

# ACUPUNCTURE AND SINUSITIS

## About sinusitis

Each year, around 2% of the UK population consults their GP about a suspected sinus infection (Ashworth 2005). Most people with acute sinusitis recover with or without treatment within 10 days of seeing a GP (Williamson 2007), but about 92% are prescribed an antibacterial, even though it makes little difference to outcome. (Ashworth 2005) Acute sinusitis is defined as inflammation of the nose and sinuses characterised by the existence, for 12 weeks or less, of two or more of the following symptoms: blockage/congestion; discharge (anterior or posterior nasal drip); facial pain or pressure; and reduced or loss of smell. (Fokkens 2005) Other symptoms can include toothache (involving the upper teeth), tenderness, swelling, malaise and fever. (Ah-See 2007) Sinusitis is considered to be chronic if it lasts for more than 12 weeks, and is associated with similar symptoms.

Acute sinusitis can be due to viral or bacterial infections (Fokkens 2005). Predisposing factors include upper respiratory infections, allergic rhinitis, smoking, diabetes mellitus, dental infections, and mechanical abnormalities such as deviation of the nasal septum. (Ah-See 2007) Potential complications include spreading of the infection around the eye, which possibly leads to blindness, infection of the frontal bone, and meningitis. (Ah-See 2007) Symptoms and signs of such potentially serious complications include swelling of the eyes or lids, eye redness, displacement of the eye, double vision, reduced vision, severe frontal headache, and signs of meningitis. (Scadding 2008) Chronic sinusitis is uncommon, usually develops from acute sinusitis and can be due to poor drainage of the affected sinus, inflammatory changes to the lining of the sinus that result from infection, and a flare-up of infection from time to time as a result of these changes. Sometimes other factors may cause, or contribute, to the development of chronic sinusitis. For example, a persisting allergy that causes inflammation in a sinus, and swelling or blockage of the drainage channel.

Management of sinusitis includes paracetamol or ibuprofen for pain relief, with the addition of codeine if necessary. Steam inhalation and saline nasal solution are also sometimes used. Antibacterial therapy is appropriate only for patients who are systemically very unwell, and have symptoms and signs of, or are at high risk of, serious complications.

## References

Ashworth MA et al. Variations in antibiotic prescribing and consultation rates for acute respiratory infection in UK general practices 1995. 2000. *Br J Gen Pract* 2005; 55: 603. 8.

Williamson IG et al. Antibiotics and topical nasal steroid for treatment of acute maxillary sinusitis: a randomized controlled trial. *JAMA* 2007; 298: 2487. 96.

Fokkens W et al. EAACI position paper on rhinosinusitis and nasal polyps executive summary. *Allergy* 2005; 60: 583. 601.

Scadding GK et al. BSACI guidelines for the management of rhinosinusitis and nasal polyposis. *Clin Exp Allergy* 2008; 38: 260. 75.

Ah-See KW, Evans AS. Sinusitis and its management. *BMJ* 2007; 334: 358. 61.

## How acupuncture can help

Evidence from randomised controlled trials suggests that acupuncture may help relieve symptoms of sinusitis such as nasal congestion (Sertel 2009), though it may not be as effective as conventional medication (Rossberg 2005; Stavem 2008). However, research is very limited and more high-quality randomised controlled trials are needed to assess the effectiveness of acupuncture for sinusitis (see Table below)

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. Stimulation of certain acupuncture points has been shown to affect areas of the brain that are known to reduce sensitivity to pain and stress (Hui 2010)

Acupuncture may help to relieve pain and congestion in people with sinusitis by:

- increasing endorphins (Han 2004) and neuropeptide Y levels (Lee 2009), which can help to combat negative affective states;
- stimulating nerves located in muscles and other tissues, which leads to release of endorphins and other neurohumoral factors, and changes the processing of pain in the brain and spinal cord (Pomeranz, 1987; Zhao 2008; Cheng 2009);
- reducing inflammation, by promoting release of vascular and immunomodulatory factors (Zijlstra 2003; Kavoussi 2007);
- enhancing natural killer cell activities and modulating the number and ratio of immune cell types (Kawakita 2008);
- increasing local microcirculation (Komori 2009), which aids dispersal of swelling.

## 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 well-being.

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 well-being.

## 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	Conclusion
<b>Randomised controlled trials</b>	
Sertel S et al. Acupuncture for nasal congestion: A prospective, randomized, double-blind, placebo-controlled clinical pilot study. <i>American Journal of Rhinology and Allergy</i> 2009; 23: e23-e28.	A randomised controlled trial that compared acupuncture according to Traditional Chinese Medicine (TCM) with sham acupuncture in 24 patients with a history of nasal congestion due to hypertrophic inferior turbinates or chronic sinusitis without polyposis. They were asked to score the severity of their nasal congestion on a visual analogue scale (VAS). Nasal airflow (NAF) was measured by using active anterior rhinomanometry (ARM). VAS and NAF were scored and measured before and 15 and 30 minutes after acupuncture. Sham acupuncture showed a significant improvement in VAS and a deterioration of NAF, while TCM acupuncture showed highly significant improvements in both VAS and NAF. <u>The researchers found that TCM acupuncture improved NAF and VAS significantly over time.</u>
Rosberg E et al. Comparison of traditional Chinese acupuncture, minimal acupuncture at non-acupoints and conventional treatment for chronic sinusitis. <i>Complementary Therapies in Medicine</i> 2005; 13: 4-10.	A randomised controlled trial that compared TCM acupuncture, minimal acupuncture at non-acupoints and conventional treatment (i.e. antibiotics, corticosteroids, 0.9% sodium chloride solution, and local decongestants) for chronic sinusitis in 65 patients. Only the conventional treatment group showed significant improvements in sinus soft tissue swelling (CT scan) or health-related quality of life (HRQoL). Conventional treatment also produced larger positive trends for sinusitis symptom score (4.8 v 2.4 for TCM acupuncture and 1.7 for sham). <u>The researchers concluded that sinus soft tissue swelling was reduced in the conventional treatment group over 4 weeks, and HRQoL improved over 12 weeks, and that there was no significant difference between conventional medication and TCM acupuncture.</u>
Stavem K et al. Health-related quality of life in a trial of acupuncture, sham acupuncture and conventional treatment for chronic sinusitis. <i>BMC Res Notes</i> 2008;1:37.	<u>They also concluded that there was no clear evidence of the superiority of one treatment over another on short-term HRQoL outcomes.</u>
<b>Survey</b>	
Pletcher SD et al. Use of acupuncture in the treatment of sinus and nasal symptoms: Results of a practitioner survey. <i>American Journal of Rhinology</i> 2006; 20: 235-7.	A survey that mailed regional licensed acupuncturists (1,516) in the USA about the use of acupuncture and chronic sinus and nasal symptoms. Three hundred thirty-one surveys (22%) were returned. Ninety-nine percent of those who returned surveys reported treating patients with chronic sinus and nasal symptoms. On a five-point scale, the mean perceived efficacy for the overall treatment of chronic sinus and nasal symptoms was 4.2. The mean cost of an acupuncture treatment course for chronic sinus and nasal symptoms was calculated to be \$730.00. <u>The researchers concluded that complementary medicine practitioners frequently use acupuncture in the treatment of patients with chronic sinus and nasal symptoms and that, although practitioners report good efficacy using acupuncture to treat such patients, quantitative data are needed to substantiate these self-reports.</u>
<b>Research on mechanisms for acupuncture</b>	
Hui KK et al. Acupuncture, the limbic system, and the anticorrelated networks of the brain. <i>Auton Neurosci</i> 2010; 157: 81-90.	A paper that discusses research showing that acupuncture mobilises the functionally anti-correlated networks of the brain to mediate its actions, and that the effect is dependent on the psychophysical response. The research used functional magnetic resonance imaging studies of healthy subjects to show that acupuncture stimulation evokes deactivation of a limbic-paralimbic-neocortical network, which encompasses the limbic system, as well as activation of

	somatosensory brain regions. It has also been shown that the effect of acupuncture on the brain is integrated at multiple levels, down to the brainstem and cerebellum.
Cheng KJ. Neuroanatomical basis of acupuncture treatment for some common illnesses. <i>Acupunct Med</i> 2009;27: 61-4.	A review that looked at acupuncture treatment for some common conditions. It is found that, in many cases, the acupuncture points traditionally used have a neuroanatomical significance from the viewpoint of biomedicine. From this, the reviewers hypothesize that plausible mechanisms of action include intramuscular stimulation for treating muscular pain and nerve stimulation for treating neuropathies.
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.	<b>In animal studies, acupuncture has been found to significantly reduce anxiety-like behaviour, and increase brain levels of neuropeptide Y, the brain levels of which appear to correlate with reported anxiety.</b>
Komori M et al. Microcirculatory responses to acupuncture stimulation and phototherapy. <i>Anesth Analg</i> 2009; 108: 635-40.	Experimental study on rabbits in which acupuncture stimulation was directly observed to increase diameter and blood flow velocity of peripheral arterioles, enhancing local microcirculation.
Kawakita K et al. Do Japanese style acupuncture and moxibustion reduce symptoms of the common cold? <i>eCAM</i> 2008; 5: 481. 9.	<b>A review of research into the effects of Japanese style acupuncture and moxibustion on the symptoms of the common cold. It reports that research has shown acupuncture to reduce common cold symptoms, and that acupuncture stimulation enhances natural killer cell activities and modulates the number and ratio of immune cell types.</b>
Zhao ZQ. Neural mechanism underlying acupuncture analgesia. <i>Prog Neurobiol</i> 2008; 85: 355-75.	Review article that discusses the various peripheral and central nervous system components of acupuncture anaesthesia in detail.
Kavoussi B, Ross BE. The neuroimmune basis of anti-inflammatory acupuncture. <i>Integr Cancer Ther</i> 2007; 6: 251-7.	Review article that suggests the anti-inflammatory actions of traditional and electro-acupuncture are mediated by efferent vagus nerve activation and inflammatory macrophage deactivation.
Han JS. Acupuncture and endorphins. <i>Neurosci Lett</i> 2004; 361: 258-61.	A literature review of studies relating to the release of endorphins by acupuncture.
Zijlstra FJ et al. Anti-inflammatory actions of acupuncture. <i>Mediators Inflamm</i> 2003; 12: 59-69.	An article that suggests a hypothesis for anti-inflammatory action of acupuncture: Insertion of acupuncture needles initially stimulates production of beta-endorphins, CGRP and substance P, leading to further stimulation of cytokines and NO. While high levels of CGRP have been shown to be pro-inflammatory, CGRP in low concentrations exerts potent anti-inflammatory actions. Therefore, a frequently applied 'low-dose' treatment of acupuncture could provoke a sustained release of CGRP with anti-inflammatory activity, without stimulation of pro-inflammatory cells.
Pomeranz B. Scientific basis of acupuncture. In: Stux G, Pomeranz B, eds. <i>Acupuncture Textbook and Atlas</i> . Heidelberg: Springer-Verlag; 1987: 1-18.	Needle activation of A delta and C afferent nerve fibres in muscle sends signals to the spinal cord, where dynorphin and enkephalins are released. Afferent pathways continue to the midbrain, triggering excitatory and inhibitory mediators in spinal cord. Ensuing release of serotonin and norepinephrine onto the spinal cord leads to pain transmission being inhibited both pre- and postsynaptically in the spinothalamic tract. Finally, these signals reach the hypothalamus and pituitary, triggering release of adrenocorticotrophic hormones and beta-endorphin.

### **Terms and conditions**

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