

Acupuncture Forbidden Points for Low Back Pain in Pregnancy

A Literature Review Synthesis

by

Debbie R. Rodriguez, MATCM, L.Ac

A Capstone Project

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## Approval Signature Page

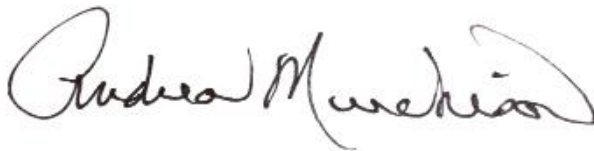
This Capstone Project has been reviewed and approved by:

A handwritten signature in black ink, appearing to read "Lawrence J. Ryan". The signature is fluid and cursive, with a large loop at the end.

Lawrence J. Ryan, PhD., Capstone Advisor *June 10, 2013*

A handwritten signature in black ink, appearing to read "Daoshing Ni". The signature is cursive and elegant, with a large loop at the end.

Daoshing Ni, PhD., L.Ac. Specialty Chair *June 10, 2013*

A handwritten signature in black ink, appearing to read "Andrea Murchison". The signature is cursive and elegant, with a large loop at the end.

Andrea Murchison, DAOM, L.Ac. *June 10, 2013*

### **Abstract**

This Capstone Project examines the application of acupuncture at the “forbidden points” for low back pain and pelvic pain in pregnancy. There has long been controversy over whether forbidden points truly exist or if they have any bearing on use in our modern society. The objective of this paper is to provide a refreshing way of looking at Traditional Chinese Medicine by marrying the ideas of the ancients with modern scientific human physiology. This research study provides traditional practitioners with information about the physiology of pregnancy and the implications of using some of the forbidden points. It is the hope that this study will encourage practitioners of Chinese medicine as well as Western medical acupuncturists to come together to further study the physiological impact of using forbidden points on the contractility of the uterus.

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## **Chapter One: Introduction**

### **The Nature of Low Back Pain in Pregnancy**

To experience low back pain in pregnancy is a very common occurrence. According to Sabino et al. (2008), between 50 – 80% of pregnant women complain of low back pain at some point during pregnancy. There are a variety of reasons that contribute to the discomfort. These rationale include hormonal changes, physical changes, mechanical changes and circulatory changes as well. Sabino et al. (2008) also reports that up to one third of pregnant women cite back pain as a primary issue.

According to Saccomanni (2011), low back pain often begins between the fifth and seventh month of pregnancy. However, some women have reported low back pain from as early as one month into pregnancy and 16 weeks into pregnancy. There are a few factors that appear to play a role in the occurrence of low back pain. Often, women who have experienced previous low back pain issues are more likely to experience low back pain during pregnancy. This observation also applies to younger women who have had more than one child. A sedentary lifestyle is also related to the occurrence of low back pain as well as body mass index (BMI) (Sacomani, 2011). According to Greenwood, et al. (2001) women who are short in stature, those with strenuous occupations or those with naturally large lumbar lordosis are also at risk for low back pain during pregnancy. The exercise habits of women prior to pregnancy also play a role in the incidence of low back pain.

When a woman becomes pregnant, there are certain physiological changes that occur in the body. The sacroiliac joints stretch and can cause pain that radiates to the buttocks and



hamstring area of the leg. The table below illustrates some of the other causes of low back pain in pregnancy.

**Table 1 Causes of Low Back Pain during Pregnancy\*\***

<ul style="list-style-type: none"> <li>• Postural changes that alter the center of gravity and increase the inward curvature of the spine, placing more stress on the low back</li> </ul>
<ul style="list-style-type: none"> <li>• The stretching of the abdominal muscles to accommodate the expanding uterus</li> </ul>
<ul style="list-style-type: none"> <li>• Intervertebral discs compressing due to excess pressure and weight</li> </ul>
<ul style="list-style-type: none"> <li>• Hormonal changes cause inflammation and pain</li> </ul>
<ul style="list-style-type: none"> <li>• Night time back pain that causes a woman to awaken from sleep is the result of the uterus expanding, putting pressure on a large blood vessel called vena cava, creating a condition of hypoxia in the lumbar area</li> </ul>
**Sabino, J. et al. (2008)

Greenwood, C., et al. (2001) reports that in order to fully understand how a pregnant woman experiences pain, we must consider how a pregnant woman perceives pain. Since there are many physical changes that occur in the body of a woman during pregnancy, it is not unusual to consider the psychological changes that take place as well. Of the many factors that play a role in the perception of pain, several are listed below (Greenwood et al., 2001):

1. Fear and anxiety
2. Cultural and social circumstance
3. Fatigue
4. Expectations
5. Age

### **Diagnosis and Treatment**

A diagnosis of low back pain in pregnancy is usually based on symptoms because there are not many tests that can be done on a pregnant woman without harming the fetus. One of the ways a woman will be asked to assess her pain is the Visual Analog Pain Scale. The scale is

illustrated below. It is a rather simple scale where the value 0 equals no pain and 100 equals intense or worse pain ever felt.

**Table 2**

0=no pain	50	100=most painful
<b>Visual Analog Pain Scale</b>		

Another common scale used to evaluate pain is the Pregnancy Mobility Index (PMI). This is an index that describes normal household duties on a scale from being easily performed to not being able to perform at all. The subjective results along with a physical examination help determine the type of lumbar pain being experienced. This can range from pain in the sacroiliac region, to gluteal pain, pubic pain or pain across the back at the waist. Sabino (2008)

Most often women are given options for treatment rather than resorting to pharmacological agents immediately. This can range from exercises to strengthen the abdominal, back and pelvic muscles, rest, warmth, physical therapy or chiropractic. Acupuncture is often recommended to help alleviate pain as well as for general relaxation due to the stress pregnancy can place on the body.

### **Acupuncture**

Acupoints are defined as specific sites on the body through which the energy of the organs and meridians is transported to the surface of the body. There 361 classic acupuncture points which are distributed along fourteen meridians, Chinese Acupuncture and Moxibustion (1998). There are also particular acupuncture points which are contraindicated or forbidden to use in pregnancy (Chinese Acupuncture and Moxibustion, 1998). Zhu-Fan Xie (1996) reviewed

and analyzed a report of clinical trials on acupuncture for the World Health Organization. He stated that some acupuncture points needed to be utilized with caution in pregnancy. He suggested avoiding strong stimulation because they could possibly cause miscarriage. The points were those on the abdomen and lumbosacral region of the body. However, if labor induction was the ultimate goal, the effect of utilizing acupuncture points was comparable with that of oxytocin by intravenous drip. Maciocia, (1998) states that acupuncture points below the umbilicus should not be used anytime during pregnancy and points above the umbilicus could be used during the first three months of pregnancy.

### **Research Objective**

This investigation will analyze the current literature surrounding the use of particular acupuncture forbidden points for low back pain in pregnancy. This project strives to provide clarity surrounding the use of forbidden points as well as weaknesses, limitations as well as examining similarities and differences among the available research. One objective of the study is to provide the research community a foundation from which future research can be built on this topic. This study has three additional objectives:

- The first objective is to provide practitioners a clear understanding of the depth of knowledge of obstetrics the Chinese medicine tradition offers to pregnant women.
- The second objective is to examine the following acupuncture forbidden points: LI4, SP6 and general sacral acupuncture points; UB26, UB27, UB28, UB29, UB30, UB31, UB32, UB33, UB34.
- The third objective is to bring clarity to the physiology during pregnancy and thereby shedding light on the philosophy and science behind the utilizing forbidden points or non-use of forbidden points in pregnancy.

My personal reason for pursuing this investigation is because low back pain is a prevalent complaint among the pregnant women I have seen in my clinic. I was taught in school to avoid particular points but as I did a little research, I found that those practicing Western medical acupuncture were utilizing forbidden points in practice. I realized there was a gap between traditional acupuncturists and Western medical acupuncture physicians as far as training and philosophy is concerned. I saw the need for an integrative approach when designing research models to employ both western and traditional acupuncturists. Working together toward a common goal will provide the most optimum protocol when treating pregnant women with low back pain.

### **Statement of Research Questions**

The research questions associated with this project are articulated as follows:

1. What are acupuncture forbidden points?
2. Are acupuncture forbidden points safe to use in pregnancy?
3. What is the mechanism of action of acupuncture that either promotes or inhibits the use of forbidden points for low back pain in pregnancy?
4. How can forbidden acupuncture points be used in low back pain and also in induction of labor without damaging consequences?
5. Is it time for acupuncture theory to be updated based on current scientific research?

While the forbidden acupuncture points have not been subject to the scientific method, they have been subject to over two thousand years of tradition and clinical practice. Practitioners in ancient times left records to indicate the location and indication of acupuncture points. This factor was the foundation of a systematic theory. That being said, the hypothesis I propose is that there is some validity to the cautions expressed by the ancient physicians. It is important to

remember that there are aspects of acupuncture that scientific method cannot explain. However, that factor makes them no less valid. Neuroscience has shown that wherever sensory nerves are located, acupuncture points will be found. It also stated that after thirty years of research, there is knowledge that the central nervous system is involved in acupuncture; however, the exact mechanism is still unclear (Ma et al., 2004).

### **Glossary of Terms**

The following is a glossary of terms and definitions that provide a common understanding of the topics that are discussed in this project:

- **Acupuncture** (n.d.) – A technique for treating pain, producing regional anesthesia, treating acute or chronic illness (such as hormonal, immune, or orthopedic), or preventing disease by passing thin needles through the skin into specific points on the body. In *Taber's Online*. Retrieved from: <http://www.tabers.com/tabersonline/view/TabersDictionary/766030/0/acupuncture?q=acupuncture>:
- **Acupuncture point** (n.d.) - Any anatomical location used in acupuncture to relieve symptoms or treat disease. In *Taber's Online*. Retrieved from: [http://www.tabers.com/tabersonline/view/TabersDictionary/759814/all/acupuncture\\_point#3](http://www.tabers.com/tabersonline/view/TabersDictionary/759814/all/acupuncture_point#3)
- **Meridians** (n.d.) - Any of several pathways believed to conduct energy between the surface of the body and the internal organs. In *Taber's Online*. Retrieved from: <http://www.tabers.com/tabersonline/view/TabersDictionary/764400/0/meridian?q=meridians>
- **Qi** – Energy, the basis of all phenomena in the universe and provides continuity between coarse, material forms and tenuous, non-material energies. Maciocia (2005)

- **Yin and Yang** – Opposite but complementary qualities. Maciocia (2005)
- **De Qi** – A sensation that is felt when a person receives acupuncture. The sensation may be a dull ache, throbbing sensation, itching sensation and sometimes even a sharp, quick pain.
- **Autonomic nervous system (ANS)** (n.d.) - The parts of the nervous system that control unconscious, involuntary, and visceral body functions. The autonomic nervous system reflexively balances the body's smooth muscle tone, blood pressure and temperature and fluid composition, state of digestion, metabolic activity, and sexual activation. In *Taber's Online*. Retrieved from: [http://www.tabers.com/tabersonline/view/Tabers-Dictionary/767092/0/autonomic\\_nervous\\_system?q=autonomic%20nervous%20system](http://www.tabers.com/tabersonline/view/Tabers-Dictionary/767092/0/autonomic_nervous_system?q=autonomic%20nervous%20system)
- **Sympathetic nervous system** (n.d.) - The sympathetic system, the central (preganglionic) neurons are located only in the thoracic and lumbar segments of the spinal cord. In *Taber's Online*. Retrieved from: [http://www.tabers.com/tabersonline/view/Tabers-Dictionary/731455/0/sympathetic\\_nervous\\_system?q=sympathetic%20nervous%20system](http://www.tabers.com/tabersonline/view/Tabers-Dictionary/731455/0/sympathetic_nervous_system?q=sympathetic%20nervous%20system)
- **Parasympathetic nervous system (n.d.)** - The central neurons are located only in the brainstem and in a short segment of the caudal end of the spinal cord. In *Taber's Online*. Retrieved from: [http://www.tabers.com/tabersonline/view/Tabers-Dictionary/754091/0/parasympathetic\\_nervous\\_system?q=parasympathetic%20nervous%20system](http://www.tabers.com/tabersonline/view/Tabers-Dictionary/754091/0/parasympathetic_nervous_system?q=parasympathetic%20nervous%20system)
- **Pudendal nerve (n.d.)** - A mixed nerve composed of axons from spinal nerves S2-S4. It follows the sciatic nerve out of the pelvis but immediately reenters through the lesser sciatic foramen. It innervates most of the structures of the perineum. In *Taber's Online*.

Retrieved from: <http://www.tabers.com/tabersonline/view/Tabers-Dictionary/730433/all/nerve?q=pudental%20nerve#137>

- **Inferior hypogastric plexus (n.d.)** - A long, thin descending extension from the superior hypogastric plexus on the right and the left sides. The inferior hypogastric plexus, which feeds into the pelvic, middle rectal, vesicle, prostatic, and uterovaginal plexuses, contains sympathetic axons from the superior hypogastric plexus and the lowest lumbar splanchnic nerves and parasympathetic axons from the pelvic splanchnic nerves. The inferior hypogastric plexus (or a portion of it) is sometimes called the hypogastric nerve or the pelvic plexus. In *Taber's Online*. Retrieved from: <http://www.tabers.com/tabersonline/view/Tabers-Dictionary/729875/all/plexus?q=Inferior%20hypogastric%20nerve#23>
- **Pelvic splanchnic nerve (n.d.)** - Parasympathetic axons from spinal cord segments S2-S4 that is en route to the inferior hypogastric plexus. In *Taber's Online*. Retrieved from:
- **Multiparous (n.d.)**– Having borne more than one child. In *Taber's Online*. Retrieved from: <http://www.tabers.com/tabersonline/view/Tabers-Dictionary/764048/0/multiparous?q=multiparous>
- **Nulliparous (n.d.)** – Never having borne a child. In *Taber's Online*. Retrieved from: <http://www.tabers.com/tabersonline/view/Tabers-Dictionary/770042/0/nulliparous?q=nulliparous>
- **Nocioception (n.d.)** - The stimulus-response process involving the stimulation of peripheral pain-carrying nerve fibers and the transmission of impulses along peripheral nerves to the central nervous system, where the stimulus is perceived as pain. In *Taber's*

*Online*. Retrieved from: <http://www.tabers.com/tabersonline/view/Tabers-Dictionary/768665/all/nociception?q=nociception>

- **Efferent Pathway (n.d.)** - A pathway from the central nervous system to an effector. In *Taber's Online*. Retrieved from: <http://www.tabers.com/tabersonline/view/Tabers-Dictionary/734579/all/pathway?q=efferent%20pathway#9>
- **Nerve Trunk (n.d.)** – The main stem of a peripheral nerve. In *Taber's Online*. Retrieved from: [http://www.tabers.com/tabersonline/view/Tabers-Dictionary/765209/0/nerve\\_trunk?q=nerve%20trunk](http://www.tabers.com/tabersonline/view/Tabers-Dictionary/765209/0/nerve_trunk?q=nerve%20trunk)
- **Afferent Pathway** - A sensory pathway from a receptor to the central nervous system. In *Taber's Online*. Retrieved from: <http://www.tabers.com/tabersonline/view/Tabers-Dictionary/734579/all/pathway?q=afferent%20pathway#1>
- **Trophoblast** – Cells that form the outer layer of the blastocyst which provide nutrients to the embryo and develop into a large part of the placenta. They are formed in the first stage of pregnancy and are the first cells to differentiate from the fertilized egg. Retrieved from: <http://en.wikipedia.org/wiki/Trophoblast>
- **Blastocyst** - In mammalian embryo development, the stage that follows the morula. It consists of an outer layer, or trophoblast, and an inner cell mass, from which the embryo will develop. The enclosed cavity is the blastocele. At this stage, implantation in the endometrium (lining of the uterus) occurs. Retrieved from: <http://www.tabers.com/tabersonline/view/Tabers-Dictionary/743361/0/blastocyst?q=blastocyst>



- **Morula** – Solid mass of cells resembling a mulberry, resulting from the cleavage of an ovum. Retrieved from: <http://www.tabers.com/tabersonline/view/Tabers-Dictionary/738115/0/morula?q=morula>
- **Ovum** – A female gamete. Retrieved from: <http://www.tabers.com/tabersonline/view/Tabers-Dictionary/762779/all/ovum?q=ovum#4>
- **Gamete** – A mature male or female reproductive cell, a spermatozoon or ovum. Retrieved from: <http://www.tabers.com/tabersonline/search?q=gamete>
- **Fundus** – The area of the uterus above the fallopian tubes.
- **Bishop Score** – A pre-labor scoring system to determine if induction of labor will be required. It has also been used to assess the odds of preterm labor. Retrieved from: [http://en.wikipedia.org/wiki/Bishop\\_score](http://en.wikipedia.org/wiki/Bishop_score)

### Relevant Abbreviations

Below is a list of abbreviations and the fully spelled out terminology for which they stand. These abbreviations that appear repeatedly in the current document:

- TCM – Traditional Chinese Medicine
- UB - Urinary Bladder
- KD - Kidney
- LV – Liver
- GB – Gallbladder
- HT - Heart
- SI – Small Intestine
- LU – Lung

- LI – Large Intestine
- SP – Spleen
- ST - Stomach
- PC – Pericardium
- SJ – San Jiao
- RN – Ren
- DU – Du

This study will proceed with a literature review in Chapter Two, which will establish the scholarly foundation for the current study. In Chapter Three, the method engaged in the current research will be explicated. The results of the current study will be summarized in Chapter Four, and Chapter Five will engage a discussion of the findings.

## Chapter 2: Literature Review

### Overview

This chapter is designed to provide a foundation for the current investigation by reviewing pertinent literature. The concepts covered will include:

- A brief history of TCM gynecology.
- The education of early physicians then and now.
- A brief history of the acupuncture needle
- An explanation of acupuncture forbidden points
- Physiology of pregnancy
- An analysis of neuroscience literature regarding the mechanism of action of acupuncture.
- The possible connection between acupuncture's innervations upon the uterus and acupuncture forbidden points.
- Analysis of studies in which acupuncture forbidden points have been utilized in pregnancy and labor induction.

### Resources

Information for the literature review was gathered by utilizing search engines such as; Google Scholar, Pub Med, Deep Dyve, Wiley Online and Chinese Journal of Integrative Medicine. Key words and phrases were used in the search for studies and articles. Some of the key words were as follows: “acupuncture forbidden points” and “acupuncture points contraindicated in pregnancy”. Due to the scarcity of literature available and the dual nature of forbidden acupuncture points the following search terms were included: “acupuncture + labor induction”, “acupuncture + low back pain + pregnancy”, “acupuncture + late term pregnancy”.

Also included were the terms, “TCM gynecology”, “traditional Chinese medicine”, “Neuro-anatomy of acupuncture points”.

### **History of Gynecology in Traditional Chinese Medicine**

Traditional Chinese Medicine (TCM) has a history of over 2,000 years of being a well-developed medical system of diagnosis. It is utilized to treat and prevent illness. TCM is a multi-faceted discipline into which many have contributed. It is an accumulation of experiences and consolidated knowledge that formed the basis of this medicine. The Huang Di Nei Jing or Yellow Emperor’s Internal Classic was developed from two books: Suwen, The Book of Plain Questions, and Lingshu or Spiritual Pivot. These books detail previous medical experience as well as anatomy and physiology of the human body. These texts have established the foundation of traditional Chinese medicine. Another area of TCM that has a long and developed history is gynecology and obstetrics. While TCM is considered complementary or alternative medical care in the West, it is a form of primary care in most Asian countries.

Sun Simiao (581-682 A.D.) has been considered “King of Medicine” in China (Wilms, 2010). He was a Daoist sage who authored an encyclopedia titled: *Essential Prescriptions for Every Emergency worth a Thousand in Gold (Bei Ji Qian Jin Yao Fang)* around 652CE. The abbreviated title *Essential Prescriptions* consisted of several scrolls, the first three being *Prescriptions for Women*. The placement of the scrolls in the beginning of *Essential Prescriptions* was intentional because he placed the utmost importance on nurturing life which placed women and their role in reproduction in at the forefront. Included in the writings were dietary advice, breathing exercises, and acupuncture channels and points to be avoided during each month of pregnancy. There were also medicinal formulas for the prevention and treatment

of disorders of pregnancy, some of which are still used today. There were also drawings that depicted the monthly changes in the body of a pregnant woman and her fetus (Wilms, 2010).

Sun Simiao was fundamental in raising the field of gynecology to a specialty in the medical community. He organized *Essential Prescriptions* with gynecology, followed by pediatrics and general medicine. This work reflected his high regard for women and how they ultimately held the keys to the health and longevity of society for future generations (Wilms, 2010).

Another physician who devoted his life to the study of obstetrics and gynecology was Chen Ziming. He descended from a line of Chinese medicine physicians and learned TCM from his father. In 1237 he published a book called *The Complete Book of Efficacious Prescriptions for Women* where he created 24 books on a variety of issues. He provided detailed descriptions of the development of the fetus, contraindications in pregnancy and women's health in general. The development of TCM gynecology spans generations and covered all aspects of the reproductive process. There was comprehensive understanding of women's issues ranging from menstruation, fertilization, pregnancy as well as sperm cultivation for men and blood cultivation for women (Xiangeng, et al, 2011)

## **Education**

Daoism, a philosophical and religious tradition which stressed living in harmony with nature, had a profound influence TCM (Wikipedia). Complex TCM theories were developed by observing the heavens, observing nature and having a holistic view of the Universe and the human body. The education of the early TCM physicians was not measured by hours spent in a classroom but was more a reflection of how they lived life. They spent their lives observing and

then developing theories and ideas and refined them through time. The classical writings and teachings reflect the time-tested theories of physiology and anatomy of the human body.

Today there are two types of individuals who practice acupuncture. There are those that practice traditional Chinese medicine and those that practice Western medical acupuncture.

Medical Acupuncture as defined by the American Medical Acupuncture Board:

Medical acupuncture is a medical discipline having a central core of knowledge embracing the integration of acupuncture from various traditions into contemporary biomedical practice. A physician acupuncturist is one who has acquired specialized knowledge and experience related to the integration of acupuncture within a biomedicine practice. (American Board of Medical Acupuncture).

It should be noted that according to *Acupuncture in Medicine* (2009), Western medical acupuncture was developed as a result of advances in science and technology which allowed acupuncture to be assessed without the distraction of an ancient ideology. The term Western medical acupuncture is meant to distinguish it from traditional Chinese medicine in that it does not adhere to the basic concepts of yin and yang or the circulation of qi. It is a modality that is utilized by Western medical doctors as well as physical therapists, nurses and other practitioners within the Western health care system.

Chinese Medicine as defined by the National Health Institute as a practice that encompasses many different methods and techniques. Underlying the practice of TCM is a unique view of the world and the human body that is different from Western medicine concepts. This view is based on the ancient Chinese perception of humans as microcosms of the larger, surrounding Universe – interconnected with nature and subject to its forces. The human body is regarded as an organic entity in which the various organs, tissues and other parts have distinct

functions but are all interdependent. Acupuncture: By stimulating specific points on the body, practitioners seek to remove blockages in the flow of qi. (National Center for Complementary and Alternative Medicine)

For the purpose of understanding the differences between the two entities, a brief summary of the educational requirements for each discipline is provided below.

**Table 3**

<b>Education Requirements</b>	
*Medical Acupuncture	<ul style="list-style-type: none"> <li>• Graduation from accredited allopathic or osteopathic medical school in the United States</li> <li>• 300 hours of systematic acupuncture education</li> <li>• 100 of the 300 hours are clinical training</li> <li>• Pass a Proficiency Exam given by the American Academy of Medical Acupuncture</li> </ul>
**TCM Practitioner	<ul style="list-style-type: none"> <li>• Complete necessary curriculum requirements and graduate from an Acupuncture Board approved school.</li> <li>• 3,375 total hours education</li> <li>• 1,028 hours devoted to clinical education</li> <li>• Pass the California Acupuncture Board Exam</li> </ul>

\*American Board of Medical Acupuncture

\*\*Department of Consumer Affairs, Acupuncture Board

### **Acupuncture Needles**

Understanding that acupuncture has a history of about 2,500 years, it is no surprise that acupuncture needles have evolved over the years. Historical records show that the first acupuncture needles were made of stone (Discoveries in Medicine). As technology progressed, the needles evolved to bone fragments, bamboo, gold and silver. Today, needles are made of stainless steel, gold or silver and are fine filaments. This may prove to be noteworthy because earlier versions of acupuncture needles were much thicker than they are today so contraindications that may have applied then may not be as valid in today's environment.

## Forbidden Acupuncture Points

Traditional acupuncture texts list specific points considered to be forbidden in pregnancy as well as acupuncture points for difficult labor. Forbidden points are those acupuncture points thought to have strong down-bearing qualities or those that enhance uterine contractions.

However, the literature is not very clear as to the reasons why the points should not be used.

There has been controversy over forbidden points because a variety of books will have a variety of acupuncture points listed as forbidden. The following table illustrates several of the books:

Reference Text	Forbidden Points
Essentials of Chinese Acupuncture (1980)	SP 6, LI 4
Chinese Acupuncture & Moxibustion (1987)	SP 6, LI 4
Fundamentals of Chinese Acupuncture (1988)	LI 4, RN 4, RN 5, RN 10, GB 21
Acupuncture: A Comprehensive Text (1998)	LI 4, RN 6
Manual of Acupuncture (1999)	SP 6, LI 4, GB 21, UB 60, UB 67
Acupuncture in Pregnancy & Childbirth (2001)	LI 4, SP 6, GB 21, UB 31, UB 32, UB 67 – great care taken between 32 and 34 weeks – no strong treatment on the back that might initiate contractions
<b>TABLE 4 Forbidden Acupuncture Points</b>	

As is illustrated by the table above, there is discrepancy in the text books regarding points to be avoided during pregnancy. This leads to concern among practitioners over which points are



safe to use in pregnancy. According to Zhang, et al. (2011), early gynecological history during the Ming dynasty (1348-1644) developed an educational system where, according to the development of the fetus, certain foods were to be avoided as well as particular meridians for acupuncture.

The following table illustrates a sampling of the types of foods to avoid as well as acupuncture meridians that were to be avoided, Zhang, et al. (2011). The chart illustrates great care in creating a protocol for pregnancy.

Months	Meridian	Embryonic Stage	TCM Stage	Food to Avoid	Forbidden Acupuncture Meridian
First	Liver	Dewdrop-like	Accumulation Of essence	Flour & Rice	Liver
Second	Gallbladder	Fat Peach-blossom like		No Acrid Foods	Gallbladder
Third	Heart	Non-distinguished sexes	Formation of Blood /vessels		Heart
Fourth	Small Intestine	Distinguished Sexes	Formation of 6 Fu organs		Small Intestine
Fifth	Spleen	Formation of 4 Extremities	Formation of 5 Zang organs	Lamb & Beef	Spleen
Sixth	Stomach	Functional Formation of 6 Fu Organs	Formation of Eyes & mouth	Sweet Foods	Stomach
Seventh	Lung	Formation of Bones	Generation of Hair on the head and body	No cold foods	Lung
Eighth	Large Intestine	Formation of Skin	Mobility of fetus right hand	No dry or fried foods	Large Intestine
Ninth	Kidney	Ability of physical turning	Entry of food qi into stomach	Sweet wine & foods	Kidney

**Table 5 Meridians, Foods and Acupuncture Points to Avoid by Stage of Pregnancy**

## **Physiology of Pregnancy**

In order to better understand the usage of acupuncture forbidden points, it is important to understand the physiology of pregnancy to determine if particular points are detrimental to pregnancy. In the early stages of pregnancy, a morula develops into a blastocyst which consists of an outer layer of cells called trophoblasts and an inner cell mass which will develop into an embryo. The inner cavity is called a blastocele. It is at this stage that implantation into the endometrium will occur. Caniggia (2000) states that in early pregnancy, it is essential implantation occur in a hypoxic environment and it is essential for proper embryonic development. These requirements change to high level oxygen requirements around weeks 10-12. Betts, et al. (2011)

Betts, et al. (2011), further suggests that certain acupuncture points should not be used at particular times during pregnancy. In early pregnancy as well as late pregnancy (around 36 weeks), hormonal influences will greatly affect a woman as opposed to midterm in the pregnancy. Prior to 12 weeks a hypoxic environment is required for implantation, acupuncture points that increase blood flow to the uterus would be considered forbidden. During this time period, progesterone levels are maternally dependent; therefore, acupuncture points that have hormonal influence should also be used with caution. At about 10-12 weeks, the placenta begins its own progesterone production so the reaction to acupuncture may elucidate different effects at this time. In late pregnancy, prostaglandins and oxytocin are released which promote contractions and cervical dilation until peak levels are reached and labor is initiated. At this stage, Betts, et al. (2011) indicated acupuncture points which have an effect on contractions may result in different effects during the last month of pregnancy.

## **Mechanisms of Action of Acupuncture**

The human body is comprised of the central nervous system (CNS) and peripheral nervous system (PNS). It is further divided into the somatic nervous system (SNS), which controls the muscles and carries information to the brain and the autonomic nervous system (ANS) which controls heartbeat and respiration without conscious control, Tortora, et al. (1996). The system is further broken down to neurons or nerve cells which play a significant role as a major signaling unit of the nervous system. The nerve cell also has axons that are capable of transferring information from one nerve cell to the next. These neurons have dendrites or branches coming off the cell with receptors on the endings. Acupuncture stimulates the nerve endings, or receptors, which in turn sends the impulse from the cell to the next neuron to activate a response in the skin, muscles or soft tissue. Acupuncture stimulates the nerve endings to generate electrical signals and when the signal builds to a threshold, it is called an action potential. At this point, the signal will travel from nerve cell to nerve cell to finally reach the brain. The brain will either suppress or strengthen the signal, Ma, et al. (2004). He also states that clinical evidence shows that acupuncture restores balance to both the sympathetic and parasympathetic systems. In other words, it can soothe the sympathetic system and invigorate the parasympathetic system.

## **Innervation of the Uterus**

For the purpose of this investigation, only the innervation of the uterus will be examined. Netter's class anatomy text observes the following:

1. Sympathetic, parasympathetic and visceral afferents to and from the uterus pass through the inferior hypogastric pelvic plexus.

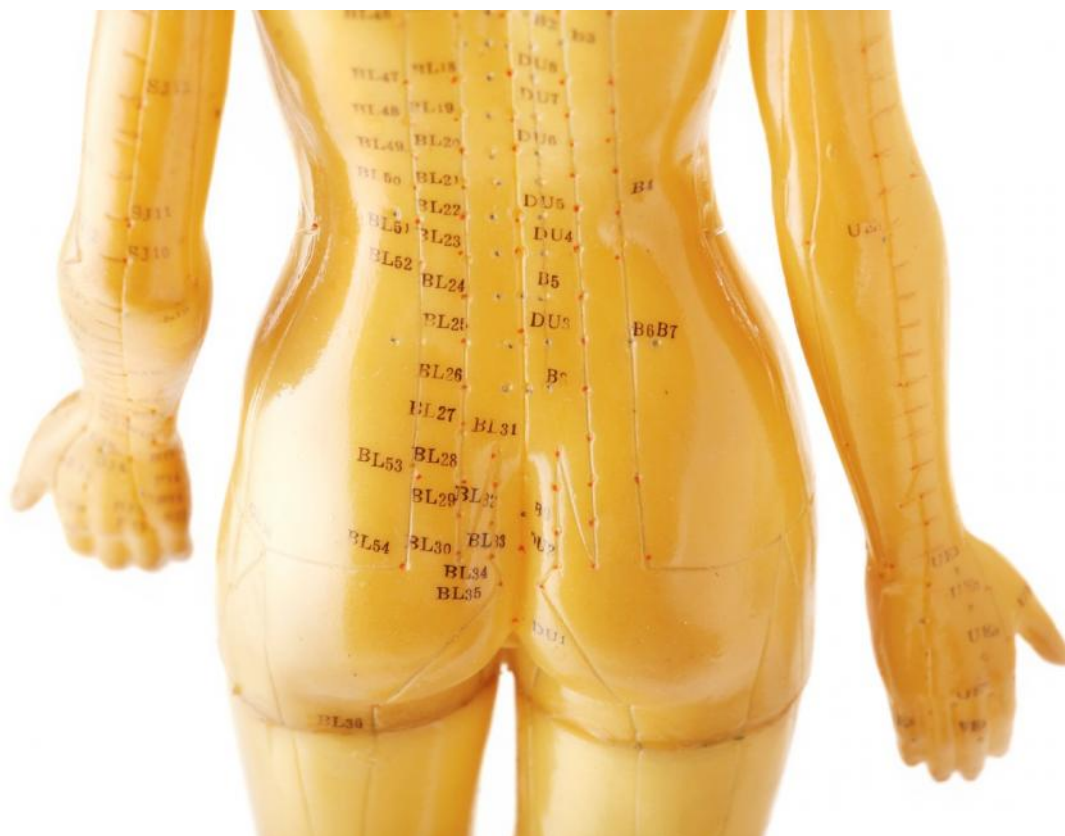
2. Sympathetic innervation from the lower spinal cord segments go through the lumbar splanchnic nerves.
3. Parasympathetic innervation from the pelvic splanchnic nerves (S2,3,4 spinal cord level) go through the pelvic plexus
4. Afferent fibers with pain information from the body and fundus travel through plexuses to lumbar splanchnic nerves to the upper lumbar/lower thoracic spinal cord segments.
5. Afferent fibers carry pain information from the cervix travel along parasympathetic fibers back to the CNS.
6. The uterus is innervated by afferent fibers in the hypogastric and pelvic nerves (Berkley et al.,1993).

Afferent fibers transmit sensory information from every part of the body to the CNS. At the end of the afferent fiber is a sensory receptor. With respect to acupuncture, any area along the fiber that is stimulated can generate a sensation.

### **Review of Studies**

Due to the scarcity of literature concerning forbidden points as a topic, studies were selected that involved the use of acupuncture points that are considered to be forbidden to use for low back pain in pregnancy as well as studies that involved the use of forbidden acupuncture points to induce labor and studies that examined the myoelectrical effects of using these points. The specific acupuncture points being examined are as follows: LI4 (Hegu), SP6 (Sanyinjiao), UB26 (Guanyuanshu), UB27 (Xiaochangshu), UB 28 (Pangguangshu), UB29 (Zhonglushu), UB30 (Baihuanshu), UB31 (Shangliao), UB32 (Ciliao), UB33 (Zhongliao), UB34 (Xialiao). The illustration below shows the area the sacral points are located. LI4 is not very well imaged in the illustration. It is located on the dorsum of the hand, between the 1<sup>st</sup> and 2<sup>nd</sup> metacarpal

bones approximately in the middle of the 2<sup>nd</sup> metacarpal bone on the radial side. SP6 (Sanyinjiao) is located on the leg, approximately 3 inches above the tip of the medial malleolus, posterior to the medial border of the tibia, Chinese Acupuncture and Moxibustion (1998).



### **Sacral Point Illustration**

### **Studies on Wistar Rats**

When experiments on humans are not possible, rats are the most commonly used animal for this purpose. Da Silva, et al. (2012) conducted a study on pregnant Wistar rats to see if they could produce harm in the pregnancy outcome. A total of 48 rats were randomly divided into 4 groups. The groups used were as follows: control group where the rats were left in cages without manipulation, anesthetized control, where rats were anesthetized and manipulated but did not receive electroacupuncture, and peripheral point and sacral point groups where rats were

anesthetized and received 6 sessions of electroacupuncture at 4 points: LI4, SP6, UB27, UB28. The rats were killed on the 19<sup>th</sup> day of pregnancy and examined. They reported that there were no differences between the groups in the levels of glucose, AST, ALT or creatinine. They also reported that there were no adverse effects such as vaginal bleeding or expulsion of conception products. The conclusion was that there was no evidence to support the traditional belief that these particular points would cause ill effects.

The next study utilizes pregnant and non-pregnant rats as well but the results are a little different. Liu, et al. (2007) conducted a study to observe the effect of electroacupuncture of different acupuncture points on the electrical activities of the uterus. This study used a total of 79 Wistar rats that were anesthetized. The first part consisted of 40 non-pregnant rats randomized into control, PC6 (Neiguan), LI4 (Hegu) and SP6 (Sanyinjiao), with 10 rats in each group. In the next part of the study, 39 pregnant rats were evenly randomized into control, PC6, LI4 and SP6 with 13 rats in each group. Electrohysterogram was recorded by using bipolar stainless steel electrode inserted in the sub-perimetrium layer of the mid part of the uterus. Electroacupuncture of 2mA, 5/15Hz was applied to bilateral PC6, LI4 and SP6 for 20 min. The results were that the amplitude and frequency of fast waves and amplitude of slow waves in SP6 increased significantly in the non-pregnant rats compared with the control group. Electroacupuncture at LI4 had similar results in increasing the frequency of fast waves but after electroacupuncture at PC6 both frequency and amplitude of fast waves and the frequency of slow waves decreased significantly. By comparison, in pregnant rats compared with the control group, both amplitude and frequency of fast waves and amplitude of slow waves of the Electrohysterogram in SP6 group increased significantly and lasted a longer time while the frequency of both fast and slow waves decreased considerably in the PC6 group. Comparison

between the SP6 and PC6 groups showed significant differences in the frequency and amplitude of fast waves and the frequency of slow waves during and after electroacupuncture. The conclusion in this study was that electroacupuncture of SP6 and LI4 can activate the myoelectrical activities of the uterus in both pregnant and non-pregnant rats. The effect of electroacupuncture at SP6 is stronger and electroacupuncture at PC6 can inhibit the myoelectrical activities of the uterus.

By contrast, the next study attempts to demonstrate the ability of electroacupuncture to regulate a dysfunction. Chen, et al. (2008) had the objective to observe the effect of electroacupuncture of different acupoints on an abnormal electrohysterogram in pregnant rats in order to analyze their ability to regulate dysfunction of the viscera. A total of 48 pregnant Wistar rats (18-20 days) were anesthetized and randomized into control (10), SP6 (9), LI4 (8), PC6 (10), SP6 + LI4 (11). An electrohysterogram was recorded by using a bipolar stainless steel electrode inserted in the sub-perimetrium layer of the left mid part of the uterus. Oxytocin and gesterol were given to the local uterus in order to induce an abnormal excitement and suppression of the electrohysterogram. Electroacupuncture 1-2mA, 2/15 Hz was applied for 20 minutes to the groups. The frequency of fast and slow waves was analyzed. The results were that compared with the control group, electroacupuncture of SP6 + LI4 and SP6 had inhibitory effects on oxytocin induced increases of the frequency and amplitude and electroacupuncture of LI4 also had an inhibitory effect on the amplitude of fast waves. It was determined that SP6 + LI4 and SP6 could relieve or significantly relieve progesterone induced suppression of the frequency and amplitude of both slow and fast waves while LI4 and PC6 had no effect on progesterone induced changes of the frequency.

A final study on rats has been included to illustrate how afferent fibers in the hypogastric and pelvic nerves are innervated in the adult virgin rat. Berkley, et al. (1993) conducted studies on 30 Wistar virgin rats. The rats were injected with different fluorescent dyes into different parts of the reproductive; lower urinary and lower digestive tracts. Anesthetized rats were studied electrophysiologically in order to evaluate the two nerves by electrical stimulation. In both studies, sensory innervation of the reproductive tract shifted from the pelvic to the hypogastric nerve – shifted entry into the spinal cord from the L6-S1 to the T13-L3 dorsal root ganglia respectively. The dye shifted from the vaginal entrance to the uterine horns with fibers from both nerves densely innervating the cervix region. The results from this study provide strong evidence that afferent fibers in the pelvic and hypogastric nerves of nulliparous adult rats serve different functions in reproduction and sensation. Pelvic nerve fibers seem closely tied to sensory and behavioral processes associated with mating and conception whereas hypogastric fibers seem closely tied to pregnancy and nociception, with fibers in both nerves serving functions during parturition. While this study does not involve acupuncture, it does speak to the afferent innervation of the hypogastric and pelvic nerves in pregnancy.

Table 6 provides a schematic summary of the studies conducted using Wistar rates as subjects.



**Table 6** **Effects of Electroacupuncture on Wistar rats**

Study	Trial Design	No	Acupuncture Treatment	Control	Treatment Amount	Results
Liu, et al. 2007	Randomized	(79) 40 non-pregnant (10) each group, PC6, LI4, SP6 39 pregnant (13) each group, PC6, LI4, SP6	PC6, LI4, SP6	No treatment	Bilateral 20 minutes electroacupuncture Electrohysterogram was recorded by using bipolar stainless steel electrode inserted into the sub-perimetrium layer of the uterus. 2mA, 5/15 Hz	SP6, LI4 can activate myoelectric activity of uterus in pregnant & non-pregnant rats. SP6 has a stronger effect. The PC6 group, decrease in wave and frequency.
Da Silva, et al. 2012	Randomized	(48) 4 groups Total control Anesthetized control Peripheral Points Sacral Points	LI4, SP6, UB27, UB28	Left in cages, no treatment & anesthetized, no treatment	6 sessions of electroacupuncture	No difference in biochemical parameters of glucose, AST, ALT
Chen et al. 2008	Random	(48) Control – 10 SP6 – 9 LI4 - 8 SP6+LI4- 11 PC6 - 10	Sp6, LI4, PC6 SP6+LI4	Anesthetize/Oxytocin + gesterol given to all to induce abnormal EHG	Electroacupuncture, 20 min 1-2mA, 2/15Hz	Compared with Control group SP6+LI4 and SP6 alone showed inhibitory effect on oxy induced SP6+LI4 & SP6 could relieve or significantly relieve progesterone induced suppression PC6
Chen, et al. (2011)	Randomized	(108) 8 groups 1 non pregnant 7 pregnant 6 groups, 3 types of frequency 15,30,50 Hz. Two types of waves, sparse-dense and	LI4, SP6	1 Non pregnancy group 1 pregnant group with no electroacupuncture	LI4 bilateral/20 min; then SP6 bilateral 5 min. Muscle transducer placed on lower segment of uterine segment to detect contractility, frequency and lasting time of contraction wave	Electroacupuncture group compared to non-pregnant group & pregnant, no electro = significant increase. Electroacupuncture at 2Hz sparse wave & 50 Hz dense wave at LI4 & SP6 was more effective for

		continuous				increasing uterine contraction, amplitude, frequency and lasting time of contraction waves in late stage pregnant rats.
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### **Low back pain or pelvic pain in pregnancy**

For the purpose of this investigation, importance was placed on the specific acupuncture points used in each of the studies.

Ee et al. (2008) conducted a systematic review of acupuncture compared with physiotherapy in the treatment of back pain. The researchers reported that pelvic and back pains are some of the most common minor complications in pregnancy. They describe the most prescribed method of treatment to be exercise physiotherapy. They report that studies suggest that physiotherapy in combination with acupuncture may improve low back pain.

Wedenberg, et al. (1999) conducted a study to compare the effects of acupuncture for low back and pelvic pain in pregnancy with physiotherapy. In this study, 60 pregnant women, no more than 32 weeks gestational age, were divided into two groups of 30. The women in the acupuncture group received treatment 3 times a week during the first two weeks then twice a week for a total of 10 treatments within one month. Needle gauge ranged from .25-.38mm thick and 1-10 centimeters long. Two to ten needles were used – the first being auricular acupuncture and then body points as needed. The needles were stimulated to elicit de qi sensation. The most commonly used points were UB26 – UB30 and UB60. The needles were stimulated by rotating them or tapping them gently 15 minutes into the treatment. The results of this study were that all 30 women in the acupuncture group finished the study compared to 18 in the physiotherapy group. Both groups had been similar in pain levels initially; however, after treatment the mean morning VAS score had declined from 3.4 to .9 in the acupuncture group and from 3.7 to 2.3 for the physiotherapy group. The evening values declined from 7.4 to 1.7 and 6.6 to 4.5 respectively. The mean VAS scores were lower after acupuncture treatment than physiotherapy. There were no adverse events in any of the patients. The conclusion was that acupuncture

relieved pain and diminished disability in low back pain during pregnancy better than physiotherapy.

The next study reviewed is one where the researchers were looking for adverse effects from acupuncture because there were not enough studies to assure the treatment is safe. However, it is interesting to take note of the points they are using in this study. Elden, et al. (2008), conducted a study to determine if there were any adverse effects from acupuncture on the pregnancy, mother, delivery or fetus/neonate in comparison with women who received stabilizing exercises as adjunct to standard treatment. There were 386 women in a controlled, single blind trial. They were randomly assigned to standard treatment plus acupuncture (125), standard treatment plus specific stabilizing exercises (131), or to standard treatment alone (130) for 6 weeks. Treatments were started as early as the second trimester and they used strong acupuncture treatment. 43 women were randomly picked to have cardiotocography on the fetus after they had experienced 43 treatments. The results were that there were no adverse effects noted. They used 17 needles with 10 located in the lumbosacral area. Their conclusion was that acupuncture administered with stimulation that may be considered strong only led to minor adverse complaints. There were no adverse reports with regard to the pregnancy delivery, mother or fetus/neonate. What is interesting to note are the selection of points they chose. Those points are listed as: GV20, LI4 (bilateral) UB26, 32, 33, 54 (bilateral), KI11 (bilateral), UB60 bilateral, EX21, GB 30(bilateral), SP12 and ST36 (bilateral). Several of the points are considered forbidden yet they did not have any adverse effects.

Elden, et al. (2008), also conducted another study, which was randomized, double-blinded controlled involving 115 pregnant women who presented a clinical diagnosis of pelvic girdle pain and who scored greater than 50 on the VAS. These women were randomly allocated

to standard treatment plus acupuncture or to standard treatment plus non-penetrating sham acupuncture for 8 weeks. The needles were .30mm and inserted to a depth of 15-50 mm. The participants received 12 acupuncture treatments which lasted 30 minutes twice a week for 4 weeks and then once a week for 4 weeks. The needles were left in place and manually stimulated every 10 minutes. No attempt was made to evoke de qi sensation. The results were that pain decreased from 66 to 36 in the acupuncture group and from 69 to 41 in the non-penetrating sham group according to the visual analog scale (VAS). Women from the acupuncture group were at their regular work to a higher extent than women in the sham group. The acupuncture group had superior ability to perform daily activities. The conclusion was that the acupuncture did not have a significant effect on pain or in the degree of sick leave compared with non-penetrating sham acupuncture.

Once again, our interest lies with the acupuncture points that were used. They are as follows: KD11, ST 36, DU20, UB26, 32, 33, 54, 60, GB30 and LI4. Lund et al. (2005) conducted a study of pregnant women who experienced low back pain and/or pelvic pain. The purpose of the study was to examine the effects of two alternative modes of acupuncture stimulation (superficial and deep) on perceived pelvic pain in late pregnancy. The inclusion criteria included gestational age from 22-36 weeks and they had to be in pain for more than two weeks. Pain on the VAS scale had to be above 60. The acupuncture sessions were given twice a week for five weeks. The duration of the treatment was 30 minutes. For each treatment, 10 classical points were selected for stimulation and chosen based on the site for pain. The points selected were UB27, 28, 29, 31, 32, and 54, KI11, and CV3 in combination with the peripheral points of SP6, LV2, and LI4. They applied stimulation to three or four the UB points bilaterally based on the neurological innervation of the painful area. During superficial stimulation, shorter,

thinner needles were used and left in place until the end of the treatment. For deep stimulation, thicker longer needles were inserted intramuscularly. The needles were stimulated five times during the sessions by manual twirling until the patients reported de qi sensations. The results showed that there was not sufficient change between the two groups, deep or superficial needling. The women did report significant changes in the pain intensity as well as the emotional reactions and loss of energy after treatment. The decreased pain intensity, confirmed results found in other studies.

Da Silva, et al. (2004) conducted a study to investigate the effects of acupuncture in low back and pelvic pain during pregnancy as compared with those using conventional treatment alone. Sixty one conventionally treated women were randomly divided into two groups to either receive acupuncture treatment or not. Thirty-four women were in the control group, and 27 women formed the study group. The women in the control group were given conventional treatment of 500 mg of an analgesic drug called paracetamol and an anti-spasmodic drug called hyoscine, 10 mg. There were no differences in the groups other than one receiving acupuncture treatment. The women ranged in age from 15-39 years and 15-30 weeks of pregnancy. Part of the inclusion process was that the women experience at least minimal low back or pelvic pain and they could not have been treated with acupuncture within the previous year. Women were also asked to evaluate their ability to perform general activities such as walking and working. Treatment was performed once per week and occasionally twice when there was severe pain over an eight week period. The women had between 8 and 12 treatments during the eight week period. What makes this study unique is that traditional acupuncture rules and classical points were applied. De qi was elicited at each point. There was no electroacupuncture or ear acupuncture used in this study. On the average, 12 needles were inserted and left in place for 25

minutes. The most commonly used points were KI3, SI3, UB62, UB40, SJ5, GB30, GB41 and the huatojiaji points, which are a group of 34 points on both sides of the spinal column approximately 1 cm lateral to the lower border of each spinous process. Da Silva states that these points are located 1 cm from the midline. The control group was given paracetamol and hyoscine which is a common combination used at this particular obstetric unit. The results were that all 61 pregnant women completed the treatment and completed the interviews. There were no side effects from the acupuncture. Two women mentioned small bruises at one or two of the points and one woman mentioned that she experienced a higher level of pain a few hours after the session. The results in the acupuncture group were a clear reduction in pain while the control group values fluctuated around the same level. The average pain intensity decreased 50% in 21 or 78% of the acupuncture group with only 5 or 15% of the control group. The acupuncture group took less paracetamol than the control group. After treatment, the acupuncture group improved significantly in functional capacity. This is the only study where there is mention of the acupuncturist's education. The investigator had 600 hours of post-graduate training in acupuncture as well as theory and the practice of traditional Chinese medicine. He had 15 years experience and treated 50 patients daily.

Kvorning, et al. (2004) created a study to evaluate the analgesic effect and possible adverse effects of acupuncture for pelvic and low back pain during the last trimester of pregnancy. In this study, 72 pregnant women that reported pelvic pain or low back pain were randomized to an acupuncture group or control group. The acupuncture group (37) and the control groups (35) were between 24-37 weeks pregnant. Traditional acupuncture points and local tender points were stimulated once or twice a week until delivery or complete recovery. The control group was not given sham acupuncture. During the study, each patient utilized the

visual analog scale, (VAS) to evaluate their pain levels. The acupuncture group was given acupuncture according to written instructions and periosteal stimulation used whenever possible. At first, LV3 and DU20 were used initially if the patient was nervous along with local tender points. If they did not get good response, additional points were stimulated. The following points were stimulated using a 2.5inch needle, UB60, SI3 or one of the lumbar and sacral points UB22-26. Other areas needled included the minimal gluteal muscle tendon 3-4 cm distal to the anterior superior iliac spine, the sacroiliac tendons (needled obliquely towards the distal part of the ligament or using 1 inch needles at the symphysis – needled perpendicularly. De qi sensation was elicited on the first visit. On subsequent visits, manipulation of the needled stopped as soon as de qi was obtained but then repeated 30-60s with the needle left in place between stimulations. The needles were removed and the patient was allowed to rest for 10 minutes. In the first two week period, acupuncture was given twice a week and then later no more than once per week. During the study, pain decreased in 60% of the acupuncture group and 14% of the control group. Two acupuncture and zero control group patients were found to be completely free of pain during their last 3 weeks of pregnancy. Pain associated with activity decreased in 43% of the acupuncture group and 9% in the control group. There were no side effects reported although 38% of the patients reported local pain, heat or sweating, local hematoma, tiredness nausea and weakness. An interesting note is that pain in the acupuncture group lasted significantly longer than in the control group whereas no differences in the duration of pain during the last 24 hours. In this particular case, sham treatment was foregone in order to prevent additional stress on the pregnant women.

Ternov, et al. (2001) also did a retrospective report on 167 cases of acupuncture for low back pain and pelvic pain in late pregnancy. An interesting note here is that one of the criteria



was the patients be without history of infertility or spontaneous abortion. Each acupuncture patient was given at least two treatments with an experienced midwife who was specially trained. The following acupuncture points were chosen: UB57, UB60, SI3 and LV3, SP9, ST36, GB34 and LI4. The points were stimulated manually at three 15 minute intervals, achieved de qi and were left the about 45 minutes. Between 4 and 8 tender points were stimulated. The points most frequently used were LV 3 and LI4 together with local points in the lower back and girdle regions. What is interesting with this case is that there were no major adverse effects except for one patient with premature labor which resolved itself within 24 hours. This particular patient had been given acupuncture on five occasions from week 13 before the episode of premature labor during the sixth stimulation in week 15. She had no further stimulation and was delivered uneventfully in week 42. Painful uterine contractions, nausea, thirst, discomfort from needles, sweating, accentuated pain, and sadness were reported. Three women delivered before full term. This is the first study to mention the cautions expressed by traditional acupuncturists. It is also noted that for safety reasons, acupuncture was provided during the second and third trimester of pregnancy. It was felt that the adverse effects reported were non obstetric except for the episode of reversible uterine contractions found in one patient.

The following three research reports represent single case studies where the investigator is reporting on how the patient has progressed. Rouse (2008) reported on a case study about the use of acupuncture in the physiotherapy treatment of pelvic pain. A patient presented at 24 weeks gestation with pelvic and low back pain. She also reported that fatigue had become an issue. Her initial assessment was 24/40 with mild soreness over the pubic symphysis. The pain radiated down her inner thighs and she felt a slight ache in her back. The symptoms were more pronounced in the evening. The patient had suffered severe pelvic pain in the third trimester of

her first pregnancy and was looking to acupuncture as a preventative measure. She was advised to begin wearing a maternity belt and was given advice for stability exercises. She found it to be helpful. However, her VAS indicator went up from 2/10 to 8/10 in one month. The patient was a good candidate for acupuncture since she had no contraindications. She was treated with the following acupuncture points: first visit: two ashi points and LU7 bilaterally for 15 minutes. The next session utilized the same points and time duration. The next session: two ashi points over the pubic symphysis and Lu7 bilaterally – 20 minute duration. In weeks 4-9, two ashi points and two ashi points over the pubic symphysis and Lu7 bilaterally – 25 minute sessions. This patient responded well to the treatment and her VAS score went from 8/10 to 3-4/10. De qi was elicited on the acupuncture points. The treatments were biweekly. There were no adverse effects of the treatment.

Cummings (2003) reports the treatment of a patient (ASJ) who presented for treatment for an acute episode of pain which had been present for 13 days. She had not responded to osteopathic treatment. Pain centered on her low back but could radiate to the upper hip girdles, buttocks, posterior thighs and inner thighs. The pain tended to occur on one side or the other. The pain was a dull ache but became sharp with some movements and was burning in nature after sitting for more than 15 minutes. It was made worse by sitting and was relieved by ice and light stretching. At this time, she was married but had no children. The treatment included direct needling to the tender muscles, assessment of the response and possibly adding electroacupuncture. Four tender sites were manually needled with strong stimulation for about 10 seconds. The needles were left in place for 20 minutes. At the one week follow-up, she reported significant improvement for five days. Second treatment involved strong manual needling to symmetrical points in the quadratus lumborum and gluteus medius. Six points were needled for

5 seconds only. At the next visit, she reported post needling soreness for 24 hours and then marked improvement. He continued to see ASJ and on her 7<sup>th</sup> treatment, she told him she was pregnant. When they confirmed the dates, he realized that he had been treating her during the early stages of her pregnancy. After he explained the risks to her, she decided to continue with pregnancy. She received 18 treatments during pregnancy without adverse effects. She had facet joint pain and it caused myofascial pain and leg length inequality. She delivered at term without incidence. This is a very interesting case due to the depth of needling that was done. The periosteal needling of the facet joint was the only relief this patient had been able to find. He needed to a depth of 55mm. He continued treatment through her pregnancy since she had already had six treatments. This was the only relief she had been able to achieve out of all the modalities she sought.

Forrester, M. (2003) treated a 21 year old woman primagravida, 24 weeks pregnant who had been in a car accident and suffered from back pain. UB25 was gently needled bilaterally for one minute with Serin No. 5. At her second treatment, she complained of a little more back pain and he added UB23 and UB25 bilaterally for 5 minutes. A week later, she reported that her back pain was better and only gave her trouble if she sat or stood for too long of a period of time. At her fifth treatment she was 27 weeks pregnant and reported her back pain was a little better but was experiencing worse leg pain. He added decided to add UB57 bilaterally for 20 minutes and she reported back that her back was a lot better. He also needled huatuojaji points at the L2 and L4 level bilaterally for 20 minutes. This patient did not suffer any side effects.

### **Acupuncture for labor induction**

Much of the research has shown how the forbidden points have been utilized in lower back pain in pregnancy without incidence. It is interesting to note that forbidden points have

also been instrumental in the induction of labor. The next section will show the acupuncture points used for induction and which ones coincide with the forbidden point category. The following table illustrates the common acupuncture points indicated for labor induction. The points in common with forbidden points are shown with an asterisk.

<b>Acupuncture Points to Induce Labor</b>	
<b>Table 7</b> <b>*indicates point in common with Forbidden Points</b>	
Treatment of Infertility with Chinese Medicine (2004)	SP 6*, LI 4*, GB 21, LV 3, UB 32*
A Manual of Acupuncture (1998)	SP 6*, LI 4*, UB 60, UB 67*, GB 21
Electroacupuncture for cervical ripening prior to labor induction: A randomized clinical trial Gisele, et al. (2011)	SP 6*, LI 4*, LV 3, UB 23*, UB 32*
A randomized controlled trial of acupuncture for initiation of labor in nulliparous women Harper, et al. (2006)	SP 6*, LI 4*, UB 31*, UB 32*
Acupuncture, A Comprehensive Text (1983)	UB 31*, UB 32*, LI 4*, SP 6*, ST 36, LV 3, UB 60 UB 67*, GB 21

The first study conducted by Tsuei, et al. (1974) represents one of the earliest studies in American literature. During a four month period, 12 patients had labor induced by using manual acupuncture and electrical stimulation. The ages of the patients ranged from 23 to 42 years; three were primiparas and 9 were multiparas. The gestational period varied from 19-43 weeks. Five patients had indications of stillbirth. The other patients were induced because they were overdue according to their menstrual history. None of the patients had uterine contractions prior to induction of labor. Two points were used bilaterally – LI4 (Hegu), located on the dorsum of

the hand between the 1<sup>st</sup> and 2<sup>nd</sup> metacarpal bones, approximately in the middle of the 2<sup>nd</sup> metacarpal bone on the radial side, as well as SP6 (Sanyinjiao), located about 3 inches above the medial malleolus, posterior to the border of the tibia, Chinese Acupuncture and Moxibustion (1998). The needles were then connected to an electrical stimulator at a frequency of 300-500 cycles per minutes with an intensity of 5-9 volts. The intensity was increased until the patient could feel the current but was not in pain. In 7 successful cases, the average time was 13 hours and 6 minutes. In most of the cases labor was assisted with the electrical stimulation. The results were that in every case, uterine contractions occurred as soon as the patient experienced de qi sensation. The contractions continued irregularly without change before or after the beginning of cervical dilation. In the cases of the stillbirths and missed abortion, 3 were successful with an average labor of 10 hours and after two or three attempts, 2 were delivered the following day by oxytocin drip. Primiparous women had an average of 26 hours and 12 minutes of labor and the multiparous group had an average of 8 hours and 44 minutes.

Harper, et al. (2006) conducted a study where women were only eligible if they were nulliparous and between 39 and 41 weeks of gestation with a singleton, vertex fetus. 56 women were randomized to receive acupuncture along with routine medical care (30) or to be in the control group and receive medical care alone (26). This was not a blinded study. Acupuncture treatments were given on three out of 4 consecutive days. Each visit consisted of continuous electronic fetal hear rate monitoring and external tocometry during treatment. The acupuncturist was traditionally trained in Chinese medicine. The acupuncture points used were LI4 (Hegu), SP6 (Sanyinjiao), UB31 (Shangliao) and UB32 (Ciliao). Low electrical stimulation was used for bilateral UB31 connected to UB32 with a current at 2Hz during the 30 minute treatment. All women completed their treatments except one. The results showed the time from enrollment to

delivery was 21 hours shorter for the acupuncture group but not statistically significant. Spontaneous labor occurred in 70% of the women in the acupuncture group but only in 50% of the control group. 17% underwent cesarean delivery in the acupuncture group while 39% in the control group had cesarean delivery. This study did not yield a statistically significant difference between the two treatment outcomes. However, there were a couple of important items to be noted. First, the women randomized to the acupuncture group delivered 50 hours earlier than those in the control group. Additionally, there were more women who went into labor spontaneously in the acupuncture group and had a three-fold decrease risk of cesarean section than in the control group. The final conclusion of this study was that it could not prove or disprove if acupuncture was effective in initiating labor in nulliparous women at or near their due date. However, it did demonstrate that the efficacy of acupuncture for the initiation of labor was feasible. It was felt that a larger sample size and a sham acupuncture comparison were needed.

The next study is a double-blind, randomized controlled study in which Modlock, et al (2010) conducted a study to investigate if acupuncture was effective in the induction of labor in post term pregnancies. 125 healthy women at 41 weeks gestation were randomized into two groups. The acupuncture group received acupuncture twice on the same day at the following points DU20 and bilaterally at LI4, SP6, and UB67. The control group received sham acupuncture at the same points. The women were given 24 hours after randomization. The goal was either labor or delivery. The result was that 7 women in the acupuncture group and 8 women in the control group reached goal. The conclusion of this study was that acupuncture for induction of labor at 41 weeks may not be effective.

This study was done by Smith, et al., (2008) in which 364 women were randomly assigned to the trial - 181 women in the acupuncture treatment group and 183 in the control

group. The goal was to determine the clinical effectiveness of acupuncture to induce labor. Two sessions of acupuncture using local and distal points was administered two days prior to scheduled medical induction. Acupuncture did not reduce the need for induction methods or the duration of labor for women with post term pregnancy. This study does not mention which acupuncture points were used.

Rabl, et al. (2001) conducted a study in which 45 women were evaluated. Twenty five were in the Acupuncture Group and 20 women were in the Control Group. Inclusion criteria were a confirmed date of confinement, uncomplicated pregnancy, singleton pregnancy in cephalic presentation. Exclusion criteria consisted of active labor premature rupture of the membranes, previous cesarean section, and pathology in the mother or fetus. The women received bilateral acupuncture every 2 days at LI4 (Hegu) and SP6 (Sanyinjiao). Cervical status was assessed according to the Bishop score and a fetal Fibronectin test. If a woman had not delivered 10 days after the estimated day of confinement, labor was induced by vaginal prostaglandin tablets. The results from this study showed that the cervical length in the Acupuncture Group was shorter than in the Control Group on day 6 and 8 after the estimated date of confinement. The Acupuncture Group showed the time period from the first Fibronectin test to delivery was 2.3 days and the Control Group was 4.2 days. The average time period from the estimated date of confinement to delivery was 5 days for the Acupuncture Group and 7.9 days in the Control Group. Oxytocin was used in 56% of Acupuncture Control cases and 65% in the Control Group. The results were that LI4 and SP6 support cervical ripening at term and can shorten the time interval between the estimated time of delivery and actual delivery.

Gisele, et al. (2011) conducted a study to compare the effects of using acupuncture or misoprostol, an exogenous prostaglandin, to induce labor. In this study, 72 pregnant women

were randomly distributed into two groups. The selection included women who were post term, prelabor rupture of membranes, normal term pregnancy and controlled diabetic pregnant woman. The acupuncture group (35) received electroacupuncture at the following sites: LI4, SP6, LV3, UB23, and UB32 every 7 hours in a 24 hour period. The points were bilaterally stimulated at alternating pulses of 5 and 50 Hz every 7 pulses. The misoprostol group (32) received 25 mg every 6 hours, up to 4 tablets in a 24 hour period. The success of the procedure was determined by vaginal delivery within 24 hours. Labor was induced in 74% of the acupuncture group compared with 53% in the misoprostol group.

The last study to be discussed is Dunn, et al. (1989) where 20 post date pregnant women were assessed in a controlled study. The women were randomly assigned to either an acupuncture group or placebo group. The acupuncture group had electroacupuncture at SP6 and LV3 and the placebo group had equipment attached but never activated. The frequency and length of uterine contraction was monitored for 1 hour prior to stimulation and the last 2 hours of a 4 hour test period. The results showed that there was a significant increase in the frequency and strength of uterine contractions in the acupuncture group.

Betts (2009) brings up several questions with regard to labor induction with acupuncture and some things to take into consideration. While using acupuncture to induce labor sounds more natural, if it does not yield uneventful delivery and results in fetal distress, “stuck baby” or failing to progress and requiring medical procedures, then how efficient was the process. Betts suggests there may be some other issues to consider:

- Is the baby really overdue – sometimes, in spite of medical advances, the timing of a due date may be off. It’s important to remember that two to three days prior to spontaneous labor, fluid production surrounding a baby’s lungs is reduced and the baby begins to



change the way it uses its lungs in utero to prepare for the transition from an environment of amniotic fluid to breathing air.

- Labor can be affected by strong emotions such as anger or grief. These emotions could potentially delay the onset of labor.
- Is the woman physically prepared for labor – often times by the end stage of pregnancy, women have suffered with low back pain or hemorrhoids which might inhibit her desire to push during labor.
- Is the woman emotionally prepared for labor – there are many horror stories about labor and the thought of labor can produce a great amount of fear. A woman needs to feel safe.
- What is the underlying reason for delayed onset of labor?

### **Literature Review Integration**

There have been a number of studies that have examined the phenomenon of low back pain in pregnancy (Wang, 2004; Saccomani 2011; Betts et al., 2011). A few studies have examined specific points targeted for the treatment of low back pain in pregnancy (Sliva et al., 2006; Cummings, 2011). Only one study explored the use of what are known as “forbidden points” to relieve back pain with the forbidden factor being the belief that acupuncture at those points has the potential to induce labor at certain stages in the pregnancy (Forrester, 2003). As a result of the paucity of articles that pertain specifically to information about needling “forbidden points” during pregnancy, there is a gap in the literature. It will be the objective of the current study to further fill the observed gap in the literature by conducting a thorough literature review synthesis that will analyze pertinent studies and provide some preliminary observations and conclusions regarding the application of acupuncture at “forbidden points” during pregnancy. Another gap that has been observed by the researcher is that to my knowledge, there have not

been any studies on the neuroanatomy of the forbidden points and their connection to the central nervous system, their mechanism of action and how they affect the uterus. Liu (2007) begins to explore the issue by studying Wistar rats and myoelectrical activities of the uterus. Prior research looks at one gross aspect of forbidden points – when used have they caused abortion. This researcher is interested in exploring the effects the forbidden points have on the contractility of the uterus myometrium which I believe will provide information for further study.

There is also the issue of using forbidden points to induce labor. In spite of the research, Betts (2009) has raised some interesting questions with regard to the reasoning behind utilizing acupuncture for labor induction. The question of why labor is delayed and resolving that issue may be the more important issue at large.

### **Chapter 3: Methodology**

The method section provides information on the methods used in the research design, the data collection instrument, data sources, and inclusion/exclusion criteria and data analysis. Cooper and Hedges (2009) define research synthesis as the point where a body of literature reviews particular characteristics of a certain subject. The goal of research synthesis is to integrate empirical information so that generalizations can be formed. In the process, limitations and issues are defined which give way to possible future research. The definition of qualitative research is where the researcher seeks a holistic comprehension of the subject being studied. This involves collection information on the question being investigated. This study uses analytic method to examine trends and themes in the current research environment.

#### **Research Design**

The method used in this study was research synthesis, a retrospective study approach. Qualitative method was used which allowed me to methodically review and analyze data to find recurrent themes or patterns. I utilized various sources, journal articles and text books to give historical context to the use of forbidden points. Inductive approach to thematic analysis allowed me to read the data and have themes and ideas arise rather than searching for any predefined themes. The inductive approach was the appropriate approach in order to separate ideas or themes into a possible conclusion. Qualitative research analysis was the best method to use for the particular type of study due to the lack of available studies and historical information concerning the origin of forbidden points as well as time limitations. The information gathered from this study may be a guideline for future studies that specifically target forbidden points and

the results from needling them. I also utilized descriptive approach which allowed me to describe the relationship between the variables.

### **Sampling Procedures**

The sources of the data for this research were derived from a variety of Chinese medicine and Western medicine journals as well as textbooks. Textbooks were used due to the lack of research by traditionally trained acupuncturists regarding the use of forbidden points in pregnancy. Much of the research has been done by medical acupuncture physicians who have been trained to move away from many of the tenets of traditional Chinese medicine. Therefore, the research, while very valuable, needs the assistance of the traditionally trained practitioner.

The online resources included the following: PubMed, The Cochrane Library, EBSCOhost, Google Scholar, Wiley Online Library Springerlink as well as Liebertonline to search for articles pertaining to my topic. The library at Pacific College of Traditional Chinese Medicine was utilized to access recordings of lectures done by experts in the field. The textbooks used were as follows:

<b>Textbooks Used</b>	<b>Textbooks Used</b>
Chinese Acupuncture & Moxibustion (1987)	Book of Acupuncture Points (1985)
Fundamentals of Chinese Acupuncture (1987)	Acupuncture, Textbook and Atlas (1987)
Acupuncture, A Comprehensive Text (1983)	Treatment of Infertility with Chinese Medicine (2004)
A Manual of Acupuncture (198)	Introductory Acupuncture (1977)
Essentials of Chinese Acupuncture (1980)	Obstetrics & Gynecology in Chinese Medicine (2004)

The keywords used to search for articles included the following: acupuncture and late term pregnancy, adverse effects of acupuncture during pregnancy, forbidden acupuncture points,

acupuncture for labor induction, and acupuncture for pelvic pain in pregnancy, medical acupuncture for low back pain in pregnancy. Other keywords used: acupuncture and myoelectrical effects on the uterus, neuroanatomy of acupoints, how acupuncture affects blood regional flow in organs, uterine implantation and oxygen requirements and the physiology of pregnancy. The article search was conducted at the investigator's home and Pacific College of Traditional Chinese Medicine library. Fifty articles were selected for review based on the keyword search, 80 abstracts were reviewed of which 30 became final articles. All of the articles were reviewed, and then it was determined in which area each was to be placed. There were special folders for animal studies, folders for articles pertaining to the neuroanatomy of the points, folders for TCM history, folders for TCM gynecology and theory. Additionally, there was a separate folder for the physiology of pregnancy and implantation. Each of the studies were separated so they could be compared and contrasted for data and emerging themes.

### **Inclusion/Exclusion Criteria**

Due to the lack of information on the specific subject of forbidden points, only those articles pertaining to areas outside of TCM gynecology were excluded. Included were articles that pertained to acupuncture for low back pain, acupuncture for pelvic pain, acupuncture for cervical ripening and neuroanatomy of acupoints that fell within the range of the forbidden points and acupuncture for labor induction. Included also was the physiology of pregnancy as well as the oxygen requirements for optimal uterine implantation.

## **Chapter 4: Results**

### **Data Analysis/Overview**

The data gathered for this study were categorized in accordance with coding categories previously described in the Methods section for analysis. By separating the information into specific categories, the sorting process allowed general themes to emerge within the specific category in an inductive fashion facilitating ease of interpretation. By separating articles into general topical themes, information rose to the top in the investigation and interpretation process, and become highlighted upon further analysis. This process was carried out for all the categories listed. By analyzing the articles and asking the question “what is missing?” lead to themes being developed that would support one or more of the stated hypotheses of the current study. On the basis of the amount of research and analysis accomplished in the literature review synthesis process, a number of preliminary answers to the research questions posited at the beginning of this capstone emerged.

### **What are the forbidden acupuncture points?**

This is an area where TCM needs to gain clarity and consistency. Upon researching the subject matter, and analyzing the data collected for the current study, it was evident that the answer to this question depended on the author or book/article reviewed. Of the six major texts that address the issue of forbidden points a total of 13 points were observed as being designated as forbidden points. Across the six authors, the number of points designated as forbidden ranged from two to six points. However, only one of the thirteen points (LI 4) is common across all six authors. A second point (SP 6) was observed to be designated as forbidden point for five of the six authors, and another one (GB 21) was designated by three of the six authors.

Given the emergence of the data summarized above, it was my observation that there was little consistency in documenting exactly what are the forbidden acupuncture points.

### **Are the forbidden acupuncture points safe to use in pregnancy?**

After analyzing the data that emerged in this study, it appears that the use of the forbidden points may be safe. However, one must also consider the source of the research. We must keep in mind the perspectives of Western medical acupuncture physicians, who, by definition, discard many of the traditional points of view. Da Silva (2011) questions the existence of forbidden points, and in the research on Wistar rats, da Silva (2012) did not address uterine muscle contraction as a result of acupuncture. Liu (2007) initiated a more complete study wherein the myoelectrical activities with acupuncture were measured. The comparability of rat studies to human pregnancy must be studied further.

### **What is the mechanism of action of acupuncture that either promotes or inhibits the use of forbidden points for low back pain in pregnancy?**

From the research data observed, there are two perspectives that emerge regarding the mechanisms of action of acupuncture. There are studies that show that many of the designated as forbidden points, may applied with beneficial results for pain management. Nonetheless, the question remains regarding how acupuncture points that have a positive impact or pain affect a pregnant woman. Pregnancy encompasses its own physiology Betts (2011). As a result this question cannot be definitely resolved from the data generated in the current study.

Considerably more investigation is warranted. From a neuroanatomical point of view, some of the mechanisms of action of acupuncture are so diverse, that they elude modern day science.

**How can forbidden points be used in low back pain and also in induction of labor without consequence?**

The data collected from the current research appear to indicate that if a woman's body is not biochemically and hormonally ready to go into labor, acupuncture will not be effective in relieving low back pain or in inducing labor. The current study included a systematic review of ten research articles that pertained to the use of acupuncture to relieve low back pain during pregnancy. Of the ten studies reviewed three of the articles used single person case study methodology. The other seven represented results from a total of 901 patients with six of those seven studies generating data from some level of randomized controlled investigation. Across the studies the number of acupuncture treatments ranged from six treatments to eighteen or more. It is impressive to note that nine of the ten studies reviewed reported outcomes indicative of the fact that acupuncture can be an effective treatment for low back pain during pregnancy. Table 8 provides a summary of the research articles reviewed that pertain to the use of acupuncture to manage low back pain during pregnancy.



Table 8: Acupuncture for Manage Low Back Pain: Summary of Studies

Author Date	Duration of Treatment	# Of Treatments	Sample Size	Intervention (Weeks)	Research Design	Acupuncture Points used	Outcome
Wuenschelg, et al. (2000)	30 min	40	20	<13	randomized controlled	UB20-30	Acup more effect placebo
Land et al. (2000)	30 min	10	70	36	randomized controlled	T327-23,33 L337,34,35 CV3,SP6,LI4	Acup relieves pain
Kawamura et al. (2004)	10-60 sec Toni delivery Oral delivery	235 weeks	72	24-37	randomized	Peterson, LV3, DU20,GB30,SI3 UB23,26	Acup relieves pain w/o side effects
Tennys et al. (2007)	15 min Infra-red	187	187		retrospective	LV3, UB20	Acup effective for pain relief
Green et al. (2005)	30 min	6	286		randomized	T14, UB20, SI3, SC46, KI11, GB30	Acup better than exercise
Cunningham (2003)	5 sec	18		throughout	case report	pericardial LN8	Effective
Forrester (2003)	Manual Then 20 min	8	1	24	case report	UB23,25,27	Effective
Rouse (2008)	15 min (2)	10-weekly	1	24	case report	LI7-2, AshiLI pr	Effective
Washburn et al. (2004)	25 min	4-13	64	13-36	quasi- randomized controlled	KU, SI3, LI, 40, 10 SI3, GB30, 4, Lumbar 1	50% pain reduction AG 15% control
Wang et al.	30 min	12	119	12-29	randomized	LI7, GB30, 28, 32,	No effect

There are some studies that show acupuncture can be used for cervical softening. In the current study six research articles were found that specifically explored the use of acupuncture to induce labor or to facilitate the ripening of the cervix. Five of the six articles represented research generated using randomized controlled methodology. Across those studies the indices of outcome ranged from measurements of the strength of contractions, frequency of contractions, cervical measurements and overall labor/delivery time. Five of the six studies demonstrated noticeable differences regarding the variable targeted as the index of outcome. Because of the range of variables used as the outcome measurement the question as to whether acupuncture can be used for cervical softening or labor induction remains unresolved. As a result, again, further research regarding this question needs to be accomplished. Table 9 summarizes the data collected from this aspect of the current study.



**Is it time for acupuncture theory to be updated based on current scientific research?**

This question is also one that further emphasizes the need for additional research. Until such time that traditional acupuncturists and Western medical acupuncture physicians can work together to design research models that address both sides, I do not believe it is time to change acupuncture theory. The research by da Silva, et al. (2012) regarding acupuncture at the forbidden points studied Wistar rats and their comparative biochemical parameters. It was the work of Liu (2007) which utilized an electrohysterogram with a bipolar stainless steel electrode that was inserted into the sub-perimetrium layer of the rat uterus to determine myoelectrical activities of the uterus in relation to acupuncture. The level that those studies can be directly applied to humans is not entirely clear. Future studies need to examine the effects that acupuncture at specific sites has on the contractility of the uterus.

## **Chapter 5: Discussion**

Based on the research data generated in the course of preparing this document, the one overriding result is that more specific research needs to be brought forward by traditional Chinese medicine acupuncturists and Western medical acupuncture physicians. At this point, I believe the research is too one sided because of the limited exposure to orthodox Traditional Chinese Medical theory that Western medical acupuncture physicians receive.

### **Implications for Theory**

The findings of the current study suggest that both Western and TCM researchers should continue to develop theories regarding the existence of forbidden points, and regarding the impact of acupuncture on those points during pregnancy. The development of theory is always preceded by substantive research, data analysis and consideration of implications. On the basis of the findings of the current study, the most salient statement that can be made about the status of theory is that neither TCM nor Western medicine has evolved to the point that a firm theory can be cited. Hypotheses and speculations abound. However, a firm, valid and reliable theory has yet to be generated regarding the impact of acupuncture at the forbidden points during pregnancy.

### **Implications for Practice**

There are many people involved in the professional practice of acupuncture. Some are trained traditionally and some are not. When women come for acupuncture for low back pain during to pregnancy, they are entrusting the practitioner with their bodies, their babies and their futures. It is up to practitioners to have sufficient knowledge and tools to deal with all facets of pregnancy in order to provide optimal service to our patients. As practitioner/scholars acupuncturists with advanced credentials and specialty experience should be encouraged to

engage in careful research regarding the use of the forbidden points. Such research should start with those forbidden points that are less frequently designated in the literature. For example, only one of the six works that designate forbidden points include the points, RN 5, RN 10, UB 60 and UB 67. Such research should begin with retrospective case studies of women who were pregnant and who were treated for pain conditions with acupuncture at the RN 5, RN 10, UB 60 and UB 67 points. If such retrospective studies manifest no strong contraindications, the path of research should be taken to the next stages of carefully monitored concurrent case studies, and thereafter to more advanced controlled studies regarding those and other points designated as forbidden.

### **Limitations of the Current Study**

The primary limitations of the study are based on the range of the research and other documents articles reviewed. While the researcher was thorough and comprehensive in her search for relevant studies, she is also aware that the concept of forbidden points is one that originated in the ancient texts and traditions of Traditional Chinese Medicine, and that much of the nuances of the theory and practice relating to the forbidden points may not have been fully discerned, since only English language resources were utilized for the current study. For the current study, as with many other TCM research studies, the issue of “lost in translation” is a real factor that must be considered.

Secondly, the researcher believes that some data pertaining to the forbidden points is obscured because of the continuing rift between what I will term as “orthodox” Traditional Chinese Medicine practices and the practices of Western Medical acupuncturists. Without a doubt there remains a chasm of theory and practice tenets between those two groups. I do not

believe we will be able to derive consistent and reliable data from writing, and research until we can truly integrate Eastern and Western thinking in medicine.

### **Recommendations for Future Research**

My primary recommendation for future research is that traditional Chinese medicine doctors and Western medical acupuncture physicians work together toward a common goal. Acupuncture is a powerful medicine that has been handed down by both oral and written traditions through the ages. I do not believe that at the present time can be so arrogant as to think that we have all the answers at this time. As the body of anecdotal and evidence based research develops further, it is in the best interests of our patients to provide them with a concise, cohesive, and proven medicine that benefits everyone.

Consistent with the comments made above further research might include the following:

- More careful review of ancient texts to discern the perspective of the founders of Traditional Chinese Medicine regarding the existence of and precautions to be taken in the use of acupuncture on the forbidden points during pregnancy.
- Additional retrospective case studies that either rule out or confirm the authenticity of the several forbidden points that are designated less frequently in existing contemporary texts.
- Subsequent to preliminary retrospective studies, concurrent carefully monitored case studies that focus on the use of one or more of the forbidden points during pregnancy.
- A systematic study of state acupuncture board practice complaints to discern if any pertain to the use of any of the forbidden points during acupuncture, including a careful examination of the alleged damages resulting.

## **Conclusion**

The existence of the forbidden acupuncture points that should be avoided during pregnancy remains a question left to further and more systematic research. The differing interpretations of mainstream Traditional Chinese Medicine practitioners and researchers are likely to differ somewhat from the perspectives of the Western medical acupuncture community. Until Traditional Chinese Medicine and Western medical acupuncture practitioners and researchers can achieve a common ground regarding their practice and research procedures, the questions posed in this research study are likely to remain unresolved.



## References

American Board of Medical Acupuncture.

Retrieved from: <http://www.dabma.org/requirements.asp>

Berkley, K. Robbins, A., Sato, Y., (1993). Functional differences between afferent fibers in the hypogastric and pelvic nerves innervating female reproductive organs in the rat, *Journal of Neurophysiology*, Feb; 69(2):533-44.

Betts, D. & Budd, S., (2011). Forbidden Points in Pregnancy: historical wisdom?

*Acupuncture in Medicine*, 29:137-139. doi: 10.1136/aim.2010.003814

Caniggia, I., Winter, J., Lye, S. Post, M., (2000). Oxygen and placental development during the first trimester: implications for the pathophysiology of pre-eclampsia, *Placenta*, 21 Suppl A:S25-30.

Chen, Y.; Yuan, H., Shu, F., Ren, X., Ma, L., Liu, R., Zhu, J., (2011). Effects of

electroacupuncture at points of a traditional acupuncture formula that induces labor with different parameters on uterine contractility in late-stage pregnant rats., *Zhong Xi Yi Jie He Xue Bao*, 9(1):91-9.

Chen, S., Gao, Y., Liu, J., (2008). Effects of electroacupuncture at different acupoints on electrohysterogram in pregnant rats., *Zhongguo Zhen Jiu*, 28(8):601-6.

Chinese Medicine. (n.d.). *National Center for Complementary and Alternative Medicine*.

Retrieved from: <http://nccam.nih.gov/health/whatiscom/chinesemed.htm>

Cooper, H., Hedges, L., (2009). *Handbook of Research Synthesis and Meta-Analysis*, New York, Russell Sage Foundation.

Cummings, M., (2003). Acupuncture for Low Back Pain in Pregnancy, *Acupuncture in Medicine*, 21(1-2):42-46.

Daoism. (n.d.). *Wikipedia Online*. Retrieved from: <http://en.wikipedia.org/wiki/Daoism>

da Silva, J., Cordeiro, J. Kulay Jr., L. Nakamura, M.,(2004). Acupuncture for low back pain in pregnancy-a prospective, quasi- randomized, controlled study, *Acupuncture in Medicine*, 22(2):60-67.

da Silva, A., Nakamura, M. da Silva, J., Cordeiro, J., Mendes, G., Lima, L., (2012). Could acupuncture at the so-called forbidden points be harmful to the health of pregnant Wistar rats?, *Acupuncture in Medicine*, doi: 10.1136/acupmed-2012-010246.

Department of Consumer Affairs, Acupuncture Board. Retrieved from:

[http://www.acupuncture.ca.gov/pubs\\_forms/laws\\_regs/art35.shtml#1399436](http://www.acupuncture.ca.gov/pubs_forms/laws_regs/art35.shtml#1399436)

Elden, H., Ostgaard, H., Fagevik-Olsen, M., Ladfors, L., Hagberg, H. (2008). Treatments of pelvic girdle pain in pregnant women: adverse effects of standard treatment, acupuncture and stabilizing exercises on the pregnancy, mother, delivery and fetus/neonate, *BMC Complementary and Alternative Medicine*, 8:34 doi: 10.1186/1472-6882-8-34.

Elden, H., Fagevik-Olsen, M., Ostgaard, H., Stener-Victorin, E., Hagberg, H., (2008). Acupuncture as an adjunct to standard treatment for pelvic girdle pain in pregnant women: randomized double-blinded controlled trial comparing acupuncture with non-penetrating sham acupuncture, *International Journal of Obstetrics and Gynecology*,doi:10.1111/j.1471.0528-2008.

Ellis, A., Wiseman, N., Boss, K., (1988). *Fundamentals of Chinese Acupuncture*, Taos, NM, Paradigm Publishers.

Forrester, M., (2003). Low back pain in pregnancy, *Acupuncture in Medicine*, 21:36-41, doi: 10.1136/aim.21.1-2.36.

Greenwood, C.RN, Stainton, M., (2001). Back Pain/Discomfort in Pregnancy: Invisible and

- Forgotten, *The Journal of Perinatal Education*, 10(1).
- Griebel, G., Coca-Velarde, L., Moreira, R., (2011). Electroacupuncture for cervical ripening prior to labor induction: a randomized clinical trial, *Gynecology and Obstetrics*, 283 (6): 1233-1238.
- Harper, T., Coeytaux, R., Chen, W., Campbell, K., Kaufman, J., Moise Jr., K., Thorp Jr., J., (2006). A randomized controlled trial of acupuncture for initiation of labor in nulliparous Women, *The Journal of Maternal-Fetal and Neonatal Medicine*, 19(8):465-470
- Kvorning, N., Holmberg, C. Grennert, L., Aberg, A., Akesson, J., (2004). Acupuncture relieves pelvic and low back pain in late pregnancy, *Acta Obstetricia et Gynecologica*, 83:246-250.
- Liangyue, D., Shuhui, H., Xiaoping, J., Yang, L., Rufen, Wang, Wenjing, W., Xuetai, W. Hengze, X., Xiuling, X., Jiuling, Y., (1998). *Chinese Acupuncture and Moxibustion*, Beijing: Foreign Languages Press.
- Liu, J., Chen, S., Gao, Y., (2007). Effect of electroacupuncture of different acupoints on myoelectrical activities of the uterus in rats, *Zhen Ci Yan Jiu*, Aug:32(4):237-42.
- Lund, H., Lundeberg, T., Lonberg, L., Svensson, E., (2005). Decrease of pregnant women's pelvic pain after acupuncture: A randomized controlled single blind study, *Acta Obstetricia et Gynecologica*, 85:12-19.
- Ma, Y, Ma, M. & Cho, Z., (2004). From Neurons to Acupoints: Basic Neuroanatomy of Acupoints, *Biomedical Acupuncture for Pain Management: An Integrative Approach*, Churchill Livingstone, St. Louis, Missouri.
- Maciocia, G., (2005). *The Foundations of Chinese Medicine*, London, Churchill Livingstone.
- Medical Acupuncture, (n.d.). *American Board of Medical Acupuncture*. Retrieved from

<http://www.dabma.org/index.asp>

Medical Discoveries, (n.d.). Retrieved from: <http://www.discoveriesinmedicine.com/>

An/Acupuncture.html, January, 2013

Modlock, J., Nielsen, B., Uldbjerg, N., (2010). Acupuncture for the induction of labor: a double Blind randomized controlled study, *General Obstetrics*,doi: 10.1111/j.1471-0528.2010.02647.x

Netter Anatomy, n.d. Retrieved from:

<http://www.netteranatomy.com/anatomylab/subregions.cfm?subregionID=R55> 2/18/13

Rabl, M., Ahner, R., Bitschnau, M., Zeisler, H., Husslein, P.,(2001). Acupuncture for cervical ripening and induction of labor at term—a randomized controlled trial., *Wien Klin Wochenschr*, 113(23-24):942-6.

Rouse, S., (2008). The use of acupuncture in the physiotherapy treatment of pelvic pain in pregnancy, *Journal of the Acupuncture Association of Chartered Physiotherapists*, Spring, 67-72.

Sabino, J., et al. (2008). Pregnancy and low back pain, *Curr Rev Musculoskelet Med*, 1:137-141, DOI 10.1007/s12178-008-9021-8.

Sacomanni, B., (2011). Low back pain associated with pregnancy: a review of literature, *Eur Orthop Traumatol*, 1:169-174.

Shanghai College of Traditional Medicine, (1998). *Acupuncture, A Comprehensive Text*, Seattle, WA, Eastland Press.

Shanghai College, (1980). *Essentials of Chinese Acupuncture*, Beijing, Foreign Language Press.

Stux, G., Pomeranz, B., (1987). *Acupuncture Text Book and Atlas*, Berlin, Springer.

Smith, C., Crowther, C., Collins, C., Coyle, M., (2008). Acupuncture to Induce Labor: A

- Randomized Controlled Trial, *Obstetrics & Gynecology*, 112(5):1067-1074
- Ternov, N., Grennert, L., Aberg, A., Algotsson, L., Akeso, J., (2001). Acupuncture for Lower Back and Pelvic Pain in Late Pregnancy: A Retrospective Report on 167 Consecutive Cases, *Pain Medicine*, 2:3.
- Thomas, C., Napolitano, P., (2000). Use of acupuncture for managing chronic pelvic pain: A Case Report *Journal of Reproductive Medicine*, 45(11):944-6.
- Tortora, G., Grabowski, S., (1996). *Principles of Anatomy & Physiology*, Menlo Park, Harper Collins.
- Tsuei, J., Lai, Y., (1974). Induction of Labor by Acupuncture and Electrical Stimulation, *Obstetrics & Gynecology*, 43(3)
- Wedenberg, K., Moen, B., Norling, A., (2000). A prospective randomized study comparing acupuncture with physiotherapy for low back and pelvic pain in pregnancy, *Acta Obstetrica et Gynecologica Scandinavica*; 79:331-335.
- West, Z., (2001). *Acupuncture in Pregnancy and Childbirth*, Edinburgh, Churchill Livingstone.
- White, A., (2009). Western Medical Acupuncture: a definition, *Acupuncture in Medicine*, 27:33-35 doi: 10.1136/aim.2008.000372.
- Wilms, S., (2010). Nurturing Life in Classical Chinese Medicine: Sun Simiao on Healing without Drugs, Transforming Bodies and Cultivating Life, *Journal of Chinese Medicine*, 93(6).
- Xiangeng, Z., Zhang, X., (2011). Gynecology and Gynecological Nursing Theories and Practices In Traditional Chinese Medicine: Review on the Ancient Literatures, *Chinese Medicine*, (2) 77-83 doi: 10.4236/cm.2011.23014.
- Zhu-Fan, X., (1996). *Acupuncture: review and analysis of controlled clinical trials*, World

Health Organization. Retrieved from:

<http://apps.who.int/medicinedocs/pdf/s4926e/s4926e.pdf>

**Appendix A: Copy of IRB Approval Letter**

April 25, 2012

Debbie Rodriguez, L.Ac.  
11191 Zapata Avenue  
San Diego, CA 92126

Dear Debbie,

Your Claim for Exemption from the Institutional Review Board (IRB) has been reviewed. Your research proposal has been approved, with no recommendations effective April 1, 2012 through March 31, 2013.

Should there be any significant changes that need to be made which would alter the research procedures that you have explained in your proposal, please consult with the IRB coordinator prior to making those changes.

Regards,

Debra Jean Rawdin  
IRB Coordinator



**Appendix B: Copy of Data Collection Instrument**

**Article Abstraction Form For Acupuncture Studies**

Reviewer: Debbie R Rodriguez

Date:

**Title:****Authors:**

Acupuncture Medical Physician:

Traditional Chinese Medical Practitioner:

Source:

Objective of treatment:

Research Setting:

Language:

**Participants:**

Number of participants:

Age range of participants:

Number of weeks pregnant:

Is this the first pregnancy:

Prior back pain history:

**Treatment Protocol:**

**Report of adverse effects:**

**Number of women who dropped out of the study:**

**Results:**