Acupuncture and electroacupuncture for the treatment of RA

Casimiro L, Brosseau L, Milne S, Robinson V, Wells G, Tugwell P


A substantive amendment to this systematic review was last made on 28 May 2002. Cochrane reviews are regularly checked and updated if necessary.

Background: Acupuncture has been used by rehabilitation specialists as an adjunct therapy for the symptomatic treatment of rheumatoid arthritis (RA). Acupuncture is a traditional Chinese medicine where thin needles are inserted in specific documented points believed to represent concentration of body energies. In some cases a small electrical impulse is added to the needles. Once the needles are inserted in some of the appropriate points, endorphins, morphine-like substances, have been shown to be released in the patient's system, thus inducing local or generalised analgesia.

Objectives: To evaluate the effects of acupuncture or electroacupuncture on the objective and subjective measures of disease activity in patients with RA.

Search strategy: A comprehensive search was done up to September 2001 with MEDLINE, EMBASE, PEDro, Current Contents, Sports Discus and CINAHL. The Cochrane Field of Rehabilitation and Related Therapies and the Cochrane Musculoskeletal Review Group were also contacted for a search of their specialized registers. Handsearching was conducted on all retrieved papers and content experts were contacted to identify additional studies.

Selection criteria: Comparative controlled studies, such as randomized controlled trials
and control clinical trials in patients with RA were eligible. No language restrictions were applied. Abstracts were accepted.

**Data collection and analysis:** Two independent reviewers identified potential articles from the literature search. These reviewers extracted data using pre-defined extraction forms. Consensus was reached on all the extracted data. Quality was assessed by two reviewers using a five (5) point validated tool that measured the quality of randomization, double-blinding and description of withdrawals.

**Main results:** Two studies (n=84) met the inclusion criteria. One used acupuncture ([David 1999](#)) while the other used electroacupuncture ([Man 1974](#)). In the first study using acupuncture, no significant difference was found between groups for to erythrocyte sedimentation rate (ESR), C-reactive protein (CRP), the visual analogue scale for pain (VAS P), the visual analogue scale for patient’s global assessment (VAS G), the number of swollen joints, the number of tender joints, to the general health questionnaire (GHQ), the score on the modified disease activity scale (DAS) or in the decrease in analgesic intake.

In the second study, using electroacupuncture, a significant decrease in knee pain was reported in the experimental group, 24 hours post treatment, when compared to the placebo group (weighted mean difference of -2.0 with 95% CI -3.6,-4.0).

**Reviewers' conclusions:** Although the results of the [Man 1974](#) study show that electroacupuncture may be beneficial to reduce symptomatic knee pain in patients with RA 24 hours post treatment, the reviewers concluded that the poor quality of the trial, including the small sample size proclude its recommendation. The reviewers further conclude that acupuncture has no effect on ESR, CRP, pain, patient's global assessment, number of swollen joints, number of tender joints, general health, disease activity and reduction of analgesics. These conclusions are limited by methodological considerations such as the type of acupuncture (acupuncture vs electroacupuncture), the site of intervention, the low number of clinical trials and the small sample size of the included studies.

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**Background**

Acupuncture is a technique based on Chinese medical practice whereby needles are inserted into specific exterior body locations to relieve pain and for other therapeutic purposes ([Dorland 1988](#)). It affects electroatropines mainly mediated by endorphins or serotonin, morphine-like compounds ([Dumoulin 1978](#)). The impact of acupuncture can be enhanced by electrical current, termed electroacupuncture.
These substances cause analgesia by decreasing pain and modulating stress. They also support homeostasis by releasing regulators responsible for other hormones (Wong 1987).

Based on these physiological effects, acupuncture could have potential benefits for the symptomatic treatment of RA. There is however, very little evidence to support the use or non-use of acupuncture for symptomatic treatment of RA patients. Patient management recommendations have not supported the use of acupuncture due to the lack of scientific evidence to date (Walker 1996). In fact, to our knowledge, there are no existing evidence-based clinical practice guidelines in the scientific literature.

**Objectives**

To evaluate the effectiveness of acupuncture or electroacupuncture therapy for the relief of signs and symptoms of patients with RA, compared to placebo and other treatment interventions.

**Criteria for considering studies for this review**

**Types of studies**

According to a priori protocol, all comparative controlled trials, including randomized controlled trials (RCT) and controlled clinical trials without randomization (CCT), were included. Trials which used same patients as their own control were not accepted. The results were graded according to the strength of the study design.

No language limitations were imposed. Abstracts were accepted.

**Types of participants**

Adult patients with classic or definite rheumatoid arthritis treated with acupuncture or electroacupuncture. Any joint except the spine was considered.

**Types of intervention**

Acceptable interventions included acupuncture applications using any combination of parameters. For example, use of electric current, stimulation of various points or types of needles employed were not discriminated with regards to the inclusion criteria.

**Types of outcome measures**

The primary outcome measure was pain. All secondary outcome measures were from the potential core set identified by the OMERACT conference on rheumatoid arthritis outcomes (OMERACT 1993).
including:
Number of tender joints per patient
Number of swollen joints per patient
Physician global assessment
Patient global assessment
Functional status.

Range of motion (ROM), strength, physiological outcomes such as skin and joint temperature were not included in the analysis.

**Search strategy for identification of studies**

See: Collaborative Review Group search strategy

The literature search was conducted up to September 2001 according to the sensitive search strategy for RCTs designed for the Cochrane Collaboration (Dickersin 1994), with modifications proposed by Haynes 1994. Additional terms for the study design were used to identify observational studies including: case-control, cohort, comparative study, clinical trial. MEDLINE, EMBASE, HealthSTAR, Sports Discus, CINAHL, the Cochrane musculoskeletal group and the Cochrane field of physical and related therapies were searched using a keyword est textword search strategy (shown below). In addition, the reference lists of included trials were searched and content experts were contacted for additional studies.

```
1 exp osteoarthritis/
2 osteoarthritis.tw.
3 osteoarthrosis.tw.
4 degenerative arthritis.tw.
5 exp arthritis, rheumatoid/
6 rheumatoid arthritis.tw.
7 rheumatism.tw.
8 arthritis, juvenile rheumatoid/
9 caplan's syndrome.tw.
10 felty's syndrome.tw.
11 rheumatoid.tw.
12 ankylosing spondylitis.tw.
13 arthrosis.tw.
14 sjogren$.tw.
15 or/1-14
16 exp acupuncture
17 acupuncture or electroacupuncture.tw.
18 or/16-17
19 15 and 18
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Methods of the review

Two independent reviewers (VR, LB) examined the titles and abstracts of the trials identified by the search strategy to select trials that met the inclusion criteria. All trials classified as relevant by at least one of the reviewers were retrieved. The retrieved articles were re-examined to ensure they met the inclusion criteria and were assessed for quality. The results of the individual trials were extracted from each of the included trials using pre-determined extraction forms by two independent reviewers (LB, VR). The data was cross-checked by a third reviewer (LC). The extraction forms were developed and pilot-tested, based on other forms used by the Cochrane musculoskeletal review group. The extraction form documented specific information about acupuncture therapy. The final data values were based on consensus of the two reviewers. Most outcomes were continuous in nature and the results are presented as weighted mean differences (WMD). Relative risks would have been calculated for dichotomous outcomes.

Description of studies

See: Tables of studies

The literature search and handsearching identified eight potential articles. Of these, two RCT studies were included involving 84 RA patients (David 1999, Man 1974)

Six trials were excluded for the following reasons: 1) Tukmashi 2000: Not a clinical trial; 2) Depei 1992: No numerical data; 3) Devyani 1985: Literature review; 4) Camerlain 1981: Data not analysable; 5) Camerlain 1976: Population mixed (not confined to RA patients); 6) Shen 1973: Incomplete data with patients used as their own control.

In the first included study (David 1999), a cross-over design was used. Sixty-four patients between the ages of 46 and 66 were randomly assigned to an experimental or placebo group. Eight participants withdrew prior to the start of the study. In the experimental group, the treatment consisted of inserting one...
needle (0.25 x 30 mm) in the liver 3 (Li3) point found on each foot, for a total of two needles. The length of application was four minutes. The needles however, were manipulated for five seconds, two minutes after being inserted. In the placebo group, the guides for needle insertion were placed without pressure, on the surface of the skin at the Li3 points, but the needles were not inserted. In both groups the patients were treated supine with a screen blocking their vision from the waist down. The intervention took place for a total of five sessions at one week interval. Once the five sessions were completed, a wash-out period of six weeks was prescribed before the patients were crossed-over into the other group (experimental or placebo) for an additional five weeks of intervention. The outcome measures were assessed for all patients prior to the start of the first five weeks, post-intervention #1, prior to the start of the 2nd five weeks, post-intervention #2 and upon follow-up at six weeks post treatment.

In the second included study (Man 1974), a parallel design was used. Twenty patients of undetermined age with knee pain were randomly assigned to an experimental or a placebo group. In the experimental group, electroacupuncture at 6.26 5mA was applied once for 15 minutes using three 1.5 cm long needles. The needles were inserted in one of the knees at the GB 34, SP 9 and S43 acupuncture points. The other knee was injected with 50mg of hydrocortisone, hence the parallel design. In the placebo group electroacupuncture was applied to three incorrect points around the knee using the same instrumentation as the experimental group. The other knee was also injected with 50mg of hydrocortisone. The outcome measure was a pain reduction scale ranging from 0 to 4 where grade zero indicated no reduction in pain, grade one indicated a marked decrease in pain, grade two indicated a moderate decrease in pain, grade three indicated a minimal decrease in pain and grade four indicated no decrease in pain. Pain was assessed on the basis of the degree of discomfort reported by the patient at rest, during knee flexion/extension and during weight bearing as well as walking activities. The outcome measure was assessed 24 hours after treatment, weekly for four weeks and monthly for three months.

Methodological quality

See: Table of included studies

Methodological quality was assessed using a validated assessment tool (Jadad 1996). The components of quality focus on randomization, double-blinding and description of withdrawals. Two independent reviewers (LB, VR) assessed quality and differences were resolved by consensus (LC). Quality was used in subgroup analyses to test the hypothesis that poorly conducted trials demonstrate greater efficacy of the intervention under evaluation. Each item (i.e. randomization, blinding and withdrawals) was examined separately for its effect.

The median methodological quality of the two RCTs was 3 (David 1999 score was 4, Man 1974 score was 2). Both the David 1999 and Man 1974 studies were double-blind.

Results
The results of this systematic review of acupuncture or electroacupuncture for the symptomatic treatment of RA are as follows. The first study (David 1999) compared two groups: a) experimental and b) placebo. The experimental group was treated with acupuncture at a specific documented point believed to affect overall health and the placebo control group received sham treatment to the exact same point. No significant difference was found between the experimental and placebo groups in any of the study outcomes. Pain score on the visual analogue scale (VASP) in the treatment group improved by 4 points versus no improvement in the control group (WMD -7.00, 95%CI, -22.38, 8.38). The number of swollen joints (SJC) did not change in either group after treatment (end of study treatment group mean SJC=2.0, control group mean = 3.0, WMD -1.00, 95%CI: -3.11 to 1.11). The number of tender joints (TJC) in the treatment group improved by 0.5 compared to an improvement of 1 in the control group (WMD -1.50,95%CI: -5.70 to 2.70). The score on the general health questionnaire (GHQ) improved by 1 in the treatment group compared to no improvement in the placebo group (WMD 3.00, 95%CI: -0.25,6.25). The modified disease activity scale (DAS) score improved by 0.2 in the treatment group compared to 0.4 in the placebo group (WMD -0.10, 95%CI: -1.30 to 1.10) and neither group had a decrease in their analgesic intake after treatment.

Two trials were included in this study (David 1999 (a), Man 1974), only one, however, showed positive results for the use of acupuncture on symptomatic RA knees (Man 1974).

In the second study (Man 1974), electroacupuncture to three specific documented points around the knee was compared to a placebo group receiving electroacupuncture to three incorrect points around the knee. A significant decrease in knee pain was reported in the experimental group, 24 hours post treatment (WMD -2.00, 95%CI: -3.60 to 0.40), when compared to the placebo group. No difference was found at 1 month (WMD 441.00, 95%CI: 7.98 to 24374.50), 2 months (WMD 133.00, 95CI%: 4.91 to 3674.46) and 3 months (WMD 45.00, 95%CI: 2.01 to 1006.80) post-treatment.

David 1999 found no significant difference between the experimental and the placebo group for erythrocyte sedimentation rate (ESR), values of C-reactive protein (CRP), score on the visual analogue scale for pain (VAS P), score on the visual analogue scale for patient’s global assessment (VAS G), number of swollen joints, number of tender joints, score on the general health questionnaire (GHQ), score on the modified disease activity scale (DAS) and decrease in analgesic intake.

**Discussion**

In the study by Man 1974 the methodology used was clearly described. Nonetheless, this is a small study...
and the acupuncture technique was questionable. It is unclear why only one point was treated bilaterally and why Li3 was selected. Although the authors attempted to explain their choice, these decisions are not generally accepted (Tukmachi 2000). Similarly, the treatment time and the frequency chosen can also be questioned. The authors did however, strengthen their results by choosing four of the OMERACT 1993 primary outcome measures; number of swollen joints, number of tender joints, patient global assessment and functional status.

In the Man 1974 study, a significant decrease in knee pain was reported with electroacupuncture at 24 post treatment, when comparing the experimental to the placebo group. No difference was found at one, two or three months post-treatment. One can conclude that the effects of the electroacupuncture in the Man 1974 study were only short term. The research methodology was not as clearly outlined in this trial. The age of the participants was not included. The purpose of the hydrocortisone injection was not clearly described and may in fact have impacted on the results. The outcome measure used is not currently recognised and did not provide strong objective data. Furthermore, no means or standard deviations were reported and for the purpose of this review, they were calculated from the graphical representation of the data. The quality of the data was therefore strongly impacted by poor reporting and a weak outcome measure.

Generally, methodological considerations that may have impacted on the results of the included studies are the randomization method, quality of double-blinding, sample size, study duration and selection of outcome measures. Clearly, the treatment application protocol differed between studies, one used acupuncture while the other used electroacupuncture. This fundamental difference exemplifies the lack standardization in application methods and contributes to the difficulty of pooling data. Also, in this review, only two RCTs that met the inclusion criteria, were retrieved from the literature. Furthermore, the low quality observed in the Man 1974 study may have caused an overestimation of effect. In particular, patients were subjectively questioned on improvement and this constituted the only outcome measure. Standardized outcomes measures (OMERACT 1993) and measurement periods should be used to facilitate the pooling of data of several studies. Reporting data should also be standardized among the included RCTs. Mean and standard deviation of every outcome should be provided systematically.

**Reviewers' conclusions**

**Implications for practice**

Although the results of the Man 1974 study show that electroacupuncture may be beneficial to reduce symptomatic knee pain in patients with RA, the authors of this systematic review note that the effects were only short-term not exceeding 24 hours of relief. The poor quality of the trial, including the small sample size proclude its recommendation. Acupuncture has not yet been shown in the literature to have an effect on ESR, CRP, pain, patient's global assessment, number of swollen joints, number of tender joints, general health, disease activity and reduction of analgesics. These conclusions are limited by methodological considerations such as the site of intervention, the low number of clinical trials and the small sample size of the included studies.
Implications for research

This review has not clearly proven efficacy of acupuncture or electroacupuncture in the symptomatic treatment of RA. The conclusions are limited by the methodological considerations such as poor quality of the trials, the high methodological variability, the low number of clinical trials, the small sample size of the included studies. No harmful side effects were reported. More sensitive and valid clinical outcomes should be used in studies on the use of acupuncture to reflect the physiological effects found in the scientific literature. More focus should be made on the optimal characteristics of the therapeutic application of acupuncture on different human RA joints. If sufficient studies were ever available on this subject it is recommended that acupuncture and electroacupuncture be reviewed separately.

Acknowledgements

The authors wish to thank Jessie McGowen, Catherine Lamothe, Shannon Rees and Lucie Lavigne for their indispensable contributions. The authors also wish to thank Maria Judd, CMSG coordinator for her help with final drafts.

Potential conflict of interest

For a detailed description of the Cochrane Musculoskeletal Review Group's (CMSG) statement on potential conflict of interest please refer to the scope document. The scope can be found on the Cochrane Library at www.cochrane.org. You must log on to the Cochrane Library and under "About the Cochrane Collaboration" select "Collaborative Review Groups - CRGs". The scope will appear when you select "Cochrane Musculoskeletal Group".

References

References to studies included in this review

David 1999 (published data only)


Man 1974 (published data only)

Man SC, Baragar FD. Preliminary Clinical Study of Acupuncture in RA. The Journal of
* indicates the major publication for the study

References to studies excluded from this review

Camerlain 1976


Camerlain 1981


Depei 1992


Devyani 1985


Shen 1973


Tukmashi 2000


Additional references

Dickersin 1994

Dorland 1988


Dumoulin 1978


Haynes 1994


Jadad 1996


Lineker 1999


OMERACT 1993


Tukmachi 2000


Walker 1996

### Acupuncture and electroacupuncture for the treatment of RA

<table>
<thead>
<tr>
<th>Reviewer(s)</th>
<th>Casimiro L, Brosseau L, Milne S, Robinson V, Wells G, Tugwell P</th>
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<tr>
<td>Contribution of Reviewer(s)</td>
<td>VR extracted and analyzed data and selected trials for the original review.</td>
</tr>
<tr>
<td></td>
<td>LB contributed to the data extraction, updated the selection of the reference list, updated the analyses and update of the interpretation of results.</td>
</tr>
<tr>
<td></td>
<td>LC was responsible for writing the manuscript, contributed to data extraction and updated the analyses and interpretation of results.</td>
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<tr>
<td></td>
<td>GW and PT contributed their methodological expertise and commented on early drafts.</td>
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<td></td>
<td>MJ provided feedback and editorial support for final drafts.</td>
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<tr>
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Sources of support

External sources of support to the review

- Multiple sources of funding, see CMSG scope for complete list TRANSNATIONAL

Internal sources of support to the review

- none CANADA

Synopsis

One study shows electroacupuncture decreased pain in patients with rheumatoid arthritis.

Although the results of one study show that electroacupuncture may be beneficial to reduce symptomatic knee pain in patients with rheumatoid arthritis 24 hours after treatment, the reviewers concluded that the poor quality of the trial, including the small number of patients included in the study proclude its
recommendation. Acupuncture has not been shown in the literature to have an effect on erythrocyte sedimentation rate, C-reactive protein, pain, patient's global assessment, number of swollen joints, number of tender joints, general health, disease activity and reduction of analgesics. These conclusions are limited by methodological considerations such as the type of acupuncture (acupuncture vs electroacupuncture), the inconsistencies at the site of intervention, the low number of clinical trials and the small sample size of the included studies.

Tables & Graphs

- **MetaView graphs**
  The figures and graphs in Cochrane Reviews display the Peto Odds Ratio and the Weighted Mean Difference by default. These are not always the methods used by reviewers when combining data in their review. You should check the text of the review for a description of the statistical methods used.
- **List of comparisons**
- **Table of included studies**
- **Table of excluded studies**
- **Table of ongoing studies**

List of comparisons

**Fig 01 ACUPUNCTURE VS PLACEBO (END OF TREATMENT -24HRS)**

01.01.00 *Pain (0-4 scale, 0-no pain)

**Fig 02 ACUPUNCTURE VS PLACEBO, (END OF TREATMENT- 5 WEEKS)**

02.01.00 Pain (0-100 scale, 0-no pain)
02.02.00 Swollen joints count
02.03.00 Tender joints count
02.04.00 Disease Activity (Scale 1-10)
02.05.00 Global Health Questionnaire (Scale 1-10)

**Fig 03 ELECTROACUPUNCTURE VS PLACEBO (FOLLOW-UP 24 HOURS)**
Tables of other data

Tables of other data are not available for this review

Additional tables

Additional tables are not available for this review

Table of included studies

<table>
<thead>
<tr>
<th>Study</th>
<th>Methods</th>
<th>Participants</th>
<th>Interventions</th>
<th>Outcomes</th>
<th>Notes</th>
<th>Allocation concealment</th>
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<tr>
<td>Study</td>
<td>Design &amp; Sample Size</td>
<td>Inclusion Criteria</td>
<td>Treatment Details</td>
<td>Outcome Measures</td>
<td>Effect Size</td>
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<tr>
<td>David 1999</td>
<td>Randomized, cross-over design. Sample size: 64(8 withdrawals) Group 1: 29 acupuncture Group 2: 27 placebo Treatment duration: 5 weeks 6 weeks break cross-overs in other groups for 5 weeks, follow up after 6 weeks post-treatment</td>
<td>Inclusion: definite or classical R.A., 18 to 75 years old. Mean age for group 1: 61 Group 2: 57 Disease duration group 1: 8 Disease duration group 2: 12</td>
<td>Group 1: 5 treatments of acupuncture at weekly intervals Group 2: 5 placebo only guide for needle is placed for 4 min Size of needles: 0.25 x 30mm Total number of sites: 2 (Li3), Duration of treatment: 4 min., Total number of treatment sessions: 5</td>
<td>CRP, ESR, VAS pain, VAS global assessment, Swollen joint, Tender joint, GHQ, modified DAS, Analgesics</td>
<td>R=2 B=1 W=1 A</td>
<td></td>
</tr>
<tr>
<td>Man 1974</td>
<td>Randomized, Parallel design, Sample size: 20, Electro-acupuncture duration: 15 min., Follow-up: 1x 24 hours, 4x weekly and 3x monthly Experimental group: 10, Control group: 10</td>
<td>Inclusion: definite and classic R.A. present for 5 years or longer, Pain in both knees, Disease duration: 5 years or more. Group 1: 3 males and 7 females, Group 2: 3 males and 7 females.</td>
<td>Group 1: one knee treated with electroacupuncture and steroid injection in the other knee (50 mg), Group 2: One knee treated incorrectly and steroid injection in the other knee (50 mg). Electroacupuncture sites for experimental group: GB 34, SP 9, S 43, Electroacupuncture sites for control group: 3 points with no known effects. Size of needles: 1.5 cm long, Total number of needles: 3 + connected to electro-stimulator</td>
<td>Pain reduction scale 0-4. Number of patients with significant decrease in pain. 10/10, 24 hrs: 9/10, 1m: 9/10, 2m: 7/10, 3m: 0/10, 4m</td>
<td>R=1 B=1 W=0 A</td>
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### Table of excluded studies

<table>
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<th>Study</th>
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<tr>
<td>Camerlain 1976</td>
<td>Mixed population (not confined to RA patients)</td>
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<td>Camerlain 1981</td>
<td>Data not analysable</td>
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<td>Depei 1992</td>
<td>No numerical data</td>
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<td>Devyani 1985</td>
<td>Literature Review</td>
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<td>Shen 1973</td>
<td>Incomplete data, patients own control, no means or standard deviations</td>
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<tr>
<td>Tukmashi 2000</td>
<td>Not a clinical trial</td>
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</table>

### Table of ongoing studies

A table of ongoing studies is not available for this review
Acupuncture and electroacupuncture for the treatment of RA

Comparison: Acupuncture vs Placebo, end of treatment - 5 weeks
Outcome: Pain (0-100 scale, 0-no pain)

<table>
<thead>
<tr>
<th>Study</th>
<th>Treatment</th>
<th>N</th>
<th>Mean (SD)</th>
<th>Control</th>
<th>N</th>
<th>Mean (SD)</th>
<th>WMD (Fixed) 95% CI</th>
<th>Weight %</th>
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<tr>
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<td>29</td>
<td>44.00 (25.51)</td>
<td>26</td>
<td>51.00 (31.89)</td>
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<td>-7.000 [22.377, 8.377]</td>
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Total (95% CI)
Test for heterogeneity chi-square = 0.00 df=0 p = 0.0000
Test for overall effect Z = -0.89 p = 0.40
Review: Acupuncture and electroacupuncture for the treatment of RA
Comparison: 02 Acupuncture vs Placebo, (end of treatment- 5 weeks)
Outcome: 02 Swollen joints count

<table>
<thead>
<tr>
<th>Study</th>
<th>Treatment</th>
<th>Control</th>
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<th>Weight %</th>
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<tr>
<td>David 1999</td>
<td>29 (SD)</td>
<td>26</td>
<td>-1.00 [3.108, 1.108]</td>
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<tr>
<td>x Man 1974</td>
<td>1 (SD)</td>
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<tr>
<td>Total (95 % CI)</td>
<td>30 (SD)</td>
<td>27</td>
<td>-1.00 [3.108, 1.108]</td>
<td>100.0</td>
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Test for heterogeneity chi-square=0.00 df=0 p=0.00000
Test for overall effect Z=-0.93 p=0.40
Review: Acupuncture and electroacupuncture for the treatment of RA
Comparison: 02 Acupuncture vs Placebo, (end of treatment- 5 weeks)
Outcome: 03 Tender joints count

<table>
<thead>
<tr>
<th>Study</th>
<th>Treatment</th>
<th>Control</th>
<th>WMD (Fixed) 95% CI</th>
<th>Weight %</th>
<th>WMD (Fixed) 95% CI</th>
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<tbody>
<tr>
<td>David 1999</td>
<td>29 5.50 (10.20)</td>
<td>26 7.00 (5.10)</td>
<td>-1.50 [-5.698, 2.698]</td>
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<td>-1.50 [-5.698, 2.698]</td>
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Total (95% CI)

Test for heterogeneity chi-square=0.00 df=0 p=0.0000
Test for overall effect Z=-0.70 p=0.50
Review: Acupuncture and electroacupuncture for the treatment of RA
Comparison: 02 Acupuncture vs Placebo, (end of treatment-5 weeks)
Outcome: 04 Disease Activity (Scale 1-10)

<table>
<thead>
<tr>
<th>Study</th>
<th>Treatment</th>
<th>N</th>
<th>Mean (SD)</th>
<th>Control</th>
<th>N</th>
<th>Mean (SD)</th>
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<th>Weight %</th>
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<tbody>
<tr>
<td>David</td>
<td>1999</td>
<td>29</td>
<td>4.80 (2.80)</td>
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<td>100.0 -0.100 [-1.302, 1.102]</td>
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</table>

Total (95% CI) 29 26 100.0 -0.100 [-1.302, 1.102]

Test for heterogeneity chi-square = 0.00 df = 0 p = 0.0000
Test for overall effect Z = -0.16 p = 0.90
Review: Acupuncture and electroacupuncture for the treatment of RA
Comparison: 02 Acupuncture vs Placebo, (end of treatment-5 weeks)
Outcome: 05 Global Health Questionnaire (Scale 1-10)

<table>
<thead>
<tr>
<th>Study</th>
<th>Treatment</th>
<th>Control</th>
<th>WMD (Fixed) 95% CI</th>
<th>Weight %</th>
<th>WMD (Fixed) 95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>David 1999</td>
<td>29 4.00 (3.83) 26 1.00 (7.65)</td>
<td>100.0 3.000 [-0.254, 6.254]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>29 26</td>
<td>100.0 3.000 [-0.254, 6.254]</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Test for heterogeneity chi-square=0.00 df=0 p=0.0000
Test for overall effect Z=1.81 p=0.07
Review: Acupuncture and electroacupuncture for the treatment of RA
Comparison: 03 Electroacupuncture vs placebo (follow-up 24 hours)
Outcome: 01 Pain (number of patients improved)

<table>
<thead>
<tr>
<th>Study</th>
<th>Treatment</th>
<th>Control</th>
<th>Odds Ratio (Fixed) 95% CI</th>
<th>Weight %</th>
<th>Odds Ratio (Fixed) 95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Man 1974</td>
<td>10 / 10</td>
<td>1 / 10</td>
<td>133.00 [4.81, 3674.46]</td>
<td>100.0</td>
<td>133.00 [4.81, 3674.46]</td>
</tr>
</tbody>
</table>

Total (95% CI)

Test for heterogeneity chi-square=0.00 df=0 p=0.0000
Test for overall effect Z=2.89 p=0.00
Acupuncture and electroacupuncture for the treatment of RA
Comparison: 04 Electroacupuncture vs placebo (follow-up 1 month)
Outcome: 01 Pain (number of patients improved)

<table>
<thead>
<tr>
<th>Study</th>
<th>Treatment</th>
<th>Control</th>
<th>Odds Ratio (Fixed) 95% CI</th>
<th>Weight %</th>
<th>Odds Ratio (Fixed) 95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Man 1974</td>
<td>10 / 10</td>
<td>0 / 10</td>
<td>441.00 [7.98, 24374.50]</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>10 / 10</td>
<td>0 / 10</td>
<td>441.00 [7.98, 24374.50]</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Test for heterogeneity chi-square = 0.00 df = 0 p = 0.0000
Test for overall effect Z = 2.97 p = 0.00
Review: Acupuncture and electroacupuncture for the treatment of RA
Comparison: 05 Electroacupuncture vs placebo (follow-up 2 months)
Outcome: 01 Pain (number of patients improved)

<table>
<thead>
<tr>
<th>Study</th>
<th>Treatment</th>
<th>Control</th>
<th>Odds Ratio (Fixed) 95% CI</th>
<th>Weight %</th>
<th>Odds Ratio (Fixed) 95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Man 1974</td>
<td>9 / 10</td>
<td>0 / 10</td>
<td>133.00 [4.81, 3674.46]</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>9 / 10</td>
<td>0 / 10</td>
<td>133.00 [4.81, 3674.46]</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Test for heterogeneity: chi-square = 0.00 df = 0 p = 0.0000
Test for overall effect: Z = 2.89 p = 0.00
Review: Acupuncture and electroacupuncture for the treatment of RA
Comparison: 06 Electroacupuncture vs placebo (follow-up 3 months)
Outcome: 01 Pain (number of patients improved)

<table>
<thead>
<tr>
<th>Study</th>
<th>Treatment</th>
<th>Control</th>
<th>Odds Ratio (Fixed) 95% CI</th>
<th>Weight %</th>
<th>Odds Ratio (Fixed) 95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Man 1974</td>
<td>7 / 10</td>
<td>0 / 10</td>
<td>45.0 [2.01, 1006.80]</td>
<td>100.0</td>
<td>45.0 [2.01, 1006.80]</td>
</tr>
</tbody>
</table>

Total (95% CI)

- Test for heterogeneity chi-square = 0.00 df = 0 p = 0.0000
- Test for overall effect Z = 2.40 p = 0.02
Review: Acupuncture and electroacupuncture for the treatment of RA
Comparison: 07 Electroacupuncture vs placebo (follow-up 4 months)
Outcome: 01 Pain (number of patients improved)

Study | Treatment | Control | Odds Ratio (Fixed) 95% CI | Weight % | Odds Ratio (Fixed) 95% CI
--- | --- | --- | --- | --- | ---
× Man 1974 | 0 / 10 | 0 / 10 | 0.0 | Not estimable

Total (95% CI): 0 / 10

Test for heterogeneity chi-square = 0.00 df = 0 p = 0.0000

Test for overall effect Z = 0.00 p = 0.00
## Acupuncture and Electroacupuncture for the Treatment of RA

### 3.01 Acupuncture vs Placebo (end of treatment - 24hrs)

<table>
<thead>
<tr>
<th>Study</th>
<th>Year</th>
<th>Treatment</th>
<th>Pain (0-4 scale, 0-no pain)</th>
<th>Favor</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Man 1974</td>
<td>1974</td>
<td>Acupuncture</td>
<td>0 10 2.00 1.83 0 10</td>
<td>4.00 1.83 0.00 0.00 0 A</td>
<td>Electroacupuncture</td>
</tr>
</tbody>
</table>

### 3.02 Acupuncture vs Placebo, (end of treatment - 5 weeks)

<table>
<thead>
<tr>
<th>Study</th>
<th>Year</th>
<th>Treatment</th>
<th>Pain (0-100 scale, 0-no pain)</th>
<th>Favor</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>David 1999</td>
<td>1999</td>
<td>Acupuncture</td>
<td>0 29 44.00 25.51 0 26</td>
<td>51.00 31.89 0.00 0.00 0 A</td>
<td>Electroacupuncture</td>
</tr>
<tr>
<td>Man 1974</td>
<td>1974</td>
<td>Placebo</td>
<td>0 1 0.00 0.00 0 1</td>
<td>0.00 0.00 0.00 0.00 0 A</td>
<td>Placebo</td>
</tr>
</tbody>
</table>

### 3.03 Electroacupuncture vs placebo (follow-up 24 hours)

<table>
<thead>
<tr>
<th>Study</th>
<th>Year</th>
<th>Treatment</th>
<th>Pain (number of patients improved)</th>
<th>Favor</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Man 1974</td>
<td>1974</td>
<td>Electroacupuncture</td>
<td>0 10 0.00 0.00 1 10</td>
<td>0.00 0.00 0.00 0.00 0 A</td>
<td>Placebo</td>
</tr>
</tbody>
</table>

### 3.04 Electroacupuncture vs placebo (follow-up 1 month)

<table>
<thead>
<tr>
<th>Study</th>
<th>Year</th>
<th>Treatment</th>
<th>Pain (number of patients improved)</th>
<th>Favor</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Man 1974</td>
<td>1974</td>
<td>Electroacupuncture</td>
<td>0 10 0.00 0.00 0 10</td>
<td>0.00 0.00 0.00 0.00 0 A</td>
<td>Placebo</td>
</tr>
</tbody>
</table>

### 3.05 Electroacupuncture vs placebo (follow-up 2 months)

<table>
<thead>
<tr>
<th>Study</th>
<th>Year</th>
<th>Treatment</th>
<th>Pain (number of patients improved)</th>
<th>Favor</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Man 1974</td>
<td>1974</td>
<td>Electroacupuncture</td>
<td>0 10 0.00 0.00 0 10</td>
<td>0.00 0.00 0.00 0.00 0 A</td>
<td>Placebo</td>
</tr>
</tbody>
</table>

### 3.06 Electroacupuncture vs placebo (follow-up 3 months)

<table>
<thead>
<tr>
<th>Study</th>
<th>Year</th>
<th>Treatment</th>
<th>Pain (number of patients improved)</th>
<th>Favor</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Man 1974</td>
<td>1974</td>
<td>Electroacupuncture</td>
<td>0 10 0.00 0.00 0 10</td>
<td>0.00 0.00 0.00 0.00 0 A</td>
<td>Placebo</td>
</tr>
</tbody>
</table>
months) 2 D 06 01 Y Pain (number of patients improved)  
<table>
<thead>
<tr>
<th>control</th>
<th>Favours</th>
<th>treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 06 01 00 Man 1974</td>
<td>1974</td>
<td>7 10 0.00 0.00</td>
</tr>
</tbody>
</table>

Electroacupuncture vs placebo (follow-up 4 months) 2 D 07 01 Y Pain (number of patients improved)  
<table>
<thead>
<tr>
<th>control</th>
<th>Favours</th>
<th>treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 07 01 00 Man 1974</td>
<td>1974</td>
<td>0 10 0.00 0.00</td>
</tr>
</tbody>
</table>

END DATA