

# ACUPUNCTURE AND DEPRESSION

## About depression

Depression is a common mental health problem that affects people of all genders, ages, and backgrounds. About two thirds of adults will at some time experience depression severe enough to interfere with their normal activities (Mintel/YouGov, 2006, Stewart et al, 2004). Women are twice as likely as men to become depressed (Stewart et al, 2004) partly due to hormone changes occurring pre-menstrually, at menopause, during pregnancy or after childbirth. Depression is estimated to cost the UK £7.5 billion a year in medication, benefits and lost working days (McCrone et al, 2008). The World Health Organization predicts that by 2020 depression will be second only to chronic heart disease as an international health burden (WHO, 2008).

Although everyone occasionally experiences low mood, these feelings usually pass after a couple of days. When a person has clinical depression, these problems can become chronic or recurrent, interfering with daily life. Depression causes symptoms such as low mood, loss of interest in enjoyable activities, anxiety, irritability low self-esteem, disturbed sleep or appetite, weight change, tiredness, lack of motivation, concentration or libido, physical pain, and suicidal thoughts.

Depression is likely to result from a combination of genetic, biochemical, environmental, and psychological factors. It may be triggered by stressful events, such as bereavement, illness, relationship problems or financial difficulties.

## References

- Mintel/YouGov. Depression poll commissioned by the British Association for Counselling and Psychotherapy. 2006 Apr.
- Stewart DE, Gucciardi E, Grace SL; Depression. BMC Women's Health. 2004 Aug 25;4 Suppl 1:S19.
- McCrone P, Dhanasiri S, Patel A, Knapp M, Lawton-Smith S. Paying the Price: The cost of mental health care in England to 2026. The King's Fund, May 2008, ISBN 978 1 85717 571 4.
- World Health Organization. 2008. [http://www.who.int/mental\\_health/management/depression/definition/en/](http://www.who.int/mental_health/management/depression/definition/en/)

## How acupuncture can help

Most research on acupuncture for depression has been carried out in China with Western drugs as comparators. Two recent systematic reviews, both drawing on Western and Chinese data, found that acupuncture was similar in effectiveness to

anti-depressant medication and not significantly better than sham acupuncture or waiting list controls. However, they reached very different conclusions, one recommending acupuncture (Zhang 2010) and one stating that the evidence was insufficient (Smith 2010). Major issues to consider in respect of the research evidence are a) how trustworthy are Chinese studies (Ernst 2010), b) how valid are sham controlled trials (Schroer 2010), and c) how relevant to normal practice is the acupuncture provided in trials (Schroer 2010). Notions about acupuncture's placebo properties (Ernst 2010) can only be speculative, and with little relevance to decisions about patient benefit. Given that acupuncture appears to be at least as effective as existing conventional drugs, without their level of side effects, it should be considered as one of the therapeutic options, alongside the existing repertoire. Two specific situations, during pregnancy (Manber 2010) and post-stroke (Zhang 2010; Smith 2010), seem to be particularly favourable for incorporating acupuncture treatment. (See table overleaf)

In general, acupuncture is believed to stimulate the nervous system and cause the release of neurochemical messenger molecules. The resulting biochemical changes influence the body's homeostatic mechanisms, thus promoting physical and emotional wellbeing.

Studies indicate that acupuncture can have a specific positive effect on depression by altering the brain's mood chemistry, increasing production of serotonin (Sprott 1998) and endorphins (Wang 2010). Acupuncture may also benefit depression by acting through other neurochemical pathways, including those involving dopamine (Scott 1997), noradrenaline (Han 1986), cortisol (Han 2004) and neuropeptide Y (Pohl 2002).

Stimulation of certain acupuncture points has been shown to affect areas of the brain that are known to reduce sensitivity to pain and stress, as well as promoting relaxation and deactivating the analytical brain which is responsible for anxiety and worry (Hui 2010). Stress-induced changes in behaviour and biochemistry may be reversed (Kim 2009).

Some of the most recent research suggests that depression is associated with dysfunction in the way that parts of the resting brain interact with each other (Broyd 2008); acupuncture has been shown to be capable of changing the default mode network (Dhond 2007), but the effect goes beyond that of expectation/placebo (Hui 2010).

Acupuncture can be safely combined with conventional medical treatments such as anti-depressants, helping to reduce their side effects and enhance their beneficial effects (Zhang 2007).

Acupuncture treatment can also help resolve physical ailments such as chronic pain (Zhao 2008), which may be a contributing cause of depression. In addition to offering acupuncture and related therapies, acupuncturists will often make suggestions as to dietary and other lifestyle changes that may be helpful in overcoming depression. Finally, people struggling to cope with depression usually find that coming to see a supportive therapist on a regular basis is helpful in itself.

## About traditional acupuncture

Acupuncture is a tried and tested system of traditional medicine, which has been used in China and other eastern cultures for thousands of years to restore, promote and maintain good health. Its benefits are now widely acknowledged all over the world and in the past decade traditional acupuncture has begun to feature more prominently in mainstream healthcare in the UK.

Traditional acupuncture takes a holistic approach to health and regards illness as a sign that the body is out of balance. The exact pattern and degree of imbalance is unique to each individual. The traditional acupuncturist's skill lies in identifying the precise nature of the underlying disharmony and selecting the most effective treatment.

The World Health Organisation (WHO) recognises that acupuncture can help resolve specific symptoms or conditions. Traditional acupuncture can also be used as a preventive measure to strengthen the constitution and promote general wellbeing

## About the British Acupuncture Council

With over 3000 members, the British Acupuncture Council (BAcC) is the UK's largest professional body for traditional acupuncturists. Membership of the BAcC guarantees excellence in training, safe practice and professional conduct. To find a qualified traditional acupuncturist, contact the BAcC on 020 8735 0400 or visit [www.acupuncture.org.uk](http://www.acupuncture.org.uk)

# ACUPUNCTURE AND DEPRESSION

## The evidence

Research	Conclusion
<b>Reviews</b>	
Ernst E, Lee MS, Choi TY Acupuncture for Depression? A Systematic Review of Systematic Reviews. Eval Health Prof. 2010 Dec 7. [Epub ahead of print]	A critical evaluation of eight systematic reviews (71 primary studies) Five had positive conclusions (all from China) and three did not Given the perceived unreliability of Chinese studies <u>they conclude that the effectiveness of acupuncture for depression remains unproven and that it may act largely as a placebo</u>
Schroer S, Adamson J. Acupuncture for Depression: A Critique of the Evidence Base. CNS Neurosci Ther. 2010 Nov 21[Epub ahead of print]	This review identified a number of limitations in existing studies of acupuncture for depression. (i) Patients: often no rationale for patient selection procedures. Concerns about the generalisability of study populations. (ii) Intervention: poor quality acupuncture, not generalisable to routine clinical practice (iii) Comparisons: concerns about therapeutically inappropriate sham acupuncture. (iv) Outcomes: short-term, narrow range. Other methods may be better suited to evaluating acupuncture care. <u>Uncertainty remains about the value of acupuncture care, as routinely practiced in the West, and this has not been resolved by trials to date.</u>
Zhang Z-J et al. The effectiveness and safety of acupuncture therapy in depressive disorders: Systematic review and meta-analysis. Journal of Affective Disorders. 2010;124 (1-2) (pp 9-21)	Systematic review with meta-analysis of acupuncture for various depressive conditions, particularly major depressive disorder (MDD) and post-stroke depression (PSD). Twenty higher quality RCTs of MDD (n = 1998) and 15 of PSD (n = 1680) were included. The efficacy of acupuncture alone for MDD was comparable to antidepressants, but not different from sham acupuncture. Acupuncture plus antidepressants did not yield better outcomes than antidepressants alone. For PSD, acupuncture was superior to antidepressants and waitlist controls in both response and symptom severity. Acupuncture-related adverse events were significantly lower than with antidepressants. <u>Conclusions: Acupuncture therapy is safe and effective in treating MDD and PSD and could be considered an alternative option for the two disorders.</u>
Smith C.A. et al. Acupuncture for depression. Cochrane database of systematic reviews (Online). (1) (pp CD004046), 2010.	30 randomised trials (2,812 participants) from Western and Chinese databases were meta-analysed. Acupuncture showed no consistent benefit over a wait list or sham acupuncture control. Most trials compared acupuncture with medication and found no effect between groups; two showed an additive benefit over and above drugs alone. For a subgroup with post-stroke depression acupuncture was superior to SSRIs (RR 1.66, 95%CI 1.03, 2.68). <u>Conclusion: there is insufficient evidence to recommend the use of acupuncture for people with depression. The results are limited by the high risk of bias in the majority of trials</u>
Wang H, Qi H, Wang BS, Cui YY, Zhu L, Rong ZX, Chen HZ. Is acupuncture beneficial in depression: A meta-analysis of 8 randomized controlled trials? J Affect Disord. 2008 Dec;111(2-3):125-34.	Meta-analysis which looked at the most recent clinical studies of acupuncture in the treatment of depression. It analysed the pooled results of eight small randomized controlled trials, comprising a total of 477 subjects and <u>concluded; %acupuncture was an effective treatment that could significantly reduce the severity of disease in the patients with depression+</u>
Leo RJ, Ligot JS Jr. A systematic	Systematic review and meta analysis of acupuncture as a

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review of randomized controlled trials of acupuncture in the treatment of depression. *J Affect Disord.* 2007 Jan;97(1-3):13-22.

treatment of depression, which analysed the pooled results of nine small randomised controlled trials. Found that; %acupuncture modalities were as effective as antidepressants employed for treatment of depression+.

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### Clinical studies

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Manber R et al. Acupuncture for depression during pregnancy: a randomized controlled trial. *Obstetrics and Gynecology.* 2010; 115(3):511-520.

Randomized controlled study of acupuncture for depression during pregnancy, involving 150 women. Eight weeks of acupuncture at points specifically chosen to treat depression was significantly more effective than either non-specific acupuncture or the average of both control groups (the 2<sup>nd</sup> was massage). The response rates were 63% for specific acupuncture, 37.5% sham acupuncture and 50% massage. They concluded that a short acupuncture protocol demonstrated symptom reduction and a response rate comparable to those of standard depression treatments, and hence could be a viable treatment option.

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Xie YC, Li YH. [Observation on therapeutic effect of acupuncture at Zhongwan (CV 12) and Si-guan points combined with reinforcing-reducing manipulation of respiration for treatment of depression]. [Chinese] *Zhongguo Zhenjiu.*2009; 29(7):521-4

One hundred and twenty cases were randomly divided into an acupuncture group and a western medicine group (oral Fluoxetine, 20 mg per day). Treatments lasted for 8 weeks and the main outcomes were the Hamilton Depression Scale (HAMD) and the Treatment Emergent Symptom Scale (TESS) for adverse effects. Response rates were 95% for acupuncture and 92% for medication (no significant difference between them). Likewise HAMD scores improved substantially but similarly for both. There was a significant difference between two groups in TESS score ( $P < 0.01$ ): almost no adverse reaction with acupuncture but nausea, anorexia, diarrhoea and other symptoms with medication. They concluded that acupuncture can significantly improve symptoms of depression patients with a similar therapeutic effect to Fluoxetine, but without the adverse reactions.

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Fu WB, Fan L, Zhu XP, He Q, Wang L, Zhuang LX, Liu YS, Tang CZ, Li YW, Meng CR, Zhang HL, Yan J. Acupuncture for treatment of depressive neurosis: a multi-center randomized controlled study. *Zhongguo Zhen Jiu.* 2008 Jan;28(1):3-6.

Multi-centre randomized controlled study of acupuncture for depression, involving 440 cases. Found the therapeutic effect of acupuncture on depression to be similar to or better than that of Prozac, with fewer side effects.

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Zhang GJ, Shi ZY, Liu S, Gong SH, Liu JQ, Liu JS. Clinical observation on treatment of depression by electro-acupuncture combined with Paroxetine. *Chin J Integr Med.* 2007 Sep;13(3):228-30.

Randomized controlled trial involving 42 patients. Found that acupuncture combined with anti-depressant medication was more effective in treating depression than anti-depressants alone. Patients on the combined treatment also improved more quickly and experienced fewer side effects than those who only took medication.

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Allen JJ et al. Acupuncture for depression: a randomized controlled trial. *J Clin Psychiatry.* 2006 Nov;67(11):1665-73.

Randomized controlled trial of acupuncture for major depression in 151 women. Eight weeks of depression-specific acupuncture led to a significantly greater reduction in depression than being on a waiting list but it was not superior to non-specific acupuncture. Concluded that the results do not support the efficacy of acupuncture as a monotherapy, though the manner of delivering blinded specific and non-specific acupuncture may limit the generalisability of the trial.

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Röschke J, Wolf C, Müller MJ, Wagner P, Mann K, Grözinger M, Bech S. The benefit from whole body acupuncture in major depression. *J Affect Disord.* 2000 Jan-Mar;57(1-3):73-81.

Randomized controlled study of acupuncture used in conjunction with antidepressants to treat depression, involving 70 patients. Concluded that acupuncture plus antidepressants improved the course of depression more than medication alone.

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Eich H, Agelink MW, Lehmann E, Lemmer W, Klieser E. Acupuncture

Randomized controlled trial of acupuncture treatment in 43 patients with minor depression. Results indicated that,

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in patients with minor depressive episodes and generalized anxiety. Results of an experimental study. *Fortschr Neurol Psychiatr.* 2000 Mar;68(3):137-44.

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compared with placebo treatment, acupuncture leads to a significant clinical improvement in depression as well as a marked reduction in anxiety symptoms.

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### **Physiology studies (human and animal)**

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Hui KK et al. Acupuncture, the limbic system, and the anticorrelated networks of the brain. *Auton Neurosci.* 2010 Oct 28;157(1-2):81-90.

Studies have shown that acupuncture stimulation, when associated with sensations comprising deqi, evokes deactivation of a limbic-paralimbic-neocortical network, as well as activation of somatosensory brain regions. These networks closely match the default mode network and the anti-correlated task-positive network. The effect of acupuncture on the brain is integrated at multiple levels, down to the brainstem and cerebellum and appears to go beyond either simple placebo or somatosensory needling effects. Needling needs to be done carefully, as very strong or painful sensations can attenuate or even reverse the desired effects. Their results suggest that acupuncture mobilizes the functionally anti-correlated networks of the brain to mediate its actions, and that the effect is dependent on the psychophysical response. They discuss potential clinical application to disease states including chronic pain, major depression, schizophrenia, autism, and Alzheimer's disease.

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Wang XJ, Wang LL. [A mechanism of endogenous opioid peptides for rapid onset of acupuncture effect in treatment of depression.] *Zhong Xi Yi Jie He Xue Bao.* 2010 Nov 15;8(11):1014-1017.

Clinical and experimental studies show that the onset of effect of acupuncture on depression is more rapid than SSRI antidepressants. The onset time for both depression and various pains is a week or so, and the main pathway in both is through endogenous opioids.

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Kim H et al. The effects of acupuncture stimulation at PC6 (Neiguan) on chronic mild stress-induced biochemical and behavioral responses. *Neuroscience Letters.* 2009; 460 (1) (pp 56-60)

The effects of acupuncture on the behavioral responses induced by chronic mild stress (CMS) were evaluated in rats by using a maze and a sucrose intake test. C-fos expression in the brain was examined by immunohistochemistry. Acupuncture stimulation at point P6 (3 min) (but not at point SJ5) reversed stress-induced behavioural changes and significantly attenuated c-fos expression in the hypothalamus, suggesting that acupuncture has a therapeutic effect on chronic stress-related diseases such as depression and anxiety.

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Broyd SJ et al. Default-mode brain dysfunction in mental disorders: A systematic review. *Neurosci Biobehav Rev.* 2008 Sep 9.

Systematic review of the role of the default mode network in the pathophysiology of mental disorders including anxiety and depression.

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Dhond RP, Yeh C, Park K, Kettner N, Napadow V. Acupuncture modulates resting state connectivity in default and sensorimotor brain networks. *Pain.* 2008 Jun;136(3):407-18.

Experimental fMRI study of brain activity before and after acupuncture. Found that verum acupuncture had a persistent effect on the connectivity of different brain areas during its resting-state. Acupuncture increased the extent of regions of the brain active at rest (the default mode network) to include areas involved with pain, emotion and memory.

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Zhao ZQ, Neural mechanism underlying acupuncture analgesia. *Prog Neurobiol.* 2008 Aug;85(4):355-75.

Review of evidence for neural mechanisms underlying acupuncture analgesia and its ability to treat chronic pain.

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Pohl A, Nordin C. Clinical and biochemical observations during treatment of depression with electroacupuncture: a pilot study. *Hum Psychopharmacol.* 2002

Pilot study of electroacupuncture for major depression. Found a decrease of neuropeptide Y in plasma during treatment.

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Oct;17(7):345-8.

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| Sprott H, Franke S, Kluge H, Hein G. Pain treatment of fibromyalgia by acupuncture. <i>Rheumatol Int</i> 1998;18:35-36.  | Experimental study of pain modulation by acupuncture in fibromyalgia patients. Found that acupuncture was associated with decreased subjective pain levels, as well as changes in concentration of pain modulating substances (serotonin and substance P) in serum. |
| Scott S, Scott WN. A biochemical hypothesis for the effectiveness of acupuncture in the treatment of substance abuse: acupuncture and the reward cascade. <i>Am J Acupunct</i> 1997;25:33. 40. | Review exploring physiological basis of acupuncture in the treatment of addiction, in relation to endorphin mechanisms and the reward cascade.  |
| Han JS. Electroacupuncture: An alternative to antidepressants for treating affective diseases? <i>Intl J Neurosci</i> 1986;29:79-92.   | Review presenting evidence that acupuncture can accelerate synthesis and release of serotonin and noradrenline in the CNS.  |
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