

RESEARCH: ACUPUNCTURE, IVF AND EMBRYO TRANSFER

Effects of acupuncture on rates of pregnancy and live birth among women undergoing in vitro fertilization: systematic review and meta-analysis.

Manheimer E et al. BMJ 2008;336 pg 545-549 British Medical Journal

FINDINGS: This research meta-analysis examining existing high quality acupuncture research on acupuncture and IVF. The authors found that "acupuncture increased the odds of a live birth by 91% compared with the control groups".

Influence of acupuncture on the pregnancy rate in patients who undergo assisted reproduction therapy

Paulus W et al, Fertil Steril 2002 Vol 77, pg 721-724 Fertility and Sterility

FINDINGS: This landmark study, was published in a prestigious reproductive medicine journal. The study found that women receiving acupuncture treatment in conjunction with ART had an increase in ongoing pregnancy rates of over 60% compared to control subjects.

Acupuncture & IVF poor responders: a cure?

Magarelli P, Cridennda D, Fertil Steril, 2004; 81 Suppl 3 S20 Fertility and Sterility

FINDINGS: This retrospective study found a 40% increase in pregnancy rates in IVF patients using acupuncture. There were no exclusion criteria for the women in this study. Of important interest in this study, patients classified as poor responders (elevated FSH, longer history of infertility and poor sperm morphology) who received acupuncture demonstrated the same pregnancy rates as normal-prognosis patients.

A randomized, controlled, double-blind, cross-over study evaluating acupuncture as an adjunct to IVF

Quintero R et al, Fertil Steril 2004 Vol 81 Suppl 3, pg S11-12 Fertility and Sterility

FINDINGS: This study showed a significantly lower amount of gonadotropins used when IVF is combined with standard acupuncture. A 70% pregnancy rate was also achieved with standard

acupuncture and IVF, compared to 25% in the control group.

Effect of acupuncture on the outcome of in vitro fertilization and intracytoplasmic sperm injection: a randomized, prospective, controlled clinical study

Dieterle S et al, Fertil Steril 2006 Vol 85, pg 1347-1351 Fertility and Sterility

FINDINGS: This study found that acupuncture can more than double ongoing pregnancy rates compared to control subjects.

Improvement of IVF outcomes by acupuncture: are egg and embryo qualities involved?

Magarelli P., Cohen M, Cridennda, D., Reproductive Medicine & Fertility Center, Colorado Springs, CO, East Winds Acupuncture, Colorado Springs, CO, Pacific Coast Reproductive Society, 2004.

Acupuncture on the day of embryo transfer significantly improves the reproductive outcome in infertile women: a prospective, randomized trial

Westergaard L et al, Fertil Steril 2006 Vol 85, pg 1341-1346 Fertility and Sterility

FINDINGS: This study demonstrated that correct application of acupuncture resulted in increases in IVF ongoing pregnancy rates of over 60%.

Influence of acupuncture stimulation on pregnancy rates for women undergoing embryo transfer

Smith C et al, Fertil Steril 2006 Vol 85, pg 1352-1358 Fertility and Sterility

FINDINGS: This study compared ongoing pregnancy rates in 228 IVF patients. The group receiving true acupuncture had increases in ongoing pregnancy rates of over 50% compared to the sham acupuncture group.

Changes in serum cortisol and prolactin associated with acupuncture during controlled ovarian hyperstimulation in women undergoing in vitro

fertilization–embryo transfer treatment

Magarelli, PC, D Cridennda, M Cohen. Fertil Steril. 2009 Dec;92(6):1870-9

FINDINGS: In this study, there appears to be a beneficial regulation of cortisol and prolactin in the acupuncture group during the medication phase of the IVF treatment, with a trend toward more normal fertile cycle dynamics.

A pilot study evaluating the combination of acupuncture with sildenafil on endometrial thickness

Yu W et.al. Presented at the Pacific Coast Reproductive Society Annual Conference 2007

FINDINGS: This study involved a group of women that had all had poor uterine lining development (less than 8mm) in previous IVF cycles. Acupuncture was customized to each patient. All patients achieved a uterine lining of 10mm or greater. Pregnancy rates are substantially lower overall in women with a lining of 8mm or less. This is another potential mechanism that may contribute to acupuncture improving pregnancy rates for IVF patients.

Effect of acupuncture on the pregnancy rate in embryo transfer and mechanisms: a randomized and controlled study

Zhang M et al, Chin Acup and Moxabustion 2003, Jan 23 (1): 3 - 5

FINDINGS: The pregnancy rate was 44.3% in the acupuncture treatment group, 27.1% in the placebo group and 24.3% in the control group. The pregnancy rate in the acupuncture treatment group was significantly higher than that in the placebo acupuncture group and the control group.

Acupuncture and assisted conception

Cheong et al. Cochrane Database Syst Rev. 2008 Oct 8;(4):CD006920.

FINDINGS: The Cochrane Database is considered by Western physicians to be the "official" position of evidence-based medicine. The authors concluded that acupuncture improves live birth rates.

Acupuncture and IVF: new evidence for an unlikely duo

Horn, B. Alternative Therapies in Women's Health. 2007 Vol. 9(2)81-88.

FINDINGS: This article analyses current acupuncture literature related to IVF. It points out a number of fallacies that have been perpetuated by commentators who are not familiar with acupuncture. When filtering out studies that had improper study design or improper use of acupuncture (such as the use of acupuncture points that are contraindicated during pregnancy), this article reinforces others that properly conducted acupuncture can greatly improve IVF outcomes.

Acupuncture in IVF linked to lower miscarriage and ectopic rates

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FINDINGS: The miscarriage rate was almost halved in the acupuncture group, and the ectopic pregnancy rate was significantly lower. Overall the live-birth rate was significantly higher in the acupuncture group than the control group.

Acupuncture: impact on pregnancy outcomes in IVF patients

Paul C. Magarelli, M.D., Ph.D. Reproductive Medicine & Fertility Center, Colorado Springs, Diane Cridennda, L.Ac. East Winds Acupuncture, Mel Cohen, MBA Reproductive Medicine & Fertility Center, Colorado Springs, 12th World Congress on Human Reproduction, Venice Italy March 2005

FINDINGS: Pregnancy rates were statistically similar, but numerically higher in the acupuncture group. Miscarriage rates were statistically lower in the acupuncture group. There were no ectopic pregnancies in the acupuncture group.

Acupuncture and good prognosis IVF patients: synergy

P. C. Magarelli, D. K. Cridennda, M. Cohen. Reproductive Medicine & Fertility Center, Colorado Springs, CO; East Winds Acupuncture, Inc., Colorado Springs, CO., quoted in JCM 78 June 2005

FINDINGS: Acupuncture significantly increased birth outcomes; it significantly decreased ectopic pregnancies and miscarriage rates.

Use of acupuncture before and after embryo transfer

Dalton-Brewer N et al, Hum Fert 2010 Vol 12 No 4 212 - 255 Human Fertility

FINDINGS: Acupuncture treatment in women in the age groups 35-39 and over 40 were markedly higher than the control group. Overall, in all age groups, acupuncture pregnancy rates were comparable to the controls.

Impact of acupuncture before and after embryo transfer on the outcome of in vitro fertilization cycles: a prospective single blind randomized study

Benson M. R. et al, Fertil Steril 2006 Vol 86, Issue 3, pg S135 Fertility and Sterility

Findings: Conception and implantation rates were highest with traditional needle acupuncture. IVF treatment outcomes did not differ between patients treated with laser or sham laser acupuncture. While not statistically significant, needle acupuncture produced a clinically significant effect (greater than 10% increase in clinical pregnancy rate) compared with relaxation or no treatment.

The effect of acupuncture in assisted reproduction techniques

Teshima D. R. K et al, Fertil Steril 2007 Vol 88, Suppl 1, pg S330 Fertility and Sterility

FINDINGS: There was a higher pregnancy rate in the acupuncture group, but this difference was not statistically significant, probably because of the small number of patients in both groups. Acupuncture seems to be an important coadjutant in the treatment of infertility with IVF or ICSI, and further research is needed to demonstrate the precise effect.

Acupuncture performed before and after embryo transfer improves pregnancy rates

Youran D et al Fertil Steril 2008 Vol. 90, Suppl 1, pg S240 Fertility and Sterility

FINDINGS: Patients with a positive beta hCG were significantly higher in the acupuncture group for women less than 35 years old. The acupuncture group also had a higher continuing pregnancy rate in the under 35 category.

The relationship between perceived stress, acupuncture, and pregnancy rates among IVF patients: a pilot study

Balk J et al, Compl Therapies in Clinical Practice 2010,16,154–157 Complementary Therapies in Clinical Practice

FINDINGS: The acupuncture regimen was associated with less stress both before and after embryo transfer, and possibly improved pregnancy rates. Lower perceived stress at the time of embryo transfer may play a role in an improved pregnancy rate.

The effect of acupuncture on outcomes in in-vitro fertilization (IVF)

Udoff L. C. et al, Fertil Steril 2007 Vol 86, Issue 3, pg S145 Fertility and Sterility

FINDINGS: Preliminary data shows statistically significant improvement in the biochemical pregnancy rate with acupuncture treatment. Additionally, acupuncture was associated with a strong trend towards higher clinical pregnancy rates and take home baby rates, though more patients will need to be studied to reach final conclusions.

A randomized double blind comparison of real and placebo acupuncture in IVF treatment

So et al, Hum Reprod. 2009 Feb;24(2):341-8. Human Reproduction

FINDINGS: Placebo acupuncture was associated with a significantly higher overall pregnancy rate when compared with real acupuncture. Placebo acupuncture may not be inert.

Acupuncture treatment for infertile women undergoing intracytoplasmic sperm injection

Sandra L. Emmons, MD, Phillip Patton, MD, Medical Acupuncture, A Journal For Physicians By Physicians, Spring/Summer 2000 Vol 12 No 2

FINDINGS: Acupuncture may be a useful adjunct to gonadotropin therapy to produce follicles in women undergoing in vitro fertilization.

RESEARCH: ACUPUNCTURE, STRESS AND INFERTILITY

The relationship between perceived stress, acupuncture, and pregnancy rates

among IVF patients: a pilot study

Balk J et al, Complementary Therapies in Clinical Practice, Online 24 December 2009
Complementary Therapies in Clinical Practice

FINDINGS: The acupuncture regimen was associated with less stress both before and after embryo transfer, and it possibly improved pregnancy rates. Lower perceived stress at the time of embryo transfer may play a role in improved pregnancy rates.

The impact of acupuncture on in vitro fertilization outcomes

Domar A et al Fertil Steril 2009 Vol 91 Issue 3 pg 723 - 6 Fertility and Sterility

FINDINGS: Acupuncture patients reported significantly less anxiety post-transfer, reported feeling more optimistic about their cycle and enjoyed their sessions more than the control subjects, but did not have a statistically significant increase in pregnancy rates.

Stressful life events are associated with a poor in-vitro Fertilization (IVF) outcome: a prospective study

Ebbesen S.M.S. Hum Reprod 2009;24(9):2173-2182. Human Reproduction

FINDINGS: A large number of life-events perceived as having a negative impact on quality of life may indicate chronic stress, and the results of our study indicate that stress may reduce the chances of a successful outcome following IVF.

Stress reduces conception probabilities across the fertile window: evidence in support of relaxation.

Buck Louis GM et al, Fertil Steril. 2010 Jul 30. [Epub ahead of print] Fertility and Sterility

FINDINGS: Stress significantly reduced the probability of conception each day during the fertile window, possibly exerting its effect through the sympathetic medullar pathway.

Understanding women's views towards the use of acupuncture while undergoing IVF treatment.

Smith C and De Lacey S, 2008 In press FSA conference 2008

FINDINGS: Acupuncture is an effective and low intensity procedure for increasing women's resilience in the repetitive and stress-inducing time of pregnancy attempts, with or without medical treatment.

Building resilience: an exploration of women's perceptions of the use of acupuncture as an adjunct to IVF

De Lacey S, Smith C and Paterson C, BMC Complementary and Alternative Medicine 2009, 9:50 BioMed Central

FINDINGS: Four major categories of perceptions about acupuncture in relation to reproductive health were identified: (a) awareness of, and perceived benefits of acupuncture; (b) perceptions of the body and the impact of acupuncture upon it; (c) perceptions of stress and the impact of acupuncture on resilience; and (d) perceptions of the intersection of medical treatment and acupuncture. In this study, acupuncture is indeed perceived by infertile women to have an impact to their health.

An assessment of the demand and importance of acupuncture to patients of a fertility clinic during investigations and treatment

Hinks J and Coulson C, Hum Fert 2010 Vol 13, S1 Pg 3-21 Human Fertility

FINDINGS: Female fertility patients' responses to questionnaires indicated clear demand for acupuncture and suggest that acupuncture may be valuable to improve the general wellbeing of women during infertility investigations and treatments. If acupuncture provides an effective coping mechanism, this could support patients to persevere with increased numbers of ART(Assisted Reproductive Technologies) cycles, thereby increasing their ultimate chance of a successful pregnancy.

RESEARCH: ACUPUNCTURE AND GENERAL INFERTILITY

Reduction of blood flow impedance in the uterine arteries of infertile women with electro-acupuncture

Stener-Victorin E, et al Hum Reprod 1996; 11:1314-1317. Human Reproduction

FINDINGS: This study was done to assess whether electro-acupuncture (EA) can reduce a high uterine artery blood flow impedance measured by the pulsatility index (PI) in the uterine arteries. Eight electro-acupuncture (EA) treatments were performed over the course of 4 weeks. The mean PI was significantly reduced both shortly after the eighth EA treatment and 10–14 days after the EA period, showing an improvement in uterine blood-flow.

Role of acupuncture in the treatment of female infertility

Raymond Chang, M.D., The Institute of East-West Medicine, The Department of Internal Medicine, Weill Medical College of Cornell University. Pak H. Chung, M.D., Zev Rosenwaks, M.D., The Center for Reproductive Medicine and Infertility. Received June 24, 2002; revised July 19, 2002.

Findings: Acupuncture may positively impact uterine blood-flow. Further studies need to be done to examine the effect on the hypothalamic-pituitary-ovarian axis and the uterus.

Effects of electro-acupuncture on anovulation in women with polycystic ovary syndrome

Stener-Victorin E et al; Department of Obstetrics and Gynecology, Göteborg University, Sweden.

FINDINGS: Repeated electro-acupuncture (EA) treatments induced regular ovulations in more than one third of the women with PCOS. The group of women with good effect had a less androgenic hormonal profile before treatment and a less pronounced metabolic disturbance compared with the group with no effect.

Acupuncture and exercise restore adipose tissue expression of sympathetic markers and improve ovarian morphology in rats with dihydrotestosterone-induced PCOS.

Mannerås, et al. Am J Physiol Regul Integr Comp Physiol. 2009 Apr;296(4):R1124-31.

FINDINGS: This study showed that acupuncture in combination with exercise significantly improves ovarian quality, including antral follicle count and the morphology of the follicles. It also showed that acupuncture can significantly improve PCOS outcomes.

Acupuncture normalizes dysfunction of hypothalamic-pituitary-ovarian axis

Bo-Ying Chen M.D., Professor of Neurobiology, Institute of Acupuncture and Department of Neurobiology, Shanghai Medical University, Shanghai 200032, P.R. China, accepted with revisions June 30, 1997.

FINDINGS: Acupuncture may regulate the abnormal function of the HPOA such that levels of GnRH, LH and estrogen may be normalized.

Clinical observation on acupuncture for treatment of infertility of ovulatory disturbance.

Song et al. Zhongguo Zhen Jiu. 2008 Jan;28(1):21-3.

FINDINGS: This study compared acupuncture to Clomid and found that both induced the same effects on ovulation, however, in the acupuncture group, the pregnancy rate was higher, and the miscarriage rate was lower.

Ovulation following combined therapy with wen-jing-tang and clomiphene citrate therapy in anovulatory women

Yasuhiro Yoshimoto, M.D., Akira Miyake, M.D., Keiichi Tasaka, M.D., Toshihiro Aono, M.D. and Osamu Tanizawa, MD., Department of Obstetrics and Gynecology, Osaka University Medical School

FINDINGS: The study demonstrated that combined administration of the herbal medicine Wen Jing Tang and clomiphene induced ovulation in patients that did not respond to clomiphene therapy alone.

Effects of specific Chinese herbal preparations on endocrinological status and ovulatory induction in women with polycystic ovary syndrome

Ushiroyama T et al. - Department of Obstetrics and Gynecology, Osaka M

FINDINGS: This study confirmed that wen-jing-tang was effective in improving endocrine condition in the treatment of disturbances of ovulation in patients with PCOS.

Clinical studies on the mechanism for acupuncture stimulation of ovulation

Mo X; Li D; Pu Y; Xi G; Le X; Fu Z Zhejiang College of Traditional Chinese Medicine,

Hangzhou

FINDINGS: This research was done according to TCM theory treating patients with ovulatory dysfunction. Patients saw an improvement in their symptoms with a possible adjustment in FSH, LH, estradiol and progesterone. Acupuncture may adjust endocrine function and stimulate ovulation.

Relationship between blood radioimmunoreactive beta-endorphin and hand skin temperature during the electro-acupuncture induction of ovulation

Chen Bo Ying M.D. Lecturer of Neurobiology, Institute of Acupuncture Research, and Yu Jin, MD., Prof of Gynecology, Obstetrics and Gynecology Hospital Shanghai Medical University, Shanghai, People's Republic of China.

FINDINGS: Electro-acupuncture may depress the sympathetic nervous system in anovulatory women and may regulate the hypothalamic-pituitary-ovarian axis to induce ovulation.

Controlled study on acupuncture for treatment of endocrine dysfunctional infertility

Yang JR, et. al. Zhongguo Zhen Jiu 2005 May;25(5):299-300

FINDINGS: In this study, acupuncture was compared to Clomid administration in the treatment of endocrine dysfunction infertility. The study found acupuncture to have significantly higher pregnancy rates than Clomid administration (65% versus 45%). The study concluded that acupuncture is an effective treatment for infertility secondary to endocrine dysfunction.

Preliminary report of the treatment of luteal phase defect by replenishing kidney. An analysis of 53 cases

Zhang HY, Yu XZ, Wang GL., Xijing Hospital, Fourth Military Medical University, Shaanxi. 1992 Aug;12(8):473-4, 452-3.

FINDINGS: 53 Patients with luteal phase defect were treated with different Chinese herbal medicine at different phases of the menstrual cycle according to Traditional Chinese Medicine theory. The researchers found significant improvement in the luteal phase of the endometrium with prolonged elevation of basal body temperatures and normal wave form.

TCM treatment of luteal phase defect--an analysis of 60 cases

Lian F., Nanjing College of Traditional Chinese Medicine. Journal of Traditional Chinese Medicine, 1991 June;11(2):115-20.

FINDINGS: 60 cases of luteal phase defect were treated with Chinese herbal formulae. Basal body temperature increased and the pregnancy rate was 56%.

RESEARCH: ACUPUNCTURE AND MALE INFERTILITY

Quantitative evaluation of spermatozoa ultrastructure after acupuncture treatment for idiopathic male infertility.

Pei J et al Fertil Steril. 2005 Jul;84(1):141-7 Fertility and Sterility

FINDINGS: The treatment of idiopathic male infertility could benefit from employing acupuncture. A general improvement of sperm quality, specifically in the ultrastructural integrity of spermatozoa, was seen after acupuncture, although the researchers did not identify specific sperm pathologies that could be particularly sensitive to this therapy.

Effect of acupuncture on sperm parameters of males suffering from subfertility related to low sperm quality.

Siterman S et al Arch Androl. 1997 Sep-Oct;39(2):155-61 Archives of Andrology

FINDINGS: The fertility index increased significantly following improvement in total functional sperm fraction, percentage of viability, total motile spermatozoa per ejaculate, and integrity of the axonema, which occurred upon treatment.

Does acupuncture treatment affect sperm density in males with very low sperm count? A pilot study.

Siterman S et al Andrologia. 2000 Jan;32(1):31-9. Andrologia

FINDINGS: This pilot study showed a positive effect of acupuncture on sperm count - but this time on men with such low sperm counts (or no sperm) that they would usually require a testicular biopsy to extract sperm for use in an IVF cycle. Seven of the 15 men with no sperm at

all produced sperm detectable by the light microscope after a course of 10 acupuncture treatments enough sperm could be produced for ICSI to be performed without recourse to testicular biopsy. The control group with similar semen analysis had no treatment and showed no change after 3 months.

Effects of acupuncture and moxa treatment in patients with semen abnormalities.

Gurfinkel E et al Asian J Androl. 2003 Dec;5(4):345-8. Asian Journal of Andrology

FINDINGS: The patients in the acupuncture group demonstrated a significant increase in the percentage of normal forms compared to the control group.

Influence of acupuncture on idiopathic male infertility in assisted reproductive technology.

Zhang M et al J Huazhong Univ Sci Tech Med Sci.2002;22(3):228-30 Journal of Huazhong University

FINDINGS: This trial looks at sperm behavior in an IVF setting. It was a “before and after” study involving 82 infertile men with pathological semen abnormalities and whose sperm achieved a poor fertilization rate in at least two IVF/ICSI cycles. They were given acupuncture twice a week over 8 weeks and the IVF/ICSI cycles were repeated. The fertilization rates after acupuncture (66.2%) were significantly higher than before treatment (40.2%).

A prospective randomized placebo-controlled study of the effect of acupuncture in infertile patients with severe oligoasthenozoospermia

Dieterle et al Fertil Steril 2009 Oct; 92 (4): 1340–3 Fertility and Sterility

FINDINGS: This small clinical trial randomized 57 patients who had extremely low sperm counts, to acupuncture and placebo acupuncture groups. After receiving acupuncture twice weekly for 6 weeks, motility of sperm (but not overall count) was found to increase significantly.

Point- and frequency-specific response of the testicular artery to abdominal electroacupuncture in humans

Cakmak Y et al, Fertil Steril 2008;90:1732–8 Fertility and Sterility

FINDINGS: Just as electro-acupuncture can increase blood flow to the ovaries and uterus, so it can to the testicles. These authors demonstrate that particular frequencies applied for just 5 minutes are effective in increasing blood flow in the testes, and suggest that such a stimulus may address the damaged microcirculation associated with varicoceles, and with aging.

Treatment of immunological infertility with Chinese medicinal herbs of ziyin jianghuo

Li DJ, Li CJ, Zhu Y., Dept. of Reproductive Immunology, Shanghai Medical University. 1995 Jan;15(1):3-5.

FINDINGS: Chinese herbal medicine was used to treat infertile couples with anti-sperm antibodies. After treatment, 81.3% of the cases of antibodies were negative and all eight couples achieved pregnancy.

Clinical observation on effect of combination of zhuan yin dan and hormone in treating male infertility with positive anti-sperm antibody

Yu AL, Zhang FZ, Zhang FX., Taishan Medical College, Shandong 271000. 2004 Mar;24(3): 223-6.

FINDINGS: The combination of Chinese herbal medicine and prednisone showed an effect in improving sperm quality in men with positive anti-sperm antibodies.