

## Anxiety Clinical Trial

1. [Acupunct Med.](#) 2012 Jun;30(2):85-8. doi: 10.1136/acupmed-2011-010064. Epub 2012 Apr 12.

### Effect of acupuncture on symptoms of anxiety in women undergoing in vitro fertilisation: a prospective randomised controlled study.

[Isoyama D](#), [Cordts EB](#), [de Souza van Niewegen AM](#), [de Almeida Pereira de Carvalho W](#), [Matsumura ST](#), [Barbosa CP](#).

#### Source

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#### Abstract

##### PURPOSE:

To determine if acupuncture improves symptoms of anxiety in infertile women undergoing in vitro fertilisation (IVF) treatment.

##### METHODS:

A randomised clinical trial was performed in 43 patients undergoing IVF. The patients were randomised into two groups: test group (n=22) and control group (n=21). The anxiety level of each patient was analysed before and after treatment using the Hamilton Anxiety Rating Scale (HAS). Treatment sessions consisted of four weekly sessions. In the test group, needles were inserted at points HT7, PC6, CV17, GV20 and Yintang. In the control group, needles were inserted in areas near but not corresponding to acupuncture points.

##### RESULTS:

The mean HAS score after the 4-week experimental period was significantly lower in the test group than in the control group ( $19.4 \pm 3.2$  vs  $24.4 \pm 4.2$ ;  $p=0.0008$ ).

##### CONCLUSIONS:

The results indicate that acupuncture can reduce anxiety symptoms observed by the reduction of psychological parameters of women undergoing IVF. Further evidence should be sought as to whether acupuncture might be a complementary option for patients undergoing IVF.

2. [Acupunct Med.](#) 2012 Jun;30(2):89-95. doi: 10.1136/acupmed-2011-010082. Epub 2012 Mar 29.

### Effects of electroacupuncture on stress-related symptoms in medical students: a randomised controlled pilot study.

[Dias M](#), [Pagnin D](#), [de Queiroz Pagnin V](#), [Reis RL](#), [Olej B](#).

#### Source

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#### Abstract

##### OBJECTIVE:

To assess the effects of electroacupuncture on stress-related symptoms-sleep disorders, anxiety, depression and burnout-in medical students, and provide data to inform a power analysis to determinate numbers for future trials.

##### METHODS:

Twenty-five students were randomly assigned to an electroacupuncture (n=12) group or control group (n=13) that did not receive treatment. Electroacupuncture was applied at a continuous frequency 2 Hz for 20 min once a week for 8 weeks at sites on the extremities, face, ear and scalp. The outcomes of the students treated with electroacupuncture were compared with those of the control group at the endpoint, controlling the influence of baseline scores. The instruments used were self-administered questionnaires that comprised the validated Portuguese version of the mini-

sleep questionnaire (MSQ), the Pittsburgh sleep quality index (PSQI), the Epworth sleepiness scale (ESS), the Beck depression inventory (BDI), the Beck anxiety inventory, the Maslach burnout inventory-student survey (MBI-SS), and World Health Organization quality of life assessment - abbreviated version (WHOQOL-bref).

#### **RESULTS:**

The medical students treated with electroacupuncture showed a significant decrease compared with the control group for MSQ scores ( $p=0.04$ ) and PSQI ( $p=0.006$ ). After treatment, 75% students in the electroacupuncture group presented a good sleep quality, compared with 23.1% of the students in the control group. No significant difference on daytime sleepiness was shown by the ESS. The electroacupuncture group showed significant improvement on depressive symptoms (BDI), the emotional exhaustion and cynicism dimensions of burnout (MBI-SS) and physical health (WHOQOL-bref).

#### **CONCLUSIONS:**

Electroacupuncture was associated with a significant reduction of stress-related symptoms, but because of the study design the authors cannot say what proportion of the reduction was due to needle stimulation.

3. [Chin J Integr Med](#). 2012 Jan;18(1):7-15. doi: 10.1007/s11655-011-0857-1. Epub 2011 Oct 12.

#### **De-qi, not psychological factors, determines the therapeutic efficacy of acupuncture treatment for primary dysmenorrhea.**

[Xiong J](#), [Liu F](#), [Zhang MM](#), [Wang W](#), [Huang GY](#).

#### **Source**

Institute of Integrated Traditional and Western Medicine, Tongji Hospital, Tongji Medical College, Huazhong University of Science and Technology, Wuhan, 430030, China.

#### **Abstract**

##### **OBJECTIVE:**

To study the impact of De-qi (, obtaining qi) and psychological factors on the efficacy of acupuncture treatment for primary dysmenorrhea, with an attempt to explore the relationship among De-qi, psychological factors, and clinical efficacy.

##### **METHODS:**

The patients with primary dysmenorrhea were randomly assigned to a group of acupuncture with manual manipulation (manipulation group,  $n=67$ ) and an acupuncture group without manipulation (non-manipulation group,  $n=64$ ). Pain intensity and pain duration were used as measures for evaluating the therapeutic efficacy of the acupuncture treatment. De-qi, the sensations a patient experienced during the acupuncture treatment, was scored on a 4-point scale by the subjects. In addition, the psychological factors, including belief in acupuncture, the level of nervousness, anxiety, and depression, were quantitatively assessed. The personality of the subject was assessed using the Eysenck personality questionnaire (EPQ) and 16 personality factor questionnaire (16PF).

##### **RESULTS:**

Complete data were obtained from 120 patients, 60 patients in each group. There were statistically significant differences in pain intensity ( $W=2410.0$ ,  $P<0.01$ ) and pain duration ( $W=3181.0$ ,  $P<0.01$ ) between the two groups. The number of De-qi acupoints ( $W=1150.5$ ,  $P<0.01$ ) and the average intensity of De-qi ( $W=1141.0$ ,  $P<0.01$ ) were significantly higher in the manipulation group as compared with their non-manipulation counterparts. The correlation coefficients between De-qi and therapeutic efficacy of acupuncture were greater than those between psychological factors and therapeutic efficacy.

##### **CONCLUSIONS:**

Compared with the psychological factors, De-qi contributed more to the pain-relieving effect of acupuncture in subjects with primary dysmenorrhea. Moreover, manual manipulation is a

prerequisite for eliciting and enhancing the De-qi sensations, and De-qi is critical for achieving therapeutic effects.

4. [Br J Gen Pract.](#) 2011 Jun;61(587):e306-15. doi: 10.3399/bjgp11X577972.

**Traditional acupuncture for people with medically unexplained symptoms: a longitudinal qualitative study of patients' experiences.**

[Rugg S](#), [Paterson C](#), [Britten N](#), [Bridges J](#), [Griffiths P](#).

**Source**

Institute of Health Service Research, University of Exeter, UK.

**Abstract**

**BACKGROUND:**

People with medically unexplained physical symptoms (MUPS) are helped by interventions that combine physical and psychological explanations and treatment. Traditional acupuncture may offer such a perspective, but its use for these patients has not been investigated.

**AIM:**

To ascertain how patients with MUPS perceive and experience five-element acupuncture treatment.

**DESIGN AND SETTING:**

A longitudinal qualitative interview study, nested in a randomised controlled trial was carried out in four general practices in socioeconomically diverse areas of London.

**METHOD:**

A purposive sample of 20 trial participants was interviewed twice, at the start and the end of 6 months of acupuncture treatment. Semi-structured interviews were transcribed, coded, and analysed thematically, summarising both across-case as themes and within-case individual vignettes.

**RESULTS:**

Acupuncture, initially accepted as 'just another referral' - one like many others that had been tried and proved unsuccessful - was valued for the amount of time allotted with a caring practitioner who listened and responded, as well as for the interactive and holistic nature of the sessions. These attributes encouraged many patients to take an active role in their treatment, including making cognitive or behavioural lifestyle changes. Interviewees cited a wide range of changes in their health that spanned physical, psychological, and social dimensions. These were largely positive and included an increase in physical and/or mental energy, as well as feelings of greater personal control, calmness, and relaxation. Three interviewees reported worsening health but did not ascribe this to acupuncture.

**CONCLUSION:**

Many patients who were treated with five-element acupuncture perceived a range of positive effects and appeared to take on a more active role in consultations and self-care.

**Comment in**

- [Acupuncture for 'frequent attenders' with medically unexplained symptoms.](#) [Br J Gen Pract. 2011]

5. [Support Care Cancer.](#) 2012 Apr;20(4):715-24. doi: 10.1007/s00520-011-1134-8. Epub 2011 Apr 6.

**Acupuncture improves health-related quality-of-life (HRQoL) and sleep in women with breast cancer and hot flushes.**

[Frisk J](#), [Källström AC](#), [Wall N](#), [Fredrikson M](#), [Hammar M](#).

**Source**

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**Abstract**

**PURPOSE:**

Evaluate effects of electro-acupuncture (EA) and hormone therapy (HT) on health-related quality-of-life (HRQoL) and sleep in breast cancer survivors with vasomotor symptoms.

**METHODS:**

Forty-five women, randomized to EA (n = 27) for 12 weeks or HT (n = 18) for 24 months, were followed for up to 2 years. Distress caused by, and numbers of, hot flushes, hours slept and times woken up/night, Psychological and General Well-being Index (PGWB) and Women's Health Questionnaire (WHQ) were registered before and during treatment and at 6, 9, 12, 18 and 24 months after start of treatment.

**RESULTS:**

After 12 weeks of EA (n = 19), WHQ improved from 0.32 (IQR 0.23-0.53) at baseline to 0.24 (IQR 0.12-0.39; p < 0.001) and PGWB from 78 (IQR 53-89) to 79 (IQR 68-93; p = 0.002). All sleep parameters improved and Hot Flush Score (HFS) decreased by 80%. At 12 months, WHQ, PGWB and all sleep parameters remained significantly improved (n = 14) and HFS decreased by 65%. After 12 weeks of HT (n = 18), WHQ improved from 0.29 (IQR 0.15-0.44) at baseline to 0.15 (IQR 0.05-0.22; p = 0.001), PGWB from 75 (IQR 59-88) to 90 (62-97; p = 0.102) and three of five sleep parameters improved.

**CONCLUSION:**

Both EA and HT increased HRQoL and sleep, probably through decreasing numbers of and distress by hot flushes. Although flushes decreased less in the EA group than in the HT group, HRQoL improved at least to the same extent maybe due to other effects of EA, not induced by HT, e.g. on anxiety, vitality and sleep, supported by subscale analyses. EA should be further evaluated as treatment for women with breast cancer and climacteric complaints, since HT no longer can be recommended for these women.

6. [Complement Ther Med.](#) 2010 Dec;18(6):233-40. doi: 10.1016/j.ctim.2010.09.006. Epub 2010 Oct 18.

**Acupuncture as an adjunct therapy in the treatment of eating disorders: a randomised cross-over pilot study.**

[Fogarty S](#), [Harris D](#), [Zaslowski C](#), [McAinch AJ](#), [Stojanovska L](#).

**Source**

Victoria University, Melbourne, Australia. [sarah.fogarty@live.vu.edu.au](mailto:sarah.fogarty@live.vu.edu.au)

**Abstract**

**OBJECTIVE:**

This study examines the role of acupuncture as an adjunct therapy in the treatment of eating disorders in female patients.

**DESIGN:**

A randomised cross-over study was used in this study. The two treatments phases were the private multi-disciplinary outpatient eating disorder facility in Melbourne, Australia, only (referred to as their treatment as usual) and a continuation of their treatment as usual supplemented by acupuncture.

**PARTICIPANTS:**

Patients receiving treatment at a private multi-disciplinary outpatient eating disorder facility in Melbourne, Australia were asked to participate in the study. Nine consenting women (5 with Anorexia Nervosa, 4 with Bulimia Nervosa), aged (mean and SD) 23.7 (9.6) years, participated in the study.

**MAIN OUTCOME MEASURES:**

The main outcome measure was the Eating Disorder Inventory-3. Secondary outcome measures were the Becks Depression Inventory-2, State Trait Anxiety Inventory and the Eating Disorder Quality of Life Scale.

**RESULTS:**

There was evidence that acupuncture improved the participants' Quality of Life as measured by the physical/cognitive and psychological components of the Eating Disorder Quality of Life scale. There was also evidence of decreases in anxiety (both State and Trait as measured by the State Trait Anxiety Intervention) and perfectionism (as measured by the Eating Disorder Inventory-3).

#### **CONCLUSION:**

This pilot study shows potential of the benefit of acupuncture as an adjunct therapy in the treatment of eating disorders particularly in the area of quality of life.

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7. [Complement Ther Clin Pract.](#) 2009 Aug;15(3):124-8. doi: 10.1016/j.ctcp.2009.02.013. Epub 2009 Mar 10.

#### **Anxiety as a factor influencing physiological effects of acupuncture.**

[Vickland V](#), [Rogers C](#), [Craig A](#), [Tran Y](#).

#### **Source**

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#### **Abstract**

##### **PURPOSE:**

This study investigated the influence of manual acupuncture on heart rate variability and the role which anxiety can play in modifying physiological outcomes.

##### **METHOD:**

Analysis of heart rate variability (HRV) was used as a sensitive and a reliable indicator of the balance between sympathetic and parasympathetic regulation of the heartbeat. Two groups of healthy female subjects were recruited into the study. The control group (n=30) attended one experimental session where noacupuncture treatment was used. The experimental group (n=30) attended three sessions in which unilateral manual stimulation of acupuncture points LU7 and KD6 was performed.

##### **RESULTS:**

The stimulation of the acupuncture points LU7 and KD6 was not associated with significant changes in HRV. Previous familiarity with acupuncture did not influence the outcomes but level of anxiety had a strong impact on physiological outcomes. Stimulation of LU7 acupuncture point counterbalanced naturally occurring sympathetic increase over time and had relaxing and harmonizing effect on the heart rhythm without influencing subjective perception of increased anxiety. Stimulation of KD6 acupuncture point had sympathetic influence on HRV in subjects with low "trait" anxiety and this influence was nullified by simultaneous stimulation of LU7 acupuncture point.

##### **CONCLUSIONS:**

It seems likely that the level of anxiety can modify HRV during acupuncture treatment and up to 40 min after the treatment. Psychological factors such as anxiety level should be considered as having important influence on physiological response to acupuncture.

8. [Complement Ther Med.](#) 2008 Oct;16(5):278-87.

#### **A comparison of effects on regional pressure pain threshold produced by deep needling of LI4 and LI11, individually and in combination.**

[Li W](#), [Cobbin D](#), [Zaslowski C](#).

#### **Source**

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#### **Abstract**

##### **OBJECTIVES:**

To compare the effects of unilateral and bilateral needling of the same acupoint, and the effects of individual and combined needling of two distinct acupoints on pressure pain threshold (PPT).

**DESIGN:**

22 subjects completed the randomised, dual blind (subject and evaluator) repeated measures study. PPT was measured before and after each intervention at ten sites (acupoints and nonacupoints) across the body with an algometer. Interventions: The same manual acupuncture techniques were applied to four interventions of large intestine 4 (LI4) unilaterally; LI4 bilaterally; large intestine 11 (LI 11) unilaterally; and LI4 in conjunction with LI11, both unilaterally.

**MAIN OUTCOME MEASURES:**

(1) Percentage change in PPT from preintervention baseline measured at the 10 regional sites following every intervention; (2) participants' perceptions of pain; needling sensations; tension during, and anxiety prior to, each intervention; and changes in practitioner behaviour.

**RESULTS:**

Following all four interventions, statistically significant increases in mean PPT were observed. These occurred at nine sites following the LI4 intervention either unilaterally or bilaterally; at six sites for LI11 intervention; and at five sites following the combined LI11 and LI4 intervention. These increases were significantly greater for the bilateral LI4 intervention than the unilateral LI4 intervention at only two sites ( $p < 0.02$  and  $p < 0.0001$ ). There were no statistically significant differences in the subjective perceptions among the four interventions.

**CONCLUSION:**

The enhanced effects on PPT by the bilateral compared with the unilateral intervention at LI4 although limited, do provide some support for the traditional Chinese medicine (TCM) assumption that bilateral needling of the same point enhances the treatment effect. There was no support for the assumption that combined needling of points from the same channel should enhance the treatment effect and failure to obtain better effects by combined needling of points from the same channel could result from the interaction occurring during the combined needling.

9. [Acupunct Electrother Res.](#) 2009;34(3-4):135-49.

**Radio electric treatment vs. Es-Citalopram in the treatment of panic disorders associated with major depression: an open-label, naturalistic study.**

[Mannu P](#), [Rinaldi S](#), [Fontani V](#), [Castagna A](#), [Margotti ML](#).

**Source**

Responsible for Psychopharmacological Section of Neuro-Psycho-Physical Optimization Society, Florence, Italy.

**Abstract**

Simultaneous coexistence of anxiety with depressive disorders is probably one of the major current problems in Medicine. The pharmacological approach for Panic Disorder and Major Depression includes "high-powered" benzodiazepines for the rapid, but transitory relief of same symptoms and especially antidepressant compounds. Recently physical-instrumental approaches have been tested for the treatment of these complex diseases, like Cranial Electrotherapy Stimulation (CES), Transcranial Magnetic Stimulation (TMS), and Radio Electric Asymmetric Treatment (REAC). The REAC apparatus was designed to deliver an alternate current of several hundred picoamperes for a time span of 0.5 seconds by means of a small metallic probe directly connected to the properly fabricated electronic circuit in an AC/RF generator with frequency of 2.4, 5.8 or 10.5 GHz and power of 20 mW. Compared the efficacy of REAC and Es-Citalopram in the treatment of simultaneous coexistence of Panic Disorder with Major Depression in 9-weeks open label naturalistic study. After the 1st week, patients treated with REAC therapy showed a significant relief of depressive symptoms compared with Es-Citalopram. For Panic Disorder, REAC treatment had more effective results than the drug especially after the 3rd week of observation. The REAC treatment obtained better results during the entire study, and its high safety and tolerability profile has been confirmed.

10. J Tradit Chin Med. 2008 Sep;28(3):186-8.

**Clinical observation on post-stroke anxiety neurosis treated by acupuncture.**

Wu P, Liu S.

**Source**

The Affiliated Hospital of Liaoning University of Traditional Chinese Medicine, Shenyang 110032, China.

**Abstract**

**OBJECTIVE:**

To observe the therapeutic effect of acupuncture on post-stroke anxiety neurosis (PSAN).

**METHODS:**

34 patients in the treatment group received acupuncture treatment. Points such as Baihui (GV 20), Shenting (GV 24), Yintang (EX-HN 3), Shuigou (GV 26), Hegu (LI 4), Taichong (LR 3), Shenmen (HT 7) and Neiguan (PC 6) were punctured and supplemented by electroacupuncture. 33 patients in the control group orally took Alprazolam. Hamilton Anxiety Scale (HAMA) was used to evaluate the severity and relief of anxiety.

**RESULTS:**

Anxiety symptoms of the patients in the treatment group were obviously relieved with a total effective rate of 82.35%, and no remarkable difference was found as compared with that of the control group ( $P > 0.05$ ).

**CONCLUSIONS:**

Acupuncture is a safe, effective and important method for treating PSAN.

## Review

11. [J Headache Pain](#). 2012 Apr;13(3):191-8. doi: 10.1007/s10194-012-0422-0. Epub 2012 Feb 26.

### Placebo and other psychological interactions in headache treatment.

[Autret A](#), [Valade D](#), [Debiais S](#).

#### Source

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#### Abstract

We present a theory according which a headache treatment acts through a specific biological effect (when it exists), a placebo effect linked to both expectancy and repetition of its administration (conditioning), and a non-specific psychological effect. The respective part of these components varies with the treatments and the clinical situations. During antiquity, suggestions and beliefs were the mainstays of headache treatment. The word placebo appeared at the beginning of the eighteenth century. Controversies about its effect came from an excessive interpretation due to methodological bias, inadequate consideration of the variation of the measure (regression to the mean) and of the natural course of the disease. Several powerful studies on placebo effect showed that the nature of the treatment, the associated announce, the patients' expectancy, and the repetition of the procedures are of paramount importance. The placebo expectancy is associated with an activation of pre-frontal, anterior cingular, accumbens, and periaqueductal grey opioidergic neurons possibly triggered by the dopaminergic meso-limbic system. In randomized control trials, several arms design could theoretically give information concerning the respective part of the different component of the outcome and control the natural course of the disease. However, for migraine and tension type headache attacks treatment, no three arm (verum, placebo, and natural course) trial is available in the literature. Indirect evidence of a placebo effect in migraine attack treatment, comes from the high amplitude of the improvement observed in the placebo arms (28% of the patients). This figure is lower (6%) when using the harder criterium of pain free at 2 h. But these data disregard the effect of the natural course. For prophylactic treatment with oral medication, the trials performed in the last decades report an improvement in 21% of the patients in the placebo arms. However, in these studies the duration of administration was limited, the control of attacks uncertain as well as the evolution of the co-morbid psycho-pathology. Considering the reviews and meta-analysis of complex prophylactic procedures, it must be concluded that their effect is mostly linked to a placebo and non-specific psychological effects. Acupuncture may have a slight specific effect on tension type headache, but not on migraine. Manual therapy studies do not exhibit difference between manipulation, mobilization, and controls; touch has no proven specific effect. A comprehensive efficacy review of biofeedback studies concludes to a small specific effect on tension type headache but not on migraine. A review of behavioral treatment conclude to an interesting mean improvement but did not demonstrated a specific effect with the exception of a four arm study including a pseudo meditation control group. Expectation-linked placebo, conditioning, and non-specific psychological effects vary according clinical situations and psychological context; likely low in RCT, high after anempathic medical contact, and at its maximum with a desired charismatic healer. The announcements of doctors strongly influence the beliefs of patients, and in consequence their pain and anxiety sensibilities; this modulates the amplitude of the placebo and the non-specific psychological effects and is therefore a major determinant of the therapeutic success. Furthermore, any repetitive contact, even through a placebo, may interfere positively with the psychopathological co-morbidity. One has to keep in mind that the non-specific psychological interactions play a major role in the improvement of the majority of the headache sufferers.

12. [CNS Neurosci Ther.](#) 2012 Apr;18(4):277-84. doi: 10.1111/j.1755-5949.2011.00254.x. Epub 2011 Jun 7.

**Acupuncture for anxiety.**

Errington-Evans N.

**Source**

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**Abstract**

This review aims to examine the volume and quality of the evidence base which supports the use of acupuncture in the treatment of anxiety disorders. A literature review was conducted using Pubmed, Google scholar, AMED, BMJ, Embase, Psychinfo, Cochrane library, Ingenta connect, and Cinahl databases. Keywords were "anxiety," "anxious," "panic," "stress," "phobia," and "acupuncture" limited to year 2000 onwards and English language where available. The quality of research examining the use of acupuncture in the treatment of anxiety disorders is extremely variable. There is enormous variety regarding points used, number of points used in a session, duration of sessions, frequency of treatment and duration of treatment programme. While the generally poor methodological quality, combined with the wide range of outcome measures used, number and variety of points, frequency of sessions, and duration of treatment makes firm conclusions difficult. Against this, the volume of literature, consistency of statistically significant results, wide range of conditions treated and use of animal test subjects suggests very real, positive outcomes using a treatment method preferred by a population of individuals who tend to be resistant to conventional medicine.

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13. [Auton Neurosci.](#) 2010 Oct 28;157(1-2):91-5. doi: 10.1016/j.autneu.2010.04.002. Epub 2010 May 6.

**Anxiety, depression and acupuncture: A review of the clinical research.**

Pilkington K.

**Source**

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**Abstract**

Depression and anxiety together constitute a significant contribution to the global burden of disease. Acupuncture is widely used for treatment of anxiety and depression and use is increasing. The theoretical basis for acupuncture diagnosis and treatment derives from traditional Chinese medicine theory. An alternative approach is used in medical acupuncture which relies more heavily on contemporary neurophysiology and conventional diagnosis. Trials in depression, anxiety disorders and short-term acute anxiety have been conducted but acupuncture interventions employed in trials vary as do the controls against which these are compared. Many trials also suffer from small sample sizes. Consequently, it has not proved possible to accurately assess the effectiveness of acupuncture for these conditions or the relative effectiveness of different treatment regimens. The results of studies showing similar effects of needling at specific and non-specific points have further complicated the interpretation of results. In addition to measuring clinical response, several clinical studies have assessed changes in levels of neurotransmitters and other biological response modifiers in an attempt to elucidate the specific biological actions of acupuncture. The findings offer some preliminary data requiring further investigation.

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14. [Auton Neurosci.](#) 2010 Jun 24;155(1-2):5-13. doi: 10.1016/j.autneu.2010.02.003. Epub 2010 Mar 20.

## **Acupuncture and heart rate variability: a systematic review.**

Lee S, Lee MS, Choi JY, Lee SW, Jeong SY, Ernst E.

### **Source**

Department of Acupuncture and Moxibustion, College of Oriental Medicine, Kyung Hee University, Seoul, South Korea.

### **Abstract**

Acupuncture has been reported to affect the autonomic system. Currently, there are no systematic reviews examining the effect of acupuncture on HRV available in the literature. Therefore, the aim of this systematic review was to summarize and critically assess the effects of acupuncture on heart rate variability. We searched the literature using 14 databases for articles published from the earliest available publications until October 2009 without language restrictions. We included randomized clinical trials (RCTs) comparing acupuncture and sham acupuncture. The risk of bias in each study was assessed using the Cochrane criteria. Twelve RCTs met all of the inclusion criteria. One RCT evaluated the effects of acupuncture in patients with minor depression or anxiety disorders and another RCT examined the effect of acupuncture on migraine patients. Another four RCTs tested the effects of acupuncture in healthy subjects who were exposed to several conditions, including mental stress, fatigue from driving, and caffeine intake. The remaining six RCTs assessed the effects of acupuncture on healthy subjects in a normal state without any stressors. Five RCTs found significant differences in HRV between patients treated with acupuncture versus those treated with sham acupuncture (controls). However, the majority of the other RCTs showed inconsistent results or did not identify significant differences in HRV spectral parameters among individuals treated with acupuncture as compared to those treated with sham acupuncture. In conclusion, sham-controlled RCTs showed variable results and no clear evidence that acupuncture has any specific effects on HRV. Therefore, more rigorous research appears to be warranted.

15. Cochrane Database Syst Rev. 2010 Jan 20;(1):CD003974. doi: 10.1002/14651858.CD003974.pub3.

## **Placebo interventions for all clinical conditions.**

Hróbjartsson A, Gøtzsche PC.

### **Source**

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### **Abstract**

#### **BACKGROUND:**

Placebo interventions are often claimed to substantially improve patient-reported and observer-reported outcomes in many clinical conditions, but most reports on effects of placebos are based on studies that have not randomised patients to placebo or no treatment. Two previous versions of this review from 2001 and 2004 found that placebo interventions in general did not have clinically important effects, but that there were possible beneficial effects on patient-reported outcomes, especially pain. Since then several relevant trials have been published.

#### **OBJECTIVES:**

Our primary aims were to assess the effect of placebo interventions in general across all clinical conditions, and to investigate the effects of placebo interventions on specific clinical conditions. Our secondary aims were to assess whether the effect of placebo treatments differed for patient-reported and observer-reported outcomes, and to explore other reasons for variations in effect.

#### **SEARCH STRATEGY:**

We searched the Cochrane Central Register of Controlled Trials (CENTRAL, The Cochrane Library Issue 4, 2007), MEDLINE (1966 to March 2008), EMBASE (1980 to March 2008), PsycINFO (1887 to March 2008) and Biological Abstracts (1986 to March 2008). We contacted experts on placebo research, and read references in the included trials.

#### **SELECTION CRITERIA:**

We included randomised placebo trials with a no-treatment control group investigating any health problem.

#### **DATA COLLECTION AND ANALYSIS:**

Two authors independently assessed trial quality and extracted data. We contacted study authors for additional information. Trials with binary data were summarised using relative risk (a value of less than 1 indicates a beneficial effect of placebo), and trials with continuous outcomes were summarised using standardised mean difference (a negative value indicates a beneficial effect of placebo).

#### **MAIN RESULTS:**

Outcome data were available in 202 out of 234 included trials, investigating 60 clinical conditions. We regarded the risk of bias as low in only 16 trials (8%), five of which had binary outcomes. In 44 studies with binary outcomes (6041 patients), there was moderate heterogeneity ( $P < 0.001$ ;  $I(2) 45\%$ ) but no clear difference in effects between small and large trials (symmetrical funnel plot). The overall pooled effect of placebo was a relative risk of 0.93 (95% confidence interval (CI) 0.88 to 0.99). The pooled relative risk for patient-reported outcomes was 0.93 (95% CI 0.86 to 1.00) and for observer-reported outcomes 0.93 (95% CI 0.85 to 1.02). We found no statistically significant effect of placebo interventions in four clinical conditions that had been investigated in three trials or more: pain, nausea, smoking, and depression, but confidence intervals were wide. The effect on pain varied considerably, even among trials with low risk of bias. In 158 trials with continuous outcomes (10,525 patients), there was moderate heterogeneity ( $P < 0.001$ ;  $I(2) 42\%$ ), and considerable variation in effects between small and large trials (asymmetrical funnel plot). It is therefore a questionable procedure to pool all the trials, and we did so mainly as a basis for exploring causes for heterogeneity. We found an overall effect of placebo treatments, standardised mean difference (SMD) -0.23 (95% CI -0.28 to -0.17). The SMD for patient-reported outcomes was -0.26 (95% CI -0.32 to -0.19), and for observer-reported outcomes, SMD -0.13 (95% CI -0.24 to -0.02). We found an effect on pain, SMD -0.28 (95% CI -0.36 to -0.19); nausea, SMD -0.25 (-0.46 to -0.04), asthma (-0.35 (-0.70 to -0.01)), and phobia (SMD -0.63 (95% CI -1.17 to -0.08)). The effect on pain was very variable, also among trials with low risk of bias. Four similarly-designed acupuncture trials conducted by an overlapping group of authors reported large effects (SMD -0.68 (-0.85 to -0.50)) whereas three other pain trials reported low or no effect (SMD -0.13 (-0.28 to 0.03)). The pooled effect on nausea was small, but consistent. The effects on phobia and asthma were very uncertain due to high risk of bias. There was no statistically significant effect of placebo interventions in the seven other clinical conditions investigated in three trials or more: smoking, dementia, depression, obesity, hypertension, insomnia and anxiety, but confidence intervals were wide. Meta-regression analyses showed that larger effects of placebo interventions were associated with physical placebo interventions (e.g. sham acupuncture), patient-involved outcomes (patient-reported outcomes and observer-reported outcomes involving patient cooperation), small trials, and trials with the explicit purpose of studying placebo. Larger effects of placebo were also found in trials that did not inform patients about the possible placebo intervention.

#### **AUTHORS' CONCLUSIONS:**

We did not find that placebo interventions have important clinical effects in general. However, in certain settings placebo interventions can influence patient-reported outcomes, especially pain and nausea, though it is difficult to distinguish patient-reported effects of placebo from biased reporting. The effect on pain varied, even among trials with low risk of bias, from negligible to clinically important. Variations in the effect of placebo were partly explained by variations in how trials were conducted and how patients were informed.

## Mechanisms of action

16. [Neurol Res](#). 2010 Feb;32 Suppl 1:111-5. doi: 10.1179/016164109X12537002794480.

### Electroacupuncture to ST36 ameliorates behavioral and biochemical responses to restraint stress in rats.

[Park HJ](#), [Kim HY](#), [Hahm DH](#), [Lee H](#), [Kim KS](#), [Shim I](#).

#### Source

Department of Integrative Medicine, College of Medicine, Catholic University of Korea, Seoul 137-701, Korea.

#### Abstract

##### **OBJECTIVES:**

Acupuncture has been used for the treatment and prevention of stress-related disorders. In the present study, the effect of electroacupuncture on the behavioral and biochemical responses to restraint stress was evaluated in rats.

##### **METHODS:**

Sprague-Dawley male rats underwent immobilization stress for 21 days (6 hours/day). Electroacupuncture (2 Hz, 2 mA and 10 minutes) was applied either to the acupuncture point ST36 (Joksamni) or the non-acupuncture point in the tail for the last 7 days. Rats were randomly divided into four groups: the normal group (n=10, without the restraint stress), the stress group (n=10, with restraint stress), the ST36 group (n=10, with restraint stress and electroacupuncture to ST36) and the non-acupuncture group (n=10, with restraint stress and electroacupuncture to the non-acupuncture point). The anxiety-related behavior was tested using the elevated plus maze and the Vogel test on day 22. The serum concentration of corticosterone was determined using an enzyme-linked immunosorbent assay kit. The expression of tyrosine hydroxylase in the locus coeruleus was measured by immunohistochemistry.

##### **RESULTS:**

Restraint stress increased the response of the anxiety-related behavior. The serum level of corticosterone and the number of tyrosine hydroxylase-immunoreactive cells were also increased. The ST36 group showed a significant decrease of anxiety-related behavioral response, compared with the stress group. The serum corticosterone level and tyrosine hydroxylase-immunoreactive expression were also decreased in the ST36 group.

##### **DISCUSSION:**

These findings suggest that electroacupuncture to ST36 might play a role in reducing the stress-related responses, which may be helpful for the treatment of stress-related disorders.

17. [Neurosci Lett](#). 2009 Aug 21;460(1):56-60. doi: 10.1016/j.neulet.2009.05.008. Epub 2009 May 7.

### The effects of acupuncture stimulation at PC6 (Neiguan) on chronic mild stress-induced biochemical and behavioral responses.

[Kim H](#), [Park HJ](#), [Han SM](#), [Hahm DH](#), [Lee HJ](#), [Kim KS](#), [Shim I](#).

#### Source

Division of Brain Disease, Center for Biomedical Science, National Institute of Health, Seoul, 122-701 Republic of Korea.

#### Abstract

In the present study, the effects of acupuncture on the behavioral and physiological responses induced by chronic mild stress (CMS) were evaluated. Sprague-Dawley rats were exposed to a variety of chronic unpredictable, mild stressors for 8 weeks. The effects of acupuncture on stress-induced anxiety and anhedonia were investigated using the elevated plus maze (EPM) and sucrose intake test. In addition, c-fos expression, as an early neuronal marker in the brain was also examined utilizing Fos-like immunohistochemistry (FLI). CMS rats significantly reduced the

consumption of sucrose intake and latency in the open arms of the EPM, and gained body weight more slowly, compared to non-stressed normal rats. Exposure to CMS also significantly increased FLI in the paraventricular nucleus (PVN) of the hypothalamus. Acupuncture stimulation at point PC6 on the pericardium channels (3 min), but not at other point (TE5), restored stress-induced decrease in the latency in the open arms and significantly attenuated FLI in the PVN produced by CMS. Acupuncture stimulation also tended to restore stress-induced decrease in the sucrose intake. The present results demonstrated that acupuncture was effective in restoring CMS-related biochemical and behavioral impairments such as anxiety and anhedonia and that acupuncture point was more effective than non-acupuncture point. These results suggest that acupuncture has a therapeutic effect on chronic stress-related diseases such as depression and anxiety.

## Depression Clinical trial

18. [Sleep](#). 2011 Jun 1;34(6):807-15. doi: 10.5665/SLEEP.1056.

### Electroacupuncture for residual insomnia associated with major depressive disorder: a randomized controlled trial.

[Yeung WF](#), [Chung KF](#), [Tso KC](#), [Zhang SP](#), [Zhang ZJ](#), [Ho LM](#).

#### Source

Department of Psychiatry, University of Hong Kong, Hong Kong SAR, China.

#### Abstract

##### **STUDY OBJECTIVES:**

To evaluate the efficacy and safety of electroacupuncture as an additional treatment for residual insomnia associated with major depressive disorder (MDD).

##### **DESIGN:**

Randomized, placebo-controlled.

##### **SETTING:**

A psychiatric outpatient clinic.

##### **PARTICIPANTS:**

78 Chinese patients with DSM-IV-diagnosed MDD, insomnia complaint, a Hamilton Rating Scale for Depression (HDRS(17)) score  $\leq 18$ , and fixed antidepressant dosage.

##### **INTERVENTION:**

Electroacupuncture, minimal acupuncture (superficial needling at non-acupuncture points), or noninvasive placebo acupuncture 3 sessions weekly for 3 weeks.

##### **MEASUREMENTS AND RESULTS:**

Insomnia Severity Index (ISI), Pittsburgh Sleep Quality Index (PSQI), HDRS(17), 1 week sleep diaries, and 3 day actigraphy were administered at baseline, 1 week post-treatment, and 4 week post-treatment. There was significant group by time interaction in ISI, PSQI, and sleep diary-derived sleep efficiency (mixed-effects models,  $P = 0.04$ ,  $P = 0.03$ , and  $P = 0.01$ , respectively). Post hoc pairwise comparisons revealed that electroacupuncture and minimal acupuncture were more efficacious than placebo acupuncture in ISI and PSQI at 1 week and 4 week post-treatment. Minimal acupuncture resulted in greater improvement in sleep diary-derived sleep efficiency than placebo acupuncture at 1 week post-treatment. There was no significant between-group difference in actigraphy measures, depressive symptoms, daily functioning, and hypnotic consumption, and no difference in any measures between electroacupuncture and minimal acupuncture.

##### **CONCLUSION:**

Compared with placebo acupuncture, electroacupuncture and minimal acupuncture resulted in greater improvement in subjective sleep measures at 1 week and 4 week post-treatment. No significant difference was found between electroacupuncture and minimal acupuncture, suggesting that the observed differences could be due to nonspecific effects of needling, regardless of whether it is done according to traditional Chinese medicine theory.

##### **KEYWORDS:**

Acupuncture, electroacupuncture, insomnia, major depressive disorder, randomized controlled trial, residual insomnia

## Review

19. [Syst Rev.](#) 2012 Oct 15;1:46. doi: 10.1186/2046-4053-1-46.

### **The effectiveness of acupuncture research across components of the trauma spectrum response (tsr): a systematic review of reviews.**

[Lee C](#), [Crawford C](#), [Wallerstedt D](#), [York A](#), [Duncan A](#), [Smith J](#), [Sprenkel M](#), [Welton R](#), [Jonas W](#).

#### **Source**

Samueli Institute, 1737 King Street, Suite 600, Alexandria, VA, USA. [clee@SamueliInstitute.org](mailto:clee@SamueliInstitute.org)

#### **Abstract**

##### **BACKGROUND:**

Co-morbid symptoms (for example, chronic pain, depression, anxiety, and fatigue) are particularly common in military fighters returning from the current conflicts, who have experienced physical and/or psychological trauma. These overlapping conditions cut across the boundaries of mind, brain and body, resulting in a common symptomatic and functional spectrum of physical, cognitive, psychological and behavioral effects referred to as the 'Trauma Spectrum Response' (TSR).

While acupuncture has been shown to treat some of these components effectively, the current literature is often difficult to interpret, inconsistent or of variable quality. Thus, to gauge comprehensively the effectiveness of acupuncture across TSR components, a systematic review of reviews was conducted using the Samueli Institute's Rapid Evidence Assessment of the Literature (REAL©) methodology.

##### **METHODS:**

PubMed/MEDLINE, the Cochrane Database of Systematic Reviews, EMBASE, CINAHL, and PsycInfo were searched from inception to September 2011 for systematic reviews/meta-analyses. Quality assessment was rigorously performed using the Scottish Intercollegiate Guidelines Network (SIGN 50) checklist and the Grading of Recommendations, Assessment, Development and Evaluation (GRADE) methodology. Adherence to the Standards for Reporting Interventions in Clinical Trials in Acupuncture (STRICTA) criteria was also assessed.

##### **RESULTS:**

Of the 1,480 citations identified by our searches, 52 systematic reviews/meta-analyses, all high quality except for one, met inclusion criteria for each TSR component except post-traumatic stress disorder (PTSD) and sexual function. The majority of reviews addressed most STRICTA components, but did not describe safety.

##### **CONCLUSIONS:**

Based on the results of our review, acupuncture appears to be effective for treating headaches and, although more research is needed, seems to be a promising treatment option for anxiety, sleep disturbances, depression and chronic pain. It does not, however, demonstrate any substantial treatment benefit for substance abuse. Because there were no reviews on PTSD or sexual function that met our pre-defined inclusion criteria, we cannot comment on acupuncture's effectiveness in treating these conditions. More quality data are also needed to determine whether acupuncture is appropriate for treating fatigue or cognitive difficulties. Further, while acupuncture has been shown to be generally safe, safety was not described in the majority of studies, making it difficult to provide any strong recommendations. Future research should address safety reporting in detail in order to increase our confidence in acupuncture's efficacy across the identified TSR components.

20. [CNS Neurosci Ther.](#) 2011 Oct;17(5):398-410. doi: 10.1111/j.1755-5949.2010.00159.x.

Epub 2010 Nov 21.

### **Acupuncture for depression: a critique of the evidence base.**

[Schroer S](#), [Adamson J](#).

#### **Source**

Health Sciences Department, ARRC Building, University of York, Heslington, York, UK.

## Abstract

### AIM:

The aim of this review is to examine the evidence for acupuncture's effectiveness as a depression intervention. Unlike other reviews, which consider methodological concerns relevant to all experimental evaluations, this review focuses on the scope of studies, and uses a PICO (patients, intervention, comparison, and outcome) structure to determine what can potentially be learned from primary studies that have already been screened for methodological quality by reviewers.

### DISCUSSION:

The review identified a number of study limitations. (i) Patients: majority of trial reports have not described a rationale for the selection of patients or inclusion/exclusion criteria. Prognostic indicators were not reported and there were also concerns about the generalizability of study populations. (ii) Intervention: most trials investigate poorly rationalized standardized acupuncture protocols thus quality of care may be an issue and generalizability to routine clinical practice is a main concern. In trials using other methods generalizability is also poor. (iii) Comparisons: concerns were raised about using therapeutically inappropriate acupuncture. (iv) Outcomes: short-term focus and the narrow range of outcomes explored. According to more recent systematic review evidence it is probable the shortcomings identified in the PICO review have not been addressed by subsequent research. The concept of model validity, proposed by other researchers, is discussed, and suggestions put forward about complex intervention evaluation methods, which may be better suited to evaluating acupuncture care.

### CONCLUSION:

Uncertainty remains about the value of acupuncture care, as it is routinely practiced in the West, and this uncertainty has not been resolved by trials to date. Existing evaluations may however be useful for guiding decisions about the value of specific techniques for patients with depression.

21. [Auton Neurosci](#). 2010 Oct 28;157(1-2):91-5. doi: 10.1016/j.autneu.2010.04.002. Epub 2010 May 6.

### Anxiety, depression and acupuncture: A review of the clinical research. Pilkington K.

#### Source

School of Life Sciences, University of Westminster, 115 New Cavendish Street, London, W1W 6UW, UK. k.pilkington@westminster.ac.uk

#### Abstract

Depression and anxiety together constitute a significant contribution to the global burden of disease. Acupuncture is widely used for treatment of anxiety and depression and use is increasing. The theoretical basis for acupuncture diagnosis and treatment derives from traditional Chinese medicine theory. An alternative approach is used in medical acupuncture which relies more heavily on contemporary neurophysiology and conventional diagnosis. Trials in depression, anxiety disorders and short-term acute anxiety have been conducted but acupuncture interventions employed in trials vary as do the controls against which these are compared. Many trials also suffer from small sample sizes. Consequently, it has not proved possible to accurately assess the effectiveness of acupuncture for these conditions or the relative effectiveness of different treatment regimens. The results of studies showing similar effects of needling at specific and non-specific points have further complicated the interpretation of results. In addition to measuring clinical response, several clinical studies have assessed changes in levels of neurotransmitters and other biological response modifiers in an attempt to elucidate the specific biological actions of acupuncture. The findings offer some preliminary data requiring further investigation.

□

## Addiction

22. [J Subst Abuse Treat.](#) 2009 Apr;36(3):345-9. doi: 10.1016/j.jsat.2008.08.002. Epub 2008 Nov 12.

### **Auricular acupuncture as an adjunct to opiate detoxification treatment: effects on withdrawal symptoms.**

[Bearn J](#), [Swami A](#), [Stewart D](#), [Atnas C](#), [Giotto L](#), [Gossop M](#).

#### **Source**

Wickham Park House (Drug Dependence Unit), Bethlem Royal Hospital, South London and Maudsley NHS Foundation Trust, UK. [jenny.bearn@slam.nhs.uk](mailto:jenny.bearn@slam.nhs.uk)

#### **Abstract**

It was hypothesized that auricular acupuncture would lead to reduced severity of opiate withdrawal symptoms and craving when provided as an adjunct to methadone detoxification. The study used a randomized, placebo-controlled study design. The sample consisted of 83 drug misusers who met Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition criteria for opiate dependence. Daily measures of withdrawal severity and craving were taken using the Short Opiate Withdrawal Scale and an eight-item craving questionnaire. Urine screening was used as an objective assessment of treatment adherence. The study hypothesis was not confirmed.

Auricular acupuncture had no effect upon withdrawal severity or craving when provided as an adjunct to a standard methadone detoxification treatment. The results are consistent with the findings of other studies that failed to find any effect of acupuncture in the treatment of drug dependence. The failure to find any clinical gains from the adjunctive use of auricular acupuncture during detoxification from opiates raises concerns about the widespread acceptance of this intervention.

## Review

23. [Alcohol Alcohol](#). 2012 Sep-Oct;47(5):563-70. doi: 10.1093/alcalc/ags066. Epub 2012 Jun 7.

### Treatments for alcohol-related disorders in China: a developing story.

[Tang YL](#), [Hao W](#), [Leggio L](#).

#### Source

Department of Psychiatry and Behavioral Sciences, Emory University School of Medicine, 2004 Ridgewood Drive, Suite 218, Atlanta, GA 30322, USA. ytang5@emory.edu

#### Abstract

##### AIMS:

Alcohol-related disorders (ARDs) have become an increasing mental health and social challenge in China. Research from China may provide important clinical information for researchers and clinicians around the world. However, most of the Chinese research on ARDs has only been published in Chinese language journals. This article summarizes publications related to treatments for ARDs found in the Chinese literature.

##### METHODS:

A descriptive study based on literature identified from searches of the China National Knowledge Infrastructure (1979-2012), Pubmed databases and hand-picked references with emphasis on traditional Chinese medicine (TCM).

##### RESULTS:

More than 1500 Chinese language papers on treatment for ARDs were found and ~110 were selected. Many medications used in the Western countries (e.g. disulfiram and acamprosate) are not available in China, and no drugs have been officially approved for alcohol dependence. TCM approaches (including acupuncture, electroacupuncture and herbals) have played a role in treatment for ARDs with some positive results. These unique methods are reviewed and the need for additional controlled studies is noted.

##### CONCLUSION:

Currently, very limited facilities, medications or programs are available for patients with ARDs in China, thus much improvement is needed in the field, including setting up intervention/treatment programs.

24. [Alcohol ClinExp Res](#). 2009 Aug;33(8):1305-13. doi: 10.1111/j.1530-0277.2009.00959.x.

Epub 2009 Apr 30.

### Acupuncture for alcohol dependence: a systematic review.

[Cho SH](#), [Whang WW](#).

#### Source

Department of Neuropsychiatry, Hospital of Korean Medicine, Kyung Hee University Medical Center, Seoul, Korea. chosh@khu.ac.kr

#### Abstract

##### BACKGROUND:

Acupuncture has been used in the treatment of substance-related disorders for the past 30 years. However, a systematic review to assess the effect of various types of acupuncture for alcohol dependence has not yet been performed. The present systematic review assessed the results of randomized controlled trials (RCTs).

##### METHODS:

Nineteen electronic databases, including English, Korean, Japanese, and Chinese databases, were systematically searched for RCTs of acupuncture for alcohol dependence up to June 2008 with no language restrictions. The methodological qualities of eligible studies were assessed using the criteria described in the Cochrane Handbook.

##### RESULTS:

Eleven studies, which comprised a total of 1,110 individual cases, were systematically reviewed. Only 2 of 11 trials reported satisfactorily all quality criteria. Four trials comparing acupuncture treatment and sham treatments reported data for alcohol craving. Three studies reported that there were no significant differences. Among 4 trials comparing acupuncture and no acupuncture with conventional therapies, 3 reported significant reductions. No differences between acupuncture and sham treatments were found for completion rates (Risk Ratio = 1.07, 95% confidence interval, CI = 0.91 to 1.25) or acupuncture and no acupuncture (Risk Ratio = 1.15, 95% CI = 0.79 to 1.67). Only 3 RCTs reported acupuncture-related adverse events, which were mostly minimal.

#### **CONCLUSIONS:**

The results of the included studies were equivocal, and the poor methodological quality and the limited number of the trials do not allow any conclusion about the efficacy of acupuncture for treatment of alcohol dependence. More research and well-designed, rigorous, and large clinical trials are necessary to address these issues.

25. [Neurochem Res.](#) 2008 Oct;33(10):2013-22. doi: 10.1007/s11064-008-9784-8. Epub 2008 Jul 10.

#### **Acupuncture for the treatment of drug addiction.**

[Cui CL](#), [Wu LZ](#), [Luo F](#).

#### **Source**

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#### **Abstract**

Over the last three decades there has been an increasing interest in acupuncture treatment of substance abuse around the world. Three important steps can be identified in this field. Dr. Wen of Hong Kong was the first (1972) to report that acupuncture at 4 body points and 2 ear points combined with electrical stimulation can relieve opioid withdrawal signs in the addicts. The second major step was made by Dr. M. Smith in New York, the head of the National Acupuncture Detoxification Association (NADA) of the USA, who finalized a protocol (1985), using only ear points without electrical stimulation for the treatment of drug abuse. The recent advance in this field was made by Dr. Han of the Peking University, Beijing, who characterized a protocol (2005), using electrical stimulation of identified frequencies on body points to ameliorate heroin withdrawal signs and prevent relapse of heroin use. In this review, the efficacy of acupuncture and related techniques for the treatment of drug dependence in experimental settings and clinical practice will be reviewed, and the possible mechanisms underlying this effect be discussed.

## Mechanism of action

26. [Neurosci Lett](#). 2012 Oct 31;529(1):23-7. doi: 10.1016/j.neulet.2012.09.020. Epub 2012 Sep 17.

### Acupuncture at SI5 attenuates morphine seeking behavior after extinction.

[Lee BH](#), [Ma JH](#), [In S](#), [Kim HY](#), [Yoon SS](#), [Jang EY](#), [Yang CH](#).

#### Source

Department of Acupuncture, Moxibustion and Acupoint, College of Oriental Medicine, Daegu Haany University, Daegu 706-828, South Korea. dlqhdgy@dhu.ac.kr

#### Abstract

Our previous studies have shown that acupuncture attenuates morphine self-administration and sensitization behavior as well as withdrawal signs. The present study was designed to investigate the role of acupuncture in the reinstatement of morphine seeking. Male Sprague-Dawley rats weighing 270-300 g were subjected to intravenous catheterization after food training. The animals were trained to self-administer morphine (1.0mg/kg, 3 weeks), followed by extinction (1 week). Extinction conditions were introduced by substituting saline for morphine. The rats were then tested for reinstatement of morphine self-administration by a priming injection of morphine (0.25mg/kg). To see whether acupuncture can reduce morphine reinstatement, acupuncture was performed at SI5 or LI5 for 1 min immediately before a morphine injection. To further test the involvement of gamma aminobutyric acid (GABA) receptors in acupuncture effects, GABA receptor antagonists were injected before acupuncture. In the present results, acupuncture at SI5, but not at control acupoint LI5 attenuated the reinstatement of morphine seeking behavior, which was blocked by the GABA receptor antagonists. It suggests that acupuncture can reduce the reinstatement of morphine seeking, possibly due to the mediation of GABA receptor system. Copyright © 2012 Elsevier Ireland Ltd. All rights reserved.

27. [Neurosci Lett](#). 2011 Oct 31;504(3):301-5. doi: 10.1016/j.neulet.2011.09.052. Epub 2011 Oct 1.

### Effect of acupuncture on naloxone-precipitated withdrawal syndrome in morphine-experienced rats: the mediation of GABA receptors.

[Lee JH](#), [Kim HY](#), [Jang EY](#), [Choi SH](#), [Han CH](#), [Lee BH](#), [Yang CH](#).

#### Source

College of Oriental Medicine, Daegu Hanny University, Daegu 706-828, South Korea.

#### Abstract

Repeated morphine administration increases extracellular dopamine levels in the nucleus accumbens, which results in behavioral sensitization that can be suppressed by acupuncture at Shenmen (HT7) points. The present study was conducted to investigate the effects of acupuncture at HT7 on morphine withdrawal syndrome as well as to explore the role of GABA receptors in mediating the effects of HT7 acupuncture. We induced morphine withdrawal by injecting naloxone to rats that self-administer morphine and evaluated the effects of acupuncture and/or GABA receptor antagonists on their withdrawal symptoms. Acupuncture at HT7, but not at the control point LI5, significantly decreased symptoms of morphine withdrawal. HT7 inhibition of the withdrawal syndrome was blocked by pretreatment with either the GABA(A) receptor antagonist bicuculline or the GABA(B) antagonist SCH 50911. These findings suggest that the effects of acupuncture on suppression of morphine withdrawal syndrome are mediated, at least in part, through GABA receptors.

## Schizophrenia Review

28. [Int J ClinPract.](#) 2009 Nov;63(11):1622-33. doi: 10.1111/j.1742-1241.2009.02167.x.

### Acupuncture for schizophrenia: a systematic review and meta-analysis.

[Lee MS](#), [Shin BC](#), [Ronan P](#), [Ernst E](#).

#### Source

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#### Abstract

##### **BACKGROUND:**

Acupuncture is one of the most popular types of complementary/alternative medicine. It is sometimes used as a treatment for schizophrenia.

##### **AIMS:**

The objective of this review is to assess systematically the clinical evidence for or against acupuncture as a treatment for schizophrenia.

##### **METHODS:**

We searched 20 databases from their inception to May 2009 without language restrictions. All randomised clinical trials (RCTs) of acupuncture, with or without electrical stimulation or moxibustion for patients with schizophrenia were considered for inclusion.

##### **RESULTS:**

Thirteen RCTs, all originating from China, met the inclusion criteria. One RCT reported significant effects of electroacupuncture (EA) plus drug therapy for improving auditory hallucinations and positive symptom compared with sham EA plus drug therapy. Four RCTs showed significant effects of acupuncture for response rate compared with antipsychotic drugs [n = 360, relative risk (RR): 1.18, 95% confidence interval (CI): 1.03-1.34, p = 0.01; heterogeneity: tau(2) = 0.00, chi(2) = 2.98, p = 0.39, I(2) = 0%]. Seven RCTs showed significant effects of acupuncture plus antipsychotic drug therapy for response rate compared with antipsychotic drug therapy (n = 457, RR: 1.15, 95% CI: 1.04-1.28, p = 0.008, heterogeneity: tau(2) = 0.00, chi(2) = 6.56, p = 0.36, I(2) = 9%). Two RCTs tested laser acupuncture against sham laser acupuncture. One RCT found beneficial effects of laser acupuncture on hallucination and the other RCT showed significant effects of laser acupuncture on response rate, Brief Psychiatric Rating Scale and clinical global index compared with sham laser. The methodological quality was generally poor and there was not a single high quality trial.

##### **CONCLUSION:**

These results provide limited evidence for the effectiveness of acupuncture in treating the symptoms of schizophrenia. However, the total number of RCTs, the total sample size and the methodological quality were too low to draw firm conclusions. As all studies originated from China, international studies are needed to test whether there is any effect.