



What is Menopause?

Every woman will experience menopause. The actual term menopause is a single day in a woman's life, it is 12 months after her last period. The time before this is called perimenopause and the time after is called post menopause. A woman spends $\frac{1}{3}$ of her life in this stage of life. Perimenopause symptoms typically start 7-10 years before the last period, with the average age of menopause being 51, but that last period can happen anywhere between ages 45-58 for most women. Once you stop having periods you are postmenopausal for the rest of your life.

Why are these terms important? It is important to know what stage of "menopause" if you are in to understand what is happening in and to your body.

For the purpose of this information I will use the encompassing term of "menopause" for all 3 stages.

Why do women experience Menopause?

When a woman is born she is born with all of her reproductive material. That means she is born with all of her eggs (unlike men who do not start to produce sperm until puberty and continue to do so for their entire lives), which are stored in the ovaries. Women are born with about 1 million eggs. By the time a woman is in her 30's, she is down to about 200,000-400,000 eggs. By the time a woman is 40 she has approximately 10,000 - 30,000 eggs, and by the time she is 50 she has around 1,000 eggs left.

When we are most fertile, ages 20- early 30's we ovulate between 500-1000 eggs a month. Most do not make it, some get lost in the abdomen, some die, while others never totally mature. The lucky few who find their way from the ovary to the fallopian tube have the opportunity to get fertilized. If they are not fertilized we experience a period.

During our reproductive era and with ovulation, our hormones estrogen and progesterone rise and fall in a very predictable pattern, because we have an abundance of eggs to influence the levels of hormones in the body. But as we age and our egg supply diminishes and so does our estrogen and progesterone level. During the perimenopausal time of life our egg supply is quickly diminishing and the pattern of



ovulation becomes chaotic. A woman may experience skipping periods, heavier periods, lighter periods or longer intervals between periods. The amount of eggs influences the amount of estrogen and the amount of estrogen influences eggs ovulation. There is little of both. Progesterone, because it is estrogen's partner, also decreases due to the same process and follows the same chaotic pattern, so we may experience more moodiness, irritability, and trouble sleeping. Progesterone starts to drop before estrogen does. Once we stop having periods and are post menopausal our estrogen and progesterone levels are at the lowest point and will not return on its own. Testosterone is a little different. Some of our testosterone is produced by our ovaries, but production remains via the adrenal glands. Our testosterone levels decline after menopause but we never run totally out of it, like we do estrogen and progesterone.

What are the symptoms?

There are over 80 symptoms of menopause. Estrogen affects every body system. Our brains, bones, eyes, skin, mouth, heart, digestive system, nervous system, and our genitourinary system. Some women experience mild symptoms, while some have severe symptoms, some have many symptoms while others have few. Many women express "just not feeling themselves" and have difficulty describing the symptoms that they are having.

Menopause symptoms are more than just hot flashes, and not every woman experiences hot flashes. 80% of women going through menopause experience this symptom, other women do not.

Here are some of the symptoms:

- Acid reflux
- Anxiety/depression, irritability,
- Acne
- Body odor
- Thinning hair/hair loss
- Unwanted hair
- Joint pain
- New allergies
- Worsening asthma
- New or worsening autoimmune disorders



- Bloating, digestive issues (constipation/diarrhea), changes to gut microbiome, new or worsening irritable bowel
- Belly fat
- Brain fog, decreased cognition, difficulty concentrating
- Worsening ADHD/ADD
- Breast tenderness
- Brittle nails
- Burning mouth, sore tongue, mouth sores
- Fatigue
- Itchy skin, crawling skin, dry skin, electrical shock feelings.
- Decreased libido
- Vertigo
- Dry itchy eyes, eye fatigue
- Headaches, worsening migraines, new migraines
- Fatty liver
- Frozen shoulder
- Plantar fasciitis
- Hot flashes, temperature regulation, night sweats
- Genitourinary symptoms, urinary tract infection, incontinence, yeast infection, vaginal dryness, painful intercourse, bleeding with intercourse.
- Palpitations
- High cholesterol
- Period problems, heavier, shorter, longer, lighter
- Restless leg
- Insomnia, unable to fall asleep, stay asleep, waking in during the night, not feeling well rested.
- Loss of muscle/sarcopenia
- osteopenia/osteoporosis
- Sleep apnea
- Tinnitus
- Wrinkles

Many women will go to their doctor complaining of symptoms that don't seem related to each other, like new heartburn, depression, anxiety, high cholesterol and weight gain. The doctor usually treats them separately, giving the patient a medication for heartburn like prilosec, an antianxiety medication like zoloft, a statin for her cholesterol, and telling her to eat less and exercise more. But as a woman continues through the transition from perimenopause to menopause more and more symptoms



start to appear, meaning more and more medication and dismissiveness from their doctor.

Why does this happen, because general practitioners and even some ObGyn's are not educated when it comes to menopause. The practitioners who do know are far and few between and have educated themselves on the matter.

The endocrine system: the hormone machine

Our hormones are chemical messengers in our bodies, telling the body what to do and when to do it. They are involved in growth, development, mood, metabolism, sleep, emotions, sexual desire, reproduction and blood pressure. Our hormones come from our endocrine system which is a network of organs containing glands that create and release hormones into your bloodstream. Once in the bloodstream they travel to all the cells that have receptors on them that then respond to the hormones. These hormones help to maintain homeostasis in the body, which is constantly reacting to your internal environment in response to internal and external changes to keep the body functioning properly.

The endocrine system is made up of glands throughout the body:

Hypothalamus: Located in your brain it is the powerhouse of the system. It links your endocrine and nervous system together.

Pituitary gland: a pea size gland at the base of your brain. It receives signals and secretes hormones to turn into other hormones and turn on/off systems in your body

Pineal gland: located deep in your brain, it produces melatonin to help regulate sleep

Thyroid: this butterfly shaped gland is found at the base of your neck, it helps regulate our metabolism

Parathyroid: these 4 glands, which sit behind the thyroid, helps regulate calcium levels for bone health

Adrenal glands: sit on top of your kidneys to regulate stress, blood glucose and metabolism. Also produces testosterone.



Pancreas: in your upper abdomen behind the stomach and regulates blood glucose

Ovaries: two small almond shaped glands sitting on either side of the uterus. They produce estrogen, progesterone and some testosterone

Estrogen and progesterone are a female's main hormones.

Estrogen is mainly responsible for ovulation, but it is also responsible for our immune system. All the immune cells have estrogen receptors on them, and when stimulated these cells can increase in number, be reprogrammed and change their function to what the body needs to maintain homeostasis.

Progesterone works in the body to maintain balance with estrogen and is the relaxation hormone. It prevents the uterine lining from overgrowth, maintains pregnancy, helps with maintaining our mood and sleep

What is happening in the body?

When estrogen declines, inflammation appears leading to increased risk of conditions such as dementia, Alzheimer's, cardiovascular disease, osteoporosis and even cancer.

When estrogen declines our other hormones try to make up the difference. The thyroid hormone may change which can lead to hypo/hyperthyroidism. The hypothalamus of the brain sends signals to the adrenal glands which then increases our cortisol to fight against fatigue, leading to increased belly fat, which leads to insulin resistance, leading to prediabetes and diabetes.

Our blood vessels start to remodel. Estrogen is a powerful anti-inflammatory and when it is gone inflammation becomes prevalent. This process also influences our kidneys which helps to regulate our blood pressure. Our blood vessels become thinner, weaker and less elastic. This leads to hypertension, high cholesterol and eventually heart disease. More than 75% of women age 60 or older have high blood pressure. Before menopause women have a 25% less chance of having a heart attack than men, after menopause a woman's risk of a heart attack exceeds men's by 25%. Heart disease is the leading cause of death in women and the risk increases with estrogen



decline/deprivation. The prognosis of heart disease in women is typically worse than mens.

Our bones are also affected, with old bone not being replaced with new bone, leading to bone loss. Estrogen plays a large part in keeping our minerals in our bones. Many many more women suffer from osteoporosis and fractures as we age and this is due to the decrease in estrogen that leads to osteoporosis. Genetics and body build do play a role in this. Women are at greater risk than men for osteoporosis and the main cause is due to estrogen deprivation. Think about how many men do you know with osteoporosis.

Our brains start to malfunction. We develop brain fog, loss of concentration, loss of focus, and the inability to multitask. We feel like we developed ADHD, some are diagnosed with new onset ADHD in their 40's or 50's. Women who have ADHD say their symptoms worsen. We have many estrogen receptors in our brain, and when estrogen levels decline during menopause it causes these receptors to not have the ability to function as they once did. The loss of estrogen can have a large impact on the brain. Estrogen is neuroprotective, reducing the risk of dementia by up to 50% in some studies. Many more women suffer from dementia than men and studies are concluding that estrogen may be the key.

Our gut microbiome is affected, again due to estrogen's powerful anti-inflammatory properties. Many women begin to suffer from constipation, diarrhea, newly diagnosed irritable bowel, and food sensitivities. As estrogen continues to decline, the lining of our intestines begins to thin, just like the skin on our face, neck and hands. This thinning of the tissue leads to leaky gut, which increases inflammation and bowel issues. Newer studies are showing that women who are estrogen deprived have a greater risk of colon cancer (up to 30%) than those who use hormone replacement.

Hormone replacement therapy (HRT) is the single most effective way to minimize symptoms and reduce health risks that come with hormonal changes that happen during menopause.

How is perimenopause/menopause diagnosed



Most women over the age of 45 who have typical symptoms of perimenopause or menopause do not need any hormone blood tests to make a diagnosis. If you are under 45 years old, blood tests may be advised but they are not actually helpful because hormone levels can fluctuate daily or even hourly. When blood tests are taken they are just checking your levels for that moment when the needle is in your arm, they do not check the day before or even an hour after, just that moment.

What is useful is women keeping an account of how they are feeling, when the symptoms are worse, when they are better, looking for patterns and the impact your symptoms are having on your life.

I have been told I can never take hormones!

Many women have heard many myths and fallacies when it comes to hormone replacement therapy (HRT). There are only a few absolute contraindications when it comes to HRT.

1. ***Known or suspected breast cancer, or other estrogen/progesterone sensitive cancers.***
There are newer studies that are being done, and some women can have HRT after breast cancer, but it depends on the type.
A family history or even being BRCA + does not necessarily exclude a woman from using HRT.
2. ***Undiagnosed uterine bleeding.*** Any bleeding that has not been evaluated appropriately must be properly diagnosed prior to starting HRT. Women with unusually heavy periods, or any bleeding after menopause must be investigated before starting HRT.
3. ***Active/Recent heart attack or stroke.*** Oral estrogen replacement can increase the risk of a second heart attack or stroke due to the estrogen needing to be metabolized by the liver. These risk are greatly diminished when transdermal estrogen is used.
4. ***Active/Recent blood clot or pulmonary embolism.*** If a woman is properly anti coagulated for at least 3 months, she can have transdermal estrogen because it does not increase the risk of blood clots. Oral estrogen is never advised for



women who have a history of blood clots, due to increasing the risk. A family/personal history of MTHFR does not prohibit a woman from having HRT.

5. **Pregnancy.** HRT is not appropriate during pregnancy as it can have effects on the fetus.
6. **Severe liver disease.** Individuals with significant liver impairment, may not metabolize hormones properly, making some HRT unsafe
7. **Allergy to any component of HRT:** For example if you are allergic to peanuts, you cannot have FDA approved micronized progesterone as the coating is made with peanut oil, but there are other options.

Conditions that do not exclude you from receiving HRT.

- Endometriosis, adenomyosis, migraine, blood clot, MTHFR mutation, BRCA+.
- Family history of heart disease, liver disease, blood clots, or breast cancer.
- These conditions do not mean that you are not a good candidate for hormones.

For the majority of women hormone replacement therapy (HRT) is perfectly safe for controlling your symptoms and preventing chronic diseases.

Vaginal estrogen is safe for everyone!!

Misconception surrounding hormones

In 1993 a study was launched by the National Institutes of Health (NIH) called The Women's Health Initiative (WHI). This study was conducted to investigate if hormone replacement therapy had any preventative effects on chronic disease. In 2002 preliminary results of the study were released to the national news, without the authors/investigators/researchers knowledge. The headlines read "Estrogen causes 25% increase risk of breast cancer" The NIH abruptly and prematurely shut down the study due to public and professional (doctors) fears of the headlines and practically overnight the more than 80% of women who were taking HRT stopped and from that point on very very few prescriptions for HRT were given to women with menopausal symptoms.



Dr. Robert Langer, who was a lead researcher for the trial is quoted saying that the researchers were “bamboozled” at an bi-annual meeting of the 41 researchers. When they entered the meeting they were told to “throw out the agenda they were sent” and that things have changed. They were told by a statistician that the study had been stopped and that a small group of the studies leaders had already written an article for JAMA, and handed the researchers copies of what was to be published. The researchers were stunned to say the least. They were not given any time to review the article that was going to be published, and this was highly unusual. As the researchers read the article they started to point out problems with what was to be published. The head of study Dr. Rossouw then told the researchers to edit the draft and bring it to him before noon, this was at 10:30am. Dr. Langer and other researchers made major revisions to the publication, and when they took them to Dr. Rossouw, before the noon deadline, they were informed it was too late and the article had been printed.

Very few women and even providers are aware that the WHI researchers have walked back all of their early findings and that they do not agree that estrogen causes cancer. In 2020, WHI investigators published in a follow up study 19 years later that women who used HRT actually had a decreased incidence of breast cancer by 23% compared to women who did not use HRT, but unfortunately this information did not make the headlines like the original study did. Since 2002 hundreds of studies have been done reanalyzing the WHI results, but not one of these studies has generated even a speckle of the attention that the original study did, and therefore public and professional opinions have changed very little over 20 years.

The WHI study had flaws.

Flaw 1:

The ages of women in the study was 50-79 all of these women were post menopausal. Some of the women were already taking HRT while others were 10-20 post menopausal. The average age of women participating in the study was 63, this is higher than the average age of menopause which is 51. Many of the women in the study were more than 10 years post menopause, and aging increases our risk for the incidence of chronic conditions, heart disease, cognitive changes, and even cancer. Women closer to the age of menopause were the ones most likely to benefit from the study, but they were not even included in the study. No perimenopausal women were included in the study. Most of the women in the study already had health issues, such as obesity, diabetes, hypertension, high cholesterol and history of or currently smoking.



Flaw 2:

There were 2 groups of women in the study. Women with a uterus (16,608) and women without a uterus (10,739). The women who had a uterus either received a placebo or both synthetic oral estrogen (conjugated equine estrogen) and synthetic oral progestin (medroxyprogesterone acetate), derived from pregnant horses urine. The women without a uterus received either a placebo or synthetic oral estrogen only, again derived from pregnant horses urine. When the study was stopped in 2002 it was published that estrogen was causing an increased risk of cancer but the women who received only synthetic estrogen did not have any increase in breast cancer incidents. It was the group who had a uterus and received both synthetic estrogen and synthetic progestin that had the increased risk.

Synthetic hormones are not used any longer for hormone replacement therapy. Bio identical hormones are used. This means that the hormones used today are biologically and molecularly the same as what our bodies make, our body accepts them as its own and uses them. They are sourced from wild yams.

Flaw 3:

When the increased risk of breast cancer was reported by the media, they reported that there was a 25% increased risk of cancer. Every woman has a risk of breast cancer, 4 out of every 1000 women develop breast cancer. The women in the study who were given both synthetic estrogen and synthetic progestin had a risk of 5 out of 1000 women. According to the media this was a 25% increased risk, this is what it called a relative risk. But when this is recalculated statistically to absolute risk it is a 0.08% increase. In statistics this is what is called as being statistically insignificant. In case it is not obvious, that is a huge difference between what was reported and what was factual.

In 2022 the Menopause Society issued a statement on HRT stating that “absolute risks are more useful to convey the risk and benefits in the clinical setting”. They also stressed the need for healthcare professionals who care for menopausal women to “understand the basic concepts of relative and absolute risk to communicate the potential benefits and risks of HRT”. We all have an absolute 13% risk of developing cancer during our lives. HRT increases that absolute risk to 13.08%.

There is one more misconception regarding HRT and its safety and this one perplexes me a little when it comes to providers feeling apprehensive about prescribing



HRT, but very willing to prescribe birth control. The difference is about the type of hormones used and the dose that is used.

Most women have taken birth control during their reproductive years. Most birth control is a combination of synthetic estrogen and synthetic progesterone taken orally daily, in high doses. The dose needs to be high enough to suppress ovulation, in other words trick the body into thinking that it is pregnant so it does not release an egg. A typical dose of synthetic estrogen in birth control is 20 mg, this is considered safe and effective, with no increased risk of disease related, there is a slight risk of blood clots with this oral dose, especially if over the age of 35 and smoke but for the majority of women it is safe.

HRT is typically transdermal (given through the skin) bioidentical estradiol and oral bioidentical micronized progesterone. The lowest dose of estradiol in HRT is 0.025mg. If 20mg of synthetic estrogen is safe, why wouldn't 0.025mg of bioidentical estradiol be safe?

Synthetic hormones are chemical compounds that do not have the same molecular structure as the hormones our bodies make. Bioidentical hormones are made from naturally (yams) derived ingredients and are molecularly identical to what our bodies naturally produce. When using bioidentical hormones our body accepts them as our own and uses them. Whereas synthetic hormones have to be converted by the body into a useful form. Something that our bodies have made our entire lives does not become harmful to us just because we can no longer make them.

What is hormone replacement therapy

Hormone replacement therapy (HRT) , menopause hormone therapy (MHT), and bioidentical hormone replacement therapy (BHRT) are all the same thing, these terms



are used interchangeably, this is supplementing the declining estrogen, progesterone and sometimes testosterone that occurs with menopause using bioidentical hormones. HRT is the first line treatment in managing perimenopause/menopause.

A woman does not need to wait to stop having her periods to begin HRT, treatment can be started while you are still having periods and this is what is recommended by most Menopause societies. The earlier treatment begins the less likely chronic conditions will start.

Estrogen and progesterone are a woman's main hormones that are produced by the ovaries. Testosterone is produced not only by the ovaries but also by the adrenal glands and some women do not need to supplement this hormone because it does not become nonexistent in menopause.

Replacing estrogen is usually done transdermally, through the skin using bioidentical estradiol via a patch, gel or spray. This is because giving estrogen through the skin eliminates any risk of blood clots because it does not need to be metabolized by the liver. Oral estrogen needs to be digested and metabolized by the liver, when it is metabolized by the liver this increases the risk of blood clots.

Replacing progesterone is usually done orally using bioidentical micronized progesterone. This can also be used vaginally, but most women prefer the oral method because of its sedative effects and helping with calm and sleep. Progesterone is an important part of HRT because of its protective benefits to the uterus. If you have a uterus you will need to take progesterone. Estrogen alone can cause the endometrium (lining of the uterus) to thicken which could lead to complications. Progesterone keeps the uterine lining thin and can help with bleeding. Women who have had endometriosis and had a hysterectomy should also take progesterone to prevent any remaining endometrial tissue from growing.

For women who are in perimenopause, still having periods, which means they are ovulating and have no form of birth control it is usually recommended that they take a progestin only birth control pill or have an IUD placed to prevent pregnancy. HRT is not birth control and supplementing your declining estrogen can lead to more regular ovulation. Women have become pregnant while taking HRT so be sure to have a method of birth control if you do not wish to become pregnant



Testosterone is usually given transdermally through the skin using a gel or cream. In the United States there is not an FDA approved version of testosterone for use in women, so most providers use a compounding pharmacy to prescribe this medication. The compounding pharmacy uses the FDA approved bioidentical version that is made for men and decreases the amount to that which is appropriate for women. Testosterone is also a controlled substance in the United States so the provider who is prescribing will need to be licensed by the DEA in order to prescribe it.

For the majority of women, the benefits of HRT outweigh any risks. Most women can take HRT, using natural bioidentical hormones. Again these hormones have the same molecular structure as what is made in our ovaries and used in our brains, blood vessels, heart, skin, gut, bones, muscles, immune system, liver, bladder and vagina. Our hormones are everywhere in every part of our bodies. There is no length of time that we can be on our hormones. We do not need to stop them after 5-10 years and studies have shown that if we do, the chronic changes begin. Many women decide to take them forever, I know I have.

To put it simply, the main benefits of HRT is relief of symptoms and prevention of chronic diseases. Symptoms are typically resolved within a few weeks of starting HRT. One in two women over the age of 50 will experience a fracture due to osteoporosis, HRT reduces the risk of fractures by 60 %. Women who take HRT have a 30-40% less risk of developing dementia, a 50% reduction in heart disease, and a lower risk of diabetes, and colon cancer.

Many women start HRT to help with their symptoms but most stay on it to live a life without chronic diseases that come with estrogen, progesterone and testosterone depletion.

If you have any questions or concerns please reach me at 412-494-4550.

Be Heard. Feel Better.

Kelley DeFilippis, CRNP



Kelley DeFilippis, CRNP and Menopause Specialist

Telehealth Available: AK, CO, Pa, WV, FL, Me, MA, NH, RI, & MD

**Allegheny Medical
2000 Cliff Mine Rd.
Park West Two, Suite 110
Pittsburgh, PA 15275**

Phone: 412-494-4550

Email: info@alleghenymedical.com