

Factors that are Salient in Developing a Traditional Chinese Medicine Nutritional  
Manual for Women with a History of Endometriosis

By

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## Approval Signature Page

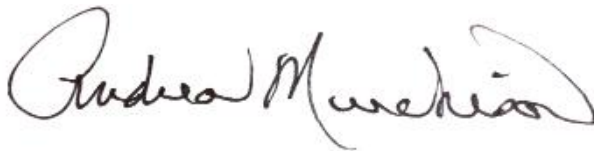
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### **Abstract**

Endometriosis is a debilitating condition characterized by high recurrence rates. The etiology and pathogenesis of endometriosis remain unclear. Typically, endometriosis causes pain and infertility. This study reviewed the current literature available concerning the use of Chinese herbal medicine and traditional Chinese nutrition including herbs and the integrated use of Chinese nutrition and Western nutrition and medicine to treat women who suffer from Endometriosis. It uncovered the strengths, weakness, and limitations as well as similarities and differences regarding data gathered from available published research and other articles, and provided a list of factors that constitute a basic foundation for a manual that could specifically serve patients with endometriosis. This study concluded that a Traditional Chinese Medicine nutritional manual specifically created for the treatment of endometriosis could be developed to aid patients in understanding all aspects of foods, herbs and supplements. Such a manual could encourage patients to consider dietary changes in conjunction with other healing approaches. Also, it could increase awareness of Traditional Chinese Medicine to patients whether or not they have been exposed to Traditional Chinese Nutrition.

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## **Chapter One: Introduction**

### **Overview**

Endometriosis is a reproductive illness affecting an estimated 176 million women and girls around the world (WERF). According to the Journal of the American Medical Association (JAMA), endometriosis affects approximately 5 to 7 million American women. Most of the women affected are between the ages of 30 and 40. Some women are debilitated by this condition while others may have mild to no symptoms. It affects 10-15% of women of childbearing age in the U.S and is even more common in women of Asian descent, although it affects women of all races. Endometriosis is the third leading cause of gynecologic hospitalization in the U.S (Levett, 2010).

Endometriosis is a gynecological disorder in which the cells that form the lining of the uterus or endometrium grow outside the uterus. It is a non-cancerous condition and in Western medicine, the cause is unknown. The primary clinical symptom of endometriosis is recurring pelvic pain, often associated with menstrual period. Other symptoms are painful sexual intercourse, rectal bleeding, chronic fatigue, intestinal pain, spotting between period, heavy or prolonged menstrual periods and infertility and miscarriage problems (Speroff, 2005).

### **Research Goals**

The goal of this study is to exam the relationship of diet and nutrition in treating endometriosis. This study will specifically explore factors that will contribute to the construction and composition of a Traditional Chinese Nutrition



manual to support patients suffering from endometriosis. Endometriosis is becoming a leading cause of infertility: 38% of women who are infertile and 70-80% of women with chronic pain have endometriosis and more than 10 million women have endometriosis in the United States (Ling, 1999). Furthermore, in the United States, annual healthcare costs and costs of productivity loss associated with endometriosis were estimated at \$22 billion in 2002 (Ballweg, 2004).

This Study will thoroughly discuss the treatment of endometriosis from the both Western and Traditional Chinese Medicine perspectives. Additionally, this study will identify and describe the factors that need to be considered in forming a traditional Chinese nutritional manual for endometriosis. Finally, this study will focus on the usefulness of such a manual.

### **Glossary of Relevant Terms**

- **Abdominal cavity:** The cavity within the abdomen, the space between the abdominal wall and the spine.  
(Merriam Webster's Medical Dictionary, 2008)
- **Adhesion:** The union of two opposing tissue surfaces (often in reference to the sides of a wound). Also refers to scar tissue strands that can form in the area of a previous operation, such as within the abdomen after a laparotomy.  
(Merriam Webster's Medical Dictionary, 2008)
- **Cyst:** A cyst is an abnormal, closed sac-like structure within a tissue that contains a liquid, gaseous, or semisolid substance. A cyst can occur anywhere in the body and can vary in size. The outer, or capsular, portion of a cyst is termed the cyst wall.

(Merriam Webster's Medical Dictionary, 2008)

- **Endometriosis:** The presence of tissue that normally grows inside the uterus (womb) in an abnormal anatomical location. Endometriosis is very common and may not produce symptoms, or it may lead to painful menstruation. It has also been associated with infertility. Endometriosis occurs most commonly within the Fallopian tubes and on the outside of the tubes and ovaries, the outer surface of the uterus and intestines, and anywhere on the surface of the pelvic cavity. It can also be found, less often, on the surface of the liver, in old surgery scars or, very rarely, in the lung or brain. (Merriam Webster's Medical Dictionary, 2008)
- **Endometrium:** The uterine lining; the cells that line the uterus (the womb); the inner layer of the uterus. This tissue is shed monthly in response to the hormonal changes of the menstrual period. The endometrium then grows back and slowly gets thicker and thicker until the next period when it is once again sloughed off. (Merriam Webster's Medical Dictionary, 2008)
- **Estrogen:** Estrogen is a female hormone produced by the ovaries. Estrogen deficiency can lead to osteoporosis. (Merriam Webster's Medical Dictionary, 2008)
- **Infertility:** Infertility primarily refers to the biological inability of a person to contribute to conception. Infertility may also refer to the state of a woman who is unable to carry a pregnancy to full term. (Merriam Webster's Medical Dictionary, 2008)

- **Laparoscopy:** A type of minimally invasive surgery in which a small incision (cut) is made in the abdominal wall through which an instrument called a laparoscope is inserted to permit structures within the abdomen and pelvis to be seen. The abdominal cavity is distended and made visible by the instillation of absorbable gas, typically, carbon dioxide. A diversity of tubes can be pushed through the same incision in the skin. Probes or other instruments can thus be introduced through the same opening. In this way, a number of surgical procedures can be performed without the need for a large surgical incision. Most patients receive general anesthesia during the procedure. (Merriam Webster's Medical Dictionary, 2008)

This research study will proceed with a literature review chapter that will explicate prior theory and research regarding endometriosis and its treatment. A methods chapter that will detail the procedures used to carry out the current research study will follow that chapter. The fourth chapter of this study will include the study results, and will be followed by a fifth chapter that will discuss the findings of the current study.

## **Chapter Two: Literature Review**

### **Overview**

This chapter provides a review of the sources that are the basis for this literature review synthesis. First, a brief description of the literature review process and the resources used in gathering the relevant literature will be provided. Topics covered in this review will be an introduction to both Western and Traditional Chinese Medicine approach to understanding and treating endometriosis. And also reviewed will be the effects of common Western and TCM nutrition, herbs and supplements that are used to support endometriosis treatment. Final section will briefly summarize the studies reviewed.

This research synthesis study will review literature concerning the use of Traditional Chinese Nutrition including herbs and the integrated use of Chinese nutrition and Western nutrition and medicine and supplements to treat women who suffer from Endometriosis. Material for the Literature Review was gathered by primarily utilizing search engines such as Google Scholar, Elsevier PubMed and UCLA Library system. Key Search words and phrases related to the topic to find articles and studies applicable to the study were used such as “Endometriosis + Chinese Medicine/Nutrition/Supplement/Diet”, “Endometriosis + Drugs”, “Endometriosis herbs”.

The search resulted in 108 literatures through the PubMed, 230 from Google Scholar, 25 from Elsevier and 123 from the UCLA Library system search,

limited to reviews on the topic of Traditional Chinese herbs, nutrition and supplements used to support endometriosis.

A total of 33 articles/monograph entries examining the use of Chinese herbal medicine and traditional Chinese nutrition including herbs and the integrated use of Chinese nutrition and Western nutrition and supplements and drugs to treat women who suffer from Endometriosis satisfied the criteria for inclusion in this literature review synthesis. Of these articles, eighteen examined the use of Chinese herbs and nutrition with both Western nutrition and supplement suggestions and ten mainly examined Western nutritional and supplements without the use of Chinese Medicine; seven compared the Western nutrition and supplements mostly and eight compared the effectiveness of Chinese nutrition and herbs alone versus Western medicine treatment modalities.

This study will serve to uncover the strengths, weakness, and limitations as well as similarities and differences among the available published research and other articles, and provide a basic foundation for a manual that could specifically serve patients with Endometriosis.

### **Description of Endometriosis**

Endometriosis is a very common debilitating disease that occurs in 6 to 10% of general female population; in women with pain, infertility, or both, the frequency is 35-50% (Giudice & Kao, 2004). About 25 to 50% of infertile women have endometriosis, and 30 to 50% of women with endometriosis are infertile (Hummelshoj et al, 2006).

Endometriosis is a disorder in which the cells that form the lining of the uterus or endometrium grow outside the uterus. It is a non-cancerous condition

and in Western medicine, the cause is unknown. Theories as to what causes it abound in Western medical texts. The cause of endometriosis is unclear in conventional medicine and there are many theories including three major perspectives. The first theory is that small bits of menstrual tissue flow backward into the fallopian tubes and out into the abdominal cavity where they seed with hormonal stimulation and begin to grow. The second theory is that cells from the uterine lining may be transported through the bloodstream into other locations where they seed and grow. The third theory is that cells outside the uterus may change into uterine cells with hormonal stimulation in those who are genetically predisposed. Each month the endometrium builds up in the uterus then breaks down and sheds off, resulting in vaginal bleeding or menstruation. It is speculated that this same cycle occurs with the endometrial tissue located outside the uterus. However, endometrial tissue outside the uterus that sheds off and bleeds is trapped inside the body and is slowly absorbed. This process can create pain and inflammation and may lead to the development of local lesions, masses, and larger amounts of endometriosis. Common locations for the growth of this abnormal endometrial tissue are the ovaries and ligaments that support the uterus. Less common locations are the outer surface of the colon and small intestines, the ureters, bladder, vagina, pleura of the lungs, and pericardium (Speroff, 2005).

The symptoms of endometriosis depend on where the tissue is growing. Pelvic pain is the most common symptom followed by heavy menstrual bleeding, dyspareunia, and pain with bowel movements. Rectal bleeding is not unusual as a result of this condition, as is pain with urination. Also women with endometriosis are often unable to conceive. Women with endometriosis may experience pelvic

pain 5-7 days before menstruation, during menstruation or with ovulation. Many women experience low back pain with periods, nausea, vomiting, intestinal upsets, fatigue, pain with sexual intercourse, and pain with urination or bowel movements (Levett, 2010). Endometriosis classically presents with severe dysmenorrhea, pelvic pain, dyspareunia, menstrual irregularities, and infertility. Systemic symptoms may also occur, such as fatigue, increased incidence of allergies, and autoimmune diseases (Ballweg, 2004).

**Table 1: Signs and Symptoms of Endometriosis**

<b>Common Signs/Symptoms</b>	<b>Severe Signs/Symptoms</b>	<b>Mimic other health conditions</b>
<ul style="list-style-type: none"> <li>-Pain before and during periods</li> <li>-Pain with intercourse</li> <li>-General, chronic pelvic pain throughout the month</li> <li>-Low back pain</li> <li>-Heavy and/or irregular periods</li> <li>-Painful bowel movements, especially during menstruation</li> <li>-Painful urination during menstruation</li> <li>-Fatigue</li> <li>-Infertility</li> <li>-Diarrhea or constipation</li> </ul>	<ul style="list-style-type: none"> <li>-Headaches</li> <li>-Low grade fevers</li> <li>-Depression</li> <li>-Hypoglycaemia (low blood sugar)</li> <li>-Anxiety</li> <li>-Susceptibility to infections, allergies</li> </ul>	<ul style="list-style-type: none"> <li>-Ovarian cysts</li> <li>-Ectopic pregnancy</li> <li>-Pelvic Inflammatory Disease</li> <li>-Irritable bowel syndrome</li> <li>-Ovarian cancer</li> </ul>

Definitive diagnosis is usually made through laparoscopic investigation although recent research suggests that non-invasive symptom evaluation may have a greater positive prediction value. The Precise prevalence of endometriosis is unclear but there us a broad consensus that between 5% to 15% of the female

population will have signs and symptoms of the disease during their reproductive years (age 15 to 50 years) (Flower, Liu, Lewith, Little & Li, 2012).

Endometriosis is increasingly regarded as a complex, multi-factorial condition of uncertain etiology where immunological, genic, environmental, and possibly even psychological factors combine to create a full-blown diseases (Ballweg, 2004).

It is estimated that 30 to 40 percent of women who report infertility problems have endometriosis. The most common symptoms of Endometriosis are pain before and during periods, pain with intercourse, general, chronic pelvic pain throughout the month, low back pain, heavy and/or irregular periods, painful bowel movements, especially during menstruation, painful urination during menstruation, fatigue, infertility, diarrhea or constipation. Other symptoms include headaches, low-grade fevers, depression, hypoglycemia (low blood sugar), anxiety and susceptibility to infections and allergies (Ballweg, 2004).

One of the biggest problems regarding endometriosis is that the signs of this disease in the early stages appear to be the normal bodily changes that take place with the menstrual cycle. It is only as time goes by that a woman begins to suspect that what is happening, and the symptoms she feels, are not normal. The pain of her menstrual cycle gradually and steadily becomes worse and worse as the months go by. These symptoms are only the beginning of what will become a gradual decline in a woman's general health, as well as the health of her reproductive system. However, there are odd instances where some women do actually have endometriosis, but they are nearly free of any symptoms. These women will only be diagnosed by default, for example when they have surgery for



other issues, and only then is endometriosis found. That is what makes this disease so enigmatic, difficult to interpret or understand. Endometriosis does not follow any distinct pattern, which is why it is difficult for the medical profession to know that a woman has the disease. Some of the symptoms will mimic those of other health problems, including ovarian cysts, ectopic pregnancy, pelvic Inflammatory disease, irritable bowel syndrome, ovarian cancer, fibroid tumors, colon cancer and appendicitis (Speroff, 2005).

### **Diagnosis of Endometriosis**

Endometriosis is diagnosed through a laparoscopy. This procedure allows the surgeon to see inside the abdominal cavity through a tiny-lighted optical tube that is inserted through a small incision in the navel. Part of the problem that causes the delay in diagnosis of endometriosis is that many people in the medical profession are not fully aware of the extent of this disease today.

There are a variety of methods that can be used to assess whether a woman has endometriosis, but laparoscopy is the only reliable way to confirm the presence of the disease is by visually inspecting the abdominal organs. Before a laparoscopy is done a full gynecological evaluation should be done covering the patient's medical history. Diagnosis methods of endometriosis can include physical examination and a pelvic examination. These examinations involve the physician feeling and looking for abnormalities that are associated with endometriosis. Physical findings depend on the severity and location of the disease. There may be palpable nodules or tenderness in the pelvic region, enlarged ovaries, a tipped-back (retro-displaced) uterus, or lesions on the vagina or on surgical scars. Danazol (derivative of the synthetic steroid ethisteron) is

taken for 6 weeks prior to an operation to shrink the endometrial growths and ease the surgical removal. Following surgical removal of endometrial tissue, birth control pills may be prescribed that contain both estrogen and progesterone, to be taken continuously for up to nine months. This procedure will induce a pseudo-pregnancy, with the aim to allow the body time to rest and heal (Speroff, 2005).

### **Western Drugs for Endometriosis**

Oral contraceptives or birth control pills regulate the growth of the tissue that lines the uterus and often decrease the amount of menstrual flow. In general, the therapy contains two hormones, estrogen and progestin. It often works as long as you take the pills. Once you stop the treatment, your ability to get pregnant returns, and your symptoms of endometriosis may also return. Some women take birth control pills continuously, without using the sugar pills that signal the body to go through menstruation. When birth control pills are taken in this way, the menstrual period may stop altogether, which can reduce pain or get rid of it entirely (Speroff, 2005).

Some birth control pills contain only progestin, a progesterone-like hormone. Women who can't take estrogen use these pills to reduce menstrual flow. Some women may not have pain for several years after stopping treatment. Progesterone and progestin improve symptoms by reducing a woman's period or stopping it completely. As a pill taken daily, these hormones will reduce menstrual flow without causing the lining of the uterus to grow.

GnRH agonist is used daily in a nose spray, or as an injection given once a month or every three months. Most health care providers recommend that patients stay on the GnRH agonist for about six months. After that time, the body

will come out of the menopausal state. After women stop taking GnRH agonists for six months, about 50 percent have some return of their endometriosis symptoms. These medications also have side effects, including hot flashes, tiredness, problems sleeping, headaches, depression, bone loss, and vaginal dryness (Olive et al, 2004).

Current research is exploring the use of other hormones in treating endometriosis and pain related to endometriosis. Some of these include GnRH antagonists, selective progesterone receptor modifiers, and selective estrogen receptor modulators, also known as SERMs. Some women also have less pain from endometriosis after pregnancy, but the reason for this is unclear. Researchers are trying to determine whether it is because the hormones released by the body during pregnancy also lessen the growth of endometriosis, or if pregnancy causes changes in the uterus or endometrium that lessen the growth of endometriosis (Olive et al, 2004).

### **The TCM Perspective Regarding Endometriosis**

In China, endometriosis is called Neiyi, meaning internal lump describing Western term endo. In TCM it is called Zheng Jia, meaning abdominal mass and the incidence of endometriosis in China, like that in the United States, is reported increasing (Dharmananda, 2002).

In Traditional Chinese medicine, endometriosis is understood based on the differentiated clinical manifestations associated with each individual. It is important in TCM to diagnose the patient according to his or her own specific pattern. Each individual has a pattern that marks the foundation and progression of the disorder. Traditional Chinese medicine (TCM), including acupuncture and

herbs has been used successfully in treating a wide range of female health disorders including endometriosis. The primary aim of the TCM doctor in the treatment of endometriosis has always been to remove blood stagnation. Endometriosis is a Western medical label and not a TCM term. However, the scientific medical understanding of this diseases has contributed to the notion that this is a diseases characterized by blood being where it shouldn't and unable to escape the body. Symptoms such as severe stabbing period pain, clotty menstrual flow and palpable nodules or masses in the abdomen appear to verify the diagnosis of stagnation blood (Lyttleton, 2004).

In China, doctors found that more pregnancies resulted if treatment of women with endometriosis targeted the kidney for endometriosis lesions that can produce secretions which clog up the system (phlegm damp in TCM) also boosting Kidney Yang is generally rather effective at clearing such phlegm damp. In TCM, more attention is paid to moving blood, clearing stasis and breaking up masses during the period and fortifying the Kidney Yang and moving blood at ovulation. If there is such severe stagnation that a pregnancy is impossible, then treatment will focus on the stagnation during the entire cycle.

We know that menstrual blood travels not only downwards from the uterus and out through the cervix but also upwards through the fallopian tubes and out into the peritoneal cavity. This small quantity of blood carries with it bits of discarded endometrium. Women with strong uterine cramps due to Liver Qi Stagnation are more likely to close more menstrual flow upwards through the tubes (Lyttleton, 2004).

The blood and the tissue will either be reabsorbed or will remain and establish itself somewhere in the pelvic cavity. If Kidney Yang is strong, then movement of Qi in the pelvis will mobilize the menstrual debris, which shouldn't be there and it will be reabsorbed. So Weakness of Kidney Yang will allow the accumulation of blood and tissue, which creates stagnation. The pattern that suggests endometriosis is when temperature does not drop very much when the period comes, or if it does drop it may start to go up again after 1-2days. These patterns indicate that the switch to Yin from Yang has not been on time or complete. These patterns all indicate inadequate Kidney Yang function (Lyttleton, 2004).

According to the Lyttleton's "Treatment of Infertility with Chinese Medicine", the treatments would be divided into three phases, post-menstruation, ovulation and post ovulation. During post-menstruation, build blood and reinforce the Yin. For abdominal masses with strong patient with no desire for conception, clear LV Qi Stagnation with Damp and treat SP Qi Deficiency (Lyttleton, 2004).

Diet changes can help reduce the symptoms of endometriosis. According to "Endometriosis Diet" by Levett, Carolyn, increasing omega-3 fatty acids, fiber and avoiding meat, dairy products, wheat and sugar, modulate estrogen. Also avoid caffeine and alcohol, refined foods, additives, minimize or avoid soy products seem to help patients with Endometriosis. Adjusting eating habits could have many positive physical and metabolic changes (Levett, 2010).

Table 2: Endometriosis in Western and Traditional Chinese Medicine

<b>Types of lesion</b>	<b>Action</b>	<b>Treatment</b>
<b><u>Non-pigment lesions</u></b>	-Produce secretion which may clog the fimbrial end of fallopian tube -Causes possible infertility	Boost KD Yang and invigorate SP QI to remove Phlegm-Damp
<b><u>Pigmented lesions</u></b>	-Causes pain and bleeding in pelvic cavity	Resolve Blood stagnation with Blood-regulating herbs and boost KD Yang to Promote dispersal of stagnant Blood
<b><u>Cysts, nodules and masses</u></b>	-Causes pain and possible infertility due to distortion of tubes or ovaries	Resolve Blood stagnation with Blood-breaking herbs and boost KD Yang to promote dispersal of stagnation

### **Traditional Chinese Nutrition for Endometriosis**

According to *The Tao Of Nutrition* by Maoshing Ni and Cathy McNease, ancient people were much more aware of the environment and how their bodies reacted to their surroundings. The system of Chinese Nutrition is a healing system of its own and it adapts to every individual's needs by treating the whole person instead of the disease. Chinese Nutrition differs from the modern Western nutrition in that it does not rely on analyzing the chemical constituents of each food; rather, it determines the properties of energies of each food and combination, taking consideration of season, method of preparation and geographical location, and utilizes the information according to the natural principle of life and balance (Ni & McNease, 2004).

Chinese Nutrition differs from Western Nutrition in that it does not talk about the biochemical nature of food but it deals on an energetic level where balance is the key. Foods are selected according to their energetic qualities such as warming, cooling, drying, or lubricating. Thus, Chinese Nutrition would seek to warm the coldness, cool the heat, dry the dampness, and lubricate the dryness. By carefully studying the individual's imbalances, one would choose the appropriate foods to bring about a balanced state of health. For example, for an excessive individual who is exhibiting conditions of heat in the body, cooling food would be appropriate. For a deficient individual who tends toward coldness, warming foods would be chosen. This is way health is achieved. Foods all have specific qualities inherent within, determined by the effect the food has on the body. Then the method of preparation either enhances or neutralizes the foods. Generally speaking, warming raise metabolism and cooling food lower metabolism. Balance in the diet is essential for good health. According to the Chinese point of view, the body is looked at as a whole, working together in harmony (Ni & McNease, 2004).

**Table 3: Endometriosis in Western and Traditional Chinese Medicine**

<b>Types of lesion</b>	<b>Action</b>	<b>Treatment</b>
<b><u>Non-pigment lesions</u></b>	-Produce secretion which may clog the fimbrial end of fallopian tube -Causes possible infertility	Boost KD Yang and invigorate SP QI to remove Phlegm-Damp
<b><u>Pigmented lesions</u></b>	-Causes pain and bleeding in pelvic cavity	Resolve Blood stagnation with Blood-regulating herbs and boost KD Yang to Promote dispersal of stagnant Blood
<b><u>Cysts, nodules and masses</u></b>	-Causes pain and possible infertility due to distortion of tubes or ovaries	Resolve Blood stagnation with Blood-breaking herbs and boost KD Yang to promote dispersal of stagnation

According to Traditional Chinese Medicine (TCM), the human being is an intricate whole, made up of these essential components: Chi (vital energy, life force, body's network, pathway and also called meridians), blood, body fluids, Jing (found in the sperms, eggs, bone marrow and the brain) and Shen (Spirt). TCM views the body organ as couples consisting of a Yin organ and Yang organ. Each pair of organs is associated with one of five energies called the Five Elements: Wood, Fire, Earth, Metal and Water.



**Table 4: Basic Five Element Chart**

	<b>Wood</b>	<b>Fire</b>	<b>Earth</b>	<b>Metal</b>	<b>Water</b>
<b>Flavors</b>	Sour	Bitter	Sweet	Pungent	Salty
<b>Zang Organ/Yin</b>	Liver	Heart	Spleen	Lung	Kidney
<b>Fu Organ/Yang</b>	Gall Bladder	S. Intestine	Stomach	L. Intestine	Urinary Bladder
<b>Senses Organ</b>	Eye	Tongue	Mouth	Nose	Ear

According to *The Tao of Nutrition* by Ni and McNease, premenstrual symptoms resembling endometriosis symptoms may be characterized by abdominal cramps, bloating, backache, irritability, low energy and mood swings. This is partially due to the large consumption of cold foods and drinks in this country that in turn cause the blood to stagnate. In Chinese terminology, premenstrual symptoms (PMS) is a condition of disharmony in the blood - stagnant blood, not enough blood, or heat in the blood; and stagnation of Chi. Acupuncture, acupressure, herbs, diet, and Chi (Qi) Gong exercises are all very beneficial for relieving the symptoms and correcting the disharmony. The book suggests ginger, green onions, fennel, orange peel, spinach, walnuts, hawthorn berries, cinnamon, and black pepper, Chinese date, Dang Gui (*Angelica sinensis*) to be used a week before the menstruation. And cold foods, raw foods, excessive consumption of fruit, vinegar, all shellfish, coffee, stimulants, sugar, dairy products, and smoking should be avoided (Ni & McNease, 2004).

According to *Chinese Natural Cures* by Henry Lu, female infertility problems such as endometriosis and dysmenorrhea could be treated by addressing spleen deficiency, kidneys yang deficiency, deficiency of energy (Qi) and blood, kidneys yang deficiency, yin deficiency, cold and deficient womb, hot blood, liver energy (Qi) congestion (stagnation) and dampness-sputum. Lu states that for treating spleen deficiency with chronic diarrhea, chronic dysentery, lack of firm erection, poor appetite, prolapsed of any internal organ, prolapsed of anus and shortness of breath, apply treatment principle to tone energy and strengthen the spleen by using the formula Bu Zhong Yi Qi Tang. Dietary recommendations for food cure included fish, apple cucumber, gold carp, carrot, chestnut, corncob, job's-tears, Irish potato, rice, royal jelly, string bean, yam, beef and red and black date (Lu, 2005).

For kidneys yang deficiency with cold feet, cold loins and legs or cold sensation in the genitals, diarrhea before dawn, diarrhea with sticky muddy stool, dizziness, edema, excessive perspiration, fatigue, frequent urination at night, panting, perspiration on the forehead, retention of urine, ringing in ears, scant urine, seminal emission and shortness of breath, apply treatment principle to warm the kidneys and reinforce kidneys yang energy by using formula You Gui Wan mainly. Food cure recommendations are kidney beans, lobster, sardine, shrimp, sparrow, clove, dill seed, fennel, pistachio nut, sparrow egg, crab apple, raspberry and walnuts (Lu, 2005).

For energy and blood deficiency with symptoms of bleeding of various kinds with blood in light color, often seen in consumptive diseases, dizziness, fatigue, flying objects seen in front of the eyes, insomnia, irregular menstruation,

low energy, low voice, menstrual flow in light red color, mentally depressed, regular menstruation but with very scant flow lasting for one or two days only, numbness of limbs, pale complexion and lips, pale nails, palpitation apply treatment principle to tone the energy and the blood simultaneously and to tone the kidneys by using formula called Ba Zhen Yi Mu Wan. Food cure recommendations for this condition included abalone, asparagus, cuttlefish, chicken egg, duck egg, white fungus, beef liver, grape, mandarin fish, oyster, milk, beef, cherry, clam, maltose, Irish potato, sweet rice, apple cucumber, bog bean, gold carp, carrot, chestnut, ham, horse bean, hyacinth bean, Job's-tears, Royal jelly, string bean, whitefish, yam, red and black date, mutton, squash, and rock sugar (Lu, 2005).

For yin deficiency symptoms with bleeding from gums, constipation, dizziness, dry and scant stools, dry sensation in the mouth or dry throat, fatigue, headache in the afternoon, low fever in the afternoon, menstrual flow in dark color, night sweat, nosebleed, pain in the throat also red and swollen, palms of hands and soles of feet are both hot, palpitations with insecure feeling, regular menstruation with scant flow lasting for half day or one day, short and reddish streams of urine, sleeplessness, swallowing difficulty, toothache, underweight, vomiting of blood or nosebleed during menstrual periods apply treatment principle to nourish(water) the yin and clear the heat and to nourish the blood and regulate the menstruation by using the formula Yang Jing Zhong Yu Tang, Qing Gu Zi Shen Tang or Qing Xue Yang Yin Tang. Food Cures recommendation included bird nest, cheese, kidney bean, abalone, asparagus, chicken egg, cuttlefish, duck, duck egg, white fungus, oyster, pork and royal jelly (Lu, 2005).

For cold and deficient womb with symptoms of cold pain or cold sensation in the lower abdomen or genitals, dark blackish menstrual flow, failure of the fetus to grow, fetus motion, frequent miscarriage, functional disturbances of the ovary, habitual miscarriage, pale complexion, poor appetite, thin and watery menstrual flow in light color and underdevelopment of the womb, treatment principle is to warm the womb by using formula Ai Fu Nuan Gong Wan. Food cure recommendations include cinnamon, kidneys, lobster, sheep milk, sardine, shrimp, star anise, red and black dates (Lu, 2005).

For hot blood (heat in the blood) with symptoms of abdominal pain that occurs at onset of menstrual periods, deep red or violet menstrual flow, discharge of blood from anus before periods, fever after childbirth, irregularity of menstrual periods, menstrual flow somewhat heavy, menstrual flow with a bad smell, nosebleed, plentiful menstrual flow, premature menstrual periods which may be more than 10 days early or two periods within one month, red and plentiful menstrual flow, skin ulcers, vaginal bleeding, vomiting of blood or nosebleed during menstrual periods, treatment principle is to clear heat in the blood by using formula Qing Jing Tang. Food cures include black fungus, salt, spinach, strawberry, banana, cucumber and licorice (Lu, 2005).

For liver energy (Qi) congestion(stagnation) with abdominal pain, convulsion, irregularity of menstrual periods, menstrual pain, morning sickness, numbness, pain in the upper abdomen, premature periods or overdue periods, shortage of milk secretion after childbirth, stomachache, subjective sensation of objects in the throat, vomiting of blood and whitish vaginal discharge apply treatment principle to relax the liver and disperse energy congestion by using

Xiao Yao San or De Sheng Dan. Food cures for this condition are brown sugar, garlic, turmeric, kumquat, beef, cherry, bird nest, butterfish, chicken, coconut meat, date, tofu, mustard seed, sweet rice, goose meat, mutton, jackfruit, squash, sweet potato, red and black date, rice, rock sugar, caraway seed, spearmint, common button mushroom, oregano, red bean, ambergris, dill seed, sweet basil and saffron (Lu, 2005).

For dampness-excess of sputum with discharge of sputum that can be coughed out easily or discharge of white watery sputum, dizziness, excessive whitish vaginal discharge, frequent cough during pregnancy that are prolonged and cause motion of fetus, headache, hiccups, light red menstrual flow, menstrual periods overdue frequently, morning sickness, turbid and sticky menstrual flow, pain in the chest, panting, plentiful menstrual flow, prolonged dizziness, sleep a lot or sleeplessness, susceptible to morning sickness during pregnancy, suppression of menses, vomiting and white sliding sputum that can be cleared from throat easily apply treatment principle to strengthen the spleen and dry up dampness and use Qi Gong Wan. Food cures for this condition are adzuki bean, ambergris, barley, common carp, cucumber, mung bean, seaweed, shepherd's purse, star fruit, bamboo shoot, crown daisy, date, fresh ginger, leaf or brown mustard, black and white pepper, white or yellow mustard seed, asparagus and pear (Lu, 2005).

*Healing with Whole Foods* by Paul Pitchford explains that main cause of women's diseases such as endometriosis is due to stagnant blood. According to Pitchford, stagnant blood is a blood that coagulates or congeals, and is brought about either by injuries to the tissue of the body or by qi energy insufficient to

push the blood through the vessels. Signs of stagnant blood include stabbing pain that is fixed in one place, frequent bleeding, bleeding with dark purple clots, dark purple tongue with red spots, and unnaturally dark complexion. When blood is stagnant, clots tend to develop; chronic stagnation generates tumors, cysts, nodules, and hard immobile lumps. Women are often afflicted with stagnant blood, particularly in the lower abdominal (reproductive) area. In fact, a large portion of all gynecological problems, especially those of a painful nature are related to stagnant blood. Examples of women's diseases commonly caused by stagnant blood are amenorrhea (absence of menstruation), dysmenorrhea (painful menstruation), uterine hemorrhage, uterine tumors, fibroids, cancer, and ovarian cysts (Pitchford, 2002).

Clearing stagnant blood is easiest in the early stages, before masses form. In all cases, one must improve the circulation of qi energy; when the liver is the cause of stagnation, the remedies outlined earlier for stagnant liver qi are appropriate. Another approach to treating stagnant blood involves improving the quality of the blood itself. Blood filled with toxins, waste matter, and fat is much more likely to become stagnant and congealed. For healthy, vital blood, the spleen-pancreas must be maintained at peak performance, since its function has a great effect on blood formation (Pitchford, 2002).

In the West, *dampness* and mucus are the two main factors which weaken digestion and the spleen-pancreas, thereby causing turbid blood; in damp/mucus conditions, one should restrict the cold (in temperature), very sweet, and highly mucus-forming foods including meat, dairy, eggs, and ice cream. In every case of stagnant blood, regardless of its cause, proper eating habits such as thorough

chewing and preparation of simple meals are essential. Furthermore, those foods and spices which disperse stagnant blood should be added to the diet. Adding one such item to each meal is an effective dietary aid in conjunction with herbal, acupuncture, or other treatments. For milder conditions, these dietary remedies may be sufficient by themselves (Pitchford, 2002).

Each food and spice in the following are warming, with the exception of eggplant (cooling), white pepper (cooling), aduki bean (neutral), and peach seed (neutral). The warming remedies, particularly garlic and ginger, should be used carefully, if at all, in cases marked by signs of heat (aversion to heat, sensation of feeling too hot, flushed face, bloodshot eyes, deep red tongue with possible yellow coating, and /or great thirst for cold fluids) or signs of deficient yin (tidal fever, hot palms and soles, fresh red cheeks and tongue, frequent light thirst, and/or night sweat). Eggplant specifically relieves stagnant blood conditions of the uterus, but may weaken the uterus when blood is not stagnant (Pitchford, 2002).

### **Common Conditions of Stagnant Blood Causing Pain**

When the condition includes pain, the pain is invariably fixed in one place; pain that moves around is not caused by stagnant blood. Black fungus (wood ear) and seaweeds are also especially helpful for dissolving fibroid and other uterine tumors, and these can be added to the diet for this purpose. Chives and cayenne are additional excellent remedies for injuries with signs of blood stagnation. They work internally when added generously to the diet. For external use, chive greens and/or roots are cut finely, then juiced by wringing the pulp through muslin or similar cloth, or by expressing with a juicer. The juice can then be soaked into cotton cloth and applied as a compress, or rubbed on directly as a liniment.

A cayenne-vinegar liniment is also very effective. To prepare, simmer one tablespoon cayenne pepper in 1 pint apple-cider or rice-wine vinegar for 10 minutes in a covered container; bottle hot and unstrained. Apply on the injured site without rubbing too much. This liniment is also useful for lung congestion, and for pain of arthritis and rheumatism.

### **Prevention and Good Habits**

Women who eat a balanced diet, get adequate exercise and sunshine, and work toward emotional clarity seldom have menstrual problems. At the time of menstruation, the deeper hormonal/emotional qualities surface, while their physical corollary is discharged – the heat-bearing blood that results from a natural purification. This is a fragile state – surfacing aspects from the interior, yin, hormonal parts of the being are delicate and sensitive, and need protection from the yin climates (cold and damp) and physical and emotional extremes. During the menses, it is therefore important to avoid heavy physical work, emotional stress, and overexposure to cold and damp conditions; for example, keep the legs and feet warm, keep covered when in cold places and during the cool seasons, and avoid working with the hands in cold water. Also avoid constipation, get plenty of rest, and abstain from sex during menstruation (Chavarro & Willett, 2009).

### **Caffeine and Reproduction**

According to *The Fertility Diet* by Chavarro & Willett (2009), the process of metabolizing caffeine changes throughout her menstrual cycle. There is a marked slowdown during the luteal phase, which begins the day after ovulation that may lead to higher levels of caffeine in the body during the period of fertilization,



implantation, and early embryonic development. Another problem may be genetic – some women break down caffeine faster than others and so may be less prone to any possible negative effects. A cup of coffee delivers mostly water. Taken black without sugar, it is nearly calorie free. It is brimming with antioxidants and other biologically active substances, including caffeine. Several long-term studies have shown that coffee drinkers are less likely to develop type 2 diabetes, gallstones and kidney stones, and possibly colon cancer. The main downsides of coffee drinking are caffeine addiction and the fats and calories that come with the sugar, cream, whipped cream, caramel, and other toppings and flavoring now put in and on coffee. Chavarro & Willett's (2009) findings explained that almost half of the women in the Nurses' Health Study say they drink coffee every day. In the fertility study, the coffee drinkers weren't any more or less likely to have had trouble getting pregnant than women who didn't drink coffee. Ovulation-related infertility was similar across the spectrum of coffee drinking, as was infertility due to other causes, such as endometriosis or tubal problems. However, problems with study design make it impossible to know if this is a true cause-and-effect relationship (Chavarro & Willett, 2009).

## **Alcohol**

Heavy drinking is indisputably harmful – for general health, mental health, relationships, and reproduction. It can halt menstrual periods, stop ovulation, throw off the hormone cycles needed for conception and the implantation of a fertilized egg, end a pregnancy with miscarriage, and trigger early menopause. Alcohol abuse can endanger a new life from the moment of conception until after birth. Dozens of study have looked at the impact of moderate drinking on fertility

and fetal development. (Chavarro & Willett, 2009). The results are all over the map. Some show that women who are moderate drinkers take longer to get pregnant than non-drinkers. In a study conducted among women undergoing IVF, those who drank alcohol in the month before the IVF cycle produced fewer eggs and had lower pregnancy rates. In another study, moderate drinking did not affect fertility among women under age 30, but did get in the way of pregnancy for older women. In a Danish study, women who were moderate drinkers averaging a drink a day got pregnant faster than teetotalers. In another study, women who drank wine got pregnant faster than non-drinkers or those who drank beer or spirits (Chavarro & Willett, 2009).

Results from the Nurses' Health Study provide another piece of the puzzle, but only for very moderate drinking, up to one drink a day. Infertility due to problems with ovulation was no more common among nurses who had a drink a day than it was among those who did not drink alcohol at all. The same was true for infertility due to endometriosis, blocked fallopian tubes, and other causes. It did not matter what kind of alcoholic beverages the women preferred. A daily glass of wine, beer, or spirits did not seem to help or hinder getting pregnant. Heavy drinking can derail pregnancy with a miscarriage or a stillbirth. It can also harm a fetus in several ways. Alcohol passes quickly through the placenta. An unborn baby breaks down alcohol much more slowly than its mother, so the alcohol level in its blood can reach high levels even when the mother's is still ok. This can lead to fetal alcohol syndrome, a condition that causes lifelong physical and mental disabilities. Heavy drinking can also lead to more subtle problems

with thinking skills and behavior. No one really knows if moderate, responsible drinking has similar effects on pregnancy and the development of a new life. Timing is one issue. It is possible, though not proven, that alcohol prevents nerves from making essential connections in the growing brain at certain critical moments of fetal development but has little or no effect at other times. A mother's metabolism is another unknown. Women whose bodies break down alcohol quickly may be able to drink safely throughout pregnancy, while those who metabolize it more slowly may need to abstain. Some studies have reported that women with endometriosis tend to drink more alcohol than those without the disease (Grodstein et al., 1994; Missmer and Cramer, 2003).

### **Literature Review Integration**

About 30 percent to 40 percent of women with endometriosis are infertile, making it one of the top three causes of female infertility. Some women don't find out that they have endometriosis until they have trouble getting pregnant (NIH, 2002; Speroff, 2005). Endometriosis treatment using hormonal therapies is most often not a permanent solution and often unsatisfactory, and surgical removal or aspiration of endometrial cysts usually provides only temporary benefits and may cause secondary problems, including persistent abdominal pain due to adhesions and infertility (Cottreau et al., 2006).

Many studies suggest that higher intake of green vegetables (all types) and fresh fruit (all types) can lower the risk of endometriosis. Conversely, intake of beef or red meat and ham can increase the risk (Parazzini et al., 2004). A study conducted in the U.S. on ovarian endometrioid cysts reported elevated risks of endometriosis for higher intakes of polyunsaturated and vegetable fats, but no

reduction in risk for high intake of vegetables and fruits (Britton et al., 2000). There are however, some indications that a diet poor in vegetables and fruits and rich in fat increases the risk of endometrial cancer (Armstrong, 1979) and fibroids (Chiaffarino et al., 1999), two diseases known to be associated with estrogens, and of ovarian benign and malignant epithelial diseases (Risch et al., 1994). For example, for endometrial and ovarian cancer and fibroids, there was a direct association with the frequency of consumption of meat and ham in this Italian population, whereas high intake of vegetables and fruits conferred some protection (Britton et al., 2000). In biological terms, it may influence prostaglandin concentrations, which may affect ovarian function (Smith, 1986). There were foods that overlapped but also grouped in apposing ways. Reviewing the studies also revealed that hormonal factors are a potential link between diet and endometriosis, since the risk may be increased by exposure to unopposed estrogens, and a diet rich in fat increases circulating unopposed estrogens (Armstrong et al., 1981; Goldin et al., 1982; Gorbach and Goldin, 1987). A diet rich in green vegetables and fruits includes high levels of vitamin C, carotenoids, folic acid and lycopene, micronutrients which may help to protect against cell proliferation (Bosetti et al., 2002). Some studies have reported that women with endometriosis tend to drink more alcohol than those without the disease (Grodstein et al., 1994; Missmer and Cramer, 2003). *Healthy Living Pointers for Better Health- Nutrition and Dietary Guidelines: Aphrodite Women's Health* (2004) reported the incidence of endometriosis is 40% less among females who consumed more fresh fruit and green vegetable. Females with a high intake of beef, ham or other red meat, increased their risk of endometriosis by 80-100%.

In most of the nutrition and diet studies showed connection between diet and endometriosis. In many studies, proper attention was given to research comparing the effectiveness of Western medicine treatment alone versus a combination of nutrition and Chinese herbal medicine and Western medicine, and Chinese herbs alone versus Western medicine alone. In most of the studies using Western medicine, Danazol or analogs of GnRH such as Lupron, Synarel, or Zoladex were the treatment choice followed by omega-3 supplementation. Lastly, many of the herbs overlapped and common Chinese formulas emerged among the studies. Chinese formula, Gui Zhi Fu Ling Wan was most effective treatment modality in improving overall cases of endometriosis. There were foods that overlapped in many of studies as well.

While there has been a good deal of writing and research that pertains to nutritional recommendations for women suffering from endometriosis, there have been no studies which have brought the findings of research and theory into a single user manual to assist endometriosis sufferers in making nutritional choices that will facilitate the remediation of their conditions. As a result there exists a gap or “blind spot” in the current literature. It will be the purpose of the current study to begin to fill that gap by assembling the most salient nutritional factors that should be incorporated into a manual specifically designed for women who suffer from endometriosis.

## **Chapter Three: Method**

### **Introduction**

The Method section will provide information pertaining to the research design, selection of data sources, procedures and rationale of data collection, data instruments and data analysis, and finally methodological limitations of this literature review synthesis. This study will review the current literature available concerning the use of Chinese herbal medicine and traditional Chinese nutrition including herbs and the integrated use of Chinese nutrition and Western nutrition and medicine to treat women who suffer from Endometriosis. It will serve to uncover the strengths, weakness, and limitations as well as similarities and differences among the available published research and other articles, and provide a basic foundation for a manual that could specifically serve patients with endometriosis.

### **Designation of Research Method**

This retrospective study used a qualitative literature synthesis research method to review, analyze, compare and generate appropriate and emerging themes and ideas from the available literature (Aronson, 1994). The researcher discerned that the thematic style of analysis was appropriate for this literature review synthesis because this style helped to better identify themes and patterns within all of the 30 studies that were collected for this research. This study engaged the methods of grounded theory and literature synthesis to achieve its stated research objective. As a qualitative research method, grounded theory is

effective in uncovering potential connections and identifying factors that may be followed up by additional and more controlled research studies (Bowen, 2006).

### **Grounded Theory**

Grounded theory is a qualitative and systematic research method that results in the generation of theory from the synthesis of many sources of data. It is an inductive approach that proceeds from specific data to result in generalized theory. A grounded theory is generated by themes, the themes emerge from the data during analysis, capturing the essence of the meaning or experience drawn from varied situation and context and the progress is toward saturation until the variation is exhausted (Bowen, 2006). The grounded theory method of research provides a systematic means for information analysis and has been used extensively in the social and nursing research arenas (Chiovitti & Piran, 2003; Weed, 2005; Pandit, 1996). Grounded theory emerged as a research method in the last few decades, and has gained respect as a method for qualitative research. An area of inquiry is put forth and data gathered via various methods generally including books, research studies, interviews and email exchanges. The data collection and coding of what is found performed to group ideas and themes that emerge in the process. This process is continued until all new avenues or leads are exhausted. These data groups are further coded into themes, and those themes into larger categories. The names of these types of codes are open coding (the labeling and categorizing of data elements), axial coding (the development of main categories and their subcategories) and selective coding (the integration of the categories developed from the previous coding events) (Pandit, 1996).

## **Research Synthesis Method**

Research synthesis method is the process through which two or more research studies are assessed with the objective of summarizing the evidence relating to a particular question. This method is retrospective study by using qualitative research method to review, analyze, and generate appropriate and emerging theme and ideas relating to the available literature (Aronson, 1994).

## **Sample and Sampling Procedures**

The source of data for this study includes research articles that have been extracted from a number of traditional Chinese medicine and Western medicine literatures, texts, journals and articles. The online research databases PubMed, Google Scholar, EBSCO host and the UCLA online journal database were used to search for research articles and collect data pertaining to my capstone topic. The search was done in the principal investigator's house, at the UCLA Biomed library, or at the Yosan University Library. A combination of following key words was used in the search: endometriosis, Chinese herbs, diet, nutrition, supplement, and Traditional Chinese Medicine and TCM nutrition. Grounded theory research method of systematically categorizing, assessing, collecting data and developing a theory or conclusion from available data will be used in the literature review synthesis (Glasser and Strauss, 1967). Article abstraction forms were used to extract and summarize information pertaining to each article. The sources of data for this study included research articles that were accessed from a number of Traditional Chinese Medicine, Western medicine journals and other literature. In total, not less than 30 research articles, journals and other literature sources were analyzed.



This research synthesis was qualitative in nature. A summary and overall comparison of the results and findings among and between different research studies was engaged, and common themes and patterns found among the various studies emerge during the research process. This research looked for various influences that different foods, supplements and herbal medicines have on endometriosis. These common themes were identified and analyzed to assist in developing a Traditional Chinese Nutritional manual for endometriosis. The validity and reliability of the research articles used in my research synthesis project varied depending on the study design and methodology of each individual study.

### **Instrumentation and Data Collection Procedure**

Tables and charts were used to organize, extract and summarize information pertaining to each article selected. The information obtained from these tables and charts was used to establish themes that were analyzed to arrive at the conclusions that formed are detailed in the final Results and Discussion sections of this paper. Throughout the process, tables were used for tracking and reviewing the 30 articles selected and analyzed to constitute the qualitative data for this study. This process modified the tables and as a result other chart, tables and categories of information was also created. This procedure was repeated as needed and a final review of the articles, data analysis tables, and result findings were conducted for consistency. In order to affirm the validity and trustworthiness of my data analysis technique, a sample of the studies were reviewed and researched by my supervisor. Tables were constructed to assist in the organization and analysis of the data collected for this study.

An article abstraction form was used to assess and summarize each research article that will be used for this research synthesis. A copy of the article abstraction form used in this study is included in Appendix H of this document.

The form contained the following sections to be discerned by the researcher:

- title of study
- authors
- source
- objective
- research design
- language/setting
- participants
- participant selection method
- treatment interventions
- outcome measures
- procedures
- results
- conclusion.

The conclusions section includes comments or observations made by the researcher regarding main points, key ideas, as well as gaps and strengths of the study. The article abstraction form assisted in identifying the major themes, categories of information, and conclusions that are described in the Results and Discussion sections of the Capstone Project paper.

The fourth chapter of this study includes the study results, and is followed by a fifth chapter that discusses the findings of the current study.

## Chapter Four: Results

### Overview

This chapter will summarize the findings of the current studies on treatment options for endometriosis including, nutrition, Chinese herbs and Western medicine. The coding process was a naturally thematic analysis in style. The research articles collected for this study were categorized according to the themes that emerged and coded into thematic categories previously described in the Methods section for grounded theory analysis. Appendix B refers to appendices that show the initial categorization of articles according to general emergent themes of each article that have been found. Appendix C further categorizes in broader in nature with the thematic groups. Appendix D, E, F and G were formed to support this study also by using selective coding into further related themes.

Data collected were analyzed using thematic content analysis, such as finding themes within the data, categorizing the variables, and finding and discussing similarities and differences.

**Table 5 : Overview of Articles**

Types of Studies	Studies	Total Number of Studies
<b>Endometriosis Diet</b>	1, 2, 3, 4, 7, 9, 10, 17, 18, 19, 20, 21, 22, 24, 25, 26	16
<b>Endometriosis and Supplements</b>	5, 8, 12, 13, 29	5
<b>Endometriosis and Herbs</b>	6, 14, 15, 16, 30	5
<b>Endometriosis Western approach</b>	11, 23, 27, 28	4

## **Endometriosis Diet**

Many studies suggest that higher intake of green vegetables (all types) and fresh fruit (all types) can lower the risk of endometriosis. Conversely, intake of beef or red meat and ham can increase the risk (Parazzini et al., 2004).

A study conducted in the U.S. on ovarian endometrioid cysts reported elevated risks of endometriosis for higher intakes of polyunsaturated and vegetable fats, but no reduction in risk for high intake of vegetables and fruits (Britton et al., 2000). There are however, some indications that a diet poor in vegetables and fruits and rich in fat increases the risk of endometrial cancer (Armstrong, 1979) and fibroids (Chiapparino et al., 1999), two diseases known to be associated with estrogens, and of ovarian benign and malignant epithelial diseases (Risch et al., 1994). For example, for endometrial and ovarian cancer and fibroids, there was a direct association with the frequency of consumption of meat and ham in this Italian population, whereas high intake of vegetables and fruits conferred some protection (Britton et al., 2000). In biological terms, it may influence prostaglandin concentrations, which may affect ovarian function (Smith, 1986). Hormonal factors are a potential link between diet and endometriosis, since the risk may be increased by exposure to unopposed estrogens, and a diet rich in fat increases circulating unopposed estrogens (Armstrong et al., 1981; Goldin et al., 1982; Gorbach and Goldin, 1987).

A diet rich in green vegetables and fruits includes high levels of vitamin C, carotenoids, folic acid and lycopene, micronutrients which may help to protect against cell proliferation (Bosetti et al., 2002). Some studies have reported that

women with endometriosis tend to drink more alcohol than those without the disease (Grodstein et al., 1994; Missmer and Cramer, 2003).

### **Endometriosis and Supplements**

New studies including the studies published in the journal *Human Reproduction*, seem to suggest that paying attention to what we eat and put on our bodies could significantly reduce the risk of developing endometriosis. In a study looking at endometriosis and the types of fat women eat, while total fat consumption was not associated with endometriosis risk, the women who ate the most omega-3 fatty acids were 22% less likely to be diagnosed with endometriosis when compared to the group that ate the lowest amount.

The unhealthy fats such as trans fats increased the risk of developing endometriosis by nearly 50% percent. Most of the study reviewed had findings were similar in that women with the lowest fifth of long-chain omega-3 fatty acid consumption were less likely to be diagnosed with endometriosis. In addition, those in the highest quintile of trans-unsaturated fat intake were more likely to be diagnosed with endometriosis. Also many studies indicate that fish/n-3-oil might have positive influence on pain.

### **Endometriosis and Herbs**

A total of 3 formulas and herbs included in these formulas were used across many studies to treat endometriosis. The formula which used with greatest frequency was Gui Zhi Fu Ling Wan and others included Tao He Cheng Qi Tang and Shao Fu Zhu Yu Tang with similar positive outcome.

In study 6 (Dong et al, 2003) observed that Gui Zhi Fu Ling Capsules plays an important role in the regression of endometriotic implants by immunological

regulation in the rat model. In this study, they used the rat model of surgically induced endometriosis to test the effect of the immunological regulation of Gui Zhi Fu Ling Capsules. This formula has been used clinically for the therapy of endometriosis for a long time and the clinical data has shown the protective effects on women endometriosis as well. In this study, the volume of endometriosis was significantly reduced in Gui Zhi Fu Ling Capsule treatment group.

### **Endometriosis –Western Approaches**

Medical treatment of endometriosis relies on drugs that suppress ovarian steroids and induce hypoestrogenic state that causes atrophy of ectopic endometrium. Gonadotrophin-releasing hormone (GnRH) analogues, Danazol, Progestogens and estrogen-progestin combination have all proven effective in relieving pain and reducing the extent of endometriotic implants. However, symptoms often recur after discontinuation of therapy and hypoestrogenism-related side effects limit long-term use of most medications. Furthermore, these therapies are of limited value in patients with a desire to become pregnant because they inhibit ovulation.

Study 11 (Harel, 2002) compared the effectiveness of nonsteroidal anti-inflammatory drugs (NSAIDs) and oral contraceptive pills combined with estrogen and progestin to treat dysmenorrhea which is most commonly linked with endometriosis. This study suggested that most common pharmacologic treatment for dysmenorrhea is dose of NSAIDs and it should be used (typically twice the regular dose) as initial treatment for dysmenorrhea in adolescents followed by a regular dose until symptoms abate. Adolescents with symptoms that do not respond to treatment with NSAIDs for three menstrual periods should be offered combined

estrogen/ progestin oral contraceptive pills for three menstrual cycles. Adolescents with dysmenorrhea who do not respond to this treatment should be evaluated for secondary causes of dysmenorrhea.

Study 27 (Seli et al, 2003) and study 28 (Vinatier et al, 2001) both found that abnormal expression of aromatase P450 (estrogen synthetase) in the endometrium of women with the endometriosis and impaired inactivation of estrogen may lead to elevated local estrogen concentrations which leads to endometriosis.

## Chapter 5: Discussion

### Summary of Findings

This study was a retrospective literature review synthesis, which reviewed Western and Traditional Chinese Medicine approach to understanding and treating endometriosis. And also reviewed the effects of common Western and TCM nutrition, herbs and supplements that are used to support endometriosis treatment.

Many studies suggested that changing the foods and following a diet for endometriosis could be proved to be on the best ways to reduce the symptoms of the disease and most recommendations were natural and healthy treatment option. The improvement in symptoms can include a reduction in pain and inflammation. Also reducing estrogen in the body seemed to reduce the opportunity of the disease to grow further. Many studies showed that diet changes could help reduce the symptoms of endometriosis and recommended increasing omega-3 fatty acids, fiber and avoiding meat, dairy products, wheat and sugar, modulate estrogen not only can improve endometriosis but also these findings can be used as a preventive measure. Also avoiding caffeine and alcohol, refined foods, additives, minimize or avoiding not fermented soy products seem to help patients with Endometriosis.

Studies have shown that adjusting eating habits could have many positive physical and metabolic changes. Also understanding nutrition not only from Western perspective but also from TCM approach would provide more comprehensive way in dealing with symptoms of endometriosis. Many studies showed that diets which decreased estrogen levels and stabilize hormones,



increase energy, alleviating painful cramps and stabilizing emotions have had positive results in treating endometriosis.

### **Implications for Theory and Practice**

This study reviewed total of 30 research studies regarding treatment options for endometriosis highlighting nutrition and natural treatment. Studies have shown that endometriosis is one of the most devastating and misunderstood diseases in the world today. It is estimated that there are over 80 million women and girls who suffer from the disease worldwide. This number is growing all the time. It is now more common than breast cancer. Despite the huge numbers of women who suffer from this disease, few people have actually heard of endometriosis but studies have shown that this is gradually changing. As the disease develops a woman's immune system tends to become more impaired and this could lead to further health problems.

Due to increased research, as well as surveys of patients, it is now becoming clear that women with endometriosis can be susceptible to other health problems which mostly relate to an impaired immune system and this study uncovered that natural treatments for endometriosis are obtaining more positive results in actively assisting the healing of the diseases for many sufferers. Nutrition, healthy diet, supplements and Chinese herbs could be a key element in boosting the immune system and this study has found many studies linking endometriosis with diet and how change in diet as well as taking certain supplements and Chinese herbs could effectively reduce or prevent endometriosis as well as the symptoms.

Many studies suggest that higher intake of green vegetables (all types) and fresh fruit (all types) can lower the risk of endometriosis. Conversely, intake of

beef or red meat and ham can increase the risk (Parazzini et al., 2004). A study conducted in the U.S. on ovarian endometrioid cysts reported elevated risks of endometriosis for higher intakes of polyunsaturated and vegetable fats, but no reduction in risk for high intake of vegetables and fruits (Britton et al., 2000).

There are however, some indications that a diet poor in vegetables and fruits and rich in fat increases the risk of endometrial cancer (Armstrong, 1979) and fibroids (Chiaffarino et al., 1999), two diseases known to be associated with estrogens, and of ovarian benign and malignant epithelial diseases (Risch et al., 1994).

The methods of detecting and diagnosing endometriosis are improving. However; more women need to take their pelvic pain and period pain seriously by pursuing answers from the medical profession. Recent studies are beginning to indicate that women with the disease are at greater risk of other health problems such as infertility and even cancer. Many women suffering from endometriosis may have surgical procedures or take drugs but studies have shown that these options were largely unsatisfactory however this study discovered that there are more doctors who are beginning to specialize in the disease and new surgical techniques, drugs and diets are being developed today.

This study supports many women who are seeking ways to take care of their own health with regard to dealing with this disease and information gathered and the summary of charts with beneficial food suggestions, supplementation, Chinese herbs as well as Western treatment options could provide a basic foundation for a manual that could specifically serve patients with Endometriosis. The inclusion factors for the TCM nutritional manual are as below.

## **Factors for Inclusion in the Nutritional Manual**

The current study resulted in the identification of the following factors that the researcher discerned as being salient and important for inclusion in a traditional Chinese nutrition manual that will provide support and information for patients suffering from endometriosis:

- Explanation on Endometriosis and symptoms
- Explanation of basic TCM Theory including Five Element Theory
- TCM Diagnosis of Endometriosis
- TCM Treatment options with pros and cons
- Western Diagnosis of Endometriosis
- Western Treatment Options with pro and cons
- Western Drugs Explanation with pros and cons
- Explanation of TCM Nutrition
- Beneficial food groups for each TCM diagnosis with both TCM and Western explanation
- List food groups into warming, cooling, blood nourishing, blood moving, fluid generating and kidney strengthening (with explanation)
- List of foods to avoid (with explanation)
- Supplement recommendation (with explanation)
- List of Menu with cooking instruction using recommended foods (with explanation)
- Other recommendations (exercise, qi gong, tai chi, mediations and yoga)
- Support groups information

## **Limitations of the Current Study**

The primary limitation of current study is in the nature of the study itself. The fact that a literature review is a secondary analysis of studies which have previously been conducted by others. This limits the choice of the studies and variables involved in this research synthesis. As a consequence of this limitation, the data generated in this study in many ways were not associated with the original research objective. This was true in many studies where the study mainly focused on one formula or on particular food or drug, while others looked at various food, drugs and Chinese herbs. While all of the studies had to do with endometriosis in one way or the other but difference in variable used made it difficult to analyze the data for this study.

There was also lack of articles available for analysis regarding my subject matter that also matched my inclusion criteria requiring that study include nutrition, diet change and Chinese herbs. The lack of articles that combined TCM, nutrition and Western medicine treatment for endometriosis made it difficult compare the treatment options however there were significant number of article for each modality which made it possible to form a general but understandable summary.

While effort was made to be as objective as possible in assessing the quality and relevance of the research methodology and design of the articles selected for this study, the possibility of my own bias was present. Because a single rater did the data analysis, there was an increased possibility of inaccurate recording and misinterpretation of data.

Source bias was also possible limitation of this study, for many of the articles were published in journal which only publish articles in favor of the use of nutrition, Chinese herbal medicine or Western medicine only. Also it was difficult to track all the foods, Chinese herbs and supplementation suggestions in the studies with amounts and dosages, as some did not list the dosage or amount at all in the study.

### **Recommendations for Future Research**

For future study, randomized and controlled trials regarding this topic can be carried out with more specific food groups as well as assessing the effectiveness of combined integrative approach by applying nutrition, Chinese medicine as well as Western treatment options for endometriosis could be done. More focused approach that examines just one or two variables could help better understand the effectiveness of specific treatment protocol.

Also, there seemed to be more new and advance Chinese studies regarding various treatment options but there seemed not enough present studies in the Western studies for new and advanced treatment options for endometriosis.

### **Conclusion**

The goal of this study was to examine the relationship of diet and nutrition in treating endometriosis. This study specifically explored factors that will contribute to the construction and composition of a Traditional Chinese Nutrition manual to support patients suffering from endometriosis. Endometriosis is becoming a leading cause of infertility: 38% of women who are infertile and 70-80% of women with chronic pain have endometriosis and more than 10 million women have endometriosis in the United States (Ling, 1999). Furthermore, in

the United States, annual healthcare costs and costs of productivity loss associated with endometriosis were estimated at \$22 billion in 2002 (Ballweg, 2004)

This Study discussed the number of treatment options for endometriosis from the both Western and Traditional Chinese Medicine perspectives. This study identified and describe the factors that need to be considered in forming a traditional Chinese nutritional manual for endometriosis by summarizing findings into tables to show different foods, Chinese herbs, supplements and Western medicine. In conclusion, despite its limitations, this study suggests that there is some link between diet and risk of endometriosis. These findings suggest the need for a proper summarization of studies to form a manual to aid patients as well as medical practitioner in treating endometriosis.

This study uncovered that Traditional Chinese Medicine nutritional manual specifically created for the treatment of endometriosis could be developed to aid patients in understanding all aspects of foods, herbs and supplements. Such a manual could encourage patients to consider dietary changes in conjunction with other healing approaches. Also, it could increase awareness of Traditional Chinese Medicine to patients whether or not they have been exposed to Traditional Chinese Nutrition.

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**Appendix A: Articles Used for Research Synthesis,  
Listed in Order of Study Number**

**Appendix A: Articles Used for Research Synthesis, Listed in Order of Study Number**

<u>Number</u>	<u>Author/s</u>	<u>Number</u>	<u>Author/s</u>
1	Albertson, 2009	16	Jing/Jing, 2011
2	Balbi et al, 2000	17	Levett, 2010
3	Barnard et al, 2000	18	Littman, 2001
4	Britton et al, 2000	19	Masaki, et al 2007
5	Coven et al, 1988	20	Mears, 1997
6	Dong et al, 2003	21	Missmer, 2010
7	Deutch, 1995	22	Ni/McNease, 2004
8	Deutch et al, 2000	23	Olive et al, 2004
9	Fjerbaek/Knudsen, 2006	24	Parazzini, et al, 2004
10	Grodstein et al, 1993	25	Pitchford, 2002
11	Harel, 2002	26	Qing et al, 2008
12	Harel et al, 1996	27	Seli et al, 2003
13	Hass, 2003	28	Vinatier et al, 2001
14	Huang et al, 2007	29	Wieser et al, 2007
15	Ji et al, 2011	30	Zhang et al, 2003

**Appendix B: Characteristics of the Included Studies  
on Nutrition and Diet**



## Appendix B: Characteristics of the included studies on nutrition and diet

Authors	Sample	Age	No.	Intervention	Outcome measurement	Result
<b>Balbi et al, 2000</b>	Women	12-21	356		Menstrual pain intensity, localization and duration Frequency of consumed foods from a set list Severity of Menstrual Pain	A lower intake of fruit, fish and egg is associated with dysmenorrhea
<b>Barnard et al, 2000</b>	Women with moderate to severe abdominal pain during menstruation	22-48	33	A: Low fat vegetarian diet for 2 menstrual cycles with normal diet and placebo supplement	Menstrual pain assessment	Low fat vegetarian diet reduces dysmenorrhea duration and pain intensity and increases the concentration of sex hormone binding globulin
<b>Britton et al, 2000</b>	Cases: Women diagnosed with a benign ovarian tumor (including endometrioid). Controls: Women identified using a method of random digit dialing (community control)	18-74	673/351 (280 of cases were endometrioid)		Yearly consumption of food items from 126 item food frequency questionnaire	Vegetables and polyunsaturated fat can increase the risk of being diagnosed with a benign ovarian tumor. Results for the endometrioid subtype are similar
<b>Deutch, 1995</b>	Women	20-45	181		General dietary habits assessed by dietary self recording	Low fat intake and high carbohydrate and fiber intake has a negative effect on dysmenorrhea. High n3/n6 ratio intake reduces pain
<b>Fjerback/Knudsen, 2006</b>	Literatures concerning the effect of diet on endometriosis and dysmenorrhea		16			Low fat vegetarian diet reduces dysmenorrhea and endometriosis
<b>Masaki, et al, 2007</b>	Women diagnosed with endometriosis laparoscopically.	20-45	138		They measured urinary levels of genistein and daidzein as markers for dietary intake of soy isoflavones, and genotyped ESR2 gene RsaI polymorphisms.	Dietary soy isoflavones may affect the risk of endometriosis
<b>Parazzini, et al, 2004</b>	Women with confirmed endometriosis	20-65	504		Weekly consumption of selected dietary items	A reduction in risk for high intake of green vegetable and fruit and an increased risk for intake of ham, beef and other red meat.  No association with intake of alcohol, coffee, fish and milk

## **Appendix C: Summary of Studies on Nutrition and Diet**

## Appendix C: Summary of studies on Nutrition and Diet

Authors	Beneficial	Not Beneficial
Albertson, 2009	<p>Fresh Fruit, Green vegetables high in antioxidants (Vitamins A, C, E and bioflavonoids like carrots, yams, spinach, kale, broccoli, cauliflower, sweet potatoes, green and red peppers), high fiber diet, whole grains, green foods (wheat grass, chlorella, spirulina) clean, nourish, move blood and create circulation.</p> <p>For Pain: tomatoes, lemons, limes, apricots, grapes, beets, celery, strawberries, blueberries, blackberries, kelp, seaweed, garlic, scallions and onions</p> <p>Gamma inolenic acid –omega 6-Pumpkin seeds, olive oil, flaxseed and primrose</p> <p>Omega 3 fatty acids- fish or linseed oil</p> <p>For cold condition- eat foods with properties that are neutral or warm in nature (beans, leeks, onions, carrots, garlic, ginger, wheat bran, millet, venison, beef, turkey, chicken, mangos, papaya, pineapple, figs, sweet potatoes, yams, red and green cabbages.)</p>	<p>Beef, ham or other red meat</p> <p>-Caffeine, alcohol, salt</p> <p>-Animal fats</p> <p>-Refined and hydrogenated oils</p> <p>-Avoiding animal products treated with steroids and antibiotics.</p>
Hass, 2002	<p>The body seems to work best on a diet high in alkaine-forming foods. Those foods which give alkaline elements when broken down by the digestion. A diet which contains 70%-80% alkaline-forming foods is ideal for healthful living.</p> <p>Mucus-less Diet: Alkaline diets</p> <p>The body is normally slightly alkaline, the blood pH being 7.41.</p> <p>Mucus is considered to be related to acid-forming foods, also called mucus-forming foods. We need some mucus for body function. However, if a diet too high in acid –forming foods is eaten, the body can be medium conducive for the growth of bacteria and viruses. Excess mucus can create congestion, the cause so many illnesses. The problem lies more in the diet.</p> <p>Alkaline Food: Apple, Bananas, Citrus fruits, Dates, Grapes Cherries, peaches, pears, plums, papaya, mangoes,, pineapple, raspberries, blackberries, elderberries, huckleberries, boysenberries, persimmons, apricots, olives, coconut, figs, raisins, melon, millet, buckwheat, corn, sprouted grains, non-fat milk, almonds, brazil nuts, olive oil, soy, sesame, sunflower, corn, safflower, cottonseed, margarine, soybeans, limas, sprouted beans, honey</p> <p>All vegetables are alkaline (includes starchy vegetables like potatoes and squash as well as seaweed)</p>	<p>Acid forming foods:</p> <p>Fruits: Cranberries, pomegranates, strawberries, sour fruits</p> <p>Grains: Brown rice, barley, wheat, oats, rye, breads</p> <p>Nuts: Cashew, walnuts, filberts, peanuts, pecans, macadamia nuts</p> <p>Sugars: Brown sugar, white sugar, cane sugar, milk sugar, cane syrup, malt syrup, maple syrup, molasses</p> <p>Oils: Nut oils, butter, cream</p> <p>Beans and Peas: Lentils, navy, adzuki, kidney</p> <p>Seeds: Pumpkin, sesame, sunflower, Chia, Flax</p> <p>Meats and Dairy Products: All meat, fish, fowl, eggs, cheese, milk, yogurt, butter</p> <p>Avoid Caffeine intake</p>
Grodstein et al, 1993	Caffeine intake is associated with an increased risk of endometriosis	Avoid Caffeine intake
Levett, 2010	<p>Whole grains, beans, vegetable, fruits, oatmeal, mustard greens, dark greens, broccoli, cabbage, onions, garlic, carrots, live yoghurt, rhubarb, seeds and spouted seeds, ginger, green tea, berries, parsley, fennel, cauliflower, nuts, seeds and celery</p> <p>Vitamins- magnesium, zinc, calcium, iron, B vitamins, Vitamin C, A, E and selenium</p>	<p>Wheat, red meat, refined and concentrated carbohydrates, refined sugars and honey, caffeine, chocolate, dairy produce, eggs, fried foods, saturated fats and oil, soy products, convenience foods, additives, preservatives and alcohol</p>
Masaki, et al, 2007	<p>Progression of endometriosis is considered estrogen-dependent. Dietary soy isoflavones may affect the risk of endometriosis, and polymorphisms in estrogen receptor genes may modify this association. They examined associations among soy isoflavone intake estrogen receptor 2 (ESR2) gene polymorphisms and risk of endometriosis.</p>	Dietary isoflavones may reduce the risk of endometriosis among Japanese women.
Mears, 1997	<p>Eat plenty of vegetables and fresh fruit.</p> <p>Eat as many whole foods as possible, such as whole grain cereals.</p> <p>Where possible, grill, steam or stew foods rather than fry them.</p> <p>Eat more foods rich in essential fatty acids, such as seeds, nuts and grains.</p> <p>Cook in oil rather than fat.</p> <p>Eat low-fat versions of dairy products (for example, non- or low-fat milk).</p> <p>Cut down on sugar (and remember that sugar is added to most processed foods, including frozen dinners and snack foods; read labels carefully).</p> <p>Reduce your intake of salt and animal fats.</p> <p>Choose white meats, such as chicken, rather than red meat.</p> <p>Drink less coffee, tea and carbonated drinks.</p> <p>Drink at least six glasses of water a day.</p> <p><b>The Natural Estrogen Diet:</b> Some researchers believe that by eating foods containing weak plant estrogens (isoflavonoids), you may actually be able to reduce the amount of estrogen in your own body. However, the idea is very controversial and the benefits have not yet been fully substantiated.</p> <p>Foods that are a rich source of these include: Dried fruits, Cabbages and turnips, Berries, peas and legumes, Beans, nuts and seeds, Unrefined grain products, such as rye products, Soy products such as tofu and soy milk</p> <p>It is not advisable to change your diet radically without detailed advice and supervision from a physician, alternative practitioner or nutritionist.</p>	<p>Don't take isolated vitamins or minerals without the advice of a qualified practitioner.</p> <p>Generally, it is best to take supplements with meals because they are more easily absorbed. However, there are some exceptions, such as zinc, which is thought to be absorbed better at night on an empty stomach.</p> <p>When buying a multivitamin supplement, do opt for one with a wide and balanced variety of minerals and vitamins.</p> <p>Don't be tempted to take supplements instead of eating balanced meals.</p> <p>Don't take huge doses of vitamins and supplements</p>
Ni/McNease, 2004	<p>Recommendations: At least one week prior to the usual onset time of P.M.S. consume some of the following: ginger, green onions, fennel, symptoms, orange peel, spinach, walnuts, hawthorn berries, cinnamon, and black pepper, Chinese date, Dang Gui (Angelica sinensis).</p>	<p>Avoid: cold foods, raw foods, excessive consumption of fruit, vinegar, all shellfish, coffee, stimulants, sugar, dairy products, and smoking</p>
Pitchford, 2002	<p><b>Summary Foods and Spices Which Disperse Stagnant Blood:</b> - turmeric, chives, garlic, vinegar, basil, peach seed, scallion, leek, ginger, chestnut, rosemary, cayenne, nutmeg, kohlrabi, eggplant, white pepper, aduki bean, sweet rice, spearmint, butter</p>	<p>Alcohol, tobacco, coffee, cold-temperature foods, refined sugar, hydrogenated fats such as shortening and most margarines, polyunsaturated cooking oils (see Oils and Fats, Chapter 10 for options), and overconsumption of fruit or raw food. Fluoridated water suppresses thyroid activity, which upsets the hormonal system in general; chlorinated water destroys vitamin E, an essential nutrient for menstrual ease. Commercial red meats and poultry have residues of steroids composed of female animal sex hormones, which interfere with human menstruation.</p>

## **Appendix D. Summary of Supplements**

## Appendix D: Summary of Supplements

Authors	Summary
Covens et al, 1988	<p>Sample: Rabbits No.: 38 Intervention: Fish Oil            Outcome measurement: PGE<sub>2</sub> and PGF<sub>2</sub><math>\alpha</math> concentration and endometrial implant size  <b>Result:</b> Peritoneal fluid PGE<sub>2</sub> and PGF<sub>2</sub><math>\alpha</math> concentration were significantly lower in the fish oil group. Diameter of implants was significantly lower in the test group</p>
Deutch et al, 2000	<p>Sample: Women regularly suffering from dysmenorrhea Age: 16-39 No.: 78            A: Placebo B: Seal oil C: Fish oil D: Fish oil + Vit B12            Intervention: Use of analgesics, Blood Liquid concentration, Gluteal Record, Menstrual pain assessment  <b>Result:</b> Marine oil reduces dysmenorrhea. The effect of fish oil and Vitamin B12 was more than 50%</p>
Harel et al, 1996	<p>Sample: Young women who reported dysmenorrhea Age: 15-18 No.: 37            A: Fish oil for 2 months B: Placebo for 2 months Followed by crossover            A: Placebo            Outcome Measurement: Frequency and severity of symptoms associated with dysmenorrhea.  <b>Result:</b> Fish oil lowered dysmenorrhea symptoms</p>
Missmer et al, 2010	<p><b>Result:</b> Women with the lowest fifth of long-chain omega-3 fatty acid consumption were less likely to be diagnosed with endometriosis. In addition, those in the highest quintile of trans-unsaturated fat intake were more likely to be diagnosed with endometriosis.</p>
Wieser et al 2007	<p><b>Result:</b> The literature on diet and endometriosis is sparse and inconsistent. Diet and dysmenorrhea have more been in focus, and the studies indicate that fish/n-3-oil might have positive influence on pain. For all other food items, results are diverse. This review reveals that no clear recommendation on what diet to eat or refrain from to reduce the symptoms of endometriosis can be given, whereas a few studies indicates that fish oil can reduce dysmenorrhea. Further research is recommended on both subjects.</p>

**Appendix E: Listing of Chinese Herbs/Formulas Only Studies**

**Appendix E: Listing of Chinese Herbs/Formulas Only Studies**

<b>Authors</b>	<b>Formulas used</b>
Dong et al, 2003	Gui Zhi Fu Ling Capsule
Huang et al, 2007	Tao He Cheng Qi Tang
Ji et al, 2011	Gui Zhi Fu Ling Wan
Jing et al, 2004	Shao Fu Zhu Yu Tang
Zhang et al, 2003	Gui Zhi Fu Ling Wan

**Appendix F: Summary of Western Medicine Studies**



## Appendix F: Summary of Western Medicine Studies

Authors	Summary
Harel, 2002	<p>Nonsteroidal anti-inflammatory drugs (NSAIDs) are the most common pharmacologic treatment for dysmenorrhea. A loading dose of NSAIDs (typically twice the regular dose) should be used as initial treatment for dysmenorrhea in adolescents followed by a regular dose until symptoms abate. Adolescents with symptoms that do not respond to treatment with NSAIDs for three menstrual periods should be offered combined estrogen/ progestin oral contraceptive pills for three menstrual cycles. Adolescents with dysmenorrhea who do not respond to this treatment should be evaluated for secondary causes of dysmenorrhea.</p> <p>Adolescent care providers have the important roles of educating adolescent girls about menstruation-associated symptoms, as well as evaluating and effectively treating patients with dysmenorrhea.</p>
Olive et al, 2004	<p>The medical treatment of endometriosis has been centered upon producing a hypoestrogenic environment by producing pituitary suppression or progestin-dominant environment. However, as more is uncovered regarding pathogenesis and pathology of this disease, more targeted therapies can be developed. Current research has focused upon medications designed to attack specific aspects of the development and maintenance of endometriosis. These include progesterone receptor modulators, gonadotropin releasing hormone (GnRH) antagonists, matrix metalloproteinase inhibitors, pentoxifylline (and other general immune modulators), and estrogen receptor beta agonists. It is hoped that new wave of medications will improve the response to medical therapy for this disorder.</p> <p>The medical treatment of endometriosis has long been played a major role in the therapeutic approach to this disorder. However, the approach to the design of medical therapeutics for endometriosis is evolving scientifically, as new strategies are aiding in the attack upon this disease. What once was an armamentarium of a handful of ovulation suppression agents is fast becoming a diverse array of finely directed treatment options. The original development of medication to treat endometriosis was built upon several observations. First, endometriosis is infrequently encounter in the parous women and is much more often in the nulliparous female, suggesting a protective effect of the hormonal milieu of pregnancy. Second, endometrium is known to be estrogen dependent. Finally, endometriosis tends to occur nearly exclusively in menstruating women of reproductive age, again suggesting hormonal dependence.</p> <p>These findings suggested the potential benefits of hormonal therapy to alter the normal menstrual cyclicity of the reproductive years, the mainstay of medical treatment for endometriosis.</p> <p>However, the approach has changed. There exist a much greater depth of understanding of the pathogenesis, growth and maintenance of ectopic endometrium, particularly at the molecular level. This has provided drug developers with new, precise molecular targets for treatment of the disease.</p> <p>Reviewed new experimental approaches to the medical treatment of endometriosis and its symptoms.</p> <ul style="list-style-type: none"> <li>Selective progesterone receptor modulators</li> <li>Gonadotropin releasing hormone antagonists</li> <li>Aromatase inhibitors</li> <li>Tumor necrosis factor-Alpha inhibitors</li> <li>Angiogenesis inhibitors</li> <li>Matrix Metalloproteinase inhibitors</li> <li>Pentoxifylline and other immunomodulators</li> <li>Estrogen receptor beta agonists</li> </ul> <p>The use of acceptability of medical therapy in the treatment of endometriosis has waxed and waned over the years. Originally, the disease was felt to be best treated surgically but the pendulum has been swinging relentlessly towards medical options as the complexity and chronicity of endometriosis has been recognized. With a wide variety of investigational medications in the development pipeline, it is likely that the role of medication for this disease will expand in the future with fewer side-effects.</p>
Seli et al, 2003	<p>Estrogen upregulates the formation of prostaglandin which is the most potent stimulator of aromatase P450, and a positive feedback loop is established, where continuous estrogen and prostaglandin release can favour the inflammatory and pro-liferatory nature of the disease.</p>
Vinatier et al, 2001	<p>Abnormal expression of aromatase P450 in the endometrium of women with the endometriosis and impaired inactivation of estrogen may lead to elevated local estrogen concentrations.</p>

**Appendix G: Source Data Chart**

<b>Source Data Chart</b>		
<b>Question/Variable</b>	<b>Journals/Articles (Mostly found online)</b>	<b>Textbook (online or print)</b>
A. What is endometriosis?	<b>X</b>	<b>x</b>
1. Western definition, pathophysiology and diagnosis	<b>X</b>	<b>x</b>
2. TCM definition and diagnosis		<b>x</b>
B. What are the Western medicine treatment modalities for endometriosis?	<b>X</b>	<b>x</b>
1. Western Drugs	<b>X</b>	<b>x</b>
2. Nutritional Supplements	<b>X</b>	<b>x</b>
3. Nutritional Diet/Foods	<b>X</b>	<b>x</b>
4. Traditional Chinese Herbs/Formulas	<b>X</b>	<b>x</b>
5. Herbs/Spices for Endometriosis	<b>X</b>	<b>x</b>
6. Traditional Chinese nutrition		<b>x</b>
7. Other	<b>X</b>	<b>x</b>
What is Traditional Chinese Nutrition?		<b>x</b>
How are Chinese Herbs used to treat endometriosis?	<b>X</b>	<b>x</b>
Commonly used herbal formulas and individual herb for Endometriosis?	<b>X</b>	<b>x</b>
Side effects of herbs	<b>X</b>	<b>x</b>
Side effects of Formulas	<b>X</b>	<b>x</b>
Side effects of foods	<b>X</b>	<b>x</b>
Side effects of drugs/supplements	<b>X</b>	<b>x</b>

**Appendix H: Article Abstraction Form**

**Article Abstraction Form**

Reviewer: Karen Gordon

Date:

Title:

Authors:

Source:

Objective:

Research Design:

Language/Setting:

Participants/Participant Selection Methods:

Treatment Interventions:

Outcome Measures:

Procedures:

Results:

Conclusions (Themes/Main Points/Key Ideas/Gaps in Study/Strengths of study):