

# ACUPUNCTURE AND CYSTITIS

## About cystitis

Cystitis (inflammation of the bladder) is often due to a bacterial infection of the lower urinary tract. Each year, around 5% of women present to their GPs with typical symptoms of cystitis, such as pain when passing urine and urinary frequency, about half of whom are found to have a urinary tract infection (Hamilton-Miller 1994). The remaining women will have symptoms in the absence of bacterial infection, which is often referred to as interstitial cystitis or painful bladder syndrome (Rovner 2010). Typical symptoms of cystitis include pain when passing urine, and frequency and urgency of urination. Suprapubic pain, cloudy or foul-smelling urine, haematuria, or confusion (in older patients) may also occur.

Most urinary tract infections occur in women who are otherwise healthy; *Escherichia coli* is the cause of at least 70% of such uncomplicated urinary infections presenting in general practice (Gruneberg 1994). The key risk factors for uncomplicated infections include sexual intercourse, a personal or family history of urinary infection, and the use of a contraceptive diaphragm plus spermicide (DTB 1998). Recurrent cystitis is usually defined as three episodes of urinary tract infection in the previous 12 months, or two episodes in the previous 6 months. Around half of all women who have an attack of cystitis will experience another within a year (Sen 2007).

Antibiotics such as trimethoprim are used in the treatment of cystitis due to a bacterial infection. General measures to treat urinary infection include drinking more to increase urinary output, and an analgesic or antipyretic for pain or fever. Oral treatments that alkalinise the urine are sometimes used to alleviate symptoms of cystitis (DTB 1998).

## References

- Sen A. Recurrent cystitis in non-pregnant women. *BMJ Clinical Evidence*. Search date April 2007
- Grüneberg RN. Changes in urinary pathogens and their antibiotic sensitivities, 1971-1992. *J Antimicrob Chemother* 1994; 33 (suppl A): 1-8.
- Hamilton-Miller JMT. The urethral syndrome and its management. *J Antimicrob Chemother* 1994; 33 (suppl A): 63-73.
- Managing urinary tract infection in women. *DTB* 1998; 36: 30-2.
- Rovner ES et al, 2010. Interstitial cystitis. *eMedicine* [online]. Available: <http://emedicine.medscape.com/article/441831-overview> [Accessed: 4th July 2010]

## How acupuncture can help

There is little published clinical data on the effects of acupuncture for cystitis. Two controlled trials in Norway with positive results have indicated that acupuncture may be a worthwhile alternative in the prevention of frequently recurring cystitis in women (Aun 1998; Alraek 2002) (see Table overleaf)

Acupuncture may help in the treatment of cystitis by:

- reducing inflammation, by promoting release of vascular and immunomodulatory factors (Kim 2008, Kavoussi 2007, Zijstra 2003); reducing pain and swelling (Lorenzini 2010)
- improving bladder irritation by inhibition of capsaicin-sensitive C-fibre activation (Hino 2010).

## 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	Conclusion
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### Reviews

#### Clinical studies

Alraek T, Soedal LIF, Fagerheim SU, Digranes A, Baerheim A. Acupuncture treatment in the prevention of uncomplicated recurrent lower urinary tract infections in adult women. <i>Am J Pub Health</i> 2002; 92: 1609-11.	A randomised controlled trial involving 94 women with uncomplicated recurrent lower urinary tract infections that compared acupuncture with no treatment. In all, 73% of the women in the acupuncture group and 52% in the no-treatment group were free of infection during the 6-months follow-up, which was not a significant difference ( $p=0.08$ ). However, half as many episodes of infection (the primary outcome measure) per person-month occurred in the acupuncture group during follow-up (incident rate ratio = 0.45, 95% CI 0.23 to 0.86; $p<0.05$ ). <u>The researchers concluded that acupuncture reduced the recurrence rate among cystitis-prone women to half the rate of that in untreated women.</u>
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Aune A, Alraek T, Huo L, Baerheim A. Can acupuncture prevent cystitis in women? <i>Tidsskr Nor Laegeforen</i> 1998; 118: 1370-2.	A randomised controlled trial involving 67 adult women with a history of recurrent lower urinary tract infection that compared acupuncture treatment, sham acupuncture, or no treatment. The incidence rate of UTI over the following 6 months was noted. In the acupuncture group, a total of 85% was free of cystitis during the 6-month observational period, compared to 58% in the sham group ( $p < 0.05$ ), and 36% in the control group ( $p < 0.01$ ). Compared to the acupuncture group, twice as many incidents of cystitis occurred in the sham group, and three times as many in the control group ( $p < 0.05$ ). <u>The researchers concluded that acupuncture seems a worthwhile alternative in the prevention of frequently recurring cystitis in women.</u>
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#### Case reports

Kuruvilla AC. Acupuncture for energy malfunction in urinary bladder. <i>Medical Acupuncture</i> 2009; 21: 183-5.	Case reports of two women with interstitial cystitis for 10 years were assessed before and after acupuncture treatment given once a week for 8 weeks. One woman, whose main symptom had been intense pain, became pain free after treatment and for 2 years of follow-up. The other woman, whose main symptom was severe nocturia (up to 20 times a night) became free of nocturia.
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#### Physiology studies (human and animal)

Hino K, Honjo H, Nakao M, Kitakoji H. The effects of sacral acupuncture on acetic acid-induced bladder irritation in conscious rats. <i>Urology</i> 2010; 75: 730-4.	An animal study that investigated the effects of sacral acupuncture on acetic acid-induced bladder irritation using cystometry in 40 rats. The animals were divided into 5 groups: rats with bladder overactivity induced by acetic acid, with or without sacral acupuncture stimulation; rats treated with sacral acupuncture stimulation after capsaicin desensitisation; rats treated with atropine; and rats treated with sacral acupuncture stimulation after nonacetic acid infusion. Sacral acupuncture stimulation resulted in a 140% increase in intercontraction interval (ICI) in rats with
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	<p>bladders irritated by acetic acid. There was a significant difference in ICI increase in favour of acupuncture stimulation compared to the irritated bladder group that did not receive acupuncture (<math>p &lt; 0.01</math>). This effect was not present when acupuncture was given after capsaicin desensitisation. <u>The researchers concluded that sacral acupuncture could contribute to improvement in acetic acid-induced bladder irritation by inhibition of capsaicin-sensitive C-fibre activation.</u></p>
<p>Lorenzini L, Giuliani A, Giardino L, Calzà L. Laser acupuncture for acute inflammatory, visceral and neuropathic pain relief: An experimental study in the laboratory rat. <i>Res Vet Sci</i> 2010; 88: 159-65.</p>	<p>A study that explored the clinical efficacy of laser acupuncture on experimental models of acute and persistent pain in the rat, e.g. acute inflammatory pain, muscle pain, visceral pain and neuropathic pain. <u>The researchers found evidence that laser stimulation of acupoints can control pain and oedema in specific experimental conditions.</u></p>
<p>Kim HW, Uh DK, Yoon SY, Roh DH, Kwon YB, Han HJ, Lee HJ, Beitz AJ, Lee JH. Low-frequency electroacupuncture suppresses carrageenan-induced paw inflammation in mice via sympathetic post-ganglionic neurons, while high-frequency EA suppression is mediated by the sympathoadrenal medullary axis. <i>Brain Res Bul.</i> 2008; 75: 698-705.</p>	<p>An experimental study on rats, the results of which suggest that suppressive effects of low frequency electroacupuncture on carrageenan-induced paw inflammation are mediated by sympathetic post-ganglionic neurones, while suppressive effects of high frequency electroacupuncture are mediated by the sympatho-adrenal medullary axis.</p>
<p>Kavoussi B, Ross BE. The neuroimmune basis of anti-inflammatory acupuncture. <i>Integr Cancer Ther</i> 2007; 6: :251-7.</p>	<p>A review article that suggests the anti-inflammatory actions of traditional and electro-acupuncture are mediated by efferent vagus nerve activation and inflammatory macrophage deactivation.</p>
<p>Zijlstra FJ, van den Berg-de Lange I, Huygen FJ, Klein J. Anti-inflammatory actions of acupuncture. <i>Mediators Inflamm</i> 2003;12: 59-69.</p>	<p>A review that suggests a hypothesis for the anti-inflammatory action of acupuncture. Insertion of acupuncture needle initially stimulates production of beta-endorphins, calcitonin gene-related peptide (CGRP) and substance P, leading to further stimulation of cytokines and nitric oxide (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.</p>

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