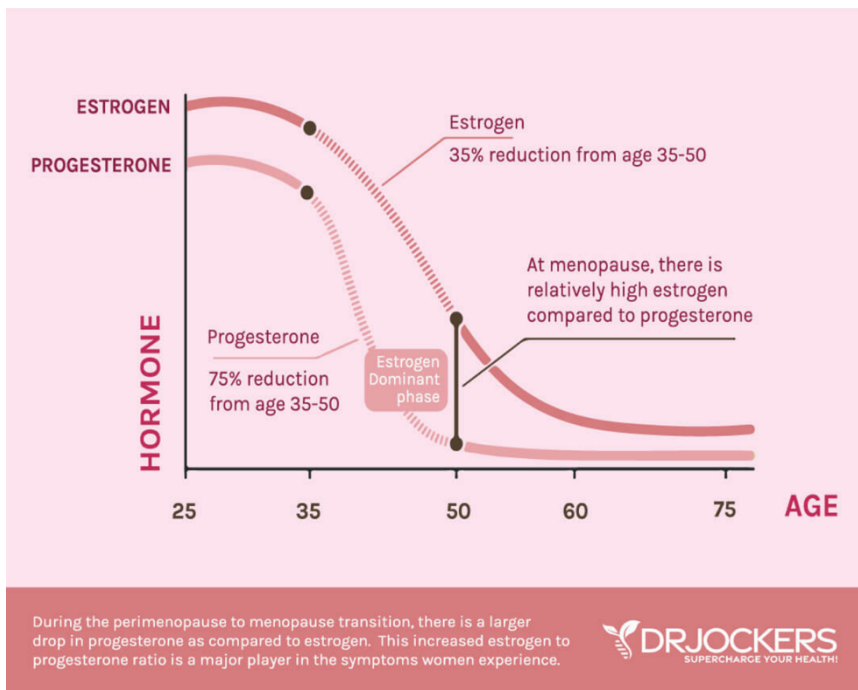


Perimenopause & Menopause

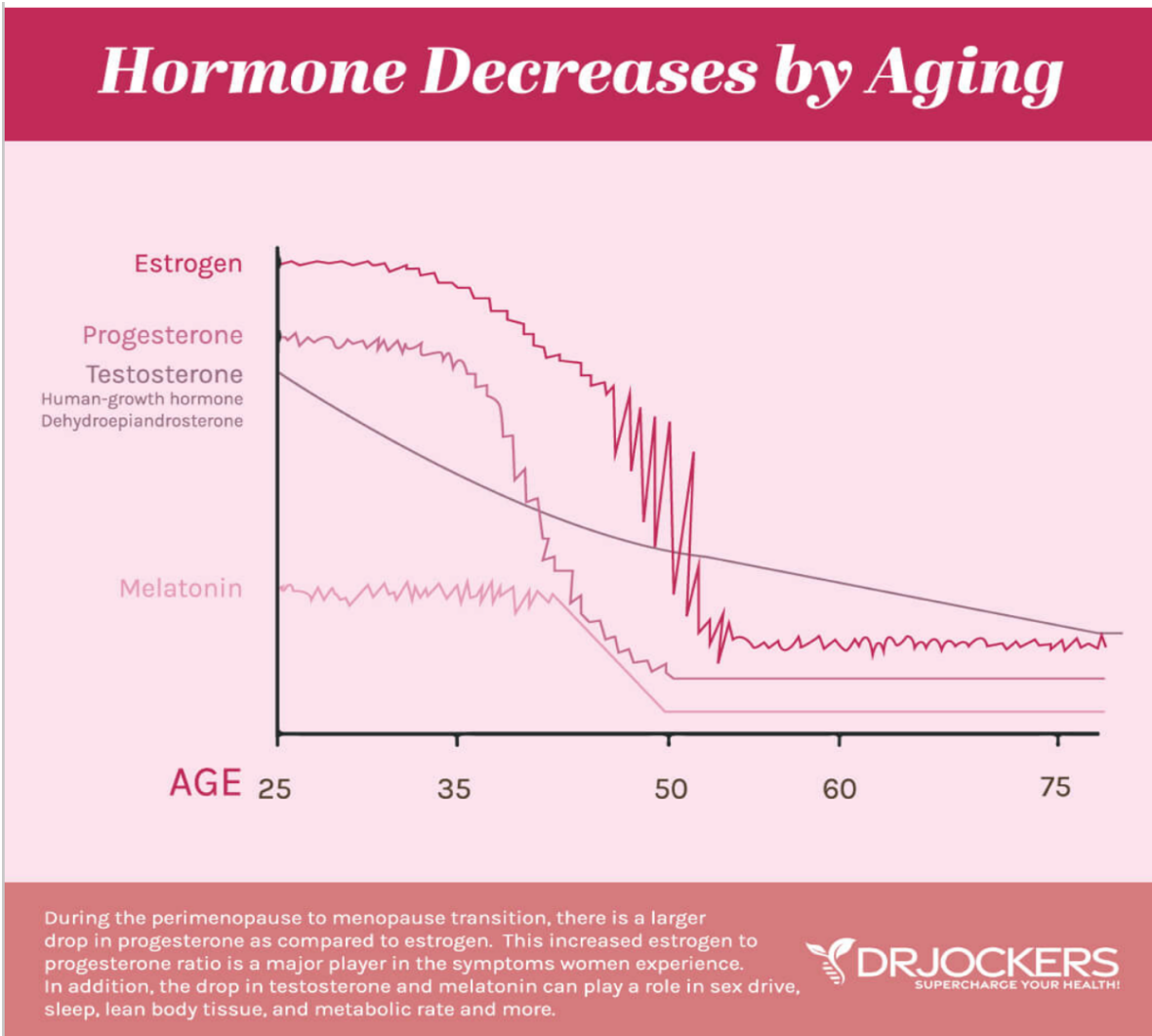
DISCLAIMER: the following is not meant to treat anyone with advice or tell you what you should do, such as relative to use of medication, exercise, or changing your diet. The information in this handout is merely offering what has been published in the research literature, as well as based on my professional experience. Talk to a doctor or other appropriate professionals as to what is best for your own specific needs.

It should also be appreciated that everyone has their own perspective on how to improve health. Nutritionists do it through food. Physicians do it through medicine. Psychologists do it through changing thoughts, feelings, and behaviors. Consequently, what is offered here is a reflection of my own bias and perspective.



One issue that arises with perimenopause is the differential drop in estrogen vs. progesterone, as shown through this graph leading to a relative case of estrogen dominance, and a lack of the calming effects of adequate progesterone.

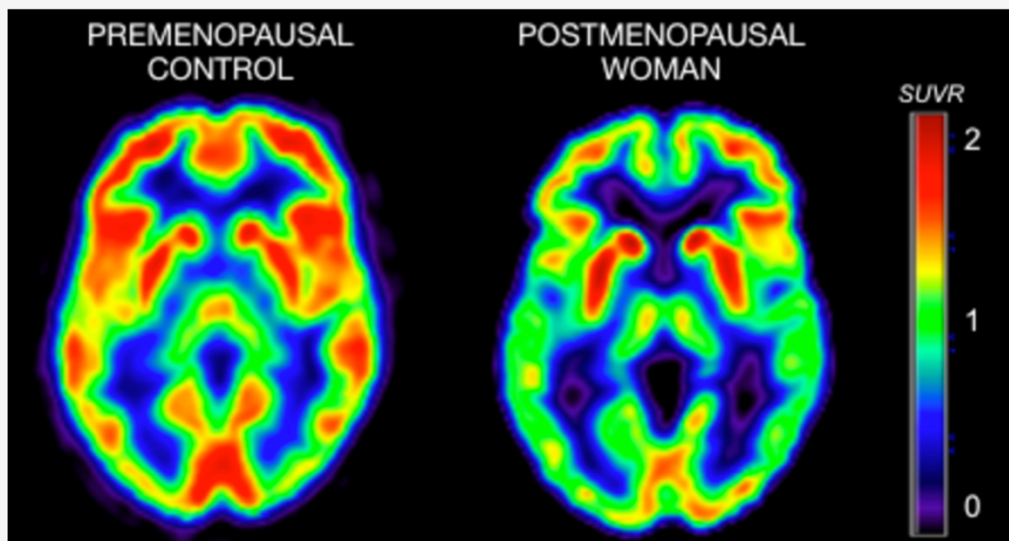
<https://drjockers.com/female-hair-loss/>



<https://drjockers.com/perimenopause-natural-solutions/>

This is a representative graph as to what happens to estrogen in particular as to its large swings up and down, with other hormone levels declining more smoothly during perimenopause and menopause.

According to one expert (Dr. Nanette Santoro, OB/GYN), if a woman is over 45 and has gone without a period for over 60 days and used to cycle regularly, there is a 90% chance that she will be menopausal within four years.



The PET scan to the left shows brain activity (e.g., metabolism) in a premenopausal woman; the scan to the right shows brain activity in a postmenopausal woman. The color scale reflects brain activity, with brighter colors indicating more activity, and darker colors indicating lower activity. The scan to the right (menopause) looks 'greener' and overall darker, which means that the woman's brain has substantially lower brain activity (more than 30 percent less) than the one to the left (no signs of menopause). Our published studies are [here](#) [Mosconi et al Neurology 2017; PLoS One 2017].

<https://www.lisamosconi.com/projects>

These are PET scans of a woman's brain before and after menopause showing greatly reduced 'energy' or activity.

Dr. Mosconi says that more than 60% of women have 'brain fog' during some point of perimenopause. There are estrogen receptors throughout the brain, and so when estrogen levels drop the brain feels the impact. Estrogen has effects on neurotransmitter levels, promotes neuroplasticity, protects against oxidation and inflammation. Menopause affects how brain cells connect with each other as well as die, and this has an affect on memory. It also lowers glucose in the brain which is the primary fuel it uses. The ability to learn and concentrate is also impacted during perimenopause. There are degrees of forgetfulness and if you are having problems like not remembering how to use familiar objects, are getting lost in familiar places, or neglecting hygiene you should consider seeing a doctor to determine if something else is occurring responsible for such difficulties.

One has to realize that brain fog may be due to more than just dropping estrogen levels. e.g. Having night sweats can impact sleep at night and that does nothing good for cognitive function. There are other stressors in a middle-aged women who are undergoing perimenopause, such as marital and family changes, and that may be taking a toll on cognitive abilities too. Brain fog tends to lessen as one goes through the perimenopausal transition and transition into post menopause according to research.

Sleep is impacted during perimenopause due to declining estrogen and progesterone in that these hormones affect the sleep cycle such as by impacting neurotransmitters in the brain that promote better sleep.

Fatigue is another issue that can occur with perimenopause. Some of this may be due to poor sleep such as waking up often or having night sweats. Mood changes like depression during the day may also lead to fatigue or tiredness. Depression and anxiety are issues that can arise from perimenopause due to hormonal changes.

Libido takes a hit as hormone levels drop. Beyond losing sex drive, physical changes to the body such as lower blood flow to the genital area, along with the labia and clitoris shrinking and perhaps becoming less sensitive too takes a toll. Vaginal dryness can cause discomfort. Mood issues and fatigue also can impact sexual desire.

Hormonal changes also impact the bladder lining and urethra to become thinner. UTI risk increases and there is a greater chance of urinary incontinence or loss of bladder control.

Hair loss or thinning can occur due to lower estrogen and androgen levels. Weight gain may occur due to a slowing metabolism, loss of muscle mass, and lower bone density. Such weight is commonly found around the waistline.

Heart palpitations, as to irregular heartbeat or it being strong and rapid, can arise with perimenopause due to hormonal fluctuations. They may also occur with hot flashes, anxiety or headaches. Palpitations can occur for other reasons too and so it is a good idea to discuss them with your primary care doctor to insure that some other factors are not responsible for them.

Then there is the issue of what happens if menopause is surgically created such as due to cancer. When both ovaries are removed the sudden loss of sex hormones can lead to damage to the brain and impaired cognition and dementia. (Alzheimer's & Dementia, "Premenopausal bilateral oophorectomy and brain white matter brain integrity in later-life" Michelle Mielke et al, June 2024.) This study found that reduced white matter (the nerves connecting different regions of the brain together) for women who had such surgery before the age of 40 and for those between the ages of 46-49. No difference was found for women who had surgery between ages 40-44.

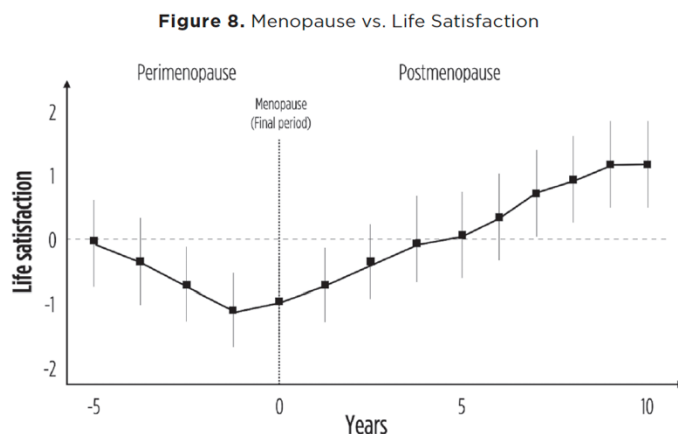
What to do about menopause brain according to Dr. Mosconi includes

- ❖ exercise regularly. Three hours a week can help women improve their mental and physical health during perimenopause, and yoga can be quite helpful. Exercise/physical activity does not have to entail 'getting hot and sweaty at a gym' but can involve stuff like taking a hike in nature, doing Pilates, swimming, biking, etc.
- ❖ prioritize sleep hygiene. Getting 7-9 hours of sleep/night is best. Avoid electronic screen exposure within a few hours of your bedtime hour as to the blue light they emit suppressing melatonin release. You should stop eating at least 3 hours before going to bed too. Getting exposure to morning sun while outside, such as within perhaps an hour or two of sunrise helps the circadian rhythm as to 'setting a time' that will make you more tired in about 14-16 hours from then, meaning your probable bedtime hour. Avoid having caffeine within 8 hours of bedtime, and longer if you metabolize it slowly. Keep your room as dark as possible. Wear a sleep mask if needed.
- ❖ incorporate stress management techniques (e.g. meditation, deep breathing, keeping a journal, yoga, being outside in nature, laughing, time spent with pets, friends and family)

- ❖ have a balanced diet including omega-3, antioxidants, fibers and vitamins. Such foods include greens, veggies and fruits. Avoiding inflammatory foods (e.g. sugar, refined carbs, processed foods, deep-fried items, and artificial ingredients) is also helpful.
- ❖ avoid environmental toxins especially endocrine disrupting chemicals (e.g. BPA, phthalates, parabens). Means to do so include avoiding plastic bottles and packaging as much as possible. Buying organic produce can help. Make your own products such as household cleaners with simple and natural ingredients; recipes can be found online. Make sure your home has no mold. Avoid nonstick cookware (e.g. Teflon).
- ❖ stay mentally active in ways that challenge your brain (reading, doing puzzles, learning new skills)

Advice from others as to maintaining brain health and avoiding longer term risks like dementia include

- ❖ avoiding diet drinks. Research has found that those having at least one diet drink per day have three times more risk of developing dementia.
- ❖ avoiding alcohol, which can make hot flashes, night sweats and insomnia worse, which will not be helpful to cognitive abilities.
- ❖ look at your prescribed medications. Sleeping pills, blood pressure drugs, antidepressants and statins may have effects on memory and brain function.



There is 'light at the end of the tunnel' as women typically having an increase in life satisfaction within a few years of transitioning into menopause.

The Menopause Brain, Lisa Mosconi, PhD

The North American Menopause Society (www.menopause.org) offers a certified list of menopause practitioners that are trained in menopause and mid-life healthcare issues. It is under the >For Women subsection, and doctors can be found by zip code. Consults can be had with some through virtual visits from all over the country.

What to do about hormonal replacement

Hormone replacement therapy (HRT) was billed for decades as being a good approach for treating postmenopausal symptoms. A study in 1998 (HERS, Heart & Estrogen Replacement Study) found there were serious risks associated with HRT. In 2002 there was the largest randomized clinical trial of HRT through the Women's Health Initiative and WHI Memory Study (WHIMS). Estrogen

was found to decrease the risk of hip fracture and colorectal cancer and prevent hot flashes. But there was increased risk of breast cancer, stroke, pulmonary embolism, and coronary heart disease. Estrogen increases inflammation and blood clotting which obviously creates risk of heart disease and stroke. The increased risk of cardiovascular disease was felt to outweigh the benefits of HRT.

There has been more recent research since 2002 which has found that HRT is safer and can help with

- ❖ hot flashes
- ❖ vaginal dryness
- ❖ night sweats
- ❖ lowering risk of osteoporosis
- ❖ lowered risk of colon cancer
- ❖ lowered risk of diabetes
- ❖ modest improvement in joint pain

but there is continuing debate on the point. Current research suggests that there is still risk especially if it is begun at or after the age of 60, or more than 10 years from menopause onset. Starting HRT later into menopause may increase the risk of Alzheimer's but more research is needed. If it is started before age 60 or within 10 years of menopause it is thought the benefits outweigh the risk and this can include with menopause brain such as memory difficulties. There are still problems that are at increased risk such as

- ❖ endometrial cancer
- ❖ blood clots and stroke
- ❖ gallbladder/gallstone problems
- ❖ increased risk of dementia if HRT is started after midlife. If it is started during midlife it is associated with a reduced risk of Alzheimer's and dementia
- ❖ breast cancer with long-term use

Another facet of this issue is how HRT is taken. There are pill and patch forms. If estrogen is taken as a pill it goes directly to the liver, and that increases the likelihood of blood clots forming in the legs and lungs than if given as a patch. But there are no large scale, randomized trials on the patch form to prove that such an administration route is safer. There are also vaginal creams, rings, and suppositories including over-the-counter ones that are good for issues like dryness and incontinence.

There are mixed opinions on the subject of how safe they are. One source (breastcancer.org/treatment-side-effects/vaginal-dryness/estrogen) says "studies show that the amount of estrogen the body takes in from vaginal treatment is tiny, and research, which continues to grow, suggests that there's no difference in how long people are living if prescribed vaginal estrogen after breast cancer."

The Mayo Clinic (mayoclinic.org/drugs-supplements/estrogen-vaginal-route/before-using/drg-20069459) says that vaginal estrogen might not be advised with a wide variety of drugs being

taken, and various medical conditions including various cancers such as breast, blood clotting problems, diabetes, cardiovascular issues, etc. The Cleveland Clinic (my.clevelandclinic.org/health/drugs/19770-estradiol-vaginal-cream) echoes a similar concern and mentions various side effects vaginal estrogen creams can have including higher blood pressure, stroke, liver injury, blood clots, etc.

There is also what form of hormone is used. There is what is known as 'conjugated estrogen' that has been given orally, vs. estradiol which is a bioidentical form which some believe is safer. The conjugated form coupled with a form of progesterone is associated with a higher risk of blood clots and increased risk of breast cancer.

There is bioidentical hormone replacement therapy (BHRT) that uses lab produced hormones that are derived from plants. They are identical to the hormones produced by your body vs. the traditional HRT that are synthetic, and can be made from other sources like Premarin – an abbreviation for where it came from – pregnant mare urine. Because they are chemically different how the body reacts to them can vary from those made by your system. Some of the more common BHRTs are for estrogen, progesterone, and testosterone. They can come in various forms such as pills, creams, patches, implanted pellets, gels, and IV injections. How fast they take effect varies, but a few weeks to a few months should be expected.

Table. FDA-approved Bioidentical Hormone Therapy Products

Composition	Product Name
Oral 17 β -estradiol	Estrace Various generics
Oral estradiol acetate	Femtrace
17 β -estradiol matrix patch	Alora Climara Esclim Fempatch Menostar Vivelle Vivelle-Dot Various generics
17 β -estradiol reservoir patch	Estraderm
17 β -estradiol transdermal gel	EstroGel Elestrin Divigel
17 β -estradiol topical emulsion	Estrasorb
17 β -estradiol transdermal spray	Evamist
17 β -estradiol vaginal cream	Estrace vaginal cream
17 β -estradiol vaginal ring	Estring
Estradiol acetate vaginal ring	Femring
Estradiol hemihydrates vaginal tablet	Vagifem Vagifem LD
Estradiol valerate injection	Delestrogen
Estradiol cypionate injection	Depot-estradiol
Oral micronized progesterone	Prometrium
Vaginal progesterone cream	Crinone*
Vaginal progesterone ovules	Endometrin*

*FDA approved for infertility, not menopausal hormone therapy. Complete information available on the NAMS website at www.menopause.org/bioidenticalcharts.pdf.¹⁵

Some say that BHRT is safer because they are 'natural' and identical to the body's own hormones. Large-scale reputable studies have not confirmed the claim of their being safer. Some have passed FDA standards, and others have not.

Side effects of BHRT can include:

- ❖ weight gain
- ❖ blurred vision
- ❖ tiredness
- ❖ acne
- ❖ increased facial hair
- ❖ headaches
- ❖ breast tenderness
- ❖ spotting
- ❖ cramping
- ❖ bloating
- ❖ mood swings

There are also BHRT that are 'compounded' by a pharmacist where they mix together different ingredients. Compounded BHRT are not FDA-approved. Nor are they tested for effectiveness or safety. Long-term side effects are also unknown. Various medical groups such as the American College of Obstetricians & Gynecologists, the Endocrine Society, and the North American Menopause Society have come out against compounded BHRTs.

On a post-menopausal level there is also the issue at what age hormone therapy is begun. There was a large study named WHIMS (Women's Health Initiative Memory Study) that was done at several centers, was double-blind, randomized, and placebo controlled. It took 4,532 post-menopausal women and gave them conjugated equine estrogen along with a progesterone, or a placebo. And another group of 2,947 women who had had a hysterectomy were given estrogen alone or a placebo. All were over the age of 65. Hormone therapy with or without progesterone did not help prevent dementia or cognitive decline but did increase substantially the risk of dementia or such decline. (*Lancet Neurology*, "The Women's Health Initiative Memory Study: findings and implications for treatment" Michael Craig et al, March 2005).

Symptoms of high estrogen can include

- ❖ weight gain especially in the hips, waist, and thighs
- ❖ changes in one's period such as light or heavy bleeding
- ❖ worsening of PMS, cramps
- ❖ fibrocystic breast lumps
- ❖ uterine fibroids
- ❖ fatigue
- ❖ lower sex drive
- ❖ anxiety or depression. (There was research on over 264,000 women in the UK ages 37-71 which found that use of oral contraceptives before the age of 20 had a 130% greater incidence of depressive symptoms vs. those who had never taken the pill. And even when teens stopped using birth control pills there was an increased rate of depression. (Epidemiology and Psychiatric Sciences, "Population-based cohort study of oral contraceptive use and risk of depression" T. Johansson et al, 6/12/23). There is other research that birth control pills can shrink the hypothalamus in the brain and also alter for the worse how women feel toward their male sexual partner.
- ❖ hormone-related cancers
- ❖ vaginal yeast infections
- ❖ thyroid problems

One of the major reasons for estrogen dominance is chronic stress and trauma. Another potential cause of high estrogen are xenoestrogens that are often found in personal care products, plastic ware, and the environment. Their effect can include girls entering puberty at an ever younger age, along with impacting men such as impacting sperm count, prostate cancer, and 'man boobs.' Such 'endocrine disrupting chemicals' (EDCs) include:

- ❖ phthalates, which makes plastic more flexible. They can be found in squeeze bottles, plastic wrap, food wrap, plastic containers, medical tubing, detergents, candles, cosmetics (in 'fragrance'), powders, skin creams, hair spray, nail polish along with enamels and base coats, aftershave, perfume, and cologne. It is also found in air fresheners and kids' toys made from PVC plastic. Phthalates may contribute to PCOS and endometriosis. They can also lower testosterone and estrogen that are important for female sex drive. Bisphenol (e.g. BPA) may contribute to PCOS, and premature ovarian insufficiency leading to menopause occurring at an earlier age. The best way to avoid bisphenol intake is to avoid canned food.
- ❖ triclosan which is in anti-microbial and personal care products like liquid body wash, foaming soaps, underarm deodorants, mouthwash, laundry detergents and fabric softeners, some toothpaste, and even in baby toys. It can enter the body through oral mucosa from teeth brushing and skin through hand soaps etc., and affect hormones. Colleen Rogers, a lead microbiologist at the FDA has said "there currently is no evidence that antibacterial soaps are more effective than plain soap and water" (<https://www.fda.gov/consumers/consumer-updates/antibacterial-soap-you-can-skip-it-use-plain-soap-and-water?source=govdelivery>). It interferes with estrogen, androgen, and thyroid hormones, and increases the risk of breast cancer due to its estrogenic nature. If you avoid getting it into your body what is in your system can be eliminated in something like a week or so.

- ❖ mercury (such as from eating fish that contain it). It is ranked third by the US government's Agency for Toxic Substances and Disease Registry (behind lead and arsenic). It may disrupt the pituitary, thyroid, adrenal glands, and pancreas. Hormones most affected by it are thought to be insulin, estrogen, testosterone, and adrenaline. Toxic levels of the metal in the pituitary can lead to low function of the gland and appears to be a major factor in teens and others committing suicide. It causes hormone imbalance by lowering progesterone and raising estrogen levels.
- ❖ parabens which can be found in personal care products like
 - lotions
 - sunscreens
 - face and skin cleansers
 - toothpaste
 - moisturizers
 - concealers
 - blush
 - mascara
 - shampoo and conditioners
 - shaving gels and cream
 - some deodorants
 - makeup

Parabens can also be found in some baked goods, beverages, syrups, jellies, jams, and preserves. They can affect fertility and might make it into the bloodstream. They can mimic estrogen and bind to those receptors on cells, and in some case increase breast cell division and growth of tumors and hence increase breast cancer risk. Environmental Working Group (EWG) also says they can cause changes in the menstrual cycle, cause skin irritation and rashes. Females, adults under age 60, and non-Hispanic Blacks were found to have the highest levels in their urine based on a CDC study in 2006. Wearing less makeup helps avoid this chemical.

- ❖ polystyrene (plastic #6) better known as Styrofoam as in the coffee cups, also can cause problems. It can leach from products like cups and containers into hot drinks and foods especially if microwaved; temperature is said to play a major role in the chemical leaching from such cups. The chemical mimics estrogen and can lead to thyroid and menstrual problems. The FDA says it is safe to use for food products.

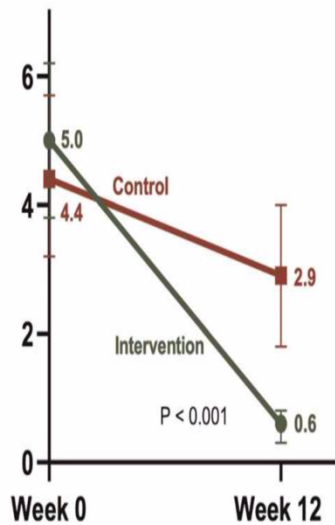
There are natural ways to lower or raise estrogen levels in women. Levels can be lowered, such as to help reduce breast cancer risk, through means including

- ❖ soy. It has gotten a bad rap for years as to it promoting cancer due to phytoestrogens in the food. It turns out there are two types of estrogen receptors, with one being alpha that sits on cancer cells. And then there are beta receptors, with soy isoflavones having 1,600% greater affinity for them. Beta's activity includes shutting down alpha receptors which turns off a fuel for cancer. And it goes to aromatase which sits with fat cells and turns it

off thus lowering estrogen levels. One study (European Journal of Epidemiology, “Soy intake and breast cancer risk: a prospective study of 300,000 Chinese women and a dose-response meta-analysis” Yuxia Wei et al, June 2020) found that for every 10 mg/day increment in soy intake there was a 3% reduction in breast cancer risk.

Why has soy gotten such a bad reputation for promoting cancer? Prior to 2009 there was no research done on people and instead they were done on animals like mice. Soy promotes cancer in mice. But women are not mice, and in this case such mouse findings do not translate to people. One study on premenopausal women in Texas had them drink 3 cups of soy milk/day for a month, and the study looked at estrogen levels before and after. Blood levels of estrogen dropped between 30-80% in all of them and stayed lower for 2-3 months more after the study ended. Another study called the Shanghai Breast Cancer Survival Study on over 5000 breast cancer survivors was done on women ages 20-75. Those with the highest soy intake had a 29% decrease in total mortality and 32% decrease in cancer reoccurrence compared to those with the lowest soy intake, with a follow-up averaging about 4 years (JAMA Network, “Soy food intake and breast cancer survival” Xiao Ou Shu et al, 12/9/09). Another study looked at Asian-American women and their soy intake during childhood, adolescence, and adulthood. The greatest benefit was for high soy intake in childhood with a 60% reduction in breast cancer, and a 20% and 24% reduction for the other age groups, respectively. (Cancer Epidemiology, Biomarkers & Prevention, “Childhood soy intake and breast cancer risk in Asian American Women” Larissa Korde, et al, 4/2009).

A study in 2020 looked at 52,795 adult women in the Adventist Health Study-2 and followed them for about 8 years (International Journal of Epidemiology, “Dairy, soy and risk of breast cancer: those confounded milks” Gary Fraser et al, 2/25/2020). Over 1,000 developed breast cancer by the time the study was finished. The researchers suggested that the biggest benefit of soy milk relative to breast cancer is not from the soy itself but from the exclusion of dairy. Drinking as little as a quarter to a third cup of dairy milk/day was associated with an increased breast cancer rate of 30%. Drinking one cup/day was associated with a 50% increase in risk. Those having 2-3 cups/day increased risk of breast cancer by 70-80%. There was little difference between nonfat, low and full fat milk. Cheese and yogurt did not have significant associations either. Consuming soy milk did not increase cancer risk. Substituting dairy for soy milk led to a 32% drop of breast cancer. It is suspected that sex hormones in dairy milk increase hormonal levels in women.



There was another study on soy called WAVS (Women’s Study for the Alleviation of Vasomotor Symptoms). It found that a plant-based diet rich in soy reduced moderate to severe hot flashes of menopause by 88% (as seen in the graph), and also helped the women lose an average of 8 pounds in 12 weeks. The study entailed 84 postmenopausal women who were getting two or more hot flashes a day. They were randomly assigned to a low fat, vegan diet including a half cup of cooked soybeans per day, or a control group that had no dietary changes. The study ran for 12 weeks, and the combination of avoiding animal products, reducing fat, and adding soy mirrored the results found in pre-Westernized Japan and the Yucatan peninsula where soy is more prevalent and postmenopausal women have fewer symptoms like hot flashes.

Physicians Committee for Responsible Medicine

Another study looking at about 2000 women who were on Tamoxifen, having already been diagnosed with estrogen-driven breast cancer, and they were followed for more than six years. Looking at high vs. low soy consumption in postmenopausal women there was approximately a 60% drop in cancer reoccurrence. The researchers concluded that “soy isoflavones consumed at levels comparable to those in Asian populations may reduce the risk of cancer reoccurrence in women receiving tamoxifen therapy and appears not to interfere with tamoxifen efficacy.” (Breast Cancer Research & Treatment, “Soy isoflavones and risk of cancer recurrence in a cohort of breast cancer survivors: life after cancer epidemiology (LACE) study.” Neela Guha et al, Nov. 2009).

A study on flax seed found that having two tablespoons of ground flax seeds twice a day (about 30 grams total) for six weeks reduced hot flashes by half, and diminished the intensity by 57%. (Journal of the Society for Integrative Oncology, “Pilot evaluation of flaxseed for the management of hot flashes” Sandhya Pruthi et al, Summer 2007).

Other ways to lower estrogen include:

- ❖ cruciferous veggies and leafy greens (e.g. broccoli, cauliflower, Brussels sprouts, bok choy, cabbage) through DIM which is a phytochemical that binds to estrogen receptors as well as inhibiting aromatase. Sulforaphane is another chemical found in this group of veggies and which is especially prevalent in broccoli sprouts. It also reduces excess estrogen. DIM content of some foods include:

	mg
Brussel sprouts	104 (1/2 cup)
Garden cress	98 (1/2 cup)
Mustard greens	79 (1/2 cup chopped)
Kale	67 (1 cup, chopped)
Turnip	60 (1/2 cup, cubed)
Kohlrabi	31 (1/2 cup, chopped)
Red cabbage	29 (1/2 cup, chopped)
Broccoli	27 (1/2 cup, chopped)
Horseradish	24 (1 T)
Cauliflower	22 (1/2 cup, chopped)
Bok choy	19 (1/2 cup, chopped)

- ❖ ground flax seeds. They have 100 times the lignans of other foods which are good for lowering estrogen (and they have other benefits such as decreasing inflammation and stopping cancer development by blocking growth of new blood supply that tumors need).
- ❖ increasing intake of dietary fiber (fruits, veggies, 100% whole grains, nuts & seeds, legumes). It binds estrogen in the GI tract so that it can be eliminated. (Other benefits include improving regularity, and improving insulin sensitivity. The GI microbiome also love fiber and release healthy chemicals, 'postbiotics,' that reduce the risk of inflammation and cancer.) Estimates are that about 3% of Americans get enough fiber each day.
- ❖ mushrooms, and especially white buttons and oyster, block aromatase. (Half a button mushroom/day dropped breast cancer rates by 64% in Chinese mushroom eaters vs. those that did not have any in one study.)
- ❖ tomatoes. One factor in their being helpful is they contain melatonin which reduces aromatase activity such as in the breast and thereby decreasing estrogen production. Another ingredient, naringenin, also inhibits estrogen positive breast cancer cell growth and migration in the presence of estradiol.
- ❖ apples have insoluble fiber that binds to estrogen in the small intestine which stops it from being absorbed by the body. Two servings a day are recommended.
- ❖ seaweed by way of its fiber helps bind up and lower estradiol. One study found that the effective dose of seaweed for lowering the hormone would be about 75 mg/kg of body (about 4.5 g for a 132 lb. woman).
- ❖ red grapes (especially the ones with seeds) by way of the resveratrol and other polyphenols, along with quercetin.
- ❖ green tea which also inhibits aromatase such as through a chemical abbreviated EGCG. One study found that green tea was linked to lower levels of total estrogens (Nutrition Journal, "Green tea intake is associated with urinary estrogen profiles in Japanese-

American women” Barbara Fuhrman et al, Feb. 2013). (A squeeze of lemon into green tea boosts EGCG absorption by 5-fold.)

- ❖ pomegranates contain a compound that inhibits the enzyme that converts estrone into estradiol. They also contain something called ellagittanins that block androgens being converted into estrogen.
- ❖ magnesium can help lower estrogen by supporting an enzyme, COMT, in the liver that clears excess amounts of the hormone, and it may be a treatment for PMS too.
- ❖ other foods that contain aromatase inhibitors (e.g. artichokes, arugula, blueberries, sour or tart cherries, corn, cranberries, grapes, horseradish, kale, lemons and limes, mustard, oats, oranges and tangerines, radishes, rice [black, red, purple], turnips, walnuts, watercress). Aspirin and metformin can also inhibit aromatase.
- ❖ raw unpeeled carrots
- ❖ rosemary
- ❖ iron, B-vitamins, choline
- ❖ iodine which helps maintain estrogen balance in favor of estriol (E3, that has been shown to protect against estrogenic cancers, and decreases the risk of fibrocystic breasts, and even help with estrogen-related weight gain as to losing some pounds). It may also reduce risk of prostate cancer by reducing the production of estrogen. It can also increase testosterone and reduce prostate size. However, this is not to advocate gulping down handfuls of iodine pills or teaspoons of iodized salt. Getting a lab test to see where your iodine level is at and rectifying it if it is low is being advised.
- ❖ higher amounts of aerobic exercise reduced levels of estrogen in women with a greater risk of developing breast cancer according to a study. (Breast Cancer Research & Treatment, “Dose-response effects of aerobic exercise on estrogen in women at high risk for breast cancer: a randomized controlled trial” Kathryn Schmitz et al, Nov. 2105). Little research exists in males.
- ❖ reduce/avoid alcohol. Drinking raises estrogen and slows down fat burning. One study found that a serving of alcohol (15 grams) raised estrone levels by 7%, and 2 servings by 22% within 4 weeks.

Estrogen levels can be raised by determining what is causing it to be low (such as EDC’s, low body fat, heavy metal poisoning, excessive physical training, an eating disorder, or menopause). Foods that are said to raise estrogen such as through their containing phytoestrogens include

- ❖ apples
- ❖ dates
- ❖ dry apricots
- ❖ grapes
- ❖ pomegranates

- ❖ broccoli
- ❖ cabbage
- ❖ carrots

- ❖ celery
- ❖ cranberries
- ❖ garlic
- ❖ peaches
- ❖ potatoes
- ❖ prunes
- ❖ raspberries
- ❖ spinach
- ❖ strawberries
- ❖ sweet potatoes

- ❖ almonds
- ❖ flax seed
- ❖ pistachios
- ❖ sesame seeds
- ❖ sunflower seeds
- ❖ edamame
- ❖ miso
- ❖ natto
- ❖ soy beans
- ❖ soy milk
- ❖ tempeh
- ❖ tofu

- ❖ barley
- ❖ bran
- ❖ oats
- ❖ quinoa
- ❖ rice
- ❖ wheat flour

- ❖ chickpeas
- ❖ lentils
- ❖ red clover
- ❖ peanuts
- ❖ split peas

Still other ways to increase estrogen include through vitamin D, although more research is needed. DHEA is a hormone and one study found it significantly increased estrogen levels especially in postmenopausal women. (Steroids, “The effect of DHEA supplementation on estradiol levels in women: a dose-response and meta-analysis of randomized clinical trials” Yan Zhu et al, Sept. 2021). You need to be careful when considering hormones and discussing it with your healthcare professional is important.

Anaerobic exercise also can help improve estrogen levels in postmenopausal women. One study (International Journal of Health Sciences, “Effect of aerobic and anaerobic exercise on estrogen

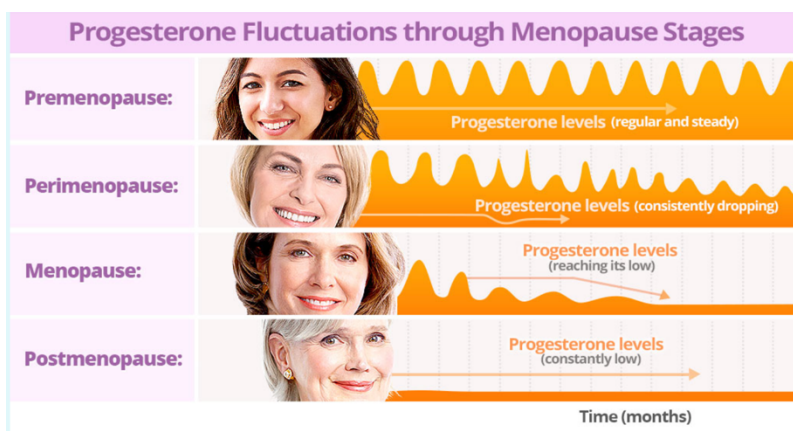
level, fat mass, and muscle mass among postmenopausal osteoporotic women” Zainab Razzak et al July-August 2019). They found that 36 sessions of resistant exercise yielded significantly better results than 72 sessions of aerobic as to improving estradiol levels.

One side effect of estrogen, such as in birth control pills, is that it can cause magnesium deficiency. Estrogen also effects copper, potassium, and calcium levels and this leads to mineral imbalances as to elevated ratios of sodium: potassium, and calcium:magnesium.

Other side effects of estrogen include it being a possible cause of low thyroid function. Birth control pills containing estrogen alone or with progesterone can alter the balance between free and bound thyroid hormone in the body. Estrogen increases the thyroid binding proteins available which means a woman will have less free T4 to do its job. If she is on meds for hypothyroidism and taking birth control pills more thyroid hormone supplementation may be needed. And if she goes off the estrogen, a lower dose of the supplement may be advised. Abnormal thyroid function might affect how well birth control works whether it is being used for contraception and/or hormonal regulation.

Birth control pills may also affect fibroids. They may arise from both genetics as well estrogen causing them to grow. e.g. Menopausal women who have less estrogen have fewer symptoms from fibroids because they may shrink on their own.

A major risk of using hormonal supplements is increased cancer risk. Almost all such studies use methods that show a correlation and not necessarily causation because it is unethical and immoral to have women put on the hormone so that causation might be proven, and then be told ‘You may develop cancer and die from it, but thanks for volunteering for this research.’ Given that limitation, there is research to suggest that hormonal pills can increase the risk of breast and cervical cancer and lower the risk of endometrial, ovarian and colorectal.



Perimenopause may occur 2-10 years before menopause (a full year without a period), which in the U.S. averages around age 51. In perimenopause symptoms may include hot flashes, vaginal dryness, hair loss or thinning, sleep difficulties, lower sex drive, memory problems, anxiety, and depression.

<https://www.shecares.com/hormones/progesterone/menopause>

After menopause low levels of progesterone can lead to UTIs, fibrocystic breasts, fibroids, low magnesium levels, endometrial or breast or uterine cancer, cardiovascular disease, thyroid problems, allergies, asthma, or arthritis. The good news is that it can also produce a calming

effect as to reducing anxiety, enhance memory, help maintain bone mass, lower blood pressure and prevent breast, endometrial and ovarian cancers.

Progesterone deficiency is defined as more than just 'low levels' of it. It occurs when there is a protracted period of low levels or due to high estrogen levels. Beyond menopause being a potential cause of a deficiency of the hormone it also can arise from

- ❖ problematic bowel and liver function
- ❖ thyroid issues. High estrogen to progesterone causes thyroid function to be inhibited. Plus, hypothyroidism reduces the ability to clear estrogen from the body that further perpetuates the problem.
- ❖ endocrine disrupting chemicals like mercury, arsenic and lead can lead to high estrogen levels.
- ❖ taking hormone containing pills such as for birth control or during menopause can lead to high estrogen levels.
- ❖ being obese.
- ❖ high stress which can lead to estrogen dominance due to more cortisol being made. And cortisol comes from progesterone at such times. Progesterone and cortisol (the stress hormone) compete for progesterone receptors. If cortisol is occupying the progesterone receptor a woman will feel low in that hormone even if blood levels are normal because the progesterone cannot get into the cell. What results can include a worsening mood, feeling more anxious. fluid retention (progesterone is a diuretic).
- ❖ smoking cigarettes.
- ❖ poor diet such as those that are low in fiber and that are high in trans fats. Sugar, processed foods, and commercial beef and poultry that have been given estrogen-like hormone can cause problems too.
- ❖ alcohol be it at social levels or those who drink heavily can impact ovulation, cause irregular periods and this can lead to progesterone deficiency.

Symptoms of progesterone deficiency include:

- ❖ autoimmune disorders
- ❖ depression
- ❖ facial and body hair (hirsutism)
- ❖ high cholesterol levels
- ❖ intensified migraines
- ❖ male pattern baldness
- ❖ memory loss
- ❖ weight gain
- ❖ disordered sleep

Impact of progesterone deficiency can include:


- ❖ endometriosis
- ❖ gallbladder problems
- ❖ hypothyroidism
- ❖ uterine, endometrial cancer

Ways to increase progesterone include:

Lifestyle Changes


Diet:

- **Phytoestrogens** (veggies, legumes, nuts, seeds)
- **Progesterone-promoting nutrients** (vitamin B₆, zinc, magnesium)




Exercise:

- Moderate weight-bearing and strength-training exercises
- Frequency: 30 minutes a day, 5 times a week



Wholesome Habits:


- Limit alcohol consumption
- Stop smoking
- Relieve stress




Alternative Medicine

Medications

- **Herbal supplements** (chaste tree berry, *Rhodiola rosea*)
- **Hormone-regulating herbal supplements**



- **Hormone medications** (HRT or BHRT, risks involved)
- **Birth control pills** (also with side effects)



<https://www.shecares.com/hormones/progesterone/increasing-levels>

‘Eat the rainbow’ of plant foods like fruits and veggies can help by getting their phytoestrogens. Such foods include:

- ❖ apples
- ❖ cherries
- ❖ papaya
- ❖ peaches
- ❖ plums
- ❖ pomegranates
- ❖ strawberries
- ❖ tomatoes

- ❖ black eyed peas
- ❖ garbanzos
- ❖ lentils
- ❖ soybeans
- ❖ split peas

- ❖ almonds
- ❖ flaxseeds
- ❖ sesame seeds
- ❖ sunflower seeds
- ❖ barley
- ❖ brown rice
- ❖ oats

- ❖ wheat

- ❖ alfalfa
- ❖ carrots
- ❖ celery
- ❖ eggplant
- ❖ parsley
- ❖ sprouts
- ❖ yams

You can also attack the problem from the other direction, by lowering or inhibiting estrogen production by eating various foods. These include:

- ❖ broccoli
- ❖ corn
- ❖ figs
- ❖ grapes
- ❖ green beans
- ❖ melons
- ❖ pineapple

Avoiding inflammatory foods can increase progesterone by reducing inflammation that impedes ovulation. Such foods include sugar, wheat, and cow's milk.

Moderate intensity, weight-bearing and strength-training exercises for at least 30 minutes/day 5 days/week can also increase progesterone levels.

Use of hormones to increase progesterone may be the highest risk method for reasons discussed previously. There is a sublingual progesterone that is dissolved under the tongue that may be more effective for brain symptoms including sleep disturbance that are associated with progesterone deficiency.