

A Natural Approach to Menopause

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ABSTRACT: Today in the United States nearly 20 million women are experiencing menopause. This number will grow to approximately 60 million by the year 2010.¹ Menopausal women are faced with the challenge of managing a barrage of symptoms, both physiological and psychological, as well as the increased risk of age-related disease, particularly heart disease and osteoporosis. Many women today are seeking natural support for

menopause not only because of the risks associated with hormone replacement therapy but also because of the recognition that menopause is not a disease, but rather a natural transition that does not necessarily require drugs. Natural treatment strategies should focus on both symptom relief and disease prevention, and may include nutritional supplements, herbs, and healthy dietary and lifestyle choices.

SIGNS AND SYMPTOMS OF MENOPAUSE

As a woman's childbearing years come to an end, she begins to experience the first signs of menopause. Perimenopause, the time leading up to menopause, usually begins around age 45. During this time, the body is adjusting to erratic hormone levels which become evident by the start of irregular menstrual periods (shortened or lengthened cycles and diminished menstrual flow) and hot flashes/flushes. Although the ovaries continue to secrete estrogen and progesterone throughout this period, hormonal levels begin to decline, and the availability of sex hormones becomes increasingly dependent upon the adrenal glands and adipose tissue.²

Unless brought about by surgery, chemotherapy, or other factors, natural, or physiologic, menopause occurs in most women by age 50-51. Menopause is defined as the loss of ovarian function, characterized by the actual cessation of menses. Prompted by the decline in estrogen and progesterone production, and rising follicle-stimulating hormone (FSH) and luteinizing hormone (LH) levels, menopausal symptoms may include hot flashes or night sweats (in 80% of women); decreased vaginal lubrication; and thinned vaginal mucosa. Other symptoms may include mood swings, insomnia, depression, urinary problems and incontinence, vaginal irritation, and painful intercourse (Table 1).

Menopausal women also experience a decline in testosterone, although this aspect of menopause is often neglected. Ovarian testosterone production is said to be substantially decreased in 50% of postmenopausal women.³ Furthermore, diminished adrenal androgen synthesis also occurs, but is more likely a function of age rather than menopause per se. The decline in circulating androgens, specifically testosterone, has been termed "adrenopause" by some experts, and is largely responsible for diminished sexual function, including loss of libido and loss of sexual response in postmenopausal women.³

Table 1. Signs of Menopause

- Irregular or absent menstrual periods
- Hot flashes/flushes or night sweats
- Decreased vaginal lubrication and thinned vaginal mucosa which may cause painful intercourse
- Mood swings
- Insomnia
- Depression
- Forgetfulness and impaired concentration ability
- Urinary incontinence
- Loss of libido (due to declining testosterone)

DECLINING ESTROGEN: WHAT THIS MEANS FOR DISEASE RISK

Depending on the health of the woman, the decline in estrogen that occurs during menopause may not only cause the transient symptoms described above, it may also contribute to disease, particularly in women who already have an increased risk because of heredity, illness, or because of poor dietary and lifestyle choices.

The two most prevalent diseases associated with postmenopausal women are osteoporosis and heart disease. Both of these diseases are strongly linked to estrogen level as well as dietary and lifestyle habits. Table 2 lists some of the risk factors associated with cardiovascular disease and osteoporosis.

Table 2. Risk Factors Associated with Cardiovascular Disease and Osteoporosis

<p>Cardiovascular Disease</p> <ul style="list-style-type: none">• Reduced estrogen as a result of menopause• Smoking• High blood pressure• Elevated levels of plasma/serum cholesterol• High LDL levels• Low HDL levels• Elevated plasma triglycerides• Diabetes• Obesity• Truncal obesity (“apple-shape”)• Stress• Lack of exercise <p>Osteoporosis</p> <ul style="list-style-type: none">• Reduced estrogen as a result of menopause• Physical inactivity• Smoking• Alcohol consumption• Thinness/low fat mass• Heredity• Asian or Caucasian descent• Drugs such as corticosteroids and anticonvulsants• Inadequate calcium and vitamin D intake

Estrogen plays an important role in bone health by decreasing the rate of bone resorption. As estrogen levels decline, the body’s ability to keep up with the natural process of bone turnover also declines; as bone mass decreases, the risk of fractures increases. (For a detailed discussion of osteoporosis and bone health, see *Clinical Nutrition Insights* vol. 5, no. 4.)

Estrogen appears to naturally protect women from heart disease, presumably by promoting a favorable plasma lipid profile and healthy circulation.⁴ A comparison of plasma lipid levels between non-obese, pre- and postmenopausal women showed significant increases for postmenopausal women in total cholesterol, low-density lipoprotein (LDL) cholesterol, and triglycerides, and decreases in high-density lipoprotein (HDL) cholesterol. These effects were observed after standardization for age, body mass index, and other confounding variables, and were thus accredited to menopause.⁵ The changes in plasma lipids that occur with menopause are likely the result of many factors; however, estrogen may play both a direct and indirect role. Estrogen itself appears to lower LDL levels by up-regulation of apo B₁₀₀ E receptors.⁵ Furthermore, the reduced estrogen levels in postmenopausal women cause a relatively higher concentration of circulating testosterone. Elevated testosterone levels are known to increase LDL levels and lower HDL levels by increasing hepatic lipase activity.⁶

The cardioprotective effects of estrogen are clearly seen in women taking estrogen replacement therapy. Unopposed estrogen replacement has been shown to favorably alter blood lipids, helping to lower LDL levels and increase HDL levels in postmenopausal women. In 15 out of 19 studies, estrogen use reduced the frequency of myocardial infarction or ischemic heart disease by about half.⁷ Unopposed estrogen therapy, however, has been

linked to endometrial cancer. Combined hormone replacement that provides both estrogen and progestin poses less of a risk; however, because progestin modifies many of estrogen’s physiological effects, the cardioprotective effect of combined HRT may be diminished.⁷

While estrogen replacement can offer protection against heart disease and even osteoporosis, it may not be the appropriate first line of defense. Differentiating between those risk factors that are non-modifiable, such as heredity, body type (truncal obesity, or “apple-shape”), and diabetes, and those that are modifiable (e.g., diet and lifestyle) is an important step in determining the best preventative strategies.⁸ The risk for cancers of the breast and endometrium should also be taken into account. Modifying risk factors with healthy lifestyle choices that include exercise, stress reduction and relaxation, and eating the right foods are known to play a significant role in reducing the overall risk to heart disease. Dietary recommendations should focus on a low-fat/high-fiber diet that is rich in antioxidants. Additionally, dietary modulation of eicosanoid production, as with fish oils, may also be beneficial. Research suggests that fish oils rich in omega-3 fatty acids may offer considerable cardioprotective benefits such as helping to maintain healthy blood pressure and decreased platelet aggregability.⁹

THE ADRENAL GLANDS: PRESERVING HORMONAL ACTIVITY AND THE BODY’S ADAPTOGENIC RESPONSE

Once a woman reaches menopause, the adrenal glands and fat cells become the primary sources for estrogen production. The adrenals produce androstenedione, an androgen which is converted to estrogen via the aromatase enzyme in peripheral tissues such as the skin, adipose, and muscles.² Because adipose tissue is a primary location for androgen conversion to estrogen, relatively lean women tend to experience menopause earlier than heavier women.

The majority of a postmenopausal woman’s circulating testosterone is also dependent upon adrenal androstenedione synthesis. The synthesis of adrenal androgens begins with cholesterol where it is converted to pregnenolone. Pregnenolone is converted to either the stress hormone cortisol or to dehydroepiandrosterone (DHEA), which is subsequently converted to androstenedione. Finally, androstenedione is converted to either estrogen or testosterone. (See Table 3 for a schematic diagram of this process.)

Despite the increasing reliance on the adrenal glands for sex hormone production during the perimenopausal and postmenopausal years, adrenal androgen synthesis actually decreases by more than half by the time a woman reaches menopause.³ The decline in circulating androgens occurs in both men and women and is therefore associated with age rather than menopause. Recent research surrounding supplemental DHEA has focused on this age-related decline in androgen circulation and its impact on general health. DHEA levels are at their highest during a person’s twenties and then decrease dramatically over the next five to six decades.¹⁰ This decline has been associated with the diminished sexual function, fatigue, and other age-related malfunctions that tend to occur with age. Supplemental DHEA may be beneficial for some women; however, with too high a dose (i.e., more than 25 mg/day) they run the risk of producing too much testosterone

which may cause masculinization (facial hair, deepened voice, feelings of hostility and aggression) and may increase the risk of cardiovascular disease.

Maintaining the health of the adrenal glands not only supports androgen/estrogen metabolism, it also supports the body's "adaptogenic" response. "Adaptogenic" refers to the body's ability to cope with, or adapt to, stress. In today's society where women play multiple roles as caregivers, homemakers, and breadwinners, chronic low level stress may contribute to some degree of "adrenal fatigue," predisposing a woman to health problems long before she reaches menopause. Excessive or prolonged activation of the stress hormones such as adrenaline not only has a detrimental effect on overall health and well-being, it also increases the risk for disease, such as heart disease, high blood pressure, obesity, peptic ulcer, and asthma.¹¹ Additionally, during times of extreme stress, DHEA levels fall dramatically, presumably as a consequence of shifting hormone synthesis in the adrenal glands away from androgens and estrogens and toward the stress hormone cortisol.

NUTRITIONAL SUPPORT FOR MENOPAUSE: WHAT NATURE HAS TO OFFER

Nutritional support for menopausal women should focus both on symptom relief and disease prevention. Treatment strategies should include natural ways to support hormone balance and the adrenal gland's adaptogenic response as well as ways to help reduce the risk of cardiovascular disease and osteoporosis. These goals can be accomplished through lifestyle choices, diet, supplements, and herbs. Following is a discussion of several nutrients and herbs that may be especially important to women during the menopausal years.

• Pyridoxine (Vitamin B₆)

Pyridoxine, or vitamin B₆, has often been referred to as an "anti-stress" vitamin because of its role in energy production, hormone synthesis, and neurotransmitter formation. Because of

its role in neurotransmitter formation (e.g., GABA, serotonin), vitamin B₆ helps to regulate mood, sleep, eating habits, and pain.¹¹ An insufficiency may cause insomnia, irritability, and depression. Pyridoxine also plays a vital role in cardiovascular health. Research suggests that pyridoxine may inhibit platelet aggregation, reduce total plasma lipid and cholesterol levels, and enhance HDL-cholesterol levels.^{12,13} Pyridoxine also appears to exert an antihypertensive effect through its influence on the sympathetic nervous system, which controls blood pressure.¹³ Vitamin B₆ is water-soluble and safe when taken at fairly high dosages; however, it may be neurotoxic at levels of 200 mg per day when taken for an extended period of time.

• Pantothenic Acid (Vitamin B₅)

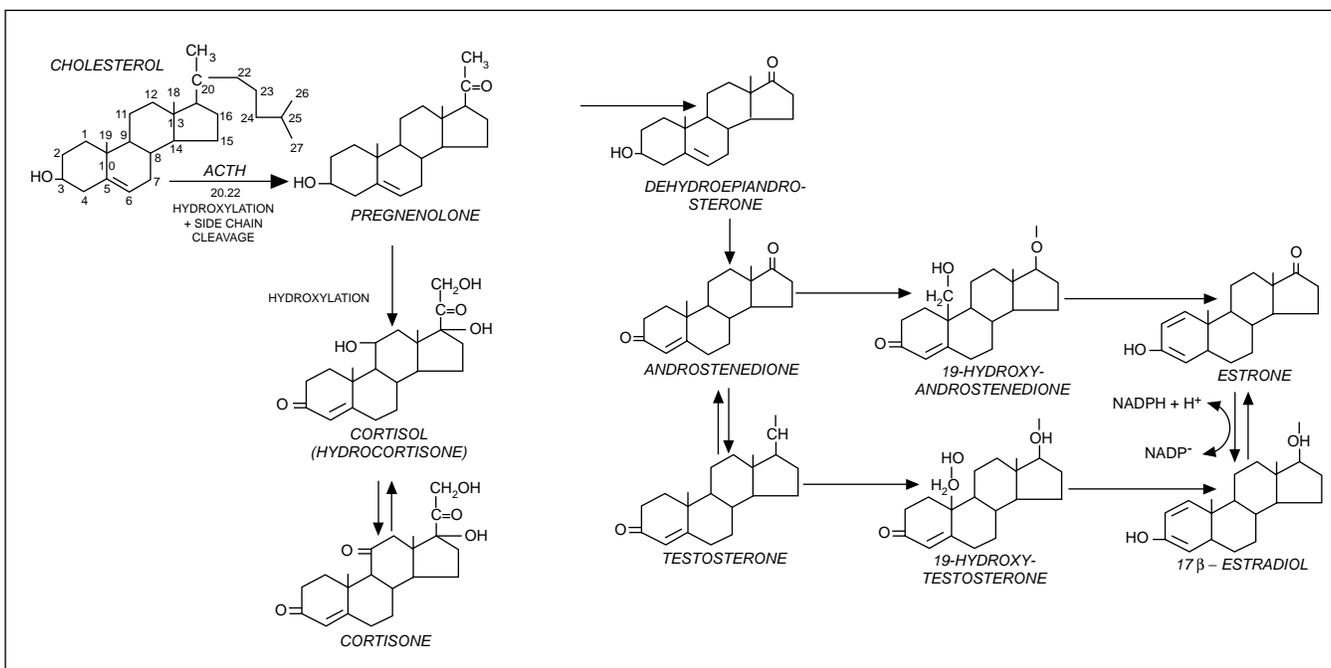
Pantothenic acid is most known for its central role in energy metabolism. It is converted to coenzyme A, an important catalyst in the breakdown of fats, carbohydrates, and protein for energy. While overt deficiencies of pantothenic acid are rare, fatigue is a common presenting symptom associated with marginal deficiencies because of its direct participation in energy production.

Other important functions include fat and cholesterol synthesis, vitamin D formation, red blood cell formation, and the production of sex hormones and stress hormones like cortisol. In addition, it is essential to the synthesis of fatty acids and to their incorporation into membrane phospholipids, which is fundamental to the structural integrity of all cell membranes.¹⁴

• PABA

It has been observed since the 1940s that PABA (para-aminobenzoic acid) may exert a sparing action on certain fat-soluble hormones, including estrogen and cortisone, perhaps by blocking a number of hepatic oxidases.^{15,16} When administered orally from 300 to 600 mg per day, PABA appeared in some patients to stimulate appetite, increase sexual interest (libido), and improve certain asthmatic symptoms.¹⁵ Interestingly, this early research on PABA was prompted by efforts to increase the

Table 3. Biosynthesis of Androgens, Estrogens, and Cortisone



circulating life of pharmaceutical corticosteroids as a means to reduce required dosages and thereby minimize side effects. PABA may be considered capable of modifying estrogen metabolism; however, research in this area is limited.

- **Vitamin E**

Vitamin E is best known for its role as an antioxidant and for its ability to support cardiovascular health. As an antioxidant, vitamin E protects the unsaturated fatty acids in cell membranes from lipid peroxidation caused by free radicals.¹⁴ Vitamin E may also prevent the oxidation of cholesterol and LDL; the oxidized forms of these fats is thought to be a critical step in the development of atherosclerotic plaques.⁹ Some evidence suggests that supplemental vitamin E may help to increase vitamin E levels in LDL, increase the resistance of LDL to oxidation, and decrease the actual rate of LDL oxidation.¹⁷ Another mechanism by which vitamin E may be cardioprotective is via improved blood circulation and eicosanoid modulation; vitamin E may help to reduce the formation of thromboxane A₂, which is known to stimulate platelet aggregation.⁹ In addition, supplementation with vitamin E is often reported to help relieve menopausal vasomotor symptoms such as flushing and hot flashes, although the mechanism has not been firmly established.^{18,19}

- **Vitamin C**

Vitamin C intake becomes especially important for women approaching menopause. The physical and emotional stress alone greatly increases the need for vitamin C because stress triggers the synthesis and secretion of adrenaline which is vitamin C dependent.⁹ Prolonged activation of the stress response can deplete tissues of vitamin C, which in turn suppresses immune response.

Additionally, vitamin C may help to reduce the risk of mortality from both heart disease and cancer.^{9,14} Numerous epidemiologic studies suggest that a diet that is high in vitamin C may help to protect against cardiovascular disease by acting as an antioxidant, by strengthening the collagen structures of the arteries and other blood vessels, and possibly by favorably affecting blood lipid levels.¹⁴ Vitamin C may help to protect against cancer through its involvement in carcinogen detoxification via antioxidant and free radical scavenging activity, drug metabolizing enzymes, and its role in enhancing immune response.¹⁴

- **Bioflavonoids**

Bioflavonoids are bioactive compounds found throughout the plant kingdom. Thousands of different bioflavonoids have been identified and their biologic activity can vary greatly. Bioflavonoids, such as rutin, hesperidin, and quercetin, are well-known for their antioxidant and anti-inflammatory properties, and their ability to help maintain healthy capillary integrity. Additionally, certain bioflavonoids, such as quercetin, have been shown to bind to type II estrogen binding sites and, as such, inhibited the growth of human ovarian cancer cell lines *in vitro*.²⁰⁻²² Rutin and its semi-synthetic form, hydroxyrutin, are known to contribute to cardiovascular health by supporting the peripheral vascular system and capillary integrity.

Bioflavonoids are often associated with vitamin C, undoubtedly because vitamin C and several bioactive bioflavonoids are present together in foods; citrus fruits are a good example. Some evidence suggests that bioflavonoids may help to improve the absorption of vitamin C.²³ Bioflavonoids are commonly given in combination with vitamin C to help relieve menopausal hot flashes.¹⁸

- **Calcium and Other Bone-Supporting Nutrients**

A substantial amount of evidence indicates that adequate calcium intake helps to prevent the excessive bone loss that is associated with osteoporosis. In one well-known study, Reid et al. reported a 43% reduction in bone loss in postmenopausal women who supplemented their regular diets with 1,000 mg of calcium for two years compared to postmenopausal women receiving placebos.²⁴

In addition to calcium, vitamin D is also recognized as an important player in the maintenance of bone health. Other nutrients, such as magnesium and the trace minerals zinc, copper, and manganese appear to be important as well. Emerging evidence further suggests that the trace mineral boron may help to maintain bone health by increasing circulating levels of estrogen. In one study, boron supplementation (3 mg/day) was shown to significantly reduce urinary calcium loss and increase the concentrations of circulating estrogen (and testosterone) in postmenopausal women who were previously placed on a low boron diet (0.25 mcg/g).^{25,26}

- **Soy Foods and Flax Seed**

One of the best dietary recommendations health care practitioners can make to female patients is for them to consume soy (*Glycine max*) foods and flax seed (*Linum usitatissimum*). Soybeans are rich in phytoestrogens known as isoflavonoid glycosides. These plant compounds are converted by intestinal bacteria to hormone-like substances possessing weak estrogenic activity. Research suggests that soy isoflavones occupy estrogen binding sites thereby influencing estrogen metabolism.²⁷ In this respect, phytoestrogens appear to possess both estrogenic activity (agonist) and anti-estrogenic (antagonist) activity, providing somewhat of a balancing effect. In Asian cultures where soy foods are regularly consumed, menopausal discomfort is virtually unheard of. Asian women are also far less prone to breast cancer and heart disease. Daidzein, which is one of the more active isoflavones found in soy, has recently been shown to act as an antioxidant and may help to reduce oxidation of LDL cholesterol. A recent study found that individuals who ate 17 to 25 grams per day of soy protein reduced their serum cholesterol 9.3%, reduced serum LDL 12.9%, and reduced serum triglycerides by 10%, while HDL levels were unaffected.²⁸

Flax seed contains a class of phytoestrogens known as lignans which, similar to soy, are acted upon by colonic bacteria to produce the two major mammalian lignans, enterodiol and enterolactone. Both enterodiol and enterolactone are structurally similar to estrogen and produce weak estrogenic and antiestrogenic activities. Their production in the gut may serve to protect against breast cancer in women, presumably by competing with estrogen for estrogen binding sites, thereby inhibiting the enterohepatic recycling of estrogens and harmful environmental (xenobiotic) estrogens.²⁹

At a time in a woman's life when estrogen is such a valued hormone, inhibiting the reabsorption of endogenous estrogen may appear contradictory. However, the natural lowering of ovarian hormones that occurs with age provides the opportunity for toxic chemical mimics of sex hormones (environmental xenoestrogens) to occupy binding sites, and harm healthy reproductive tissues (e.g., breasts, endometrium, ovaries, and the cervix). The introduction of soy products and fresh flax seed meal provide a beneficial antagonism to xenoestrogens while

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simultaneously acting as weak “positive” estrogen. Any increased endogenous estrogen loss may be compensated for by the weak estrogenic effects of these two widely available foods.

The best way to consume isoflavonoid glycosides from soy, and lignans from flax seed, is by eating them as complete foods on a regular basis because they are rapidly degraded, whereas xenoestrogens persist in the body for decades.³⁰ In addition to isoflavones and lignans, there are many other naturally occurring constituents found in these foods, like fiber and essential fatty acids, that promote health and may act synergistically to balance hormonal effects.³¹

MENOPAUSE AND HERBS — A TIME-HONORED TRADITION

The systems of complementary medicine most similar to modern Western medicine are the medical traditions of ancient Greece, Rome, and medieval Europe. Centuries later, these therapeutic systems were combined with the folk traditions of Europe, the British Isles, and Native North Americans by the physicians and midwives who settled America. During the first 200 years (circa 1620-1820) after the settlement of the New World, the principle form of medicine was herb-based. As contemporary international researchers explore the healing properties of plants as new sources of drugs, active principles continue to be identified that account for their traditional uses. This is especially true in the area of women’s health and menopause.

The phytoestrogen and hormone precursor activities of soy beans and flax seeds are represented throughout the plant kingdom. It appears that the traditional use of specific herbs such as black cohosh root/rhizome (*Cimicifuga racemosa*), chaste tree berry (*Vitex agnus castus*), wild yam rhizome/root (*Dioscorea villosa*) and licorice root (*Glycyrrhiza uralensis* or *G. glabra*) are rich sources of these hormone-like substances.³²⁻³⁸

• Black Cohosh

Black cohosh, which is one of the more popular herbs used today in Europe to treat a variety of female health problems, is actually an herb native to North America.³⁵⁻³⁹ Black cohosh was widely used by native Americans to help relieve female complaints.^{35,36} In attempts to understand the mechanisms underlying the action of black cohosh roots and rhizomes, animal studies have shown that they contain constituents with endocrine activity. Several studies have demonstrated the ability of extracts to bind to estrogen receptors on the uterus and to reduce serum levels of luteinizing hormone.^{40,41} Several of the herb’s constituents thought to contribute to its endocrine activity are the isoflavone formononetin, and the triterpenes, actein and cimicifugoside.⁴²

In addition, the application of black cohosh extends beyond its use for the management of female complaints and is attributed to the entire root, not just one or a few constituents. Black cohosh has traditionally been used as a relaxant, sedative, and antispasmodic.³⁸ The traditional process of boiling the roots in water, known as a decoction, releases the activity by concentrating a broad spectrum of the plant actives.⁴³ The German Commission E, a German government agency responsible for the registration of plants with traditionally and clinically established health benefits, recognizes extracts of black cohosh to be effective in PMS, dysmenorrhea and nervousness associated with menopause.^{35,36,38}

• Chaste Tree Berry

Chaste tree berry is another herb that is widely used today in Europe for the treatment of several female complaints such as PMS, dysmenorrhea, and menopause.^{35,36} Traditional use dates back to ancient Greece and medieval Europe. Chaste tree is sometimes said to have an amphoteric effect, or two opposing actions. As an example, women of ancient Mediterranean regions used it as an aphrodisiac and to promote fertility. Medieval European monks, on the other hand, sprinkled the seeds on their food to help them maintain their vows of chastity.^{35,36}

Evidence suggests that chaste tree berries possess dopaminergic properties that inhibit the secretion of the peptide hormone prolactin. Relative increases in circulating prolactin have been linked to breast soreness, fibrocystic breast syndrome, water retention, and depression associated with PMS. Elevated levels of prolactin decrease the life and action of the corpus luteum, thus decreasing the production of progesterone.⁴³ This is consistent with research that suggests that chaste tree berry may have a progesterogenic effect.⁴²

Improving the levels of progesterone may be especially useful during perimenopause when menstrual irregularities are likely to occur. Furthermore, progesterone exerts an antiproliferative protective effect on breast tissue that appears to antagonize the proliferative effects of excess levels of circulating estrogens, thereby reducing breast cancer risk.⁴⁶ Research suggests that the increased risk for breast cancer occurs in women who produce low levels of progesterone relative to estrogen throughout their reproductive years. Normal progesterone levels in the presence of elevated estrogen, despite the proliferative influence of estrogens, does not pose a significant risk to reproductive cancers. The use of combination estrogen and progesterone compounds for hormone replacement therapy is based on the protective influence of progesterone. Chaste tree berries may possess the ability to prolong progesterone’s positive effects throughout the menopausal phase.

• Wild Yam

Dioscorea villosa is the only wild species of the yam family to be found in the United States. Other members are found in South and Central America. Native North Americans used decoctions of the rhizomes and roots to relieve the pain of childbirth and cramps; hence, the name colic root.^{34,43} Early 19th century physicians used wild yam as an antispasmodic more than a pain reliever. More recently, yams (*Dioscorea composita* and *D. mexicana*) were discovered to contain saponins, specifically, diosgenin, a precursor to progesterone when intentionally manipulated in a laboratory.^{34,39} Diosgenin is a raw material used in the manufacture of natural oral contraceptive agents.³⁸

While the human body is incapable of transforming diosgenin to progesterone, yams appear to exert a hormonal influence when taken orally that is similar to estrogen. Ancient Chinese herbal formulas that address the discomforts of menopause include yam (*Dioscorea opposita*) for its nourishing, moisturizing, and cooling effects.^{32,33} In an effort to confirm the observation of traditional herbalists, current research has focused on the possible estrogenic effects of diosgenin using animal models. Female rats demonstrated an increase in uterine weight, vaginal opening, and vaginal cell proliferation. Ovariectomized mice demonstrated growth of mammary tissue when injected with diosgenin.³⁴

- **Licorice**

Licorice is an herb of great versatility. Some of the traditional uses of licorice include the following: 1) soothing or demulcent to mucus membranes throughout the gastrointestinal tract and lungs, 2) expectorant, 3) anti-inflammatory, 4) thirst quenching, and 5) antibiotic, depending where the plant was traditionally used (i.e., Europe, Greece, China, India, North America).^{35,36,38,39,47}

The constituent glycyrrhizin yields glycyrrhetic acid which possesses a similar structure to the hormones of the adrenal cortex. This may explain why licorice demonstrates anti-inflammatory actions similar to cortisone. Traditionally, licorice is known as the “great harmonizer.” It is frequently added to mixed botanical preparations in Chinese medicine based on its ability to harmonize the other herbs in the formula, promote digestion, and support detoxification.

Recent studies demonstrate licorice may help to normalize cholesterol synthesis and bile flow, which is important to cardiovascular health and the assimilation of fat soluble vitamins (A, carotenoids, D, E and K) and fatty acids.^{35,36,38,39,47} In light of the recent connection between the possibility of declining adrenal function (adrenopause) and menopausal symptoms, licorice may provide special benefit, especially as part of a mix of herbs designed to balance female hormones. Indeed, traditionally, licorice is a staple in women’s formulas.^{32,33}

Caution is advised when supplementing licorice root as a single herb unless the plant is standardized to a known percentage of glycyrrhizin. Glycyrrhizin, when taken at levels exceeding 400-600 mg daily for 4-6 weeks, may produce symptoms of hypertension. Glycyrrhetic acid inhibits 15-hydroxyprostaglandin dehydrogenase and delta 13–prostaglandin reductase, two enzymes important in the metabolism of prostaglandin E and F_{2α}. This inhibition, while important to healing peptic ulcers, also inhibits 11 beta-hydroxysteroid dehydrogenase, causing increases in glucocorticoid concentrations in mineral corticoid-responsive tissue. This results in increased sodium retention, loss of potassium, and high blood pressure.^{35,36,47} This potential problem is insignificant when licorice root is included as one of several ingredients in a mixture of herbs.

- **Complementary Herbs**

Herbal strategies used in managing the complaints and health risks associated with menopause should also include plants that support the nervous and cardiovascular systems as well as liver function. Selected botanicals that support the liver find their way into most traditional herbal combinations because of the significant role the liver is assumed to play in energy production and detoxification processes. In traditional systems of natural medicine, an optimally functioning liver is considered integral to physical and mental health. Gentian root (*Gentiana scabra* or *G. lutea*), for example, supports liver function in both traditional European and Chinese medicine by promoting the flow of bile and facilitating the process of detoxification.^{32,33,35,36,47} Current research identifies gentian as possessing anti-inflammatory properties,³⁸ making it useful for aches and pains that often accompany the decline in estrogen and progesterone.

Additional herbs to consider are those with mild sedative activity. Women who experience insomnia, tension, or anxiety with menopause may find some relief with herbs such as valerian root (*Valeriana officinalis*) or motherwort herb (*Leonurus cardiaca*).^{35,36,38,39,44,47} Traditionally, motherwort was observed to not only calm but nourish and strengthen the woman whose physical reserves had been exhausted through multiple childbirth, famine, or illness.^{38,39,44,47} Valerian relaxes without the side effects of prescription tranquilizers.^{35,36,38}

- **Traditional Chinese Herbal Medicines**

According to traditional Chinese medical theory, every man and woman is born with a predetermined amount of vital force, known as ch’i or genetic potential. Health and longevity are based on observing the principles of balance and moderation which are presumed to protect inherited ch’i, thereby preventing its premature exhaustion. The entire system of traditional Chinese medicine (TCM) is dedicated to the recognition of subtle physical disharmonies and the restoration of energy balance even in the face of biological aging. From a TCM perspective, menopausal complaints occur at a time in a woman’s life when the natural loss of inherited vital force (decline in kidney *Jing*) is generally accelerated by an abusive lifestyle. Decline of kidney *Jing* appears synonymous with diminishing levels of adrenal sex hormones and ovarian estrogen, progesterone, and testosterone. The menopausal phenomenon described in both the Chinese and Western medical systems are similar.

For thousands of years, traditional Chinese herbalists have gathered information on how specific botanicals can be used to protect against accelerated aging, support and moisturize reproductive tissues, strengthen the body, and control hot flashes and night sweats. A traditional herbal prescription for mid-life would generally contain some plants that promote moisture and others that support the assimilation of food (digestion) and its transformation into cellular energy, a primary source of vital force or ch’i. Maintaining a healthy appetite and digestive process is essential to providing the body with the nutrients necessary to repair and defend itself.

Some well known botanicals that possess the attributes to sustain, nourish, and moisturize are the roots of dong quai (*Angelica sinensis*), rehmannia (*Rehmannia glutinosa*), and peony (*Paeonia lactiflora*), and atractylodes rhizome (*Atractylodes macrocephala*). Whereas the roots of codonopsis (*Codonopsis pilosula*), ginseng (*Panax ginseng*), ligusticum (*Ligusticum wallichii*), and licorice (*Glycyrrhiza uralensis*) stimulate digestion, assimilation, and the circulation of blood, invigorating the entire system.^{32,33} Traditional use of these herbs continues throughout the world for the management of menopause, while researchers investigate the chemistry underlying each herb’s ability to perform as described in ancient texts.⁴⁸

Table 4: Menopause and Selected Botanicals^{32,33,37-39,43,44,47-49}

Common Name (Botanical name)	Country of Origin	Traditional Use	Some Active Constituents
Chasteberry fruit (<i>Vitex agnus castus</i>)	Europe	Control and regulation of female reproductive system	Monoterpene: agnuside, eurosoid, aucubin; flavonoids: vitexin
Licorice root (<i>Glycyrrhiza uralensis</i>)	China, North America, Europe	Demulcent, expectorant, anti-inflammatory, spasmolytic	Triterpenoid saponin: glycyrrhizin, Flavonoids: liquiritin, quercetin
Black cohosh root (<i>Cimicifuga racemosa</i>)	North America	Female complaints associated with menopause and menses	Triterpenoid glycosides, isoflavones, formononetin
Chinese gentian root (<i>Gentiana scabra</i>)	China	Decongests the liver and gall-bladder channels, detoxifier	Gentianine, gentiopicroin gentisic acid, minerals
Dong quai root (<i>Angelica sinensis</i>)	China	Antianemic, regulates menses, smooth muscle relaxant	Vitamin B ₁₂ , ferulic acid, ligustilide, folic acid, choline, iron
Peony root (<i>Paeonia lactiflora</i>)	China	Antimicrobial, astringent, anti-inflammatory	Monoterpene glycosides: paeoniflorin, benzoylpaeoniflorin; sterols
Motherwort herb (<i>Leonurus cardiaca</i>)	Europe	Tonic, antispasmodic, nervine	Alkaloids: leonurinine; Bitter glycosides: leonurine, tannins, vitamin A
Valerian root (<i>Valeriana officinalis</i>)	Europe, Northern Asia	Nervine, antispasmodic, carminative	Iridoids: valepotriates, terpenes, B vitamins, minerals
Wild yam rhizome, root (<i>Dioscorea villosa</i>)	North America	Antispasmodic, antirheumatic, female complaints, pregnancy	Steroidal saponins: diosgenin, vitamins, minerals, *NF 1916-42
Codonopsis root (<i>Codonopsis pilosula</i>)	China	Strengthens the ch'i, nourishes the fluids, improves digestion	Phytosterols, triterpenes, saponins, polysaccharides
Rehmannia root, prepared (<i>Rehmannia glutinosa</i>)	China	Clears heat, cools blood, replenishes exhausted reserves, generates fluids	Sterol, campesterol, catalpol, rehmannin, some alkaloids

* National Formulary

NUTRITIONAL SUPPORT GUIDELINES FOR MENOPAUSE

• Vitamins and Minerals

- **Vitamin B₅ (pantothenic acid):** support for sex hormone and stress hormone metabolism via cholesterol synthesis in the liver, involved in memory and brain function.¹⁴
- **Vitamin B₆ (pyridoxine):** supports the adrenals, also helps symptoms associated with bloating and water retention.
- **B Complex:** in general, helps to ease stress-related fatigue.
- **PABA:** may decrease hepatic inactivation of estrogen, possibly by blocking hepatic oxidases; may increase the half-life of corticosteroids.
- **Vitamin C:** support for the adrenals; supports liver and immune function; helps to protect against free radical damage; supports cardiovascular health and offers cancer protective benefits.
- **Bioflavonoids:** support capillary integrity; provide antioxidant support.
- **Vitamin E:** helps to relieve hot flashes; supports cardiovascular health.
- **Calcium:** supports bone health, helping to reduce the risk of osteoporosis.
- **Magnesium:** supports muscle relaxation; supports cardiovascular health and bone health.
- **Boron:** may increase sex hormone levels and may play a role in maintaining bone health.

• Additional Support

- **Soy foods:** rich in phytoestrogens; may help to lessen menopausal discomfort; may help to protect against cardiovascular disease, breast cancer, and osteoporosis.
- **Flax seeds:** components contribute to cardiovascular health and the control of inflammatory processes; contain high levels of lignan phytoestrogens, soluble fiber, and an essential fat, alpha-linolenic acid (ALA) which participates as a precursor to both omega-3 and omega-6 fatty acids.

• Other Lifestyle or Dietary Considerations

- Reduce stress – stress is associated with an increased risk for heart disease and reduced immune response.
- Reduce or eliminate the use of stimulants, such as coffee and nicotine – both caffeine and nicotine are known to negatively affect bone health (cigarette smoking is also a major risk factor for heart disease and lung cancer).
- Reduce or eliminate alcohol – excessive consumption can negatively affect bone health.
- Reduce animal fat and animal protein intake, substitute soy protein.
- Increase fiber intake – fiber helps to lower the risk of heart disease and cancer.

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