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# The effects of shiatsu on post-term pregnancy

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## Summary

**Objectives:** To evaluate the effects of shiatsu techniques, as taught by hospital midwives, on the progress of post-term labours and deliveries, to inform practice.

**Design and setting:** A pilot audit on the use of shiatsu for post-term pregnancy at St. Michael's Hospital, Bristol, from March to July 2000.

**Interventions:** Sixty-six women, who attended a consultant clinic hospital appointment at 40 weeks gestation, were taught the massage techniques by one midwife, who had completed the shiatsu course. Seventy-six comparison women were those who attended similar clinics when the midwife was not on duty.

**Outcomes:** The audit extracted outcome information from the Stork hospital database including induction, type of delivery, length of labour and analgesia used.

**Results:** Post-term women who used shiatsu were significantly more likely to labour spontaneously than those who did not ( $p=0.038$ ). Of those who had used shiatsu, 17% more went into spontaneous labour compared to those who were not taught shiatsu.

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## Introduction

Low risk pregnancies which continue for more than 42 weeks, have an increased risk of perinatal mortality and morbidity.<sup>1</sup> Post-term pregnancy also carries a higher risk of the baby being admitted to NICU and is associated with an increased risk of obstetric and neonatal interventions.<sup>2</sup>

A systematic review of trials of sweeping of the membranes for inducing labour or prevent-

ing post-term pregnancy found that there was a reduction in the use of more formal methods of induction after sweeping the membranes, but women reported more discomfort and other adverse effects.<sup>3</sup> A meta-analysis of 19 randomised control trials comparing routine induction with expectant management concluded that routine induction after 41 weeks gestation reduces perinatal mortality.<sup>1</sup> The NICE guidance<sup>4</sup> consequently recommends sweeping the membranes after 41 weeks followed by routine induction. Sweeping the membranes, however, is an uncomfortable and invasive procedure, and the guidelines conclude that further studies are needed in order to develop and standardise measures of maternal satisfaction, attitude and response to induction of labour.

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The main problems experienced during pharmacological induction of labour are an inability to achieve effective labour, or the production of excessively strong uterine contractions. The latter may cause both maternal and foetal distress and both problems may lead to an increased risk of instrumental delivery and caesarean section.<sup>5</sup> During an induction, a woman is not able to have potent pharmacological pain relief until she is in established labour and this can also cause distress.

There is growing interest in the use of complementary therapies during pregnancy and labour and there has been some research into the use of acupuncture. Kubista et al.<sup>6</sup> and Tsuei and Leuzi<sup>7</sup> have shown that electro-acupuncture can be used to induce labour. Smith and Crowther<sup>8</sup> reviewed trials of using acupuncture for inducing labour and found that none of the trials were well-designed, and recommended that good randomised trials to evaluate the efficacy of acupuncture in inducing labour were needed. Smith and colleagues in Adelaide, Australia, are currently carrying out such a trial with women with post-term pregnancies, comparing acupuncture with sham acupuncture (personal communication). Other studies have used transcutaneous electrical nerve stimulation (TENS) at acupuncture points to increase uterine contractions.<sup>9</sup> Several studies have shown that acupressure is an effective non-pharmacological method to reduce nausea and vomiting during and after caesarean section.<sup>10,11</sup> However, there is very little published research on the effects of shiatsu on labour.

Shiatsu is a form of massage based largely on Chinese acupuncture theory and it often includes the use of breathing and exercise. It is traditionally done through the clothes, but may include direct work on the skin. Shiatsu is characterised by the use of static pressure, which can vary from fairly deep physical pressure to light holding. This is applied mostly with the palm of the hand or thumb, although fingers and knuckles and other strokes can also be used.

Midwives may already be using similar massage techniques as part of their routine care, and shiatsu gives more 'focus' to these practices. There is no evidence of any harmful side effects but much reported practitioner evidence of effectiveness. The response of the mother to shiatsu can be immediately and directly monitored by her positive or negative reactions to the techniques. Shiatsu lends itself well to maternity care, since certain specific shiatsu techniques can be taught to non-practitioners, such as midwives and birth partners, for use in particular situations.<sup>12,13</sup> A 6-day course for midwives has been developed by one of the

authors (S.Y.), a shiatsu practitioner specialising in maternity applications, which has enabled midwives to use certain shiatsu tools in their work.<sup>13</sup> This course was run by S.Y. at St. Michael's Hospital, Bristol, and several midwives started to use shiatsu with post-term women. The aim of this study was to evaluate the effects of shiatsu techniques, as taught by hospital midwives, on the progress of post-term labours and deliveries, to inform future midwifery practice.

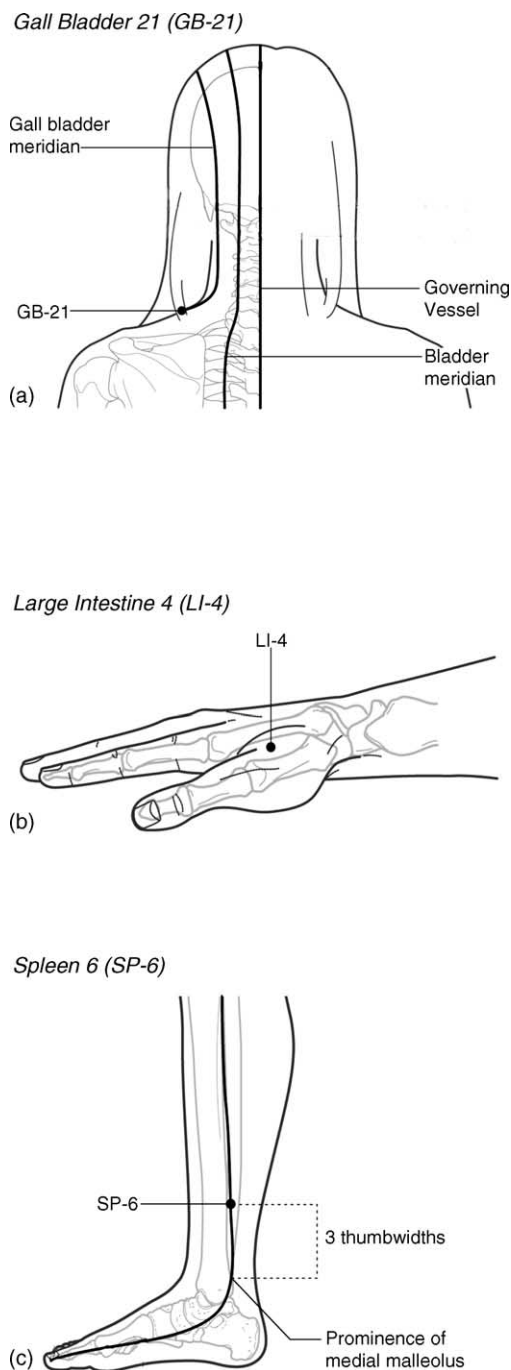
## Methods

Following the introduction of shiatsu techniques into practice, an audit was carried out on the use of shiatsu for post-term pregnancy. All consultants had given permission for the techniques to be used on their patients and shiatsu was approved as an acceptable complementary therapy to be used within the United Bristol Healthcare Trust. Women, who attended a consultant clinic appointment at the hospital at 40 weeks gestation, were taught the massage techniques by one midwife who had completed the course. Comparison women (who were not taught the techniques) were those who attended similar clinics when the midwife was not on duty.

The shiatsu points taught to women were Gall Bladder 21 (GB-21) (in the hollow on top of the shoulder), Large Intestine 4 (LI-4) (between thumb and forefinger on the back of the hand) and Spleen 6 (SP-6) (3 thumb widths above the tip of the anklebone), as shown in Fig. 1. Each point has a slightly different effect, so all points were shown and held with thumb pressure as deep as the woman found to be comfortable until a reaction was felt. If a reaction was felt on the point, then the woman was encouraged to work the point as deeply and firmly and for as long and often as was comfortable. If a woman experienced no reaction from a point, then she would probably not use that particular point. If her partner was present, they were also shown how to work the point with pressure.

The women were also taught simple breathing techniques and exercises on all fours (rocking, squats, cat arches). Each session took no more than 15 min and the women were then encouraged to use the shiatsu points at home as often as it felt comfortable using firm pressure.

The audit extracted outcome information from the Stork hospital database, including pharmacological induction, length of labour, drugs used, foetal distress, type of delivery and birth weight of baby, for women attending the antenatal clinic



**Figure 1** Shiatsu points used for induction of labour (reproduced from Yates<sup>13</sup>).

for post-maturity from March to July 2000. All the women who had been taught the shiatsu techniques were given an audit questionnaire to complete soon after delivery to document their use of shiatsu and thirty women consented to the use of this information by returning their questionnaires.

Data were analysed using chi-square tests for categorical variables (induced labour, vaginal or Caesarean delivery, primiparous or multiparous

mother) to compare those who had been taught shiatsu with those who had not, or *t*-tests for continuous variables, including maternal age, length of labour, gestation of baby and baby weight. Significance levels of 0.05 were taken to indicate that a finding had not occurred by chance.

## Results

The characteristics of the women and babies in the two groups are shown in Tables 1 and 2. There were 66 women who delivered 34 (52%) boys and 32 girls in the shiatsu group and 76 women with 42 (55%) boys and 34 girls in the comparison group. There were no statistically significant differences between the groups for parity, maternal age, gestation at delivery, type of drugs used in labour, number of caesarean deliveries, or birth weight. There were, however, significant differences in the number of labours which were induced in the two groups and also in the length of the labours. Post-term women who used shiatsu were significantly more likely to labour spontaneously than those who did not (chi-square test,  $p=0.038$ ). Of those who had used shiatsu, 17% more went into spontaneous labour compared to those who were not taught shiatsu. If those who had emergency caesarean sections (15) are excluded from the analysis, the difference between the groups is even greater with 68% (41) of spontaneous labours in the shiatsu group and 46% (31) in the comparison group (22% difference, chi-square test,  $p=0.012$ ).

The shiatsu group had longer labours than the comparison group (an average of 1.4h longer), but had similar use of analgesia to cope with their longer labours. Since some of the labour lengths were very short for those who had emergency caesarean sections, if these deliveries are excluded from the analysis, the difference in the length of labour is not significantly different between the two groups (chi-square test,  $p=0.19$ ).

Of 30 women in the shiatsu group who completed an audit questionnaire, 87% (26) used the shiatsu points, 80% (24) found the points helpful before and during their labour and 76% (23) used the breathing and relaxation exercises, which they had been taught. Most women (63%, 19) used all three shiatsu points that they had been shown and 63% (19) of those who did went into labour spontaneously.

## Discussion

The relatively small size of the study and the fact that women were not randomly allocated to the

**Table 1** Characteristics of the women, drugs used during labour and type of delivery for the shiatsu and comparison group.

	Shiatsu group (66)	Comparison group (76)	Chi-square, and <i>p</i> -value
Primiparous	39 (59.1%)	37 (48.7%)	1.54, 0.22
Entonox	48 (75.0%)	61 (80.3%)	0.56, 0.46
Pethidine	18 (27.7%)	16 (21.1%)	0.84, 0.36
Epidural	24 (36.9%)	21 (28.0%)	1.27, 0.26
Foetal distress	24 (36.4%)	36 (47.4%)	1.75, 0.19
Caesarean delivery	6 (9.1%)	9 (11.8%)	0.28, 0.60
Induced labour	25 (37.9%)	42 (55.3%)	4.28, 0.04*

**Table 2** Characteristics of the women, labour length and baby weight for shiatsu and comparison group.

	Shiatsu group	Comparison group	<i>t</i> -test <i>p</i> -value	95% confidence intervals
Mothers age	30.17 years	30.03 years	0.88	−1.76, 2.04
Gestation	40.79 weeks	40.67 weeks	0.49	−0.22, 0.45
Labour length	6.63 h	5.27 h	0.03*	0.13, 2.59
Baby weight	3.68 kg	3.62 kg	0.44	−0.99, 2.27

shiatsu or control groups means that the findings can only be used as an indication of the generalisability of shiatsu in this context, but the results are interesting and the use of these techniques in midwives' daily practice can be justified.

This study was carried out before the NICE<sup>4</sup> guidance on sweeping the membranes was introduced and a comparison of sweeping the membranes with shiatsu would also have been useful, but this procedure was not routinely documented on the Stork database at the time.

The trial run by Smith, which is evaluating the efficacy of acupuncture in inducing labour, has not yet been reported, so it is not yet possible to compare the effects of acupuncture with this audit of shiatsu techniques.

Midwives can be taught the most relevant shiatsu points and meridians for pregnancy, birth and labour by a skilled practitioner, without needing to complete the full shiatsu practitioner training. They can use shiatsu combined with existing midwifery skills of touch, gentle pressure and massage in a more focused way in their daily practice.<sup>13</sup> This study has shown that they can also teach some of the techniques to mothers and their partners to use during pregnancy and labour.

Since current best practice, as reflected in the NICE guidelines, can only recommend invasive or uncomfortable procedures (sweeping the membranes or pharmacological induction) for inducing labour, this seems to be an appropriate time to investigate the use of less invasive techniques to enable women to labour spontaneously with well-designed randomised trials.

This preliminary study raises the hypothesis that the use of specific shiatsu techniques on post-term women by midwives reduces the number of labours that need to be induced pharmacologically.

## Acknowledgements

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## References

1. Crowley P. Interventions for preventing or improving the outcome of delivery at or beyond term (Cochrane review). *The Cochrane library*, vol. 2. Oxford: Update Software; 2004.
2. Luckas M, Buckett W, Alfirevic Z. Comparison of outcomes in uncomplicated term and post-term pregnancy following spontaneous labour. *J Perinatal Med* 1998;26/6:475–9.
3. Boulvain M, Stan C, Irion O. Membrane sweeping for induction of labour (Cochrane review). *The Cochrane library*, vol. 2. Oxford: Update Software; 2004.
4. NICE. *National guideline on the induction of labour*; 2001.
5. Hofmeyr GJ, Alfirevic Z, Kelly T, Kavanagh J, Thomas J, Brocklehurst P, Neilson JP. Methods for cervical ripening and labour induction in late pregnancy: generic protocol (protocol for a Cochrane review). *The Cochrane library*, vol. 2. Oxford: Update Software; 2004.
6. Kubista E, Kucera H, Muller-Tyl E. Initiating contractions of the gravid uterus through electro-acupuncture. *Am J Chin Med* 1975;3:343–6.

7. Tsuei J, Leuizi Y. The influence of acupuncture stimulation during pregnancy. *Obstetr Gynaecol* 1977;50:479–88.
8. Smith CA, Crowther CA. Acupuncture for induction of labour (Cochrane review). *The Cochrane library*, vol. 2. Oxford: Update Software; 2004.
9. Dunn PA, Roger D, Halford K. Transcutaneous electrical stimulation at acupuncture points in the induction of uterine contractions. *Obstetr Gynaecol* 1989;73:286–90.
10. Harmon D, Ryan M, Kelly A, Bowman M. Acupressure and prevention of nausea and vomiting during and after spinal anaesthesia for caesarean section. *Br J Anaesth* 2000;84(4):463–7.
11. Stein DJ, Birnbach DJ, Danzer BI, Kwoda MM, Grunebaum A, Thys DM. Acupuncture versus intravenous metoclopramide to prevent nausea and vomiting during spinal anaesthesia for caesarean section. *Anesth Analg* 1997;84(2):342–5.
12. Yates S. Supporting women with shiatsu: another tool for keeping birth normal. *MIDIRS Midwifery Digest* 1998; 8(4):422–4.
13. Yates S. *Shiatsu for midwives*. Edinburgh: Elsevier; 2003.

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