Menopause refers to the day in a woman’s life that marks the passing of one year without menstruation. The period of time preceding that day is termed perimenopause. Everything after that day is considered postmenopause. For practical purposes, however, in most cases, these three phases will be collectively referred to as menopause.

Every woman is born with a certain number of eggs that are released regularly from the ovaries during the childbearing years. This is known as ovulation, and is regulated by a number of hormones. The first day of menstruation marks the first day of the menstrual cycle, and the beginning of the follicular phase. This is when follicle-stimulating hormone (FSH) is secreted by the pituitary gland. The pituitary gland controls the endocrine system. FSH triggers the release of estrogen from the ovaries. Estrogen levels begin to rise until the pituitary gland secretes luteinizing hormone (LH) approximately 12 days later, marking the beginning of the luteal phase. LH prompts ovulation, or the release of an egg from one of the ovaries. The ovaries then begin to secrete progesterone which prevents another egg from being released. If the released egg is not fertilized, the uterus sheds its lining, composed of blood and uterine cells. Thus, menstruation begins. At this time, estrogen and progesterone levels decrease and the cycle starts again.

Menopause usually begins when the ovaries reduce the production of estrogen and progesterone. During this time, these hormones fluctuate and are often imbalanced. This results in irregular periods. Ovulation is not as likely though menstruation still occurs. Menstruation varies for each woman, but in general the time between menstrual periods becomes greater until they cease altogether.

Estrogen dominance refers to either an excess of estrogen or a deficiency in progesterone. Progesterone levels balance estrogen levels, and when there is not enough progesterone or if there is too much estrogen, estrogen dominance occurs.

There are three main types of menopause: natural menopause, premature menopause and artificial menopause. Natural menopause begins between the ages of 45 and 55, and usually lasts from five to 10 years, but can last as many as 13 years. Premature menopause occurs in women in their 30s and early 40s, and usually lasts between one and three years. Artificial menopause occurs rapidly, and is the result of a medical treatment such as hysterectomy, radiation, chemotherapy, or certain medications.

The onset of menopause varies between age 45 and 55. The following factors can influence an earlier menopause:

- Lack of childbirth
- Medically treated depression
- Toxic chemicals
- Pelvic radiation in childhood
- Epilepsy

Did You Know

Before the 20th century, most women did not even live long enough to reach menopause. Even in the early 1900s the life expectancy for women in the U.S. was only 45 – 55.
Late-onset menopause can be influenced by these factors:

- More than one pregnancy
- Fibroids
- High BMI
- Premenstrual syndrome

What Causes It?

For many women, hormone levels are irregular during menopause, which is the underlying cause of menopause symptoms. There are other contributing factors that also play a role. These include:

- Thyroid dysfunction
- Adrenal dysfunction
- Stress
- Xenoestrogens
- Overweight
- Insulin resistance
- Nutritional deficiency
- Digestive conditions
- Liver dysfunction
- Dysbiosis
- Candida overgrowth
- Lack of dietary fiber

Thyroid dysfunction can affect hormone balance, and conversely, hormone imbalance can affect thyroid function because the thyroid, like the ovaries, is regulated by the pituitary gland. There is a close interaction between the hormones regulated by this gland; when one hormone is imbalanced, it often affects the others. Additionally, many symptoms of thyroid dysfunction are similar to those of menopause, so it is important to consider both thyroid function and hormonal balance when evaluating menopause.

Similar to the thyroid and ovaries, the adrenals are also regulated by the pituitary, so an imbalance in the adrenals can likewise affect the sex hormones involved in menopause. The adrenals produce the stress hormones epinephrine (adrenaline) and norepinephrine (noradrenaline), cortisol and DHEA. When the adrenals become fatigued, as is seen with chronic stress, the amounts of stress hormones become imbalanced, and can negatively affect other hormones secreted by the pituitary.

Therefore, it is important to alleviate stress during menopause.

Estrogen dominance can occur from exposure to xenoestrogens, which are chemicals that mimic estrogen in the body. Xenoestrogens are ubiquitous in the environment. When possible, they should be avoided. Common sources of xenoestrogens include:

- Pesticides, herbicides and fungicides
- Car exhaust
- Solvents and adhesives (nail polish, glue)
- Soaps and cosmetics
- Dry cleaning chemicals
- Nearly all plastics (bisphenol A (BPA), phthalates)
- Meat from hormone fed animals
- Waste from sewage treatment plants

Both insulin resistance (which occurs in type 2 diabetes and metabolic syndrome) and overweight contribute to increased estrogen levels. Obesity and overweight are a huge problem in this country. In 2008, only one state had an obesity rate under 20 percent (Colorado), and 32 states had an obesity rate at or above 25 percent.

Since hormones are made from the foods and nutrients obtained through the diet, if the diet does not provide an adequate amount of these nutrients, it can influence hormone balance. Essential amino acids, essential fatty acids, vitamins and minerals are all required for the
production of hormones. Digestive conditions that interfere with the absorption of nutrients put women at risk of having a hormone imbalance. Low gastric acidity, food allergies and sensitivities, and inflammatory conditions, such as irritable bowel syndrome (IBS), and inflammatory bowel disease (IBD), impair the integrity of the gut lining. Repairing gut function is the first step in dealing with hormone imbalance.

Liver dysfunction can contribute to estrogen dominance and vice versa. In estrogen dominance, a woman can have low or high estrogen levels, and progesterone levels are not enough to balance the estrogen. When the liver does not function optimally, it is not able to excrete excess estrogen and xenoestrogens, resulting in a buildup of recirculating estrogen in the body. Excess estrogen also slows bile flow, which is produced in the liver and facilitates the excretion of toxins and excess estrogen. Another contributor to increased recirculated estrogen is dysbiosis, or an imbalance of intestinal bacteria. When the intestinal bacteria are not balanced, that is, the beneficial bacteria do not greatly outnumber the pathogenic, production of the bacterial enzyme beta-glucuronidase is increased by the pathogenic bacteria. This often occurs when meat is not properly digested. The enzyme specifically breaks the conjugating bond (created in the liver) between the glucuronide carrier molecule and the estrogens that are meant to be excreted by the colon. This occurs with both conjugated natural estrogens and conjugated xenoestrogens. When this bond is broken, the natural estrogens and estrogen toxins can be reabsorbed instead of excreted with feces. Maintaining a healthy population of good probiotic bacteria in the gut reduces the surplus estrogen recirculation.

Candida overgrowth also increases beta-glucuronidase, and may be an underlying factor in hormone imbalance. This may be especially prevalent in women who experience frequent vaginal yeast infections.

Similarly, dietary fiber contributes to the elimination of excessive estrogen by binding with recirculating estrogen and xenoestrogens in the gut. It then carries the excess out with feces preventing it from being reabsorbed. This is one valuable role that fiber plays.

**What Are the Signs and Symptoms?**

The symptoms of menopause are many. The following are commonly reported:

- Acne
- Allergies
- Bloating
- Blood sugar imbalances
- Breast tenderness
- Depression
- Facial hair
- Fatigue
- Fibrocystic breasts
- Food sensitivities
- Cognitive decline
- Hair thinning or loss
- Headache
- Hot flashes
- Insomnia
- Irritability
- Joint and back pain
- Loss of sexual desire
- Menstrual irregularities
- Memory loss
- Mood swings
- Night sweats
- Panic attacks
- Skin aging
- Urinary frequency
- Urinary incontinence
- Uterine fibroids
- Vaginal dryness
- Weight gain
Of these, the most common are menstrual irregularities, hot flashes and night sweats, insomnia, headache, loss of sexual interest, vaginal dryness and urinary problems.

**How Is It Diagnosed?**

The standard tests for measuring hormone imbalance measure follicle-stimulating hormone (FSH) and luteinizing hormone (LH). Testing for these alone, however, may not be accurate, as they fluctuate during menopause, and do not indicate actual sex hormone levels. Testing the three estrogens, progesterone and testosterone will give a more accurate picture of hormone levels.

There are three ways that hormone levels can be measured: by blood test, saliva test or urine test. Blood tests measure hormone levels in the bound and unbound (free and more bioavailable) form, while saliva tests just measure hormone levels in their free, or unbound form. Urine tests measure hormones and/or hormone metabolites (break-down products).

Due to the interaction of the sex hormones with the thyroid and adrenals, it may be prudent to also test thyroid and adrenal hormone levels. In fact, up to 26 percent of women of perimenopause age are diagnosed as hypothyroid. Imbalanced thyroid levels can affect the sex hormones and vice versa.

Timing of these tests is critical due to the fluctuation of hormone levels during the menstrual cycle. A health care practitioner will be able to determine the best times for testing depending on what test is used and the stage of menopause.

**What Are the Standard Medical Treatments?**

Hormone replacement therapy (HRT) is the term most known for the treatment of menopause symptoms. However, the National Institute of Health has officially changed this term to menopausal hormone therapy. Synthetic hormones are the standard medication for treatment of the symptoms of menopause. Women with a uterus are given both synthetic estrogen and synthetic progesterone. In women who’ve had a hysterectomy, synthetic estrogen is the standard treatment for menopause symptoms.

There are four types of both estrogen and progesterone hormones:
- Synthetic hormones
- Animal-derived hormones
- Bioidentical hormones
- Plant hormones

Synthetic hormones are made to resemble the natural hormones that occur in the body, but they must be modified enough so that the molecule may be patented (and thus, profitable). But these synthetic molecules work differently in the body than do natural hormones and bioidentical hormones.

Synthetic progesterone is known as progestin. Progestin is a version of progesterone that is not bioidentical to the hormone that naturally occurs in the body. Progestin is prescribed in combination with estrogen to women who have not had a hysterectomy. The most common progestin is medroxyprogesterone (Provera).

Animal-derived estrogen (Premarin) is a conjugated equine estrogen made from the urine of pregnant horses. The metabolites (break-down products) of this synthetic estrogen are actually stronger than the original hormone, and have been found to have carcinogenic effects.

Synthetic hormone medications were also once promoted as useful for the prevention of chronic diseases such as heart disease and osteoporosis. With heart disease being the number one cause of death in women, this made the medications that much more appealing. But in 2002,
everything changed for women taking these hormones. The Women’s Health Initiative, which is a long-term study evaluating different prevention methods for conditions including heart disease, breast and colorectal cancer, and bone fracture in women, halted a trial that involved the use of animal-derived estrogen and synthetic progestin for the prevention of heart disease. Participants who received these hormones were found to actually have an increased risk of heart disease, stroke, pulmonary embolism and breast cancer. This resulted in widespread discontinuation of women taking these hormone replacements.

In a 2008 follow-up to this study, women who had discontinued treatment three years prior were found to be at increased risk for the development of stroke, blood clots and cancer. As a result, the standard recommendation has been scaled back to treating menopause symptoms with the lowest possible dose of these hormones for the shortest possible duration.

Natural hormone therapy with bioidentical hormones has received much interest, especially after the results of the Women’s Health Initiative studies. Bioidentical hormones are the exact matches of the natural hormones that the body produces, and they act in the same way as the body’s hormones for this reason. After a health practitioner analyzes hormone levels through testing, the individual will take progesterone either alone or with estrogen. Taking estrogen alone is not recommended.

There are three forms of estrogen: estrone (E1), estradiol (E2) and estriol (E3). Estradiol is the most plentiful, estradiol is the strongest and converts into estrone. Estrone further metabolizes into 2-, 4- or 16-hydroxyestrone. Excessive amounts of 4- or 16-hydroxyestrone have been associated with increased risk of breast cancer.

These bioidentical hormones are available in a variety of forms: capsules, sublingual tablets, liquid, creams, ointments, suppositories and nasal sprays. These can all be made in a compounding pharmacy as a prescription. Low-dose progesterone cream is available over the counter. The three forms of estrogen are usually compounded to resemble the ratios that occur naturally in the body. Tri-estrogen is a mixture of all three: estrone, estradiol and estriol. Bi-estrogen is a mixture of only estradiol and estriol, and may be used because the body, when functioning correctly, will make estrone out of estradiol.

Bioidentical hormones have been found to be a much safer alternative than synthetic hormones as well as more effective. Even at low doses, synthetic hormones still pose a health risk, and are likely not any safer than the original higher doses.

Through testing, other bioidentical hormones that may be indicated are DHEA and testosterone. These are important hormones that are often overlooked when assessing total hormone balance. Low DHEA levels can interfere with energy level, immune function, stress response and sex drive. Testosterone may be low in women who have had a total hysterectomy. These two hormones play an important role in overall hormone balance and should always be evaluated along with estrogen and progesterone.

There are two different methods of administering hormones in menopausal women. One is in a static dose that does not change throughout the month. The other method is cyclical, in which the amounts and hormones are given in a way that reflects the natural hormone cycling of the menstrual cycle, resulting in prolonged menstruation.

The monitoring of hormone levels throughout treatment is important, as levels can fluctuate, especially when first administered, and during times of stress. If symptoms return, it is often a sign that hormone levels are imbalanced again and testing is necessary to rebalance them.

Natural plant hormones come directly from plant sources and are available as supplements. Plant estrogens are known as phytoestrogens. Common phytoestrogens are soy isoflavones, black cohosh and lignans. Plant-based progesterones come from chasteberry and wild yam.
As with many other conditions, the gut-menopause connection may be less direct. This is what can happen: chronic intestinal dysbiosis, causing leaky gut syndrome, can upregulate the GALT (gut-associated lymphoid tissue) to release pro-inflammatory cytokines, like IL-6, IL-1, and TNF-alpha, which can lead to chronic low-grade inflammation. These proteins in the blood cause further inflammation eventually affecting all parts of the body, including the female reproductive tract.

Let’s look at a similar situation and what happens in the ovary. In its normal function, the ovary uses and must have oxidative bursts from the ovum (egg) for it to be released from the ovary. Like a rocket leaving the launch pad, the surrounding area will be scorched, which can lead to chronic problems. Here again, everything is a question of balance. Too little antioxidants and too much oxidation will create the problem. Where should we get our antioxidants? Organic vegetables, fruits, sprouted grains and legumes should be staples of our diet. One can measure several markers in the blood or urine to determine antioxidant status, which is usually directly proportional to the amount of vegetables and fruits eaten. Please remember, however, that not all oxidative activity is necessarily bad for the body. From what I have pointed out, there would likely be no ovulation without oxidation. There are thousands of important uses of oxidation daily in our body, but it is all a matter of balance.

Research at the Cleveland Clinic in 2005 showed that ovulation-induced oxidative damage to the corpus luteum (which occurs when the monthly ovum leaves the ovary), and damage to the DNA of the ovarian epithelial cells, can both be prevented by antioxidants. What’s more, they pointed out that most ovarian cancers appear in the surface epithelium of the ovary, and it is thought that repetitive ovulation may be the culprit that initiates this problem. In this same article, it was suggested that the overproduction of free radicals modulates the age-related decline in fertility, i.e. early menopause. So the rocket-like ovary, destroying the launch pad cells (the corpus luteum, the main progesterone producer) may not function at all! This creates a huge estrogen/progesterone imbalance leading to horrible premenstrual syndrome and very heavy, painful menses. The other sad tragedy is that, by this same mechanism, there is evidence for free radical damage in endometriosis, tubal pregnancy and unexplained infertility. This only highlights the importance of eating a diet high in fruits and vegetables, which are high in antioxidants.

On the brighter side, I have known clinicians who have reversed early menopause with lifestyle, diet, hydration, supplementation, detoxification, and psychoemotional/spiritual and stress modification.

Hormone balance is important in preventing early menopause and alleviating symptoms of perimenopause and menopause. The proper amount and ratio of LH/FSH and estrogen/progesterone are needed. Obesity, insulin resistance, dysglycemia and sleep disorders lead to imbalanced LH/FSH and estrogen/progesterone, which can lead to anovulatory cycles and the production of inflammatory estrogen metabolites. Appropriate replacement with bioidentical estradiol/estriol and progesterone, both as topical creams, can do wonders for women at this time in their life. It is essential that urinary estrogen metabolites (2/16 and 2/4 estrogen metabolites) be monitored, and the appropriate nutritional/supplement program instituted to ensure there is not an excess of inflammatory estrogen metabolites, which can lead to early menopause or perimenopause.

I believe, in the very near future, it may not be uncommon to have a woman use her own stem cells, either from bone marrow or fat, and have them arteriographically placed into her ovarian arteries, and let’s see what happens to menopause!
In my 40s, I stopped drinking coffee and took vitamin E for fibrocystic breasts. As I became more aware of my health, I began to use progesterone cream for my estrogen dominance. I was able to relieve the fibrocystic breasts with these methods throughout my 40s. At age 48, menopause hit, but I didn’t realize all the effects that it had on me. At 47, for example, I had insomnia (waking up every morning at 4 a.m.), but I didn’t make the connection that it had anything to do with my hormones.

It took me a couple of years to get on top of it, but finally got tested and began taking bioidentical hormones. From there, it took a good year of testing every three months, and making the right modifications before I really found my balance. For me, the hormone DHEA was critical. I was low in DHEA and testosterone, but since DHEA converts to testosterone in most cases, I was able to take high doses of 7-keto DHEA to replenish both testosterone and DHEA.

I also take progesterone and estrogen, all bioidentical hormones, that have helped me feel great at my age. I attribute the estrogen to helping my skin look more youthful. If you have concerns about taking estrogen and the risk of cancer, there is a urine test that looks at estrogen metabolites to help you determine whether you have high levels of the more dangerous form of estrogen.

Finding a doctor who is knowledgeable about bioidentical hormone treatment is the best way to manage menopause. From there, supporting healthy liver function and digestive function is essential to help minimize toxins in the body, which can interfere with hormone function.

**Rule Out:**
- Thyroid dysfunction (See the Thyroid Dysfunction section.)
- Adrenal dysfunction
- Candida overgrowth (See the Candidiasis section.)

**Recommended Testing**
- Saliva, urine or blood hormone testing
- Urine estrogen metabolite test

**Diet**
- Follow the Fiber 35 Eating Plan (see the Appendix), as a high-fiber diet helps to eliminate toxins and promote regular elimination.
- Avoid xenoestrogen chemicals, like bisphenol A (BPA), pesticides and herbicides, which disrupt normal hormone function.

**Lifestyle**
- Exercise daily, include aerobic and weight training exercises.
- Quit smoking, which contributes to menopause symptoms.
- Reduce toxin exposure, especially to endocrine disruptors like bisphenol A (BPA) and phthalates, which can interfere with hormone function.
- Wear loose clothing and dress in layers to be prepared for hot flashes.

**Complementary Mind/Body Therapies**
- Stress can be a major component of this disease, so find ways to reduce it with therapies such as meditation, yoga, deep breathing, massage, biofeedback, or music therapy.
- Acupuncture is also helpful for menopause.
- Colon hydrotherapy is beneficial to help remove toxins.
<table>
<thead>
<tr>
<th>Recommended Nutraceuticals</th>
<th>Dosage</th>
<th>Benefit</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Critical Phase</strong></td>
<td></td>
<td>Daily maintenance recommendations should also be taken during this phase unless otherwise indicated.</td>
<td></td>
</tr>
<tr>
<td>Menopause Formula</td>
<td>Use as directed</td>
<td>Heps reduce the symptoms of menopause.</td>
<td>Formula may contain ingredients such as black cohosh, red clover, dong quai, wild yam, sage, alfalfa or gamma oryzanol.</td>
</tr>
<tr>
<td>Liver Detox</td>
<td>See Appendix</td>
<td>Encourages detoxification involving the liver, helping to remove toxic estrogens.</td>
<td>Should contain milk thistle seed extract containing silymarin, phosphatidylcholine, selenium and herbs.</td>
</tr>
<tr>
<td>Candida Cleanse</td>
<td>See Appendix</td>
<td>Helps eliminate Candida overgrowth.</td>
<td>Look for ingredients such as uva ursi, caprylic acid, undecylenic acid, barberry, garlic, neem, grapefruit and olive leaf extracts.</td>
</tr>
<tr>
<td><strong>Helpful</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vitamin E</td>
<td>400 iu daily</td>
<td>Helps reduce hot flashes.</td>
<td>Use natural d-alpha tocopherol form.</td>
</tr>
<tr>
<td>Progesterone Cream</td>
<td>Use as directed</td>
<td>Balances estrogen dominance.</td>
<td>Consult with health care practitioner before using.</td>
</tr>
<tr>
<td>Bone Formula</td>
<td>Use as directed</td>
<td>Helps to increase bone density important during menopause.</td>
<td>Use a formula that contains calcium, magnesium and vitamin D.</td>
</tr>
<tr>
<td><strong>Maintenance</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fiber</td>
<td>4-5 grams twice daily</td>
<td>Promotes regular elimination and binds toxins.</td>
<td>Look for a formula containing flax, oat bran and acacia.</td>
</tr>
<tr>
<td>Probiotics</td>
<td>30 - 80 billion culture count twice daily</td>
<td>Restores bacterial balance and pH of colon, promotes regularity to remove excess toxins and reduces inflammation.</td>
<td>Look for high amount of bifidobacteria, the main beneficial bacteria in colon.</td>
</tr>
<tr>
<td>Omega Oils</td>
<td>Use as directed</td>
<td>Provides anti-inflammatory GLA and other EFAs to improve menopause symptoms.</td>
<td>Best combination is flax, fish and borage oils.</td>
</tr>
<tr>
<td>Digestive Enzymes with HCl</td>
<td>Take with meals</td>
<td>Helps digest and absorb nutrients from food.</td>
<td>Stomach acid production decreases with age. Use enzymes with HCl.</td>
</tr>
<tr>
<td>Critical Liver Support Formula</td>
<td>Use as directed</td>
<td>Enhances liver detoxification, helping to remove toxic estrogens.</td>
<td>Should include milk thistle seed extract containing silymarin, N-acetyl-cysteine, alpha lipoic acid and L-glutathione.</td>
</tr>
</tbody>
</table>

See further explanation of supplements in the Appendix