

Chinese Medicine In Reproductive Health



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Prevalent Use of Complementary and Alternative Medicine (CAM)

- At least 42% of Americans use CAM (Eisenberg et al. N Engl J Med. 1993 Jan 28;328(4):246-52)
- 46% of medical doctors in Switzerland use CAM for themselves (Domenighetti et al Med Hyg 2000; 58:570-2)
- 80% of American women (age 45-60) use CAM for menopausal symptoms

(Kang et al. Int J Gynaecol Obstet. 2002 Dec; 79(3):195-207)

Influence of Acupuncture on the Pregnancy Rate in Patients Who Undergo Assisted Reproduction Therapy

SAMPLE SIZE

160 patients who were undergoing ART and who had good quality embryos; embryo transfer with acupuncture (n = 80) and embryo transfer without acupuncture (n = 80).

INTERVENTION(S)

Acupuncture was performed in 80 patients 25 minutes before and after embryo transfer. In the control group, embryos were transferred without any supportive therapy.

RESULT(S)

Clinical pregnancies were documented in 34 of 80 patients (42.5%) in the acupuncture group, whereas pregnancy rate was only 26.3% (21 out of 80 patients) in the control group.

CONCLUSION(S)

Acupuncture seems to be a useful tool for improving pregnancy rate after ART.

Paulus WE et al. Fertil Steril 2002;77:721–724.

Effects of Acupuncture on Rates of Pregnancy and Live Birth Among Women Undergoing IVF: Systematic Review and Meta-analysis

Design: Systematic review and meta-analysis.

Data synthesis: Seven trials with 1366 women undergoing IVF were included in the meta-analyses.

Conclusions: Current preliminary evidence suggests that acupuncture given with embryo transfer improves rates of pregnancy and live birth among women undergoing IVF

Manheimer E, et al . BMJ 2008;336:545–549.

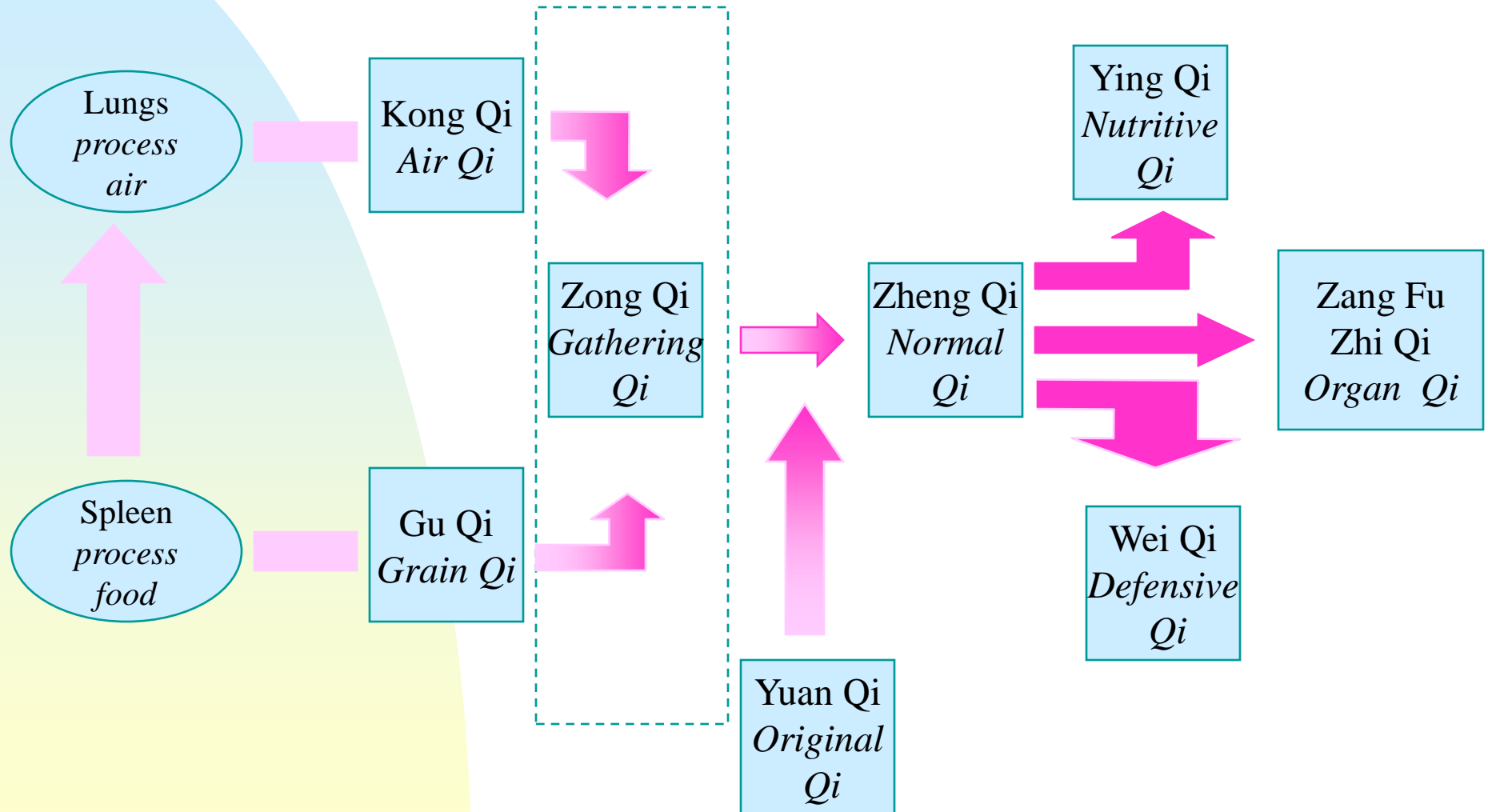
Human body

- **Heart** ruler of all organs, in charge of blood circulation and mental activity
Cardiovascular and certain parts of higher nervous system
- **Liver** « a viscus of temperament », stores blood, secretes bile, and controls muscles
Central nervous et autonomous nervous system
- **Spleen** transforms and transports nutrients and water, nourishing the muscles and limbs and determining the body's constitution, protects the body against pathogens.
Digestive et immune system, as well as the functional system in charge of energy and water metabolism
- **Lung** respiration, controls vital energy and superficial body resistance, regulates circulation of body fluid
Respiratory system, part of immune system, also related to water metabolism
- **Kidney**
Works to secrete urine, store essence of life, either inborn or acquired, in charge of reproduction, growth and development, replenishing the brain, nourishing the bones and producing marrow; helps the lung to inhale air.
Refers to the urogenital and endocrine system (particularly the pituitary-adrenal and pituitary and gonadal axes); part of immune system and higher nervous system

Fundamentals of Chinese Medicine

- **The material basis of the human body**
Qi, Blood, Jing, Jing-ye
- **The pathways of the human body**
Meridians

Types of Qi and their origins



Clinical Guide

- **Principle of diagnosis:**

Diagnosis of disease, syndrome differentiation
(individualized treatment)

Methods:

Inspection, Auscultation and Olfaction,
Interrogation, Palpation

- **Intervention modalities:**

Chinese medication, Acupuncture, Qigong,
Tuina, Dietary

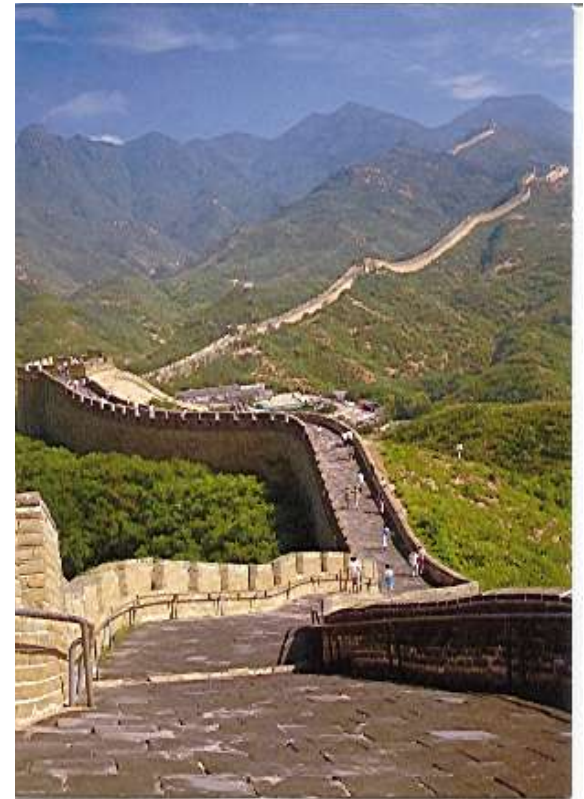


Acupuncture

an overview

Contents

- An insight into Acupuncture
- Indications
- Precautions
- Known biological effects of Acupuncture
- Acupuncture in the Treatment of Climacteric Symptoms



An insight into acupuncture

- Concept of
 - ◆ Yin Yang
 - ◆ Holism
 - ◆ Five element theory
 - ◆ Human body
- A view about the Qi
 - ◆ Formation of Qi
 - ◆ Function of Qi
 - ◆ Disharmony of Qi
- Meridian - the pathway of the body
- Technique and methods

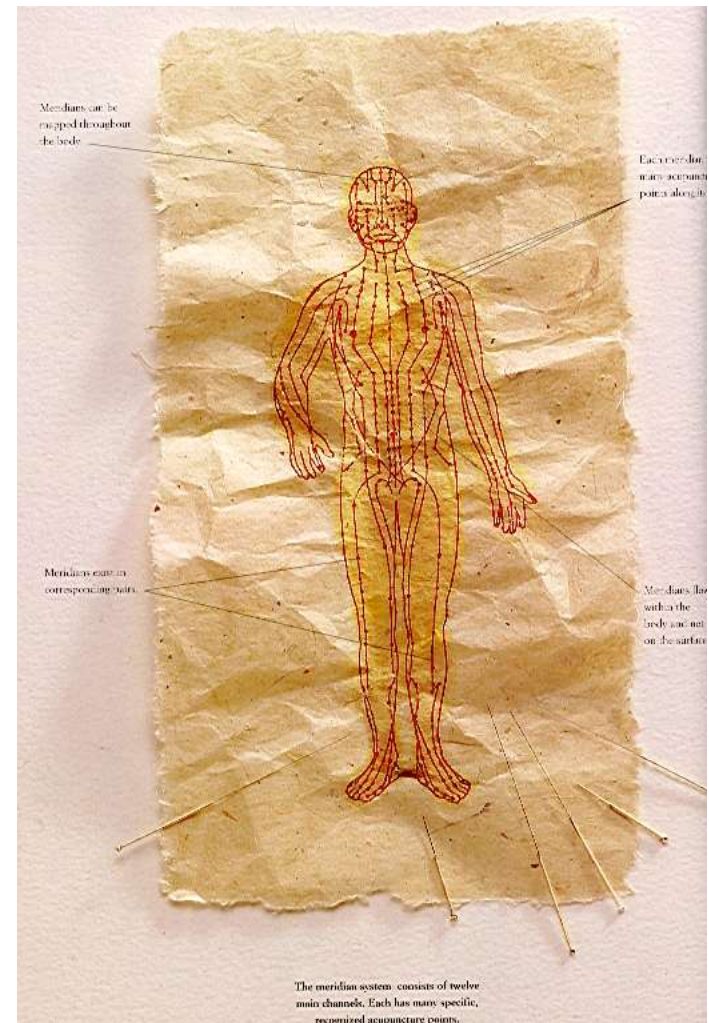
Meridian - The pathway of the body

■ Components

- ◆ 12 regular meridians
- ◆ 12 collaterals
- ◆ 8 extraordinary meridians

Functions

- ◆ Connecting and coordinated creating an integral whole
- ◆ Transporting effects



Spleen Meridian



Technique and methods

- Manual (Classical) Acupuncture
- Electric-acupuncture
- Acupuncture and Moxibustion
- Laser Acupuncture
- Ultrasound Acupuncture

Indications

WHO formulated 43 different diseases which can be treated by Acupuncture in 1979

Journal of World Health Organisation Dec.1979

Indications in Gynaecology and Obstetrics

- Menstrual Disorders
 - ◆ Menorrhagia
 - ◆ Metrorrhagia
 - ◆ Dysmenorrhea
 - ◆ Dysfunction uterine bleeding
 - ◆ Amenorrhea
 - ◆ Premenstrual syndrome
- Infertility
 - ◆ Ovulation induction
 - ◆ IVF+acupuncture

Indications continued

- Hyperemesis
 - ◆ gravida
 - ◆ post chemotherapy
- Breech presentation of the fetus (27-36 weeks)
- Relaxation during labor
- Postpartum
 - ◆ urinary retention
 - ◆ perineal pain
 - ◆ hemorrhage
 - ◆ retention of lochia
- Acute mastitis
- To promote lactation
- To inhibit lactation
- Menopausal symptoms
 - ◆ Hot Flashes
 - ◆ night sweats
 - ◆ irritability
 - ◆ insomnia
 - ◆ depression

Reviews: Acupuncture in male infertility

Modification of semen quality

- Crimmel AS, Conner CS, Monga M. Withered Yang: a review of traditional Chinese medical treatment of male infertility and erectile dysfunction. *J Androl.* 2001 Mar-Apr;22(2):173-82
- Siterman S, Eltes F, Wolfson V, Lederman H, Bartoov B. Does acupuncture treatment affect sperm density in males with very low sperm count? A pilot study. *Andrologia.* 2000 Jan;32(1):31-9.
- Siterman S, Eltes F, Wolfson V, Zabludovsky N, Bartoov B. Effect of acupuncture on sperm parameters of males suffering from subfertility related to low sperm quality. *Arch Androl.* 1997 Sep-Oct;39(2):155-61.

Ovulation induction

- Stener-Victorin E, Waldenström U, Tägnfors U, Lundeberg T, Lindstedt G, Janson PO. Effects of electro-acupuncture on anovulation in women with polycystic ovary syndrome. *Acta Obstet Gynecol Scand*. 2000 Mar;79(3):180-8.
- Stener-Victorin E, Lundeberg T, Waldenström U, Manni L, Aloe L, Gunnarsson S, Janson PO. Effects of electro-acupuncture on nerve growth factor and ovarian morphology in rats with experimentally induced polycystic ovaries. *Biol Reprod*. 2000 Nov;63(5):1497-503.
- Chen BY. Acupuncture normalizes dysfunction of hypothalamic-pituitary-ovarian axis. *Acupunct Electrother Res*. 1997;22(2):97-108.

Ovulation induction

- Chen BY, Yu J. Relationship between blood radioimmunoactive beta-endorphin and hand skin temperature during the electro-acupuncture induction of ovulation. *Acupunct Electrother Res.* 1991;16(1-2):1-5.
- Yu J, Zheng HM, Ping SM. [Changes in serum FSH, LH and ovarian follicular growth during electroacupuncture for induction of ovulation] *Zhong Xi Yi Jie He Za Zhi.* 1989 Apr;9(4):199-202, 195.

Infertility

- Stener-Victorin E, Waldenström U, Andersson SA, Wikland M. Reduction of blood flow impedance in the uterine arteries of infertile women with electro-acupuncture. Hum Reprod. 1996 Jun;11(6):1314-7.
- Gerhard I, Postneek F. Auricular acupuncture in the treatment of female infertility. Gynecol Endocrinol. 1992 Sep;6(3):171-81.

Analgesia in IVF

- Stener-Victorin E, Waldenström U, Nilsson L, Wikland M, Janson PO. A prospective randomized study of electro-acupuncture versus alfentanil as anaesthesia during oocyte aspiration in in-vitro fertilization. Hum Reprod. 1999 Oct;14(10):2480-4.

Anti-emetic

- Kotani N, Hashimoto H, Sato Y, Sessler DI, Yoshioka H, Kitayama M, Yasuda T, Matsuki A. Preoperative intradermal acupuncture reduces postoperative pain, nausea and vomiting, analgesic requirement, and sympathoadrenal responses. *Anesthesiology*. 2001 Aug;95(2):349-56.
- Somri M, Vaida SJ, Sabo E, Yassain G, Gankin I, Gaitini LA. Acupuncture versus ondansetron in the prevention of postoperative vomiting. A study of children undergoing dental surgery. *Anaesthesia*. 2001 Oct;56(10):927-32.
- Knight B, Mudge C, Openshaw S, White A, Hart A. Effect of acupuncture on nausea of pregnancy: a randomized, controlled trial. *Obstet Gynecol*. 2001 Feb;97(2):184-8.
- Shen J, Wenger N, Glaspy J, Hays RD, Albert PS, Choi C, Shekelle PG. Electroacupuncture for control of myeloablative chemotherapy-induced emesis: A randomized controlled trial. *JAMA*. 2000 Dec 6;284(21):2755-61.

Breech presentation

- Cardini F, Weixin H. Moxibustion for correction of breech presentation: a randomized controlled trial. JAMA. 1998 Nov 11;280(18):1580-4.

Pain condition

- Martin DC, Ling FW. Endometriosis and pain. Clin Obstet Gynecol. 1999 Sep;42(3):664-86.
- Helms JM. Acupuncture for the management of primary dysmenorrhea. Obstet Gynecol. 1987 Jan;69(1):51-6.
- Dellenbach P, Rempp C, Haeringer MT, Simon T, Magnier F, Meyer C. [Chronic pelvic pain. Another diagnostic and therapeutic approach] Gynecol Obstet Fertil. 2001 Mar;29(3):234-43.

Induction of labour

- Dunn PA, Rogers D, Halford K. Transcutaneous electrical nerve stimulation at acupuncture points in the induction of uterine contractions. *Obstet Gynecol.* 1989 Feb;73(2):286-90.
- Zeisler H, Tempfer C, Mayerhofer K, Barrada M, Husslein P. Influence of acupuncture on duration of labor. *Gynecol Obstet Invest.* 1998;46(1):22-5.
- Ternov K, Nilsson M, Löfberg L, Algotsson L, Akeson J. Acupuncture for pain relief during childbirth. *Acupunct Electrother Res.* 1998;23(1):19-26.

Known biological effects of acupuncture

- Acupuncture: multiple biological responses
 - Occur local or at distance mediated by sensory neurons. A focus of attention has been the role of endogenous opioids in analgesia and anesthesia.
 - The hypothalamus and pituitary activation results in a broad spectrum of systemic effects.
 - Alternation in secretion of neurotransmitters and neurohormones change in regulation of blood flow both centrally and peripherally.
 - Evidence of alternation of immune functions.

Known biological effects of acupuncture

- Opioids
 - ◆ Enkephalins
 - ◆ β -Endorphin
 - ◆ Dynorphins
- Tachykinin peptides
 - ◆ Substance P
 - ◆ Neurokinine A
- Gastrins
 - ◆ Cholecystikinin (CCK)
 - ◆ Gastrin
- Others
 - ◆ Somatostatin (SRIF)
 - ◆ Neuropeptide Y
 - ◆ Galanin
 - ◆ Calcitonine Gene-related Peptide (CGRP)
 - ◆ Vasoactive intestinal peptide (VIP)

Acupuncture in the Treatment of Climacteric Symptoms





Does "One size fits all" ?

Reluctant to HRT

- **Undesirable side effects (WHI)**
- **Convinced that HRT is not natural or physiological**

Percentage of women being given HRT in six European countries

	West Germany	Great Britain	France	Italy	Denmark	The Netherlands
Premenopause	9	8	13		12	4.5
Perimenopause	44	9	28	9	12.5	5.9
postmenopause	25	6	8	3	12.5	2.5
Total	25	7	12	3	12.3	3.6

A study on the use of medication for climacteric complaints in western Europe

II. Oddens et al. Maturitas 1994 May;19(1):1-12

Etiology of Menopause in TCM

- Gradual weakening of the kidney with age
- Emotional stress: Worry, anxiety and fear lead to decline the kidney yin
- Intemperate sexuality
- Overwork, irregular diet, loss of blood
- Too many children, too close together

Syndromes Differentiation

- Deficiency of **kidney yin**
- ② Deficiency of **kidney yang**
- ③ Deficiency both the **kidney yin and yang**

Reviews: acupuncture and menopause

- ◆ In rat model, EA inhibits the decrease in brain catecholamine contents, improves the memory loss and decrease of immune responses accompanying aging

Toriizuka K, et al. Acupunct Electrother Res. 1999

- ◆ In adult rats mode, EA increases calcitonin gene-related peptide concentrations in the nervous system

Wyon Y,et al. Acta Physiol Scand. 1998 Apr.

- ◆ Does not alter blood pressure or serum lipids for hypertensive postmenopausal women

Kraft K,et al. Forsch Komplementarmed. 1999 Apr.

Study I

The Effects of Acupuncture on the Quality of Life and Reproductive Hormonal Levels in Menopausal Women

Dong H, Lüdicke F, Comte I, Campana A, Graff P, Bischof P. An exploratory pilot study of acupuncture on the quality of life and reproductive hormone secretion in menopausal women. J Altern Complement Med. 2001 Dec;7(6):651-8.

- **Objective**

To assess the effects of acupuncture on the quality of life and reproductive hormonal secretion in menopausal women.

- **Design**

A pilot study comparing changes in the quality of life and reproductive hormones in menopausal women.

- **Patients and Methods**

Eleven menopausal women suffering from vasomotor symptoms and who had no HRT during the previous six months entered into this study (metabolic, thromboembolic, renal or endocrine disease are excluded).

Main outcome measure

A change in the Menopause-specific quality of life questionnaire and Reproductive hormone levels

- Menopause-specific quality of life questionnaire (MENQOL)

- a) vasomotor symptoms
- b) psychosocial symptoms
- c) physical symptoms
- d) sexual symptoms

MENOPAUSE, QUALITE DE VIE ET ACUPUNCTURE

Date du jour
Nom et Pénom
Date de naissance
Médicaments
Ménopause depuis

Mettez une croix dans la case correspondante à l'intensité du symptôme.

	Gradation des Symptomes						
	Absent 0	1	2	3	4	5	Très Marqué: 6
1 Bouffées de chaleur							
2 Sudations nocturnes							
3 Sudations							
4 Insatisfaction dans votre vie personnelle							
5 Sentiments d'angoisse, nervosité							
6 Troubles de la mémoire							
7 Diminution de l'activité							
8 Etat dépressif, morosité							
9 Manque de patience envers autrui							
10 Envie de rester seule							
11 Flatulences (gaz abdominaux)							
12 Douleurs articulaires ou musculaire							
13 Sentiment de fatigue							
14 Insomnie							
15 Maux de dos ou de tête							
16 Diminution de la force physique							
17 Diminution de la résistance nerveuse							
18 Manque d'énergie							
19 Peau sèche							
20 Augmentation de poids							
21 Augmentation de la pilosité faciale							
22 Modification de la texture de votre peau							
23 Impression de ballonnement							
24 Douleur lombaires							
25 Envie fréquente d'uriner							
26 Perte d'urine lors de rire ou de toux							
27 Modification du désir sexuel							
28 Sécheresse vaginale lors des rapports							
29 Tendance à éviter les rapports sexuels							

Measured Reproductive Hormone

- Follicular stimulating hormone (FSH)
- Luteinizing hormone (LH)
- Estradiol (E_2)
- Progesterone (Prog)
- Prolactin (Prl)

Acupuncture treatment

- **Classical manual acupuncture was applied and the choice of acupuncture points was chosen according to syndrome diagnosis.**
- **The depth of the inserted needles (sterilized and disposable) in accordance with the rules of TCM and as confirmed by «De qi».**
- **Two sessions a week for five consecutive weeks. The duration of each session was about 30 minutes.**

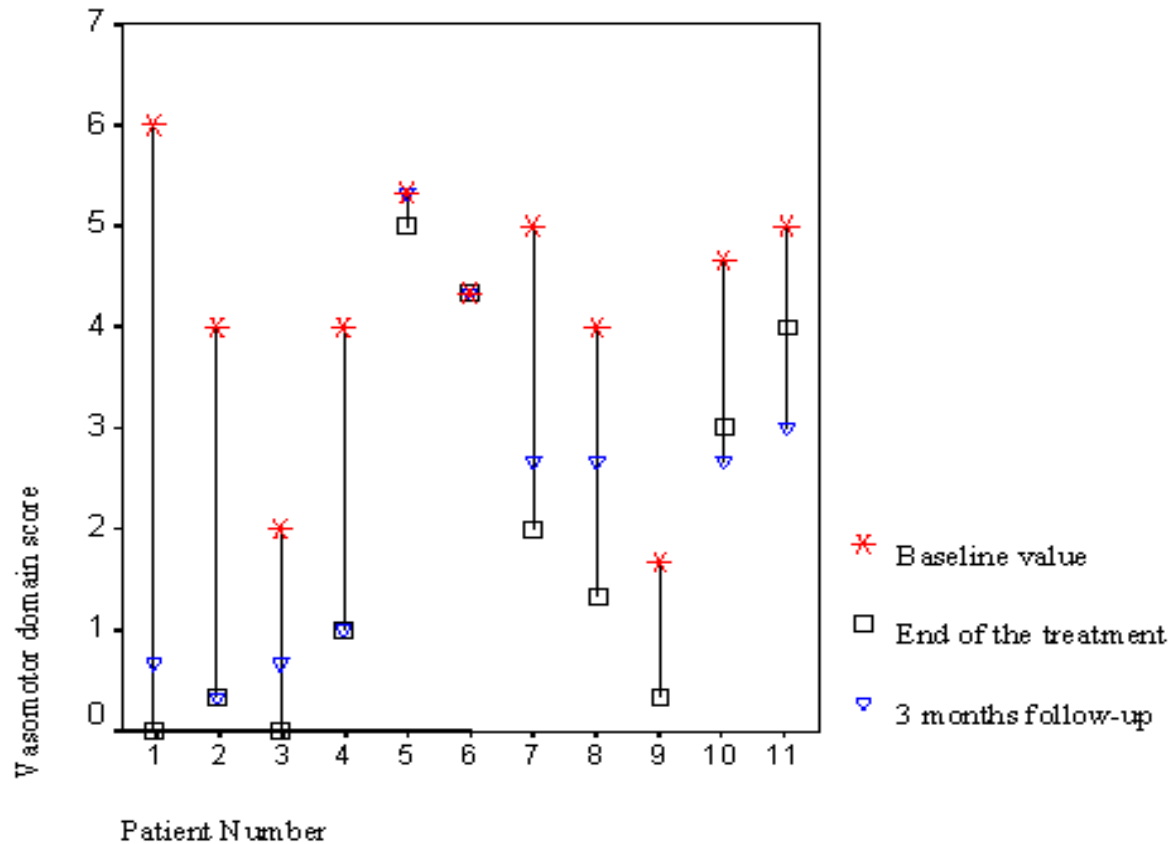
Acupuncture points and their anatomical position used for needle insertion

<i>Points</i>	<i>Meridians</i>	<i>Localization</i>	<i>Indications</i>
Tai-xi (KI 3)	Kidney meridian	Between the medial malleolus and tendo calcaneus	Menopausal symptoms
San-yin-jiao (SP 6)	Spleen meridian	Lower leg, medial side of the tibia	Menopausal symptoms
Shen-shu (BL 23)	Bladder meridian	Lumbar part of the back	Menopausal symptoms, Sweats, libido
Da-zhui (GV 14)	Governor Vessel	Below the spines process of the seventh cervical vertebra	Hot flashes
Feng-chi (GB 20)	Gallbladder meridian	At the lateral of cervical	Hot flashes, Depression
Fu-liu (KI 7)	Kidney meridian	Lower leg, medial side	Sweats
Zu-san-li (ST 36))	Stomach meridian	Lower leg, at the anterior and lateral to the tibia	Fatigue, digestive disturbance
Qi-hai (CV 6))	Conception meridian	On the middle line of the abdomen, below the umbilicus	Fatigue
Da-ling (PC 7)	Pericardium meridian	In the middle of the transverse crease of the wrist	Palpitation, Insomnia
Shen-men (HT 7)	Heart meridian	At the ulnar side of the wrist	Insomnia
Tai-chong (LR 3)	Liver meridian	Dorsum pedis, between the first and second metatarsal bones	Depression

Changes of quality of life scores from pre-treatment (baseline) to the end of the treatment and 3 months after the end of treatment (follow-up)

Domain score	Baseline score	End of the treatment minus baseline (n=11)			3 months follow-up after treatment minus baseline (n=10)		
		Mean change ± S.D.	95 % confidence interval	p-value	Mean change ± S.D.	95 % confidence interval	p-value
Physical	2.4	-0.79 ± 0.89	-1.39 to -0.19	0.014	-0.49 ± 0.67	-0.97 to -0.009	0.046
Vasomotor	4.2	-2.24 ± 1.7	-3.38 to -1.1	0.001	-2.1 ± 1.62	-3.26 to -0.93	0.003
Psychosocial	2.04	-0.75 ± 1.2	-1.55 to 0.53	0.64	-0.73 ± 1.41	-1.74 to 0.28	0.14
Sexual	2.27	-0.24 ± 1.01	-0.92 to 0.43	0.44	-2.6 ± 0.6	-0.69 to 0.16	0.19

Vasomotor domain score assessed by MENQOL questionnaire



The Effects of Acupuncture on Reproductive Hormone Levels

	(N= 11)		P value
	Mean value before and after treatment before	after	
FSH (mUI/ml)	80.3 ± 11.4	73.5 ± 13.9	0.1613
LH (mUI/ml)	48.0 ± 6.6	41.3 ± 8.9	0.2731
E2 (pg/ml)	46.1 ± 24.6	41.8 ± 17.2	0.6222
Prl (ng/ml)	10.8 ± 1.7	11.5 ± 1.8	0.5301
Prog (ng/ml)	0.3 ± 0.0	0.2 ± 0.0	0.7149

Summary

Acupuncture significantly improved menopausal vasomotor and physical symptoms, did not change psychosocial or sexual symptoms, nor follicular stimulating hormone (FSH), luteinizing hormone (LH), estradiol, prolactin or progesterone secretion.

Study II

The Effects of Acupuncture on Quality of Life, Serum Levels of Serotonin in Menopausal Women

Patients and Method

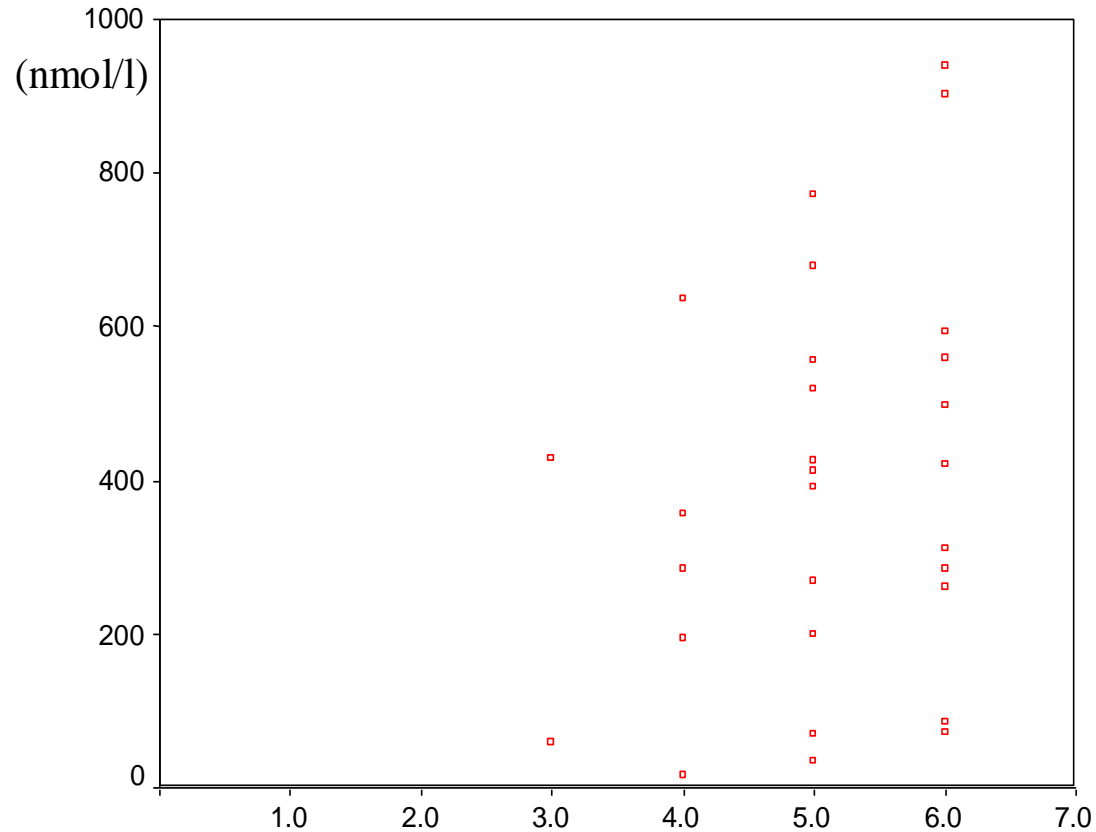
After written consent and recruitment, 36 participants were randomly assigned to EA or MA, by opening opaque, serially numbered envelopes containing a code A (for EA) or B (for MA) determined by computer-generated random numbers and opened the envelopes immediately before the first acupuncture session. Three women were excluded from this study, two because of insufficient compliance in completing the questionnaire, and one for whom it was too difficult to collect a serum sample. The remaining 33 women had a median age of 55.0, ranging from 45 to 72 years.

The effects of acupuncture on menopause quality of life assessment

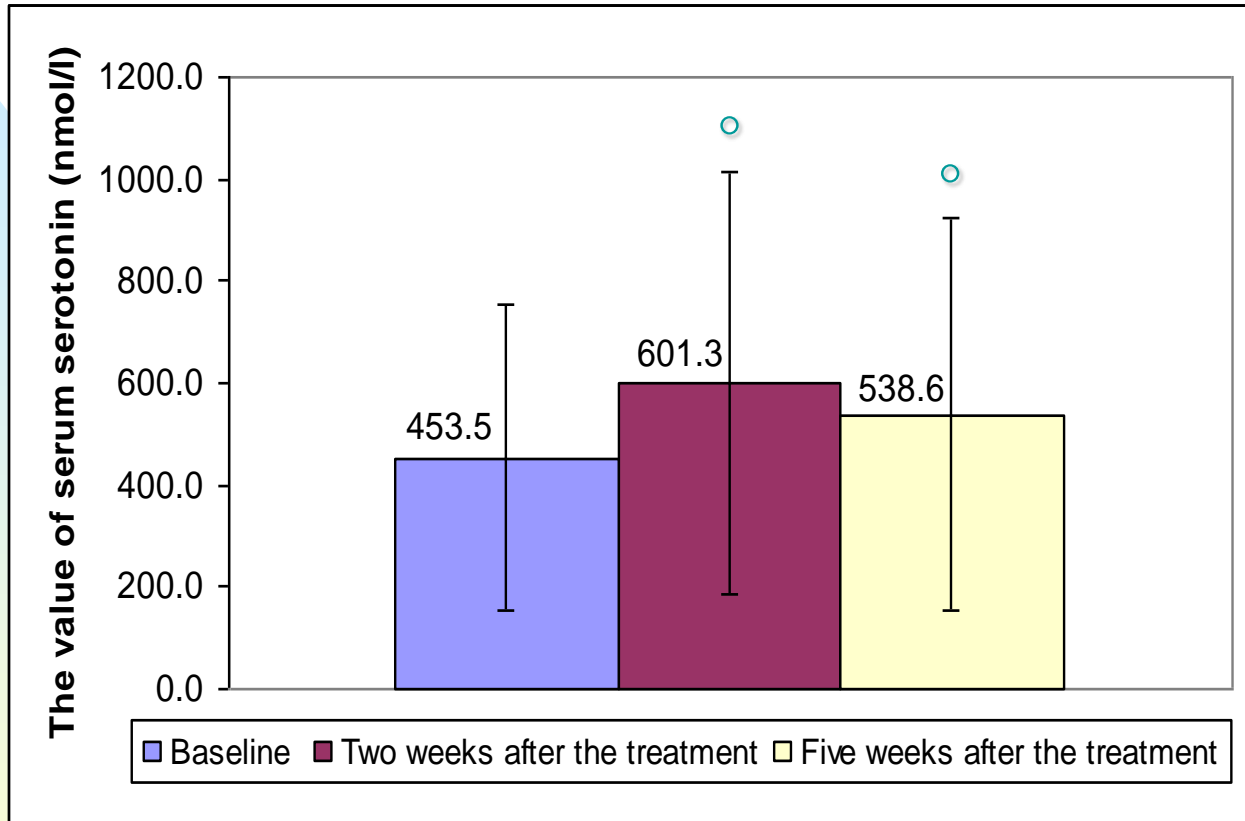
Domains	Vasomotor Mean ± SD	Psychosoci al Mean ± SD	Physical Mean ± SD	Sexual Mean ± SD
Baseline	5.1 ± 0.9	2.4 ± 1.3	2.7 ± 1.2	2.2 ± 2.0
Mid-treatment	3.3 ± 1.4*	1.7 ± 1.1*	2.1 ± 1.0*	1.9 ± 1.7*
End of treatment	2.1 ± 1.5*	1.3 ± 0.8*	1.6 ± 0.9*	1.5 ± 1.6*
EA Baseline	5.3 ± 0.8	2.4 ± 1.1	2.9 ± 1.0	2.4 ± 2.2
EA Mid-treatment	3.6 ± 1.8*	1.6 ± 0.8*	2.3 ± 1.1*	2.2 ± 1.9‡
EA End of treatment	2.5 ± 1.9*	1.3 ± 0.7*	1.8 ± 0.9*	2.0 ± 2.0
MA Baseline	5.0 ± 0.9	2.3 ± 1.5	2.6 ± 1.2	2.1 ± 1.9
MA Mid-treatment	3.2 ± 1.2*	1.8 ± 1.2*	2.0 ± 0.9*	1.8 ± 1.7*
MA End of treatment	1.9 ± 1.1*	1.3 ± 0.8*	1.6 ± 0.9*	1.2 ± 1.4*

Results were presented as Mean ± SD. *: $p < 0.001$, ‡: $p = 0.001$ (treatment vs. baseline, matched paired t-test)

The distribution of the value of serum serotonin at baseline

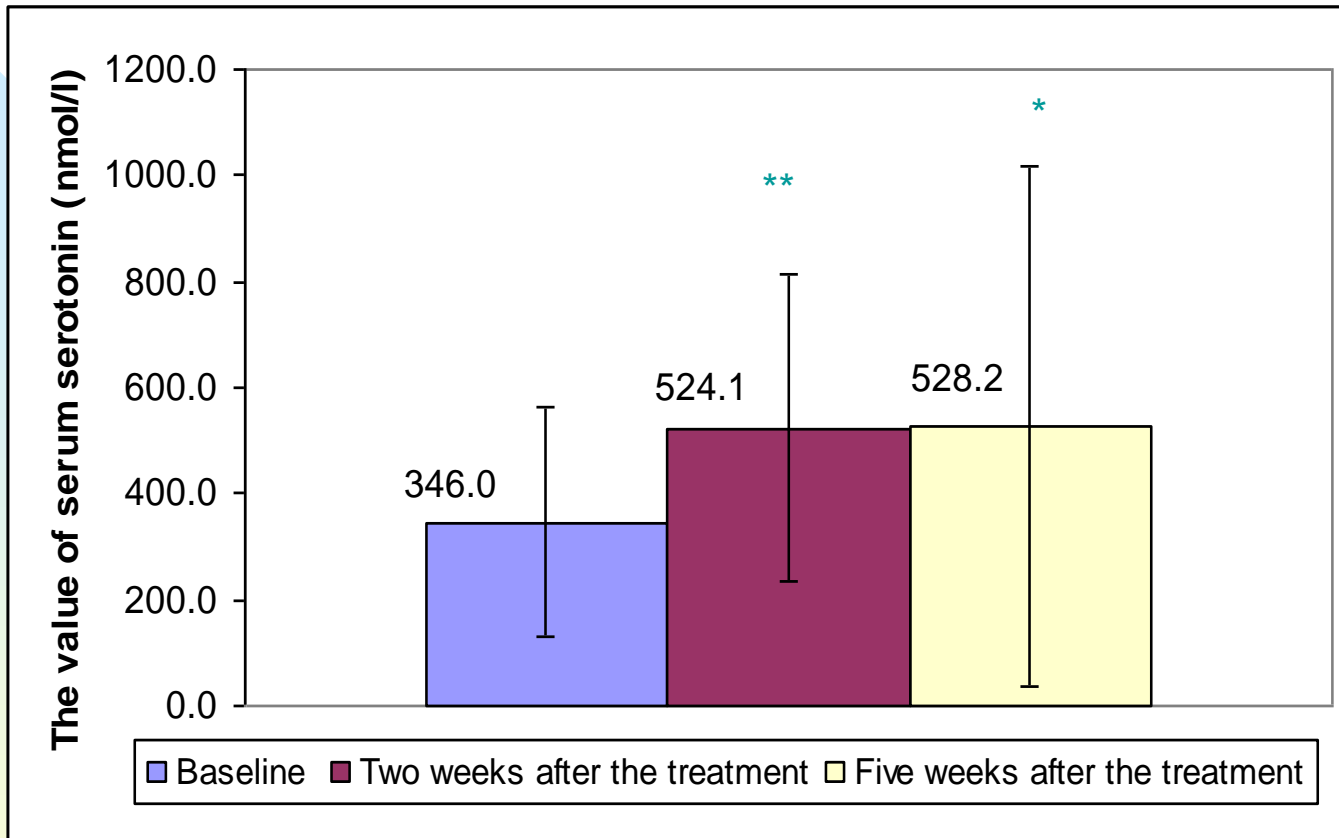


The effects of EA on serum serotonin levels



Results were presented as Mean \pm SD. °: $p > 0.05$, Wilcoxon Signed Ranks Test, $n = 11$. (The samples with baseline > 1000 nmol/l were excluded)

The effect of MA on serum serotonin level



Results were presented as Mean \pm SD. *: $p < 0.05$, **: $p \leq 0.01$, Wilcoxon Signed Ranks Test, $n = 18$ (The samples with baseline >1000 nmol/l were excluded)

Conclusions

Acupuncture could significantly decrease vasomotor symptoms and improve the quality of life for menopausal women.

These effects may be due to the increases in the secretion of serotonin and β -EP through the stimulation of acupuncture.

Because acupuncture is nontoxic and relatively affordable, it could be an alternative for women who do not want or can not use HRT for climacteric symptoms.