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Postoperative Ileus

Ileus post-opératoire : évaluation de l'acupuncture

1. Systematic Reviews and Meta-Analysis

1.1. Generic Acupuncture

1.1.1. Ren 2026 (Gastrointestinal Tumors)

Ren SS, Hou YC, Qin SY, Cheng SQ. Efficacy of Acupuncture in Postoperative Recovery for Gastrointestinal Tumors: A Systematic Review and Meta-Analysis. Chin J Integr Med. 2026 Jan 7. https://doi.org/10.1007/s11655-025-4149-6

Background	Postoperative gastrointestinal dysfunction (POGD) is a common complication following gastrointestinal tumor surgery, significantly impairing patient recovery and quality of life. The efficacy of acupuncture in improving POGD remains unclear.
Objective	To evaluate the role of acupuncture in enhancing postoperative gastrointestinal function in patients with gastrointestinal tumors, providing evidence-based clinical insights.
Methods	Relevant studies were searched in PubMed, Cochrane Library, EMbase, Web of Science, China National Knowledge Infrastructure, Wanfang Data, and VIP Database from inception to December 4, 2024. Only clinical-type studies involving acupuncture or electroacupuncture in the treatment of patients with gastrointestinal tumors were included. The primary outcomes were the first flatus time, first bowel movement time, first oral feeding, and hospitalization time. Secondary outcomes included white blood cell (WBC) count and C-reactive protein (CRP) level. Study quality was appraised using the domain-based evaluation described in the Cochrane Handbook.
Results	This study included **8 randomized control trials** (CRCTs) involving **413 patients**. Meta-analysis revealed that acupuncture significantly reduced the time to first flatus ($P<0.05$), time to first oral feeding ($P<0.05$), and hospital stay ($P<0.05$). However, it did not significantly affect the time to first bowel movement ($P=0.53$). Additionally, acupuncture significantly decreased CRP levels at 3 and 6/7 d postoperatively ($P<0.05$), as well as WBC counts at 6/7 d ($P<0.05$). The overall risk of bias of the included studies was rated as low to unclear.
Conclusion	Current evidence supports acupuncture as an effective adjunctive treatment for improving postoperative POGD in patients with gastrointestinal tumors. Further, high-quality RCTs are needed to validate these findings and optimize clinical protocols.

1.1.2. Wu 2026 (gastrointestinal cancer)

Wu Y, Li X, Tan X, Tan J, Chang X. Influence of acupuncture and moxibustion on postoperative gastrointestinal dysfunction among patients with gastrointestinal cancer: A network meta-analysis.

Complement Ther Med. 2026 May;97:103331. https://doi.org/10.1016/j.ctim.2026.103331

Objective	This study aims to evaluate and compare the relative efficacy and safety of acupuncture and moxibustion interventions for the recovery of gastrointestinal function and the incidence of adverse reactions after gastrointestinal cancer (GIC) surgery.
Methods	Eight databases were retrieved up to July 2025. The observation indicators included: time to first flatus, defecation, food intake, and bowel sound; incidence of postoperative adverse reactions (nausea and vomiting, abdominal distension and diarrhea, and ileus); and clinical efficacy rate. Risk of bias was assessed using the Cochrane RoB 2.0 tool. Statistical analysis was conducted via Bayesian network meta-analysis implemented in R. Intervention efficacy was quantitatively ranked using the surface under the cumulative ranking curve (SUCRA), with relevant diagrams generated in Stata (version 18.0).
Results	In total, **43 randomized controlled trials** (RCTs) were included in this study, involving 4019 patients, to evaluate the efficacy of 10 interventions of acupuncture and moxibustion. The network meta-analysis revealed that electroacupuncture was the most effective in shortening the time to first flatus after surgery (MD = -3.8, 95 % CI [-7.06, -0.61]) and the time to first defecation (MD = -4.97, 95 % CI [-9.61, -0.41]) (SUCRA = 75.1 %, SUCRA = 77.2 %). Parallel needling method (MD = -4.83, 95 % CI [-8.16, -1.45]) performed best in lessening the time to first postoperative bowel sound (SUCRA = 92.1 %). All interventions failed to significantly shorten the time to first food intake after surgery. In terms of clinical efficacy rate, moxibustion (MD = 1.54, 95 % CI [1.08, 2.3]) showed the best performance in ameliorating the overall clinical efficacy rate after surgery (SUCRA = 89.5 %). Thumbtack needle exerted the best effect in decreasing postoperative nausea and vomiting (RR = 6.7, 95 % CI [0.18, 269.63]) and abdominal distension and diarrhea (RR = 5.78, 95 % CI [1.07, 34.89]) (SUCRA = 76.1 %, SUCRA = 89.6 %).
Conclusion	Acupuncture and moxibustion therapy, as an adjunctive therapy, has exhibited favorable efficacy and safety in treating POGD related to GICs. RCTs of high quality are warranted to further ascertain these findings in the future.

1.1.3. Zhu 2026 (cancer patients)

Zhu M, Chen L, Peng X, Liu M, Liu Y, Liu W. A systematic review and meta-analysis of acupuncture versus sham/placebo acupuncture for postoperative gastrointestinal dysfunction in cancer patients: Evidence from randomized controlled trials. Medicine (Baltimore). 2026 Jan 23;105(4):e47305. https://doi.org/10.1097/MD.0000000000047305

Background	Acupuncture has been found to be an effective treatment for postoperative gastrointestinal dysfunction (PGD). Nonetheless, it remains uncertain if acupuncture possesses a placebo effect. This study compared the efficacy and safety of acupuncture against sham/placebo acupuncture for PGD in cancer.
Methods	We comprehensively searched the Central Register of Controlled Trials of 8 databases from database inception through August 31, 2024 for randomized controlled trials that compared acupuncture therapy with sham/placebo acupuncture. Cochrane risk of bias tool (version 2 of the Cochrane risk of bias tool [RoB2]) was used to analyze risk of bias. Data analysis was performed with Review Manager 5.4, Stata 12.0 software was used to test the publication bias.

Results	**Eleven randomized controlled trials involving 1923 patients** were included in this study. Meta-analysis results showed that acupuncture therapy was superior to sham/placebo acupuncture in terms of improving time to first flatus (TFF), time to first defecation (TFD), time to bowel sound recovery, length of hospital stay (LOS). The subgroup analysis based on the type of acupuncture and sham acupuncture showed that transcutaneous electrical acupoint stimulation could significantly reduce the TFF, LOS, TFD, and time to bowel sound recovery; electroacupuncture could significantly reduce the TFF and TFD, and there was no significant statistical difference between electroacupuncture and sham acupuncture in LOS. No trial reported severe adverse events of acupuncture.
Conclusion	The results of this study indicate that acupuncture shown greater efficacy than sham/placebo acupuncture in the treatment of PGD in cancer. Acupuncture appeared safe, but adverse events were underreported.

1.1.4. Arslan 2025 (Colorectal Surgery)

Arslan HN, Çelik SŞ, Bozkul G. Postoperative Ileus and Nonpharmacological Nursing Interventions for Colorectal Surgery: A Systematic Review. J Perianesth Nurs. 2025 Feb;40(1):181-194. https://doi.org/10.1016/j.jopan.2024.03.012

Purpose	This review evaluates nonpharmacological interventions for postoperative ileus (POI) prevention and treatment.
Design	We systematically reviewed articles from various databases between January 2012 and February 2023 on POI prevention in colorectal surgery patients, emphasizing nursing interventions.
Methods	Inclusion was based on criteria such as language (English or Turkish), date range, and study type. The risk of bias was evaluated using Cochrane's RoB2 tool.
Findings	Of the 3,497 articles found, 987 unique articles were considered. After title and abstract reviews, 977 articles were excluded, leaving 52 randomized controlled trials for examination. Common interventions included chewing gum, early hydration, **acupuncture**, and coffee consumption. Compared to control groups, intervention groups had quicker bowel function return, shorter hospital stays, fewer complications, and enhanced quality of life.
Conclusion	Nondrug nursing interventions post colorectal surgery can effectively mitigate POI, optimize bowel function, and boost patient satisfaction, warranting their incorporation into post-surgery care protocols.

1.1.5. Sarmiento-Altamirano 2025 (gastrointestinal surgery)

Sarmiento-Altamirano D, Arce-Jara D, Balarezo-Guerrero P, Valdivieso R. Reduction of postoperative ileus in gastrointestinal surgery. Systematic review and meta-analysis. J Gastrointest Surg. 2025 Jan 7:101960. https://doi.org/10.1016/j.gassur.2025.101960

Backgound	Postoperative ileus is a surgical complication that affects intestinal motility. There are measures to reduce this problem, but not all have conclusive current evidence.
Objective	To determine which measures such as coffee, chewing gum, electro-acupuncture, Daikenchuto (DKT) and prokinetic agents are most effective in reducing postoperative ileus in patients undergoing gastrointestinal surgeries.
Methods	A systematic search was conducted following PRISMA guidelines on Google Scholar, PubMed, ScienceDirect, and Web of Science. Measures were extracted to define postoperative ileus: time to passage of first flatus and time to passage of first stool. Mean differences were analyzed in subgroup analyses.

Results	Out of 176 studies, 37 were selected for the systematic review, involving 4,647 patients. The reduction in time to passage of first flatus was -18.33hours (95% CI -26.46, -10.20; p<0.01) for **electro-acupuncture**; -5.83hours (95% CI -9.40, -2.26; p<0.01) for DKT; -14.87hours (95% CI -26.84, -2.90; p=0.01) for chewing gum; and -1.90hours (95% CI -8.28, 4.48; p=0.56) for coffee. The reduction in time to passage of first stool was -32.27hours (95% CI -39.28, -25.26; p<0.01) for prokinetic agents; -23.05hours (95% CI -29.31, -16.78; p<0.01) for chewing gum; -12.89hours (95% CI -17.78, -8.01; p<0.01) for coffee; -19.76hours (95% CI -32.79, -6.72; p<0.01) for **electro-acupuncture**; and -0.70hours (95% CI -25.51, 26.92; p=0.96) for DKT.
Conclusions	The use of chewing gum, **electro-acupuncture**, and prokinetic agents decreases the time to passage of first flatus and time to passage of first stool and indirectly reduces postoperative ileus.

1.1.6. Yu 2024 (gastric cancer surgery)

Yu C, Mao X, Zhou C. Influence of acupuncture and moxibustion on gastrointestinal function and adverse events in gastric cancer patients after surgery and chemotherapy: a meta-analysis. Support Care Cancer. 2024 Jul 18;32(8):524. https://doi.org/10.1007/s00520-024-08740-8

Objective	The impact of acupuncture and moxibustion on postoperative complications and adverse events (AEs) of chemotherapy in patients with gastric cancer (GC) has been investigated. Through a meta-analysis of existing randomized controlled trials (RCTs), this study sought to strengthen the evidentiary basis to help investigators further understand the effects of moxibustion and acupuncture on postoperative complications and AEs of chemotherapy among GC patients.
Methods	Embase, Web of Science, PubMed, The Cochrane Library, China National Knowledge Infrastructure (CNKI), Wanfang Database, and VIP Database for Chinese Technical Periodicals were searched to collect RCTs on effects of acupuncture and moxibustion on gastrointestinal function and AEs among GC patients undergoing surgery and chemotherapy. Outcome measures included postoperative gastrointestinal recovery (bowel sound recovery time, time to first flatus/defecation/feeding), the incidence of AEs (nausea and vomiting, abdominal distension, and diarrhea), myelosuppression (white blood cells, hemoglobin, and platelet), and immune function indicators (CD3+ and CD4+). To assess quality, the Cochrane Risk of Bias Tool was utilized. Review Manager 5.4 was implemented to do the meta-analysis.
Results	**Fifteen eligible RCTs involved 1259 patients**. Meta-analysis results showed that the experimental group had a significantly shorter bowel sound recovery time (MD = - 14.57, 95% CI = [- 18.97, - 10.18], P < 0.00001), time to first flatus (MD = - 17.56, 95% CI = [- 22.23, - 12.88], P < 0.00001), time to first defecation (MD = - 17.05, 95% CI = [- 21.02, - 13.09], P < 0.00001), and time to first feeding (MD = - 23.49, 95% CI = [- 28.81, - 18.17], P < 0.00001) than the control group. There were significant decreases in the incidence of nausea and vomiting (RR = 0.46, 95% CI = [0.21, 1.02], P = 0.05) and abdominal distension (RR = 0.45, 95% CI = [0.27, 0.75], P = 0.002) observed in the experimental group in comparison with the control group. The experimental group demonstrated a significant increase in white blood cell counts in comparison with to the control group (MD = 0.89, 95% CI = [0.23, 1.55], P = 0.008). The experimental group showed significantly higher levels of CD3+ (MD = 7.30, 95% CI = [1.86, 12.74], P = 0.009) and CD4+ (MD = 2.75, 95% CI = [1.61, 3.90], P < 0.00001) than the control group.
Conclusion	Among GC patients, acupuncture and moxibustion can aid in gastrointestinal function recovery, reduce the incidence of AEs of surgery and chemotherapy, and improve immune function.

1.1.7. Zhou 2024 (colorectal cancer)

Zhou T, Wang S, Fan BJ, Zhang LX, Hu SH, Hou W. Clinical efficacy of acupuncture in treating postoperative gastrointestinal dysfunction of colorectal cancer, a systematic review and Meta analysis. Zhen Ci Yan Jiu. 2024 Feb 25;49(2):208-219. https://doi.org/10.13702/j.1000-0607.20221319

Objectives	To evaluate the efficacy of acupuncture in the treatment of postoperative gastrointestinal dysfunction(POGD) of colorectal cancer.
Methods	Randomized controlled trials of acupuncture in the treatment of POGD were retrieved from 7 databases including PubMed, Embase, Cochrane Library, China National Knowledge Infrastructure, VIP Chinese Journal Service Platform, WanFang Data Knowledge Service Platform, and China Biology Medicine disc. The search period ranged from the inception of the databases to November 10th, 2022. The quality of the included literature was assessed using the Cochrane bias risk assessment tool and the modified Jadad scale. Meta analysis was conducted using RevMan 5.4. Regression analysis and bias risk analysis were performed using Stata 16.0. Trial sequential analysis was conducted using TSA 0.9 software.
Results	A total of **27 randomized controlled trials involving 2 629 patients** were included. Intervention measures included manual acupuncture, electroacupuncture, transcutaneous acupoint electrical stimulation, warm acupuncture, and thumb-tack needle. The results showed that acupuncture treatment significantly reduced time to tolerance of liquid diet after surgery (MD=-13.70, 95% CI=[-17.94, -9.46], P<0.000 01), time to first defecation (MD=-18.20, 95% CI=[-22.62, -13.78], P<0.000 01), time to first flatus (MD=-16.31, 95% CI=[-20.32, -12.31], P<0.000 01), time to bowel sounds recovery (MD=-11.91, 95% CI=[-14.01, -9.81], P<0.000 01), and length of hospital stay (MD=-1.49, 95% CI=[-2.27, -0.70], P=0.000 2). Regression analysis indicated that cancer type, study quality and number of acupuncture were the main sources of heterogeneity. Bias analysis suggested potential publication bias risks. Trial sequential analysis indicated that the required number of cases had been met and the conclusion was reliable.
Conclusions	Acupuncture is an effective intervention for promoting gastrointestinal recovery in patients undergoing colorectal cancer surgery. Further large-sample and well-designed clinical trials are still needed to compare different acupuncture techniques.

1.1.8. Cheng 2023 (Gastrectomy)

Cheng YL, Hsu TF, Kung YY, Chen YC. Effect of Acupoint Stimulation on Improving Gastrointestinal Motility in Patients After Gastrectomy: A Systematic Review and Meta-Analysis. J Integr Complement Med. 2023 Nov;29(11):718-726. https://doi.org/10.1089/jicm.2022.0752

Introduction	Gastrointestinal immobility is experienced by many patients who undergo gastric surgery. This complication delays enteral nutrition, prolongs hospitalization, and causes discomfort. Acupoint stimulation is a popular alternative nonpharmacological treatment for gastrointestinal immobility. This study aimed to explore the effects of acupoint stimulation on gastrointestinal immobility after gastrectomy.
Design	Systematic review and meta-analysis.

Methods	Databases (PubMed, Cochrane, Joanna Briggs Institute EBP Database, Medline, CINAHL Complete, and Airiti library) were searched from their inception to April 2022 for relevant articles. Articles in Chinese and English were included, without limitations on year, region, or country. The inclusion criteria were studies with participants >18 years of age, postgastric surgery, and hospitalization. In addition, randomized controlled trials (RCTs) were included. Data were analyzed using random effects models, and data heterogeneity was investigated using subgroup analysis. Meta-analysis was performed using Review Manager 5.4 software.
Results	We included **785 participants from six studies**. Invasive and noninvasive acupoint stimulation reduced the time of gastrointestinal mobility better than usual care. In the control group, the time of first flatus was 43.56 ± 9.57 h to 108 ± 19.2 h, and the time of first defecation was 77.27 ± 22.67 h to 139.2 ± 24 h. In the experimental group, the time of first flatus and defecation was 36.58 ± 10.75 h to 79.97 ± 37.31 h and 70.56 ± 15.36 h to 108.55 ± 10.75 h, respectively. Subgroup analysis showed that invasive acupoint stimulation with acupuncture reduced the time of first flatus and defecation to 15.03 h (95% confidence interval [CI] = -31.06 to 1.01) and 14.12 h (95% CI = -32.78 to 4.54), respectively. Noninvasive acupoint stimulation, including acupressure and transcutaneous electrical acupoint stimulation (TEAS), reduced the time of first flatus and defecation to 12.33 h and (95% CI = -20.59 to -4.06) and 12.20 h (95% CI = -24.92 to 0.52), respectively.
Conclusions	Acupoint stimulation improved the gastrointestinal immobility of postgastrectomy. In the included RCT articles, invasive and noninvasive stimulations were effective. However, noninvasive acupoint stimulation, such as with TEAS and acupressure, was more efficient and convenient than invasive stimulation. Overall, health care professionals with adequate training or under the supervision of an acupuncturist can effectively perform acupoint stimulation to improve the quality of postgastrectomy care. They can select commonly used and effective acupoints to enhance gastrointestinal motility.
Clinical relevance	Acupoint stimulation, such as acupressure, electrical acupoint stimulation, or acupuncture, can be included in postgastrectomy routine care to improve gastrointestinal motility and reduce abdominal discomfort.

1.1.9. Lin 2023 (cancer)

Lin D, Ou Y, Li L, Wu K, Zhang Q, Yan J, Kuang K, Peng D. Acupuncture for postoperative gastrointestinal dysfunction in cancer: a systematic review and meta-analysis. Front Oncol. 2023 Jun 9;13:1184228. https://doi.org/10.3389/fonc.2023.1184228

Background	Postoperative gastrointestinal dysfunction (PGD) in cancer is the commonest and most severe postoperative complication in patients with cancer. Acupuncture has been widely used for PGD in cancer. This study aimed to evaluate the efficacy and safety of acupuncture for PGD in cancer.
Methods	We comprehensively searched eight randomised controlled trials (RCTs) of acupuncture for PGD in cancer published until November 2022. Time to first flatus (TFF) and time to first defecation (TFD) were the primary outcomes, and time to bowel sound recovery (TBSR) and the length of hospital stay (LOS) were the secondary outcomes. The Cochrane Collaboration Risk of Bias Tool was used to assess the quality of the RCTs, and the Grading of Recommendations Assessment, Development, and Evaluations (GRADE) system was used to evaluate the certainty of the evidence. The meta-analysis was performed using RevMan 5.4, and a publication bias test was performed using Stata 15.1.

Results	**Sixteen RCTs involving 877 participants** were included in this study. The meta-analysis indicated that acupuncture could effectively reduce the TFF, TFD, and TBSR compared with routine treatment (RT), sham acupuncture, and enhanced recovery after surgery (ERAS). However, acupuncture did not shorten the LOS compared with RT and ERAS. The subgroup analysis revealed that acupuncture could significantly reduce the TFF and TFD. Acupuncture effectively reduced the TFF and TFD in all cancer types included in this review. Besides, local acupoints in combination with distal acupoints could reduce the TFF and TFD, and distal-proximal acupoints could significantly reduce the TFD. No trial reported adverse events of acupuncture.
Conclusions	Acupuncture is an effective and relatively safe modality for treating PGD in cancer. We anticipate that there will be more high-quality RCTs involving more acupuncture techniques and cancer types, focusing on combining acupoints for PGD in cancer, further determining the effectiveness and safety of acupuncture for PGD in patients with cancer outside China.

1.1.10. Qi 2023 (colorectal cancer resection)

Qi L, Shi H, Zhang Y, Zhang X, Jia H, Tian H. The effect of acupuncture on recovery after colorectal cancer resection: A systematic review meta-analysis of randomized controlled trials. Medicine (Baltimore). 2023 Sep 1;102(35):e34678. https://doi.org/10.1097/MD.0000000000034678

Background	To evaluate the efficacy and safety of acupuncture by systematically reviewing the literature on colorectal cancer resection.
Methods	Seven electronic databases were searched from inception to February 28, 2023. Randomized controlled trials on acupuncture in patients after CRC resection were included. Two reviewers independently selected relevant trials, extracted data, and assessed the risk of bias. A random-effects meta-analysis model was used to obtain summary effect estimates. The data were pooled and analyzed using RevMan 5.3. The heterogeneity of selected studies was evaluated by evaluating the I-squared (I2) statistics.
Results	**Twenty-two studies with 1878 patients** were included. Results of the meta-analysis showed there was a low level evidence that acupuncture may improve early postoperative symptoms, such as time to first flatus (n = 876, MD -0.77h, 95% CI -1.22 to -0.33 h, I2 = 89%), time to first bowel movement (n = 671, MD -1.41h, 95% CI -2.20 to -0.63 h, I2 = 95%), time to first defecation (n = 556, MD -1.03h, 95% CI -1.88 to -0.18 h, I2 = 95%), and nausea/vomiting (n = 1488, RR 0.72, 95% CI 0.59-0.89, I2 = 49%) compared with usual care and sham acupuncture. However, there were no statistically significant differences in postoperative pain (n = 1188, MD-0.21, 95% CI -0.59 to 0.17, I2 = 74%). And there was no sufficient evidence of improving long-term functional outcomes. There was substantial heterogeneity across trials. The adverse events associated with acupuncture stimulation were minor in include studies.
Conclusion subsections	There is currently low-level evidence supporting the use of acupuncture on postoperative symptoms for patients after colorectal cancer resection. More investigations should be established based on the STRICTA statement strictly.

1.1.11. Zhao 2023 (colorectal cancer surgery)

Zhao X, Si S, Liu X, Liu J, Zhang D, Mu Y, Hou A. Does invasive acupuncture improve postoperative ileus after colorectal cancer surgery? A systematic review and meta-analysis. Front Med (Lausanne). 2023 Aug 25;10:1201769. https://doi.org/10.3389/fmed.2023.1201769

Background	Postoperative ileus (POI) is one of the main complications after colorectal cancer (CRC) surgery, and there is still a lack of effective treatment. At present, the evidence for improvement of POI by invasive acupuncture (manual acupuncture and electroacupuncture, IA) is limited. This meta-analysis of randomized controlled trials (RCTs) aims to systematically review and evaluate the effect of IA in improving POI after CRC surgery.
Methods	This meta-analysis was reported according to PRISMA statement and AMSTAR guidelines. The retrieval time was from the inception to February 2023. The RCTs were screened by searching the databases (PubMed, Ovid, Embase, Cochrane Library, China National Knowledge Infrastructure, VIP Database, Sinomed Database, and WANFANG). Two independent investigators screened and extracted the data, assessed the risk of bias, and performed statistical analysis. The statistical analysis was carried out by RevMan5.3. The PROSPERO International Prospective Register of Systematic Reviews received this research for registration (CRD42023387700).
Results	**Thirteen studies with 795 patients** were included. In the primary outcome indicators: the IA group had shorter time to the first flauts [stand mean difference (SMD), -0.57; 95% CI, -0.73 to -0.41, $p < 0.00001$], shorter time to the first defecation [mean difference (MD), -4.92 h, 95% CI -8.10 to -1.74 h, $p = 0.002$] than the blank/sham stimulation (B/S) group. In the secondary outcome indicators: the IA group had shorter time to the first bowel motion (MD, -6.62 h, 95% CI -8.73 to -4.50 h, $p < 0.00001$), shorter length of hospital (SMD, -0.40, 95% CI -0.60 to -0.21, $p < 0.0001$) than the B/S group. In terms of the subgroup analysis: IA associated with enhanced recovery after surgery (ERAS) group had shorter time to the first flauts (MD, -6.41 h, 95% CI -9.34 to -3.49 h, $p < 0.0001$), shorter time to the first defacation (MD, -6.02 h, 95% CI -9.28 to -2.77 h, $p = 0.0003$) than ERAS group.
Conclusion	Invasive acupuncture (IA) after CRC surgery, acupuncture or electricacupuncture with a fixed number of times and duration at therapeutic acupoints, can promote the recovery of POI. IA combined with ERAS is better than simple ERAS in improving POI.

1.1.12. Li 2022 (gastric cancer)

Li HY, Chen Y, Hu ZY, Chen P, Li RL, Jiang JW, Ye J. [Meta-analysis of acupuncture and moxibustion for the therapeutic effect on postoperative gastrointestinal dysfunction of gastric cancer]. Zhongguo Zhen Jiu. 2022 May 12;42(5):595-602. Chinese. https://doi.org/10.13703/j.0255-2930.20210214-0003

Objective	To systematically review the therapeutic effect of acupuncture and moxibustion on postoperative gastrointestinal dysfunction (GID) of gastric cancer with meta-analysis.
Methods	The articles of randomized controlled trials (RCTs) of acupuncture and moxibustion treatment for postoperative GID of gastric cancer were retrieved from the following databases from the time of database establishment to December 31, 2020, including PubMed, EMbase, Cochrane Central Register of Controlled Trials (CENTRAL), China National Knowledge Infrastructure (CNKI), Wanfang database, VIP database and China Biomedical Literature Database (SinoMed). RevMan5.3 software was used for meta-analysis. Using Stata16.0 software, sensitivity analysis and publication bias test were performed.

Results	A total of **16 RCTs** were included finally, including **1 360 patients**, of which, there were 681 cases in the intervention group and 679 cases in the control group. Meta-analysis results showed that acupuncture and moxibustion shortened the time of first flatus (P<0.000 01, MD =-14.52, 95%CI = [-17.31, -11.74]), the time of first bowel sound (P<0.000 01, MD =-10.50, 95%CI =[-13.99, -7.01]) and the time of first defecation (P<0.000 1, MD =-13.79, 95%CI =[-20.09, -7.50]). Meanwhile, acupuncture and moxibustion shortened the time of the first food intake (P<0.000 1, MD =-3.23, 95%CI = [-3.45, -3.00]) and the hospital stay (P<0.000 01, MD =-1.94, 95%CI =[-2.20, -1.69]) after gastric cancer operation, and reduced the incidences of postoperative adverse reactions, i.e. nausea and vomiting (P =0.000 3, RR =0.43, 95%CI =[0.28, 0.68]) and abdominal distention (P =0.000 5, RR =0.41, 95%CI =[0.25, 0.68]).
Conclusion	Acupuncture and moxibustion can promote the recovery of postoperative gastrointestinal function in the patients with gastric cancer. But, for the comparison among different measures of acupuncture and moxibustion intervention, it needs more high-quality trials for a further verification.

1.1.13. Ye 2022 ☆☆

Ye Z, Wei X, Feng S, Gu Q, Li J, Kuai L, Luo Y, Xi Z, Wang K, Zhou J. Effectiveness and safety of acupuncture for postoperative ileus following gastrointestinal surgery: A systematic review and meta-analysis. PLoS One. 2022 Jul 18;17(7):e0271580. https://doi.org/10.1371/journal.pone.0271580

Background	Postoperative ileus (POI) is an important complication of gastrointestinal (GI) surgery. Acupuncture has been increasingly used in treating POI. This study aimed to assess the effectiveness and safety of acupuncture for POI following GI surgery.
Methods	Seven databases (PubMed, Embase, the Cochrane Library, China National Knowledge Infrastructure, Wan fang Data, VIP Database for Chinese Technical Periodicals, and Chinese Biomedical Literature Database) and related resources were searched from inception to May 30, 2021. Randomized controlled trials (RCTs) reporting the acupuncture for POI in GI were included. The quality of RCTs was assessed by the Cochrane Collaboration Risk of Bias tool, and the certainty of the evidence was evaluated by the Grading of Recommendations, Assessment, Development and Evaluations (GRADE) approach. A meta-analysis was performed by using RevMan 5.4 software.
Results	**Eighteen RCTs** involving **1413 participant**s were included. The meta-analysis showed that acupuncture could reduce the time to first flatus (TFF) (standardized mean difference [SMD] = -1.14, 95% confidence interval [CI]: -1.54 to -0.73, P < 0.00001), time to first defecation (TFD) (SMD = -1.31, 95% CI: -1.88 to -0.74, P < 0.00001), time to bowel sounds recovery (TBSR) (SMD = -1.57, 95% CI: -2.14 to -1.01, P < 0.00001), and length of hospital stay (LOS) (mean difference [MD] = -1.68, 95% CI: -2.55 to -0.80, P = 0.0002) compared with usual care. A subgroup analysis found that acupuncture at distal acupoints once daily after surgery had superior effects on reducing TFF and TFD. A sensitivity analysis supported the validity of the finding. Acupuncture also manifested an effect of reducing TFF, TFD and TBSR compared with sham acupuncture but the result was not stable. Relatively few trials have reported whether adverse events have occurred.
Conclusions	Acupuncture showed a certain effect in reducing POI following GI surgery with very low-to-moderate quality of evidence. The overall safety of acupuncture should be further validated. More high-quality, large-scale, and multicenter original trials are needed in the future.

1.1.14. Ashcroft 2021 (network meta-analysis)

Ashcroft J, Singh AA, Ramachandran B, Habeeb A, Hudson V, Meyer J, Simillis C, Davies RJ. Reducing ileus after colorectal surgery: A network meta-analysis of therapeutic interventions. Clin Nutr. 2021 Jul;40(7):4772-4782. https://doi.org/10.2500/aap.2022.43.210107

Background	Several treatment strategies for avoiding post-operative ileus have been evaluated in randomised controlled trials. This network meta-analysis aimed to explore the relative effectiveness of these different therapeutic interventions on ileus outcome measures.
Methods	A systematic literature review was performed to identify randomized controlled trials (RCTs) comparing treatments for post-operative ileus following colorectal surgery. A Bayesian network meta-analysis was performed using the Markov chain Monte Carlo method. Direct and indirect comparisons of all regimens were simultaneously compared using random-effects network meta-analysis.
Results	A total of 48 randomised controlled trials were included in this network meta-analysis reporting on 3614 participants. Early feeding was found to be the best treatment for time to solid diet tolerance and length of hospital stay with a probability of P = 0.96 and P = 0.47, respectively. Early feeding resulted in significantly shorter time to solid diet tolerance (Mean Difference (MD) 58.85 h; 95% Credible Interval (CrI) −73.41, −43.15) and shorter length of hospital stay (MD 2.33 days; CrI −3.51, −1.18) compared to no treatment. Epidural analgesia was ranked best treatment for time to flatus (P = 0.29) and time to stool (P = 0.268). Epidural analgesia resulted in significantly shorter time to flatus (MD -18.88 h; CrI −33.67, −3.44) and shorter time to stool (MD -26.05 h; 95% CrI −66.42, 15.65) compared to no intervention. Gastrografffin was ranked best treatment to avoid the requirement for post-operative nasogastric tube insertion (P = 0.61) however demonstrated limited efficacy (OR 0.50; CrI 0.143, 1.621) compared to no intervention. Nasogastric and nasointestinal tube insertion, probiotics, and **acupuncture** were found to be least efficacious as interventions to reduce ileus.
Conclusion	This network meta-analysis identified early feeding as the most efficacious therapeutic intervention to reduce post-operative ileus in patients undergoing colorectal surgery, in addition to highlighting other therapies that require further investigation by high quality study. In patients undergoing colorectal surgery, emphasis should be placed on early feeding as soon as can be appropriately initiated to support the return of gastrointestinal motility.

1.1.15. Lederer 2018

Lederer AK, Schmucker C, Kousoulas L, Fichtner-Feigl S, Huber R. Naturopathic Treatment and Complementary Medicine in Surgical Practice. Dtsch Arztebl Int. 2018;115(49):815-821. [200295].

Background	Many patients in Germany use naturopathic treatments and complementary medicine. Surveys have shown that many also use them as a concomitant treatment to surgery.
Methods	Multiple databases were systematically searched for systematic reviews, controlled trials, and experimental studies concerning the use of naturopathic treatments and complementary medicine in the management of typical post-operative problems (PROSPERO CRD42018095330).

Results	Of the 387 publications identified by the search, 76 fulfilled the inclusion criteria. In patients with abnormal gastrointestinal activity, **acupuncture can improve motility, ease the passing of flatus, and lead to earlier defecation.** Acupuncture and acupressure can reduce postoperative nausea and vomiting, as well as pain. Moreover, aromatherapy and music therapy seem to reduce pain, stress and anxiety and to improve sleep. Further studies are needed to determine whether phytotherapeutic treatments are effective for the improvement of gastrointestinal function or the reduction of stress. It also remains unclear whether surgical patients can benefit from the methods of mind body medicine.
Conclusion	Certain naturopathic treatments and complementary medical methods may be useful in postoperative care and deserve more intensive study. In the publications consulted for this review, no serious side effects were reported.

1.1.16. Wang SY 2018

Wang Shiyuan, Gu Muen, Jin Zhu, Xu Shifen, Zhang Fang, Lyu Tingting, Ji Jun, Wu Huangan, Liu Huirong. [Meta-analysis of Simple Acupuncture to Promote Postoperative Abdominal Gastrointestinal Dysfunction Recovery]. World Chinese Medicine. 2018;11:2911-2920. [201774].

目的:评价单纯针刺或其配合术后常规治疗促进腹部术后胃肠功能紊乱恢复(PGD)的有效性和安全性. 方法:计算机检索2007年1—12月发表在万方数据库、中国期刊网全文数据库、重庆维普数据库□PubMed和Cochrane Library的有关单纯针刺或单纯针刺配合术后常规治疗腹部术后胃肠功能紊乱的临床随机对照研究, 对符合纳入标准的文献进行资料提取和质量评价, 应用RevMan5.2统计软件对纳入的文献数据进行Meta分析. 结果:1)共纳入18篇文献, 其中中文文献17篇, 英文文献1篇, 合计1621例术后胃肠功能紊乱患者.2)Meta分析结果显示:9项研究在总有效率方面:与术后常规治疗比较, 单纯针刺或配合术后常规治疗对PGD更有效, 差异有统计学意义, 异质性检验P=0.001,I2=69□,合并效应量RR=1.15>1,95□CI[1.06,1.25],P=0.0006,敏感性分析异质性检验P=0.22,I2=26□,合并效应量RR=1.16>1,95□CI[1.09,1.24],P<0.00001;16项研究在缩短术后首次排气时间方面, 差异有统计学意义异质性检验P<0.00001,I2=98□,合并效应量MD=-17.52,95□CI[-22.85,-12.19],P<0.00001,经敏感性和亚组分析未发现异质性来源;12项研究在缩短术后首次排便方面, 差异有统计学意义异质性检验P<0.00001,I2=95□,合并效应量SMD=-1.61,95□CI[-2.29,-0.93],P<0.00001,经敏感性分析和亚组分析未发现异质性来源;12项研究在缩短术后肠鸣音恢复时间方面, 差异有统计学意义P<0.00001,I2=92□,采用随机效应模型,SMD=-1.33,95□CI[-1.82,-0.85],P<0.00001,经敏感性和亚组分析未发现异质性来源. 结论:单纯针刺或其配合术后常规治疗可以有效促进患者术后胃肠功能紊乱的恢复, 但由于此次纳入文献的证据质量等级不高, 故需谨慎对待此结论, 仍需要临床大样本, 多中心, 高质量的随机对照试验进行进一步的验证.

Objective	To evaluate the efficacy and safety of simple acupuncture or its combination with postoperative routine treatment for postoperative gastrointestinal dysfunction recovery (PGD).
Methods	Computer Search January-December 2007 published in Wanfang Database, China Journal Net full-text database, Chongqing Weipu database, PubMed and Cochrane Library, a randomized controlled trial of simple acupuncture or simple acupuncture combined with postoperative routine treatment of gastrointestinal dysfunction after abdominal surgery, data extraction and quality of literature meeting the inclusion criteria Evaluation, using RevMan5.2 statistical software to carry out meta-analysis of the included literature data.

Results	1) A total of **18 articles** were included, including 17 Chinese literatures and 1 English literature, totaling **1621 patients** with postoperative gastrointestinal disorders. 2) The results of the meta-analysis showed that the **total efficacy** of the nine studies: compared with postoperative routine treatment, simple acupuncture or combined with postoperative routine treatment was more effective for PGD, the difference was statistically significant, heterogeneity test P = 0.001, I2=69%, combined effection quantity RR=1.15>1, 95% CI[1.06,1.25], P=0.0006, sensitivity analysis heterogeneity test P=0.22, I2=26%, combined effect quantity RR=1.16> 1,95% CI [1.09, 1.24], P <0.00001; 16 studies In terms of shortening the **first exhaust time** after surgery, the difference was statistically significant. P<0.00001, I2=98%, combined effect size MD=-17.52, 95% CI [-22.85, -12.19], P<0.00001. No heterogeneity was found by sensitivity and subgroup analysis; 12 studies showed a statistically significant heterogeneity test in reducing **postoperative bowel movements** P<0.00001, I2=95%, combined effector SMD=- 1.61, 95% CI [-2.29, -0.93], P <0.00001, no heterogeneity was found by sensitivity analysis and subgroup analysis; 12 studies have shortened the **recovery time of postoperative bowel sounds**. The significance of P<0.00001, I2=92%, using random effects model, SMD=-1.33, 95% CI[-1.82,-0.85], P<0.00001, no heterogeneity source was found by sensitivity and subgroup analysis.
Conclusion	simple acupuncture or conventional postoperative treatment can effectively promote the recovery of postoperative gastrointestinal dysfunction in patients. However, because the quality of the evidence included in this literature is not high, it is necessary to treat this conclusion with caution, and still need a large clinical sample. Multi-center, high quality randomized controlled trials for further validation.

1.1.17. Wang 2018 Gynecological and Obstetrical Surgery)

Wang Youping, Wang Youli, Zhang Guiyun. [A meta-analysis of the effectiveness and safety of acupuncture intervention in gastrointestinal function after gynecological and obstetrical operations]. International Journal of Traditional Chinese Medicine. 2018;10:938-942. [201769].

Objective	To systematically evaluate the effectiveness and safety of acupuncture intervention in gastrointestinal function after gynecological and obstetrical operations.
Methods	Databases of SinoMed (1997-2017), VIP (1997-2017), Wanfang (1997-2017), CNKI (2007-2017), PubMed (1997-2017) and Cochrane Library (2017 fourth) were searched by computers (supplemented by manual searching). The randomized controlled trials were included on the gastrointestinal function recovery after acupuncture intervention in gynecological and obstetrical operations. The data were extracted independently and cross-checked by two evaluators. Then the quality was evaluated according to the Cochrane system assessor manual 4.2.8, and RevMan 5.3 software was used for meta-analysis.
Results	A total of 1192 patients were included in 14 randomized controlled trials. Meta-analysis showed that the effective rate [OR=6.09, 95□ CI (2.91, 12.75), P<0.01], the time to first passage of feces [MD=-14.72,95□ CI(-16.00, -13.44),P<0.01], the time to first bowel motion [MD=-8.81, 95□ CI (-10.34, -7.28), P<0.01] and the time to first flatus [MD=-11.84, 95□ CI (-15.31, -8.36), P<0.01] in the acupuncture group were higher than those in control group.

Conclusions	Acupuncture intervention in gynecological and obstetrical operations was safe and effective for gastrointestinal function recovery of patients. However, the above conclusions are required to have further validation with more highly qualified randomized controlled trials for the limited number of literature and the low quality of some studies.

1.1.18. Liu 2017 (Cancer Surgery)

Liu YH, Dong GT, Ye Y, Zheng JB, Zhang Y, Lin HS, Wang XQ. Effectiveness of Acupuncture for Early Recovery of Bowel Function in Cancer: A Systematic Review and Meta-Analysis. Evid Based Complement Alternat Med. 2017. [100145].

Objectives	The aim of this study was to evaluate the effects of acupuncture therapy to reduce the duration of postoperative ileus (POI) and to enhance bowel function in cancer patients.
Methods	A systematic search of electronic databases for studies published from inception until January 2017 was carried out from six databases. Randomized controlled trials (RCTs) involving the use of acupuncture and acupressure for POI and bowel function in cancer patients were identified. Outcomes were extracted from each study and pooled to determine the risk ratio and standardized mean difference.
Results	**10 RCTs involving 776 cancer patients** were included. Compared with control groups (no acupuncture, sham acupuncture, and other active therapies), acupuncture was associated with shorter time to first flatus and time to first defecation. A subgroup analysis revealed that manual acupuncture was more effective on the time to first flatus and the time to first defecation; electroacupuncture was better in reducing the length of hospital stay. Compared with control groups (sham or no acupressure), acupressure was associated with shorter time to first flatus. However, GRADE approach indicated a low quality of evidence.
Conclusions	Acupuncture and acupressure showed large effect size with significantly poor or inferior quality of included trials for enhancing bowel function in cancer patients after surgery. Further well-powered evidence is needed.

1.1.19. Cheong 2016 ☆

Cheong KB, Zhang J, Huang Y. Effectiveness of acupuncture in postoperative ileus: a systematic review and Meta-analysis. J Tradit Chin Med. 2016;36(3):271-82. [186694].

Objective	To conduct a systematic review and Meta-analysis of the effectiveness of acupuncture and common acupoint selection for postoperative ileus (POI).
Methods	Randomized controlled trials (RCTs) comparing acupuncture and non-acupuncture treatment were identified from the databases PubMed, Cochrane, EBSCO (Academic Source Premier and MEDLINE), Ovid (including Evidence-Based Medicine Reviews), China National Knowledge Infrastructure, and Wanfang Data. The data from eligible studies were extracted and a Meta-analysis performed using a fixed-effects model. Results were expressed as relative risk (RR) for dichotomous data, and 95% CI (confidence intervals) were calculated. Each trial was evaluated using the CONSORT (Consolidated Standards of Reporting Trials) and STRICTA (Standards for Reporting Interventions in Controlled Trials of Acupuncture) guideline. The quality of the study was assessed using the Grading of Recommendations, Assessment, Development and Evaluation (GRADE) approach.

Results	Of the 69 studies screened, **eight RCTs were included for review**. Among these, four RCTs (with a total of 123 patients in the intervention groups and 124 patients in the control groups) met the criteria for Meta-analysis. The Meta-analysis results indicated that acupuncture combined with usual care showed a significantly higher total effective rate than the control condition (usual care) (RR 1.09, 95% CI 1.01, 1.18; P = 0.02). Zusanli (ST 36) and Shangjuxu (ST 37) were the most common acupoints selected. However, the quality of the studies was generally low, as they did not emphasize the use of blinding.
Conclusion	The results suggested that **acupuncture might be effective in improving POI**; however, a definite conclusion could not be drawn because of the low quality of trials. Further large-scale, high-quality randomized clinical trials are needed to validate these findings and to develop a standardized method of treatment. We hope that the present results will lead to improved research, resulting in better patient care worldwide.

1.1.20. Kim 2016 ☆ (Colorectal Cancer Resection)

Kim KH, Kim DH, Kim HY, Son GM. Acupuncture for recovery after surgery in patients undergoing colorectal cancer resection: a systematic review and meta-analysis. Acupunct Med. 2016. 34(4):248-56. [185592].

Objective	To assess the efficacy/effectiveness and safety of acupuncture in patients recovering from colorectal cancer resection.
Methods	We systematically searched four English language databases (Medline, Embase, CENTRAL (Cochrane Central Register of Controlled Trials), and AMED (Allied and Complementary Medicine Database)) and one Chinese database (CAJ, China Academic Journals). Randomised trials of acupuncture compared with usual/routine care, sham interventions or active comparators in patients undergoing colorectal cancer resection were eligible for inclusion. Postoperative symptoms and quality of life (QoL) were the primary outcomes for the review.
Results	Of 1225 screened hits, **seven randomised trials with 540 participants were included**. High or uncertain risk of bias and significant heterogeneity were observed. All outcomes were measured before discharge, and no trial explicitly reported post-discharge outcomes. The response to acupuncture in terms of postoperative symptoms was inconsistent across trials. QoL was not measured in the included studies. For certain outcomes reflecting physiological recovery, favourable effects of acupuncture were observed compared with sham acupuncture, namely time to first flatus (n=207, three studies; mean difference (MD) -7.48 h, 95% CI -14.58 to -0.39 h, I2=0%) and time to first defaecation (n=149, two studies; MD -18.04 h, 95% CI -31.90 to -4.19 h, I2=0%). Two studies reported there were no acupuncture-related adverse events, whereas the remaining studies did not consider adverse events.
Conclusions	**We found low-to moderate-quality evidence for the efficacy and safety of acupuncture for recovery after surgery in colorectal cancer patients**. Future trials with adequate allocation concealment, blinding of outcome assessors, and measurement of post-discharge outcomes including QoL or functional recovery are warranted.

1.1.21. Li 2015 ☆☆☆

Li Jinjin, Shao Xiaomei, Zhao Wensheng, Shang Yue, Liang Yi, Chen Qin, Fang Jianqiao. [A Systematic review and meta-analysis to acupuncture on postoperative ileus]. Journal of Zhejiang University of Traditional Chinese Medicine. 2015;2:162-166. [187030].

Objective	This paper presents a systematic review and meta-analysis of acupuncture-assisted general anesthesia.
Methods	Systematic literature searches of 7 electronic databases were performed from inception to June 2014 by two investigators. We included randomized controlled trials that evaluated the effects of acupuncture compared with a control (routine procedure) or a sham intervention in postoperative patients. Two reviewers selected eligible studies and evaluated the risk of bias and the quality of the acupuncture intervention. Information on methods, participants, interventions, and outcomes was extracted. The time intervals from surgery to the first bowel movement, passage of flatus and defecation were selected as the primary indexes, while time of hospital stay as secondary index. Meta-analysis was performed using random or fixed effects modeling.
Results	**Four trials that included 308 postoperative patients** met the inclusion criteria. Results of pooled analysis indicated that compared with routine postoperative ileus procedure alone, acupuncture assistance reduced the time of hospital stay -2. 00 [-3. 40 , -0. 60]d, but showed no significant difference in the time to first passage of flatus-3. 71 [-14. 36, 6. 94]h, time to first defecation-12. 35 [-36. 90, 12. 21]h. Compared with sham acupuncture combined with routine procedure, acupuncture assistance significantly reduced the time to first passage of flatus -8. 00 [-14. 72, -1. 28]h and time to first defecation -18. 05 [-31. 89, -4. 20]h, but showed no significant difference in the time to first bowel sounds-6. 00 [-13. 26, 1. 26]h and time of hospital stay-0. 30 [-1. 03, 0. 43]d.
Conclusion	**This systematic review provides an evidence support that acupuncture assistance reduces the time of hospital stay compared with no acupuncture, similarly reduces the time to first passage of flatus and the time to first defecation compared with sham acupuncture**.

1.1.22. Chen 2012 ☆

Chen Y, Huang JL, Gong X, Wu DR. [Acupuncture treatment of post-operative ileus: systematic review of the literature]. Shaanxi Journal of TCM. 2012;33(3):311-3. [168595].

目的:评价针刺治疗术后肠梗阻(ileus)的疗效。方法:计算机检索中国生物医学文献数据库(CBM)(1978□2010.9)□中文科技期刊全文数据库(VIP)(1989□2010.9),MEDLINE(1966□2010.9)□由两名评价者独立对纳入文献进行质量评价并提取资料, 如遇分歧, 通过讨论解决。对纳入文献用RevMe 4.4.2进行Meta分析。结果:17篇RCT□共500例病人符合纳入标准, 其中高质量研究6篇□Meta分析结果显示:针刺组与对比组比较, 在治疗结束时有效率的差异有统计学意义[RR6.39,95%CI(4.03,10.15),P<0.00001]□结论:说明针刺组与对照组在治疗结束时的疗效差异有统计学意义且更为有效, 但尚需更多设计严谨, 方法科学的高质量随机对照试验	
Automatic translation	
Objective	To evaluate the acupuncture treatment of postoperative ileus (ileus) effect.
Methods	We searched Chinese Biomedical Literature Database (CBM) (1978 ~ 2010.9), Chinese Science and Technology Journal Full-text Database (VIP) (1989 ~ 2010.9), MEDLINE (1966 ~ 2010.9). Two reviewers independently evaluated the quality of included studies and extracted data, in case of disagreements were resolved through discussion. The included literature with RevMen 4.2 Meta-analysis.
Results	**17 RCT, a total of 500 patients** met the inclusion criteria, including six high-quality studies. Meta-analysis showed that: the acupuncture group compared with the control group, at the end of treatment was statistically significant [RR 6.39,95% CI (4.03,10.15), P <0.00001] efficiency differences.

Conclusion	**Acupuncture illustrate the difference between two groups at the end of treatment was statistically significant and more effective**, but needs more rigorous design, method of scientific quality randomized controlled trials

1.1.23. Wu 2011 ☆

Wu Yuanpeng, Shi Lanlan, Yang Zheng, Zhang Xiao. [Meta-analysis of the therapeutic effect of acupuncture for adhesive ileus]. Guiding Journal of Traditional Chinese Medicine and Pharmacology. 2011;5:125-128. [186973].

Objective	To assess the therapeutic effect of acupuncture for adhesive ileus in terms of the evidence-based medicine skills.
Methods	The coincident RCTs were searched in electronic database. Meanwhile, methodological quality and meta-analysis of the included trails were performed.
Results	There were **16 RCTs and 1467 patients** met the inclusion criteria. Test of homogeneity showed that there was no heterogeneous (P=0. 27), so the fixed effect model was used for statistical analysis. After combination OR= 5. 10, 95%CI (3. 63, 7. 17), and the rhombus was located at the right side of the medium line. After Z test, Z=9. 41, P<0. 00001, the total effective rate in the treatment group was significantly higher than those of the control group.
Conclusion	**The acupuncture may have advantages in clinical efficacy for adhesive ileus**, but studies of higher methodological quality were needed to make the evidence more aggressive.

1.2. Special Acupuncture Techniques

1.2.1. Warm acupuncture

1.2.1.1. Ji 2025 (gastric cancer surgery)

Ji HC, Nie LJ, Wu JX, Liu X, Zheng X. Effect of warm acupuncture and acupoint massage on postoperative gastrointestinal function in gastric cancer surgery patients: A meta-analysis. World J Gastrointest Surg. 2025 Sep 27;17(9):106654. https://doi.org/10.4240/wjgs.v17.i9.106654

Background	This study seeks to systematically assess the effects of warm acupuncture combined with acupoint massage on the recovery of gastrointestinal function following gastric cancer surgery.
Aim	To evaluate the impact of warm acupuncture combined with acupoint massage on postoperative gastrointestinal function recovery after gastric cancer surgery, based on a systematic review and meta-analysis.
Methods	A comprehensive search was conducted across multiple databases, including PubMed, Cochrane Library, EMBASE, Web of Science, CNKI, Wanfang, and VIP, for relevant studies published up to January 2025. Meta-analyses were carried out using RevMan 5.4, with results presented as standardized mean difference (SMD) or odds ratio with 95% confidence interval (CI). Study heterogeneity was evaluated using the I 2 statistic, and sensitivity analyses were performed to assess the stability of the findings.

Results	A total of **8 randomized controlled trials involving 694 patients** were included. The meta-analysis showed that warm acupuncture combined with acupoint massage significantly improved postoperative gastrointestinal function by reducing the time to first flatus (SMD = -2.14, 95%CI: -3.14 to -1.14, P < 0.0001), time to first bowel movement (SMD = -2.43, 95%CI: -3.52 to -1.34, P < 0.0001), time to bowel sounds recovery (SMD = -3.15, 95%CI: -4.50 to -1.80, P < 0.00001), and time to initiate nasogastric or jejunal feeding (SMD = -1.31, 95%CI: -2.44 to -0.18, P = 0.02).
Conclusion	The combination of warm acupuncture and acupoint massage markedly enhances gastrointestinal recovery following surgery.

1.2.2. Moxibustion

1.2.2.1. Yang 2021

Yang L, Li Z, Li W, Zeng L, Bian Y. Effects of moxibustion on gastrointestinal function recovery in preventing early postoperative small-bowel obstruction: a meta-analysis. Ann Palliat Med. 2021;10(4):3988-3999. [218808]. doi

Background	Moxibustion is widely used in the recovery of gastrointestinal function in East Asian countries, especially in China. This systematic review aims to evaluate the recovery effects of moxibustion on gastrointestinal function in preventing early postoperative small-bowel obstruction (EPSBO).
Methods	The Medline, Embase, PubMed, and the other seven databases were searched independently by two authors. Randomized controlled trials (RCTs) were selected using the PICOS method. The methodological quality was appraised with the Cochrane's risk of bias tool, and the reporting quality of included studies was evaluated by Consolidated Standards of Reporting Trials (CONSORT) and STandards for Reporting Interventions in Clinical Trials of Moxibustion (STRICTOM), respectively. Revman 5.2.0 was used for statistical analysis, and the mean difference (MD) with 95% confidence interval (CI) was performed for effect estimation. Random effects model (REM) and fixed effects model (FEM) were used for pooling data.
Results	A total of 8 RCTs with 693 participants were included. Meta-analysis showed that moxibustion combined with usual care had favorable effects on the time to first flatus (MD -15.15 h, 95% CI: -19.14 to -11.15, 8 studies, I2=85%, P<0.00001, REM), the time to bowel sound recovery (MD -10.35 h, 95% CI: -11.65 to -9.06, 7 studies, I2=0%, P=0.91, FEM), the time to first defecation (MD -18.94 h, 95% CI: -24.53 to -13.36, 3 studies, I2=45%, P=0.16, FEM), and the duration time to abdominal distention (MD -11.7 h, 95% CI: -15.32 to -8.09, 3 studies, I2=0%, P=0.70, FEM) when compared to the controls. No adverse events were reported in the included studies.
Conclusions	Moxibustion may have a beneficial effect on the recovery of gastrointestinal function in preventing EPSBO. However, positive findings should be treated carefully. And rigorous studies with high quality and large samples are warranted.

1.2.3. Electroacupuncture

1.2.3.1. Oh 2026 (gastric cancer)

Oh DH, Park YE, Chae HD. Electrical acupoint stimulation for gastrointestinal recovery after gastrectomy for gastric cancer: a systematic review and meta-analysis. Front Surg. 2026;13:1915755. https://doi.org/10.3389/fsurg.2026.1915755

Background	Delayed gastrointestinal recovery remains a challenge after gastrectomy for gastric cancer, including within enhanced recovery after surgery (ERAS) pathways. Electrical acupoint stimulation (EAS) has been proposed as an adjunctive approach, but gastrectomy-specific anatomical and neural features may limit extrapolation from broader abdominal-surgery populations. This review synthesized randomized evidence on EAS for postoperative gastrointestinal recovery after gastrectomy for gastric cancer.
Methods	PubMed, Embase, Scopus, CENTRAL, China National Knowledge Infrastructure, Wanfang Data, SinoMed, and four trial registries were searched from inception to August 1, 2026. Randomized trials were included when EAS was used in patients undergoing gastrectomy for gastric cancer and could be separated from other traditional or acupoint-based co-interventions. Outcomes were time to first flatus (primary), first defecation, first liquid intake, and length of hospital stay. Safety was summarized descriptively. Risk of bias was assessed using Cochrane RoB 2 and certainty of evidence using GRADE. Exploratory subgroup differences were examined with interaction tests.
Results	**Fifteen trials** were eligible; 13 contributed to the primary pairwise comparison (1,357 participants) and two to narrative synthesis only. EAS was associated with shorter time to first flatus (13 trials; MD = -9.61 h, 95% CI -12.81 to -6.42; I^2 = 82.6%; very low certainty), first defecation (9 trials; MD = -15.88 h, 95% CI -23.31 to -8.46; I^2 = 90.3%; low certainty), and first liquid intake (2 trials; MD = -10.65 h, 95% CI -18.20 to -3.10; I^2 = 0%; low certainty). Length of hospital stay did not differ significantly (7 trials; MD = -0.63 days, 95% CI -1.36 to 0.10; I^2 = 57.0%; low certainty). Prediction intervals narrowly excluded the null for time to first flatus but included it for first defecation. Funnel-plot asymmetry and trim-and-fill attenuation raised concerns about publication bias for first flatus. None of 12 interaction tests across comparator design, perioperative care, stimulation modality, and frequency strategy was significant. Safety reporting was limited, and no serious intervention-related adverse events were reported where assessed.
Conclusion	Current evidence indicates a consistent directional signal favoring EAS for early postoperative gastrointestinal recovery milestones, but the magnitude, reproducibility, and clinical importance of this association remain uncertain

1.2.3.2. Wang 2026 (gynecological laparoscopic surgery)

Wang K, Xiang S, Zuo H, Wu S. Effect of transcutaneous electrical acupoint stimulation on recovery following gynecological laparoscopic surgery: a meta-analysis. BMC Surg. 2026;26(1):400. https://doi.org/10.1186/s12893-026-03730-5

Background	This meta-analysis aimed to evaluate the efficacy of transcutaneous electrical acupoint stimulation (TEAS) for postoperative recovery following gynecological laparoscopic surgery.
Methods	Seven electronic databases (CNKI, Wanfang, VIP, Embase, Web of Science, PubMed, and Cochrane Library) were searched up to September 24, 2025. Continuous outcomes were pooled as mean differences (MDs) and dichotomous outcomes as risk ratios (RRs), both with 95% confidence intervals. Risk of bias was assessed using the Cochrane Risk of Bias tool (RoB 1). Sensitivity analyses and publication bias assessments were performed. Meta-analysis was conducted using Stata 15.0 and Review Manager 5.4.

Results	**Thirty randomized controlled trials involving 2,573 patients** were included. TEAS significantly reduced postoperative pain at 6 hours [MD=-0.64, 95% CI: -1.17 to -0.12], 12 hours [MD=-0.85, 95% CI: -1.35 to -0.35], 24 hours [MD=-0.92, 95% CI: -1.29 to -0.55], and 48 hours [MD=-0.75, 95% CI: -1.30 to -0.20]. TEAS also reduced the incidence of postoperative nausea and vomiting (PONV) [RR=0.50, 95% CI: 0.44-0.57], shortened the time to first flatus [MD=-7.52, 95% CI: -10.17 to -4.87], first defecation [MD=-15.12, 95% CI: -21.97 to -8.26], and bowel sound recovery [MD=-4.80, 95% CI: -7.67 to -1.93]. In addition, TEAS significantly improved Quality of Recovery-15 (QoR-15) scores [MD=2.87, 95% CI: 1.15-4.60] and Mini-Mental State Examination (MMSE) scores [MD=1.80, 95% CI: 0.40-3.19].
Conclusions	Current evidence suggests that TEAS may improve postoperative recovery after gynecological laparoscopic surgery, particularly by reducing pain, postoperative nausea and vomiting, and accelerating gastrointestinal recovery. However, the certainty of the evidence is limited by methodological weaknesses, heterogeneity, and the overall quality of the included studies. Further high-quality randomized controlled trials are needed to confirm these findings.

1.2.3.3. Li 2025 (colorectal cancer)

Li Y, Xu X, Chen Y, Li W, Zhang N, Zhang R, Xu E. Transcutaneous electrical acupoint stimulation for the recovery of postoperative gastrointestinal function in patients with colorectal cancer: A systematic review and meta-analysis. Medicine (Baltimore). 2025 Aug 15;104(33):e43699. https://doi.org/10.1097/MD.0000000000043699

Backgound	This systematic review and meta-analysis aimed to assess whether transcutaneous electrical acupoint stimulation (TEAS) assists in the recovery of gastrointestinal function after colorectal cancer surgery.
Methods	A comprehensive search for randomized controlled trials from inception to June 10th, 2025, was performed using the following databases: PubMed, Cochrane Library (CENTRAL), Excerpta Medica Database, China National Knowledge Infrastructure, VIP Database for Chinese Technical Periodicals, WanFang Database, and China Biomedical Literature. We assessed the risk of bias in the included studies using the Cochrane risk-of-bias tool. RevMan5.4.1 software was used to perform the meta-analysis. Sensitivity analysis, Begg test, and Egger test were conducted using Stata12.0.
Results	Twenty-four eligible articles involving 2409 participants were included in the meta-analysis. Our analysis found that TEAS significantly reduced the time to first defecation (mean difference [MD] = -15.74, 95% confidence intervals [CI]: -20.49 to -10.99, P ˂.001), time to first flatus (MD = -13.39, 95% CI: -16.28 to -10.50, P < .001), time to first bowel movement (MD = -11.12, 95% CI: -13.94 to -8.30, P ˂.001), time of postoperative feeding (MD = -11.91, 95% CI: -17.62 to -6.21, P ˂.001), the incidence of postoperative nausea and vomiting (risk ratio: 0.40, 95% CI: 0.31-0.52, P < .001). Sensitivity analysis indicated that the results remained constant after the exclusion of any individual study. Funnel plots and Egger tests revealed no significant publication bias.
Conclusion	TEAS can assist in the recovery of gastrointestinal function after colorectal cancer surgery.

1.2.3.4. Wu 2025 (abdominal surgery)

Wu C, Deng Z, Zhu Y, Li Y, Chen Y, Wang L, Li J, Huang L, Tu Q. Transcutaneous electrical acupoint stimulation accelerates gastrointestinal function recovery after abdominal surgery: a systemic review and meta-analysis of randomized controlled trials. Int J Surg. 2025 Nov 1;111(11):8592-8603. https://doi.org/10.1097/JS9.0000000000002946

Background	This meta-analysis systematically evaluates the efficacy of transcutaneous electrical acupoint stimulation (TEAS) as an adjunctive therapy for Enhanced Recovery After Surgery (ERAS) protocols in patients undergoing abdominal surgery.
Methods	We systematically searched PubMed, Embase, Ovid, and Web of Science for relevant randomized controlled trials (RCTs) investigating the application of TEAS in laparoscopic surgical procedures, published from database inception to 25 March 2025. Primary outcomes included time to first flatus, defecation, and time to oral intake after surgery. The secondary outcomes including incidence of postoperative nausea and vomiting (PONV), postoperative nausea (PON), postoperative vomiting (POV), pain intensity, length of hospital stay, and total hospitalization costs.
Results	We ultimately included **16 RCTs (comprising 2300 participants)** in this meta-analysis. The results demonstrated that TEAS accelerated the time to first exhaust and defecation after abdominal surgery, as well as shortened the time to oral intake of patients received open surgery patients. Additionally, TEAS reduced the incidence of PONV, PON, and POV, alleviated pain intensity, shortened hospital stays, and lowered overall hospitalization costs of patients received abdominal surgery.
Conclusion	The study indicated that TEAS effectively enhanced ERAS outcomes in abdominal surgery patients by accelerating the time to first defecation, flatus, and oral intake, while reducing postoperative pain intensity, PONV incidence, length of hospital stay, and hospitalization costs. These benefits support the clinical adoption of TEAS and improve patient outcomes. However, the observed effects of TEAS should be interpreted in the context of certain limitations.

1.2.3.5. Yan 2025 (gastrointestinal cancers)

Yan XE, Cui SS, Wang YR, Ding MY, Cai YQ, Luk PH, Zhao JP, Yang C, Zhang JJ, Wang ZC, Chen SY, Zang XM, Huang YH, Tan C. Electroacupuncture for postoperative recovery of gastrointestinal function in patients with gastrointestinal cancers: A systematic review and meta-analysis. World J Acupunct Moxibustion. 2025 Jul;35(3):208-220. doi: https://doi.org/10.1016/j.wjam.2025.06.003.

Objective	To evaluate the efficacy and safety of electroacupuncture (EA) for postoperative recovery in patients with gastrointestinal (GI) cancers.
Methods	We retrieved articles from PubMed, Embase, OVID, Cochrane Library, Web of Science, CINAHL, SinoMed, China National Knowledge Infrastructure (CNKI), Wanfang, and Technology Journal Database (VIP) from database inception to November 1, 2024. Randomized controlled trials (RCTs) that examine the use of EA to improve GI function, reduce pain, and promote ability ofself-care after GI cancer surgery were included. Based on the type of control interventions, separate meta-analyses were conducted for EA vs postoperative nursing (PN) and EA vs sham acupuncture (SA). The primary outcomes were the time to first flatus (TFF) and the time to first defecation (TFD). The secondary outcomes included the time to recovery of bowel sounds (TRBS), the time to tolerance of liquid diet (TTLD), the time to tolerance of semiliquid diet (TTSD), the time to independent walking (TIW), the length of hospitalization (LH), and visual analog scale (VAS) immediate resting pain scores measured on the first, second and third postoperative days (POD 1–3). Results are reported as mean differences (MDs) with 95 % confidence intervals (CIs). RevMan 5.3 was used for meta-analysis, StataSE 15.1 was used for sensitivity analyses and Egger’s tests. This study was registered on PROSPERO (CRD42022314754).

Results	A total of **19 RCTs involving 1902 participants** were included, all of which were conducted in China between 2004 and 2023. When EA compared with PN, the meta-analysis showed EA significantly reduce TFF (n = 673, MD = -13.14, 95 % CI = [-18.97 to -7.31], P < 0.00001), TFD (n = 598, MD = -19.86, 95 % CI = [-27.83 to -11.89], P < 0.00001), TRBS (n = 216, MD = -12.44, 95 % CI = [-15.00 to -9.87], P < 0.00001), TTLD (n = 268, MD = -18.14, 95 % CI = [-24.98 to -11.29], P < 0.00001), TTSD (n = 141, MD = -20.44, 95 % CI = [-33.84 to -7.04], P = 0.003), VAS on POD 1 (n = 299, MD = -0.52, 95 % CI = [-0.92 to -0.11], P = 0.01), VAS on POD 2 (n = 256, MD = -0.91, 95 % CI = [-1.23 to -0.60], P < 0.00001), VAS on POD 3 (n = 203, MD = -0.57, 95 % CI = [-0.80 to -0.34], P < 0.00001), while no significantly decreasing in the LH (n = 322, MD = -1.16, 95 % CI = [-2.56 to 0.24], P = 0.10). As EA compared with SA, EA could significantly reduce TFF (n = 782, MD = -15.78, 95 % CI = [-24.96 to -6.60], P = 0.0008), TFD (n = 782, MD = -20.42, 95 % CI = [-36.14 to -4.70], P = 0.01), LH (n = 782, MD = -1.37, 95 % CI = [-2.69 to -0.05], P = 0.04), TIW (n = 743, MD = -0.33, 95 % CI = [-0.62 to -0.04], P = 0.03).13 studies reported that EA reduced the incidence of postoperative complications, and 7 studies reported safety assessments of acupuncture-related adverse events, including hematoma, residual needling, sharp pain, pain, soreness or swelling after needle removal, with no serious adverse events.
Conclusion	EA can significantly promote the recovery of GI function, reduce postoperative pain, enhance ability of self-care in patients undergoing surgery for GI cancers.

1.2.3.6. Chen 2024 (colorectal surgery)

Chen HT, Hung KC, Huang YT, Wu JY, Hsing CH, Lin CM, Chen IW, Sun CK. Efficacy of electroacupuncture in improving postoperative ileus in patients receiving colorectal surgery: a systematic review and meta-analysis. Int J Surg. 2024 Feb 1;110(2):1113-1125. https://doi.org/10.1097/JS9.0000000000000848

Backgound	This meta-analysis aimed to evaluate the efficacy and safety of electroacupuncture (EA) in improving postoperative ileus after colorectal surgery.
Methods	Electronic databases (e.g. Medline) were screened to identify randomized controlled trials that focused on the association between EA and postoperative ileus. Time to first flatus served as the primary outcome, while the secondary outcomes included time required for the recovery of other gastrointestinal functions (e.g. bowel sound recovery), time to tolerability of liquid/solid food, postoperative pain scores, risk of overall complications, and hospital length of stay.
Results	Our meta-analysis focusing on **16 studies with a total of 1562 patients** demonstrated positive associations of EA with shorter times to the first flatus [mean difference (MD): -10.1 h, P <0.00001, n =1562], first defecation (MD: -11.77 h, P <0.00001, n =1231), bowel sound recovery (MD: -10.76 h, P <0.00001, n =670), tolerability of liquid (MD: -16.44 h, P =0.0002, n =243), and solid food (MD: -17.21 h, P =0.005, n =582) than those who received standard care. The use of EA was also correlated with a lower risk of overall complications (risk ratio:0.71, P =0.04, n =1011), shorter hospital length of stay (MD: -1.22 days, P =0.0001, n =988), and a lower pain score on postoperative days two (standardized MD: -0.87, P =0.009, n =665) and three (standardized MD: -0.45, P <0.00001, n =795), without a difference in time to first ambulation.
Conclusion	Our findings showed an association between EA and enhanced gastrointestinal functional recovery and reduced pain severity following colorectal surgery, highlighting the potential benefits of incorporating EA into perioperative care to enhance recovery outcomes in this setting.
GRADE	⊕⊕⊕⊕ High ➔ ⊕⊕⊖⊖ Low

1.2.3.7. Yuan 2024

Yuan L, Quan SJ, Li XY, Huang YB, Li YQ, Zheng H. Effectiveness of electroacupuncture on postoperative ileus prevention after abdominal surgery: A systematic review and trial sequential analysis of randomized controlled trials. J Gastroenterol Hepatol. 2024 Oct;39(10):2060-2068. https://doi.org/10.1111/jgh.16670

Backgound	We aimed to verify the effectiveness of electroacupuncture on postoperative ileus prevention after abdominal surgery by meta-analysis and trial sequential analysis (TSA).
Methods	From inception to May 14, 2024, PubMed, the Cochrane Library, Web of Science, and Embase databases were searched. TSA was used to determine an optimal sample size and control false-positive findings. The primary outcome was the time to first defecation (hours).
Results	**Fourteen studies were included, with 1105 participants**. Meta-analysis and TSA revealed firm evidence for benefits that electroacupuncture shorted the time to first defecation (mean difference [MD] -12.73 h, I2 = 22%, P < 0.01), the time to first flatus (MD -7.03 h, I2 = 25%, P < 0.01), the time to start of sips of water (MD -12.02 h, I2 = 0%, P < 0.01), and the time to start of liquid diet (MD -12.97 h, I2 = 0%, P < 0.01) compared with usual care. While compared with sham electroacupuncture, meta-analysis and TSA also confirmed that electroacupuncture shortened the time to first defecation (MD -10.81 h, I2 = 31%, P = 0.02) and the time to first flatus (MD -10.81 h, I2 = 0%, P < 0.01). However, TSA revealed that firm evidence for benefit or futility was not reached for the length of hospital stay and the rates of postoperative prolonged ileus.
Conclusions	Electroacupuncture shortened the duration of postoperative ileus in patients undergoing abdominal surgery, and the adverse events related to electroacupuncture were minor. Further investigation of the effect of electroacupuncture on the risk of prolonged postoperative ileus is warranted in the future.

1.2.3.8. Zhang 2024

Zhang M, Zhang H, Li P, Li J. Effect of transcutaneous electrical acupoint stimulation on the quality of postoperative recovery: a meta-analysis. BMC Anesthesiol. 2024 Mar 19;24(1):104. https://doi.org/10.1186/s12871-024-02483-z

Backgound	The purpose of the present study was to systematically delve into the efficacy and safety of transcutaneous electrical acupoint stimulation (TEAS) on the quality of recovery after general anesthesia.
Methods	Randomized controlled trials related to TEAS improving postoperative recovery quality were searched in Cochrane Library, Web of Science, Embase, PubMed, CNKI, VIP, Wanfang and Chinese biomedical database from the inception of each database to June 2023. After literature screening and data extraction, Stata15 software was employed for meta-analysis, and the quality of the included literature was evaluated utilizing ROB2.

Results	The study included **10 articles involving 2,383 patients** in total. The meta-analysis results unveiled that TEAS could improve 24-hour and 48-hour postoperative QoR-40 scores as well as 24-hour postoperative QoR-40 dimension scores [WMD = 8.52, 95%CI (5.12, 11.91), P < 0.001; WMD = 1.99, 95%CI (0.91, 3.07), P < 0.001], emotional state [WMD = 1.38, 95%CI (0.66, 2.09), P < 0.001], physical comfort [WMD = 2.99, 95%CI (1.59, 4.39), P < 0.001], psychological support [WMD = 0.63, 95%CI (0.36, 0.90), P < 0.001], and physical independence [WMD = 0.76, 95%CI (0.22, 1.30), P = 0.006]; pain [WMD = 1.81, 95%CI (0.87, 2.75), P < 0.001]; decrease 24-hour postoperative VAS pain scores [WMD = -0.84, 95%CI (-1.45, -0.23), P = 0.007] and the incidence of postoperative nausea and vomiting [RR = 0.88, 95%CI (0.81, 0.97), P = 0.006; RR = 0.62, 95%CI (0.52, 0.73), P < 0.001].
Conclusion	TEAS can improve postoperative QoR-40 scores and the quality of recovery, relieve pain, and decrease the incidence of nausea and vomiting after surgery in patients who underwent general anesthesia.

1.2.3.9. Ge 2023 (gynecologic surgery)

Ge Y, Zheng J. The efficacy of transcutaneous electronic acupoint stimulation for improving postoperative recovery after gynecologic surgery: A systematic review and meta-analysis. Medicine (Baltimore). 2023 Sep 1;102(35):e34834. https://doi.org/10.1097/MD.0000000000034834. https://pubmed.ncbi.nlm.nih.gov/37657060; PMCID: PMC10476788.

Background	This systematic review and meta-analysis aimed to evaluate the efficacy of transcutaneous electronic acupoint stimulation (TEAS) for improving postoperative recovery after gynecologic surgery.
Methods	We performed a thorough search of 6 databases until March 2023, identifying 12 randomized controlled trials that met our predefined inclusion criteria and encompassed a total of 1510 patients. For continuous outcomes, we calculated the weighted mean difference (WMD), and for binomial outcomes, we used the risk ratio (RR). We evaluated heterogeneity among the included studies using Cochran I2 and Q statistics, utilizing a random-effects model when the I2 value exceeded 50%. To assess publication bias, we employed Egger test.
Results	Our analysis found that TEAS significantly reduced the risk of postoperative nausea (RR: 0.60, 95% CI: 0.43-0.83, P = .002) and postoperative vomiting (RR: 0.54, 95% CI: 0.43-0.67, P < .001), visual analogue scale (WMD: -0.47, 95% CI: -0.76 to -0.17, P = .002), **as well as shortened the time to first bowel movement (WMD: -18.43, 95% CI: -20.87 to -15.99, P < .001) and time to first flatus** (WMD: -8.98, 95% CI: -12.46 to -5.51, P < .001) compared to the conventional group.
Conclusions	Our findings suggested that TEAS may improve postoperative recovery following gynecologic surgery. However, to confirm these results, larger randomized controlled trials encompassing a more diverse range of patient populations are urgently required.

1.2.3.10. Jiang 2023 (gastrointestinal surgery)

Jiang T, Li J, Meng L, Wang J, Zhang H, Liu M. Effects of transcutaneous electrical acupoint stimulation on gastrointestinal dysfunction after gastrointestinal surgery: A meta-analysis. Complement Ther Med. 2023 May;73:102938. https://doi.org/10.1016/j.ctim.2023.102938

Background	Postoperative gastrointestinal dysfunction (PGD) is a common complication in patients undergoing gastrointestinal surgery. Several studies have evaluated the effect of transcutaneous electrical acupoint stimulation (TEAS) on PGD, so we conducted a systematic review and meta-analysis to better understand these studies methodologic limitations and summarize clinical effects.
Methods	Articles (published from January 2010 to April 2022) were searched from the following databases: Wanfang Database, China National Knowledge Infrastructure (CNKI), Cochrane Library, PubMed, Web of Science and Embase. Two authors conducted literature selection, data extraction and statistical analysis independently. This meta-analysis used RevMan 5.4 software to implement statistical analysis and applied Cochrane bias risk tool to assess methodologic weaknesses of included articles. We assessed the effect of TEAS on time to first flatus, first defecation and bowel sound recovery through meta-analyses using a random-effects model.
Results	The meta-analysis included **10 articles including 1497 patients**. This study showed that TEAS could effectively promote postoperative gastrointestinal function recovery by analyzing the time to first flatus (MD-14.81 h, 95% CI -15.88 to -13.75 h), time to first defecation (MD-14.68 h, 95% CI -20.59 to -8.76 h), time to bowel sound recovery (MD-5.79 h, 95% CI -10.87 to -0.71 h), length of hospital stay (MD-1.48d, 95% CI -1.86 to -1.11d), and the incidence of postoperative nausea and vomiting (PONV) (OR 0.41, 95% CI 0.29-0.58). In addition, we assessed the quality of the articles and found small sample sizes and lower methodological quality in some articles.
Conclusion	Our meta-analysis revealed that TEAS could be a nonpharmacological treatment for PGD in patients after gastrointestinal surgery. However, positive findings should be treated carefully and future studies with high quality and large samples are needed to support this results.

1.2.3.11. Yan 2023

Yan WH, Zhang J, Zhao YQ, Xue JJ. Effect of preoperative transcutaneous electrical acupoint stimulation on postoperative recovery of gastrointestinal function: A meta-analysis. Asian J Surg. 2023 Dec;46(12):5582-5583. https://doi.org/10.1016/j.asjsur.2023.08.038 [letter]

1.2.3.12. Zhang 2021 (laparoscopic surgery)

Zhang S, Guo W, Jiao Y, Guo X, Xu L, Gao H. Systematic review and meta-analysis of the effect of transcutaneous electrical acupoint stimulation on gastrointestinal function after laparoscopic surgery. Ann Palliat Med. 2021 Nov;10(11):11840-11848. https://doi.org/10.21037/apm-21-3046

Background	Postoperative gastrointestinal dysfunction (PGD) leading to nausea, vomiting, and abdominal distension are common complications after laparoscopic surgery for abdominal diseases. However, drugs cannot completely stop PGD. Over the years, transcutaneous electrical acupoint stimulation (TEAS) therapy has shown potential in preventing PGD, but there is no medical evidence that TEAS represents the best choice for the treatment of PGD. This network meta-analysis sought to evaluate the effectiveness of TEAS therapy in preventing PGD in patients after abdominal laparoscopic surgery.
Methods	Articles (published from the establishment of the databases to July 2021) were retrieved from the following databases: PubMed/Medline, Cochrane Library, Web of Science, Embase, China Biomedical Literature Database (CBM), China Technical Journal VIP Database (CQVIP), China Knowledge Infrastructure (CNKI), and the Wanfang Database. The Cochrane risk of bias tool was used to evaluate the quality of the included studies, and a network meta-analysis was performed using RevMan 5.20.

Results	A total of **7 randomized controlled trials, comprising 440 TEAS-treated patients and 468 control patients**, were included in the meta-analysis. The meta-analysis showed that there was no significant difference between the TEAS treatment group and the control group in relation to postoperative nausea and vomiting [relative risk (RR) =0.66; 95% confidence interval (CI): 0.37–1.21; P=0.18], postoperative abdominal distension (RR =0.53; 95% CI: 0.40–0.72; P<0.0001), the time of first postoperative fart (imply gastrointestinal motility) [mean difference (MD) =–7.31; 95% CI: –11.33 to –3.30; P=0.0004], and the time of first postoperative bowel movement (MD =–5.28; 95% CI: –7.23 to –3.33; P<0.0001); there were significant differences among these 3 indicators.
Discussion	We found that TEAS can promote postoperative fart and bowel movement, and has good clinical value in promoting postoperative gastrointestinal function recovery.

1.2.3.13. Chen 2019

Chen KB, Huang Y, Jin XL, Chen GF. Electroacupuncture or transcutaneous electroacupuncture for postoperative ileus after abdominal surgery: A systematic review and meta-analysis. Int J Surg. 2019:93-101. [203364]. DOI

Background	At present, there is no ideal treatment for postoperative ileus (POI) after abdominal surgery. This meta-analysis aims to evaluate the efficacy of electroacupuncture (EA) and transcutaneous electroacupuncture (TEA) in improving postoperative POI.
Methods	We systematically screened randomized controlled trials (RCTs) from multiple databases and included 15 high quality RCTs. Two investigators independently conducted data extraction, risk of bias assessment and statistical analysis. Meta-analysis was performed by a random- (REM) or fixed-effect (FIXED) model.
RESULTS	A total of 15 trials involving 965 participates were included. Meta-analysis results favored EA/TEA treatment for POI by analysis of time to first flatus [mean difference (MD) -11.60 h, I2 = 94%, REM)], time to first defecation (MD -12.94 h, I2 = 90%, REM), time to bowel sound recovery (MD -7.25 h, I2 = 85%, REM), time to first oral feeding (MD -15.76 h, I2 = 47%, REM) and length of hospital stay (MD -1.19 d, I2 = 44%, REM). Subgroup analysis of laparoscopic surgery patients also favored EA/TEA by analysis of time to first flatus (MD -2.46 h, I2 = 0%, FIXED), time to first oral feeding (MD -10.73 h, I2 = 0%, FIXED) and length of hospital stay (MD -1.30 d, I2 = 32%, REM). ST36 (Zusanli), ST37 (Shangjuxu) and ST39 (Xiajuxu) are preferred EA/TEA acupoints for treating POI. There was no significant difference in postoperative analgesic consumption between EA and control groups (P = 0.39). No severe adverse events associated with EA/TEA were reported.
Conclusion	This meta-analysis suggests that EA/TEA is a safe, effective treatment for POI after abdominal surgeries including laparoscopic surgery, and that EA/TEA does not relieve postoperative pain after abdominal surgery. There is significant heterogeneity of research on this subject, thus, a professional consensus is needed to establish a standard protocol for use of this technique.

1.2.4. Pharmacoacupuncture

1.2.4.1. Wang 2015 (Zusanli (¤ST36) Acupoint Injection)

Wang M, Gao YH, Xu J, Chi Y, Wei XB, Lewith G et al. Zusanli (¤ST36) acupoint injection for preventing postoperative ileus: a systematic review and meta-analysis of randomized clinical trials. Complement Ther Med 2015;23(3):469-83. [182926].

Wang M, Gao YH, Xu J, Chi Y, Wei XB, Lewith G et al.. Zusanli (ST36) acupoint injection for postoperative ileus: A systematic review and meta-analysis of randomised controlled trials (abstract), European Journal of Integrative Medicine. 2014;6(6):705. [206975]. doi

Objective	To evaluate the preventive effect of Zusanli (ST36) acupoint injections with various agents, for postoperative ileus (POI).
Methods	We searched electronic databases for randomized controlled trials from inception to 1st February 2015 evaluating ST36 acupoint injection for preventing POI. Revman 5.2.0 was used for data analysis with effect estimates presented as mean difference (MD) with 95% confidence interval (CI). Statistical heterogeneity was tested using I(2) (defined as significant if I(2)>75%). We used a random effects model (REM) for pooling data with significant heterogeneity.
Results	Thirty trials involving 2967 participants were included. All trials were assessed as high risk of bias (poor methodological quality). For time to first flatus, meta-analysis favored ST36 acupoint injection of neostigmine (MD -20.70h, 95% CI -25.53 to -15.87, 15 trials, I(2)=98%, REM), vitamin B1 (MD -11.22h, 95% CI -17.01 to -5.43, 5 trials, I(2)=98%, REM), and metoclopramide (MD -15.65h, 95% CI -24.77 to -6.53, 3 trials, I(2)=94%, REM) compared to usual care alone. Meta-analysis of vitamin B1 favored ST36 acupoint injection compared to intra-muscular injection (MD -17.21h, 95% CI -21.05 to -13.36, 4 trials, I(2)=89%, REM). Similarly, for time to bowel sounds recovery and first defecation, ST36 acupoint injection also showed positive effects.
Conclusions	ST36 acupoint injections with various agents may have a preventive effect for POI. Safety is inconclusive as few of included trials reported adverse events. Due to the poor methodological quality and likely publication bias further robust clinical trials are required to arrive at a definitive conclusion.

2. Overviews of systematic reviews

2.1. Zhang 2025

Zhang P, Lin Y, Yi K, Ma Y, Yang T, An L, Qi Y, Huang X, Su X, Deng Y, Hu J, Li W, Sun D. Efficacy and safety of therapeutic means for postoperative ileus: an umbrella review of meta-analyses. Langenbecks Arch Surg. 2025 Jun 17;410(1):198. https://doi.org/10.1007/s00423-025-03739-z

Background & aims	Postoperative ileus is treated using a large number of methods with variable efficacy. This study further clarifies the advantages and disadvantages of existing treatments through umbrella evaluation.
Method	This study conducted a systematic search of databases to select and include meta-analyses discussing the treatment of postoperative ileus. We recalculated the estimated values, 95% confidence intervals, heterogeneity estimates, small study effects, excessive significance tests, and publication biases for each included study using both random and fixed effect models.
Results	A total of **24 meta-analyses, including 27 treatment protocols**, were reviewed in this study. Among them, chewing gum, coffee, ERAS(Enhanced Recovery After Surgery) protocols, **acupuncture**, opioid receptor antagonists, Da-Cheng-Qi-Tang, early enteral nutrition, and **Zusanli point injection** therapy have been shown to significantly improve postoperative ileus (Class II). Opioid receptor antagonists, early enteral nutrition, ERAS, and chewing gum have also been found to significantly reduce the postoperative hospital stay (Class II).
Conclusion	Eight treatment options can effectively reduce postoperative ileus, while the effectiveness and safety of other treatment options for postoperative ileus require further confirmation through high-quality research.

2.2. Wang 2024

Wang Y, Wang L, Ni X, Jiang M, Zhao L. Effect of acupuncture therapy for postoperative gastrointestinal dysfunction in gastric and colorectal cancers: an umbrella review. Front Oncol. 2024 Feb 5;14:1291524. https://doi.org/10.3389/fonc.2024.1291524

Backgound	Gastrointestinal dysfunction is a prevalent postoperative complication in patients undergoing surgery for gastric cancer and colorectal cancer. Acupuncture holds promise as a great potential therapeutic intervention. The efficacy of acupuncture therapy for postoperative gastrointestinal dysfunction has been assessed in some studies, however, the variability in results and study quality influences practical clinical application. Therefore, it is necessary to summarize and analyze the published clinical research data in this field.
Objective	This study aimed to synthesize evidence from systematic reviews and meta-analyses in order to assess the efficacy of acupuncture therapy for postoperative gastrointestinal dysfunction in patients with gastric and colorectal cancer.
Design	Umbrella review of systematic reviews and meta-analyses.
Methods	We searched China National Knowledge Infrastructure (CNKI), Wanfang Data Knowledge Service Platform (Wanfang), China Science and Technology Journal Database (VIP), Chinese biomedical literature service system (SinoMed), PubMed, Embase, Cochrane Library, and Web of Science for all systematic review/meta-analysis of acupuncture for postoperative gastrointestinal dysfunction in gastric and colorectal cancers. From the establishment of the database to July 8, 2023. Two independent reviewers conducted literature extraction and evaluation. The quality of included studies was assessed using The preferred reporting items for systematic reviews and meta-analysis statements 2020 (PRISMA2020), the quality of the methods was assessed using a measuring tool to assess systematic reviews 2 (AMSTAR 2), and the level of evidence was assessed using the grading of recommendations assessment, development, and evaluation (GRADE). The statistical analysis was conducted using RevMan 5.4, and the effect size was expressed as Odds Ratio (OR), Mean Difference (MD), and 95% confidence interval (CI) based on the extracted data type (test level $\alpha = 0.05$). The heterogeneity was assessed using the I 2 statistic and Q-test ($\chi 2$). The outcome indicators such as time to first defecation and time to first flatus were utilized as endpoints to assess the efficacy of different acupuncture therapies.

Results	A total of **six systematic reviews/meta-analyses** were included in this study, involving 12 different acupuncture therapies. PRISMA 2020 indicated that the studies all scored between 13-20.5. There were deficiencies in protocol and registration, assessment of the quality of evidence for outcome indicators, risk of bias, and declaration of conflict of interest. The AMSTAR 2 evaluations showed that five studies were very low quality and one was low quality. The level of evidence for various acupuncture interventions varied from very low to moderate.For patients with gastrointestinal dysfunction after gastric cancer surgery, ear acupressure [MD=-11.92, 95% (-14.39,-9.44), P<0.00001], moxibustion [MD=-19.16, 95% (-23.00,-16.22), P<0.00001], warm needling [MD=-12.81, 95% (-17.61,-8.01), P<0.00001], acupoint application [MD=-6.40, 95% (-10.26,-2.54), P=0.001], manual acupuncture [MD=-18.32, 95% (-26.31,-10.39), P<0.00001] and transcutaneous electrical acupoint stimulation (TEAS) [MD=-5.17, 95% (-9.59,-0.74), P=0.02] could promote the recovery of gastrointestinal function after surgery.For postoperative colorectal cancer patients, electroacupuncture [MD=-15.17, 95% (-28.81,-1.54), P<0.05], manual acupuncture [MD=-20.51, 95% (-39.19,-1.84), P<0.05], warm needling [MD=-18.55, 95% (-23.86,-13.24), P<0.05], ear acupressure [MD=-5.38, 95% (-9.80,-0.97), P<0.05], acupoint application [MD=-26.30, 95% (-32.81,-19.79), P<0.05], ear acupressure+acupressure [MD=-9.67, 95% (-13.58,-5.76), P<0.05], ear acupressure+manual acupuncture [MD=-18.70, 95% (-21.01,-16.39), P<0.05], ear acupressure+moxibustion [MD=-22.90, 95% (-30.10,-15.70), P<0.05], moxibustion+acupressure [MD=-14.77, 95% (-20.59,-8.95), P<0.05] improved postoperative gastrointestinal function. In addition, the efficacy of acupressure [MD=-12.00, 95% (-31.60,7.60), P>0.05] needed to be further demonstrated.
Conclusion	Acupuncture therapy has a positive therapeutic impact on postoperative gastrointestinal dysfunction in gastric and colorectal cancers, but this finding should still be taken with caution.

3. Clinical Practice Guidelines

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

3.1. Enhanced Recovery After Surgery (ERAS) Society 2025 ⊕

Gustafsson UO, Rockall TA, Wexner S, How KY, Emile S, Marchuk A, Fawcett WJ, Sioson M, Riedel B, Chahal R, Balfour A, Baldini G, de Groof EJ, Romagnoli S, Coca-Martinez M, Grass F, Brindle M, Hubner M. Guidelines for perioperative care in elective colorectal surgery: Enhanced Recovery After Surgery (ERAS) Society recommendations 2025. Surgery. 2025 Aug;184:109397. https://doi.org/10.1016/j.surg.2025.109397

Transcutaneous electrical acupoint stimulation : Effective (reduced ileus by 32%) and shortened time to flatus. *Quality of evidence*: Moderate. *Recommendation*: Can be used (moderate)
Acupuncture: Effective (shortened time to flatus, first defecation). *Quality of evidence*: Low. *Recommendation*: May be used (weak)

3.2. Association Francophone des Soins Oncologiques de Support (AFSOS) 2014 ⊕

Association Francophone des Soins Oncologiques de Support (AFSOS). Fiches Réferentiels : L'acupuncture en onco-hématologie MAJ 2014 (online)

Ileus post-opératoire. Acupuncture (Niveau de preuve HAS : B)

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