

# ACUPUNCTURE AND POST-TRAUMATIC STRESS DISORDER

## About post-traumatic stress disorder

**Post-traumatic stress disorder (PTSD) is a severe, long lasting psychological reaction to a distressing event, which can cause significant impairment (Reed 2012). It can develop after a major traumatic event (such as a serious accident, a violent personal assault or military combat), and can affect people of all ages.**

The general signs of stress can vary from one individual to the next (NHS Choices 2011). They may manifest physically as an illness, tiredness or lethargy, or as symptoms such as sore, tight muscles, dull skin, lank hair, or erratic sleep patterns. Mental stress can result in depression, mood swings, anger, frustration, confusion, paranoid behaviour, jealousy or withdrawal. Specific signs of PTSD include vivid memories of the traumatic event, such as flashbacks when awake or nightmares when asleep; hyperarousal, when the person is hypervigilant for threats and may have insomnia, irritability and difficulty concentrating; and an inability to experience feelings or amnesia about parts of the event (Reed 2012; NICE CKS).

Symptoms usually start in the first month after the traumatic event. In about 15% of people, symptoms can be delayed by months or years, but they usually appear within 6 months (Reed 2012; NICE CKS). In around 65% of adults, symptoms resolve naturally, although this may take several months. In the rest, symptoms are longer lasting and can be severe.

Conventional treatments for PTSD include medication such as anti-anxiety drugs, cognitive behavioural therapy and relaxation techniques (NHS Choices 2011).

## References

NHS Choices. Post-traumatic stress disorder [online]. Available: <http://www.nhs.uk/Conditions/Post-traumatic-stress-disorder/Pages/Introduction.aspx>

NICE Clinical Knowledge Summaries. Post-traumatic stress disorder [online]. Available: <http://cks.nice.org.uk/post-traumatic-stress-disorder>

Reed RV et al. Post traumatic stress disorder. BMJ 2012; 344 e3790

## How acupuncture can help

This factsheet looks at the evidence for acupuncture in the treatment of PTSD. There are related factsheets on anxiety, stress and depression.

There are preliminary positive findings for acupuncture in the treatment of chronic anxiety associated with PTSD. A systematic review of acupuncture for PTSD found that the evidence of effectiveness is encouraging (Kim 2013): all four reviewed randomised controlled trials (RCTs) indicated that acupuncture was equal to or better than orthodox treatments, or that it added extra effect to them when used in combination. Three of the four are Chinese studies that used earthquake survivors and one similar RCT (Wang 2012) was too recent to be included in the review. It found that both electroacupuncture and paroxetine resulted in significantly improved scores for PTSD, but that the improvement was greater with electroacupuncture. There is also some evidence that the acupuncture effects may continue for at least a few months after the treatment course is finished (Hollifield 2007).

A review that looked at the effects of combining brief psychological exposure with the manual stimulation of acupuncture points in the treatment of PTSD and other emotional conditions found evidence suggesting that tapping on selected points during imaginal exposure quickly and permanently reduces maladaptive fear responses to traumatic memories and related cues (Feinstein 2010).

Kim's review (Kim 2013) also included two uncontrolled trials (they too had positive outcomes). A more recent uncontrolled pilot study found that acupuncture appeared to be a therapeutic option in the treatment of sleep disturbance and other psycho-vegetative symptoms in traumatised soldiers (Eisenlohr 2012).

Although more high quality trials are needed to substantiate these results, the overall evidence does lie promisingly in a positive direction, and, given the very low level of side effects and lack of demonstrably superior outcomes from other interventions, acupuncture could be considered as one possible therapeutic option alongside the existing repertoire. (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 well-being.

Research has shown that acupuncture treatment may specifically benefit anxiety disorders and symptoms of anxiety and stress by:

- Acting on areas of the brain 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);
- Regulating levels of neurotransmitters (or their modulators) and hormones such as serotonin, noradrenaline, dopamine, GABA, neuropeptide Y and ACTH; hence altering the brain's mood chemistry to help to combat negative affective states (Lee 2009; Zhou 2008);

- Stimulating production of endogenous opioids that affect the autonomic nervous system (Arranz 2007). Stress activates the sympathetic nervous system, while acupuncture can activate the opposing parasympathetic nervous system, which initiates the relaxation response;
- Reversing pathological changes in levels of inflammatory cytokines that are associated with stress reactions (Arranz 2007);

## 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. In conjunction with needling, the practitioner may use techniques such as moxibustion, cupping, massage or electro-acupuncture. They may also suggest dietary or lifestyle changes.

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 choice of acupuncture points will be specific to each patient's needs. Traditional acupuncture can also be used as a preventive measure to strengthen the constitution and promote general wellbeing.

An increasing weight of evidence from Western scientific research (see overleaf) is demonstrating the effectiveness of acupuncture for treating a wide variety of conditions. From a biomedical viewpoint, acupuncture is believed to stimulate the nervous system, influencing the production of the body's communication substances - hormones and neurotransmitters. The resulting biochemical changes activate the body's self-regulating homeostatic systems, stimulating its natural healing abilities and promoting physical and emotional 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)

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## The evidence

Research	Conclusions
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### Reviews

Kim YD et al. Acupuncture for posttraumatic stress disorder: a systematic review of randomized controlled trials and prospective clinical trials. *Evid Based Complement Alternat Med.* 2013; 2013: 615857.

A systematic review that evaluated the current evidence for effectiveness of acupuncture for post-traumatic stress disorder (PTSD). It included four randomised and two uncontrolled studies. One high-quality RCT reported that acupuncture was superior to a waiting list control, and that the therapeutic effects of acupuncture and cognitive behavioural therapy (CBT) were similar, based on the effect sizes. One RCT showed no statistical difference between acupuncture and selective serotonin reuptake inhibitors (SSRIs). One RCT reported a favourable effect of acupoint stimulation plus CBT compared with CBT alone. A meta-analysis of acupuncture plus moxibustion compared with SSRIs favoured acupuncture plus moxibustion for the three main outcomes (measures of PTSD, depression and anxiety). The reviewers concluded that their review suggests that the evidence of effectiveness of acupuncture for PTSD is encouraging but not convincing.

Feinstein D. Rapid treatment of PTSD: why psychological exposure with acupoint tapping may be effective. *Psychotherapy (Chic).* 2010; 47(3): 385-402.

A review that looked at the effects of combining brief psychological exposure with the manual stimulation of acupuncture points (acupoints) in the treatment of post-traumatic stress disorder (PTSD) and other emotional conditions. The reviewers found two randomised controlled trials and six outcome studies using standardised pre- and post-treatment measures with military veterans, disaster survivors, and other traumatised individuals, which they concluded corroborated anecdotal reports and systematic clinical observation in suggesting that tapping on selected acupoints during imaginal exposure quickly and permanently reduces maladaptive fear responses to traumatic memories and related cues.

### Clinical trials

Wang Y et al. Clinical studies on treatment of earthquake-caused posttraumatic stress disorder using electroacupuncture. *Evid Based Complement Alternat Med.* 2012; 2012: 431279.

A randomised controlled trial that assessed the efficacy and safety of electroacupuncture in 138 patients with post-traumatic stress disorder (PTSD) caused by being in an earthquake. The control group was given paroxetine. The total scores of Clinician-Administered PTSD Scale (CAPS), Hamilton Depression Scale (HAMD) and Hamilton Anxiety Scale (HAMA) in the two groups after treatment showed significant efficacy compared with pretreatment scores. The comparison of reduction in the scores of CAPS, HAMD, and HAMA between the two groups suggested that the efficacy in the electroacupuncture group was better than that in the paroxetine group. The researchers concluded that their results showed that both electroacupuncture and paroxetine result in

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significantly improved scores for PTSD, but that the improvement is greater with electroacupuncture.

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Zhang Y et al. Clinical study on treatment of the earthquake-caused post-traumatic stress disorder by cognitive-behavior therapy and acupoint stimulation. *J Tradit Chin Med.* 2011; 31(1): 60-3.

A randomised controlled trial that studied the curative effect of acupoint stimulation on earthquake-caused post-traumatic stress disorder (PTSD) in 91 patients. A control group of 24 patients was treated with cognitive behavioural therapy (CBT), and a treatment group of 67 patients was treated with both CBT and acupoint stimulation. The total scores of the incident effect scale revised (IES-R), the scores of all factors and the total scores of the questionnaire in the two groups after treatment were much lower than those before treatment ( $p < 0.01$ ). The comparison of reduction in the factor scores between the two groups showed that the curative effect in the treatment group was better than in the control group. The researchers concluded that acupoint stimulation is effective for patients with PTSD, and has better results than cognitive behaviour therapy used alone.

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Eisenlohr V et al. Acupuncture - A new option in the therapy of traumatized German soldiers? *Deutsche Zeitschrift fur Akupunktur* 2012; 53 (2): 29-34.

A pilot study involving 27 traumatised German soldiers given acupuncture therapy. They were evaluated with respect to five psycho-vegetative parameters. Positive effects on sleep disturbances, restlessness, agitation, nervousness and aggression were reported. Sleep disturbances improved significantly more than the other symptoms (except restlessness). The effect was dependent on treatment duration. The researchers concluded that acupuncture appears to be a therapeutic option in the treatment of sleep disturbance and other psycho-vegetative symptoms in traumatised soldiers.

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Hollifield M et al. Acupuncture for posttraumatic stress disorder: a randomized controlled pilot trial. *J Nerv Ment Dis* 2007; 195: 504-13.

A randomised controlled trial assessing acupuncture for post-traumatic stress disorder (PTSD), in which 73 patients were allocated to acupuncture treatment, group cognitive behavioural therapy (CBT) or a waiting-list control group. Acupuncture resulted in an improvement in symptoms similar in magnitude to those with group CBT, and both treatment groups improved more than the waiting-list control group ( $p < 0.01$ ). Symptom reductions were maintained at 3-month follow-up for both interventions. The researchers concluded that acupuncture may be an effective and acceptable nonexposure treatment option for PTSD.

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### Physiological studies

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Hui KK et al. Acupuncture, the limbic system, and the anticorrelated networks of the brain. *Auton Neurosci.* 2010; 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

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	<p>response. They discuss potential clinical application to disease states including chronic pain, major depression, schizophrenia, autism, and Alzheimer's disease.</p>
<p>Lee B et al. Effects of acupuncture on chronic corticosterone-induced depression-like behavior and expression of neuropeptide Y in the rats. <i>Neuroscience Letters</i> 2009; 453: 151-6.</p>	<p>In animal studies, acupuncture has been found to significantly reduce anxiety-like behaviour, and increase brain levels of neuropeptide Y, which appears to correlate with reported anxiety.</p>
<p>Zhou Q et al. The effect of electroacupuncture on the imbalance between monoamine neurotransmitters and GABA in the CNS of rats with chronic emotional stress-induced anxiety. <i>Int J Clin Acupunct</i> 2008; 17: 79- 84.</p>	<p>A study of the regulatory effect of electro-acupuncture on the imbalance between monoamine neurotransmitters and GABA in the central nervous system of rats with chronic emotional stress-induced anxiety. The levels of serotonin, noradrenaline and dopamine fell significantly, while GABA levels were significantly higher in the rats given acupuncture (<math>P &lt; 0.05</math>, or <math>P &lt; 0.0</math>). The researchers concluded that the anti-anxiety effect of electro-acupuncture may relate to its regulation of the imbalance of neurotransmitters.</p>
<p>Arranz L et al. Effect of acupuncture treatment on the immune function impairment found in anxious women. <i>American Journal of Chinese Medicine</i>. 2007; 35(1): 35-51</p>	<p>Thirty four women with anxiety received 10 acupuncture treatments over a year, until complete remission. 20 healthy, non-anxious women formed the controls. Impaired immune functions in anxious women (chemotaxis, phagocytosis, lymphoproliferation and NK activity) were significantly improved by acupuncture, coming to the values of the healthy controls. The effects peaked 72 hours after a session and lasted up to a month after the course finished. In an earlier paper (Arranz et al, 2007) the authors had reported that acupuncture reversed the lowering of IL-2 levels and elevating of TNF-alpha and cortisol seen in anxious women. Therefore, these may be some of the parameters by which acupuncture could exert its therapeutic action on anxiety.</p>