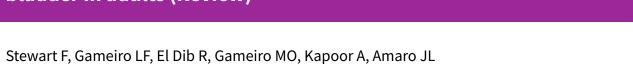


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# **Electrical stimulation with non-implanted electrodes for overactive bladder in adults (Review)**



Stewart F, Gameiro LF, El Dib R, Gameiro MO, Kapoor A, Amaro JL. Electrical stimulation with non-implanted electrodes for overactive bladder in adults. *Cochrane Database of Systematic Reviews* 2016, Issue 12. Art. No.: CD010098. DOI: 10.1002/14651858.CD010098.pub4.

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[Intervention Review]

# Electrical stimulation with non-implanted electrodes for overactive bladder in adults

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#### **ABSTRACT**

## **Background**

Several options exist for managing overactive bladder (OAB), including electrical stimulation (ES) with non-implanted devices, conservative treatment and drugs. Electrical stimulation with non-implanted devices aims to inhibit contractions of the detrusor muscle, potentially reducing urinary frequency and urgency.

### **Objectives**

To assess the effects of ES with non-implanted electrodes for OAB, with or without urgency urinary incontinence, compared with: placebo or any other active treatment; ES added to another intervention compared with the other intervention alone; different methods of ES compared with each other.

#### **Search methods**

We searched the Cochrane Incontinence Specialised Register, which contains trials identified from the Cochrane Central Register of Controlled Trials (CENTRAL), MEDLINE, MEDLINE In-Process, ClinicalTrials.gov, WHO ICTRP and handsearching of journals and conference proceedings (searched 10 December 2015). We searched the reference lists of relevant articles and contacted specialists in the field. We imposed no language restrictions.

#### **Selection criteria**

We included randomised or quasi-randomised controlled trials of ES with non-implanted devices compared with any other treatment for OAB in adults. Eligible trials included adults with OAB with or without urgency urinary incontinence (UUI). Trials whose participants had stress urinary incontinence (SUI) were excluded.

# Data collection and analysis

Two review authors independently screened search results, extracted data from eligible trials and assessed risk of bias, using the Cochrane 'Risk of bias' tool.



#### **Main results**

We identified 63 eligible trials (4424 randomised participants). Forty-four trials did not report the primary outcomes of perception of cure or improvement in OAB. The majority of trials were deemed to be at low or unclear risk of selection and attrition bias and unclear risk of performance and detection bias. Lack of clarity with regard to risk of bias was largely due to poor reporting.

For perception of improvement in OAB symptoms, moderate-quality evidence indicated that ES was better than pelvic floor muscle training (PFMT) (risk ratio (RR) 1.60, 95% confidence interval (Cl) 1.19 to 2.14; n = 195), drug treatment (RR 1.20, 95% 1.04 to 1.38; n = 439). and placebo or sham treatment (RR 2.26, 95% Cl 1.85 to 2.77, n = 677) but it was unclear if ES was more effective than placebo/sham for urgency urinary incontinence (UUI) (RR 5.03, 95% Cl 0.28 to 89.88; n = 242). Drug treatments included in the trials were oestrogen cream, oxybutynin, propantheline bromide, probanthine, solifenacin succinate, terodiline, tolterodine and trospium chloride.

Low- or very low-quality evidence suggested no evidence of a difference in perception of improvement of UUI when ES was compared to PFMT with or without biofeedback.

Low-quality evidence indicated that OAB symptoms were more likely to improve with ES than with no active treatment (RR 1.85,95% CI 1.34 to 2.55; n = 121).

Low-quality evidence suggested participants receiving ES plus PFMT, compared to those receiving PFMT only, were more than twice as likely to report improvement in UUI (RR 2.82, 95% CI 1.44 to 5.52; n = 51).

There was inconclusive evidence, which was either low- or very low-quality, for OAB-related quality of life when ES was compared to no active treatment, placebo/sham or biofeedback-assisted PFMT, or when ES was added to PFMT compared to PFMT-only. There was very low-quality evidence from a single trial to suggest that ES may be better than PFMT in terms of OAB-related quality of life.

There was a lower risk of adverse effects with ES than tolterodine (RR 0.12, 95% CI 0.05 to 0.27; n = 200) (moderate-quality evidence) and oxybutynin (RR 0.11, 95% CI 0.01 to 0.84; n = 79) (low-quality evidence).

Due to the very low-quality evidence available, we could not be certain whether there were fewer adverse effects with ES compared to placebo/sham treatment, magnetic stimulation or solifenacin succinate. We were also very uncertain whether adding ES to PFMT or to drug therapy resulted in fewer adverse effects than PFMT or drug therapy alone Nor could we tell if there was any difference in risk of adverse effects between different types of ES.

There was insufficient evidence to determine if one type of ES was more effective than another or if the benefits of ES persisted after the active treatment period stopped.

#### **Authors' conclusions**

Electrical stimulation shows promise in treating OAB, compared to no active treatment, placebo/sham treatment, PFMT and drug treatment. It is possible that adding ES to other treatments such as PFMT may be beneficial. However, the low quality of the evidence base overall means that we cannot have full confidence in these conclusions until adequately powered trials have been carried out, measuring subjective outcomes and adverse effects.

#### PLAIN LANGUAGE SUMMARY

#### Non-invasive electrical stimulation for overactive bladder in adults

#### **Background**

People with overactive bladder (OAB) have a frequent and compelling desire to urinate, which has a significant impact on quality of life. Many people with OAB also have urinary incontinence. OAB affects around 17% of the world's population and is particularly common in elderly people. Treatment for OAB includes pelvic floor muscle training, drug therapy and electrical stimulation.

Non-invasive electrical stimulation works by passing an electrical current through the bladder muscles, via a vaginal or anal probe, or through a fine needle inserted into the tibial nerve around the ankle. The current is intended to reduce (inhibit) contractions of the detrusor muscle (the bladder muscle which squeezes out urine); this should reduce the number of times a person will need to urinate. Invasive electrical stimulation involves implanting electrodes within the body and requires a surgical procedure.

#### Aim

We investigated whether electrical stimulation was better than no treatment at all or better than any other treatment available for OAB. We also investigated which type of electrical stimulation was better for OAB and whether or not electrical stimulation was safe.

#### Results



We identified 63 studies (4424 people altogether) comparing electrical stimulation to no treatment or any other available treatment. We found that electrical stimulation is probably better than sham electrical stimulation or pelvic floor muscle training at reducing the main symptoms of OAB.

Electrical stimulation may be better than no active treatment or drug treatment at reducing OAB symptoms but we are less certain about these results because the available evidence was less reliable.

Similarly, there was not enough evidence to tell if adding electrical stimulation to pelvic floor muscle training or to drug treatment helped to reduce OAB symptoms. Nor could we tell which type of electrical stimulation was better.

We did not find enough information to know whether or not electrical stimulation was safer than other treatments, or if one type of electrical stimulation was safer than others.

Many of the studies we identified did not report whether or not the treatment improved OAB symptoms or whether there were any side effects caused by any of the treatments.

Finally, we could not tell from the evidence whether or not any benefits of electrical stimulation continued after the course of electrical stimulation stopped.

The evidence in this review is current up to December 2015.