further validate the reliability of the results obtained of this study.

1.4.8.6. Sheng 2019 ☆

Sheng J , Jin X , Zhu J , Chen Y , Liu X. The Effectiveness of Acupoint Catgut Embedding Therapy for Abdominal Obesity: A Systematic Review and Meta-Analysis. Evid Based Complement Alternat Med. 2019:12P. [200518].

Backgroud	Acupoint catgut embedding is a useful therapy for weight management and widely applied in China.
Methods	This review aimed to systematically evaluate the effects of acupoint catgut embedding on abdominal obesity. We searched the PubMed, Cochrane-Library, Embase, OVID, MEDLINE, ISI (web of science), Wanfang, VIP, CBM, and CNKI for randomized controlled trials that used acupoint catgut embedding to treat abdominal obesity before April 2019 with the language restriction of Chinese and English. The combination subject terms of abdominal obesity (or central obesity) and acupoint catgut embedding (or catgut implantation, catgut embedding) were used.
Results	We found **15 studies involving 1584 individuals**. When acupoint catgut embedding plus electroacupuncture is compared with electroacupuncture alone, significant reductions in improvement rate (RR = 1.03, 95% CI = 0.99~1.08), body weight (MD = 5.20, 95%CI = 1.16~9.25), body mass index (MD = 1.73, 95%CI = 0.70~2.76), waist circumference (MD = 2.91, 95%CI = 1.36~4.46), and hip circumference (MD = 1.06, 95%CI = -0.18~2.30) were found. Mean values of body weight by acupoint catgut embedding were 1.35 kg compared with electroacupuncture. Less adverse events were reported in all included articles.
Conclusions	In summary, pooled outcomes of acupoint catgut embedding presented a tendency of equal effects to other kinds of acupuncture, whereas acupoint catgut embedding plus electroacupuncture is more effective for abdominal obesity. This study is registered with PROSPERO 2017 (CRD42017082357).

1.4.8.7. Cho 2018 ☆☆☆

Cho WC, Li C, Chen HY. Clinical efficacy of acupoint embedment in weight control: A systematic review and meta-analysis. Medicine (Baltimore). 2018;97(36). [168672].

Introduction	Acupoint embedment, a modified acupuncture technique, is gaining its popularity in weight control in adult obesity or overweight nowadays.
Objective & methods	The objective of this study was to investigate the clinical efficacy of acupoint embedment in weight control of adult obesity or overweight by systematically assess available randomized controlled trials (RCTs) and analyze the integrated findings. A total of 529 literatures were initially searched from the databases. Five RCTs in assessing the effect of acupoint embedment versus sham control group were identified.
Results	A total of 219 subjects in the intervention group and 206 subjects in the control group from 5 eligible studies were eventually included in this meta-analysis. Mean body mass index (BMI) decreased 0.94 kg/m (95% confidence interval [CI]: -1.56 to -0.32, P = .003) more in acupoint embedment group than the sham control group. Meanwhile, subjects received acupoint embedment had 2.97 kg (95% CI: -4.44 to -1.49, P < .0001) decrease in mean body weight more than in sham control group. Both parameters were statistically significant. Adverse events including bruise, soreness and cramp, patchy skin induration, erythema were reported, yet none involved hospitalization or mortality. Interestingly, stomach meridian and spleen meridian involved in all 5 studies.
Conclusion	This meta-analysis showed that acupoint embedment was more effective in weight control than the sham control group. Together with its convenience and low cost, acupoint embedment may be considered as an alternative treatment in weight control.

1.4.8.8. Guo 2015 ☆

Guo T, Ren Y, Kou J, Shi J, Tianxiao S, Liang F. Acupoint Catgut Embedding for Obesity: Systematic Review and Meta-Analysis. Evid Based Complement Alternat Med 2015;[182282].

Objectives	Acupoint catgut embedding (ACE) was applied widely to antiweight in China. The aim of this review is to estimate the effectiveness and safety of ACE on obesity.
Methods	A literature search was conducted in PubMed, Cochrane Library, EBASE, CNKI, and so forth, using combination subject terms of obesity (or overweight, weight loss, etc.) and acupoint catgut embedding (or catgut implantation, catgut embedding). Improvement rate, reduction of body weight and body mass index (BMI), and so forth were analyzed.
Results	**43 studies were included for systematic review and meta-analysis**. Although with poor methodological quality, ACE was superior to manual acupuncture (MA), sham, and cupping in improvement rate and presented a better tendency (OR > 1) compared with drugs and electroacupuncture (EA). Mean values of weight loss by ACE were 1.14kg, 1.26kg, 1.79kg, and 3.01kg comparing with MA, drugs, EA, and sham, respectively. Mean of BMI reduced to 0.56kg/m(2),0.83kg/m(2), 0.79kg/m(2), and 1.63kg/m(2) comparing with MA, drugs, EA, and sham. Less adverse effects were reported. Pooled outcomes presented a **tendency of equal or superior effects to other interventions and fewer side effects**.
Conclusion	Future high quality trials with rigorous design and positive FDA approved drug as control are urgent to assess the effect of ACE for obesity.

1.4.8.9. Liao 2014 ☆

Liao JQ, Song X, Chen Y, Liang LC, Wang SX. [Clinical randomized controlled trials of acupoint catgut-embedding for simple obesity: a meta-analysis]. Zhongguo Zhen Jiu 2014;34(6):621-6. [174974].

Objectives	The clinical therapeutic effect of acupoint catgut-embedding for simple obesity was systemically analyzed to provide reference and assistance for its clinical treatment and research.
Methods	By searching in the CBM, CNKI, VIP, Wanfang, Pubmed, Springer and Medline databases, clinical randomized controlled trials (RCT) of acupoint catgut-embedding for simple obesity published from Jan, 2009 to July, 2013 were collected while Revman 5. 2 software was applied to perform the Meta-analysis.
Results	Totally 19 articles were acquired with 1 658 cases involved. The effective rate was selected as primary outcome measure in 19 articles. The Meta-analysis was performed among homogeneous researches. The results indicated that compared with other therapies, pooled OR of acupoint catgut-embedding was 2.45 with 95% CI [1.81, 3.32]; in the test for overall effect, Z = 5.81, implying the efficacy difference of two therapies was significant in the treatment of simple obesity (P < 0.01). In subgroups analysis, in the event of treatment session with more than 3 months, compared with other therapies, pooled OR of acupoint catgut-embedding was 2.61 with 95% CI [1.53, 4.46]; in test for overall effect, Z = 3.51, implying the efficacy difference of two therapies was significant in the treatment of simple obesity (P < 0.01); in the event of treatment session with less than 3 months, compared with other therapies, pooled OR of acupoint catgut-embedding was 2.38 with 95% CI[1.65, 3.44]; in test for overall effect, Z = 4.46, implying in the treatment of simple obesity the efficacy difference of two therapies was significant (P < 0.01). Compared with electroacupuncture, OR of acupoint catgut-embedding was 1.79, 95% CI [1.08, 2.95] (P = 0.02). Compared with acupuncture, OR of acupoint catgut-embedding was 1.89, 95% CI [1.16, 3.09] (P = 0.01), which explained that compared with electroacupuncture and acupuncture, the efficacy of acupoint catgut-embedding was significantly different.
Conclusion	In a word, the **clinical efficacy of acupoint catgut-embedding is superior to other therapies in the treatment of simple obesity**.

1.4.8.10. Zhang 2013 ☆

Zhang Xuan-Ping□张选平□,Jia Chun-Sheng□贾春生□,Wang Jian-Ling□王建岭□. Systematic Review on the Effectiveness of Embedding Catgut Therapy for Simple Obesity. World Journal of Acupuncture-Moxibustion. 2013;23(3):53. [170560].

Objectives	To systematically evaluate the effect of acupoint catgut embedding therapy (ACET) for simple obesity.
Methods	Computer retrieval was used for randomized controlled trials on the treatment effect of simple obesity with ACET in databases of the China National Knowledge Infrastructure (CNKI), Wanfang Data system, and the China Biology Medicine disc (CBMDisc). The Jadad Quality Scale was used in the evaluation of included studies. The outcome indicators were analyzed with the Review Manage 5.1 software.

Results	A total of 16 randomized controlled trials were included finally. The meta-analysis result showed that compared with the control group, there was statistically significance on the total efficiency of using ACET for simple obesity [OR=2.51, 95% confidence interval (1.74, 3.63), Z=4.91, P<0.000 01]. The analysis on the literature quality showed that there was only 1 article marked as 3 points. The other 15 articles marked as 2 points. The quality of published articles was generally low. There were publication biases and the blinding method was seldom used, the losses of follow-up / drop oup / withdraw were reported with less. There were 27 acupoints used in the treatment, which mainly included Tianshu（天枢 E25), Zhongwan（中院 CV 12), Fenglong （丰隆 E40), Shuifen（水分 CV 9), Qihai（气海CV 6), Sanyinjiao（三阴交Sp 6), Zusanli（足三里S 丁36), Ashi point, Daheng（大横 SP 15)。The five kinds of catgut embedding needle were injection needles + acupuncture needle, specialized catgut embedding needle, spinal needle, triangular needle, and skin suture needle.
Conclusions	There is **definite efficiency of using ACET in the treatment of simple obesity**. However the clinical efficiency still lacks of sufficient evidences. Therefore, further clinical research should be conducted in the providing of reliable evidences in the clinical decision-making in the future.

1.4.8.11. Huang 2012

Huang CY, Choong MY, Li TS. Treatment of obesity by catgut embedding: an evidence-based systematic analysis. Acupuncture in Medicine. 2012;30(3):233-4. [164521].

Objectives	Thus, the aim of this study is to explore the efficacy of catgut embedding treatment in obesity and to develop specific recommendations based on the review of medical literature.
Methods	PubMed to January 2012 was searched for any study in English or Chinese evaluating the outcome of catgut embedding for the treatment of obesity. One investigator selected the articles for inclusion. Two investigators independently abstracted data from all eligible studies using a standardised Excel file. These authors retrieved data on study design, study period, study size, patient demographics and treatment outcome. Relevant studies were assigned a level of evidence according to the Oxford Centre for Evidence- Based Medicine 2011 levels of evidence.
Results	The sole RCT shows the effective rate in the catgut embedding group was similar to the electroacupuncture group (p>0.05) and both treatments had significant effects in decreasing waistline, hip circumference and waist-to-hip ratio (p< 0.05).
Conclusions	Thus, further comparative studies are both justified and necessary to provide more information on the best technique and more rigorous evidence on effectiveness.

1.4.9. Laser acupuncture

1.4.9.1. Namazi 2017

Namazi N, Khodamoradi K, Larijani B, Ayati MH. Is laser acupuncture an effective complementary therapy for obesity management? A systematic review of clinical trials. Acupunct Med. 2017;35(6):452-459. [99835].

Background	Complementary therapies may increase the success rate of weight loss via a calorie-restricted diet. Acupuncture is a popular complementary therapy for obesity management. To our knowledge, no studies have summarised the effects of laser acupuncture (LA) on obesity.

Objective	To evaluate the efficacy of LA, in particular with respect to its impact on anthropometric features and appetite in obese adults, by conducting a systematic review of previous clinical trials.
Methods	We searched PubMed/Medline, Scopus, Web of Science, the Cochrane Library, Embase and Google Scholar electronic databases for papers published through October 2016. All clinical trials in English containing either anthropometric indices or appetite parameters were included. Two reviewers independently examined studies based on a predefined form for data extraction and the Jadad scale for quality assessment in order to minimise bias throughout the evaluation.
Results	After screening the papers, seven clinical trials met the criteria and were included in the systematic review. Positive effects of LA therapy were seen in body weight (n=3), body mass index (n=5), waist circumference (n=4), hip circumference (n=3), waist to hip ratio (n=4) and % fat mass (n=3). Appetite parameters were reported in one study, which showed that LA can reduce appetite and increase the sensation of feeling full.
Conclusion	Although some studies have indicated beneficial effects for LA on obesity, the lack of evidence with high methodological quality made it impossible to reach a definitive conclusion about the efficacy of LA for obesity management. Further high-quality, randomised, sham-controlled clinical trials with a larger sample size are needed to shed light on the efficacy of LA for obesity management and weight maintenance.

1.4.10. Cupping

1.4.10.1. Kang 2023

Kang D, Shin WC, Kim T, Kim S, Kim H, Cho JH, Song MY, Chung WS. Systematic review and meta-analysis of the anti-obesity effect of cupping therapy. Medicine (Baltimore). 2023 Jun 16;102(24):e34039. https://doi.org/10.1097/MD.0000000000034039

Backgound	Cupping therapy is a common practice in Korean medicine. Despite developments in this clinical and research area, the current knowledge is insufficient to identify the effects of cupping therapy on obesity. We aimed to assess the effects and safety of cupping therapy on obesity by performing a systematic review and meta-analysis of the effects of cupping therapy.
Methods	A systematic search of databases was conducted, including MEDLINE/PubMed, EMBASE, Cochrane Central Register of Controlled Trials, Chinese National Knowledge Infrastructure, Citation Information by the National Institute of Informatics, KoreaMed, Oriental Medicine Advanced Searching Integrated System, and ScienceON, for full-text randomized controlled trials (RCTs) published through January 14, 2023, with no language restrictions. The experimental groups received cupping therapy combined with traditional Chinese medicine (TCM) and conventional therapy. The control groups received no treatment, conventional therapy, or TCM treatments alone. The experimental and control groups were compared in terms of body weight (BW), body mass index (BMI), hip circumference (HC), waist circumference (WC), waist-hip ratio (WHR), and body fat percentage (BFP). We evaluated the risk of bias using the 7 domains stipulated by the Cochrane Collaboration Group and performed a meta-analysis using Cochrane Collaboration software (Review Manager Software Version 5.3).
Results	A total of 21 RCTs were included in this systematic review and meta-analysis. The analysis revealed improvements in BW ($P < .001$), BMI ($P < .001$), HC ($P = .03$), and WC ($P < .001$). However, there were no clinically significant changes in WHR ($P = .65$) or BFP ($P = .90$), both of which had very low certainty of evidence. No adverse events were reported.

Conclusion	Overall, our results show that cupping therapy can be used to treat obesity in terms of BW, BMI, HC, and WC and is a safe intervention for the treatment of obesity. However, the conclusions of this review should be interpreted with caution in clinical practice because of the uncertain quality of the included studies.

2. Overviews of Systematic Reviews

2.1. Chen 2022

Chen J, Shergis JL, Guo X, Zhang AL, Wang H, Lu C, Xue CC, Xie C. Acupuncture Therapies for Individuals with Overweight or Obesity: An Overview of Systematic Reviews. Diabetes Metab Syndr Obes. 2022 May 30;15:1651-1666. https://doi.org/10.2147/DMSO.S356853

Purpose	An increasing number of people are affected by overweight or obesity, and the personal and social health burden is growing rapidly. Acupuncture is gaining popularity as an alternative treatment to manage weight. This research aims to update and synthesize the evidence of acupuncture therapies from systematic reviews for treating overweight and obesity.
Methods	Nine databases were searched from their inception to March 2022. Overweight or obesity was classified using standard diagnostic criteria. Published systematic reviews that included randomized controlled trials and quasi-randomized studies were eligible. Quality was assessed via the AMSTAR-2 scale and risk of bias using the ROBIS tool.
Results	**Thirty-eight systematic reviews** were identified. Acupuncture therapies and auricular acupoint stimulation showed benefits in terms of reducing body weight and body mass index. Catgut embedding therapy and abdominal acupuncture are currently not in widespread use with insufficient evidence. Acupuncture therapies appear to be safe. Most of the reviews were assessed as having high risk of bias and low confidence in the findings.
Conclusion	There is a need for larger and more methodologically sound randomized controlled trials to evaluate the effectiveness of acupuncture therapies for individuals who are affected by overweight or obesity.

2.2. Yao 2020

Yao Junpeng. [Acupuncture for Obesity: An Overview of Systematic Reviews]. Modernization of TCM and Materia Medica-World Science and Technology. 2020. [212890].

Objective	To re-evaluate the systematic evaluation of acupuncture treatment for simple obesity, and provide reference for clinical evidence-based decision-making of acupuncture.
Methods	PubMed, EMbase, the Cochrane Library, CBM, CNKI, VIP and WanFang Data were electronically searched to collect systematic reviews evaluating acupuncture for obesity from inception to February 28 th 2019. AMASTAR 2 tool was used to evaluate the methodological quality of the system evaluation, and GRADE system was used to classify the outcome indicators of the system evaluation. Statistical analysis was carried out with Stata 14. 0 software

Results	A total of **11 relevant SRs** were included. The results of AMSTAR 2 show that the quality of 9 systematic reviews is extremely low, 2 quality grades are low. The most problematic items are the undetermined research method before implementation, the list of excluded studys not provided, and the risk of bias without considering individual studies. GRADE results showed that the quality of evidence of 34 outcomes was low or very low, and the quality of evidence of the five outcomes was medium. The most important factor leading to the degradation was the limitation, followed by publication bias and inconsistency.
Conclusions	The current evidence confirms the effectiveness of acupuncture for obesity; however, the methodological quality of the systematic review and the reliability of outcome measures are relatively low. Therefore, high-quality original research is needed to evaluate the efficacy and safety of acupuncture for simple obesity, and to standardize the methodological quality and reporting quality of acupuncture clinical research in order to improve the level of evidence.

3. Clinical Practice Guidelines

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

3.1. Health Promotion Board (HPB, Singapore) 2016 ⊕

Obesity. HPB-MOH Clinical Practice Guidelines. 2016:150P. [197019].

Acupuncture by trained/qualified professionals may be considered as short-term, adjunctive anti-obesity therapeutic option on a case-by-case basis.Grade B, Level 2++

3.2. Haute Autorité de Santé (HAS, France) 2011 Ø

Recommandation de bonne pratique : Surpoids et obésité de l'adulte : prise en charge médicale de premier recours. Paris: Haute Autorité de Santé (HAS). 2011. 21P. [164929].

Il n'y a pas d'effet démontré de l'acupuncture, de l'acupression, des suppléments alimentaires, de l'homéopathie, de la thérapie par l'hypnose dans le traitement de l'excès de poids.