



ACUPUNCTURE AND URINARY INCONTINENCE

About urinary incontinence

Urinary incontinence affects around 3.5 million people of all ages in the UK (DoH 2000; the Continence Foundation 2000). For many, urinary incontinence severely restricts their routine activities and damages their quality of life and self-esteem. It can be due to several problems, the most common being urge urinary incontinence and stress urinary incontinence.

Around 1.5% of adults in Europe and the USA have urge urinary **incontinence** (involuntary leakage immediately preceded or accompanied by urgency) (Abrams 2003; Irwin 2006). This is usually due to overactive bladder syndrome (defined as urgency, with or without urge **incontinence**, and usually with frequency and nocturia) (Abrams 2003). The symptoms of an overactive bladder are thought to be due to involuntary contractions of the detrusor muscle in the bladder wall during the filling phase of the micturition cycle (Andersson 1997). Treatment of urge urinary incontinence usually comprises general and lifestyle measures, bladder retraining and physiotherapy and drug therapy with antimuscarinics. Unwanted effects of antimuscarinic drugs include dry mouth, gastrointestinal disturbances such as constipation, blurred vision, dry eyes, drowsiness, difficulty in micturition, palpitations, skin reactions such as dry skin and rash, headache, angioedema, and arrhythmias (Joint Formulary Committee 2009).

About 10-40% of women who have given birth have postpartum stress urinary **incontinence** (i.e. involuntary leakage of urine with increases in intra-abdominal pressure) (Mørkved 1999; Rortveit 2003). Incontinence continues long term in about 12% of women who have delivered vaginally and about 7% who have delivered by Caesarean section (it affects just under 5% of nulliparous women) (Rortveit 2003). Postpartum stress urinary **incontinence** is usually treated using physical therapies, including pelvic floor muscle training, with or without biofeedback, weighted vaginal cones and electrical stimulation (DTB 2003).

References

Good practice in continence services. London: Department of Health, 2000.

Making the case for investment in an integrated continence service. London: The Continence Foundation, 2000.

Abrams P et al. The standardisation of terminology of lower urinary tract function: report from the Standardisation Sub-committee of the International Continence Society. *NeuroUrol Urodyn* 2002; 21: 167–78.

Irwin DE et al. Population-based survey of urinary incontinence, overactive bladder, and other lower urinary tract symptoms in five countries: results of the EPIC study. *Eur Urol* 2006; 50: 1306–15.

Andersson K-E. The overactive bladder: Pharmacologic basis of drug treatment. *Urology* 1997; 50: 74–84.].

Joint Formulary Committee, 2009 *British National Formulary* Edition 58. London: Royal Pharmaceutical Society of Great Britain and British Medical Association.

Update on drugs for overactive bladder syndrome *DTB* 2007; 45: 44 - 48.

Mørkved S, Bø K. Prevalence of urinary incontinence during pregnancy and postpartum. *Int Urogynecol J* 1999; 10: 394–8.

Rortveit G et al. Urinary incontinence after vaginal delivery or cesarean section. *N Engl J Med* 2003; 348: 900–7.

Managing postpartum stress urinary incontinence. *DTB* 2003; 41: 46-8.

How acupuncture can help

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.

Animal studies have shown that acupuncture treatment may specifically be of benefit in people with urinary incontinence by:

- decreasing the expression of c-Fos in the brain. Induction of stress urinary incontinence in rats has been shown to increase expression of c-Fos (Chung 2008).
- controlling nitroergic neurotransmitters in order to increase nitric oxide levels in bladder tissue, thus relaxing smooth muscle and allowing increased bladder capacity (Chen 2006).

There are systematic reviews for acupuncture in two particular instances of urinary incontinences: post-stroke (Thomas 2008) and bed-wetting in children (Bower 2005). Both reported consistently positive results but the poor quality of the component trials allowed only tentative conclusions. A general review found acupuncture to be the only CAM therapy with evidence of benefit, albeit at a preliminary level (Hartmann 2009). Individual trials for a variety of types of urinary incontinence (urge, stress, diabetic, post-hysterectomy, post-stroke) have largely positive outcomes across a range of acupuncture interventions and control groups (Engberg 2009; Tang 2009; Kim 2008; Tian 2007; Yi 2008; Liu 2008; Yun 2007: see Table overleaf). Acupuncture may be most useful when given in addition to appropriate exercise regimes, but larger and better designed trials are needed to fully elucidate its effects for people with urinary incontinence.

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

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The evidence

Research	Conclusion
Reviews	
Hartmann KE et al. Treatment of overactive bladder in women. <i>Evid Rep Technol Assess</i> 2009; 187: 1-120.	A systematic review of the evidence on treatment of overactive bladder, urge urinary incontinence , and related symptoms. It included a total of 232 publications assessing drugs or complementary and alternative therapies. <u>The reviewers stated that acupuncture was the only complementary and alternative therapy with early evidence of benefit, but that the strength of the evidence was as yet insufficient to fully inform choice of such treatment.</u>
Thomas LH et al. Treatment of urinary incontinence after stroke in adults. <i>Cochrane Database Syst Rev</i> 2008; 1: CD004462.	A systematic review to determine the optimal treatment of urinary incontinence after stroke in adults, which included 12 randomised or quasi-randomised controlled trials involving a total of 724 participants. Three small trials of acupuncture were included, all of which reported fewer participants with incontinence after acupuncture therapy (overall relative risk [RR] 0.44; 95% CI 0.23 to 0.86). <u>The reviewers concluded that acupuncture may be helpful in the treatment of urinary incontinence after stroke, but had particular concerns about study quality.</u>
Bower WF et al. Acupuncture for nocturnal enuresis in children: a systematic review and exploration of rationale. <i>NeuroUrol Urodyn</i> 2005; 24: 267-72.	A systematic review including 11 reports of acupuncture for childhood nocturnal enuresis . The primary outcome measure was change in the mean number of bed-wetting episodes following treatment. All the trials were considered of low methodological quality. <u>The reviewers found some evidence that acupuncture is useful for nocturnal enuresis when used in conjunction with other treatment (odds ratio [OR] 3.98, 95% CI 2.2 to 7.2). They concluded that there is tentative evidence for the efficacy of acupuncture for the treatment of childhood nocturnal enuresis.</u>
Clinical studies	
Tang CL et al. [Observation on therapeutic effect of dog-day acupuncture and moxibustion combined with pelvic floor muscle exercises for treatment of female stress urinary incontinence]. <i>Zhongguo Zhen Jiu</i> 2009; 29: 879-83.	A randomised controlled trial of acupuncture (and moxibustion) combined with pelvic floor muscle exercises for female stress urinary incontinence . A total of 71 women were allocated either to acupuncture plus pelvic floor muscle exercises or the exercises alone. The scores of the International Consultation Committee on Incontinence Questionnaire Short Form (ICI-Q-SF) and the Medical Outcomes Survey Short Form-36 (SF-36) were evaluated before and after treatment. All outcomes improved significantly in both groups. However, the total effective rate was higher in the acupuncture group than in the control group (91.7% vs. 77.1%, $p < 0.05$). Also, the dimensions of SF-36 of stress urinary incontinence patients were lower than those of control group (all $p < 0.05$). <u>The researchers concluded</u>

that acupuncture plus moxibustion combined with pelvic floor muscle exercises can improve the symptoms of urinary incontinence and increase quality of life.

Engberg S et al. The efficacy of acupuncture in treating urge and mixed incontinence in women: a pilot study. *J Wound Ostomy Continence Nurs* 2009; 36: 661-70.

A randomised controlled pilot study looking at the efficacy of acupuncture for **urge and mixed urinary incontinence**. Nine women were assigned to a true or sham (placebo control) acupuncture group, in which treatments were performed twice a week for 6 weeks. A 1-week bladder diary was completed at baseline and at 1 and 4 weeks postacupuncture, and quality of life was measured at these times. The women in the true acupuncture group had a 63.3% mean reduction in daytime accidents/day at 1 week postacupuncture and a 67.5% reduction at 4 weeks postacupuncture. In contrast, the mean reduction in daytime accidents after sham acupuncture was only 18.9% at 1 week and 16.7% at 4 weeks. There were no significant group differences in changes in the scores on the quality-of-life measures. The researchers concluded that the results support the need for additional research examining the efficacy of acupuncture in the treatment of urinary incontinence in women.

Yi WM et al. [Effects of electroacupuncture on urinary bladder function after radical hysterectomy] *Zhongguo Zhen Jiu* 2008; 28: 653-5.

A randomised controlled trial to observe the effect of electroacupuncture on recovery of **urinary bladder function after radical hysterectomy**. A total of 110 women were randomly divided into an electroacupuncture group and a control group. The time to recovery of bladder function was faster with electroacupuncture ($p < 0.01$), urine dynamic indexes were improved more ($p < 0.01$ or $p < 0.05$) and days in hospital after surgery were fewer (21.1 +/- 3.3 days with electroacupuncture vs. 25.5 +/- 3.5 days in the control group, $p < 0.01$). The researchers concluded that electroacupuncture can promote recovery of bladder function, after radical hysterectomy.

Kim JH et al. Randomized control trial of hand acupuncture for female stress urinary incontinence. *Acupunct Electrother Res* 2008; 33: 179-92.

A randomised controlled study that evaluated the effect of hand acupuncture treatment on **female stress urinary incontinence** in 52 women. Assessment was made before and after 12 weeks of clinical study. Hand acupuncture treatment significantly reduced the frequency of urinary incontinence compared to the control group. Furthermore, vaginal contraction pressure was significantly increased by 1.6 fold in the acupuncture group compared to the control group. The researcher concluded that, overall, the findings suggested that hand acupuncture can be a potent alternative therapy for stress urinary incontinence.

Liu ZS, Du Y. [Evaluation of the curative effect of electro acupuncture on post-apoplectic urinary incontinence](in Chinese). *Zhen Jiu Tui Na Yi Xue* 2008; 6/2: 97-8.

A randomised controlled trial to evaluate the effect of electro-acupuncture on **urinary incontinence** in 155 treated either with electro-acupuncture or with "Western" medicine. After 1-2 months, the basic cure rate, marked effective rate, effective rate and ineffective rate were 47.0%, 27.5%, 18.6% and 6.9% respectively, with a total effective rate of 93.1% in the acupuncture group and 7.9%, 17.6%, 17.6% and 56.9% respectively, with a total effective rate of 43.1% in the control group. There was a statistically significant difference in favour of acupuncture in curative effect ($p < 0.05$). The researchers concluded that electro-acupuncture has a good curative effect

Tian FS et al. [Study on acupuncture treatment of diabetic neurogenic bladder]. <i>Zhongguo Zhen Jiu</i> . 2007 Jul;27(7):485-7.	A randomised controlled trial to compare acupuncture plus intramuscular methycobal (250 micrograms) with the drug alone for diabetic neurogenic bladder in 70 patients. After treatment, the rate of urgency of urination, frequency of micturition, dribbling urination, urinary incontinence and dysuria in the acupuncture plus methycobal group was improved significantly more than in the drug alone group. <u>The researchers concluded that methycobal plus acupuncture was more effective than the methycobal alone for treatment of diabetic neurogenic bladder.</u>
Yun SP et al. Effects of moxibustion on the recovery of post-stroke urinary symptoms. <i>American Journal of Chinese Medicine</i> 2007; 35: 947-54.	A randomised controlled trial to assess the effectiveness of moxibustion therapy in 58 patients with post-stroke urinary symptoms . The test group received moxibustion treatment for 10 days, and the control group did not receive it. The effectiveness of urinary symptoms and activities of daily living were measured using the International Prostate Symptom Score (IPSS) and Barthel Index (BI), respectively. These scales were examined by an independent blinded neurologist before treatment, and 10 days after therapy. The moxibustion group had greater improvement in urinary symptoms than the control group. <u>The researchers concluded that moxibustion is effective for post-stroke urinary symptoms.</u>
Emmons SL, Otto L. Acupuncture for overactive bladder: a randomized controlled trial. <i>Obstet Gynecol</i> 2005; 106: 138-43.	A randomised controlled trial to compare acupuncture treatment for overactive bladder and urge urinary incontinence with a placebo acupuncture treatment in 85 women. The women underwent cystometric testing, completed a 3-day voiding diary, and completed the urinary distress inventory and incontinence impact questionnaire, before and after 4 weekly acupuncture treatments. The primary outcome measure was number of incontinent episodes over 3 days. Secondary endpoints included voiding frequency and urgency, cystometric bladder capacity, maximum voided volume, and the urinary distress inventory and incontinence impact questionnaire symptom scores. Women in both treatment and placebo groups had significant decreases in number of incontinent episodes (59% for treatment, 40% for placebo) without a significant difference in the change between the groups. Women in the treatment group had a 14% reduction in urinary frequency (p=0.013), a 30% reduction in the proportion of voids associated with urgency (p=0.016), and a 13% increase in both maximum voided volume and maximum cystometric capacity (p=0.01). Both groups also had an improvement in the urinary distress inventory and incontinence impact questionnaire scores (54% decrease with treat, 30% decrease for placebo, p<0.001 for the difference in change between the groups). <u>The researchers concluded that bladder-specific acupuncture treatments result in significant improvements in bladder capacity, urgency, frequency, and quality-of-life scores when compared with placebo acupuncture treatments.</u>
Zhang CZ, Lu YQ. [Clinical observation on acupoint thread-embedding therapy plus functional exercise for treatment of stress	A randomised controlled trial comparing acupuncture plus functional exercise with placebo treatment plus functional exercise in 240 patients with stress urinary incontinence . Both groups improved, but the therapeutic effect was greater in the

urinary incontinence] (in Chinese). *Chinese Acupuncture & Moxibustion* 2004; 24/7: 457-8. acupuncture group ($p < 0.01$). The researchers concluded that acupuncture plus functional exercise is a good therapy for stress urinary incontinence.

Physiological studies

Chung IM et al. Effects of acupuncture on abdominal leak point pressure and c-Fos expression in the brain of rats with stress urinary incontinence. *Neurosci Lett* 2008; 439(1): 18-23. An investigation into the effect of acupuncture on stress urinary incontinence in rats. They found that acupuncture at point SP6 significantly enhanced the abdominal leak point pressure and that this change was associated with decreased c-FOS expression in the pontine micturition center (PMC), ventrolateral periaqueductal gray (vlPAG) and medial preoptic nucleus (MPA) regions of the brain.

Chen YL et al. [Effects of electroacupuncture treatment on nitrenergic neurotransmitter in bladder neck and detrusor of rats with unstable bladder] (Article in Chinese). *Zhong Xi Yi Jie He Xue Bao* 2006; 4(1): 73-5. Rat models of unstable bladder were established, which resulted in a decrease in the nitrenergic neurotransmitter in the bladder neck and detrusor. One week of electroacupuncture treatment at two specific points (Huiyang and Zhonglushu) was found to significantly increase the nitric oxide synthetase content in these areas. It is suggested that promoting the synthesis and secretion of nitrenergic neurotransmitter in bladder tissue may be one of the mechanisms of acupuncture in adjusting bladder function.

Terms and conditions

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