

# TRANSCUTANEOUS ELECTROSTIMULATION FOR OSTEOARTHRITIS OF THE KNEE

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## ABSTRACT

### Background

Osteoarthritis is the most common form of joint disease and the leading cause of pain and physical disability in the elderly. Transcutaneous electrical nerve stimulation (TENS), interferential current stimulation and pulsed electrostimulation are used widely to control both acute and chronic pain arising from several conditions, but some policy makers regard efficacy evidence as insufficient.

### Objective

To compare transcutaneous electrostimulation with sham or no specific intervention in terms of effects on pain and withdrawals due to adverse events in patients with knee osteoarthritis.

### Criteria for considering studies for this review

We updated the search in CENTRAL, MEDLINE, EMBASE, CINAHL and PEDro up to 5 August 2008, checked conference proceedings and reference lists, and contacted authors.

### Selection criteria

Randomised or quasi-randomised controlled trials that compared transcutaneously applied electrostimulation with a sham intervention or no intervention in patients with osteoarthritis of the knee.

### Data collection and analysis

We extracted data using standardised forms and contacted investigators to obtain missing outcome information. Main outcomes were pain and withdrawals or dropouts due to adverse events. We calculated standardised mean differences (SMDs) for pain and relative risks for safety outcomes and used inverse-variance random-effects meta-analysis. The analysis of pain was based on predicted estimates from meta-regression using the standard error as explanatory variable.

### Main results

In this update we identified 14 additional trials resulting in the inclusion of 18 small trials in 813 patients. Eleven trials used TENS, four interferential current stimulation, one both TENS and interferential current stimulation, and two pulsed electrostimulation. The methodological quality and the quality of reporting was poor and a high degree of heterogeneity among the trials ( $I^2 = 80\%$ ) was revealed. The funnel plot for pain was asymmetrical ( $P < 0.001$ ). The predicted SMD of pain intensity in trials as large as the largest trial was  $-0.07$  (95% CI  $-0.46$  to  $0.32$ ), corresponding to a difference in pain scores between electrostimulation and control of 0.2 cm

on a 10 cm visual analogue scale. There was little evidence that SMDs differed on the type of electrostimulation ( $P = 0.94$ ). The relative risk of being withdrawn or dropping out due to adverse events was 0.97 (95% CI 0.2 to 6.0).

### **Authors' conclusions**

In this update, we could not confirm that transcutaneous electrostimulation is effective for pain relief. The current systematic review is inconclusive, hampered by the inclusion of only small trials of questionable quality. Appropriately designed trials of adequate power are warranted.

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