Table 1: Systematic reviews of acupuncture for cancer-related pain

Source: Mora DC and the CAM-Cancer Collaboration. Acupuncture for cancer: pain. Acupuncture | CAM Cancer, June 2026.

Various cancer types – page 1 Specific cancer types – page 12 aromatase inhibitor-induced arthralgia – page 25

Various cancers

Methods	Included studies	Results and conclusions	Comments
Xie, T., Liu, C., Wu, Y., Li, X., Yang, Q., & Tan, J. (2025). *Efficacy and safety of different acupuncture treatments for cancer-related pain: A systematic review and network meta-analysis.* Integrative Cancer Therapies, 24, 1–17. https://doi.org/10.1177/15347354251314500			
Type of review: Systematic review **Search strategy** ***Databases*** PubMed, Cochrane, Embase, Web of Science, CNKI, Wanfang, VIP, China Biomedicine ***Dates*** From database inception to June 3, 2024 ***Data synthesis*** Network meta-analysis ***Risk of bias assessment*** Cochrane Risk of Bias Tool and Jadad Scale **Inclusion criteria** ***Populations*** Patients aged 18 years or older with pathologically diagnosed cancer ***Interventions*** Acupuncture, auricular acupuncture, electroacupuncture, moxibustion, combinations with traditional Chinese medicine or usual medicine ***Comparisons*** Conventional medical treatment, sham acupuncture. ***Outcomes*** Primary: NRS score, KPS score, cancer pain	**Studies and participants** 111 RCTs, 9,549 participants **Interventions** Acupuncture (A), Auricular Acupuncture (AA), Electro-Acupuncture (EA), Moxibustion (M), combinations with TCM **Comparisons** Usual Medicine, Sham interventions, Traditional Chinese Medicine, Application of Chinese Medicine. Point Injection, **Outcome measures** NRS (Numeric Rating Scale) for pain intensity KPS (Karnofsky Performance Status) for quality of life Cancer pain relief rates **Measure of treatment effect** MD 95% CI p value, effect size calculations	**Results for outcome measures:** ***Pain Intensity*** (NRS) Acupuncture + Usual Medicine + Traditional Chinese Medicine MD = −1.83, 95% CI (−2.86, −0.80) p-value < 0.001, SUCRA = 85.11% Electro-Acupuncture (EA) MD = −1.42, 95% CI (−1.93, −0.91) p-value < 0.001; SUCRA = 81.15% Acupuncture + Usual Medicine MD = −1.42, 95% CI (−2.21, −0.64) p-value < 0.001; SUCRA = 74.78% ***Pain Relief Rate*** Acupuncture + Traditional Chinese Medicine OR = 30.86, 95% CI (3.75, 254.20) p-value< 0.001; SUCRA = 94.63% Acupuncture + Auricular Acupuncture + Usual Medicine OR = 15.38, 95% CI (1.81, 130.41) p-value < 0.001; SUCRA = 88.18% ***Adverse events*** Out of the 111 studies included, 47 documented adverse events:** constipation, nausea/vomiting, dizziness. **Results for risk of bias assessment of primary studies included in review** ***Jadad Scale:*** 89 studies rated as low quality (score 0–3), 22 studies rated as high quality (score 4–7)*	**Quality assessment of the SR:** low according to AMSTAR2 checklist, RoB not incorporated when reporting or discussing effectiveness results in light of RoB, no subgroup analyses. ***Strengths*** Compared different acupuncture modalities. Authors evaluated adverse events. ***Limitations*** The quality of the majority included RCTs was low. *Authors used Jadad assessment incorrectly (adding points instead of deducting when inappropriate methods used). **Unclear whether these were AEs of acupuncture treatment or conventional treatment. Most studies did not implement or report blinding. Outcome assessors were often not blinded, increasing risk of detection bias. No subgroup analysis was included

<table>
<tr>
<td>relief; Secondary: adverse events (constipation, nausea/vomiting, dizziness)</td>
<td></td>
<td>Cochrane Risk of Bias Tool: 16 studies rated as high risk, 95 studies rated as unclear risk. The detailed results of the RoB were not presented in the article.
Conclusions
Acupuncture combined with Traditional Chinese Medicine was identified as the most effective intervention for relieving cancer-related pain</td>
<td></td>
</tr>
<tr>
<td colspan="4">Faria, M., Teixeira, M., Pinto, M. J., & Sargento, P. (2024). Efficacy of acupuncture on cancer pain: A systematic review and meta-analysis. Journal of Integrative Medicine, 22(3), 235–244. https://doi.org/10.1016/j.joim.2024.03.002</td>
</tr>
<tr>
<td>Type of review: Systematic review

Search strategy:
Databases
PubMed, EBSCO, Cochrane Library, Scielo, b-On, Scopus.

Dates
From database inception until 2022

Data synthesis
Meta-analysis. Network meta-analysis.

Risk of bias /quality assessment
Cochrane risk-of-bias tool for randomized trials (RoB)

Inclusion criteria:
Population
Cancer patients experiencing pain from disease or treatment; no restrictions on cancer type, stage, or demographics).

Interventions or exposures
Manual acupuncture (MA), electroacupuncture (EA), auricular acupuncture (AA)

Comparators or controls
No treatment, sham acupuncture, usual care

Outcome
Primary: Pain intensity (VAS, NRS, BPI, NIH-CPSI); Secondary: Quality of life, functionality,</td>
<td>Studies and participants:
13 RCTs, 1,124 participants

Interventions:
Manual Acupuncture (6 RCTs), electroacupuncture (5 RCTs), auricular acupuncture (2 RCTs).

Control:
Sham acupuncture in 8 RCTs, usual care in 5 RCTs, no treatment in 3 RCTs. 3 RCTs had 3 arms thus 16 comparisons.

Outcome measures:
Pain: VAS (2 RCTs), NRS (7 RCTs), BPI (3 RCTs), NIH CPSI (1 RCT)

Measure of treatment effect:
Standard mean difference (SMD) and 95% CI</td>
<td>Results for risk of bias assessment of primary studies included in review:
<table>
<tr><th>Domain</th><th>Low risk</th><th>Unclear risk</th><th>High risk</th></tr>
<tr><td>Random Sequence Generation</td><td>11</td><td>2</td><td>0</td></tr>
<tr><td>Allocation Concealment</td><td>9</td><td>3</td><td>1</td></tr>
<tr><td>Blinding of Participants/Personnel</td><td>7</td><td>3</td><td>3</td></tr>
<tr><td>Blinding of Outcome Assessment</td><td>9</td><td>4</td><td>0</td></tr>
<tr><td>Incomplete Outcome Data</td><td>9</td><td>4</td><td>0</td></tr>
<tr><td>Selective Reporting</td><td>8</td><td>5</td><td>0</td></tr>
<tr><td>Other Bias</td><td>10</td><td>3</td><td>0</td></tr>
</table>
Results for outcome measures:

Pain intensity
Acupuncture vs No Treatment: SMD = –0.90, 95% CI (–1.68, –0.12) p-value = 0.003.
Acupuncture vs Sham Acupuncture: SMD = –1.10, 95% CI (–1.59, –0.61) p-value <0.00001.
Acupuncture vs Usual Care: SMD = –1.16, 95% CI (–1.38, –0.93) p-value <0.00001.

Adverse events
No serious adverse events were reported across the included studies. In the cases where they were present, they were described as mild or bruising.</td>
<td>Quality assessment of the SR: low according to AMSTAR2 checklist.

Item 1 and 7 not fulfilled, item 2 partially met: no protocol registration, no publication bias assessment. In the literature search, the authors did not report searching the grey literature or the reference lists.

Strengths
Authors reported information on adverse effects.

Limitations
The studies included had small sample sizes. The heterogeneity among the included studies was high. No protocol was registered, and the authors did not report on publication bias
It was not feasible to blind participants or practitioners.</td>
</tr>
</table>

xerostomia, pain interference, analgesic consumption		**Conclusions:** Acupuncture may be an effective and safe intervention for reducing cancer-related pain. It showed significant benefits compared to no treatment, sham acupuncture, and usual care.	
Zhang, Q., Yuan, Y., Zhang, M., Qiao, B., Cui, Y., Wang, Y., & Feng, L. (2023). Efficacy and safety of acupuncture-point stimulation combined with opioids for the treatment of moderate to severe cancer pain: A network meta-analysis of randomized controlled trials. *Frontiers in Oncology, 13*, 1166580. https://doi.org/10.3389/fonc.2023.1166580			
Type of review: Systematic review **Search strategy** ***Databases*** PubMed, Web of Science, EMBASE, Cochrane Central Register of Controlled Trials, Chinese Biomedical Literature Database, CNKI, VIP, Wan Fang From inception to 30 June 2022 ***Data synthesis*** Network meta-analysis ***Risk of bias /quality assessment*** Cochrane Risk of Bias tool	**Studies and participants** 48 RCTs, 4,026 participants. 5 RCTs endocrine-therapy-induced joint pain Patients diagnosed with moderate to severe cancer pain; no restrictions on gender, race, or cancer type. **Intervention** 8 types of acupuncture-point stimulation (APS): fire needle, body acupuncture, point embedding, auricular acupuncture, moxibustion, TEAS, electroacupuncture, wrist–ankle acupuncture **Control** Acupoint stimulation + opioids vs. opioids alone **Outcome measures** Total pain relief rate (defined as ≥50% relief or marked effect) Incidence of adverse reactions (nausea, vomiting, constipation) **Measure of treatment effect** SMDs with 95% CI SUCRA (Surface Under the Cumulative Ranking Curve) used for ranking interventions	**Results for outcome measures:** ***Total Pain Relief Rate*** **Fire needle + opioids**: RR = 0.21, 95% CI (0.12, 0.37) p-value < 0.001; SUCRA = 91.1% **Body acupuncture + opioids:** RR = 0.25, 95% CI (0.17, 0.36) p-value < 0.001; SUCRA = 85.0% **Point embedding + opioids**: RR = 0.30. 95% CI (0.16,0.58) p-value < 0.001; SUCRA = 67.7% **Auricular acupuncture + opioids**: RR = 0.41, 95% CI (0.29,0.58); p-value < 0.001; SUCRA = 53.8% **Moxibustion + opioids**: RR = 0.36, 95% CI (0.24,0.56) p-value < 0.001; SUCRA = 41.9% **TEAS + opioids:** RR = 0.43, 95% CI (0.29,0.62) p-value < 0.001; SUCRA = 39.0% **Electroacupuncture + opioids**: RR = 0.44, 95% CI (0.26, 0.74) p-value < 0.001; SUCRA= 37.4% **Wrist–ankle acupuncture + opioids:** RR= 0.46, 95% CI (0.26,0.81) p-value < 0.001; SUCRA = 34.1% ***Incidence of Adverse Reactions*** **Fire needle + opioids**: RR = 4.50, 95% CI (2.53–7.98) p-value < 0.001; SUCRA = 27.2% **Body acupuncture + opioids**: RR = 3.40, 95% CI (2.10, 5.51) p-value < 0.001; SUCRA = 49.8% **Point embedding + opioids**: RR = 3.69, 95% CI (1.61, 8.49) p-value < 0.001; SUCRA = 42.6% **Auricular acupuncture + opioids**: RR = 4.59, 95% CI (3.28, 6.43) p-value < 0.001; SUCRA = 23.3% **Moxibustion + opioids**: RR = 3.40, 95% CI (1.55, 7.45) p-value < 0.001; SUCRA = 48.2% **TEAS + opioids**: RR = 2.39, 95% CI (1.81, 3.15) p-value < 0.001; SUCRA = 76.3% **Electroacupuncture + opioids**: RR = 4.61, 95% CI (2.69, 7.90) p-value < 0.001; SUCRA = 25.1% **Wrist–ankle acupuncture + opioids**: RR = 2.83, 95% CI (1.00, 7.98) p-value < 0.001; SUCRA = 57.8%	**Quality assessment of the SR:** low according to AMSTAR2 and some concerns/high according to RoB NMA checklist. AMSTAR2 Items 3 and 5 were partially met: The authors did not report the results of the risk bias in the results and neglected to discuss the results of the risk of bias. NMA included studies had substantial issues with blinding and randomization reporting which may affect the reliability of the treatment rankings and effect estimates. ***Strengths:*** Well conducted. ***Limitations:*** Small samples and a wide variety in acupuncture protocols. Bias concerns were mentioned but the authors did not further elaborate. Most studies had unclear risk in several domains due to insufficient reporting All the studies were conducted in China that may affect generalizability

		Results for risk of bias assessment of primary studies included in review: **Domain** / **Low risk** / **Unclear risk** / **High risk** Random Sequence Generation: 33 / 13 / 2 Allocation Concealment: 0 / 48 / 0 Blinding of Participants/Personnel: 0 / 0 / 48 Blinding of Outcome Assessment: 1 / 47 / 0 Incomplete Outcome Data: 48 / 0 / 0 Selective Reporting: 0 / 48 / 0 Other Bias: 0 / 48 / 0 **Conclusions:** APS combined with opioids is more effective and safer than opioids alone for treating moderate to severe cancer pain. Among the eight APS methods evaluated, fire needle, body acupuncture, point embedding, and moxibustion were identified as the most promising interventions	
Zhang, J., Wu, W., Ren, Y., Yuan, Y., & Jia, L. (2023). Electroacupuncture for the treatment of cancer pain: A systematic review and meta-analysis of randomized clinical trials. *Frontiers in Pain Research, 4*, 1186506. https://doi.org/10.3389/fpain.2023.1186506			
Type of review: Systematic review **Search strategy** ***Databases*** CNKI, Wanfang, PubMed, Web of Science, Cochrane CENTRAL ***Dates*** From inception to **November 11, 2022** ***Data synthesis*** Meta-analysis ***Risk of bias /quality assessment*** Cochrane RoB	***Studies and Participants*** 17 RCTs, 1,275 patients, various cancers. ***Intervention*** Electroacupuncture (various frequencies, durations, and acupoints) ***Control*** Sham EA, analgesics (e.g., oxycodone, three-step ladder), usual care ***Outcome measures*** VAS (5 RCTs), NRS (7 RCTs), NPS (2 RCTs), BPI (2 RCTs), KPS (2 RCTs), Response Rate (7 RCTs), Burst Pain (3 RCTs), Side Effects (multiple)	**Results for outcome measures:** VAS: MD = −1.41, 95% CI (−2.42, −0.41) p-value= 0.006 NRS: MD = −1.19, 95% CI (−1.72, −0.66) p-value < 0.0001 KPS: MD = 5.48, 95% CI (3.27, 7.69) p-value < 0.0001 Burst Pain: MD = −2.66, 95% CI (−3.32, −1.99) p-value < 0.0001 Response Rate: RR = 1.17, 95% CI (1.09, 1.26) p-value < 0.0001 Side Effect Rate: RR = 0.51 95% CI (0.39, 0.67) p-value < 0.0001 ***Adverse events*** Adverse reactions occurred in 109 out of 967	**Quality assessment of the SR:** low moderate according to AMSTAR2 checklist. Items 4 and 6 were partially met, 7 was not met: methodological limitations are briefly acknowledged, but risk of bias is not fully integrated into the interpretation of findings. ***Strengths:*** The authors assessed the heterogeneity of the studies and conducted a subgroup analysis. Adverse events were evaluated ***Limitations:*** There was high heterogeneity

<table>
<tr>
<td>Inclusion criteria
Population
Patients with cancer pain (various cancer types)

Interventions or exposures
Electroacupuncture (alone or adjunct to standard care).

Comparators or controls
Sham EA, standard care, analgesics, or other conventional treatments

Outcome
Pain (VAS, NRS, NPS, BPI, KPS, burst pain frequency, response rate, side effects)</td>
<td>Measure of treatment effect
MD, RR, and 95% CI.</td>
<td>cases in the treatment group and in 192 out of 892 cases in the control group.

Results for risk of bias assessment of primary studies included in the review:
<table>
<tr><th>Domain</th><th>Low risk</th><th>Unclear risk</th><th>High risk</th></tr>
<tr><td>Random Sequence Generation</td><td>10</td><td>7</td><td>0</td></tr>
<tr><td>Allocation Concealment</td><td>6</td><td>11</td><td>0</td></tr>
<tr><td>Blinding of Participants/Personnel</td><td>4</td><td>12</td><td>1</td></tr>
<tr><td>Blinding of Outcome Assessment</td><td>4</td><td>12</td><td>1</td></tr>
<tr><td>Incomplete Outcome Data</td><td>8</td><td>1</td><td>8</td></tr>
<tr><td>Selective Reporting</td><td>6</td><td>7</td><td>4</td></tr>
<tr><td>Other Bias</td><td>0</td><td>17</td><td>0</td></tr>
</table>
Conclusions: Electroacupuncture appears to be an effective and safe complementary therapy for managing cancer pain. It significantly reduces pain scores (VAS, NRS), improves functional status (KPS), lowers the frequency of burst pain, increases treatment response rates, and reduces adverse effects compared to control interventions.</td>
<td>Many included studies were small sample size RCTs, limiting statistical power.
Most studies did not report whether outcome assessors were blinded, increasing detection bias risk.</td>
</tr>
<tr><td colspan="4">Li, D., Su, Y., Fan, H., Guo, N., & Sun, C. (2021). Acupuncture combined with three-step analgesic drug therapy for treatment of cancer pain: A systematic review and meta-analysis of randomised clinical trials. Evidence-Based Complementary and Alternative Medicine, 2021, Article ID 5558590. https://doi.org/10.1155/2021/5558590</td></tr>
<tr>
<td>Type of review: Systematic review

Search strategy

Databases
Cochrane Library, PubMed, Embase, CNKI, CBMdisc, VIP, Wanfang

Searched from inception to January 10, 2021

Data synthesis</td>
<td>Studies and participants
19 RCTs, 1,502 participants

Intervention
Acupuncture (manual, electroacupuncture, fire needle, floating needle, wrist-ankle acupuncture) combined with WHO three-step analgesic drug therapy

Control
WHO three-step analgesic drug therapy alone</td>
<td>Results for outcome measures:
Pain relief response rate: RR = 1.12, 95% CI (1.08, 1.17) p-value <0.00001
NRS score: SMD = -1.10, 95% CI (-1.86, -0.35) p-value =0.004
Nausea: RR = 0.48, 95% CI (0.34, 0.66) p-value <0.00001
Vomiting: RR = 0.56, 95% CI (0.37, 0.86) p-value = 0.008
Constipation: RR = 0.38, 95% CI (0.29, 0.49) p-value <0.00001
Dizziness: RR = 0.53, 95% CI (0.33, 0.86) p-value = 0.010</td>
<td>Quality assessment of the SR: Critically low according to AMSTAR2 checklist. Items 1 and 6 were not met, item 4 only partially: The authors did not register a protocol, results discussed without integrating risk of bias into interpretation, concerns about RoB assessment (2 domains all trials high, 2 domains all trials low, without exception).

Strengths: Well-defined criteria for study selection, focusing on RCTs with cancer pain and</td>
</tr>
</table>

Meta-analysis

Risk of bias /quality assessment
Cochrane Assessment Tool (RoB)

Inclusion criteria:
Population
Patients with cancer pain confirmed by cytology or histopathology; no restrictions on age, gender, race, or nationality

Interventions or exposures
Acupuncture (manual, electroacupuncture, fire needle, etc.) combined with WHO 3-step analgesic ladder

Comparators or controls
WHO 3-step analgesic drug therapy alone

Outcome
Pain relief rate, NRS score, side effect rates (nausea, vomiting, constipation, dizziness), burst pain rate, onset time, duration of response

Outcome measures
Pain relief rate (response rate) 18 RCTs
Numerical Rating Scale (NRS) 7 RCTs
Side effect rates (nausea, vomiting, constipation, dizziness) 8–11 RCTs
Burst pain frequency 4 RCTs
Onset time to analgesia 5 RCTs
Duration of response (DOR) 6 RCTs

Measure of treatment effect
Standardized mean difference (SMD) and 95% confidence interval (95% CI).

Burst pain frequency: SMD = -1.38, 95% CI (-2.44, -0.32) p-value =0.01
Onset time to analgesia: SMD = -20.11, 95% CI (-33.90, -6.33) p-value =0.004
Duration of response (DOR): SMD = 3.22, 95% CI (1.63, 4.80) p-value <0.00001

Adverse events
Fourteen RCTs described adverse events from acupuncture combined with three-step analgesic drugs

Results for risk of bias assessment of primary studies included in review:

Domain	Low risk	Unclear risk	High risk
Random Sequence Generation	19	0	0
Allocation Concealment	19	0	0
Blinding of Participants/Personnel	0	0	19
Blinding of Outcome Assessment	0	0	19
Incomplete Outcome Data	16	0	3
Selective Reporting	13	0	6
Other Bias	17	0	2

Conclusions: Acupuncture combined with the WHO three-step analgesic drug therapy is more effective than the drug therapy alone for managing cancer pain. Specifically, the combination therapy:
Increased pain relief response rates, reduced pain intensity (NRS scores), lowered the incidence of side effects (nausea, vomiting, constipation, dizziness), reduced the frequency of breakthrough (burst) pain, shortened the onset time to analgesic effect, prolonged the duration of pain relief.
acupuncture combined with WHO analgesic ladder.

Limitations:
Funnel plot suggested possible publication bias, potentially inflating effect estimates.
None of the included studies were double- or triple-blinded, increasing performance and detection bias.

Dong, B., Lin, L., Chen, Q., Qi, Y., Wang, F., Qian, K., & Tian, L. (2021). Wrist-ankle acupuncture has a positive effect on cancer pain: a meta-analysis. *BMC Complementary Medicine and Therapies*, 21, Article 24. https://doi.org/10.1186/s12906-020-03193-y

Type of review: Systematic review

Search strategy

Databases
CNKI, Wanfang, VIP, CBM, Cochrane Library, PubMed, Embase

Searched from inception to July 2020

Data synthesis
Meta-analysis

Risk of bias /quality assessment
Cochrane Collaboration tool

Inclusion criteria:
Population
Adult (≥18 years) cancer patients with pain

Interventions or exposures
Wrist-ankle acupuncture (WAA) alone or WAA + analgesics

Comparators or controls
Analgesic drug therapy alone

Outcome
Pain relief rate, pain score, and adverse reaction rate

Studies and participants
13 RCTs, 1005 participants

Intervention
WAA alone (6 studies), WAA + drug therapy (10 studies)

Control
Drug therapy alone (13 RCTs)

Outcome measures
Pain relief rate 12 RCTs(CR, PR, MR, NR), Numerical Rating Scale (NRS)/ Visual Analogue Scale (VAS) 5 RCTs

Measure of treatment effect
Risk Ratio (RR) for categorical outcomes, Standardized Mean Difference (SMD) for continuous outcomes and 95% CI

Results for outcome measures:
Pain relief response rate: RR = 1.31, 95% CI (1.15,1.49) p-value <0.01
WAA alone: RR = 1.13, 95% CI (0.98,1.32) p-value =0.09
WAA + drug: RR = 1.55, 95% CI (1.26, 1.91) p-value =0.01
Pain Score: SMD = −0.91, 95% CI (−1.70, −0.13) p-value =0.02

Adverse events
Seven studies reported adverse events. The main adverse events for acupuncture were subcutaneous hemorrhage and dizziness, and those of drug therapy were dizziness, nausea, vomiting, drowsiness, constipation, and urinary retention.

Results for risk of bias assessment of primary studies included in review:

Domain	Low risk	Unclear risk	High risk
Random Sequence Generation	9	3	1
Allocation Concealment	0	13	0
Blinding of Participants/Personnel	0	0	13
Blinding of Outcome Assessment	1	12	0
Incomplete Outcome Data	13	0	0
Selective Reporting	13	0	0
Other Bias	13	0	0

Conclusions: Wrist-ankle acupuncture (WAA) has a positive effect on cancer pain. Specifically: WAA combined with drug therapy is more effective than drug therapy alone in relieving cancer pain. WAA alone also shows pain relief benefits, but the evidence is less stable. WAA is associated with fewer adverse reactions compared to pharmacological interventions.

Quality assessment of the SR: Low according to AMSTAR2 checklist. Item 1 was not met. The authors did not register a protocol. Item 4 partially met: concerns about RoB assessment with all trials judged as low RoB for 3 domains, or unclear in one domain, all high in one domain.

Strengths: Comprehensive search, appropriate synthesis methods, risk of bias assessment, and consideration of bias in interpretation. Adverse events were reported in this review

Limitations: No protocol registration and lack of reporting on funding sources for included studies. Funnel plot suggested possible publication bias, potentially inflating effect estimates. Most of the included studies had a small sample size. High performance bias due to lack of blinding; allocation concealment not reported.

Dai, L., Liu, Y., Ji, G., & Xu, Y. (2021). Acupuncture and derived therapies for pain in palliative cancer management: Systematic review and meta-analysis based on single-arm and controlled trials. *Journal of Palliative Medicine, 24*(7), 1078–1099. https://doi.org/10.1089/jpm.2020.0405

Type of review: Systematic review

Search strategy

Databases
PubMed, EMBASE, Cochrane CENTRAL, CINAHL Complete via EBSCO, CNKI, Wanfang, VIP, SinoMed

Searched from inception to August 31, 2020

Data synthesis
Meta-analysis'

Risk of bias /quality assessment
Cochrane Risk-of-Bias Tool for RCTs; Newcastle-Ottawa Scale (NOS) for observational and single-arm studies

Inclusion criteria:

Population
Adults (≥18 years) with histopathologically confirmed cancer.

Interventions or exposures
Acupuncture and derived therapies (electroacupuncture, laser acupuncture, TENS) combined with conventional analgesics

Comparators or controls
Sham acupuncture + conventional analgesics or conventional analgesics alone

Outcome
Primary: Change in pain intensity (NRS, VAS); Secondary: Quality of life (EORTC QLQ-C30), emotional status, global improvement rate, adverse events

Studies and participants
59 studies total: 41 controlled trials (including 34 RCTs), 18 single-arm observational studies, 3,769 participants

Intervention
Acupuncture and derived therapies: manual acupuncture, electroacupuncture, laser acupuncture, transcutaneous electrical nerve stimulation (TENS), fire needling

Control
Conventional analgesics alone (26 RCTs), sham acupuncture + conventional analgesics (8 RCTs)

Outcome measures
Pain: NRS (20 RCTs), VAS (5 RCTs), Brief Pain Inventory (BPI), Edmonton Symptom Assessment System (ESAS)
QoL: EORTC QLQ-C30

Measure of treatment effect
Odds Ratio (OR) for categorical outcomes, Weighted Mean Difference (WMD) for continuous outcomes, and 95% CI

Results for outcome measures:

Pain intensity (controlled trials, NRS): SMD = 1.33, 95% CI (0.85, 1.82) p-value <0.001
Pain intensity (controlled trials, VAS): SMD = 1.30, 95% CI (0.43, 2.18) p-value = 0.004
Pain intensity (single-arm trials, immediate): SMD = 1.57, 95% CI (1.43, 1.71) p-value <0.001
Pain intensity (single-arm trials, long-term): SMD = 1.81, 95% CI (1.25, 2.37) p-value <0.001
Quality of Life (EORTC QLQ-C30): SMD = 8.51, CI (4.09, 12.92) p-value <0.001
Global Improvement Rate: OR = 4.08, 95% CI (3.03, 5.49) p-value <0.001

Adverse events
Among included studies, 25 controlled and three single-arm trials reported the assessment of adverse events. Eleven studies evaluated the adverse events caused by acupuncture or derived therapy, while the others assessed the impact of acupuncture on adverse events resulting from conventional analgesics. Based on available data, acupuncture and derived therapies were well tolerated. Minor adverse events were reported in three studies, including fatigue, pain in acupuncture sites, diarrhea, edema, and flu-like symptoms.

Results for risk of bias assessment of primary studies included in review:

Domain	Low risk	Unclear risk	High risk
Random Sequence Generation	23	17	0
Allocation Concealment	8	31	1
Blinding of Participants/Personnel	12	0	28
Blinding of Outcome Assessment	10	30	0

Quality assessment of the SR: Moderate according to the AMSTAR2 checklist. Items 2 and 6 were partially met. The authors did not search the grey literature or the references of included studies. Risk of bias was discussed but not fully integrated into the interpretation of findings.

Limitations: There is high heterogeneity among the included studies. Many studies lacked detailed methodological descriptions, leading to unclear risk of bias ratings. Bias was not consistently factored into the interpretation of results
Due to the physical nature of acupuncture, blinding of personnel (i.e., practitioners) was generally not feasible across studies.

		Incomplete Outcome Data 33 7 0 Selective Reporting 37 2 1 Other Bias 10 30 0 **Conclusions:** This systematic review supports the use of acupuncture and derived therapies (such as electroacupuncture, laser acupuncture, and TENS) as effective complementary treatments for managing pain in palliative cancer care. The findings from both controlled and single-arm trials indicate that these therapies, when combined with conventional analgesics, significantly reduce pain intensity and improve quality of life.	
Abe, H., Inoue, R., Tsuchida, R., Ando, M., Saita, K., Konishi, M., Edamura, T., Ogawa, A., Matsuoka, Y., & Sumitani, M. (2022). *Efficacy of treatments for pain and numbness in cancer survivors: A systematic review and meta-analysis*. Annals of Palliative Medicine, 11(12), 3674–3696. https://doi.org/10.21037/apm-22-420			
Type of review: Systematic review **Search strategy** ***Databases*** PubMed, MEDLINE, Embase, Cochrane Central Register of Controlled Trials, Web of Science, PsycInfo, CINAHL Searched from inception until 30 April 2022. Restricted to English and Japanese language publications. ***Data synthesis*** Meta-analysis ***Risk of bias /quality assessment*** Cochrane RoB Assessment Tool **Inclusion criteria:** ***Population*** Cancer survivors with pain or numbness, aged 18 years or older ***Interventions or exposures***	**Studies and participants** 36 RCTs, 2,870 participants **Intervention** Physical Exercise 13 RCTs, Acupuncture 3 RCTs, Alternative Medicine 6 RCTs, Nonopioid Pharmacotherapy 6 RCTs, Education/CBT 7 RCTs **Control** Placebo Multiple, Usual Care Multiple, Minimal Intervention, Multiple Waiting List **Outcome measures** NRS (Numeric Rating Scale), VAS (Visual Analogue Scale), BPI (Brief Pain Inventory), SF-36 (Short Form Health Survey), WOMAC, FACT-NTX, PNQ, PQAS **Measure of treatment effect** Standardized mean difference (SMD) and 95% confidence interval (95% CI).	**Results for outcome measures:** **Significant improvements:** Acupuncture for pain (3 RCTs): SMD = −0.80, 95% CI (−1.04, −0.56) p-value <0.00001 Physical Exercise for pain (13 RCTs): SMD = −0.84, 95% CI (−1.14, −0.55) p-value <0.00001 Alternative Medicine (6 RCTs): SMD = −0.44, 95% CI (−0.71, −0.16) p-value = 0.002 Education/CBT for Numbness (Neurofeedback): SMD = −1.04, 95% CI (−1.57, −0.51) p-value <0.00001 Not significant Nonopioid Pharmacotherapy: SMD = −0.19, 95% CI (−0.46, 0.08) p-value =0.16 Education/CBT**:** SMD = −0.15, 95% CI (−0.45, 0.15) p-value =0.33 Acupuncture for Numbness: SMD = −0.81, 95% CI (−1.65, 0.02) p-value = 0.06 Nonopioid Pharmacotherapy for Numbness: SMD = −0.12, 95% CI (−0.32, 0.09) p-value =0.26 Physical Exercise for Numbness: SMD = 0.19, 95% CI (−0.47, 0.85) p-value =0.58 ***Adverse events*** No severe complications were reported in 36 studies, and the treatments were considered well tolerated.	**Quality assessment of the SR:** Low according to AMSTAR2 checklist. Item 1 was not met, item 2 and 6 were partially met: The authors did not register a protocol, did not search the grey literature or the references of included studies; did not discuss the findings taking the low quality / high RoB into account. ***Strengths:*** Adverse events were reported in this review. Authors looked at numbness and pain separately. ***Limitations:*** The authors did not register a protocol. There was high clinical heterogeneity across studies. Most of the included studies had a small sample size. The majority of studies were classified as high risk of bias because the participants and providers were not blinded to treatment assignment and the outcomes were self-assessed

<table>
<tr>
<td>Opioid therapy, Nonopioid pharmacotherapy, Interventional therapy, Acupuncture, Education/Cognitive Behavioral Therapy (CBT), Physical exercise, Alternative medicine

Comparators or controls
Placebo, usual care, or minimal intervention

Outcome
Severity of posttreatment pain and numbness assessed by validated questionnaires</td>
<td></td>
<td>Results for risk of bias assessment of primary studies included in review:
All three RCTs of acupuncture were at high risk of bias.

<table>
<tr><th>Domain</th><th>Low risk</th><th>Unclear risk</th><th>High risk</th></tr>
<tr><td>Random Sequence Generation</td><td>24</td><td>10</td><td>2</td></tr>
<tr><td>Allocation Concealment</td><td>22</td><td>11</td><td>3</td></tr>
<tr><td>Blinding of Participants/Personnel</td><td>7</td><td>2</td><td>27</td></tr>
<tr><td>Blinding of Outcome Assessment</td><td>7</td><td>2</td><td>27</td></tr>
<tr><td>Incomplete Outcome Data</td><td>9</td><td>15</td><td>12</td></tr>
<tr><td>Selective Reporting</td><td>34</td><td>2</td><td>0</td></tr>
<tr><td>Other Bias</td><td>13</td><td>19</td><td>4</td></tr>
</table>
Conclusions: Physical exercise, acupuncture, and alternative medicine may reduce pain in cancer survivors. However, the evidence for acupuncture is based on only 3 RCTs.</td>
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<tr>
<td colspan="4">Abe, H., Inoue, R., Tsuchida, R., Ando, M., Saita, K., Konishi, M., Edamura, T., Ogawa, A., Matsuoka, Y., & Sumitani, M. (2022). Efficacy of treatments for pain and numbness in cancer survivors: A systematic review and meta-analysis. Annals of Palliative Medicine, 11(12), 3674–3696. https://doi.org/10.21037/apm-22-420</td>
</tr>
<tr>
<td>Type of review: Systematic review

Search strategy

Databases
PubMed, MEDLINE, Embase, Cochrane Central Register of Controlled Trials, Web of Science, PsycInfo, CINAHL

Searched from inception until 30 April 2022. Restricted to English and Japanese language publications.

Data synthesis
Meta-analysis</td>
<td>Studies and participants
36 RCTs, 2,870 participants

Intervention
Physical Exercise 13 RCTs, Acupuncture 3 RCTs, Alternative Medicine 6 RCTs, Nonopioid Pharmacotherapy 6 RCTs, Education/CBT 7 RCTs

Control
Placebo Multiple, Usual Care Multiple, Minimal Intervention, Multiple Waiting List

Outcome measures</td>
<td>Results for outcome measures:
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Education/CBT for Numbness (Neurofeedback): SMD = −1.04, 95% CI (−1.57, −0.51) p-value <0.00001

Not significant
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Strengths: Adverse events were reported in this review. Authors looked at numbness and pain separately.

Limitations: The authors did not register a protocol.</td>
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Risk of bias /quality assessment
Cochrane RoB Assessment Tool

Inclusion criteria:
Population
Cancer survivors with pain or numbness, aged 18 years or older

Interventions or exposures
Opioid therapy, Nonopioid pharmacotherapy, Interventional therapy, Acupuncture, Education/Cognitive Behavioral Therapy (CBT), Physical exercise, Alternative medicine

Comparators or controls
Placebo, usual care, or minimal intervention

Outcome
Severity of posttreatment pain and numbness assessed by validated questionnaires

</td>
<td>

NRS (Numeric Rating Scale), VAS (Visual Analogue Scale), BPI (Brief Pain Inventory), SF-36 (Short Form Health Survey), WOMAC, FACT-NTX, PNQ, PQAS

Measure of treatment effect
Standardized mean difference (SMD) and 95% confidence interval (95% CI).

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Adverse events
No severe complications were reported in 36 studies, and the treatments were considered well tolerated.

Results for risk of bias assessment of primary studies included in review:
All three RCTs of acupuncture were at high risk of bias.

Domain	Low risk	Unclear risk	High risk
Random Sequence Generation	24	10	2
Allocation Concealment	22	11	3
Blinding of Participants/Personnel	7	2	27
Blinding of Outcome Assessment	7	2	27
Incomplete Outcome Data	9	15	12
Selective Reporting	34	2	0
Other Bias	13	19	4

Conclusions: Physical exercise, acupuncture, and alternative medicine may reduce pain in cancer survivors. However, the evidence for acupuncture is based on only 3 RCTs.

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There was high clinical heterogeneity across studies.
Most of the included studies had a small sample size.

The majority of studies were classified as high risk of bias because the participants and providers were not blinded to treatment assignment and the outcomes were self-assessed

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</table>

Specific cancer types

Akutay, S., Yüceler Kaçmaz, H., & Ceyhan, Ö. (2025). The healing power of transcutaneous electrical nerve stimulation: A systematic review on its effects after breast surgery. *Supportive Care in Cancer, 33*(90). https://doi.org/10.1007/s00520-024-09129-3

Type of review: Systematic review

Search strategy

Databases

PubMed, Web of Science, Scopus, Cochrane Library, Science direct, EBSCOhost, Wiley online library.

Dates

It is not clear from the article what the timeframe of the search was.

Limits

English language; full text

Data synthesis

Narrative synthesis

Risk of bias assessment

Joanna Briggs Institute (JBI) Quality Assessment Tool for randomized controlled trials

Inclusion criteria

Populations

Patients aged 18 years or older undergoing breast cancer surgery

Interventions

Transcutaneous electrical nerve stimulation (TENS) and transcutaneous electrical acupoint stimulation (TEAS) therapies applied to cancer patients

Comparisons

Standard care, placebo, or sham TENS methods.

Outcomes

Pain intensity, Patient satisfaction. Reduced analgesic consumption. Postoperative nausea and vomiting.

Studies and participants

5 RCTs, 776 participants

Interventions

Transcutaneous electrical nerve stimulation (TENS) and transcutaneous electrical acupoint stimulation (TEAS) therapies applied to cancer patients

Comparisons

Standard care. Placebo or sham TENS methods. Cold application

Outcome measures

Pain: VAS, NRS.
Analgesic consumption: opioid use

Nausea and vomiting: post operative nausea and vomiting scores

Patient satisfaction

Measure of treatment effect

SMD 95% CI p value, effect size calculations

Results for outcome measures:

Pain (5 RCTs)
All studies reported a significant beneficial effect of TENS on post-operative pain.

Analgesic consumption

In two of the five studies, TEAS significantly reduces opioid consumption.

Adverse effects

Only one study reported a patient report skin discomfort at the acupuncture points where the TEAS electrodes were applied. Other studies have not reported any side effects related to electrical stimulation

Results for risk of bias assessment of primary studies included in review

Domain	Yes	No	Unclear
Selection and allocation			
1	4	0	1
2	3	3	0
3	5	0	0
Administration of intervention/exposure			
4	1	5	0
5	1	5	0
6	5	0	0
Assessment, detection, and measurement of the outcome			
7	4	1	0
8	5	0	0
9	5	0	0
Participant retention			
10	5	0	0
Statistical conclusion validity			
11	5	0	0
12	5	0	0
13	5	0	0

Quality assessment of the SR: Low quality according to AMSTAR2 checklist.* Two critical weaknesses (no meta-analysis and no publication bias assessment). Also, in the literature search the authors did not report searching the grey literature or the reference lists.

Strengths

The SR provides valuable insights into the effects of TENS/TEAS on postoperative outcomes

Limitations

The quality of the included RCTs was low.
The studies included had small sample sizes.

Heterogeneity in study protocols (e.g., differences in TENS/TEAS application parameters) could not be explained by subgroup and sensitivity analysis.

Most studies did not include preoperative scores, which may affect the assessment of postoperative scores.

Most of the studies included were assessed as moderate to high risk of bias.

		Conclusions TENS and TEAS have a positive effect on pain, postoperative nausea and vomiting, and patient satisfaction.	
Li, H., Schlaeger, J. M., Jang, M. K., Lin, Y., Park, C., Liu, T., Sun, M., & Doorenbos, A. Z. (2021). Acupuncture improves multiple treatment-related symptoms in breast cancer survivors: A systematic review and meta-analysis. *The Journal of Alternative and Complementary Medicine, 27*(12), 1084–1097. https://doi.org/10.1089/acm.2021.0133			
Type of review: Systematic review **Search strategy** ***Databases*** PubMed, CINAHL, and EMBASE Search conducted from 1974- June 2021 ***Data synthesis*** Meta-analysis ***Risk of bias /quality assessment*** Cochrane Risk of Bias **Inclusion criteria** ***Population*** Breast cancer survivors. Studies in English. ***Interventions or exposures*** Acupuncture or electroacupuncture ***Comparators or controls*** Sham acupuncture, waitlist control Usual care, other interventions (e.g., medication, relaxation) ***Outcome*** Pain, hot flashes, sleep disturbance, fatigue, depression, lymphedema, and neuropathy ***Excluded*** Either acupressure or laser acupuncture without needles, used to manage acute symptoms after surgery; a retrospective chart review; or a review article.	**Studies and participants** 26 RCTs, 2055 participants. 5 RCTs endocrine-therapy-induced joint pain **Intervention** 9 used electroacupuncture, and 17 used manual acupuncture **Control** Sham acupuncture, waitlist control, and usual care. **Outcome measures** No measuring instruments were reported in the SR hot flashes (n = 10), endocrine-therapy-induced joint pain (n = 5), fatigue (n = 4) sleep disturbance (n = 5), lymphedema (n = 3), depression (n = 3), and neuropathy (n = 2) **Measure of treatment effect** Standardized mean differences (SMDs) with 95% confidence intervals (CIs)	**Results for outcome measures:** Verum acupuncture ***Verum Acupuncture vs. Sham Acupuncture:*** Showed trends but no significant effects on all symptoms (pain, fatigue, hot flashes, sleep disturbance, depression, neuropathy, and lymphedema). ***Verum Acupuncture vs. Waitlist Control or Usual Care:*** Significant reductions in: Pain intensity SMD = -0.64, 95% CI (-1.23 to -0.06) p-value= 0.03 Fatigue SMD = -0.97, 95% CI (-1.23 to -0.72) p-value < 0.00001 Depression SMD = -0.84, 95% CI (-1.47 to -0.21) p-value= 0.009 Hot flash severity SMD -0.74, 95% CI (-1.00 to -0.48) p-value < 0.00001 Neuropathy SMD= -0.97, 95% CI (-1.67 to -0.27) p-value= 0.007 ***Verum Acupuncture vs. Other Interventions:*** Significant improvement in lymphedema compared to diosmin (SMD= -0.90, 95% CI (-1.66 to -0.14) p-value=0.02 No significant differences for other symptoms compared to interventions like gabapentin, hormone therapy, or relaxation techniques Sham acupuncture ***Pain Intensity***: Acupuncture significantly reduces pain intensity compared with other controls. SMD=-0.60, 95% CI (-1.06 to -0.15) p-value= 0.009 ***Fatigue***: Acupuncture significantly reduced fatigue. SMD=-0.62, 95% CI (-1.03 to -0.20) p-value= 0.004	**Quality assessment of the SR:** Low according to AMSTAR2 checklist* Items 1 and 7 were nor met, item 2 was partially met. The authors did not register a protocol. Analysis to assess publication bias was not conducted. In the literature search, the authors did not report searching the grey literature or the reference lists. ***Strengths:*** Evaluated adverse effects. No conflict of interest was declared in this article. The authors reported the source of funding for this article. Subgroup analysis was conducted. ***Limitations:*** Small samples and a wide variety in acupuncture protocols. There was high variability of the scales used to measure the outcome. No discussion on publication bias, and a protocol was not registered. None of the included studies blinded the acupuncturist, and many studies used single-blind designs. Sham acupuncture controls may have therapeutic effects, making it difficult to isolate the true effect of acupuncture

Hot Flash Severity: Acupuncture significantly reduced the severity of hot flashes. SMD= -0.52, 95% CI (-0.82 to -0.22) p-value= 0.0006

Sleep Disturbance: Acupuncture showed trends but no significant effects on sleep disturbance compared to control groups SMD=-0.20, 95% CI (-0.81 to 0.42) p-value= 0.53

Depression: Acupuncture showed trends but no significant effects on depression compared to control groups. SMD= -0.05, 95% CI (-0.42 to 0.31) p-value= 0.47

Neuropathy: Acupuncture significantly reduced neuropathy compared to waitlist control or usual care. SMD= -0.97, 95% CI (-1.67 to -0.27) p-value= 0.007

Lymphedema: Acupuncture showed trends but no significant effects on lymphedema compared to waitlist control or usual care. SMD= -0.15, 95% CI (-0.61 to 0.31) p-value= 0.51

Significant improvement when compared to diosmin (another intervention). SMD= -0.90, 95% CI (-1.66 to -0.14) p-value= 0.02

Adverse events

Acupuncture appears generally safe for breast cancer survivors. Mild adverse events were relatively common but not severe. Serious adverse events were rare and not linked to acupuncture.
Safety reporting was inconsistent, with 10 studies not addressing AEs at all.

Results for risk of bias assessment of primary studies included in review:

Domain	Low risk	Unclear risk	High risk
Sequence generation	21	5	0
Allocation concealment	21	5	0

		Blinding of participants 14 0 12 Incomplete outcome data 26 0 0 Selective outcome reporting 23 0 3 Other sources of bias 0 26 0 **Conclusions:** Acupuncture significantly reduces pain, fatigue, hot flashes, depression, and neuropathy compared to usual care or waitlist control. Acupuncture appears to be safe, with only mild adverse events reported.	
Zhang, Y., Sun, Y., Li, D., Liu, X., Fang, C., Yang, C., Luo, T., Lu, H., Li, H., Zhang, H., Liang, Q., Wu, J., Huang, L., Xu, R., Ren, L., & Chen, Q. (2021). Acupuncture for Breast Cancer: A Systematic Review and Meta-Analysis of Patient-Reported Outcomes. *Frontiers in Oncology*, *11*, 646315. https://doi.org/10.3389/fonc.2021.646315.			
Type of review: Systematic review **Search strategy** ***Databases*** PubMed, EMBASE, Web of Science, Cochrane Library, China National Knowledge Infrastructure (CNKI), Wanfang Data, and China Biology Medicine disc (CBM). ***Dates*** From 2006 to 2020 ***Data synthesis*** Meta-analysis ***Risk of bias /quality assessment*** Cochrane RoB **Inclusion criteria** ***Population*** Adults (≥18 yrs) diagnosed with breast cancer regardless of age, stage, or treatment status ***Interventions or exposures***	***Studies and Participants*** 33 RCTs, 2,094 patients, various cancers. ***Intervention*** Acupuncture with needle, electroacupuncture, and acupressure ***Control*** Placebo, standard nursing care, routine care, or no intervention. ***Outcome measures*** Pain (10 RCTs): Visual Analogue Scale (VAS), Numeric Rating Scale (NRS), Brief Pain Inventory (BPI). Fatigue (6 RCTs): Fatigue Severity Scale (FSS), Piper Fatigue Scale (PFS), Functional Assessment of Cancer Therapy-Fatigue (FACT-F). Sleep disturbances (5 RCTs): Pittsburgh Sleep Quality Index (PSQI), QLQ-C30 sleep disturbance subscale.	**Results for outcome measures:** Pain: Significant reduction in pain scores (BPI-SF subscales and VAS [SMD = -0.83, 95% CI (-1.16, -0.51)] compared to control; some studies found no difference vs sham acupuncture Fatigue: Significant improvement (SMD -0.39, 95% CI -0.55 to -0.22, p<0.00001) Sleep disturbances: Significant improvement (SMD= -0.50, 95% CI (-0.71, -0.28), p<0.00001 and fewer patients with sleep disturbances (RR 0.51) Hot Flashes: Significant reduction in hot flashes score (SMD = -4.08, 95% CI (-7.98, -0.17), p=0.04; frequency not significantly different Anxiety: Small but significant improvement (SMD = -0.37, 95% CI (-0.68, -0.05), p=0.02 Depression (6 RCTs): No significant difference vs control (SMD = -0.17, p=0.36) Quality of Life: Significant improvement in QoL for acupuncture vs control (varies by scale – significant for QLQ-C30 QoL subscale, FACT-ES, MENQOL physical/vasomotor/psychosocial scores)	**Quality assessment of the SR:** Low according to AMSTAR2 checklist* Item 6 was partially met and 7 was not met. The RoB results were not entirely interpreted in the discussion. Analysis to assess publication bias was not conducted. ***Strengths:*** The authors accessed the heterogeneity of the studies and conducted a subgroup analysis. ***Limitations:*** The authors did not assess publication bias There was high heterogeneity Many included studies were small sample size RCTs, limiting statistical power. A limited number of high-quality RCTs for some outcomes; many trials could not or did not blind participants.

Acupuncture, electroacupuncture, or acupressure. ***Comparators or controls*** Sham acupuncture, usual care, or no treatment ***Outcome*** Patient-reported outcomes (PROs), including but not limited to fatigue, pain, nausea, vomiting, hot flashes, anxiety, depression, and quality of life.	Hot Flashes (11 RCTs): Hot Flash Daily Diary. Anxiety (5 RCTs) and Depression (6 RCTs): Hospital Anxiety and Depression Scale (HADS), Self-rating Anxiety Scale (SAS), Self-rating Depression Scale (SDS). Quality of Life (14 RCTs): Functional Assessment of Cancer Therapy-Breast (FACT-B), European Organization for Research and Treatment of Cancer Quality of Life Questionnaire Core 30 (EORTC QLQ-C30), Functional Assessment of Chronic Illness Therapy-Fatigue (FACIT-F). ***Measure of treatment effect*** SMD, 95% CI.	Twenty-two articles mentioned adverse effects, with nine clearly reporting no adverse effects. Thirteen articles described specific adverse effects, such as pain or bleeding at the needle site, fatigue, pruritus, bruising, and dizziness, and these were mild. The remaining eleven articles did not report any information on adverse effects. **Results for risk of bias assessment of primary studies included in the review:** **Domain** / **Low risk** / **Unclear risk** / **High risk** Random Sequence Generation: 29 / 4 / 0 Allocation Concealment: 18 / 13 / 1 Blinding of Participants/Personnel: 16 / 0 / 16 Blinding of Outcome Assessment: 15 / 1 / 16 Incomplete Outcome Data: 29 / 0 / 3 Selective Reporting: 25 / 0 / 7 Other Bias: 9 / 13 / 10 *Only 32 studies were included in the risk assessment by the authors (Smith et al. 2014 was not included) **Conclusions:** Acupuncture might improve breast cancer treatment–related complications when measured by patient-reported outcomes, including pain, quality of life, fatigue, hot flashes, sleep disturbance, and anxiety. However, it did not have a significant effect on depression.	

Xi, Z., Wei, X., Ye, Z., Wang, K., & Zhou, J. (2022). Acupuncture for adult lung cancer of patient-reported outcomes: A systematic review and meta-analysis. *Frontiers in Oncology, 12,* 921151. https://doi.org/10.3389/fonc.2022.921151			
Type of review: Systematic review **Search strategy**	**Studies and participants** 17 RCTs, 1162 participants	**Results for outcome measures:**	**Quality assessment of the SR:**

Databases PubMed, Embase, Cochrane Library, Web of Science, CNKI, CQVIP, Wanfang Data, SinoMed, ClinicalTrials.gov, Chinese Clinical Trial Register, conference literature ***Dates*** From database inception to inception to 1 July 2022 ***Data synthesis*** Meta-analysis ***Risk of bias assessment*** Cochrane Collaboration's tool **Inclusion criteria** ***Populations*** Adults (≥18 years) diagnosed with lung cancer at any tumour stage, no gender restrictions ***Interventions*** Acupuncture (manual, electroacupuncture, moxibustion, TEAS, auriculotherapy, acupoint application/injection, fire needle, plum-blossom needle, acupressure) ***Comparisons*** Usual care, sham/placebo acupuncture, pharmacotherapy (Western medicine or Traditional Chinese Medicine). ***Outcomes*** Patient-reported outcomes (PROs) including: Quality of Life and symptoms (pain, nausea/vomiting, insomnia, fatigue, anxiety/depression, constipation)	**Interventions** Acupuncture alone Acupuncture + Traditional Chinese Medicine Acupuncture + Western Medicine Warm needle moxibustion **Comparisons** Western medicine or Traditional Chinese Medicine (20 RCTs), usual care (9 RCTs), sham/placebo acupuncture (4 RCTs) **Outcome measures** Karnofsky Performance Status (KPS) (13 RCTs), EORTC QLQ-C30 (2 RCTs), FACT-L (2 RCTs), FACT-LCS (1 RCT), SF-36 (1 RCT), LCQ (1 RCT), SGRQ (1 RCT) Secondary Outcomes: Pain: NRS, VAS, BPI-C, QLQ-C30 PA (11 RCTs), Nausea/Vomiting: MAT, INVR, QLQ-C30 NV (4 RCTs), Insomnia: PSQI, AIS, QLQ-C30 SL (7 RCTs), Fatigue: PFS-R, BFI-C, QLQ-C30 FA (8 RCTs), Anxiety/Depression: SAS, SDS (2 RCTs), Constipation: QLQ-C30 CO (1 RCT) **Measure of treatment effect** SMD and RR 95% CI, effect size calculations	***Pain*** Significant improvement: Cancer-related: SMD -1.69, 95% CI (-2.49, -0.90), P<0.0001 NRS dichotomous: RR = 0.50, 95% CI (0.30, 0.82), P=0.006 Not significant: Postoperative: SMD -1.20, 95% CI (-2.26, 0.22), P=0.11 EORTC QLQ-C30 PA MD -3.90, 95% CI (-9.33, 1.54), P=0.16 ***Quality of Life*** KPS continuous: MD 6.75, 95% CI (5.82, 7.68), P<0.00001 KPS dichotomous: RR = 1.24, 95% CI (1.09, 1.41), P=0.001 EORTC QLQ-C30: MD 10.68, 95% CI (4.56, 16.81), P=0.0006 FACT-L: MD 4.65, 95% CI (1.67, 7.63), P=0.002 FACT-LCS: MD 5.80, 95% CI (4.63, 6.97), P<0.00001 SF-36: MD 10.36, 95% CI (6.17, 14.55), P<0.00001 LCQ: MD 20.21, 95% CI (15.61, 24.81), P<0.00001 SGRQ: MD -31.58, 95% CI (-36.58, -26.80), P<0.00001 ***Nausea & Vomiting*** QLQ-C30: MD -14.73, 95% CI (-23.88, -5.59), P=0.002 INVR: MD -1.18, 95% CI (-1.89, -0.47), P=0.001 MAT: RR = 0.59, 95% CI (0.41, 0.86), P=0.006 ***Insomnia*** PSQI: MD -3.73, 95% CI (-5.99, -1.48), P=0.001 AIS: MD -0.17, 95% CI (-1.93, 1.59), P=0.85 QLQ-C30 SL: MD -14.16, 95% CI (-20.91, -7.41), P<0.001 ***Fatigue*** PFS-R chemo: MD -1.18, 95% CI (-1.93, -0.43), P<0.00001 PFS-R cancer: MD -0.94, 95% CI (-1.16, -0.72), P=0.34 QLQ-C30 FA: MD -12.81, 95% CI (-24.50, -1.12), P=0.01 BFI-C: MD -1.40, 95% CI (-1.62, -1.18), P<0.00001 BFI-C dichotomous: RR = 0.84, 95% CI (0.73, 0.97), P=0.02	Moderate according to AMSTAR2 checklist.* Item 4 and 6 only partially met. RoB not included in interpretations of results in Conclusions. Three domains assessed as low risk of bias in all included trials, which is unusual. ***Strengths*** Included a wide range of acupuncture modalities (manual, electroacupuncture, moxibustion, TEAS, etc.), reflecting real-world practice. ***Limitations*** The majority of the included studies were assessed as high risk of bias due to the lack of blinding and allocation concealment. There was high heterogeneity among the studies included.

Anxiety

SAS: MD -4.74, 95% CI (-6.66, -2.82), P<0.00001

Depression

SDS: MD -6.02, 95% CI (-8.11, -3.94), P<0.00001

Constipation

QLQ-C30 CO: MD -12.70, 95% CI (-19.52, -5.88), P=0.0003

Adverse events

Eight trials reported on adverse events including dizziness, encephalalgia, fatigue, somnolence, gastrointestinal reaction, erythra, or respiratory depression.
Four trials reported no serious adverse events.

Results for risk of bias assessment of primary studies included in review

Domain	Low risk	Unclear risk	High risk
Random Sequence Generation	33	0	0
Allocation Concealment	4	29	0
Blinding of Participants/Personnel	4	0	29
Blinding of Outcome Assessment	5	0	27
Incomplete Outcome Data	33	0	0
Selective Reporting	33	0	0
Other Bias	0	31	2

Conclusions

"Acupuncture significantly reduced **cancer-related pain** in lung cancer patients compared to usual care or pharmacotherapy. "The study indicates that acupuncture therapies are a promising intervention in promoting patient-reported outcomes in lung cancer patients with all stages and regardless of postsurgery or postchemotherapy."

Type of review: Systematic review

Search strategy:

Databases
Cochrane Library, PubMed, Embase, Web of Science, CNKI, China Science and Technology Journal Database, Wanfang Database, SinoMed

Dates
From database inception to February 2023

Data synthesis
Meta-analysis.

Risk of bias /quality assessment
Cochrane Risk of Bias Tool Version 2 (Rob 2.0)

Inclusion criteria:

Population
Adults (18–85 years) diagnosed with lung cancer and experiencing moderate to severe pain

Interventions or exposures
Acupuncture combined with opioid analgesics (various acupuncture methods including electroacupuncture, moxibustion, TEAS, etc.)

Comparators or controls
Opioid analgesics alone

Outcome
Pain intensity scores (NRS, VAS, BPI), effective rate of analgesia, adverse reactions (nausea, vomiting, constipation, dizziness, skin reactions)

Studies and participants:
11 RCTs, 812 participants

Interventions:
Acupuncture combined with opioid analgesics (including electroacupuncture, moxibustion, TEAS, wrist-ankle acupuncture, catgut embedding, etc.)

Control:
Opioid analgesics alone

Outcome measures:

NRS: 6 RCTs, VAS: 1 RCT, BPI: 1 RCT, Effective rate: 6 RCTs, Adverse reactions: 8 RCTs (varied by type)

Measure of treatment effect:
SMD, RR with 95% CI

Results for outcome measures:

Pain Intensity Score (NRS): MD −0.74, 95% CI (−1.08, −0.40), P<0.0001
Effective Rate of Analgesia: RR = 1.16, 95% CI (1.09, 1.25), P<0.0001
Nausea and Vomiting: RR = 0.69, 95% CI (0.48, 0.98), P=0.04
Constipation: RR = 0.43, 95% CI (0.24, 0.79), P=0.006
Dizziness and Drowsiness: RR = 0.42, 95% CI (0.22, 0.82), P=0.01
Skin Diseases: RR = 0.65, 95% CI (0.22, 1.95), P=0.45Overall Adverse Reactions: RR = 0.57, 95% CI (0.45, 0.72), P<0.00001

Results for risk of bias assessment of primary studies included in review:

Domain	Low risk	Unclear risk	High risk
Randomization Process	0	10	1
Deviations from Intended Interventions	1	10	0
Missing outcome data	11	0	0
Measurement of the outcome	11	0	0
Selection of the Reported Result	11	0	0
Overall	0	10	1

GRADE: Overall, the certainty of evidence was downgraded to low in most outcomes.

Conclusions:
"Combining acupuncture with opioid analgesics is more effective than using opioid analgesics alone for managing lung cancer-related pain."

Quality assessment of the SR: moderate according to AMSTAR2 checklist.* Items 4, 6 and 7 only partially met.

RoB not included in interpretations of results in Conclusions.

Three domains assessed as low risk of bias in all included trials, which is unusual.

Strengths
The authors reported information on adverse effects.
Used GRADE to assess certainty of evidence.

Limitations
Publication bias was not fully assessed.
All the included studies had issues in the randomization process and a lack of blinding.

Zhou, X., Zhang, J., Jiang, L., Zhang, S., Gu, Y., Tang, J., Pu, T., Quan, X., Chi, H., & Huang, S. (2024). Therapeutic efficacy of acupuncture point stimulation for stomach cancer pain: A systematic review and meta-analysis. *Frontiers in Neurology, 15,* 1334657. https://doi.org/10.3389/fneur.2024.1334657

Type of review: Systematic review

Search strategy
Databases

Studies and participants
11 RCTs included, 768 participants

Results for outcome measures:

Pain reduction (NRS score): SMD −1.30, 95% CI (−1.96, −0.63), P<0.001

Quality assessment of the SR: Moderate according to AMSTAR 2 checklist.* Item 6 partially met. RoB

<table>
<tr>
<td>PubMed, Web of Science, Cochrane Library, Embase, WANFANG, CNKI, VIP

Dates
From database inception to July 27, 2023

Data synthesis
Network meta-analysis

Risk of bias /quality assessment
Cochrane RoB2

Inclusion criteria:

Population
Patients diagnosed with stomach cancer pain (any age, gender, duration)

Interventions
Acupuncture point stimulation (acupuncture, moxibustion, acupoint injection)

Controls
Medication control (WHO three-step analgesia, fentanyl, etc.)

Outcome
Pain relief (NRS score), efficacy rate, significant efficacy rate, and adverse reactions</td>
<td>Intervention
Acupuncture (7 studies), Electroacupuncture (1 study), Acupoint Injection (2 studies), Moxibustion (2 studies)

Control
Medication control: WHO three-step analgesia (7 RCTs), Dumeraldine injection (2 RCTs), Fentanyl (1 RCT), conventional pain relief (1 RCT)

Outcome measures
NRS for pain (4 RCTs), WHO pain relief efficacy criteria (10 RCTs)

Measure of treatment effect
SMD and Relative Risk (RR) with 95% CI</td>
<td>Significant efficacy rate: RR = 1.63, 95% CI (1.37, 1.94), P<0.00001
Overall efficacy rate: RR = 1.17, 95% CI (1.04, 1.31), P<0.01

Adverse events
MA including 4 RCTs found significantly lower nausea and vomiting incidence in intervention groups.

Results for risk of bias assessment of primary studies included in review:
<table><tr><th>Domain</th><th>Low risk</th><th>Unclear risk</th><th>High risk</th></tr><tr><td>Random Sequence Generation</td><td>4</td><td>5</td><td>2</td></tr><tr><td>Allocation Concealment</td><td>1</td><td>10</td><td>0</td></tr><tr><td>Blinding of Participants/Personnel</td><td>0</td><td>0</td><td>11</td></tr><tr><td>Blinding of Outcome Assessment</td><td>0</td><td>11</td><td>0</td></tr><tr><td>Incomplete Outcome Data</td><td>11</td><td>0</td><td>0</td></tr><tr><td>Selective Reporting</td><td>9</td><td>0</td><td>2</td></tr><tr><td>Other Bias</td><td>0</td><td>11</td><td>0</td></tr></table>
Conclusions
“Acupressure point stimulation demonstrated significant safety improvements, significantly efficient ratio, efficient ratio, and reduced the NRS score in patients with stomach cancer pain.”</td>
<td>not included in interpretation of results in conclusion.

Strengths
Adverse effects were reported

Limitations
There was high heterogeneity among the included studies. The studies included presented heterogeneity among the included studies. All of the studies had a small sample size. All of the studies lacked blinding, which presents a high risk of bias.

Publication bias reported.</td>
</tr>
<tr>
<td colspan="4">Chen, J., Fu, T., Liu, L., Xie, Y., & Li, Y. (2023). Effect of acupuncture inclusion in the enhanced recovery after surgery protocol on tumor patient gastrointestinal function: A systematic review and meta-analysis of randomized controlled studies. Frontiers in Oncology, 13, 1232754. https://doi.org/10.3389/fonc.2023.1232754</td>
</tr>
<tr>
<td>Type of review: Systematic review

Search strategy

Databases
PubMed, Web of Science, EMBASE, Cochrane Library, Wiley Online Library, Scopus, CNKI, COJ, CBM (SinoMed), Chongqing VIP, Yiigle</td>
<td>Studies and participants

9 RCTs, 702 participants.

Intervention

Manual acupuncture (7 RCTs)
Electroacupuncture (2 RCTs)

Control</td>
<td>Results for outcome measures:
Pain intensity: SMD -0.60, 95% CI (-0.83, -0.37), P<0.001

Time to postoperative oral food intake: SMD -0.77, 95% CI (-1.18, -0.35) P<0.001</td>
<td>Quality assessment of the SR: Low according to AMSTAR2 checklist.* Items 4 and 6 were partially met, and item 7 was not met: RoB of individual studies was not appropriately assessed (all studies were of low risk of bias across 5 domains, which is highly unusual). RoB not included in interpretation of</td>
</tr>
</table>

<table>
<tr>
<td>From 1997 through June 2023

Data synthesis
Meta-analysis

Risk of bias /quality assessment
Cochrane RoB

Inclusion criteria

Population
Tumour patients of any age and sex undergoing surgery with ERAS protocol.

Interventions or exposures
Manual acupuncture or electroacupuncture

Comparators or controls
Sham acupuncture, waitlist control, usual care, or other interventions

Outcome
Time to postoperative oral food intake
Time to first flatus
Time to first defecation
Peristaltic sound recovery time (PSRT)
Pain intensity</td>
<td>Usual care (8 RCTs), Sham acupuncture (1 RCT)

Outcome measures

Pain intensity (4 RCTs)
Time to postoperative oral food intake (6 RCTs)
Time to first flatus (9 RCTs)
Time to first defecation (9 RCTs)
Peristaltic sound recovery time (PSRT) (3 RCTs)

Measure of treatment effect
SMD with 95% CI for continuous outcomes; RR for binary outcomes</td>
<td>Time to first flatus: SMD -0.81, 95% CI (-1.13, -0.48) P<0.001

Time to first defecation: SMD -0.91, 95% CI (-1.41, -0.41) P<0.001

Peristaltic sound recovery time (PSRT): SMD -0.92, 95% CI (-1.93, 0.08), P=0.07

Adverse events
Assessed in 2 of the 9 RCTs. Bruising was reported in only one case.

Results for risk of bias assessment of primary studies included in review:
<table>
<tr><th>Domain</th><th>Low risk</th><th>Unclear risk</th><th>High risk</th></tr>
<tr><td>Random Sequence Generation</td><td>9</td><td>0</td><td>0</td></tr>
<tr><td>Allocation Concealment</td><td>9</td><td>0</td><td>0</td></tr>
<tr><td>Blinding of Participants/Personnel</td><td>8</td><td>1</td><td>9</td></tr>
<tr><td>Blinding of Outcome Assessment</td><td>9</td><td>0</td><td>0</td></tr>
<tr><td>Incomplete Outcome Data</td><td>9</td><td>0</td><td>0</td></tr>
<tr><td>Selective Reporting</td><td>9</td><td>0</td><td>0</td></tr>
<tr><td>Other Bias</td><td>8</td><td>1</td><td>0</td></tr>
</table>
Conclusions
“Acupuncture significantly promotes recovery of gastrointestinal function and pain control in tumor patients treated with the Enhanced Recovery After Surgery (ERAS) strategy. The most commonly used acupoints were ST36 (Zusanli) and ST37 (Shangjuxu).”</td>
<td>results in conclusion. Publication bias was not assessed.

Strengths
Evaluated adverse effects.

Limitations
All the studies were conducted in China, which may affect generalizability

All of the studies lacked blinding of patients and practitioners.</td>
</tr>
<tr>
<td colspan="4">Yan, Z., MuRong, Z., Huo, B., Zhong, H., Yi, C., Liu, M., & Liu, M. (2022). Acupuncture as a complementary therapy for cancer-induced bone pain: A systematic review and meta-analysis. Frontiers in Pain Research, 3, 925013. https://doi.org/10.3389/fpain.2022.925013</td>
</tr>
<tr>
<td>Type of review: Systematic review

Search strategy</td>
<td>Studies and participants
13 RCTs, 1 069 participants</td>
<td>Results for outcome measures:</td>
<td>Quality assessment of the SR: low according to AMSTAR 2 checklist.* Criteria for items 1 and 7 were not met: the study protocol was not registered and</td>
</tr>
</table>

Databases
CNKI, CBM, Wanfang, VIP Database, PubMed, Embase, Cochrane Library
From inception to until 1 June 2022

Data synthesis

Meta-analysis

Risk of bias /quality assessment

Cochrane RoB
GRADE assessment for certainty of evidence

Inclusion criteria:

Population

Patients diagnosed with primary bone cancer or other primary cancers with bone metastases; confirmed by imaging or biopsy; localized pain due to CIBP

Interventions or exposures

Acupuncture (manual, electroacupuncture, auricular)

Comparators or controls

Sham acupuncture, usual care, medication

Outcome

Pain, fatigue, nausea, xerostomia, insomnia, depression, neuropathy, cognitive function

Intervention
Wrist-Ankle Acupuncture (WAA), Auricular Point Acupressure (APA), Manual Acupuncture (MA), Warm Acupuncture (WA), Thumb-Tack Acupuncture (TTA), Catgut-Embedding Therapy (CET), Transcutaneous Electrical Acupoint Stimulation (TEAS)

Control

Opioids (oral/parenteral), zoledronic acid, nerve block, sham acupuncture, usual care

Outcome measures

Pain Intensity: Visual Analog Scale (VAS), Numeric Rating Scale (NRS), Brief Pain Inventory (BPI)

Quality of Life: EORTC QLQ-C30, KPS, ECOG, PROSQOLI

Measure of treatment effect

SMD with 95% CI

Pain Intensity: MD −1.34, 95% CI (−1.74, −0.94) P<0.01
Pain Relief Rate: RR = 1.23, 95% CI (1.15, 1.32) P<0.01
Breakthrough Pain: MD −0.88, 95% CI (−1.07, −0.69), P<0.01
Analgesic Onset Time: MD −11.27, 95% CI (−15.36, −7.18), P<0.01
Analgesia Duration: MD +3.3, 95% CI (2.82, 3.79), P<0.01
Quality of Life (KPS): MD +9.85, 95% CI(3.18, 16.52), P 0.004
Global Health Status: MD +9.61, 95% CI (8.44, 10.78), P<0.01
Physical Functioning: MD +6.79, 95 % CI (1.27, 12.31), P 0.02
Pain (QoL scale): MD −12.05, 95 % CI (−23.84, −0.26), P 0.05
Emotional Functioning: MD +6.28, 95% CI (4.30, 8.27), P<0.01
Cognitive Functioning: MD +5.44, 95 % CI (−5.82, 16.70), P 0.34
Insomnia: MD −10.61, 95% CI (−13.07, −8.15), P<0.01
Social Functioning: MD +6.63, 95% CI (4.89, 8.37), P<0.01

Adverse Events: Lower incidence in acupuncture groups P<0.05

Results for risk of bias assessment of primary studies included in review

Domain	Low risk	Unclear risk	High risk
Random Sequence Generation	13	0	0
Allocation Concealment	2	11	0
Blinding of Participants/Personnel	2	0	11
Blinding of Outcome Assessment	1	12	0

publication bias was not assessed/only partially mentioned.

Strengths
Used GRADE approach to certainty of evidence. Evaluated adverse effects.

Limitations
Certainty of evidence very low according to GRADE. Heterogeneity remained high across many outcomes. Most studies lacked blinding and allocation concealment.

		Incomplete Outcome Data: 11 / 0 / 2 Selective Reporting: 1 / 12 / 0 Other Bias: 9 / 0 / 4 **GRADE:** quality of evidence very low for all outcomes due to risk of bias, inconsistency and imprecision. **Conclusions:** "Acupuncture has a certain effect as a complementary therapy on pain management of CIBP, which not only mitigates the pain intensity but also improves the quality of life, and reduces the incidence of opioid side effects. Due to the poor quality of methodology and strong heterogeneity in the included studies, the results of this meta-analysis should be interpreted with caution."	

He, Y., Xiang, S., Zhang, D., & Chen, M. (2024). Acupuncture treatment for liver cancer pain: A meta-analysis. *Journal of Surgical Oncology, 130*(1), 83–92. https://doi.org/10.1002/jso.27691

Type of review: Systematic review **Search strategy** ***Databases*** PubMed, Cochrane Library, Web of Science, Embase, CNKI, Wanfang Database Search finalised on 15 July 2023. Authors did not state the date ranged of the search ***Data synthesis*** Meta-analysis ***Risk of bias /quality assessment*** Cochrane RoB **Inclusion criteria:** ***Population*** Human patients diagnosed with primary liver cancer (PLC) and experiencing pain ***Interventions or exposures*** Acupuncture therapy (any method including warm needle moxibustion, acupuncture point embedding, etc.) ***Comparators or controls*** Traditional pain medications (e.g., morphine, oxycodone, WHO analgesic ladder drugs)	**Studies and participants** 17 RCTs, 1162 participants **Intervention** Acupuncture alone (2 RCTs), acupuncture + Traditional Chinese Medicine (TCM) 5 RCTs, acupuncture + Western Medicine (WM) 10 RCTs, warm needle moxibustion (3 RCTs). **Control** Traditional pain medications (e.g., morphine, oxycodone, WHO analgesic ladder drugs) **Outcome measures** VAS, BPI, NRS, adverse events **Measure of treatment effect** SMD and 95% CI	**Results for outcome measures:** ***Overall pain relief (Acupuncture vs. Control):*** SMD 1.29, 95% CI (1.17, 1.43) P<0.00001 ***Acupuncture + TCM:*** SMD 1.15, 95% CI (1.02, 1.30), P=0.02 ***Acupuncture + WM (≥14 days):*** SMD 1.13, 95% CI (1.04, 1.23), P=0.003 ***Acupuncture + WM (<14 days):*** SMD 1.69, 95% CI (1.42, 1.99), P<0.00001 ***Acupuncture only:*** SMD 1.36, 95% CI (1.19, 1.55), P<0.00001 ***Warm needle moxibustion:*** SMD 1.44, 95% CI (0.92, 2.25), P=0.11 ***Acupuncture without moxibustion:*** SMD 1.27, 95% CI (1.08, 1.49), P=0.0003 ***Adverse events (Acupuncture vs. Control):*** SMD 1.31, 95% CI (1.14, 1.51), P=0.0001 **Results for risk of bias assessment of primary studies included in review:** **Domain** / **Low risk** / **Unclear risk** / **High risk** Random Sequence Generation: 98 / 8 / 01	**Quality assessment of the SR:** Moderate according to the AMSTAR 2 tool critical checklis. Item 2 was only partially met. ***Strengths*** Adverse events were reported in this review. ***Limitations*** Most studies lacked blinding of participants and outcome assessors. All the studies were conducted in China which may affect generalizability. There was high heterogeneity across studies. The funnel plot suggested asymmetry indicating publication bias.

Outcome Primary: Pain relief, significant effectiveness, overall effectiveness, pain scores (VAS, BPI, NRS) Secondary: Adverse events, GI reactions		Allocation Concealment	2	15	0	
		Blinding of Participants/Personnel	1	16	0	
		Blinding of Outcome Assessment	1	16	0	
		Incomplete Outcome Data	4	13	0	
		Selective Reporting	17	0	0	
		Other Bias	17	0	0	
		Conclusions: "Acupuncture is an effective complementary and alternative therapy for relieving pain in patients with primary liver cancer (PLC). The meta-analysis demonstrated that acupuncture, whether used alone or in combination with traditional Chinese medicine (TCM) or Western medicine (WM), significantly improved pain outcomes compared to conventional pain medications. Acupuncture was associated with a lower incidence of adverse events compared to traditional pain medications."				

Aromatase inhibitor-induced arthralgia. breast cancer

Bae, K., Lamoury, G., Carroll, S., Morgia, M., Lim, S., Baron-Hay, S., Shin, I.-S., Park, S.-J., & Oh, B. (2023). Comparison of the clinical effectiveness of treatments for aromatase inhibitor-induced arthralgia in breast cancer patients: A systematic review with network meta-analysis. *Critical Reviews in Oncology / Hematology, 181*, 103898. https://doi.org/10.1016/j.critrevonc.2022.103898

Type of review: Systematic review and network-analysis

Search strategy:

Databases

Cochrane Library, PubMed Embase, web of science, and ClinicalTrials.gov.

Dates

Searched from inception to October 2021

Data synthesis

Meta-analysis. Network meta-analysis.

Risk of bias /quality assessment

Cochrane risk-of-bias tool for randomized trials (RoB 2)

Inclusion criteria:

Population

Postmenopausal women with stage 0–III hormone receptor-positive breast cancer experiencing inhibitor-induced arthralgia (AIA).

Interventions or exposures

Acupuncture, sham acupuncture, multicomponent herbal medicine, exercise, duloxetine, vitamin D, omega-3 fatty acids, physical therapy, testosterone, single natural products

Comparators or controls

inactive controls (e.g., usual care, wait-list controls, placebo, or no treatment).

Outcome

Changes in patient-reported pain intensity.

Studies and participants:

17 RCTs (4 RCTs related to acupuncture), 1,516 participant

Interventions:

2 RCTs acupuncture, 2 RCTs electroacupuncture

Control:

3 RCTs sham acupuncture, 1 RCTs wait list control

Outcome measures:

Pain: BPF-SF (2 RCTs), VAS (1 RCT), BPI (1 RCT)

Measure of treatment effect:

Standard mean difference (SMD) and 95% CI

Results for outcome measures:

Pain

Acupuncture improved pain intensity compared to inactive controls: SMD = -0.97, 95% CI (-1.54 to -0.41), P-score = 0.9355*

Acupuncture showed positive results compared to sham acupuncture but not significantly. SMD= -0.12, 95% CI (-0.45 to 0.20) P-score = 0.8517

Multicomponent Herbal Medicine (MHM) SMD=-0.71, 95% CI (-1.17, -0.25) P-score = 0.8065

Exercise SMD= -0.59, 95% CI (-0.92, -0.27) P-score = 0.7484

Duloxetine SMD= -0.35, 95% CI (-0.59, -0.12) P-score = 0.5697

Vitamin D SMD= -0.21, 95% CI (-0.55, 0.12) P-score = 0.4271

Omega-3 Fatty Acids SMD= -0.16, 95% CI (-0.43, 0.12) P-score = 0.3724

Physical Therapy SMD= -0.06, 95% CI (-0.53, 0.41) P-score = 0.2713

Testosterone SMD= -0.04, 95% CI (-0.31, 0.24) P-score = 0.2336

Single Natural Products (SNP) SMD= 0.09, 95% CI (-0.21, 0.38)P-score = 0.1081

*P-score ≠ P-value Theoretically 1 of P-score means best and 0 means worst

Adverse events were reported in 16 of the 17 included RCTs. Most adverse events were mild to moderate, with serious events mainly associated with testosterone therapy. Acupuncture-related events were localized and procedural (e.g., bruising), not systemic.

Results for risk of bias assessment of primary studies included in review:

Quality assessment of the SR: Low according to AMSTAR2 checklist.* Items 2 and 3 were partially met, and item 6 was not met. In the literature search, the authors did not report searching the grey literature or the reference lists. The RoB results were not interpreted in the discussion.

Strengths

The authors conducted analysis to assess publication bias and subgroup analysis. Authors reported information on adverse effects.

Limitations

The high risk of bias in many studies limits the certainty of the findings.

The studies included had small sample sizes.

The heterogeneity among the included studies was high.

		<table><tr><th>Domain</th><th>Low risk</th><th>Unclear risk</th><th>High risk</th></tr><tr><td>Randomization process</td><td>14</td><td>3</td><td>0</td></tr><tr><td>Deviations from intended interventions</td><td>16</td><td>1</td><td>0</td></tr><tr><td>Missing outcome data</td><td>7</td><td>0</td><td>10</td></tr><tr><td>Measurement of outcome data</td><td>13</td><td>3</td><td>1</td></tr><tr><td>Selection of the reported result</td><td>15</td><td>1</td><td>1</td></tr><tr><td>Overall bias</td><td>2</td><td>4</td><td>11</td></tr></table> **Conclusions:** Acupuncture was identified as the most effective intervention for managing aromatase inhibitor-induced arthralgia (AIA) in breast cancer survivors compared to other interventions. It significantly reduced pain intensity compared to inactive controls	

Zhu, X.-Y., Li, Z., Chen, C., Feng, R.-L., Cheng, B.-R., Liu, R.-Y., Wang, R.-T., Xu, L., Wang, Y., Tao, X., & Zhao, P. (2021). Physical therapies for psychosomatic symptoms and quality of life induced by aromatase inhibitors in breast cancer patients: A systematic review and meta-analysis. *Frontiers in Oncology, 11,* 745280. https://doi.org/10.3389/fonc.2021.745280			
Type of review: Systematic review **Search strategy** ***Databases*** Medline, Embase, Cochrane central, China National Knowledge Infrastructure (CNKI), Wanfang, VIP, China Biology Medicine disc databases Searched from inception to May 18, 2021 ***Data synthesis*** Meta-analysis ***Risk of bias /quality assessment*** Cochrane risk-of-bias tool for randomized trials (RoB 2)	**Studies and participants** 11 RCTs, 830 participants **Intervention** 5 RCTs manual and electroacupuncture. 6 RCTs exercise (walking, resistance training, aerobic training) **Control** 5 RCTs sham acupuncture, 2 RCTs waitlist control, 6 RCTs usual care. **Outcome measures** *Pain (7 RCTs)*: Brief Pain Inventory (BPI) – subscales: worst pain, pain severity, pain-related interference. Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) – pain subscale.	**Results for outcome measures:** ***Acupuncture:*** Pain Reduction: Acupuncture significantly reduced worst pain scores. SMD = −0.81, 95% CI (−1.51, −0.11) p-value < 0.00001 Pain Severity & Interference: Mixed results; some improvement but not consistently significant across subgroups. Anxiety (HADS-A): No significant improvement, p-value 0.026. Sleep Disturbance (PSQI): No significant improvement. p-value= 0.488 Fatigue: Not evaluated in acupuncture trials, p-value 0.022 Quality of Life (QOL): Not directly assessed in acupuncture trials.p-value= 0.304	**Quality assessment of the SR:** low according to AMSTAR2 checklist* Item 1 was not met and item 7 was partially reported. The authors did not register a protocol. Analysis to assess publication bias was partially addressed. ***Strengths:*** Diverse outcomes assessed ***Limitations:*** There was high heterogeneity. Many included studies were small sample size RCTs, limiting statistical power. Some acupuncture trials lacked proper blinding

Inclusion criteria:

Population
Stage I–III estrogen receptor (ER)-positive or progesterone receptor (PR)-positive breast cancer. Receiving adjuvant aromatase inhibitor (AI) therapy

Interventions or exposures
Acupuncture of all types, doses, and courses; all types of structured, planned, and repetitive exercise such as tai chi, yoga, aqua aerobics, resistance exercise

Comparators or controls
Sham control or usual care

Outcome
Pain intensity and interference, emotional states (anxiety, depression, sleep quality, fatigue), quality of life (health-related and cancer-specific)

Visual Analog Scale (VAS). Electronic algometer.

Emotional states (2 RCTs): Pittsburgh Sleep Quality Index (PSQI), Hospital Anxiety and Depression Scale – Anxiety subscale (HADS-A), Functional Assessment of Chronic Illness Therapy–Fatigue (FACIT-Fatigue).

Quality of life (5 RCTs): Functional Assessment of Cancer Therapy – General (FACT-G), 36-Item Short Form Survey (SF-36)

Measure of treatment effect
Standardized mean difference (SMD) and their 95% confidence interval (95% CI).

Exercise
Pain Reduction: No significant improvement in worst pain scores. SMD= −0.30, 95% CI (−0.76, 0.16) p-value = 0.006

Fatigue (FACIT-Fatigue): No significant improvement. Weighted Mean Difference (WMD)= 1.6, 95% CI (−5.75, 8.94) p-value = 0.022

Quality of Life (QOL): Significant improvement.
SF-36 (Health-related QOL) WMD= 7.97, 95% CI (5.68, 10.25) p-value = 0

FACT-G (Cancer-specific QOL): Moderate improvement. WMD= 1.16, 95% CI (0.34, 1.97) p-value = 0.304

Anxiety & Sleep: Not evaluated in exercise trials.

Only minor adverse events were reported. Three acupuncture studies reported bruising of the skin and subcutaneous tissues, slight pain from the application of treatment to the skin, or presyncope. Three acupuncture studies reported no adverse events or had no mention of adverse events. Reports of adverse events were seen in two exercise studies, such as pain, syncope, increased swelling, and extreme distress during a training session. Four exercise studies recorded no adverse events or did not mention adverse events.

Results for risk of bias assessment of primary studies included in review:

Domain	Low risk	Unclear risk	High risk
Random Process	9	0	1
Deviations from intended interventions	8	1	1

		Missing outcome data 10 0 0 Measurement of the outcome 5 2 3 Selection of the reported result 10 0 0 Overall 5 2 3 **Conclusions:** Acupuncture is effective at reducing pain intensity. Exercise may improve QoL but not other symptoms assessed.	
Liu, X., Lu, J., Wang, G., Chen, X., Xv, H., Huang, J., Xue, M., & Tang, J. (2021). Acupuncture for arthralgia induced by aromatase inhibitors in patients with breast cancer: A systematic review and meta-analysis. *Integrative Cancer Therapies, 20*, 1–14. https://doi.org/10.1177/1534735420980811			
Type of review: Systematic review **Search strategy** ***Databases*** Cochrane Library, PubMed, Embase, Web of Science, Springer, Wanfang, VIP, SinoMed, and CNKI Searched from inception to November 30, 2019 ***Data synthesis*** Meta-analysis ***Risk of bias /quality assessment*** Cochrane Assessment Tool (RoB) **Inclusion criteria:** ***Population*** Adults ≥ 18 years old, diagnosed with breast cancer (stage I-III), postmenopausal or hormone receptor-positive, receiving aromatase inhibitors, on AIs ≥1 month. ***Interventions or exposures*** Electroacupuncture, auricular acupuncture ***Comparators or controls*** Sham acupuncture, drugs, or no treatment ***Outcome***	**Studies and participants** 7 RCTs, 603 participants **Intervention** Body acupuncture: 4 RCTs Auricular acupuncture: 3 RCTs Electroacupuncture: 2 RCTs **Control** Sham acupuncture: 5 RCTs, Drug treatment: 2 RCTs, No treatment (waitlist control): 2 RCTs. **Outcome measures** Brief Pain Inventory (BPI): 5 RCTs, WOMAC: 4 RCTs, VAS: 2 RCTs, FACT: 5 RCTs, DASH: 1 RCT, PPT: 1 RCT, M-SACRAH: 2 RCTs, HAQ: 1 RCT, Lab indices (CRP, ESR, cytokines, etc.): 3 RCTs **Measure of treatment effect** Standardized mean difference (SMD) and their 95% confidence interval (95% CI).	**Results for outcome measures:** BPI Pain-Related Interference: MD=−1.89, 95% CI (−2.99, −0.79) p-value = 0.008 BPI Pain severity: MD =−1.57, 95%CI (−2.46, −0.68) p-value = 0.0006 BPI Worst Pain: MD = −2.31, 95% CI (-3.15, −1.48) p-value < 0.0001 WOMAC Pain Score: MD = −84.93 95% CI (−254.49, 84.63) p-value = 0.33 WOMAC Stiffness Score: MD= −42.66, 95% CI (−114.73, 29.40) p-value = 0.25 WOMAC Function Score: MD = −173.59, 95% CI (−518.03, 170.86) p-value = 0.32 WOMAC Normalized Score: MD = −50.43, 95% CI (−143.20, 42.35) p-value = 0.29 No severe adverse events were reported in any study. Three studies reported adverse events, such as bruising and presyncope, pain, and minor bruising. Two studies reported there were no adverse events. However, the other two studies did not mention adverse events. **Results for risk of bias assessment of primary studies included in review:**	**Quality assessment of the SR:** Low according to AMSTAR2 checklist* Items 1 and 7 were not met. The authors did not register a protocol. Analysis to assess publication bias was not conducted. ***Strengths:*** Adverse events were reported in this review ***Limitations:*** The authors did not register a protocol. A small number of RCTs were included There was high heterogeneity across studies Most of the included studies had a small sample size. Inconsistent blinding methods.

Primary: Brief Pain Inventory (BPI); Secondary: WOMAC, VAS, FACT, DASH, PPT, M-SACRAH, HAQ, lab indices (e.g., CRP, ESR, cytokines)		<table><tr><th>Domain</th><th>Low risk</th><th>Unclear risk</th><th>High risk</th></tr><tr><td>Random Sequence Generation</td><td>5</td><td>2</td><td>0</td></tr><tr><td>Allocation Concealment</td><td>5</td><td>2</td><td>0</td></tr><tr><td>Blinding of Participants/Personnel</td><td>4</td><td>1</td><td>2</td></tr><tr><td>Blinding of Outcome Assessment</td><td>5</td><td>2</td><td>0</td></tr><tr><td>Incomplete Outcome Data</td><td>7</td><td>0</td><td>0</td></tr><tr><td>Selective Reporting</td><td>6</td><td>0</td><td>1</td></tr><tr><td>Other Bias</td><td>6</td><td>0</td><td>1</td></tr></table> **Conclusions:** Acupuncture is a safe and effective treatment. It significantly improved Brief Pain Inventory (BPI) scores compared to drugs and no treatment. For breast cancer patients experiencing aromatase inhibitor-induced arthralgia (AIA).	