



ACUPUNCTURE AND DYSMENORRHOEA

About dysmenorrhoea

Dysmenorrhoea is painful cramps originating in the uterus just prior to or during menstruation. It can be primary (i.e. without any organic pathology) or secondary (i.e. associated with a pathological condition, such as endometriosis or ovarian cysts). The pain usually lasts between 8 and 72 hours.(Fraser 1992)

Adolescent girls are more likely than older women to have primary dysmenorrhoea because the condition can get better with age. Secondary dysmenorrhoea tends to be less common in adolescents, as onset of causative conditions may not have occurred yet. Estimates suggest that around 25–50% of adult women and about 75% of adolescents experience pain with menstruation, and some 5–20% report severe pain that prevents them from carrying on with their usual activities.(Zondervan 1998; Harlow 2004) The longer the mean duration of menstruation the more severe the dysmenorrhoea. Also, younger age at menarche and cigarette smoking have been associated with dysmenorrhoea.(Harlow 1996; Sundell 1990)

Conventional treatment is aimed at relieving pain and includes NSAIDs, the oral contraceptive pill, depo-medroxyprogesterone acetate, levonorgestrel-releasing intrauterine device, danazol and leuprolide acetate.

References

Fraser I. Prostaglandins, prostaglandin inhibitors and their roles in gynaecological disorders. *Bailliere's Clinical Obstet Gynaecol* 1992;6:829–57.

Harlow SD, Campbell OM. Epidemiology of menstrual disorders in developing countries: a systematic review. *BJOG* 2004;111:6–16.

Harlow SD, Park M. A longitudinal study of risk factors for the occurrence, duration and severity of menstrual cramps in a cohort of college women. *Br J Obstet Gynaecol* 1996;103:1134–42.

Sundell G et al. Factors influencing the prevalence and severity of dysmenorrhoea in young women. *Br J Obstet Gynaecol* 1990;97:588–94.

Zondervan KT et al. The prevalence of chronic pelvic pain in the United Kingdom: a systematic review. *Br J Obstet Gynaecol* 1998;105:93–9.

How acupuncture can help

Recent systematic reviews of randomised controlled trials (RCTs) found that both acupuncture (Cho 2010a) and acupressure (Cho 2010b) are effective for primary dysmenorrhoea, providing significantly more pain relief than pharmacological treatments. Comparisons of acupuncture with sham acupuncture produced variable results and no significant difference overall (Cho 2010a). This is consistent with the viewpoint that sham controls are active interventions, not placebos, providing

unreliable results with a tendency to underestimate acupuncture's effects (Lundeburg 2009; Sherman 2009). Two earlier systematic reviews (Yang 2008; Proctor 2002) found a lack of high quality trials on acupuncture for dysmenorrhoea and so could not draw firm conclusions. Since then there have been further RCTs, especially from China (Wong 2010; Chen 2010; Zhu 2010; Wang 2009), hence the stronger conclusions in the 2010 reviews. The most compelling evidence comes from a large, high quality German trial that also found acupuncture to be cost-effective (Witt 2008). Also see our other factsheets on Premenstrual syndrome and Endometriosis. For other gynaecological conditions the research base is scanty (Smith 2010). For example, a systematic review of trials on acupuncture for fibroids found no trials that fit their inclusion criteria (Zhang 2010). (see Table overleaf)

Acupuncture may help reduce symptoms of dysmenorrhoea by:

- regulating neuroendocrine activities and the related receptor expression of the hypothalamus-pituitary-ovary axis (Liu 2009; Yang 2008)
- increasing nitric oxide levels, which relaxes smooth muscle and hence may inhibit uterine contractions (Wang 2009)
- increasing relaxation and reducing tension (Samuels 2008). Acupuncture can alter the brain's mood chemistry, reducing serotonin levels (Zhou 2008) and 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; Zijlstra 2003; Cheng 2009);
- reducing inflammation, by promoting release of vascular and immunomodulatory factors
- (Zijlstra 2003; Kavoussi 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

ACUPUNCTURE AND DYSMENORRHOEA

The evidence

Research	Conclusion
Systematic reviews	
Zhang Y et al. Acupuncture for uterine fibroids. <i>Cochrane database of systematic reviews</i> . (1) (pp CD007221), 2010.	A systematic review to assess the benefits and harms of acupuncture in women with uterine fibroids using randomised controlled trials comparing acupuncture management with placebo acupuncture, no management, Chinese medication, Western medication or other managements of uterine fibroids.. <u>No trials met the inclusion criteria, therefore no data was collected.</u>
Cho SH, Hwang EW. Acupuncture for primary dysmenorrhoea: A systematic review. <i>BJOG</i> 2010a; 117: 509-21.	A systematic review that assessed the effectiveness of acupuncture for the symptomatic treatment of primary dysmenorrhoea from randomised controlled trials. All trials that evaluated the effects of acupuncture compared with controls were included. Studies that assessed the effect of moxibustion or body acupressure were excluded. Twenty-seven trials were included. Only nine of these clearly described their methods of randomisation and none of the trials stated the methods of allocation concealment. Compared with pharmacological treatment or herbal medicine, acupuncture was associated with a significant reduction in pain. Three studies reported reduced pain within groups from baseline; however, two did not find a significant difference between acupuncture and sham acupuncture. <u>The reviewers concluded that their review found promising evidence in the form of randomised controlled trials for the use of acupuncture in the treatment of primary dysmenorrhoea compared with pharmacological treatment or herbal medicine, but that the evidence for the effectiveness of acupuncture for the treatment of primary dysmenorrhoea is not convincing compared with sham acupuncture.</u>
Cho SH, Hwang EW. Acupressure for primary dysmenorrhoea: A systematic review. <i>Complementary Therapies in Medicine</i> 2010b; 18: 49-56.	A systematic review that assessed the effectiveness of acupressure for the symptomatic treatment of primary dysmenorrhoea from randomised controlled trials. Four trials comprising a total of 458 participants were included. Only one described adequate methods of randomisation, and none had a clear description of method of allocation concealment. Two studies reported significant improvements in the severity of pain for acupressure compared with sham acupressure on non-acupoints. Acupressure reduced the pain and anxiety typical of dysmenorrhoea in one study. Another, which used an acupressure device, reported that the reduction of menstrual pain was significantly better in worst menstrual pain, menstrual pain symptom intensity and the consumption of pain medication, compared with conventional treatment. One study investigated adverse events and reported that there was no adverse event in acupressure treatment. <u>The reviewers concluded that the available data from randomised controlled trials suggest that acupressure alleviates menstrual pain, but that the results were</u>

limited by the small number of trials.

Yang H et al. Systematic review of clinical trials of acupuncture-related therapies for primary dysmenorrhea. *Acta Obstetrica et Gynecologica Scandinavica* 2008; 87:1114-22.

A systematic review that evaluatee the effects of acupuncture-related therapies for treating primary dysmenorrhoea. All clinical controlled trials pertaining to acupuncture-related therapies for primary dysmenorrhoea were included. In all, 30 randomised controlled trails and two controlled clinical trials were identified. Most of the trials were of low methodological quality. Data analysis indicated that there were conflicting results regarding whether acupuncture-related therapies were more effective than control treatments. However, there was one small, methodological sound trial of acupuncture that suggested that acupuncture was more effective than control groups (placebo acupuncture: WMD=-0.57 and 95% CI=-0.76-0.38; standard control: WMD=-.19 and 95% CI=-0.37-0.01; visitation control: WMD=-1.04 and 95% CI=-1.28-0.80). The reviewers concluded that, because of low methodological quality and small sample size, there is no convincing evidence for acupuncture in the treatment of primary dysmenorrhoea.

Proctor ML et al. Transcutaneous electrical nerve stimulation and acupuncture for primary dysmenorrhoea. *Cochrane database of systematic reviews*. (1) (pp CD002123), 2002.

A systematic review to determine the effectiveness of high and low frequency transcutaneous electrical nerve stimulation (TENS) and acupuncture when compared to each other, placebo, no treatment, or medical treatment for primary dysmenorrhoea. In all, 9 randomised controlled trials of transcutaneous electrical nerve stimulation and acupuncture were included, seven involving TENS, one acupuncture, and one both treatments. One small trial showed acupuncture to be significantly more effective for pain relief than both placebo acupuncture and two no treatment control groups. The reviewers concluded that there was insufficient evidence to determine the effectiveness of acupuncture in reducing dysmenorrhoea, but that a single small but methodologically sound trial of acupuncture suggests benefit.

Overview on women's reproductive health complaints

Smith CA, Carmady B. Acupuncture to treat common reproductive health complaints: An overview of the evidence. *Autonomic Neuroscience: Basic and Clinical* 2010; 157: 52-6.

A summary of the evidence from scientific trials and systematic reviews assessing the effectiveness of acupuncture to treat the most common women specific reproductive health complaints. Five systematic reviews and six randomised controlled trials were included. The symptoms of dysmenorrhoea were found to have been subject to more clinical evaluation through randomised controlled trials, and the evidence summarised in systematic reviews, than any other reproductive health complaint. The evidence for acupuncture to treat dysmenorrhoea remains unclear, due to small study populations and the presence of methodological bias. Acupuncture to treat premenstrual syndrome and other menstrual related symptoms is under-studied, and the evidence for acupuncture to treat these conditions is frequently based on single studies. The authors concluded that further research is needed.

Clinical studies

Dysmenorrhoea

Wong CL et al. Effects of SP6 acupressure on pain and menstrual distress in young women with dysmenorrhoea. *Complementary Therapies in Clinical Practice* 2010; 16: 64-9.

A controlled trial that aimed to evaluate the effects of acupressure at Sp6 on reducing pain and menstrual distress resulting from dysmenorrhoea. Forty participants were assigned to either the acupressure group (n = 19) or the control group (n = 21). The acupressure group received 20 min of SP6 acupressure during the initial intervention session, was taught to perform the technique for themselves and asked to do it twice a day from the first to third days of their menstrual cycle, for 3 months subsequent to the first session. In contrast, the control group was only told to rest. Outcomes were measured using the Pain Visual Analogue Scale (PVAS), the Short-Form McGill Pain Questionnaire (SF-MPQ), and the Short-Form Menstrual Distress Questionnaire (SF-MDQ). There was a statistically significant decrease in pain score for PVAS ($p = 0.003$) and SF-MPQ ($p = 0.02$) immediately after the 20 min of SP6 acupressure. In the self-care periods, significant reduction of PVAS ($p = 0.008$), SF-MPQ ($p = 0.012$), and SF-MDQ ($p = 0.024$) scores was noted in the third month of post-intervention. The researchers concluded that SP6 acupressure has an immediate pain-relieving effect for dysmenorrhoea. Moreover, acupressure applied to the SP6 acupoint for 3 consecutive months was effective in relieving both the pain and menstrual distress levels resulting from dysmenorrhoea.

Chen HM, Chen CH. Effects of acupressure on menstrual distress in adolescent girls: a comparison between Hegu-Sanyinjiao matched points and Hegu, Zusanli single point. *Journal of clinical nursing* 2010; 19: 998-1007.

A randomised controlled trial to examine the use of acupressure in 134 adolescent girls' menstrual distress, pain and anxiety perception. The girls were assigned to experimental groups of acupressure on St36, LI4 or LI4-Sp6 "Matched Points" for 20 minutes, while the control group did not receive any acupressure intervention. Four validated instruments were used to collect data: two for pain, one for anxiety and one for menstrual distress. During the 6-month follow-up, acupressure at LI4-Sp6 Matched Points reduced the pain, distress and anxiety typical of dysmenorrhoea. Acupressure at LI4 was found to reduce menstrual pain but not menstrual distress or anxiety. Acupressure on St36 had no significant effects on any of the outcomes, which would be expected of this point. The researchers concluded that the trial provides preliminary evidence that 6-months of acupressure therapy provides adolescent girls with dysmenorrhoea benefits and recommended the use of self-care acupressure at LI4-Sp6 Matched Points and at LI4 alone.

Zhu Y et al. Efficacy observation of primary dysmenorrhoea treated with isolated-herbal moxibustion on Shenque (CV 8) [Article in Chinese]. *Zhongguo Zhen Jiu* 2010 ; 30: 453-5.

A randomised controlled trial that observed the clinical efficacy on primary dysmenorrhoea treated with moxibustion on Ren 8. One hundred and two women were assigned to a moxibustion group or a western medication group (i.e. analgesic s). In the moxibustion group, 17 patients were cured, 21 improved markedly, 9 improved some and 4 did not improve. In the western medication group corresponding figures were; 7, 11, 21, 12. The total effective rates were 92.2% with moxibustion versus 76.5% with drugs ($p < 0.01$). The dysmenorrhoea scores before and after treatment and the side effects profiles were superior with moxibustion (all $p < 0.01$). The researchers concluded that moxibustion on Ren 8 is superior to oral analgesics for primary dysmenorrhoea, and deserves to be promoted due to its safety advantages, fewer side effect and

good patient compliance.

Wang MC et al. Effects of auricular acupressure on menstrual symptoms and nitric oxide for women with primary dysmenorrhoea. *Journal of Alternative and Complementary Medicine* 2009; 15: 235-42.

A randomised controlled study that evaluated the effects of ear acupressure on relieving menstrual symptoms and decreasing nitric oxide (NO) for women with primary dysmenorrhoea. Ear acupressure by seed-pressure method was compared to a placebo adhesive patch in 71 college females. Acupressure protocol included massaging 15 times on each acupoints (Liver, Kidney and Endocrine), 3 times a day, for a total of 20 days. The effects of treatment were monitored using the short-form Menstrual Distress Questionnaire (MDQs) and blood samples of NO at baseline and within the first 2 days of their next menses (after completion of 20 days of acupressure). In the acupressure group, the overall menstrual symptoms and two subscales, menstrual pain and negative affects, revealed that menstrual symptoms decreased significantly after ear acupressure (effect sizes in the range 0.38-0.45; $p < 0.05$). NO levels increased in the acupressure group, although this difference did not achieve statistical significance ($p > 0.05$). The researchers concluded that the results show that ear acupressure by seed-pressure method improves menstrual symptoms.

Witt CM et al. Acupuncture in patients with dysmenorrhea: a randomized study on clinical effectiveness and cost-effectiveness in usual care. *Am J Obstet Gynecol* 2008;198:166.e1-8.

A randomised controlled trial that investigated the clinical effectiveness and cost-effectiveness of acupuncture in 649 women with dysmenorrhoea. Patients were allocated to acupuncture (15 sessions over 3 months) or to a control group (no acupuncture). Patients who declined randomisation received acupuncture treatment. All of the women were allowed to receive usual medical care. After 3 months, the average pain intensity (NRS 0-10) was lower in the acupuncture group compared to the control group (3.1 vs. 5.4, difference -2.3, 95% CI -2.9 to -1.6; $p < .001$). The acupuncture group also had better quality of life scores but costs were higher (overall ICER 3,011 Euros per QALY). The researchers concluded that additional acupuncture in patients with dysmenorrhoea was associated with improvements in pain and quality of life when compared to usual care alone and was cost-effective within usual thresholds.

Research on mechanisms in dysmenorrhoea

Liu F et al. Study on the underlying mechanism of acupuncture in regulating neuroendocrine activity in dysmenorrhea rats. *Zhen ci yan jiu = Acupuncture research* 2009; 34: 3-8.

An animal study that investigated the influence of acupuncture on neuroendocrine function in rats with primary dysmenorrhoea. The researchers found that acupuncture effectively relieved dysmenorrhoea in the rat, and postulated that this action may be closely related to its effects in regulating neuroendocrine activities and the related receptor expression of the hypothalamus-pituitary-ovary axis.

Yang YQ, Huang GY. Study on effects of acupuncture on mice dysmenorrhea model and the mechanism. *Zhongguo zhen jiu = Chinese acupuncture & moxibustion* 2008; 28: 119-21.

An animal study that investigated the mechanisms of acupuncture in treatment of dysmenorrhoea in mice. The researchers found that acupuncture can improve the symptoms of dysmenorrhoea in mice to a certain extent, and postulated that the mechanism is possibly related to regulative effects of acupuncture on hormone-mediating receptors in mice.

Research on mechanisms for acupuncture in general

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.	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.
Samuels N et al. Acupuncture for psychiatric illness: a literature review. <i>Behav Med</i> 2008; 34: 55-64	A literature review of acupuncture for psychiatric illness, which presents research that found acupuncture to increase central nervous system hormones, including ACTH, beta-endorphins, serotonin, and noradrenaline. It concludes that acupuncture can have positive effects on depression and anxiety.
Zhou Q et al. The effect of electro-acupuncture 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.	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 ($P < 0.05$, or $P < 0.0$). The researchers concluded that the anti-anxiety effect of electro-acupuncture may relate to its regulation of the imbalance of neurotransmitters.
Kavoussi B, Ross BE. The neuroimmune basis of anti-inflammatory acupuncture. <i>Integr Cancer Ther</i> 2007; 6: 251-7.	A review 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.	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.

Pomeranz B. Scientific basis of acupuncture. In: Stux G, Pomeranz B, eds. Acupuncture Textbook and Atlas. 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.

Methodological considerations concerning acupuncture trials

Lundeborg T et al. Is Placebo Acupuncture What It is Intended to Be? Evid Based Complement Alternat Med. 2009 Jun 12. [Epub ahead of print]

Discusses the concerns with sham acupuncture and recommends instead that the therapy be evaluated by comparisons with standard treatments.

Sherman KJ, Coeytaux RR. Acupuncture for Improving Chronic Back Pain, Osteoarthritis and Headache. J Clin Outcomes Manag. 2009 May 1;16(5):224-230

An overview of the clinical research on acupuncture for three chronic pain conditions, back pain, osteoarthritis and headache (tension headache and migraine).

Terms and conditions

The use of this fact sheet is for the use of British Acupuncture Council members and is subject to the strict conditions imposed by the British Acupuncture Council details of which can be found in the members area of its' website www.acupuncture.org.uk.