

Menopause Demystified

The 2020 Guide to Menopause,
Hormone Therapy, & Midlife Health

CurieMD



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As of 2020, there are approximately 50 million menopausal women in the United States¹ — so why are so many women unprepared for menopause, confused about treatment options, and uncomfortable discussing this new and natural phase of life?

For years, menopause has been viewed as an unfortunate but unavoidable natural milestone in a woman's aging process, and as such, only about 20% of OB/GYN's have elected to receive specialized training in midlife health.² As a result, roughly 3 in 4 women who seek treatment for their menopausal symptoms don't receive it due to the lack of informed healthcare professionals or the traditional attitude that menopause is simply something to be endured.³

But does that need to be the case moving forward? With a deeper understanding of the hormonal changes taking place and a newfound respect for the way our bodies age, we believe the answer is simply "no". Menopause is uniquely human — we share this physiological change with just a handful of other organisms, all of which live underwater. Unlike the rest of the world's living organisms, our biological value does not equate to our ability to reproduce, and some argue that the richest chapter of the human experience lies beyond menopause.

"So many women I've talked to see menopause as an ending. But I've discovered this is your moment to reinvent yourself after years of focusing on the needs of everyone else. It's your opportunity to get clear about what matters to you and then to pursue that with all of your energy, time and talent." ⁴

- Oprah Winfrey

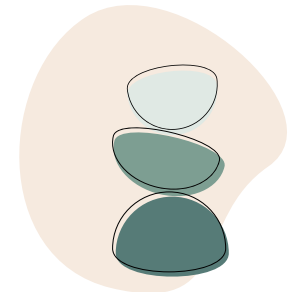


CurieMD's Mission is to be women's partner for a vital midlife.

We do this by providing education, awareness and access to midlife healthcare specialists, as well as prescribing FDA-approved medications when appropriate.

We have assembled this guide to help you navigate this transition, understand the latest research, and come out even stronger on the other side. Here's what you can expect to walk away with after reading **Menopause Demystified**:

- 1 A comprehensive understanding of what's happening during menopause and its context in a woman's life.
- 2 How to recognize the signs and symptoms of perimenopause and menopause, and how these can affect your body in the short and long term.
- 3 An overview of the most up to date treatment options for managing menopausal symptoms and midlife health.





A note from CurieMD's Chief Medical Officer, Dr. Leslie Meserve:

Dear Reader,

I'm so pleased you're taking the time to learn more about menopause and to seek the answers and solutions you desire. I went into the practice of medicine to help people live longer and better. Watching my patients and then my own mother struggle to find physicians who were willing and able to help them with the symptoms and effects of menopause exposed this disappointing gap in healthcare.

This is what we are hoping to change through CurieMD. Each of us is an individual with unique needs, and CurieMD's healthcare professionals are dedicated to discovering the perfect solution for you. Thank you for the opportunity to create a forum for change through education and connection.

Sincerely,

Dr. Leslie Meserve

Chief Medical Officer, CurieMD

CurieMD



What's Happening to My Body? Understanding the Menopause Transition

We Teach Puberty to our Teenage Girls; Why Don't We Teach Menopause to our Midlife Women?



“We spend a lot of time in the healthcare profession teaching women how not to get pregnant. Then we teach them how to have babies, and possibly we teach them how to breastfeed. But that is where the lectures end.”

—Tara Allmen,

CurieMD Medical Advisory Board Member and Author of *Menopause Confidential*

We all remember our first talk about the “birds and the bees.” Women are now peppered with ads touting the latest and greatest birth control methods. Maternity wear is a \$6 billion industry in the US alone. In contrast, these same women will usually have a vague idea of what is coming with menopause, and probably only thanks to a stray article in Reader’s Digest or by glancing at a stereotypical cartoon of a woman having a hot flash. However, most women are unaware that menopause encompasses a constellation of symptoms that can have a direct impact on their quality of life and are associated with significant health consequences.

In one British survey of over 1,000 women, 96% responded that they felt unprepared for menopause.⁵

Broader society and media skirt the real conversation around menopause, instead choosing to focus on the unattainable topic of how to stay young. It’s no wonder that women entering menopausal age are either blissfully unaware of what’s to come and slammed with confusing bodily changes, or they simply don’t want to talk about what is happening to them. Today, it is estimated that 42% of women don’t even discuss their menopausal symptoms with their primary care team.⁶

With medical and educational resources around menopause lacking, women are often misdiagnosed for years, wasting hours of time (and money).

Every woman's experience is uniquely different, but the quote below shares one experience with a menopause misdiagnosis:

“

A few years ago, I was 43, and had just returned to work after a long break bringing up my four children. I loved my life, but was feeling exhausted, teary and down, for no obvious reason. **My GP diagnosed depression and prescribed antidepressants. This, it turned out, was a misdiagnosis [that should have been diagnosed as menopause].** After six months, I felt worse. I had 'brain fog,' couldn't think clearly at work, cried at the most inconvenient moments, had hot flashes and didn't want to leave the house. ⁷

—Katie T.

This broad lack of awareness leads to more confusion among women around what is happening with their bodies and what to expect. What exactly is menopause, anyway? And how can women become better equipped to face it?



So, What Exactly “IS” Menopause?

As women age, they gain invaluable wisdom, and their physical bodies change in various ways. One of the natural transitions a woman goes through in her life is menopause.

Menopause by definition is the final menstrual period but has become an umbrella term which encompasses a variety of symptoms and conditions surrounding the end of a woman’s reproductive years.

It’s helpful for women to become familiar with the symptoms and implications of menopause so they can be aware of when it is occurring. This helps women become educated about what they can do to ease their transition so they can take steps to prevent long-term risks, such as bone loss, heart disease, and dementia. We’ll take an in-depth look at what menopause entails and how to know when a woman has reached this stage in her life.

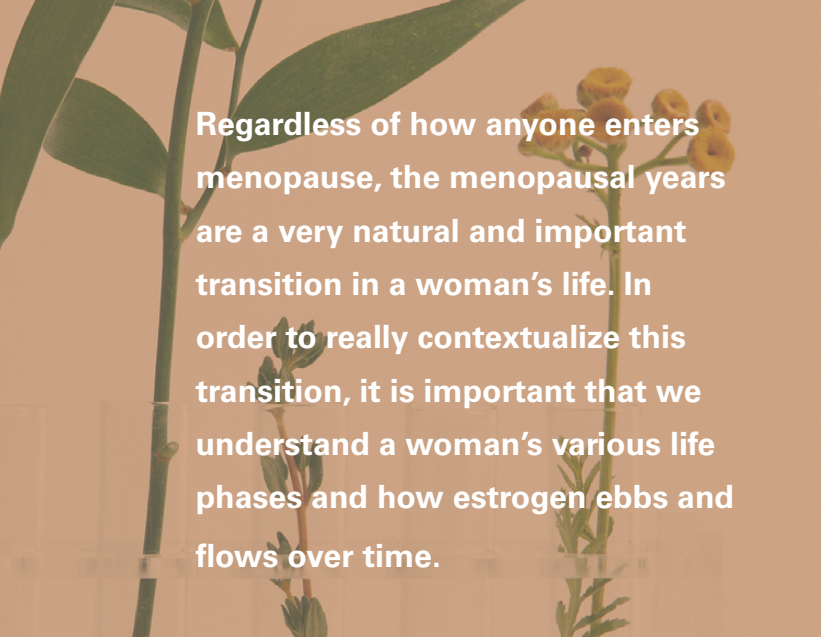
Natural vs. Surgical

Women typically enter menopause one of the following ways:

Natural menopause: For most women, ovaries stop producing estrogen and mature eggs, which may indicate that they are menopausal. The average age for this to occur is 51, but some women will experience menopause as early as 40.

Surgical / chemical menopause: For the ~35% of US women who undergo a hysterectomy (removal of the uterus), surgery can result in early onset menopause, thought to be related to disruptions in blood flow. An oophorectomy (removal of the ovaries) causes immediate menopause as the body can no longer release eggs or produce estrogen. Cancer chemotherapy/radiation treatment can also push women into menopause.





Regardless of how anyone enters menopause, the menopausal years are a very natural and important transition in a woman's life. In order to really contextualize this transition, it is important that we understand a woman's various life phases and how estrogen ebbs and flows over time.

III. PERIMENOPAUSE

This stage begins a few years prior to the final menstrual period (FMP) and lasts until 12 months after the FMP. Perimenopause itself typically persists for four years and is characterized by irregular menstrual cycles, vasomotor symptoms (hot flashes and night sweats), and decreased fertility. Women may also experience heavier menstrual bleeding, fatigue, mood swings, and insomnia during this time. Estrogen levels can dramatically rise and fall over the course of perimenopause, depending on whether the ovaries are ovulating or dormant.

Dr. Tara Allmen describes perimenopause as the 4-8 year journey toward ovarian retirement. When ovaries show up to work, estrogen is present. When ovaries take a day off, estrogen is absent. At some point, our hard-working ovaries get to retire, and that is menopause.

Note: Even though women may go several months without a period, that does not mean they are infertile. In fact, women in perimenopause are only second to teenagers in percentage of unplanned pregnancies.⁹ As a result, it is important that women still have some form of birth control during this important life period - otherwise they may be changing diapers again while their other children are in college.

Four Life Phases of Estrogen

I. PUBERTY

Puberty is when the ovaries move into the adult state and is characterized by hormonal changes, breast development, and height increase (growth spurt). The communication system between the ovaries and the brain wakes up, and the ovaries receive signals to start producing estrogen and to start reproductive capability (ovulation).

II. REPRODUCTIVE YEARS

This stage begins with a woman's first menstrual period and is characterized by cyclical menstrual bleeding and ovulation. A woman's estrogen and progesterone levels rise and fall throughout each month. When a woman is pregnant, circulating estrogen levels are as much as ten times higher than when she is ovulating,⁸ only to return to normal levels post pregnancy.

Four Life Phases—continued

IV. MENOPAUSE

Menopause is confirmed after one year without menstrual cycles, and the average age for this is 51. By the end of the menopause transition, estrogen drops to 1%-10% of what it was during the reproductive years.

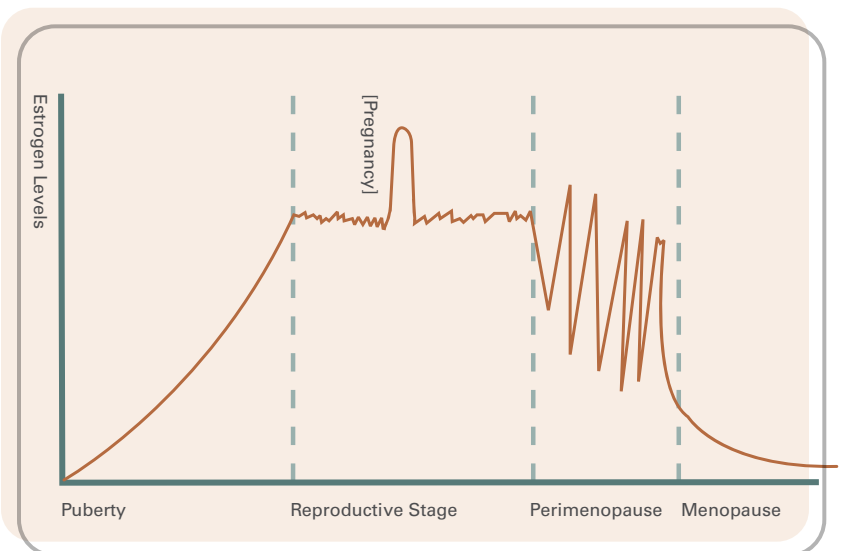
Vasomotor symptoms (e.g., hot flashes, night sweats) become even more common during the first few years after the final menstrual period; fully 75% of women will experience these. Other menopausal symptoms may also include irritability, brain fog, insomnia, anxiety, depression, heart palpitations, joint aches daytime fatigue, vaginal dryness, decreased libido, and painful sex. These symptoms vary in duration for each woman but can last for years.

Despite the symptoms that some may experience, menopause is marked by a new sense of freedom among women, who no longer need to arrange contraception or plan for menstrual cycles as they once did.

As one can see, a woman's estrogen levels play a key role in not only her reproductive development, but also in how her body's hormonal rhythms play out. As Drs. Bluming and Tavaris proclaim with the title of their book (*Estrogen Matters*), estrogen really does matter.



Four Life Phases of Estrogen



What does menopause mean for me?

According to NAMS (North American Menopause Society),

“...about 75 percent of women experience some kind of menopausal distress. And for some 20 percent of these women, symptoms — in particular hot flashes and night sweats — are severe enough to interfere with just about every meaningful aspect of their lives: sleep, work and relationships.¹⁰”

Here's the thing. The numbers show that MOST women will experience symptoms, so you are not alone. Like puberty and the reproductive phase, menopause is a shared experience to which most women will be able to relate. However, as we stated earlier, most women won't get the same level of nurturing and coaching for this phase. The start of the menstrual cycle would be quite bewildering without some preparation and explanation. Imagine going through pregnancy with no medical guidance. Why should menopause be any different? We know that knowledge is power, so our goal with this section is to give you a detailed overview of what changes to expect with the onset of menopause.

We'll split these changes into two sections:

- 1 **Immediate Shorter-Term Effects**—Menopause can come with some of the obvious physical symptoms (hot flashes, night sweats, etc.), but it can also present with more subtle, less obvious changes that are psychological, social, and sexual.
- 2 **Longer-Term Health Effects**—Thanks to recent research, we now know that menopause plays a significant role in the way women age. From cardiovascular to neurological health, we'll discuss the ways that menopause can make the body more susceptible to disease (and how early treatment can help mitigate these risks).

Warning: A lot of the symptoms we're going to discuss will either sound concerning, or you will already be familiar with them. But don't despair — we will go into treatment options in the next section. If you want to jump there now, [Click Here](#).

What is the Immediate Impact of Menopause?

Menopause has long been associated with certain “textbook” symptoms, such as hot flashes and night sweats. However, menopause can manifest in a variety of ways for women - physically, psychologically, sexually/vaginally, and socially. Below is a list of some of the more common menopausal symptoms.

Physical symptoms

Hot Flashes / Night Sweats

Hot flashes and night sweats (also known as ‘vasomotor symptoms’) are the most common symptoms associated with menopause. Up to 80% of women experience hot flashes and/or night sweats.¹¹

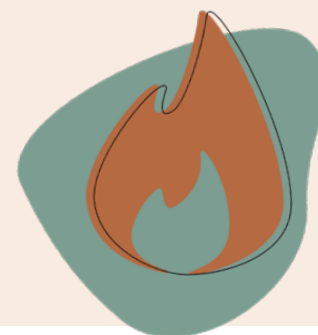
Hot flashes typically last upwards of 7 years, usually starting during perimenopause and continuing for about 5 years after a woman’s final menstrual period. For some women, they may even last upwards of 15 years! Yikes.

Not all hot flashes are created equal. Mild hot flashes may be nothing more than a small nuisance, while moderate and severe hot flashes can adversely impact a woman’s quality of life, including sleep, memory, and libido.

While the precise cause of hot flashes is unknown, what is known is that the decline in estrogen levels is a trigger —this is often why postpartum women experience hot flashes or night sweats as well.

What is a hot flash like?

Linda K. describes her typical hot flash, “They start out with a hint of warmth which then escalates to a sense of intense heat in my chest that spreads to my arms and sometimes to my legs. I start sweating a little on my face - just under the eyes - and a lot on my scalp; I keep tissues in my handbag to blot the perspiration. I have the urge to remove as many clothes as is socially acceptable to try to cool down. The most frustrating time is when I’ve just put on my makeup!”



Physical symptoms—continued

Insomnia

“The importance of sleep is underestimated. Most menopausal women complain of interrupted sleep where they fall asleep and then have many nighttime awakenings. This not only results in chaotic sleep, but also in downstream affects including impact on memory, sex drive, and overall alertness.” —Dr. Michael Krychman, CurieMD Medical Advisory Board

Insomnia is one of the most common and problematic symptoms of menopause; studies show that insomnia affects somewhere between 12% and 57% of women during the menopausal transition.¹²

Women often have no problem falling asleep; it is STAYING asleep that is the issue.

Additionally, low estrogen levels have been demonstrated to shorten a woman's rapid eye movement (REM) cycles; so even when women are sleeping, their sleep is often not as restorative as it once was.

This is all particularly troublesome as drop in the quality and quantity of sleep can affect all facets of life (e.g., mood, energy, health, productivity) and can even increase a woman's risk of heart disease and diabetes.¹³

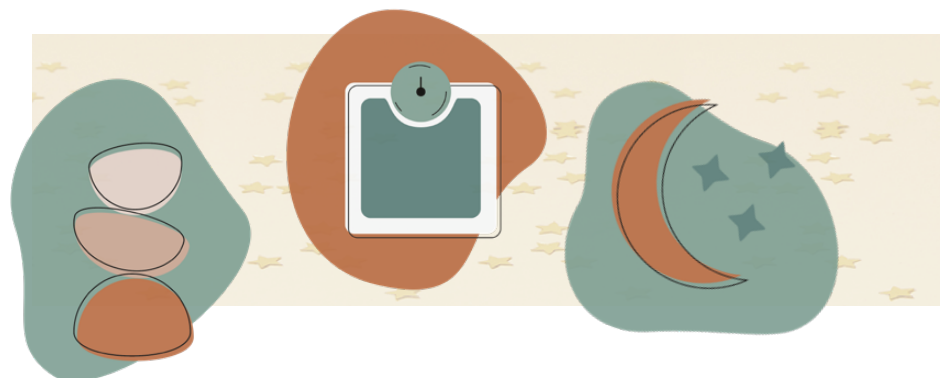
Weight Gain Around the Belly

Holding all else constant, women typically gain 5 lbs. during the menopausal transition.¹⁴ The weight gain itself is not so much a function of menopause (the decline estrogen) as it is normal aging.

However, the decline in estrogen IS associated with an increase in total body fat and especially abdominal fat, as weight will often redistribute from other portions of the body to the abdomen.¹⁵ Weight gain in the belly is particularly risky as it increases the risk of diabetes and metabolic disturbances.

Aging Skin

As estrogen declines, skin can begin to lose elasticity. Women tend to lose more than 1% of skin thickness and ~2% of collagen every year after the onset of menopause.¹⁶ Moreover, the decline in estrogen can also result in decreased hydration, fine wrinkling, and poor wound healing, all of which may cause the skin to age more rapidly.



Psychological

Memory Loss / Brain Fog

For women who have ever felt like their brains are working at a slower speed as they transition into menopause, they are not alone.

Word retrieval may become more difficult. Many women report that they can't find the word for certain common objects and "THINGY" becomes a favorite word (e.g., "Thingy" for the TV remote or garage door opener).

The drop in estrogen during menopause actually does cause the brain's processing ability to slow down, both in processing answers to questions and in reacting to physical changes in the environment.¹⁷

Melinda R reported, "A year or so before my last period, I noticed slowly worsening subtle difficulty with word finding, decreased metabolism and decreased energy. I would have night sweats and would rarely feel refreshed in the mornings. It's hard to run meetings at work when it feels like walking through mud to find a word."

Depression

The incidence of depression or low mood increases as women become perimenopausal.

While this may often be a function of the other menopausal

symptoms, studies have shown that the drop in estrogen itself from perimenopause was "significantly associated with depression in midlife women."¹⁸ And for those women who have surgically induced menopause, the risk of depression is heightened.

Mood Changes

“Up to 23 percent of women do report some mood changes, primarily during perimenopause. In fact, in the Harvard Study of Moods and Cycles, premenopausal women with no lifetime history of major depression who entered perimenopause were twice as likely to develop significant depressive symptoms as women who remained premenopausal, and women with hot flashes were at an even greater risk. —Mache Seibel¹⁹

Through no fault of their own, many women experience increasing mood swings and irritability as menopause nears. This uncharacteristic emotional roller coaster is directly tied to a decline in estrogen, as the ovaries no longer generate either sufficient or consistent levels of estrogen to keep emotions steady.²⁰

Carrie W. states, "It started with my kids and husband noting that I was a little shorter tempered, and then I started not being able to sleep well at all. I felt like I had no patience with anyone. Once I started hormone therapy, I felt a definite improvement. I was no longer laying awake for an hour or two each night. Wearing earplugs to drown out my husband's snoring helped too! I'm so happy that I have more patience with my family and work and have much less anxiety."

Sexual / Vaginal

“The genitourinary syndrome of menopause (GSM) is a new term that describes various menopausal symptoms and signs including not only genital symptoms (dryness, burning, and irritation), and sexual symptoms (lack of lubrication, discomfort or pain, and impaired function, but also urinary symptoms (urgency, dysuria, and recurrent urinary tract infections).”²¹

Unlike some physical symptoms (such as night sweats) that eventually go away, vaginal / sexual issues tend to get worse with time. Also, while not everyone will experience vasomotor symptoms (hot flashes / night sweats), eventually every woman who goes through menopause will experience genitourinary symptoms.

Vaginal Symptoms

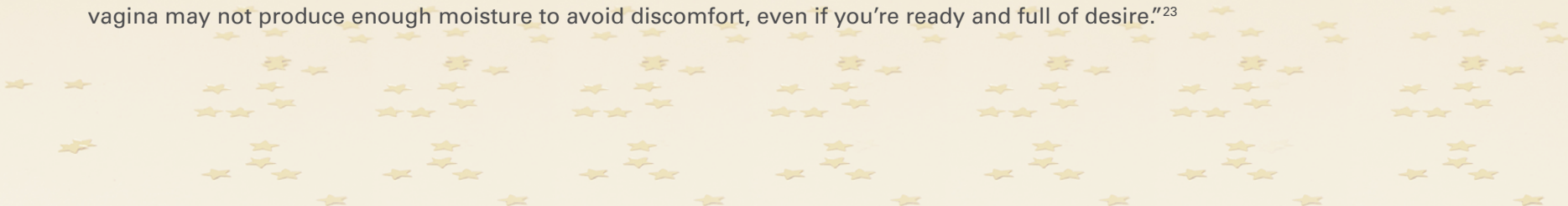
Vaginal dryness, burning, itching, or irritation is one of the most common complaints from menopause. Almost 40% of women in their 50's complain of vaginal dryness, and the incidence rate increases with age.²²

These symptoms stem from a drop in estrogen. As estrogen diminishes, vaginal blood flow begins to decline, which in turn reduces moisture, thins the vaginal skin, and causes irritation.

Sexual Symptoms

Vaginal irritation can result in painful intercourse. And not surprisingly, this pain reduces women's desire to be intimate.

While some women discover that “continued sexual activity can help keep the tissues healthy because of increased blood flow, the low estrogen and resulting vaginal dryness can require much more time to lubricate before intercourse, and even then the vagina may not produce enough moisture to avoid discomfort, even if you're ready and full of desire.”²³



Sexual / Vaginal—continued

Urinary Symptoms

While it is not often discussed, roughly 50% of women will experience urine leakage/incontinence at some point in their lives.²⁴ The proof for this hushed topic is in a new booming market for disposable incontinence pads that is expected to top \$15 billion by 2025.²⁵

The decline in estrogen can “weaken the bladder trigone muscle, weaken the surrounding tissues, and affect the closing pressure of the urethra and how well a woman can tell if her bladder is getting full. And all this contributes to less bladder control and a more sensitive bladder.”²⁶

These urinary symptoms can lead to an increased frequency of bladder and urinary tract infections.



Social

Unsurprisingly, long-standing sleep deprivation and impaired short-term memory can lead to lower interest in social and work engagements and overall decline in quality of life.

Further, women also often don't want to share the changes or challenges they are facing during menopause due to embarrassment or fear of stigmatization. According to a 2018 AARP survey, 71% of menopausal women don't want to discuss menopause with anyone, 58% don't want to discuss it with their partner, and over one third don't even feel comfortable talking about it with their friends.²⁷ Dealing with these symptoms alone can be isolating and frustrating.

Below are a few examples of how menopause can impact social life.

Spouse/Partner

Unfortunately, menopause and its accompanying symptoms can impact partner intimacy.

Among women surveyed by the North American Menopause Society, "vaginal discomfort caused most surveyed North American women to avoid intimacy (58%), experience loss of libido (64%), and experience pain associated with sex (64%)." ²⁸ Further, ~30% of women and men cited surveyed indicated that vaginal discomfort was the main reason that they stopped becoming intimate in its entirety.²⁹



Social—continued

Career

“Women with severe hot flashes were almost three times more likely to have their work ability impacted than women with mild to moderate hot flashes.”³⁰ —Mache Seibel

Dr. Phil Sarrel of Yale found that two-thirds of women reported that their menopausal symptoms had a moderate to severe effect on their work, and some had to quit work as a result.³¹

Women with vasomotor symptoms (hot flashes / night sweats) can experience poor sleep, mood changes, poor concentration, and impaired short-term memory, and these have been associated with impaired work ability, higher work absenteeism, and increase in healthcare visits and costs. The greater the intensity of vasomotor symptoms, the greater the impact on productivity.

Parenting

As the average age of motherhood increases, so does the likelihood that children will go through puberty at the same time mothers enter menopause, creating a precarious hormonal environment.

“For my late-mothering generation, this is the new norm. Any woman giving birth to a daughter while in her 30s will experience her peri-menopause alongside her daughter’s puberty.”³² —Annabel Abbs

For menopausal mothers, this friction within the home (often coupled with having to take care of their own aging parents) can create unhealthy levels of stress and resentment.

How Will Menopause Affect Me in the Long Term if Left Untreated?

“When we talk about menopause, we’re not just talking about hot flashes and night sweats . . . We’re talking about what happens after the ovarian hormones go away and women become at increased risk for osteoporosis, heart disease, cognitive decline.” ³³

—Wen Shen, assistant professor in the Johns Hopkins School of Medicine, Department of Gynecology and Obstetrics



While menopause may or may not manifest symptoms in the short-term for an individual woman, there are important long-term health implications from menopause that should not be ignored.

As estrogen levels decline, the greatest health risks are for heart disease, bone loss, and dementia. And unfortunately, those health risks are even greater for those who experience menopause earlier (whether naturally or surgically).

Cardiovascular (heart disease)

Heart disease is the #1 killer of women, yet not many people know this or know that it's related to menopause. Women are roughly 7x more likely to die of heart disease than breast cancer (300,000 vs. 40,000 in 2018). In fact, more women are killed by heart disease than from all forms of cancer *combined*.^{34,35}

As estrogen drops, blood vessels constrict and are quicker to accumulate cholesterol plaque. As a result, women are more likely to die of heart disease than breast cancer in every decade over age 40. This is why monitoring cardiovascular health is a must for women of all ages, but especially in midlife and beyond.

Musculoskeletal (bone loss)

A shocking statistic - Every year in the United States, just as many women die from hip fracture as from breast cancer. Estrogen deficiency is the major cause of bone loss and declining bone elasticity (i.e., how much a bone can bend without breaking). When women stop producing estrogen and their bone elasticity decreases, the risk of hip fracture rapidly increases. The unfortunate reality is that "25% of patients with a hip fracture will die within a year and over 50% never regain their prior level of activity."^{36,37} Since most women aren't aware of this health risk lurking around the corner in middle age, it is more important than ever for doctors to educate women about ways to protect bone density, and hormone therapy can be a fantastic preventative measure.

Neurological (dementia)


Did you know that dementia disproportionately impacts women more than it does men? Two thirds of all people with Alzheimer's disease are women. Even accounting for women's increased life span relative to men, women are still more likely to experience dementia. A woman in her 60's is also twice as likely to develop Alzheimer's as she is to develop breast cancer.³⁸

While the exact cause of Alzheimer's is not known, we do know that the drop in estrogen adversely impacts brain health. Blood flow to the brain constricts and gray matter (volume of brain cells) declines. There is even evidence that the frequency and intensity of hot flashes impacts the likelihood of dementia as it reduces cerebral blood flow.³⁹

However, in all of this, there is good news!

Solutions such as hormone therapy and healthy lifestyle changes can help to mitigate these long-term health risks.

How can I manage my menopause?

A vertical test tube containing a branch with green berries and leaves. The test tube has orange markings and numbers (00, 08, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98, 100).

“ After my menstrual cycle stopped for good, at 53, I wasn’t prepared to have such difficulty concentrating. Reading, my favorite pastime, became a chore. Suddenly my attitude toward most things was ‘whatever.’ I wasn’t vibrant. My whole world dulled down a couple of notches.

Then a friend mentioned that she’d felt the same dullness, and that her doctor had recommended an estrogen supplement. Bingo. For me, too, that proved to be the answer... **All it took was one application, and the world returned to Technicolor.** I could feel my countenance shifting. For the first time in years, I was sleeping the whole night through.

—Oprah Winfrey⁴⁰

Many women have reported experiences similar to that of Oprah, where certain symptoms of menopause can strip women of their vitality and almost make them feel powerless. Midlife women shouldn’t be resigned to such a fate and a life in the shadows. The goal of **Menopause Demystified** is to give you evidence-based facts so you can confidently make the best health decisions for a vibrant future.

What is Hormone Therapy?

“Hormone therapy (HT) remains the most effective treatment for vasomotor symptoms (VMS) and the genitourinary syndrome of menopause (GSM) and has been shown to prevent bone loss and fracture.”⁴¹

—North American Menopause Society, 2017 Position Paper

As mentioned prior, estrogen levels typically plummet after menopause, usually to levels that are ~1% of those in premenopausal women.⁴² The purpose of Hormone Therapy (HT) is to help replenish those estrogen levels to roughly ~10-25% of what they were.⁴³ Though estrogen will never return to 100%, this slight bump can have amazing stabilizing effects on a woman's life.

While menopausal HT typically refers to estrogen therapy, HT can include a number of hormones:

Common FDA-approved prescriptions

Estrogen—For those that have had a hysterectomy, estrogen-only therapy may be prescribed to help replenish depleted estrogen levels

Progesterone—For those that still have their uterus intact, progesterone must be combined with estrogen to prevent over stimulation of the uterine lining/endometrium. Unopposed estrogen can lead to serious medical concerns like endometrial overgrowth or endometrial cancer.

Off-label (non-FDA approved) prescriptions

Testosterone—Testosterone is approved by the FDA for use in men, and these products can be prescribed off-label for women but have to be taken in much smaller doses. Women should also be monitored carefully to prevent any side effects from developing. According to The Journal of Clinical Endocrinology and Metabolism, the only reason for which testosterone therapy has enough clinical research in women is for the treatment of hypoactive sexual desire disorder (decreased libido).⁴⁴

Pregnenolone—This hormone is heavily marketed but has not been studied in large clinical trials.



Over the Counter (non-prescription):

Dehydroepiandrosterone (DHEA)—DHEA is a pro-hormone that is converted into testosterone and estrogen in certain cells in the body. DHEA is available as an over the counter non-prescription supplement.



Note: DHEA can also be prescribed as a compounded oral or topical product or as an FDA-approved vaginal capsule.

It is increasingly common these days to hear the term “bio-identical hormones” and “BHT” thrown around in reference to hormone therapy - as a result, it is important to understand the distinction between these two types of HT:

1) Synthetic HT is typically synthesized from animal byproducts; for instance, Premarin got its name because it is synthesized from the equine estrogen found within PREgnant MARE urine

2) Bio-Identical HT (BHT) is plant-based and is chemically identical to the hormones our bodies naturally produce; estradiol is synthesized from plants such as yams or soybeans

Note: Bio-Identical estrogen typically refers to estradiol, which is the predominant form of circulating estrogen.



What are the benefits of Hormone Therapy?

As I see it, women have a competitive health and survival edge before menopause. Women during their childbearing years are protected against many problems that affect men. I see no reason to relinquish that advantage after menopause—not if I can help it.⁴⁵

—Dr. Bernadine Healy, cardiologist and the first and only female Director of the NIH

Independent of whether a woman chooses to utilize synthetic or bio-identical HT, there are some very real benefits in the immediate and longer-term that can come from its use. Whether it is reducing the risk of dementia or helping women sleep through the night, HT can have a range of benefits (some of which may come as a surprise).

Immediate Symptom Relief— The reason why women tend to **start** on HT.

Physical

Hot Flashes / Night Sweats

In 2004, the Mayo Clinic found that estrogen therapy can reduce the frequency of hot flashes by more than 75 percent.⁴⁶

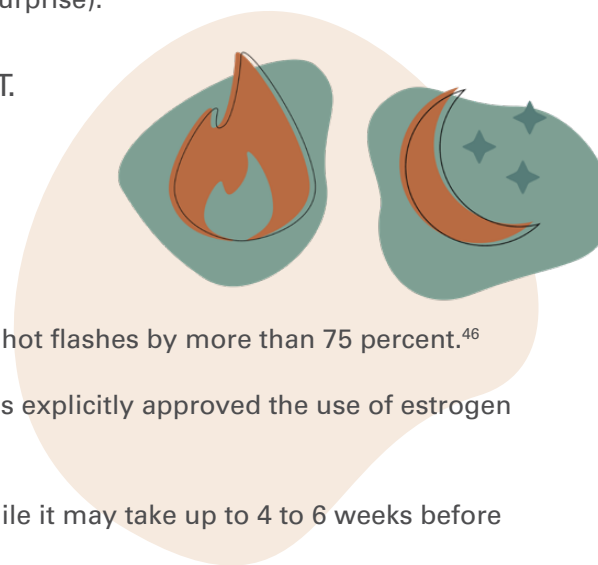
Several other studies have demonstrated similar results, which is why the FDA has explicitly approved the use of estrogen therapy for the management and treatment of vasomotor symptoms.

Some women may experience symptom relief from HT within just a few days, while it may take up to 4 to 6 weeks before others notice an impactful difference.

Insomnia

In an attempt to improve their sleep, perimenopausal and menopausal women are more than twice as likely to take prescription sleep aids than premenopausal women. This 'solution' is often more of a Band-Aid approach, as it doesn't address the underlying medical issue - a drop in estrogen levels.

In contrast, estrogen therapy has been shown to dramatically improve both quality and quantity of sleep for menopausal women by reducing many of the other physical symptoms of menopause.⁴⁷



Physical—continued

Weight Gain Around the Belly



While estrogen supplementation has little impact on stopping weight gain, HT does in fact play a critical role in weight and fat accumulation around the midsection. Several studies have demonstrated that menopausal hormone therapy reduces abdominal weight gain and helps prevent the relocation of fat to the belly.⁴⁸

Additionally, not only have studies typically shown a reduction in overall fat mass with HT, but such studies have also demonstrated improved insulin sensitivity and a lower rate of development of type 2 diabetes.⁴⁹

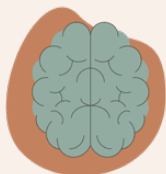
Aging Skin

As described below by Dr. Mache Seibel, estrogen plays a critical role in supporting the restoration and maintenance of healthy skin.

“When you compare the skin of postmenopausal women taking estrogen with those who are not, there are some significant differences. Within 6 months of taking oral estrogen, the skin is thicker. Topical estrogen can achieve these results in as little as 2 weeks. When postmenopausal women who have taken estrogen since menopause for 5 years are compared with women who have not taken estrogen for the first 5 years after menopause, the women who take estrogen have significantly fewer wrinkles. Simply stated, estrogen improves the detrimental skin changes of aging on the face and body.” —Mache Seibel, The Estrogen Fix⁵⁰

Psychological

Memory Loss / Brain Fog



“Women often describe the feeling as having the fog lifted. In fact, I had a patient who was using hormone therapy for her significant night sweats. Within a few months, her head was so much clearer and sharper that she finished a PhD thesis she had started twenty years earlier. That really is a true story.”⁵¹ —Tara Allmen, Menopause Confidential

Many women are unaware that brain fog has such a direct correlation to the decline in estrogen that comes with menopause. Estrogen therapy supports improved blood flow to the brain and helps regain the brain's processing ability.

Psychological—continued

Depression / Mood Changes

“Two randomized, placebo-controlled studies in which women suffering from depressive episodes received four to twelve weeks of estrogen or placebo found a 60 to 75 percent improvement in the estrogen group versus a 20 to 30 percent improvement for women given placebo. That estrogen has such a high rate of success in lifting depression—much better than what research has found for antidepressants and without the often unpleasant side effects of antidepressants—is tremendously important.” —Estrogen Matters

Dr. Pauline Maki states that perimenopause is “a window of vulnerability for development of both depressive symptoms and major depression.”⁵²

We have to separate out **major depression** and **mild depressive symptoms**, because the research shows different needs for these two categories. Women with a clinical diagnosis of **major depression** after menopause in most cases have a history of major depression at some point in their past, and these women may require a combination of prescription anti-depressant medications, psychological support, and possibly estrogen therapy. Estrogen by itself will not likely be sufficient for this serious diagnosis.

However, for women with **mild anxiety** or **mild depressive symptoms** in the perimenopausal and menopausal time frame, estrogen has been shown to enhance mood and relieve anxiety. It’s interesting to note that patients with vasomotor symptoms (hot flashes/night sweats) have a higher risk of depression.

Note: Even without vasomotor symptom improvement, estrogen therapy still has been shown to improve mood.



Sexual / Vaginal

Vaginally applied estrogen can help relieve genitourinary symptoms as well as promote sexual function.

Genitourinary symptoms: Vaginal estrogen may improve incontinence by increasing the number of blood vessels around the peri-urethral and bladder neck region and reduce bladder contractions. Estrogen may also improve synthesis of collagen and improve vaginal epithelium (outer tissue cells).

Sexual function: Transdermal or vaginal estrogen helps increase vaginal lubrication, blood flow and sensation, arousal and orgasmic response. The veins, arteries, and nerves in the pelvic area all have estrogen receptors! Many experience the benefits within weeks.

An important note regarding vaginal estrogen: In order to continue receiving benefits, women need to take vaginal estrogen indefinitely. Should someone stop applying vaginal estrogen for a few months, the “vaginal and surrounding tissues will return to the state they were in before you started the medication.”⁵³



Social

Estrogen can play a role in how women function in social and professional environments. Fortunately, HT has been shown to help relieve a number of the symptoms that impact social and working relationships.

Spouse

As discussed, menopause can sometimes place distance between couples, as intimacy becomes more difficult and mood swings create friction.

Fortunately, there have been several studies reviewing the impact of menopause and hormone therapy on relationships. In one 2012 study in particular, “North American women who used local estrogen therapy to treat their vaginal discomfort reported less painful sex (56%), more satisfying sex (41%), and improved sex life (29%). Most men reported looking forward to having sex (57%) because of their partner’s use of local estrogen therapy.”⁵⁴

Career

Midlife is a time where women and men alike may be reaching the pinnacle of their careers. Unfortunately for women, menopausal symptoms can be an added and unnecessary stressor in the competitive workforce.

There is some good news, however. As noted in the chart, HT and estrogen replacement have been studied in the context of the workplace and been found to be quite beneficial.⁵⁵ This is largely due to improvements in mood, sleep, productivity, and decision-making ability—all skills critical to performance in the workplace.

Effect of Estrogen on Symptoms Affecting Work*

Symptom	Pre-HT	Post-HT
Trouble remembering	82	26
Disturbed Sleep	80	10
Worrying Too Much	74	32
Difficulty Making Decisions	54	20
Checking and Double-Checking	46	8
Temper Outbursts	34	6
Blocked in Getting Things Done	54	18
Doing Tasks Slowly to Insure Correctness	48	8

*Adapted from: Sarrel P, Rousseau M, Mazure C, Glazer W. Ovarian steroids and the capacity function at home and in the workplace. *Ann NY Acad. Sci.* 1990;592:156-161.



Long Term Health Benefits—The reason why women tend to **stay** on HT.

Cardiovascular

“Most, but not all, studies of hormone replacement therapy in postmenopausal women show around a 50% reduction in the risk of a coronary event in women using unopposed oral estrogen.”⁵⁶ —*Elizabeth Barrett-Connor, professor of preventive medicine at the University of California, San Diego*

As we discussed previously, heart disease kills more women than all forms of cancer combined. The good news is that when hormone therapy is initiated within the first 10 years after menopause, HT lowers the risk of coronary heart disease by 50% and lowers the risk of all causes of mortality. As a result, several researchers have come to the conclusion that “HT should extend life expectancy for nearly all postmenopausal women with some gains exceeding 3 years.”⁵⁷

Musculoskeletal

As mentioned previously, estrogen deficiency is the major cause of bone loss. Osteoporosis, which means “porous bone,” is often times the unfortunate result and can leave women much more susceptible to life threatening fractures.

Hormone therapy helps prevent osteoporosis and decreases the risk of hip and vertebral fractures. However, when women stop estrogen supplementation, the risk of hip fracture rapidly increases and within 6 years is where it would have been if they’d never taken hormones at all.

Additionally, women are more likely to suffer a serious fall and fracture than men. One third of women over the age of 60 fall each year - two and a half times more than men of a comparable age.^{58,59} Taking estrogen decreased the risk of nonvertebral fractures by 27% compared to a group of women who didn’t take it.”⁶⁰

Neurological

On October 16, 2019, a headline appeared on the cover of Menopause.org, the website of the North American Menopause Society, “Hormone Therapy Associated With Improved Cognition: New study demonstrates benefits of extended estrogen exposure and longer-term hormone therapy in battling cognitive decline.”⁶¹

This study and several others like it have shown that estrogen protects neurons from oxidative stress, improves the brain’s blood supply, and helps “stimulate the nerves of the brain to grow, repair when damaged, and transmit signals more effectively.”^{62,63}

Four observational studies show that HT helps reduce the risk of Alzheimer’s disease by 24-65% depending on the study, as long as the HT initiated within the first 10 years after menopause.⁶⁴

Who are the best candidates for Hormone Therapy?

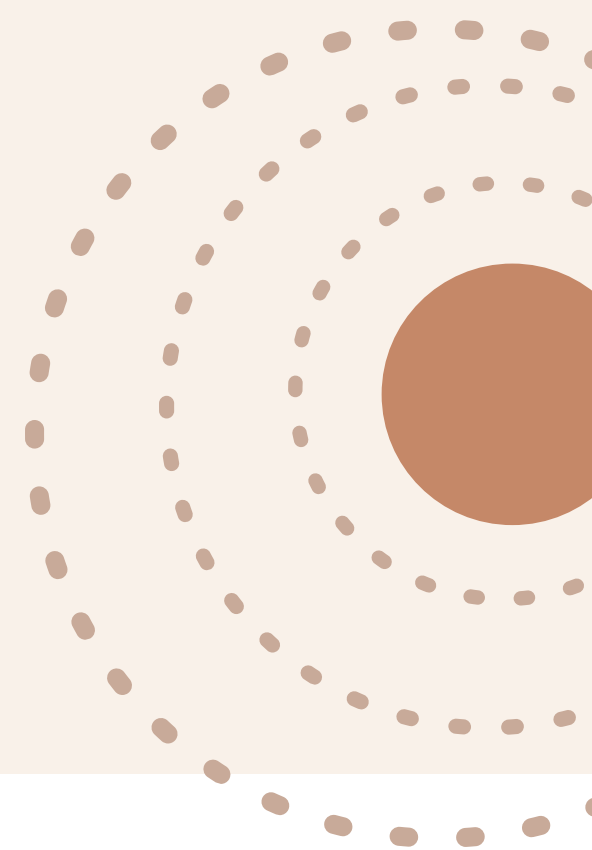
While there are many benefits associated with Hormone Therapy, HT does have its risks and not everyone is a good candidate. Women with certain health conditions may still benefit from hormone therapy, but they could experience greater incidence of side effects.

The “Estrogen Window”

Many articles about hormone therapy reference a phenomenon known as the “Estrogen Window”, which is the window of time where women can begin hormone therapy.⁶⁵ Evidence supports that women who start estrogen within 10 years of menopause or before age 60 receive the most benefit - preservation of bone strength and elasticity, a lower risk of memory loss due to Alzheimer’s disease, and a lower rate of heart disease.

Why the window? The sharp decline in blood levels of estrogen that accompanies the onset of menopause profoundly affects the cardiovascular system. Blood vessels exposed to pre-menopausal levels of estrogen tend to be more elastic, responsive to exertion, and able to supply the need for increased blood flow. Estrogen helps vessels to resist the buildup of cholesterol and calcium plaque.

Conversely, when estrogen levels decline, blood vessels become less elastic and are prone to build up of cholesterol and calcium plaques, especially in the smaller vessels that supply the heart and other vital organs. This contributes to the rising incidence of heart attack and stroke that follows the onset of menopause. Further, with enough accumulation of arterial plaque, hormone therapy can actually be detrimental, as the influx of estradiol can dilate the veins and loosen plaque, increasing the likelihood of a blood clot or stroke.



Common Risks and Contraindications

Even for those who wish to begin HT within their Estrogen Window, there are certain side effects, contraindications, and risks to be made aware of.



Side Effects

Common side effects of hormone therapy include breast tenderness, nausea, bloating, fluid retention, mood swings, headaches, and vaginal bleeding. These will often resolve on their own after a few weeks or may require some adjustment in the dosage of estrogen or progesterone. Generally, these symptoms not considered to be harmful.

Contraindications

Unfortunately, contraindications exist that may make certain women more prone to adverse reactions. For instance, for women who have known or suspected breast cancer, are prone to blood clots, have cardiovascular disease, or experience liver dysfunction, the risks from taking hormone therapy may very well outweigh the benefits. If there is any ambiguity, it is always best to speak with a midlife health expert to determine whether HT is the right course of action.

Risks

There are several potential risks to be made aware of, however, susceptibility to these risks really does vary based on the type of HT a woman is using as well as her health profile.

Let's start with the risk that is likely highest on everyone's mind.

Breast Cancer

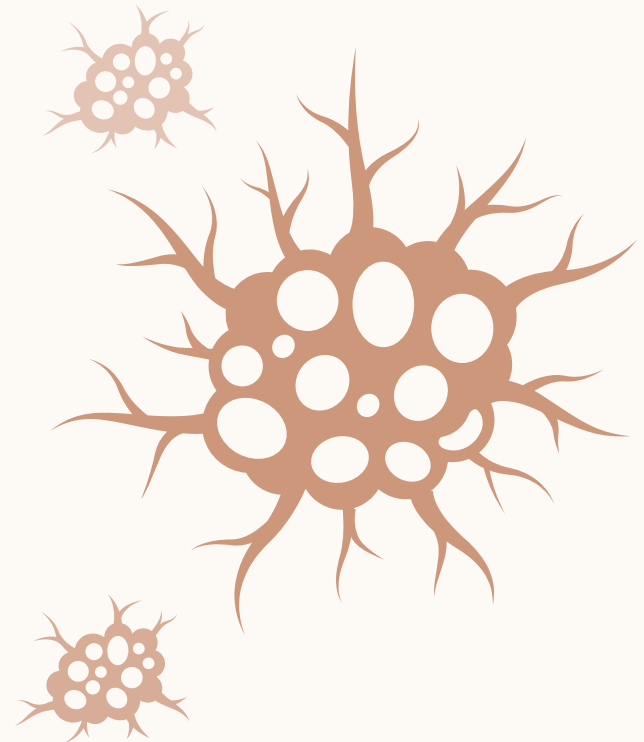
When many women hear the term “HT,” their mind goes to “doesn't this increase my risk of breast cancer”? The answer here is complicated, and we cover the controversy in more detail in the next section.

One of the most damning studies was the Women's Health Initiative (WHI). This study concluded that when women took synthetic estrogen + progestin, the absolute increase in risk for breast cancer after 5.6 years of daily usage was 0.08%.⁶⁶

***Quick note:** that absolute increase in risk is the same or less than the increased risk from drinking a daily glass of wine or eating grapefruit.^{67,68,69}*

However, the WHI largely studied women who started HT outside their estrogen window (average age of 63) and women who had certain complicating health conditions, including risk factors for cardiovascular disease (over 35% were treated for high blood pressure; 70% were either considerably overweight or obese).⁷⁰

Further, the 0.08% increase wasn't statistically significant (meaning it could have been a function of chance) and those who took conjugated equine estrogen-only actually saw a **decrease** in incidence of breast cancer (although that decrease was also not statistically significant).⁷¹



Some other potential risks include:

Increased Breast Density

Increased breast density may make mammograms slightly more difficult to interpret.

Ovarian Cancer

A collection of observational studies found that HT use for 5 years yielded one additional ovarian cancer case per 1000 users and one additional ovarian cancer death per 1700 users. This trial included multiple forms of HT. According to the North American Menopause Society, “If an association between HT and ovarian cancer exists, the absolute risk is likely to be rare (less than 1 out of 1000) or very rare (less than 0.1 out of 1000) and more likely with longer durations of use. There was no increased risk with HT seen in one large study [Women’s Health Initiative] after 13 years of follow up.”

Endometrial Hyperplasia and Cancer

This can occur if women with a uterus fail to take progesterone pills or if progesterone is inadequately dosed. However, appropriate use of progesterone in women with a uterus dramatically reduces the risk of endometrial cancer.

Biliary Issues

Issues such as gallstones and inflammation of the gallbladder can occur if the estrogen is taken orally.

Stroke, Dementia, and Heart Attack

The incidence of these diseases is slightly increased if HT is started after age 65 or more than 10 years post menopause (i.e., outside of the “estrogen window”).



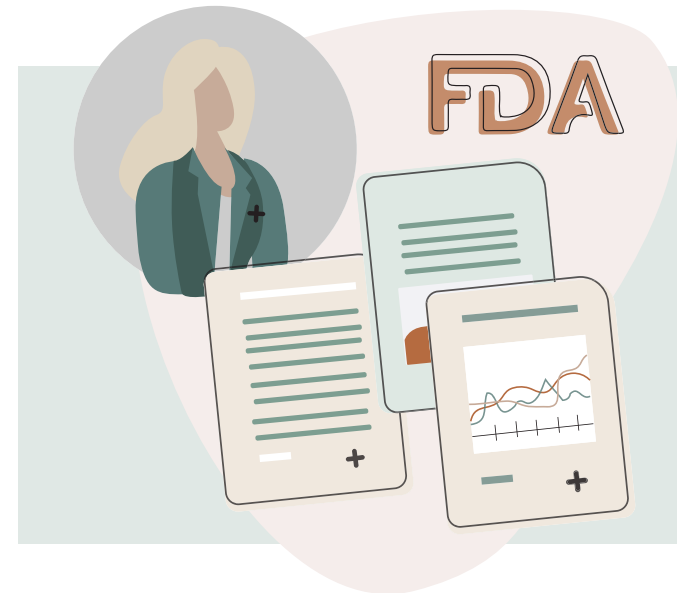
If the benefits of HT tend to outweigh the risks, then why is HT controversial?

“ There are so many medications that are being taken that haven’t been studied. They all have their own risks. Hormone replacement therapy is now one of the best-studied medications in history.

—Dr Joann Manson, Lead Investigator of Women’s Health Initiative

Since the 1940’s, estrogen-based hormone therapy has gone in and out of style. Stories in the media claim everything from “Estrogen cures all!” to “Estrogen causes cancer!” For the layperson, how can one possibly sift through this mountain of seemingly contradictory headlines?

The overwhelming evidence now is that the benefits outweigh the risks among women without contraindications who are under age 60 or within 10 years of their last menstrual period.⁷² So why has there been so much controversy up until now? To fully understand this, let’s take a look at the history of HT and how a distorted study skewed public perception.



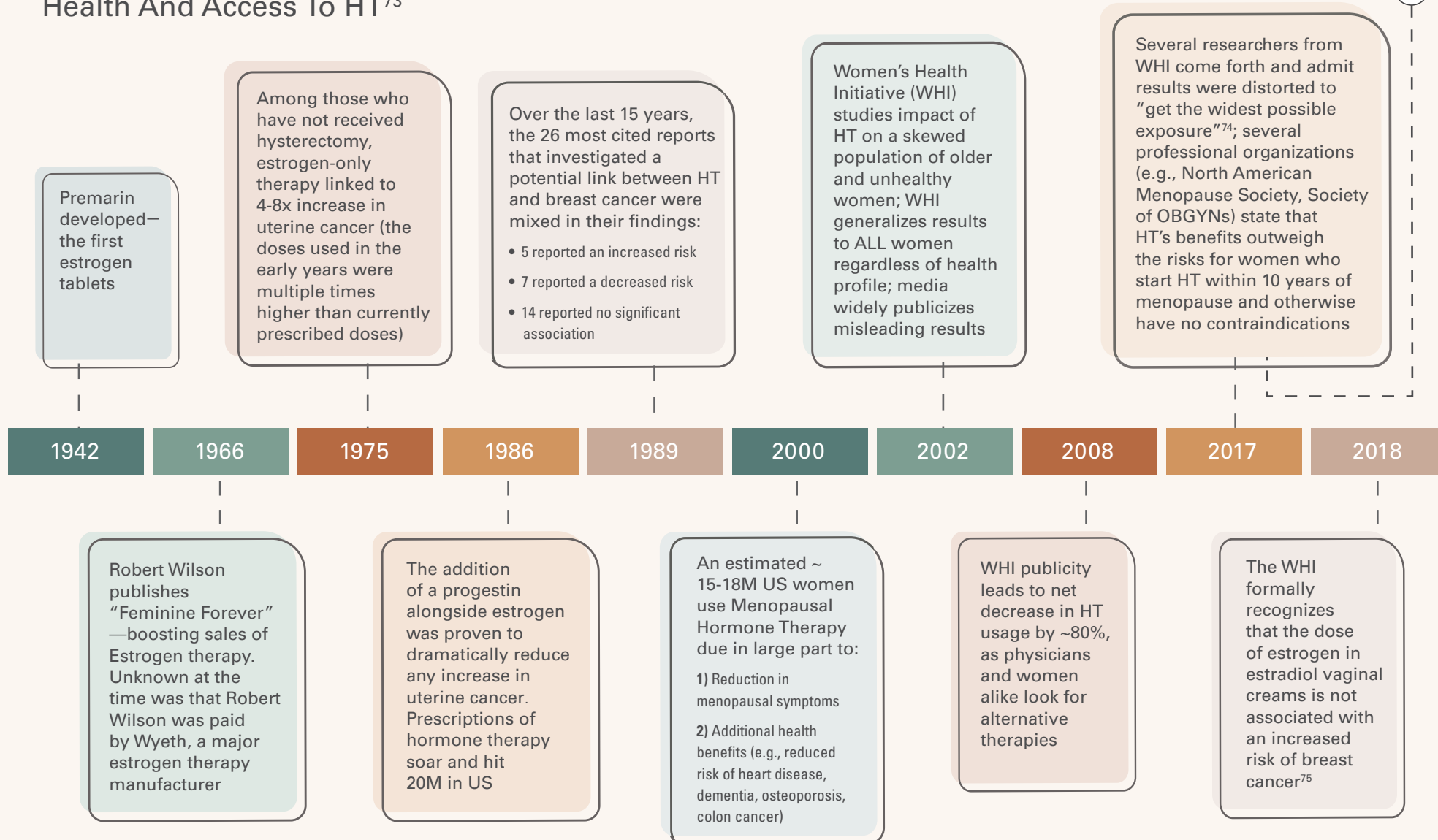
Please note: Our objective in all of this is not to convince all women to take hormone therapy. In fact, for many people, hormone therapy may not be the appropriate treatment (as covered in the previous section). Rather, our goal is to demonstrate why there has been controversy around HT and to provide the latest thinking on the topic.

Timeline of Women On and Off HT

How The Drama Affected Women's Health And Access To HT⁷³

Highly unusual circumstances [resulted in] misinformation and hysteria. Good science became distorted and ultimately caused substantial and ongoing harm to women for whom appropriate and beneficial treatment was either stopped or never started.

—Dr. Robert Langer, Former Chair of WHI principal investigators



What types of hormone therapy can one take?

When individuals or the media talk about menopausal HT, it is important to understand that hormone therapy is a broad term. HT can include estrogen doses that affect the entire body (systemic doses) or doses that only affect the pelvic floor (vaginal doses). It also includes the use of progesterone when appropriate. For a bit more detail on the different forms of HT:

Systemic hormone therapy is designed to enter the bloodstream and raise someone's overall estrogen / progesterone levels. This means that systemic HT has a broader range of benefits than vaginal HT.

Vaginal hormone therapy has local benefits and only trace amounts estrogen will enter the bloodstream.



Systemic (affects the whole body)

Oral Tablets

Oral tablets are the most popular delivery mechanism for systemic HT. This is in large part a function of many women's daily habit of daily vitamin use or oral birth control pills prior to starting on HT.

Oral HT is absorbed in the intestines and passes through the liver to be processed. In doing so, oral estrogen can reduce LDL (bad cholesterol) and increase HDL (good cholesterol).

Examples of oral tablets include: **17 β -estradiol** (Estrace); **conjugated estrogens** (Premarin, Menest); **estradiol plus norethindrone** (Mimvey); **estradiol plus progesterone** (Bijuva)

Systemic—continued

Transdermal Products

Transdermal estrogen can take the form of patches, creams, gels, or sprays. Each of these is applied to the skin on either a daily or biweekly basis, depending on which delivery mechanism is chosen.

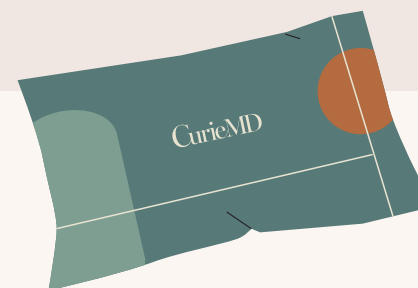
Unlike oral estrogen, transdermal estrogen bypasses the liver and is absorbed into the bloodstream. Because of this, transdermal estrogen does help balance cholesterol levels as well as oral estrogen does.

Examples of transdermal estrogen include:

Estrogen patches - 17 β -estradiol (Alora, Climara, Estraderm, Minivelle, Vivelle-Dot)

Estrogen gel - 17 β -estradiol (Divigel, EstroGel, Elestrin)

Estrogen spray - 17 β -estradiol (Evamist)



A quick note on Compounded BHT: Compounded BHT is not necessarily the same as standardized, pharmaceutical FDA-approved BHT. In the US, compounded BHT constitutes a ~\$1.5B industry.⁷⁶ These transdermal compounded bio-identical hormones are created within compounding pharmacies, where individual pharmacists prepare hormone creams and capsules by mixing a predetermined amount of hormones together in an attempt to “individualize” the treatment for each patient. The problem is that not all compounding pharmacies, nor the medications that they produce, are overseen by the FDA. As a result, the actual dosages and hormonal proportions may be inconsistent from batch to batch. For this reason, virtually all major medical societies discourage the use of compounded BHT except when standard pharmaceutical doses or delivery mechanisms do not meet a patient’s needs.⁷⁷

Pellets

While not as common, some women receive their hormone therapy through pellets. Pellets (which are not FDA-approved), are inserted underneath the skin through a small incision, which is then closed with an adhesive or stitch.

The advantage of pellets is that they typically last for 4-6 months before needing to be replaced. However, pellets may release higher than recommended hormone levels and are difficult to remove, so women using pellets should routinely monitor their blood estradiol levels and be monitored for adverse side effects.

Systemic—continued

Vaginal Ring

Vaginal rings can provide higher, systemic doses of estradiol or lower, vaginal doses. Here we're discussing the higher systemic dosing formulation called the Femring. The Femring is a vaginal ring that is placed within the vagina and releases estradiol into the bloodstream and vagina. This vaginal ring provides relief of systemic symptoms of hot flashes, night sweats, etc. It is left in place for 3 months and then replaced.

Vaginal /Local (affects only the vaginal tissues)

Vaginal Cream

Vaginal cream provides benefits only to the tissues of the vagina and pelvic floor (including the urethra, the exit to the bladder). Only trace amounts of estrogen will actually enter the bloodstream.

Creams are typically applied with a plastic applicator and are usually applied daily for the first 1-2 weeks of use and then applied one to three times per week going forward.⁷⁸

Examples of vaginal estrogen creams include: **17 β -estradiol** (Estrace), **conjugated estrogen** (Premarin)

Vaginal Tablet

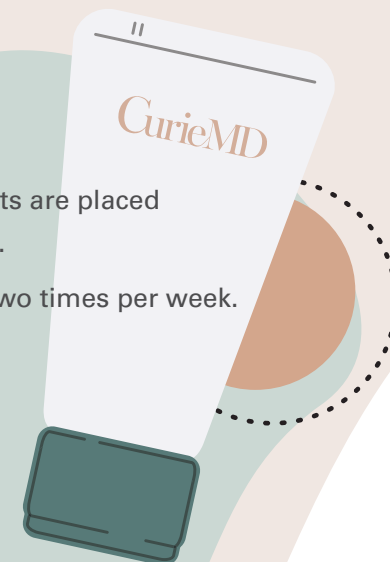
Like vaginal cream, the benefits of vaginal tablets are local. Unlike systemic estradiol tablets, vaginal tablets are placed within the upper part of the vagina and only nominal amounts of estrogen typically enter the bloodstream.

Patients will usually start out using one tablet daily for the first 2 weeks and then will shift to using it just two times per week.

Examples of vaginal estrogen tablets include: **estradiol hemihydrate** (Vagifem, Imvexxy)

Vaginal Ring

The Estring is a vaginal ring which releases a very low dose of estradiol which only provides benefits to the vagina and vulva. It is left in place for 3 months and then replaced. *The Femring discussed in the previous section is different in that it affects the whole body.



How long can women stay on hormone therapy?

It has unfortunately become a commonly held belief that hormone therapy should be used at the lowest dose possible and only for as long as needed (as cited on the 'Boxed Warning'⁷⁹ for all estrogen prescriptions).

However, the position of the North American Menopause Society (the preeminent thought leader in the menopause and midlife health space) clearly states that once a person is already taking hormone replacement therapy, a patient's age and length of use alone are not grounds for routine discontinuation.

“Hormone therapy does not need to be routinely discontinued in women aged older than 60 or 65 years and can be considered for continuation beyond age 65 years for persistent vasomotor symptoms, quality of life issues, or prevention of osteoporosis after appropriate evaluation and counseling of benefits and risks. There are no data to support routine discontinuation in women age 65 years.⁸⁰

—North American Menopause Society, 2017 Position Statement

While written by the North American Menopause Society, this statement above has been endorsed by dozens of domestic and international midlife-focused medical organizations, including:



How can women get access to hormone therapy?

In-person Practitioner

Ideally, every woman would have access to a physician or practitioner that is well-versed in midlife health and the use of menopausal hormone therapy. However, the unfortunate reality is that most women struggle to get access to such physicians as there is a shortage of practitioners that are trained in the management of midlife women's health and menopause hormone therapy.



“When I went in to see my primary care doctor and started explaining my how I was feeling... I was actually told that perimenopause isn’t ‘real.’” —Sophia

“I found [menopause] was a mystery and I had to figure it out for myself. Even doctors didn’t know. I went to a psychologist and complained about how I couldn’t control my emotions and I felt like I was PMS’ing all the time even though my period was over... They would put me on drugs based on different disorders they thought I had, because it didn’t occur to anyone that my emotional roller coaster was due to menopause.” —Cindy

General practitioners typically have a cursory understanding of midlife health needs. Even among OB/GYNs, only about 20% of have elected to receive specialized training in midlife health.⁸¹ As a result, roughly 3 in 4 women who seek treatment for their menopausal symptoms don’t receive it due to the lack of informed healthcare professionals or the traditional attitude that menopause is simply something to be endured.⁸²

Telemedicine



Fortunately, women can now gain access to midlife women's health practitioners with expertise in hormone therapy through telemedicine. Telemedicine remotely connects patients and clinicians, even if they are across the state or country from each other. This is exciting news for women today because now it is possible to schedule a medical visit with midlife health experts from the comfort of their own homes.

The obvious drawback is that a telemedicine provider can't physically examine someone in-person. As a result, the pool of women who can receive HT treatment through telemedicine is likely smaller than it is with in-person physicians, as someone with certain contraindications (e.g., history of breast cancer, blood clotting risk) likely won't receive a prescription remotely due to the patient's risk profile.

However, for the bulk of women without contraindications, telemedicine is a legitimate way to not only connect with physicians but also to gain access to HT. With the appropriate permissions, telemed practitioners can access patient lab records, physical examinations, and mammogram reports to gather a 360-degree view of a patient's health. Further, the goal of telemedicine is not to replace someone's primary care doctor, but rather to provide specialized care that complements someone's existing healthcare network.



How Else Can I Manage Menopause?

In addition to Hormone Therapy, there are very real alternative therapies that can help women better manage their menopausal symptoms and long-term health risks (and many therapies that are unfortunately no better than placebo). These alternative therapies consist of improvements to lifestyle, over-the-counter supplementation, and non-hormonal prescription medications.

Lifestyle

A range of products have emerged that can help women navigate menopause and manage their symptoms. For instance, solutions like “The Chillow” (a pillow that stays cool), battery powered cooling pods, and cooling bands are providing many women with necessary cooling relief.

Further, research has also shown that several lifestyle changes have a direct impact on quality of life during this midlife transition. These include:

Exercise

Exercise has been shown to help counteract the effect of declining estrogen levels by lowering blood pressure, blood glucose, and cholesterol. This is crucial for maintaining heart health.

Exercise is also an effective method for combating insomnia. Just a single moderate-intensity exercise session each day can reduce the amount of time it takes women to fall asleep and to help them stay asleep longer.⁸³

Further, it's widely understood that exercise is beneficial, but keep in mind that there is excellent data showing that the key to not gaining weight in perimenopause and menopause is regular exercise.



Lifestyle—continued

How to Exercise Effectively:

The U.S. Department of Health and Human Services recommends that adults do a minimum of 2 ½ hours per week, or 30 minutes for 5 days a week, of moderate intensity activity. The federal agency further notes that increasing to 60 minutes of moderate to vigorous activity on most days of the week will help adults to avoid gradual weight gain, which is particularly relevant to women in midlife.

Keep in mind that activity can take many forms to keep it interesting:

yoga, Pilates, aerobics classes, walking, hiking, cycling (road or stationary), swimming, tennis, work in the garden, and so forth are all good options.

And don't forget to mix in some resistance exercises to help ward off osteoporosis. Vigorous activity not only supports a healthy cardiovascular and immune system, but the accompanying endorphins elevate mood, decrease stress, suppress appetite, and release sex hormones. Not a bad trade-off.



In addition to regular activity, daily stretching in midlife and beyond helps to keep joints mobile, reduces muscle soreness, and lessens the risk of injury from physical activity. It can take a few weeks to become limber and working with an experienced trainer or physical therapist can help you find the best routine for you. Thereafter, daily stretching is necessary to maintain flexibility. Most find that even after a few days without their regular stretching routine, joint and muscle tightness can return.

Consistency of effort, like most things in life, is the key to fitness and flexibility.



Diet/Maintain Healthy Weight

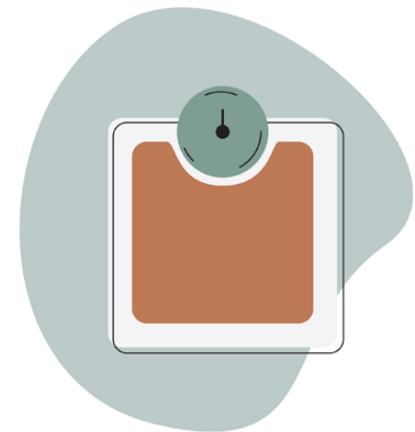
Among menopausal women, diet (vs. exercise) has routinely been shown to be the key to maintaining a healthy weight.

Research shows that women who lose weight are able to reduce their hot flash frequency. One small study showed a 60% decrease in hot flashes over just 2 weeks among women who participated in a weight loss regimen compared with those who did not.⁸⁴

Further, maintaining a healthy weight can materially reduce the risk of heart disease.

How to Diet Effectively:

While it might be tempting to tackle the latest and greatest diet craze, simple changes can actually make a large difference.



Four Core Mantras (and one bonus) for healthy eating.

1 Eat lean protein

The importance of protein in the diet cannot be understated. Protein provides efficient fuel for the body for a longer period of time than carbohydrates, and this leads to weight loss.⁸⁵

When in the grocery store or at restaurants, look for plant-based proteins (legumes - chickpeas, black beans, kidney beans, lima beans - and nuts) and lean cuts of meat (chicken and fish).

2 Never drink your calories

Sugar sweetened drinks - sodas, sports drinks, alcoholic beverages and juices - are easy ways to raise your blood sugar and pack on the pounds.

While these drinks may seem innocent enough, consumption can increase the risk of weight gain, type 2 diabetes, dyslipidemia (unhealthy cholesterol levels), and nonalcoholic fatty liver disease. Cutting these out is a lifehack for midlife women's health.

3 Plants are your friend

As a rule of thumb, half of the plate should be vegetables or fruit.

Vegetables and fruit are delicious, extremely low calorie, high in fiber, rich in natural vitamins, and hunger-squashing, and as an added benefit, they provide cancer-fighting properties while decreasing cardiovascular disease and all causes of death.⁸⁶



4 Avoid high GI/GL foods

Many are quick to label carbs as 'evil', however, not all carbs are the same and play an important part in our diets. What we need to pay attention to are the glycemic index (GI) and glycemic load (GL) of the food we eat.

- Glycemic index (GI) measures how fast the nutrients from food enter the blood stream and raise blood sugar levels
- Glycemic load (GL) takes into account the planned portion size of a food

Consuming low GL and low GI foods keeps us satisfied longer because these foods are more slowly broken down for glucose utilization. The result is that we feel fuller for longer.

Conversely, when one consumes high GL and high GI foods, blood sugar levels spike which causes a short-term feeling of fullness, followed by food craving due to plummeting blood sugar levels.

For those looking for a rule of thumb approach:

- Avoid food servings with a GL above 20
- Incorporate more food servings with a GL below 10 (considered 'good')
- Check out this [Glycemic Index Table](#) for a GI/GL list of various foods (teaser- did you know foods such as corn and potatoes have sky-high GLs?)

5 BONUS: Give your gut a break

Intermittent Fasting (IF) may seem like a new, crazy dieting fad that will come and go; however, there is real science to support the merits of IF (i.e., abstaining from calorie consumption for an uninterrupted amount of time each day or 24 hours of fasting for one or more days a week).

IF is thought to work in three ways—

- decrease insulin levels increases burning of fat stores;
- the time restriction may reduce calories consumed;
- and may boost levels of the hormone norepinephrine which can boost metabolism.

Benefits of IF include:

- Reduced body fat and weight
- Reduced blood pressure and inflammation
- Increased alertness
- Improved insulin sensitivity
- Reduced LDL cholesterol and triglycerides

The simplest way to start is by limiting food intake to 12 hours of the day. That means that if dinner ends at 7:00 pm, no more calories are consumed until 7:00 am the next day. Some will then extend this to 13, 14, 16, or even 20 hours without calories.

Note: It is ok to drink water during periods of fasting.

We make choices all day long, so when faced with a food choice, ask the question, “is this worth the calories?” When we buy a pair of shoes, we certainly ask, “are these shoes worth my hard-earned money?” If the food is absolutely wonderful, spend some calories on it. If not, pass it over.

Testing the efficacy of some of the mantras,

a study of over 120,000 participants published in 2011 in the prestigious New England Journal of Medicine found that consumption of the following foods was strongly associated with weight gain:

- potato chips
- potatoes
- sugar-sweetened beverages
- unprocessed red meats
- processed meats

Conversely, the following foods were associated with weight loss:

- vegetables
- whole grains
- fruits
- nuts
- yogurt

Lifestyle—continued

Avoid Smoking

Several studies have shown that the incidence and intensity of hot flashes increases with the frequency of smoking cigarettes.⁸⁷ While the exact cause for this is unknown, smoking may deplete the bodies available estrogen levels, further inhibiting internal temperature regulation.

And of course, smoking increases the risk of various long-term health risks, such as heart disease and diabetes, which are already increased from the menopausal transition.

Avoid 'Triggers'

Each woman will have unique triggers which may include spicy foods, caffeine, alcohol. Identifying these triggers and properly managing / abstaining from them can reduce the incidence of hot flashes and other symptoms.

For alcohol especially, reducing alcohol intake can not only help with vasomotor symptoms but can also help reduce bone loss and breast cancer risk.

Acupuncture

No matter your thoughts on acupuncture for other aspects of health, the data actually shows that acupuncture can reduce the incidence and intensity of hot flashes.

“One recent study reviewed the benefits of acupuncture on hot flashes. The researchers reviewed 12 studies with 869 participants and found that acupuncture significantly reduced the frequency and severity of hot flashes.”⁸⁸

— Mache Seibel



Over-the-Counter Therapies

Oral Supplements

At times it seems like everyone has heard of a supplement solution that claims to be all things and can help with just about every symptom of menopause. For instance, black cohosh is a plant derived alternative remedy that some women swear by to help manage their hot flashes.

Supplements (such as black cohosh) are seemingly easy, affordable, and women can get them straight from Amazon without having to go through a clinician. What's not to like?

As a result of this, ~70% of US women will take some type of botanical or dietary supplement over the course of the menopausal transition.⁸⁹ The unfortunate reality though is that the data simply don't support most of these claims. While some women do in fact report improvements in their symptoms, these supplements tend not to perform any better than placebos do.⁹⁰

That being said, for women who cannot or choose not to use hormone therapy, there are a select few oral supplements that do have some clinical validation in reducing vasomotor symptoms (e.g., hot flashes). For instance, Amberen has been shown in a few clinical studies to reduce the incidence and intensity of hot flashes and other vasomotor symptoms.⁹¹

With all the misinformation circulating, it is important to speak with a trained midlife health professional before starting on any over-the-counter regiment.



Over-the-Counter Therapies—continued

Non Prescription Topicals

While oral supplements, such as black cohosh, may not generate much systemic benefit, vaginal topicals can absolutely offer local benefit.

Most women experience some degree of vaginal dryness during their lives. Vaginal dryness is common among menopausal women and may profoundly affect their sexual activity. A confusing array of non-prescription products can be found in local pharmacies, so let's try to simplify the choices.

Vaginal moisturizers

Estrogen loss causes the tissues of the vagina to thin, dry out, and lose elasticity. Vaginal moisturizers can help to restore the loss of moisture and keep vaginal pH low, ensuring a healthy vaginal lining and tissue elasticity. To maintain effectiveness, moisturizers need to be used on a regular basis, usually two to three times per week. They have a longer-lasting effect than vaginal lubricants and should be applied to the vaginal opening as well as inserted with an applicator to reach tissues inside the vaginal canal.

Examples of moisturizers include **Replens**, **Vagisil**, **Luvena**, **HYALO GYN**, **Revaree**, and **K-Y Long-lasting Vaginal Moisturizer**.

Vaginal lubricants

Lubricants are typically used only at the time of sexual activity. They are applied to the vaginal opening and to the partner, reducing friction on vaginal penetration and decreasing pain associated with vaginal dryness and lost elasticity. Lubricants may be water-based, silicone-based, or oil-based.

Note of Caution: Not all moisturizers and lubricants are compatible with all condoms and “toys” (for instance, silicone “toys” are often incompatible with silicone lubricants and mineral oil-based lubricants are NOT compatible with latex condoms).



Non-hormonal Prescription Medication

Antidepressants

In June 2013, paroxetine (an antidepressant medication) became the first non-hormonal treatment option approved for hot flash relief.⁹² This is a large step forward, as prior to this point, nothing aside from HT had been demonstrated to reliably reduce the frequency of hot flashes.

Antidepressants, such as paroxetine (SSRI) or venlafaxine (SNRI), are thought to influence our internal temperature regulation by adjusting the brain's serotonin levels. As a result, these medications reduce women's incidence and intensity of vasomotor symptoms (hot flashes, night sweats).

Note: CurieMD's healthcare practitioners also offer access to SNRI's for women where HT may not be appropriate.

Ospemifene

Ospemifene is an oral medication that is prescribed for women who are experiencing painful intercourse. This selective estrogen receptor modulator (SERM) can help increase vaginal pH, improve vaginal moisture, and increase vaginal wall thickness.

However, Ospemifene can trigger hot flashes for some women. Also, Ospemifene is not recommended for women who are prone to blood clots or heart disease.



At the end of the day, women should pick the solutions that work best for their bodies and peace of mind. If taking chaste tree and meditating works for someone, then she should continue to do so. Ultimately, menopause is a very individualized experience, and each woman should feel empowered to address her symptoms as she best sees fit.

Closing

CurieMD

A note from CurieMD's Chief Medical Officer, Dr. Leslie Meserve:

Besides wanting to help patients in my practice, I wanted to help my own mother. I'm grateful my mom is a vibrant, energetic woman, and I watched her suffer with extremely bothersome hot flashes, insomnia and fatigue a few years ago.

She described these symptoms to her gynecologist but was told that hormone therapy was too dangerous for her. "Based on what research and what risk factors?" my medically savvy and brilliant mom asked. The physician incorrectly answered that the risk of breast cancer and the fact that her ovaries and uterus were intact meant she could not benefit from hormone therapy.

Luckily my mother discussed this with me later on, and we were able to have her see a dear friend of mine [**CurieMD medical advisor, Dr. Stephanie McClellan**], a physician who has taken the time to stay up to date on the latest research in menopause and who was gladly able to prescribe the proper hormone regimen.

My mom is back to her vibrant, energetic self and loving her active retirement years. At her next annual visit, her original gynecologist was not happy about the hormone medication and in fact said that if my mother continued the hormone therapy, she would be required to sign a waiver stating that she was advised of the risks. "A waiver? Whatever for?" My mom knew she had no contraindications to hormone therapy. Instead of signing a waiver, she signed on with a new doctor.

Our goal in assembling this eBook has been to provide women with the education and resources they need to make the decision that is right for their bodies. Too often, women are provided with curt answers or misinformation when asking their physicians questions about their menopausal symptoms or hormone therapy. Unfortunately, as well, there is so much misinformation and stigma surrounding menopause that many women are left to suffer in silence and simply 'gut it out' until the symptoms subside.

Our hope is that after reading our **Menopause Demystified** is that all women (like Dr. Meserve's mother) will be able to ask the right questions to help put them on a path to finding hormonal balance. And for those who are still looking for a medical partner on their quest for a more vital midlife, please feel free to visit us at CurieMD.com. **We would be happy to connect you with a midlife health professional who can assess your medical needs and find a solution that works for you.**

Footnotes

- 1 Wolff J. What Doctors Don't Know About Menopause. AARP The Magazine, August/September 2018
- 2 Ibid
- 3 Ibid
- 4 O, The Oprah Magazine. Aug 2002
- 5 <https://drmach.com/menopause-symptoms-before-during-and-after/>
- 6 Wolff J. What Doctors Don't Know About Menopause. AARP The Magazine, August/September 2018
- 7 Bluming, Avrum; Tavis, Carol. Estrogen Matters. Little, Brown Spark. 2018
- 8 Bluming, Avrum; Tavis, Carol. Estrogen Matters. Little, Brown Spark. 2018
- 9 Henshaw, Stanley. Family Planning Perspectives, 1998, 30(1) p.26
- 10 Wolff J. What Doctors Don't Know About Menopause. AARP The Magazine, August/September 2018
- 11 Nancy E. Avis, PhD; Sybil L. Crawford, PhD; Gail Greendale, MD; et al. JAMA Intern Med. 2015;175(4):531-539
- 12 A. M. De Fonseca, "Impact of Age and Body Mass on the Intensity of Menopausal Symptoms in 5968 Brazilian Women," Gynecological Endocrinology 29, no. 2 (2013)
- 13 Ibid
- 14 Guthrie JR, Dennerstein L, Dudley EC. Weight gain and the menopause: A 5-year prospective study. Climacteric 1999;2:205-11
- 15 Climacteric. 2012 Oct 15
- 16 M. Brincat, "Skin Collagen Changes in Postmenopausal Women Receiving Different Regimens of Estrogen Therapy," Obstetrics and Gynecology 70, no. 1 (July 1987)
- 17 U. Halbreich, "Possible Acceleration of Age Effects on Cognition Following Menopause," Journal of Psychiatric Research 29, no. 3 (1995)
- 18 Climacteric. 2013 Jun;16(3):381-6. doi: 10.3109/13697137.2012.707706. Epub 2012 Sep 10.
- 19 Cohen, LS, et al., Risk for new onset of depression during menopausal transition: The Harvard Study of Moods and Cycles. Arch of Gen Psych 63, no. 4 (2006):385-90. as cited in Seibel, Mache. The Estrogen Fix. Rodale. 2017.
- 20 E. Vegeto, P. Ciana, and A. Maggi, "Estrogen and Inflammation: Hormone Generous Action Spreads to the Brain," Molecular Psychiatry 7, no. 3 (2002)
- 21 Kim HK, Kang SY, Chung YJ, Kim JH, Kim MR. The Recent Review of the Genitourinary Syndrome of Menopause. J Menopausal Med. 2015;21(2):65-71.
- 22 Wolff J. What Doctors Don't Know About Menopause. AARP The Magazine, August/September 2018
- 23 Seibel, Mache. The Estrogen Fix. Rodale. 2017
- 24 "What I Need to Know about Bladder Control for Women," National Institute of Diabetes and Digestive and Kidney Diseases, last modified June 29, 2012
- 25 <https://www.prnewswire.com/news-releases/disposable-incontinence-products-market-to-cross-15-billion-by-2025-global-market-insights-inc-300880562.html>
- 26 Seibel, Mache. The Estrogen Fix. Rodale. 2017
- 27 <https://drmach.com/menopause-symptoms-before-during-and-after/>
- 28 Simon JA, Nappi RE, Kingsberg SA, Maamari R, Brown V. Clarifying Vaginal Atrophy's Impact on Sex and Relationships (CLOSER) survey: emotional and physical impact of vaginal discomfort on North American
- 29 Ibid
- 30 Seibel, Mache. The Estrogen Fix. Rodale. 2017.
- 31 Sarrel P, Rousseau M, Mazure C, Glazer W. Ovarian steroids and the capacity to function at home and in the workplace. Ann N Y Acad Sci 1990;592:156-61; discussion 185. cited in Seibel, Mache. The Estrogen Fix. Rodale. 2017.
- 32 Abbs, A. The 'hormonal hell' of being a menopausal mother with teenage kids. The Sidney Morning Herald. Sept. 8, 2016.
- 33 Wolff J. What Doctors Don't Know About Menopause. AARP The Magazine, August/September 2018
- 34 <https://www.cdc.gov/heartdisease/women.htm>
- 35 <https://seer.cancer.gov/statfacts/html/common.html>
- 36 Brauer CA, Coca-Perrillon M, Cutler DM, Rosen AB. Incidence and mortality of hip fractures in the United States. JAMA 2009;302(14):1573-9.

Footnotes—continued

- 37 Magaziner J, Chiles N, Orwig D. Recovery after Hip Fracture: Interventions and Their Timing to Address Deficits and Desired Outcomes--Evidence from the Baltimore Hip Studies. *Nestle Nutr Inst Workshop Ser* 2015;83:71–81.
- 38 Bluming, Avrum; Tavris, Carol. *Estrogen Matters*. Little, Brown Spark. 2018
- 39 R. A. Greene et al., “Comparison between Regional Cerebral Blood Flow in Hypoestrogenic Women and Patients with Alzheimer’s Disease—A Descriptive Study,” *Neurobiology of Aging* 10, no. 4 (1998): S180.
- 40 Winfrey, O. Oprah Reveals How Heart Palpitations Led Her to Discover She Was Approaching Menopause. *O The Oprah Magazine*. September 18, 2019.
- 41 Pinkerton, JV, et al. The 2017 hormone therapy position statement of The North American Menopause Society.
- 42 Marriott LK, Wenk GL. Neurobiological consequences of long-term estrogen therapy. *Curr Dir Psychol Sci*. 2004
- 43 Normal estradiol ranges via Quest Diagnostics and LabCorp. <https://testdirectory.questdiagnostics.com/test/test-detail/4021/estradiol?p=r&q=Estradiol&cc=MASTER>
- 44 Davis SR, Baber R, Panay N, et al. Global consensus position statement on the use of testosterone therapy for women. *J Clin Endocrinol Metab* 2019;104(10):4660–6.
- 45 Bernadine Healy, *A New Prescription for Women’s Health: Getting the Best Medical Care in a Man’s World*. 1995
- 46 Nelson HD. Commonly used types of postmenopausal estrogen for treatment of hot flashes: Scientific review. *JAMA*. 2004
- 47 Cintron D, Lahr BD, Bailey KR, et al. Effects of oral versus transdermal menopausal hormone treatments on self-reported sleep domains and their association with vasomotor symptoms in recently menopausal women enrolled in the Kronos Early Estrogen Prevention Study (KEEPS). *Menopause* 2018;25(2):145–53.
- 48 *The Journal of Clinical Endocrinology & Metabolism*, Volume 103, Issue 5, May 2018
- 49 Davis SR, Castelo-Branco C, Chedraui P, et al. Understanding weight gain at menopause. *Climacteric* 2012;15(5):419–29.
- 50 Seibel, Mache. *The Estrogen Fix*. Rodale. 2017
- 51 Allmen, Tara, MD. *Menopause Confidential*
- 52 Maki PM, Kornstein SG, Joffe H, et al. Guidelines for the evaluation and treatment of perimenopausal depression: summary and recommendations. *Menopause* 2018;25(10):1069–85.
- 53 Seibel, Mache. *The Estrogen Fix*. Rodale. 2017
- 54 Simon JA, Nappi RE, Kingsberg SA, Maamari R, Brown V. Clarifying Vaginal Atrophy’s Impact on Sex and Relationships (CLOSER) survey: emotional and physical impact of vaginal discomfort on North American postmenopausal women and their partners. *Menopause* 2014;21(2):137–42.
- 55 Adapted from: Sarrel P, Rousseau M, Mazure C, Glazer W. Ovarian steroids and the capacity to function at home and in the workplace. *Ann NY Acad Sci*. 1990.
- 56 Barrett-Connor E, Bush TL. Estrogen and coronary heart disease in women. *JAMA*. 1991
- 57 Col NF, Eckman MH, Karas RH, et al. Patient-specific decisions about hormone replacement therapy in postmenopausal women. *JAMA*. 1997;277:1140–47.
- 58 O’Loughlin JL, Robitaille Y, Boivin JF, Suissa S. Incidence of and risk factors for falls and injurious falls among the community-dwelling elderly. *Am J Epidemiol* 1993;137(3):342–54.
- 59 Stevens JA, Sogolow ED. Gender differences for non-fatal unintentional fall related injuries among older adults. *Inj Prev* 2005;11(2):115–9.
- 60 Torgerson DJ, Bell-Syer SE. Hormone replacement therapy and prevention of nonvertebral fractures: a meta-analysis of randomized trials. *JAMA* 2001;285(22):2891–7.
- 61 Matyi JM, Rattinger GB, Schwartz S, Buhusi M, Tschanz JT. Lifetime estrogen exposure and cognition in late life: the Cache County Study. *Menopause* 2019;26(12):1366–74.
- 62 Lagranha CJ, Silva TLA, Silva SCA, et al. Protective effects of estrogen against cardiovascular disease mediated via oxidative stress in the brain. *Life Sci* 2018;192:190–8.
- 63 Greene RA. Estrogen and cerebral blood flow: a mechanism to explain the impact of estrogen on the incidence and treatment of Alzheimer’s disease. *Int J Fertil Womens Med* 2000;45(4):253–7.
- 64 Maki PM. Critical window hypothesis of hormone therapy and cognition: a scientific update on clinical studies. *Menopause*. 2013;20(6):695–709.

Footnotes—continued

- 65 Ibid
- 66 Hodis HN, Sarrel PM. Menopausal hormone therapy and breast cancer: what is the evidence from randomized trials?. *Climacteric*. 2018;21(6):521–528.
- 67 du Projet Kasongo E. [Utilization of auxiliary personnel in rural health services: experience in Zaire]. *Bull World Health Organ* 1976;54(6):625–32.
- 68 Chlebowski RT, Anderson GL. Menopausal hormone therapy and breast cancer mortality: clinical implications. *Ther Adv Drug Saf* 2015;6(2):45–56.
- 69 Liu Y, Nguyen N, Colditz GA. Links between alcohol consumption and breast cancer: a look at the evidence. *Womens Health (Lond Engl)* 2015;11(1):65–77.
- 70 Burger H. Hormone replacement therapy in the post–Women’s Health Initiative era. *Climacteric*. 2003 May;6 Suppl 1:11-36
- 71 Bluming AZ, Tavis C. What are the real risks for breast cancer? *Climacteric*. 2012 Apr;15(2):133-8.
- 72 Shifren, J. et al., Menopausal Hormone Therapy. *JAMA*. 2019;321(24):2458-2459.
- 73 Bluming AZ, Tavis C. Hormone replacement therapy: Real concerns and false alarms. *Cancer J*. 2009 Mar-Apr;15(2):93-104
- 74 Vogel L. Trial overstated HRT risk for younger women. *CMAJ*. 2017;189(17):E648–E649.
- 75 Crandall C J, Hovey, KM, Andrews CA, et al. Breast cancer, endometrial cancer, and cardiovascular events in participants who used vaginal estrogen in the Women’s Health Initiative Observational Study. *Menopause*. 2018
- 76 TherapeuticsMD, Inc.; Form 10-K, 2018
- 77 Santoro N, Braunstein GD, Butts CL. Compounded bioidentical hormones in endocrinology practice: An Endocrine Society scientific statement. *J Clin Endocrinol Metab*. 2016
- 78 North American Menopause Society, *Menopause Practice—A Clinician’s Guide*, 5th Edition, 2014
- 79 Jeffrey, S. Estrogen formulations get FDA “black-box” warning. *Medscape*. January 8, 2003.
- 80 Pinkerton, JV, et al. The 2017 hormone therapy position statement of The North American Menopause Society. *Menopause: The Journal of The North American Menopause Society* Vol. 24, No. 7, pp. 728-753
- 81 Wolff J. What Doctors Don’t Know About Menopause. *AARP The Magazine*, August/September 2018
- 82 Ibid
- 83 Passos, GS, et al., “Effect of Acute Physical Exercise on Patients with Chronic Primary Insomnia,” *Journal of Clinical Sleep Medicine* 6, no. 3 (2010)
- 84 Thurston RC, et al. Behavioral weight loss for the management of menopausal hot flashes: a pilot study. *Menopause*. 2015 Jan;22(1):59-65.
- 85 Wycherley TP, Moran LJ, Clifton PM, Noakes M, Brinkworth GD. Effects of energy-restricted high-protein, low-fat compared with standard-protein, low-fat diets: a meta-analysis of randomized controlled trials. *Am J Clin Nutr* 2012;96(6):1281–98.
- 86 Aune D, Giovannucci E, Boffetta P, et al. Fruit and vegetable intake and the risk of cardiovascular disease, total cancer and all-cause mortality—a systematic review and dose-response meta-analysis of prospective studies. *Int J Epidemiol* 2017;46(3):1029–56.
- 87 Smith, RL, et al. Does quitting smoking decrease the risk of midlife hot flashes? A longitudinal analysis. *Maturitas*. 2015;82(1):123–127.
- 88 H.Y Chiu et al., *Menopause* 22 (July 2015):234-44 as cited in Seibel, Mache. *The Estrogen Fix*. 2017 Rodale Press.
- 89 Geller, S, Studee, L. Botanical and Dietary Supplements for Menopausal Symptoms: What Works, What Doesn’t. *J Womens Health (Larchmt)*. 2005;14(7):634–649.
- 90 Merz, Beverly. Non-hormonal treatments for menopause. *Harvard Women’s Health Watch*. March 2017.
- 91 V.E. Radzinskii et al (2016) Treatment of climacteric symptoms with an ammonium succinate-based dietary supplement: a randomized, double-blind, placebo-controlled trial, *Gynecological Endocrinology*, 32:sup2, 64-68
- 92 Carroll DG, Lisenby KM, Carter TL. Critical appraisal of paroxetine for the treatment of vasomotor symptoms. *Int J Womens Health*. 2015;7:615–624. Published 2015 Jun 18.

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