# Effectiveness of Scrambler Therapy for Cancer-Related Pain

## A Systematic Review and Meta-Analysis

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## Background and objective

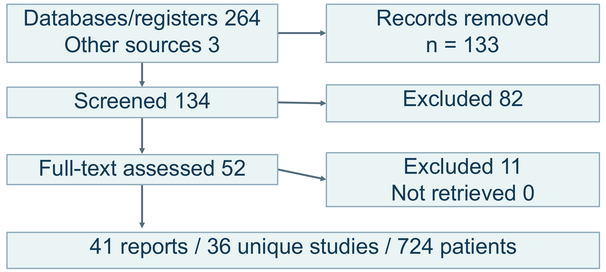
Cancer-related pain remains difficult to manage. Scrambler therapy (ST) is a noninvasive neuromodulation treatment.[1,2]

We evaluated ST for cancer-related pain and pooled eligible randomized controlled trials (RCTs).

## Methods

MEDLINE, Embase, Web of Science, Cochrane Library and ClinicalTrials.gov
January 2003–May 2025
Adults or children with cancer-related or treatment-related pain
Random-effects RCT meta-analysis
Narrative synthesis of other studies
RoB 2 and GRADE assessment
PROSPERO: CRD42024510570

## Study selection




## Results

**−2.00**
points on a 0–10 scale

95% CI −2.80 to −1.20
3 RCTs, 161 patients
I² = 49.4%

### ST reduced pain or related symptom burden compared with control

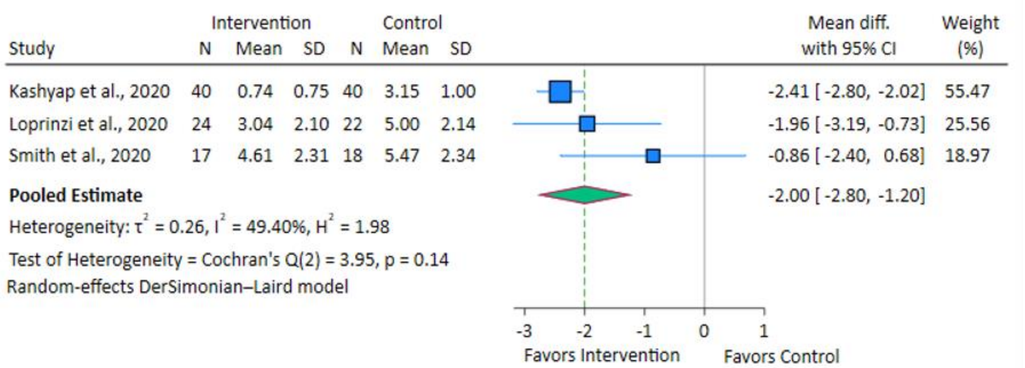



Figure 1. Random-effects meta-analysis. Negative values favor ST.

## RCTs included in the primary meta-analysis

| Study | Population | ST / control | Comparator |
|---|---|---|---|
| Kashyap 2020 | Head, neck or thoracic cancer pain | 40 / 40 | Medication only |
| Loprinzi 2020 | CIPN | 24 / 22 | TENS |
| Smith 2020 | CIPN | 17 / 18 | Proximal-dermatome ST |

CIPN = chemotherapy-induced peripheral neuropathy. TENS = transcutaneous electrical nerve stimulation.

## CIPN subgroup

**−1.51 points**

95% CI −2.57 to −0.45
2 RCTs, 81 patients
I² = 16.5%

## Evidence certainty

**LOW for both analyses**

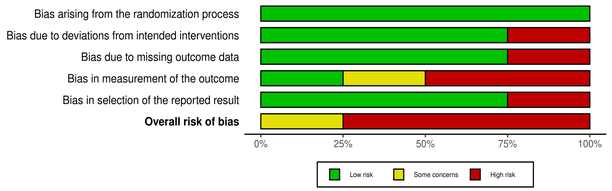



Figure 2. RoB 2 summary across reviewed RCTs.

## Interpretation

ST may benefit selected patients with cancer-related pain. Limited RCT data and risk of bias reduce confidence. Larger, rigorous trials are needed.

## Selected references

1. Jiang C, et al. JAMA Oncol. 2019;5:1224.
2. Marineo G. Integr Cancer Ther. 2019;18:1534735419845143.
3. Loprinzi CL, et al. J Clin Oncol. 2020;38:3325–3348.
4. Karri J, et al. Neuromodulation. 2023;26:1499–1509.
5. Jin Y, et al. Pain Physician. 2022;25:E931–E939.