

ACUPUNCTURE AND CHILDBIRTH

About childbirth

Pregnancy is a physiological state, but even when a woman has an uncomplicated pregnancy she may suffer with back and pelvic pain, nausea, indigestion or emotional problems such as anxiety and depression. When the foetus is in the breech position, labour can be complicated. Labour consists of a series of rhythmic, involuntary, progressive contractions of the uterus that cause effacement (thinning and shortening) and dilation of the uterine cervix. In a first pregnancy, labour usually lasts 12 to 18 hours on average; subsequent labours are often shorter, averaging 6 to 8 hours. During labour, most women need some form of analgesia, and some may require local anaesthesia during stitching if they tear during the birth. Normal labour usually begins within 2 weeks (before or after) the estimated delivery date.

References

[online] Available: <http://www.nice.org.uk/nicemedia/live/11947/40145/40145.pdf>

How acupuncture can help

An overview of systematic reviews and randomised controlled trials across the whole area of pregnancy found evidence that acupuncture may assist with the management of some complaints, though more studies are needed (Smith 2009).

Systematic reviews of randomised and quasi-randomised controlled trials suggest that acupuncture may help to relieve pain during labour (Cho 2010; Smith 2006). The later review found that acupuncture was superior to conventional analgesia but not, or marginally, better than minimal (sham) acupuncture. Given that sham acupuncture interventions are not inert placebos the effect of real acupuncture may be underestimated in such trials, and non-superiority should not be taken at face value (Lundeberg 2009). Since that review was compiled there have been further trials supporting the efficacy of electroacupuncture (Ma WZ 2010), moxibustion (Ma SX 2010) and acupressure (Hjelmstedt 2010).

Several systematic reviews have found that moxibustion has a positive effect in correcting breech presentation (Vas 2009; Li 2009; Van den Berg 2008), though the results from two recent trials go against the general trend (Millereau 2009; Guittier 2009). A modeling study based on the systematic review data calculated that moxibustion treatment would be cost-effective (van den Berg 2010).

For back and pelvic pain there is a systematic review (Ee 2008) and one subsequent RCT (Wang 2009) indicating that acupuncture may provide effective pain relief. In another recent study (Eldon 2008) acupuncture was significantly superior to sham for functional ability but not pain relief (see above for comments on sham acupuncture comparisons).

A systematic review of acupuncture for labour induction suggested that it could be beneficial, although the randomised trials had mixed results (Lim 2009). Five subsequent RCTs (Liu 2008; Smith 2008; Asher 2009; Modlock 2010) are also mixed, so the case for acupuncture in induction remains unproven.

There is evidence in favour of acupuncture for depression (Manber 2010), emotional problems in general (da Silva 2007) and dyspepsia (da Silva 2009).

Acupuncture is relatively safe with no records of serious adverse events in the pregnancy-related systematic reviews (Cho 2010; Lim 2009; Vas 2009; Ee 2008).

See Table below for further details of the cited studies.

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, as well as promoting relaxation (Hui 2010)

In pregnant women, acupuncture may help to relieve pain (e.g. back pain, labour pain), improve mood and reduce anxiety, alleviate dyspepsia, and turn a foetus who is breech by:

- 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; Zhao 2008; Cheng 2009);
- reducing inflammation, by promoting release of vascular and immunomodulatory factors (Zijlstra 2003; Kavoussi 2007);
- increasing cortico-adrenal secretion, placental estrogens, and changes in prostaglandin levels, which leads to raised basal tone of the uterus and enhanced movement of the fetus, thus making version more likely (Van den Berg 2008).

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 CHILDBRITH

The evidence

Research	Conclusion
Heading	
Cho SH et al. Acupuncture for pain relief in labour: a systematic review and meta-analysis. <i>BJOG</i> 2010;117(8):907-20.	A systematic review that critically evaluated the evidence on acupuncture for labour pain management. Ten randomised controlled trials involving 2,038 women receiving acupuncture alone, or as an adjunct to conventional analgesia, for pain relief in labour were included. Pain intensity on a 100-mm visual analogue scale and uptake of other analgesic methods were used as primary outcomes. VAS for pain intensity data were available in seven studies, and pooling of this data showed that acupuncture was not superior to minimal acupuncture at 1 hour and at 2 hours. Patients reported significantly reduced pain by 4% and 6% during electroacupuncture (EA) treatment at 15 and 30 minutes compared with placebo EA. Compared with no intervention, acupuncture reduced pain by 11% for the first 30 minutes. In trials where acupuncture was compared with conventional analgesia, women receiving acupuncture required less meperidine and other analgesic methods. No acupuncture-related adverse events were reported. <u>Despite the results, the reviewers concluded that the evidence from randomised controlled trials does not support the use of acupuncture for controlling labour pain.</u>
Lim CE et al. Effect of acupuncture on induction of labor. <i>J Altern Complement Med</i> 2009;15:1209-14.	A systematic review of the existing scientific evidence on the potential role of acupuncture for induction of labour during pregnancy. Ten studies were identified. The duration of labour as a result of acupuncture treatment ranged from 10 hours 20 minutes to 29.1 hours. All of the studies demonstrated labour induction by acupuncture treatment. However, because two (of the five) randomised controlled trials reported that there was no statistically significant effect of acupuncture, these results are more suggestive than definitive. <u>The reviewers concluded that, although the definitive role of acupuncture in inducing labour is still yet to be established, the existing studies suggest that acupuncture may be beneficial in labour induction.</u>
Vas J et al. Correction of nonvertex presentation with moxibustion: a systematic review and metaanalysis. <i>Am J Obstet Gynecol</i> 2009;201:241-59.	A systematic review including 6 randomised controlled trials and a total of 1,087 pregnant women that assessed moxibustion for breech presentation. The rate of cephalic version among the moxibustion group was 72.5% versus 53.2% in the control group (relative risk, 1.36; 95% CI 1.17-1.58). In terms of safety, no significant differences were found in the comparison of moxibustion with other techniques. <u>The reviewers concluded that moxibustion at acupuncture point BL67 has been shown to produce a positive effect, whether used alone or in combination with acupuncture or postural measures, in comparison with observation or postural methods alone, for the correction of breech presentation.</u>
Li X et al. Moxibustion and other acupuncture point stimulation methods to treat breech presentation: a systematic review of clinical trials. <i>Chin Med</i> 2009;4:4.	A systematic review that evaluated the efficacy and safety of moxibustion to treat breech presentation. Ten randomised controlled trials involving 2,090 women and 7 controlled clinical trials involving 1,409 women were included. Meta-analysis of randomised controlled trials showed significant differences between moxibustion and no treatment (RR 1.35, 95% CI 1.20 to 1.51; 3 RCTs), but not between moxibustion and knee-chest position. Moxibustion plus other therapeutic methods showed

	<p>significant beneficial effects (RR 1.36, 95% CI 1.21 to 1.54; 2 RCTs). For nonrandomised controlled trials, moxibustion was more effective than no treatment (RR 1.29, 95% CI 1.17 to 1.42; 2 CCTs) but not more effective than the knee-chest position treatment. <u>The reviewers concluded that moxibustion, acupuncture and laser acupoint stimulation tend to be effective in the correction of breech presentation.</u></p>
<p>van den Berg I et al. Effectiveness of acupuncture-type interventions versus expectant management to correct breech presentation: a systematic review.</p> <p><i>Complement Ther Med</i> 2008;16:92-100.</p>	<p>A systematic review of studies that assessed the effectiveness of acupuncture-type interventions (moxibustion, acupuncture, or electro-acupuncture) on acupuncture point BL 67 to correct breech presentation compared to expectant management. Six randomised controlled trials and three cohort studies fulfilled the inclusion criteria. In the former, the pooled proportion of breech presentations was 34% following treatment versus 66% in the control group (OR 0.25, 95% CI 0.11-0.58). The pooled proportion in the cohort studies was 15% versus 36% (OR 0.29, 95% CI 0.19-0.43). <u>The reviewers concluded that their results suggest that acupuncture-type interventions on BL 67 are effective in correcting breech presentation compared to expectant management.</u></p>
<p>van den Berg I et al. Cost-effectiveness of breech version by acupuncture-type interventions on BL 67, including moxibustion, for women with a breech foetus at 33 weeks gestation: a modelling approach. <i>Complement Ther Med</i> 2010;18:67-77.</p>	<p>A modelling study to estimate the effectiveness and costs of breech version with acupuncture-type interventions, including moxibustion, on BL67 compared to expectant management for women with a foetal breech presentation at 33 weeks gestation. The results suggested that such an intervention would reduce the number of breech presentations at term, thus reducing the number of caesarean sections, and so would be cost-effective compared to expectant management, including external cephalic version.</p>
<p>Ee CC et al. Acupuncture for pelvic and back pain in pregnancy: a systematic review. <i>Am J Obstet Gynecol</i> 2008;198:254-9.</p>	<p>A systematic review that looked at the effectiveness of acupuncture in treating pelvic and back pain in pregnancy. Two small trials on mixed pelvic/back pain and one large high-quality trial on pelvic pain met the inclusion criteria. Acupuncture, as an adjunct to standard treatment, was superior to standard treatment alone and physiotherapy in relieving mixed pelvic/back pain. Women with well-defined pelvic pain had greater relief of pain with a combination of acupuncture and standard treatment, compared to standard treatment alone or stabilizing exercises and standard treatment. Few and minor adverse events were reported. <u>The reviewers concluded that limited evidence supports acupuncture use in treating pregnancy-related pelvic and back pain.</u></p>
<p>Smith CA et al. Complementary and alternative therapies for pain management in labour. <i>Cochrane Database Syst Rev</i> 2006 Oct 18;(4):CD003521.</p>	<p>A systematic review that examined currently available evidence supporting the use of alternative and complementary therapies for pain management in labour. It included three trials of acupuncture involving 496 women. These showed a decreased need for pain relief. <u>The reviewers concluded that acupuncture may be beneficial for the management of pain during labour, but the small number of women studied was a limitation.</u></p>

Overview

<p>Smith CA, Cochrane S. Does acupuncture have a place as an adjunct treatment during pregnancy? A review of randomized controlled trials and systematic reviews. <i>Birth</i></p>	<p>A review that summarised the evidence examining the effectiveness of acupuncture during pregnancy and birthing. All placebo-controlled randomised trials of parallel design, and systematic reviews that evaluated the role of acupuncture during pregnancy and birthing were included. A critical appraisal of clinical</p>
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2009 Sep;36(3):246-53.

trials and systematic reviews was undertaken. The summarised findings indicated that there is some evidence suggesting a benefit from acupuncture to treat nausea in pregnancy, and promising evidence for the effectiveness of acupuncture to manage back and pelvic pain, acupuncture-type interventions to induce change in breech presentation, and pain relief in labour. The reviewers concluded that evidence is beginning to consolidate that shows acupuncture may assist with the management of some complaints during pregnancy. However, they stated that more evidence is needed to confirm this.

Randomised controlled trials

Pelvic and back pain

Wang SM et al. Auricular acupuncture as a treatment for pregnant women who have low back and posterior pelvic pain: a pilot study. *Am J Obstet Gynecol* 2009;201:271.e1-9..

A randomised controlled trial that examined whether 1 week of continuous auricular acupuncture could reduce low back and posterior pelvic pain associated with pregnancy. 159 women were assigned to an acupuncture group, a sham acupuncture group, or a waiting list control group. All participants were monitored for 2 weeks. The changes from baseline to day 7 showed significant group differences in pain ($F = 15$; $p < 0.0001$) and in the disability rating index score ($F = 7$; $p < 0.0001$). The participants in the acupuncture group reported a greater reduction in pain and improvement of functional status compared with those in the sham acupuncture and control groups. The researchers concluded that one week of continuous auricular acupuncture decreases the pain and disability experienced by women with pregnancy-related low back and posterior pelvic pain.

Elden H et al. Acupuncture as an adjunct to standard treatment for pelvic girdle pain in pregnant women: randomised double-blinded controlled trial comparing acupuncture with non-penetrating sham acupuncture. *BJOG* 2008;115:1655-68.

A randomised controlled trial that investigated whether acupuncture has a greater treatment effect than non-penetrating sham acupuncture in 115 women with pelvic girdle pain during pregnancy. Women were allocated to standard treatment plus acupuncture or to standard treatment plus non-penetrating sham acupuncture for 8 weeks. The main outcome measure was pain. After treatment, median pain decreased from 66 to 36 in the acupuncture group and from 69 to 41 in the non-penetrating sham group ($p = 0.493$) as assessed on a VAS. Women in the acupuncture group were in regular work to a higher extent than women in the sham group ($p = 0.041$). The acupuncture group had superior ability to perform daily activities measured with the disability rating index (44 vs. 55, $P = 0.001$). The researchers concluded that acupuncture had no significant effect on pain compared with non-penetrating sham acupuncture, but that there was some improvement in performing daily activities.

Mental health

Manber R et al. Acupuncture for depression during pregnancy: a randomized controlled trial. *Obstet Gynecol* 2010;115:511-20.

A randomised controlled trial that assessed the efficacy of acupuncture for depression during pregnancy in 150 pregnant women given acupuncture specific for depression or one of two active controls: control acupuncture or massage. Treatments lasted 8 weeks (12 sessions). The primary outcome was the Hamilton Rating Scale for Depression, at baseline and after 4 and 8 weeks of treatment. Women who received acupuncture specific for depression experienced a greater rate of decrease in symptom severity ($p < 0.05$) compared with the combined controls (Cohen's $d = 0.39$, 95% CI 0.01-0.77) or control acupuncture alone ($p < 0.05$; Cohen's $d = 0.46$, 95% CI 0.01-0.92). They also had significantly greater response rate (63.0%) than the combined controls (44.3%; $p < 0.05$) and control acupuncture alone (37.5%; $p < 0.05$). Symptom reduction and response rates did not differ significantly between controls. The researchers concluded that acupuncture specific for depression reduces symptoms and increases response rate in similar amounts to those observed with standard depression

treatments and could be a viable treatment option for depression during pregnancy.

da Silva JBG. Acupuncture for mild to moderate emotional complaints in pregnancy- a prospective, quasi-randomised, controlled study. *Acupunct Med* 2007;25:65-71.

A quasi-randomised controlled study that assessed the effects of acupuncture under real life conditions, in the treatment of emotional complaints during pregnancy in 51 women (conventionally-treated with counselling by their physicians and nurses). They were either treated or not by acupuncture. Both groups presented with emotional complaints such as anxiety, depression and irritability. They reported the severity of symptoms using a Numerical Rating Scale (NRS) from 0 to 10; and they rated how much the symptoms disturbed five aspects of their lives: mood, sleep, relationships, social activities, sexual life and joy of living. Over the study period, the NRS scores of intensity of emotional distress decreased by at least half in 60% of patients in the study group versus in 26% of those in the control group (P=0.013). The impact of the distress on three out of the five aspects of life was significantly less in the acupuncture group when compared with the control group (p<0.05). The researchers concluded that acupuncture seemed to be an efficacious means of reducing symptoms and improving the quality of life of women with emotional complaints during pregnancy.

Dyspepsia

da Silva JB et al. Acupuncture for dyspepsia in pregnancy: a prospective, randomised, controlled study. *Acupunct Med* 2009;27:50-3.

A randomised controlled trial under real-life conditions that assessed the effects of acupuncture on symptomatic dyspepsia during pregnancy and compared this with a group of patients undergoing conventional treatment alone. A total of 42 conventionally-treated pregnant women were treated, or not, by acupuncture. They reported the severity of symptoms and the disability these were causing in daily aspects of life such as sleeping and eating, using a numerical rating scale. The study also observed the use of medications. Significant improvements in symptoms were found in the acupuncture group. This group also used less medication and had a greater improvement in their disabilities when compared with the control group. The researchers concluded that acupuncture may alleviate dyspepsia during pregnancy.

Breech presentation

Guittier MJ et al. Moxibustion for breech version: a randomized controlled trial. *Obstet Gynecol* 2009;114:1034-40.

A randomised controlled trial that estimated the efficacy of moxibustion between 34 and 38 weeks of gestation to facilitate the cephalic version of fetuses in breech presentation and the acceptability of this method by women. BL 67 acupoint was stimulated by moxibustion daily for 2 weeks. The control group received expectant management care. A total of 212 women with breech presentation took part. The

percentages of versions and of caesarean delivery were similar in the two groups. Acceptability of the intervention and women's perceptions of moxibustion were favourable. The researchers concluded that there was no beneficial effect of moxibustion to facilitate the cephalic version of fetuses in breech presentation. Despite this lack of proven effectiveness, women had positive opinions on the intervention.

Millereau M et al. Fetal version by acupuncture (moxibustion) versus control group [Article in French]. *J Gynecol Obstet Biol Reprod* 2009;38:481-7.

A study that assessed the efficacy of moxibustion in the 34th week of pregnancy to increase the rate of fetal reversal in 68 women with breech presentation. They were randomised to receive or not the treatment. The rate of fetal reversal was not statistically higher with moxibustion in primipara (7/19 vs. 6/19) or multipara (9/14 vs. 11/19) women. The researchers concluded that moxibustion did not modified the fetal reversal rate.

Induction of labour

Asher GN et al. Acupuncture to initiate labor (Acumoms 2): a randomized, sham-controlled clinical trial. *J Matern Fetal Neonatal Med* 2009;22:843-8.

A randomised controlled trial that evaluated the efficacy of acupuncture for labour stimulation. Eighty nine nulliparous women at 38 weeks or greater were randomised to traditional Chinese medicine (TCM) acupuncture, sham acupuncture, or usual care only groups. Acupuncture points LI4, SP6, BL32, and BL54 were needled bilaterally. The primary outcome was time from enrolment to delivery. Secondary outcomes included rates of spontaneous labour and caesarean delivery. There were no statistically significant differences among groups for time from enrolment to delivery ($p=0.20$), rates of spontaneous labour ($p=0.66$), or rates of caesarean delivery ($p=0.37$). Rates of maternal and neonatal outcomes were not significantly different. The researchers concluded that TCM acupuncture was not effective in initiating spontaneous labour or reducing the rate of caesarean delivery compared with sham acupuncture or usual medical care.

Modlock J et al. Acupuncture for the induction of labour: a double-blind randomised controlled study. *BJOG* 2010;117:1255-61.

A double-blind randomised controlled trial that investigated whether acupuncture is effective for the induction of labour in post-term pregnancies. A total of 125 healthy women with uneventful pregnancies at gestational week 41(+6) were randomised to real acupuncture twice on the same day or sham acupuncture at the same points. The primary endpoint of labour or delivery was achieved in seven women (12%) in the acupuncture group and eight women (14%) in the control group ($p=0.79$). The researchers concluded that, under the treatment regimen investigated in this study, acupuncture for the induction of labour in post-term women at gestational age 41(+6) weeks may not be effective.

Liu J et al. The safety of electroacupuncture at Hegu (LI 4) plus oxytocin for hastening uterine contraction of puerperants--a randomized controlled clinical observation. *J Tradit Chin Med* 2008;28:163-7.

A randomised controlled trial that investigated the safety of electroacupuncture plus oxytocin for uterine contraction in 276 puerperants with difficult labour. The women were allocated to intravenous oxytocin, or electroacupuncture plus intravenous oxytocin. During labour, heart rate, respiratory frequency, blood pressure, fetal heart rate and the birth process, were all within the normal range in all of the women, with better effects in the acupuncture plus oxytocin group. The researchers concluded electroacupuncture plus intravenous oxytocin can intensify uterine contraction, shorten

the birth process to avoid probable systemic exhaustion consumption, and with no side effects in either puerperants and newborns.

Smith CA et al. Acupuncture to induce labor: a randomized controlled trial. *Obstet Gynecol* 2008;112:1067-74.

A randomised controlled trial that compared the clinical effectiveness of real acupuncture to with sham acupuncture to induce labour. A total of 364 women who were scheduled for a post-term induction with a singleton pregnancy and cephalic presentation were included. There was no difference in need for induction methods between groups: prostaglandin induction: relative risk (RR) 1.20, 95% CI 0.96-1.51; artificial rupture of membranes only: RR 0.93, 95% CI 0.72-1.20; oxytocin only: RR 0.89, 95% CI 0.60-1.32; artificial rupture of membranes plus oxytocin: RR 0.87, 95% CI 0.57-1.33; prostaglandins, artificial rupture of membranes, and oxytocin: RR 0.84, 95% CI 0.37-1.91. The median time from acupuncture to delivery was 68.6 hours compared with 65 for women in the control group. The researchers concluded that two sessions of manual acupuncture, using local and distal acupuncture points, administered 2 days before a scheduled induction of labour did not reduce the need for induction

methods or the duration of labour for women with a post-term pregnancy.

Labour pain

Hjelmstedt A et al. Acupressure to reduce labor pain: a randomized controlled trial. *Acta Obstet Gynecol Scand* 2010;89:1453-9.

A randomised controlled trial that evaluated the effect of acupressure given during the active phase of labour on nulliparous women's ratings of labour pain. In all, 71 women were given acupressure at acupuncture point spleen 6 (SP6) on both legs during contractions over a 30-minute period (acupressure group), 71 women received light touch at SP6 on both legs during the same period of time (touch group) and 70 received standard care (standard care group). Labour pain intensity at different time intervals after treatment was compared with before treatment. A reduction of in-labour pain was found in the acupressure group and was most noticeable immediately after treatment (acupressure group vs. standard care group $p < 0.001$; acupressure group vs. touch group $p < 0.001$). The researchers concluded that acupressure seemed to reduce pain during the active phase of labour in nulliparous women giving birth, but that the treatment effect was small.

Ma SX et al. Effect of moxibustion at Sanyinjiao (SP 6) for uterine contraction pain in labor: a randomized controlled trial [Article in Chinese] *Zhongguo Zhen Jiu* 2010;30:623-6.

A randomised controlled trial to investigate the effect of moxibustion at Spleen 6 (SP 6) for uterine contraction pain in labour, and evaluate its safety. In all, 174 women with singleton pregnancies and cephalic presentation were allocated to a moxibustion group, a placebo-treated group and a blank group. Moxibustion was applied for 30 minutes when the cervix was 3cm dilated. The uterine contraction pain was assessed using a Visual Analogue Scale (VAS). The VAS scores in the treatment group were obviously decreased after 15 and 30 minutes of moxibustion (both $p < 0.05$), but there were no obvious changes in VAS scores in placebo treated group and the blank group. VAS scores decreased more with moxibustion than the other two groups (all $p < 0.05$). After 30 minutes of moxibustion, the effective rate of labour analgesia was 69.5% in the moxibustion group (vs. 45.6% in the placebo and 43.1% in the blank group, $p < 0.05$). Postpartum haemorrhage was less, and the Apgar score of newborn was higher, in the moxibustion group than in the placebo group and blank group (all $p < 0.05$). The researchers concluded that moxibustion at Spleen 6 can relieve uterine contraction pain, and is not associated with side effects in either the mother or infant.

Ma WZ et al. Clinical observation on the effect of electroacupuncture of Sanyinjiao (SP 6) on labor. [Article in Chinese] *Zhen Ci Yan Jiu* 2010;35:217-21.

A randomised controlled trial that observed the effect of electroacupuncture (EA) of Spleen 6 (SP 6) on labour in a total of 349 women compared with sham EA and control. The visual analogue scale (VAS) was used to assess the pain intensity before and after the interventions. The VAS score for childbirth pain intensity was significantly lower in EA group than in control group ($p < 0.05$) and there was no significant difference between sham-EA and control group ($p > 0.05$). The duration of the active phase of the first stage of labour was significantly lower in EA group than in sham-EA group ($p < 0.05$), but there was no significant difference between sham-EA and control groups ($p > 0.05$). The researchers concluded that EA of Spleen 6 can relieve the pain intensity of labour and shorten the duration of the active period of first stage of labour, suggesting an improvement of the quality of delivery after EA.

Post-partum surgical repair pain

Kindberg S et al. Ear acupuncture or local anaesthetics as pain relief during postpartum surgical repair: a randomised controlled trial. *BJOG*

A randomised controlled trial that evaluated two methods of pain relief during postpartum surgical repair in regard to effectiveness, wound healing and patient evaluation. A total of 207 primiparous women with a vaginal delivery at term who needed surgical repair of lacerations to the labia, vagina or perineum were allocated to

2009;116:569-76.

receive ear acupuncture or local anaesthetics, Pain during surgical repair was more frequently reported by participants given ear acupuncture than those given a local anaesthetics (89% versus 54%, $p < 0.01$). Pain intensity was also reported as higher (Visual Analogue Scale score 3.5 vs. 1.5, $p < 0.01$), and the ear acupuncture group received more additional pain relief (53% versus 19%, $p < 0.01$). No difference was observed in wound healing. Comparable proportions of participants reported dyspareunia at 6 months. Patient satisfaction with the allocated pain-relief method was lower in the ear acupuncture group (69 versus 91%, $p < 0.01$) and fewer women would recommend the method to a friend (74 versus 91%, $p < 0.01$). The researchers concluded that ear acupuncture as used in this trial was less effective for pain relief compared with a local anesthetic, and patient satisfaction with allocated pain-relief method was lower in the ear acupuncture group.

Research on mechanisms for acupuncture in general

Hui KK et al. Acupuncture, the limbic system, and the anticorrelated networks of the brain. *Auton Neurosci* 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. *Acupunct Med* 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. *Neuroscience Letters* 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. *Behav Med* 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. *Int J Clin Acupunct* 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.

Zhao ZQ. Neural mechanism underlying acupuncture analgesia. *Prog Neurobiol* 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.	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. <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.

Methodological considerations concerning acupuncture trials

Lundeberg T et al. Is Placebo Acupuncture What It is Intended to Be? <i>Evid Based Complement Alternat Med</i> . 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.
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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.