

Developed by The Science & Medical Team at Symphony Natural Health

---

# Perimenopause Guide to Whole Health

Empowerment, Knowledge & Practical Strategies  
for Every Stage of Your Transition



Symphony®

NATURAL HEALTH

# Table of Contents

|                                                                      |               |
|----------------------------------------------------------------------|---------------|
| <b>Chapter 1</b>                                                     | <b>6</b>      |
| You're Not Imagining This — It Might Be Perimenopause                | 7             |
| Is It Really Time for Perimenopause?                                 | 9             |
| What Is Perimenopause?                                               | 11            |
| Common Signs and Symptoms of Perimenopause                           | 15            |
| Perimenopause Is a Window of Opportunity                             | 18            |
| Your Next Steps                                                      | 19            |
| <br><b>Chapter 2</b>                                                 | <br><b>22</b> |
| What Do Hormones Do During Perimenopause?                            | 24            |
| Follicle-Stimulating Hormone (FSH)                                   | 25            |
| Estrogen (E2)                                                        | 25            |
| Progesterone                                                         | 26            |
| Testosterone                                                         | 26            |
| Thyroid Hormone (T3)                                                 | 27            |
| Cortisol                                                             | 27            |
| Appetite-Regulating Hormones During Perimenopause                    | 28            |
| Hormone Replacement Therapy (HRT) / Menopausal Hormone Therapy (MHT) | 29            |
| GLP-1 Receptor Agonist Use in Perimenopause                          | 30            |
| Lab Markers in Perimenopause                                         | 31            |
| Why "Normal" Lab Results May Not Mean "Optimal"                      | 32            |
| Which Lab Markers Are Relevant in Perimenopause?                     | 32            |
| Other Health Testing Considerations                                  | 36            |
| How to Talk to Your Doctor About Lab Testing                         | 38            |
| Tracking Your Cycle in Perimenopause: Context Beyond Lab Markers     | 39            |
| <br><b>H.O.M.E.</b>                                                  | <br><b>46</b> |
| H—Harmonization                                                      | 48            |
| O—Optimization                                                       | 49            |
| M—Metabolism                                                         | 50            |
| E—Elimination                                                        | 51            |

|                                                                   |           |
|-------------------------------------------------------------------|-----------|
| <b>Chapter 3</b>                                                  | <b>54</b> |
| Supporting Hormone and Blood Sugar Balance in Perimenopause       | 56        |
| Choose High-Fiber Carbohydrates                                   | 57        |
| Include Protein and Healthy Fats with Every Meal                  | 57        |
| Eat at Consistent Times                                           | 57        |
| Adrenal-Supportive Eating                                         | 58        |
| Food Choices in Perimenopause: What to Eat                        | 59        |
| Dietary Protein                                                   | 60        |
| Fruits and Vegetables                                             | 62        |
| Fats and Oils                                                     | 64        |
| Whole Grains                                                      | 66        |
| Key Nutrients for Perimenopause                                   | 67        |
| What to Limit in Perimenopause                                    | 68        |
| Food Sensitivities, Intolerances, and Allergies                   | 68        |
| Alcohol                                                           | 68        |
| Processed or Refined Carbohydrates                                | 69        |
| Dietary Advanced Glycation End Products (AGEs)                    | 69        |
| Why You Need to Hydrate in Perimenopause                          | 70        |
| Supporting Your Gut Microbiome                                    | 71        |
| Think of Your Gut as Part of Your Hormone System                  | 71        |
| How to Support Your Estrobolome                                   | 72        |
| What Does It All Look Like? A Practical View into Everyday Eating | 73        |
| Breakfast Options                                                 | 74        |
| Lunch Options                                                     | 76        |
| Dinner Options                                                    | 78        |
| Optional Snacks                                                   | 79        |
| Phytoestrogens for Menopause                                      | 80        |
| Reducing Toxins in Food Preparation and Selection                 | 82        |

|                                                        |           |
|--------------------------------------------------------|-----------|
| <b>Chapter 4</b>                                       | <b>86</b> |
| Organizing Dietary Supplements by Mechanism of Action  | 87        |
| Select Botanicals for Perimenopause                    | 100       |
| Maca ( <i>Lepidium peruvianum</i> Chacon)              | 100       |
| Ashwagandha ( <i>Withania somnifera</i> )              | 101       |
| Black Cohosh ( <i>Actaea racemosa</i> )                | 102       |
| Saffron ( <i>Crocus sativus</i> )                      | 103       |
| Siberian Rhubarb (ERr 731®, <i>Rheum rhaponticum</i> ) | 104       |

|                                                                  |                |
|------------------------------------------------------------------|----------------|
| <b>Chapter 5</b>                                                 | <b>108</b>     |
| How Exercise Supports Perimenopause                              | 110            |
| Bone Health and Exercise                                         | 111            |
| Muscle Loss and Exercise                                         | 112            |
| Training Guidelines for Perimenopause                            | 113            |
| How Much Weight Should I Be Lifting?                             | 114            |
| Tips for Moving More in Perimenopause                            | 115            |
| <br><b>Chapter 6</b>                                             | <br><b>118</b> |
| Sleep: The Foundation of Hormone Health                          | 120            |
| Why You're Not Sleeping Well in Perimenopause                    | 120            |
| Tips for Better Sleep                                            | 122            |
| Supporting Nervous System Regulation                             | 124            |
| How Perimenopause Affects Mental Health and Mood                 | 126            |
| Emotional Health                                                 | 126            |
| Cognitive and Mental Health                                      | 128            |
| A Word About Endocrine Disruptors                                | 130            |
| What to Do                                                       | 131            |
| What to Avoid                                                    | 132            |
| Libido and Vaginal Changes: Why Your Sex Life May Feel Different | 133            |
| Why Desire May Feel Different                                    | 134            |
| Vaginal Changes and Comfort                                      | 134            |
| What Can Help                                                    | 135            |
| <br><b>Closing</b>                                               | <br><b>138</b> |
| Chapter 1 — Empowerment & Knowledge                              | 141            |
| Chapter 2 — Hormones                                             | 142            |
| Chapter 3 — Diet & Nutrition                                     | 143            |
| Chapter 4 — Dietary & Herbal Supplements                         | 144            |
| Chapter 5 — Exercise & Movement                                  | 145            |
| Chapter 6 — Lifestyle & Environment                              | 146            |
| Finding a Practitioner                                           | 147            |
| Tracking Tools                                                   | 147            |
| Femmenessence Products                                           | 148            |
| Recommended Reading                                              | 148            |

# How to Use This Guide

This guide is designed to support you — and the healthcare practitioners who care for you — through one of the most significant transitions in a woman's life. Whether you are just noticing changes or are well into your perimenopausal journey, the information here is meant to inform, empower, and guide.

Each chapter addresses a different dimension of whole health during perimenopause: understanding what is happening in your body, how your hormones are shifting, the role of nutrition, the power of movement, and the importance of lifestyle and environment.

You do not need to read this guide from start to finish. You may find it most useful to turn to the chapters most relevant to what you are experiencing right now.

**For consumers:** This guide is written in plain language and does not require a clinical background. Where medical terms appear, they are explained. Use the resources at the back to go deeper, connect with a practitioner, or learn more about Femmenessence®.

**For practitioners:** This guide may be shared directly with patients as a take-home resource. The reference lists at the end of each chapter and the full bibliography at the back provide the clinical evidence base. Digital versions include active hyperlinks to all cited sources.





# Chapter 1

## Empowerment & Knowledge: What Happens to Your Body During Perimenopause?

- You're Not Imagining This — It Might Be Perimenopause
- Is It Really Time for Perimenopause?
- What Is Perimenopause?
- Menopause is not a decline — it's a recalibration.
- Common Signs and Symptoms of Perimenopause
- Your Next Steps

# You're Not Imagining This — It Might Be Perimenopause

You're not imagining this — perimenopause is a whole-life shift. It touches your body, your mind, your identity, and how you see yourself in the world. You may be noticing that your cycles are more unpredictable or that you're feeling increasingly irritable and fatigued.<sup>[1][2]</sup> Eventually, you may start to experience sudden hot flashes that leave you feeling anxious, agitated, or disoriented.

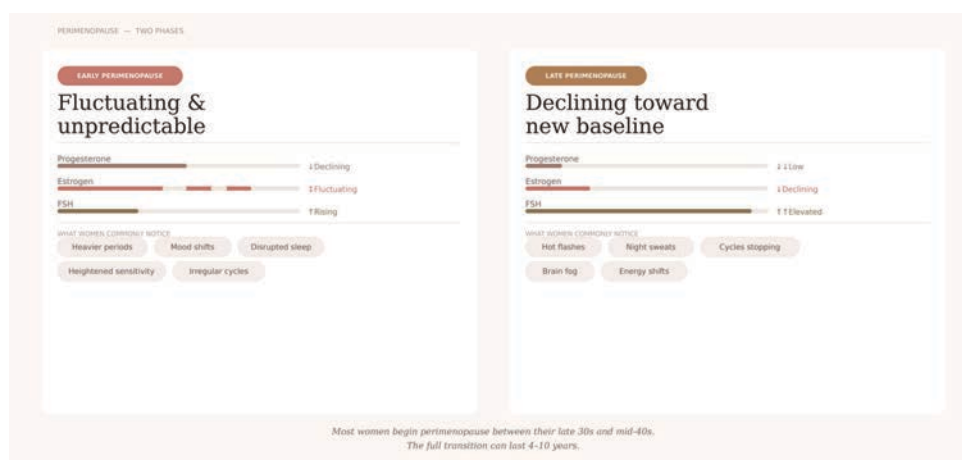
These are all symptoms of perimenopause, so why isn't your doctor talking about this? Though not true for all doctors, it's not uncommon for perimenopause symptoms to be attributed to another cause or a part of normal aging, especially for symptoms other than hot flashes.<sup>[3]</sup> And despite the long-term health implications associated with menopause, some doctors still don't consider it a clinical priority compared to other health concerns.<sup>[3]</sup> This means that in some instances, you must advocate for care in perimenopause.

# Is It Really Time for Perimenopause?

Menopause technically refers to a single day, 12 months after a woman's last period. However, the transition leading up to it, known as perimenopause, can span approximately 4 to 7 years on average, though some women may experience it for up to 14 years.<sup>[4]</sup> This means that you may start experiencing symptoms well before your last menstrual period.

While timing varies for every woman, the following age ranges can help you understand where you might be:

**Perimenopause can also be viewed in two separate stages:**



**Early Perimenopause** (can start as early as the mid-30s). Hormone fluctuations begin. Menstrual cycles may become variable or shorter in length, and PMS symptoms can intensify. You might notice more frequent menstrual cycles before they start spacing out. This phase can feel unpredictable — but it's your body starting to communicate that change is on the horizon.

**Late Perimenopause** (often mid to late 40s). Marked by more noticeable cycle irregularity — 60+ days without a period is common. Hot flashes, night sweats, and sleep disturbances may become more frequent. It's often the most symptom-heavy stage, but it's also when many women first realize they're "in perimenopause."



## Perimenopause (35–50)

Perimenopause typically begins years before menopause itself, often in the late thirties or forties, when hormone regulation starts to become less predictable. Cycles may shift. Sleep may change. Energy and mood can fluctuate in ways that feel disconnected from anything obvious. Supporting that recalibration early can make a meaningful difference in how the transition unfolds.



## Menopause (~51)

Menopause itself is technically defined as the day that one has reached twelve consecutive months without a menstrual cycle. But its significance is less about the clinical marker and more about what it represents: a genuine shift in your body's hormonal baseline, one that opens a new chapter rather than closing an old one.



## Postmenopause (51+)

Postmenopause is the longest phase of the journey and in many ways the least talked about. Hormones may be quieter, but their influence on how you think, how you sleep, how your body maintains itself, continues. This is a phase where understanding your endocrine system matters as much as it did at the beginning. Because your body is still doing remarkable things. It simply needs different support than it did before.



## What Is Perimenopause?

The transition into menopause ultimately represents a shift in communication within the endocrine system, and more specifically, within the hypothalamic-pituitary-thyroid-adrenal-ovarian (HPTAO) axis — the communication network linking your brain, thyroid, adrenal glands, and ovaries — in response to the natural aging of the reproductive system. In fact, the female reproductive system is believed to age before any other organ system.<sup>[5]</sup>



As such, ovarian aging doesn't happen overnight — it happens continuously throughout the lifespan as the number and quality of follicles, containing immature eggs, progressively decline. A woman's ovaries contain a life's worth of follicles before birth, amounting to approximately seven million while in the womb. At birth, this number has already diminished to approximately one million. At puberty, this number diminishes further to 250,000 to 400,000 follicles.

By the time a woman reaches the menopausal transition, the number of follicles decreases to approximately 1,000. By the end of the transition, there is a total loss of follicles, ushering a woman into this new phase of life and requiring a recalibration of communication within the HPTAO axis.

During this recalibration process, hormones can fluctuate widely rather than decline steadily, ultimately reflecting disruptions in the HPTAO axis and the physiological systems that maintain homeostasis in your body, contributing to the symptoms you're experiencing.<sup>[6]</sup> However, the root cause of perimenopause symptoms is complex, especially considering that the perimenopause experience can vary between women, despite similar hormonal changes.

## Example 1



### More strain on the body

Lisa, 46

Lisa started having frequent night sweats, mood swings, and trouble sleeping. She's been under a lot of stress for years, often skips meals or eats on the go, and doesn't always get the nutrients her body needs. With her body already feeling run down, these hormone changes hit harder, making her symptoms feel more intense and harder to manage.

## Example 2



### A more supported transition

Maria, 47

Maria also notices some changes in her cycle and occasional warmth at night, but overall feels okay. She makes time for regular meals, eats nourishing foods, gets good sleep, and manages stress with simple habits like walking and relaxation. Because her body is more supported, the changes of perimenopause feel gentler and easier to move through.

# Menopause is not a decline — it's a recalibration.

## Early Age of Menopause

A variety of factors influence the age at which someone enters menopause, including diet, exercise, body mass index (BMI), smoking, and genetics. In the United States, menopause occurs at approximately 51 years of age, and there are risks to going through menopause too early.

Undergoing premature menopause (before age 40) or early menopause (between ages 40—44) is negatively associated with heart health, cognitive health, mental health, bone health, eye health, and metabolic health.

Factors associated with early age at menopause include:

- Being underweight
- Having a family history of early menopause
- Smoking

Early menopause can also be surgically induced (i.e., removal of ovaries) or caused by medical treatments like chemotherapy or radiation. On the other hand, those who are overweight have a higher likelihood of experiencing menopause at later ages, which may be due to higher levels of estrone, a type of estrogen.

# Common Signs and Symptoms of Perimenopause

Symptoms of perimenopause can affect almost every part of you, from your mental health to your skin and bones. As such, wellbeing in menopause is much more than managing individual symptoms — it's about supporting every part of you.



**You may experience some or many of the following:**

- Bone density changes
- Cognitive changes (e.g., lack of focus, forgetfulness, slow thinking, and brain fog)
- Sexual dysfunction, lack of drive and/or discomfort
- Mood changes
- Dry and thinning skin
- Headaches
- Hearing changes
- Hot flashes
- Hypersensitivity in immune responses
- Joint pain
- Musculoskeletal issues
- Night sweats
- Reduced hair growth
- Sleep disturbances
- Urinary incontinence
- Urinary discomfort
- Vaginal dryness

Vasomotor symptoms, which include hot flashes and night sweats, are the most frequently reported complaint in perimenopause after irregular menstrual cycles. Vasomotor symptoms begin in perimenopause and last approximately 4.5 years after the final menstrual period. Women who experience vasomotor symptoms early in the menopausal transition are shown to have longer symptom persistence after the final menstrual period. Alcohol consumption, smoking, emotional stress, and physical inactivity may worsen vasomotor symptoms, which provides some strategies for women to reduce their symptoms while supporting other aspects of health.

However, some genitourinary symptoms, such as vaginal dryness or urinary issues, may persist or become more noticeable over time. Although decreased libido has multiple contributing factors beyond hormones alone, ongoing vaginal changes, hot flashes, and mood changes can all play a role.

## Your Gut is Part of Your Hormone System

Your gut is not separate from your hormones. It is part of the communication network that helps regulate them. By supporting your gut health, you are also supporting how your body uses and clears estrogen.

Small, consistent habits can make a meaningful difference. Over time, these choices help create a more balanced internal environment, supporting a smoother transition through perimenopause.

During perimenopause, your hormones are changing, but they are not acting alone. Your gut plays an important role in what happens to estrogen in your body.

Inside your digestive system lives a group of bacteria known as the **estrobolome**. These microbes help process and regulate estrogen by deciding how much is reactivated and reabsorbed versus how much is cleared out of the body.

When the estrobolome is balanced, estrogen can be used and cleared in a steady, healthy way. When it is not, estrogen may be recycled too much or not enough. This can contribute to symptoms like bloating, irregular cycles, breast tenderness, or changes in mood.

# Perimenopause Is a Window of Opportunity

Due to the aging process and hormonal changes, several health concerns may arise as you transition into menopause.

These include changes to:<sup>[7]</sup>

- Bone health
- Cardiovascular health
- Metabolic health
- Muscle mass
- Neurological health
- Sleep quality
- Weight and body composition

However, perimenopause can also represent a window of opportunity, as health changes accelerate, particularly regarding your muscle mass and bone mineral density. Intervening with lifestyle changes, such as resistance training, can make a meaningful difference in your health during perimenopause and beyond. In this sense, perimenopause represents a time to be proactive about your health and to shift gears into new routines that will set the stage for better health in this time of life.

# Your Next Steps

This guide discusses practical strategies to support health during the menopause transition through diet, exercise, and lifestyle. However, if you have any health concerns mentioned above, you should visit your healthcare provider for an evaluation. They can assess the severity of your symptoms and discuss the wide array of options available to you. Every person has beliefs about life, health, and medicine, so finding a practitioner aligned with those values is imperative.

It's important to note that some lifestyle factors and health conditions can mimic perimenopause symptoms. For example, absent menstrual cycles may be related to excessive stress or exercise, eating disorders, or metabolic-related reproductive concerns. With this in mind, speaking with your healthcare provider can help you better understand your unique situation.

# Chapter 1 References

1. Zhang, T., Wan, Y., & Geng, L. (2024). Unraveling the core and bridge menopausal symptoms of perimenopausal women: a network analysis. *Menopause*. <https://doi.org/10.1097/GME.0000000000002431>
2. Bresolin, S., Islam, R. M., Bond, M., & Davis, S. R. (2026). Symptom profiles in the late reproductive stage, earlier premenopause and early perimenopause in the absence of vasomotor symptoms: a cross-sectional study. *BMJ Sexual & Reproductive Health*. <https://doi.org/10.1136/bmjshr-2025-203075>
3. Barber, K., & Charles, A. (2023). Barriers to accessing effective treatment and support for menopausal symptoms: a qualitative study capturing the behaviors, beliefs, and experiences of key stakeholders. *Patient Preference and Adherence*, 17, 2971–2980. <https://doi.org/10.2147/PPA.S430203>
4. Wegrzynowicz, A. K., Walls, A. C., Godfrey, M., & Beckley, A. (2025). Insights into perimenopause: a survey of perceptions, opinions on treatment, and potential approaches. *Women (Basel)*, 5(1), 4. <https://doi.org/10.3390/women5010004>
5. Wu, J., Liu, Y., Song, Y., Wang, L., Ai, J., & Li, K. (2022). Aging conundrum: a perspective for ovarian aging. *Frontiers in Endocrinology*, 13, 952471. <https://doi.org/10.3389/fendo.2022.952471>
6. Carlson, K., & Vadaekut, E. S. (2026). Menopause. In StatPearls. StatPearls Publishing. <https://www.ncbi.nlm.nih.gov/books/NBK507826/>
7. Camon, C., Garratt, M., & Correa, S. M. (2024). Exploring the effects of estrogen deficiency and aging on organismal homeostasis during menopause. *Nature Aging*, 4(12), 1731–1744. <https://doi.org/10.1038/s43587-024-00767-0>







# Chapter 2

## Hormones: How Your Hormones Change During Perimenopause

- What Do Hormones Do During Perimenopause?
- Appetite-Regulating Hormones During Perimenopause
- Hormone Replacement Therapy (HRT) / Menopausal Hormone Therapy (MHT)
- GLP-1 Receptor Agonist Use in Perimenopause
- Lab Markers in Perimenopause
- Is it Really Perimenopause?

# What Do Hormones Do During Perimenopause?

If you've felt off, foggy, or frustrated, it might be due to hormonal changes happening behind the scenes as your HPTAO axis (the communication network linking your brain, thyroid, adrenal glands, and ovaries) undergoes adjustments to its new hormonal state. The HPTAO axis is influenced by positive and negative feedback loops that regulate hormone levels.<sup>[8]</sup> When ovarian function begins to decline, and hormone levels start to change, so does the communication, or feedback loops, within the HPTAO axis.

During this recalibration process, hormones can fluctuate widely rather than decline steadily, which can contribute to varied and sometimes unpredictable symptoms. In this section, you can learn about how some of your HPTAO axis hormones are changing in perimenopause.

---

## Follicle-Stimulating Hormone (FSH)

Follicle-stimulating hormone (FSH) is a hormone from the brain area known as the pituitary gland. It undergoes significant fluctuations and progressively increases across the menopausal transition.<sup>[8][9]</sup> Initially, this helps maintain declining estradiol levels.<sup>[10]</sup> It's one of the first signs that the HPTAO communication is changing.

---

## Estrogen (E2)

Changes in estrogen — particularly the form called estradiol, or E2 — are a hallmark of perimenopause. Though estradiol levels generally decline across the menopausal transition and into postmenopause, the pattern is not always consistent.<sup>[10]</sup> Estradiol may undergo dramatic fluctuations, and its trajectory can vary among individuals. Some women may have a fairly consistent decline with some fluctuation, whereas others may experience a sharp decline before a sharp increase just before the final menstrual period.

---

## Progesterone

Progesterone is produced after ovulation, during the second half of your menstrual cycle (the luteal phase, days 14–28). Therefore, while you are still cycling, you may still experience a robust increase in progesterone at this time.<sup>[11]</sup> As you progress through perimenopause, ovarian function declines, and so does the amount of progesterone produced.

---

## Testosterone

Testosterone levels gradually decline in perimenopause, though to a lesser extent compared to estradiol.<sup>[12]</sup> Changes in the amount of testosterone relative to estradiol can contribute to symptoms of excess androgens, such as acne, during this time.<sup>[13][14]</sup> In addition, sex hormone-binding globulin (SHBG) is a carrier protein that binds hormones and reduces their availability to tissues. It decreases during perimenopause, and in combination with declining estradiol levels, can increase the amount of bioavailable testosterone.<sup>[15]</sup>

---

## Thyroid Hormone (T3)

In perimenopause, thyroid function can begin to change, interfering with normal metabolic and reproductive processes.<sup>[16]</sup> However, it's unclear whether thyroid changes are due to menopause itself or the aging process. Nonetheless, perimenopause and changes in thyroid function are associated with overlapping cardiometabolic and bone health concerns. Additionally, symptoms associated with changes in thyroid hormone can be similar to perimenopausal symptoms (e.g., weight gain and hot flashes) and require careful evaluation by your healthcare provider.<sup>[16]</sup>

---

## Cortisol

Cortisol is often called the body's "stress hormone," and it plays a key role in energy, sleep, and our response to daily demands. During perimenopause, cortisol patterns can become less steady, especially if you are under ongoing stress or are not sleeping well.<sup>[17]</sup> Higher or poorly timed cortisol levels may contribute to symptoms such as belly weight gain, fatigue, irritability, and nighttime waking. Because cortisol is closely connected with other hormones, including estrogen and progesterone, supporting your stress response through rest, balanced meals, movement, and relaxation practices can help your body adapt more smoothly during this transition.

# Appetite-Regulating Hormones During Perimenopause

You may notice that your appetite is changing in perimenopause, and this can be hormonal, too. Along with changes in body fat distribution and reproductive hormones, appetite-regulating hormones also undergo adjustments.

**Ghrelin** is the “hunger hormone,” and it sends the signal to eat. During perimenopause — but not postmenopause — this hormone increases, driving appetite.<sup>[19]</sup>

**Leptin** on the other hand, is a hormone that regulates energy balance. Its relationship with perimenopause is more complex, as it's influenced by both declining estradiol and increasing fat mass, which decrease and increase leptin, respectively.<sup>[20]</sup>  
<sup>[21][22]</sup> The resulting changes in leptin signaling can influence metabolism and fat storage.

This unique metabolic window during perimenopause can complicate appetite and body composition, but understanding that these changes are happening can help you work with your body instead of against it.

## Hormones and Body Composition Changes in Perimenopause: Can Fat Be a Good Thing?

Although women experiencing increased fat storage may agree that it is an unwanted side effect of going through the menopausal transition, it is a normal physiologic process. As ovarian function declines during the menopausal transition, estrogen production from tissues other than the ovaries becomes critical.<sup>[18]</sup> Specifically, adipose tissue can convert circulating androgens into estrogen via the aromatase enzyme.

## Hormone Replacement Therapy (HRT) / Menopausal Hormone Therapy (MHT)

Hormone replacement therapy (HRT), also known as menopausal hormone therapy (MHT), may be recommended by your doctor based on your symptoms and health history. It comes in a variety of formulations, including estradiol with or without progesterone, as well as testosterone.<sup>[23]</sup> Further, the method of delivery, including oral, transdermal, and vaginal, each has different uses, risks, and benefits. Though not appropriate for everyone, HRT can help support vasomotor symptoms, like hot flashes, and bone health. Research suggests that HRT may be more effective when initiated within 10 years of menopause onset, and it can even be used during perimenopause for both symptom management and to mitigate bone loss.<sup>[24][25]</sup> This means that you don't have to be in menopause to begin the conversation with your doctor. However, HRT is not a panacea, and it's still recommended to use diet and lifestyle strategies to support your health during peri- and postmenopause.<sup>[26]</sup>

## GLP-1 Receptor Agonist Use in Perimenopause

Pharmacologic GLP-1 receptor agonists (e.g., semaglutide, liraglutide) are commonly used for weight management by supporting glycemic control and reducing calorie intake through effects on insulin secretion, glucose metabolism, and appetite.<sup>[27]</sup>

As more women explore GLP-1 agonists for weight and metabolic health in perimenopause, it's important to remember that this life stage is both a *metabolic and endocrine transition*, and the underlying shifts in HPTAO signaling that can affect weight and metabolism are still unfolding. In perimenopause, you may also be more vulnerable to reductions in lean body mass associated with GLP-1 use, and it's worth considering this critical aspect of your long-term health.<sup>[28]</sup> While these therapies can be powerful tools, clinical outcomes are optimized when they are integrated into a broader framework that includes nutrient-dense nutrition, resistance-based movement, circadian alignment, and psychosocial support, all aimed at preserving metabolic resilience and long-term health.<sup>[29]</sup>

## Lab Markers in Perimenopause

As you search for answers to why you no longer feel like yourself, you may turn to labs for more clues. You might have heard the phrase, “Test, don’t guess.” While there is some truth to that statement, there can be some challenges with testing during this time of life due to erratic fluctuations. This means that a single test may not offer an accurate picture of your hormone status. Nonetheless, having data from several time points can help your doctor identify useful patterns. Your doctor can assess your hormone levels via a blood draw, which will help determine your menopausal status. Typically, low estradiol levels and high FSH levels suggest menopause. Non-hormone biomarkers can offer further insight into your metabolic health and nutrient status.

## Why “Normal” Lab Results May Not Mean “Optimal”

You may have been told that your lab results are normal, yet you don't feel like yourself. Though having normal lab reference ranges is essential for your doctor, these ranges typically reflect population reference averages rather than what is optimal for you as an individual.<sup>[30]</sup> This means that it's possible to fall within the normal reference ranges while still experiencing symptoms. In some instances, narrower “optimal” reference ranges may be used to guide more personalized care, especially if you're experiencing persistent symptoms despite “normal” lab results. However, optimal reference ranges are not universally standardized and are often derived from clinical experience or research on specific biomarkers.<sup>[30]</sup> In this context, it's important to interpret lab results alongside symptoms, health history, and other lab results.

## Which Lab Markers Are Relevant in Perimenopause?

On the next page is a list of labs that can help you understand your menopausal status and symptoms, and to support long-term health. You may need additional lab testing based on your health history, family history, and symptoms.

Please discontinue dietary supplements approximately 3 days before your lab appointment to reduce interference with test results. Do not discontinue medications, including hormone therapy, unless you're advised to do so by your doctor.

## Lab Markers | Hormones

| Lab Marker                    | When to Test                                                               | Reference Range*                                                                            | Your Result |
|-------------------------------|----------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|-------------|
| Estradiol                     | Day 3 of the menstrual cycle or mid-luteal phase                           | Premenopausal: 15—350 pg/mL (cycle phase dependent)<br>Menopause: <20 pg/mL                 |             |
| FSH                           | Day 3 of the menstrual cycle                                               | Menopause: >30 mIU/mL                                                                       |             |
| LH                            | Day 3 of the menstrual cycle                                               | Menopause: 5.3—65.4 IU/L<br>Postmenopause: generally >40 IU/L                               |             |
| Progesterone                  | Mid-luteal phase (~5—7 days after ovulation). ~1 week before menstruation. | Menopause: <0.5 ng/mL                                                                       |             |
| Testosterone (Total and Free) | Morning, ideally cycle days 3—5                                            | Menopause: Total T: 7.0—40.0 ng/dL<br>Free T: <0.13—0.95 ng/dL (ages 45—55)                 |             |
| Thyroid Stimulating Hormone** | Anytime of day                                                             | 0.3—4.2 mIU/L<br>Note: 0.5–2.5/3.0 mIU/L is used by some functional medicine practitioners. |             |
| Free T3                       | Anytime of day                                                             | 2.0–4.4 pg/mL                                                                               |             |
| Free T4                       | Anytime of day                                                             | 0.9–1.7 ng/dL                                                                               |             |
| DHEA                          | Anytime of day                                                             | 41—50 years: <8.0 ng/mL                                                                     |             |

\*Laboratories use varying reference ranges and units for blood work, which can impact the interpretation of your results. It's important to work closely with your healthcare provider to ensure accurate analysis, understand how the results apply to you, and take appropriate action, if needed. If you need help supporting nutrient biomarkers, it's recommended that you consult with a qualified nutritionist, such as a Certified Nutrition Specialist (CNS) or Registered Dietitian (RD).

\*\*A full thyroid panel includes TSH, Free T4, Free T3, Thyroid Antibodies (TPO/TgAB), and Reverse T3. A full panel offers a more complete picture of how your thyroid is functioning. Note: For TSH, 0.5–2.5/3.0 mIU/L is used by some functional medicine practitioners, though this range has not been published.

# Lab Markers | Metabolic Health

| Lab Marker                    | When to Test | Reference Range*                                                                            | Your Result |
|-------------------------------|--------------|---------------------------------------------------------------------------------------------|-------------|
| Fasting Blood Glucose         | Morning      | 70—99 mg/dL (ADA standard)                                                                  |             |
| Fasting Insulin               | Morning      | ~2.6—25 µIU/mL                                                                              |             |
| HbA1C                         | Morning      | 4.0—5.6%; prediabetes 5.7—6.4%                                                              |             |
| Cholesterol: HDL and LDL***   | Morning      | HDL: >50 mg/dL<br>LDL: <100 mg/dL                                                           |             |
| Triglycerides                 | Morning      | <150 mg/dL                                                                                  |             |
| Thyroid Stimulating Hormone** | —            | 0.3—4.2 mIU/L<br>Note: 0.5–2.5/3.0 mIU/L is used by some functional medicine practitioners. |             |

\*\*A full thyroid panel includes TSH, Free T4, Free T3, Thyroid Antibodies (TPO/TgAB), and Reverse T3. A full panel offers a more complete picture of how your thyroid is functioning. Note: For TSH, 0.5–2.5/3.0 mIU/L is used by some functional medicine practitioners, though this range has not been published.

\*\*\*Standard lipid panels provide useful baseline information, but a more comprehensive lipoprotein analysis may offer deeper insight into cardiovascular risk. Looking beyond LDL and HDL to particle number, size, fractionation, and oxidized LDL can help reveal patterns not always captured on a routine lipid test.

# Lab Markers | Nutrients

| Lab Marker          | When to Test | Reference Range*                                    | Your Result |
|---------------------|--------------|-----------------------------------------------------|-------------|
| Magnesium (RBC)     | Morning      | 4.2 and 6.8 mg/dL                                   |             |
| Vitamin B12         | Morning      | 180—914 pg/mL                                       |             |
| Vitamin D           | Morning      | 20—50 ng/mL                                         |             |
| Iron (Ferritin)**** | Morning      | Reference range: 13-150 ng/mL<br>Optimal: >50 ng/mL |             |

\*\*\*\*A full iron panel includes ferritin, serum iron, total iron binding capacity (TIBC), and transferrin saturation. A full panel offers a more complete picture of how your body is transporting and storing iron.

Note: For TSH, 0.5-2.5/3.0 mIU/L is used by some functional medicine practitioners, though this range has not been published.

\*\*\*Standard lipid panels provide useful baseline information, but a more comprehensive lipoprotein analysis may offer deeper insight into cardiovascular risk. Looking beyond LDL and HDL to particle number, size, fractionation, and oxidized LDL can help reveal patterns not always captured on a routine lipid test.

\*\*\*\*A full iron panel includes ferritin, serum iron, total iron binding capacity (TIBC), and transferrin saturation. A full panel offers a more complete picture of how your body is transporting and storing iron.

## Other Health Testing Considerations

**Cortisol:** Cortisol is your stress hormone, but it's also involved in circadian rhythm regulation<sup>[31]</sup>. As such, it undergoes large fluctuations from when you wake up to when you go to bed. Compared with measuring cortisol at a single time point, assessing it at multiple points throughout the day (via saliva or urine) can offer unique insights into subtle symptoms related to its natural rhythm that may not be reflected in standard lab tests.  
[31]

**DEXA:** A DEXA scan measures your bone mineral density. However, they aren't typically recommended until age 65 despite bone loss accelerating in the perimenopausal period.<sup>[32],[33]</sup> Receiving a scan during perimenopause can initiate early intervention for any bone concerns that may arise. Some research suggests screening for bone loss in women should be considered at age 45.<sup>[33]</sup>

**hs-CRP:** High-sensitivity C-reactive protein (hs-CRP) helps you understand the inflammatory balance in your body, which may change across the menopausal transition.<sup>[34]</sup>

**Liver Function:** Liver function, measured via liver enzymes like ALT, AST, and even GGT, offer insight into metabolic health and may be particularly relevant during perimenopause.<sup>[35]</sup> GGT can also indicate to a health practitioner whether you might be at risk of certain toxic exposures.

## Other Health Testing Considerations

**Omega-3 Fatty Acids:** Omega-3 fatty acids are important for cardiometabolic and cognitive health, though many people don't consume adequate amounts. Testing omega-3 fatty acid levels in the blood is becoming increasingly popular and can help guide food and supplement choices. The OmegaQuant test is a common test that measures the percentage of the long-chain fatty acids EPA and DHA in red blood cells. The ideal range of EPA and DHA is 8–12%.

### Did you know low iron levels can feel like perimenopause?

While it's true that iron needs decrease after menopause, perimenopausal women still have high needs due to continued menstrual cycles, especially if cycles are becoming heavier or more frequent. If your iron levels are low, you may experience fatigue, irritability, mood changes, poor concentration, brain fog, lightheadedness, and poor exercise tolerance.<sup>[36][37]</sup> However, testing your iron levels is essential to avoid excessive intake. It's recommended that you test your iron levels before beginning an iron supplement and again after 2–3 months of supplementation.<sup>[38]</sup> Note that some iron supplements can cause changes in bowel movements (e.g., constipation).

## How to Talk to Your Doctor About Lab Testing

You may need to advocate for yourself at the doctor's office to receive complete lab testing. Come prepared for the doctor's appointment with a list of symptoms, questions, and specific labs you're interested in learning more about. It may help your doctor to understand your request if you share how your symptoms are impacting your daily life.

You can also bring specific questions, such as:

- “Could my symptoms be related to hormone changes during perimenopause?”
- “Which labs would give us a clearer picture of what’s happening?”
- “When is the best time in my cycle to test these hormones?”
- “How do my results compare to optimal ranges, not just standard ranges?”
- “Should we track these labs over time to see patterns or changes?”
- “Are there lifestyle or nutrition changes I can try before or alongside treatment?”
- “At what point would we consider additional support or therapies?”

If your doctor is hesitant, you may ask whether there are alternative ways to address your concerns or whether a referral to a specialist would be more appropriate. Independent lab testing companies are also an option if access is a barrier. However, results are best interpreted with clinical context, so it's recommended that you share your lab results with a qualified provider who can help you translate the results into a care plan.

## Is it Really Perimenopause?

At any stage of life, shifting hormones can make symptoms difficult to interpret. As you already learned, it isn't uncommon for perimenopausal symptoms to be dismissed for other causes. However, the opposite is also true: symptoms may be labeled as perimenopausal despite having other origins. For example, low iron levels can cause fatigue; high stress levels and low calorie intake can cause menstrual irregularities; and changes in thyroid function can contribute to hair loss. This is why it's important to consider lab testing, especially if you're under the age of 40. In fact, it's estimated that less than 4% of US women undergo early menopause (between the ages of 40 to 44 years) and even fewer undergo menopause before age 40.<sup>[39]</sup> Hormone labs, particularly FSH, can also help differentiate between menstrual changes related to perimenopause or other reproductive issues, including those with lifestyle factors<sup>[40]</sup>



## Tracking Your Cycle in Perimenopause: Context Beyond Lab Markers

Tracking your menstrual cycle isn't only for fertility or avoiding the surprise of a menstrual cycle. Cycle tracking during perimenopause provides important context for understanding inconsistent and often unpredictable periods and symptoms. Plus, it can allow you to see patterns that lab testing doesn't capture.

It's also important to remember that pregnancy is still possible during perimenopause, even if your cycles are irregular. Tracking your cycle can help you stay informed about your fertility status and make choices that align with your goals.

### Consider tracking cycle data, such as:

- Overall cycle length (measured from day one of your period to the day before the next period begins)
- Period length
- Menstrual flow (e.g., heavy, medium, light, or spotting)
- Menstrual comfort
- Ovulation symptoms (e.g., vaginal discharge that looks like egg whites or mid-cycle cramping)
- Symptoms like hot flashes, headaches, and mood changes

Your cycle data can also be useful to your doctor — and help you advocate for yourself — so don't forget to bring it with you to your next appointment.



## Chapter 2 References

8. Patel, P., Patil, S., & Kaur, N. (2025). Estrogen and metabolism: navigating hormonal transitions from perimenopause to postmenopause. *Journal of Mid-Life Health*, 16(3), 247–256. [https://doi.org/10.4103/jmh.jmh\\_75\\_25](https://doi.org/10.4103/jmh.jmh_75_25)
9. Kawakita, T., Yasui, T., Yoshida, K., Matsui, S., & Iwasa, T. (2023). Associations of LH and FSH with reproductive hormones depending on each stage of the menopausal transition. *BMC Women's Health*, 23, 286. <https://doi.org/10.1186/s12905-023-02438-5>
10. Tepper, P. G., Randolph, J. F., Jr., McConnell, D. S., Crawford, S. L., El Khoudary, S. R., Joffe, H., Gold, E. B., Zheng, H., Bromberger, J. T., & Sutton-Tyrrell, K. (2012). Trajectory clustering of estradiol and follicle-stimulating hormone during the menopausal transition among women in the Study of Women's Health across the Nation (SWAN). *Journal of Clinical Endocrinology & Metabolism*, 97(8), 2872–2880. <https://doi.org/10.1210/jc.2012-1422>
11. Allshouse, A., Pavlovic, J., & Santoro, N. (2018). Menstrual cycle hormone changes associated with reproductive aging and how they may relate to symptoms. *Obstetrics and Gynecology Clinics of North America*, 45(4), 613–628. <https://doi.org/10.1016/j.ogc.2018.07.004>
12. Wang, Y., Islam, R. M., Bond, M., & Davis, S. R. (2025). Testosterone and pre-androgens by age and menopausal stage at midlife: findings from a cross-sectional study. *eBioMedicine*, 121, 105972. <https://doi.org/10.1016/j.ebiom.2025.105972>
13. Talaulikar, V. (2022). Menopause transition: physiology and symptoms. *Best Practice & Research Clinical Obstetrics & Gynaecology*. <https://doi.org/10.1016/j.bpobgyn.2022.03.003>
14. Torrens, J. I., Sutton-Tyrrell, K., Zhao, X., Matthews, K., Brockwell, S., Sowers, M., & Santoro, N. (2009). Relative androgen excess during the menopausal transition predicts incident metabolic syndrome in mid-life women: SWAN. *Menopause*, 16(2), 257–264. <https://doi.org/10.1097/gme.0b013e318185e249>
15. Sutton-Tyrrell, K., Wildman, R. P., Matthews, K. A., Chae, C., Lasley, B. L., Brockwell, S., Pasternak, R. C., Lloyd-Jones, D., Sowers, M. F., Torrens, J. I., & SWAN Investigators. (2005). Sex-hormone-binding globulin and the free androgen index are related to cardiovascular risk factors in multiethnic premenopausal and perimenopausal women enrolled in the Study of Women Across the Nation (SWAN). *Circulation*, 111(10), 1242–1249. <https://doi.org/10.1161/01.CIR.0000157697.54255.CE>
16. Uygur, M. M., Yoldemir, T., & Yavuz, D. G. (2018). Thyroid disease in the perimenopause and postmenopause period. *Climacteric*, 21(6), 542–548. <https://doi.org/10.1080/13697137.2018.1514004>
17. Woods, N. F., Carr, M. C., Tao, E. Y., Taylor, H. J., & Mitchell, E. S. (2006). Increased urinary cortisol levels during the menopausal transition. *Menopause*, 13(2), 212–221. <https://doi.org/10.1097/01.gme.0000198490.57242.2e>
18. Kurylowicz, A. (2023). Estrogens in adipose tissue physiology and obesity-related dysfunction. *Biomedicines*, 11(3), 690. <https://doi.org/10.3390/biomedicines11030690>
19. Sowers, M. R., Wildman, R. P., Mancuso, P., Eyvazzadeh, A. D., Karvonen-Gutierrez, C. A., Rillamas-Sun, E., & Jannausch, M. L. (2008). Change in adipocytokines and ghrelin with menopause. *Maturitas*, 59(2), 149–157. <https://doi.org/10.1016/j.maturitas.2007.12.006>
20. Di Carlo, C., Tommaselli, G. A., & Nappi, C. (2002). Effects of sex steroid hormones and menopause on serum leptin concentrations. *Gynecological Endocrinology*, 16(6), 479–491. PMID: 12626035.
21. Lee, C. G., Carr, M. C., Murdoch, S. J., Mitchell, E., Woods, N. F., Wener, M. H., Chandler, W. L., Boyko, E. J., & Brunzell, J. D. (2009). Adipokines, inflammation, and visceral adiposity across the menopausal transition: a prospective study. *Journal of Clinical Endocrinology & Metabolism*, 94(4), 1104–1110. <https://doi.org/10.1210/jc.2008-0701>

22. Siregar, M. F. G., Terauchi, M., Sari, R. A., Adella, C. A., Prabudi, M. O., Barus, M. N. G., Rivany, R., Tobing, I. D. L., & Azmeila, S. (2024). Comparison of leptin and estrone levels between normal body mass index and obese menopausal women. *Narra J*, 4(2), e745. <https://doi.org/10.52225/narra.v4i2.745>
23. Harper-Harrison, G., Carlson, K., & Shanahan, M. M. (2024). Hormone replacement therapy. In StatPearls. StatPearls Publishing. <https://www.ncbi.nlm.nih.gov/books/NBK493191/>
24. Edelweishia, M., Christopher, A., Theresia, E., & Angelia, V. (2025). Review of hormonal replacement therapy options for the treatments of menopausal symptoms. *Korean Journal of Family Medicine*, 46(5), 299—306. <https://doi.org/10.4082/kjfm.25.0039>
25. Yanachkova, V., Vasileva-Slaveva, M., Kostov, S., & Yordanov, A. (2025). Reconsidering hormone replacement therapy: current insights on utilisation in premenopausal and menopausal women: an overview. *Journal of Clinical Medicine*, 14(20), 7156. <https://doi.org/10.3390/jcm14207156>
26. Tulloh, L. (2025). Restoring trust in menopause management: menopause hormone therapy is not a panacea, and physical activity remains a critical intervention. *British Journal of Sports Medicine*, 59(12), 828—829. <https://doi.org/10.1136/bjsports-2025-110217>
27. Liu, Q. K. (2024). Mechanisms of action and therapeutic applications of GLP-1 and dual GIP/GLP-1 receptor agonists. *Frontiers in Endocrinology*, 15, 1431292. <https://doi.org/10.3389/fendo.2024.1431292>
28. Linge, J., Birkenfeld, A. L., & Neeland, I. J. (2024). Muscle mass and glucagon-like peptide-1 receptor agonists: adaptive or maladaptive response to weight loss? *Circulation*, 150(16), 1288—1298. <https://doi.org/10.1161/CIRCULATIONAHA.124.067676>
29. Sievenpiper, J. L., et al. (2025). Nutritional and lifestyle supportive care recommendations for management of obesity with GLP-1 based therapies: an expert consensus statement using a modified Delphi approach. *Obesity Pillars*, 17, 100228. <https://doi.org/10.1016/j.obpill.2025.100228>
30. Doles, N., Ye Mon, M., Shaikh, A., Mitchell, S., Patel, D., Seehusen, D., & Singh, G. (2025). Interpreting normal values and reference ranges for laboratory tests. *Journal of the American Board of Family Medicine*, 38(1), 174—179. <https://doi.org/10.3122/jabfm.2024.240224R1>
31. Juliana, N., Maluin, S. M., Effendy, N. M., Abu, I. F., & Azmani, S. (2025). Cortisol detection methods and the hormone's role in evaluating circadian rhythm disruption. *International Journal of Molecular Sciences*, 26(18), 9141. <https://doi.org/10.3390/ijms26189141>
32. US Preventive Services Task Force; Nicholson, W. K., et al. (2025). Screening for osteoporosis to prevent fractures: US Preventive Services Task Force recommendation statement. *JAMA*, 333(6), 498—508. <https://doi.org/10.1001/jama.2024.27154>
33. Ho-Pham, L. T., Nguyen, H. G., Nguyen-Pham, S. Q., Hoang, D. K., Tran, T. S., & Nguyen, T. V. (2023). Longitudinal changes in bone mineral density during perimenopausal transition: the Vietnam Osteoporosis Study. *Osteoporosis International*, 34(8), 1381—1387. <https://doi.org/10.1007/s00198-023-06757-z>
34. El Khoudary, S. R., Chen, X., Qi, M., Matthews, K. A., Karlamangla, A. S., Gold, E. B., Harlow, S. D., Thurston, R. C., Joffe, H., Pavlovic, J., & Greendale, G. A. (2025). The relation between systemic inflammation and the menopause transition: SWAN. *Journal of Clinical Endocrinology & Metabolism*, 110(11), e3566—e3576. <https://doi.org/10.1210/clinem/dgaf175>
35. Matsui, S., Yasui, T., Kasai, K., Keyama, K., Kato, T., Uemura, H., Kuwahara, A., Matsuzaki, T., & Irahara, M. (2016). Changes of liver enzymes and triglyceride during the menopausal transition in Japanese women. *Journal of Obstetrics and Gynaecology*, 36(6), 806—811. <https://doi.org/10.3109/01443615.2016.1154516>

36. Auerbach, M., DeLoughery, T. G., & Tirnauer, J. S. (2025). Iron deficiency in adults: A review. *JAMA*, 333(20), 1813—1823. <https://doi.org/10.1001/jama.2025.0452>
37. Choi, M. S., Seiger, E. R., & Murray-Kolb, L. E. (2025). Cognitive function in peri- and postmenopausal women: Implications for considering iron supplementation. *Nutrients*, 17(11), 1762. <https://doi.org/10.3390/nu17111762>
38. Balendran, S., & Forsyth, C. (2021). Non-anaemic iron deficiency. *Australian Prescriber*, 44(6), 193—196. <https://doi.org/10.18773/austprescr.2021.052>
39. Choe, S.-A., & Sung, J. (2020). Trends of premature and early menopause: A comparative study of the US National Health and Nutrition Examination Survey and the Korea National Health and Nutrition Examination Survey. *Journal of Korean Medical Science*, 35(14), e97. <https://doi.org/10.3346/jkms.2020.35.e97>
40. Roberts, R. E., Farahani, L., Webber, L., & Jayasena, C. (2020). Current understanding of hypothalamic amenorrhoea. *Therapeutic Advances in Endocrinology and Metabolism*, 11, 2042018820945854. <https://doi.org/10.1177/2042018820945854>



H.O.M.E.

## Coming H.O.M.E. to Yourself in Perimenopause

Perimenopause is not just a hormonal shift. It is a whole-body transition. At times, it can feel like you have been disconnected from yourself — your energy, your sleep, your mood, and even your sense of rhythm.

This is your invitation to come H.O.M.E. to your body again.

Not through perfection, but through small, supportive steps that help your body feel safe, nourished, and in sync again. When your body is supported, your hormones can communicate more clearly, your energy becomes steadier, and you begin to feel more like yourself.

To guide you, we use the simple H.O.M.E. framework, which outlines four areas that are always working together in your body. When you gently support each one, you create the conditions for a smoother, more balanced transition.

# H — Harmonization

Your body is designed to work in harmony, like an orchestra where each system plays its part. During perimenopause, that rhythm can feel off — but it can be gently brought back into balance.

**Harmonization does not require a complete life overhaul. It starts with simple, steady habits:**

- Eating regular, nourishing meals
- Moving your body in ways that feel good
- Prioritizing sleep, even if it is not perfect
- Creating small moments of calm in your day

In this guide, you will find simple ways to begin restoring balance — one small step at a time. You do not have to do everything at once. Working with a healthcare provider can help you create a plan that fits your life. Change takes time, but when your body returns to harmony, you can feel the difference.

## O — Optimization

This phase of life is not about doing more. It is about doing what works better for you now. Optimization means making realistic, supportive choices that fit your current life and body — not about being perfect, but about being consistent.

### You still have influence over many important areas:

- What and how you eat
- How you structure your day
- When you rest and recharge
- How you move your body

In this guide, you will find practical ideas to help you build a lifestyle that supports your hormones — without extremes or overwhelm. Even small shifts, like eating breakfast or going to bed earlier, can have a meaningful impact.

# M — Metabolism

If your energy feels unpredictable or your body is changing in ways you do not expect, your metabolism may be asking for support. Your metabolism is closely tied to your hormones, especially insulin. Supporting it does not require complicated plans.

## It starts with balanced, consistent nourishment:

- Including protein with meals
- Eating fiber-rich foods like vegetables, beans, and whole foods
- Adding colorful plant foods for their protective nutrients
- Avoiding long gaps without eating if they leave you feeling depleted

In this guide, you will learn simple, realistic ways to nourish your body for better energy and metabolic support — no extreme diets required.

## E — Elimination

Your body is constantly processing and clearing hormones. This is a natural and important rhythm. When elimination pathways are supported, hormones are used and cleared efficiently.

### You can support this process in simple ways:

- Staying well hydrated
- Eating enough fiber to support regular bowel movements
- Including plant foods that support liver and digestive health
- Moving your body to keep things flowing

In this guide, you will find supportive strategies to help your body gently and effectively clear what it no longer needs.

Coming H.O.M.E. is not about fixing your body. It is about supporting it in a new phase of life. With time, attention, and the right tools, you can move through perimenopause, feeling more grounded, more resilient, and more like yourself again.

H — Harmonization  
O — Optimization  
M — Metabolism  
E — Elimination

Coming H.O.M.E. is not about fixing your body. It is about supporting it in a new phase of life. With time, attention, and the right tools, you can move through perimenopause, feeling more grounded, more resilient, and more like yourself again.





# Chapter 3

## Diet & Nutrition: Eating to Support Your Hormones

Rather than focusing only on symptom relief, perimenopause is also an important opportunity to support the underlying systems influencing hormone balance — particularly blood sugar regulation, stress resilience, and healthy estrogen metabolism.

- Supporting Hormone and Blood Sugar Balance in Perimenopause
- Adrenal-Supportive Eating
- Food Choices in Perimenopause: What to Eat
- What to Limit in Perimenopause
- Why You Need to Hydrate in Perimenopause
- What to Eat for a Healthy Gut Microbiome
- What Does It All Look Like? A Practical View into Everyday Eating
- Phytoestrogens for Menopause

# Supporting Hormone and Blood Sugar Balance in Perimenopause

Perimenopause is not just a hormone shift. It is also a metabolic shift. Many women notice this first through their energy — feeling more tired after meals, experiencing stronger cravings, or noticing that foods that once worked now leave you feeling off.

One of the most important and often overlooked changes during this time involves how your body manages blood sugar.<sup>[41]</sup> Estrogen helps your body respond to insulin.<sup>[42][43]</sup> As estrogen begins to fluctuate and decline, your body can become less sensitive to insulin. This means it may be harder to keep blood sugar steady, even if your diet has not changed. Over time, this can contribute to energy swings, increased hunger, changes in body composition, and disrupted sleep.

In other words, the nutrition strategy for perimenopause is not just about “eating healthy.” It is about how and when you eat, and how your body responds to those choices.

Supporting healthy blood sugar balance through your diet offers multiple daily opportunities to support your metabolism.

Below are three strategies you can try in your daily diet:

---

**Choose  
High-Fiber  
Carbohydrates**

Low-fiber carbohydrates, such as refined grains, can rapidly raise blood sugar, making your energy levels and mood feel unstable.<sup>[44]</sup> Instead, high-fiber options, such as those from whole grains and vegetables, support healthy blood sugar regulation. Perimenopausal women are recommended to consume 30–45 g of fiber per day.<sup>[44]</sup>

---

**Include Protein  
and Healthy  
Fats with Every  
Meal**

In addition to your fiber-rich carbohydrates, including protein and healthy fats with each meal can help support how well your blood sugar responds to the meal.<sup>[45][46]</sup> In other words, a varied plate can help support your metabolism and how you feel after eating.

---

**Eat at  
Consistent  
Times**

Add consistency to your day with regular meals and snack times. Additionally, try to skew your calorie intake so that it's higher in the morning and lower toward the evening. This works naturally with your circadian rhythm, which influences how your body metabolizes carbohydrates.<sup>[47]</sup>

Starting the day with a protein-rich breakfast and avoiding long gaps between meals can also help reduce cortisol spikes and prevent the late-day energy crashes that many women experience in perimenopause.<sup>[48][49]</sup> Eating consistently sends your body signals of safety and stability, which supports both metabolic health and hormone balance.<sup>[50][51]</sup>

# Adrenal-Supportive Eating

Perimenopause often makes women more aware of how closely stress and hormones are connected. You may notice that poor sleep, a stressful week, overexercising, or not eating enough can quickly affect your mood, cravings, cycle regularity, and energy.

This is because your adrenal glands and your stress response system (the HPA axis) become increasingly important during perimenopause. When cortisol remains elevated from chronic stress, irregular eating, or under-fueling, it can worsen fatigue, increase anxiety, disrupt sleep, and make hormone fluctuations feel even more intense.<sup>[52]</sup>

Adrenal-supportive eating does not mean following a special diet. It means creating regular nourishment that helps your body feel safe and supported.

Think of this as reducing “stress signals” from food patterns. Your body interprets under-eating, erratic meals, and blood sugar crashes as additional stress. Creating predictable nourishment can help support cortisol balance, steadier energy, and a smoother perimenopausal transition.

Some simple strategies include:

- Do not skip meals, especially breakfast
- Include protein, healthy fats, and complex carbs at each meal
- Avoid long periods of under-eating followed by overeating later in the day
- Be mindful of excess caffeine, especially on an empty stomach
- Support recovery after exercise with adequate food, not just hydration

# Food Choices in Perimenopause: What to Eat

# Food Choices in Perimenopause: What to Eat

## Dietary Protein

Protein is essential for hormone production, healing and repair, and increasing satiety. Consuming enough protein is also vital for maintaining muscle mass and strength during and after the menopausal transition. In perimenopausal women, a higher protein intake is associated with a lower risk of frailty, better physical function, and higher lean body mass. It's recommended that perimenopausal women consume 0.8–1.2g/kg/day of protein, but it is best if you work with your healthcare provider to determine your personalized needs.

## Animal Proteins Include:

- Grass-fed meat (beef, bison, buffalo, lamb)
- Pasture-raised eggs
- Pasture-raised poultry (chicken, turkey)
- Wild-caught fish (sardines, salmon, tuna)

## Plant Proteins Include:

- Beans and legumes
- Nuts and seeds
- Tofu and tempeh
- Whole grains

## Supplemental Protein May Include:

- Collagen powder
- A protein powder to add to shakes or smoothies (e.g., pea, rice, hemp, soy, whey)

## Does a high-protein diet harm bone density?

Whether high protein consumption increases bone calcium resorption has been debated for years. However, more recent research has shown only a negative effect on bone health in those on bed rest. A higher protein intake has also been associated with higher bone mineral density in the hip and lumbar spine in older women.

## Fruits and Vegetables

Phytochemicals are bioactive plant compounds found in fruits, vegetables, and other plant products, including tea, whole grains, and legumes. During perimenopause, women begin to lose the anti-inflammatory benefits of estrogen. Consuming a variety of phytochemical-rich plants may help support a healthy inflammatory balance.<sup>[53]</sup>

Phytochemicals can also support a variety of health concerns in menopausal women. For example:

- Blackcurrants, rich in anthocyanins, may help support bone and heart health
- Cocoa, rich in polyphenols, may support mental health
- Garlic, rich in organosulfur compounds, may support joint comfort
- Mangos, rich in flavonoids, carotenoids, and mangiferin, may improve skin appearance

Aiming to “eat the rainbow” is a fun way to include more anti-inflammatory and phytonutrient-rich plants in your diet. Eat one serving of each color of the rainbow daily. Supplemental fruits and vegetables may include:

- Concentrated fruit and vegetable powder
- Multivitamins with plant extracts
- Mushroom powders
- Cocoa powder
- Spirulina powder

## How to choose cocoa powder

Cocoa is rich in antioxidant phytochemicals, but different cocoa products vary in their phytochemical content.

Many people are familiar with Dutch cocoa powder, which undergoes alkalinization to improve its solubility and reduce bitterness, making it better for baking. However, this process can also reduce the cocoa's phytochemical content. When choosing a cocoa powder as a dietary supplement, it's best to choose a minimally processed, non-alkalized "natural" variety. This is often marketed as "raw cacao powder," and it can be used in foods like smoothies, yogurt, and oatmeal for a nutritious boost.

## Fats and Oils

Fats are essential for helping the body absorb the fat-soluble vitamins A, D, E, and K. They are also incorporated into cell membranes for structure and function. Some dietary fats, especially those from plants, have anti-inflammatory properties due to their content of essential fats and phytochemicals, such as oleocanthal in extra-virgin olive oil.

### Healthy fats include:

- Avocados
- Nuts: almonds, cashews, hazelnuts, macadamias, pecans, walnuts
- Oils for cooking: avocado oil, butter, coconut oil, extra-virgin olive oil, ghee, sesame oil
- Oils for dressings (not for cooking): flaxseed oil, pumpkin seed oil
- Olives (black, green, purple)
- Seeds: chia seeds, flaxseeds, hemp seeds, pumpkin seeds, sesame seeds

### Supplemental fatty acids may include:

- Omega-3 fatty acids concentrated in EPA and DHA
- Omega-3 fatty acids from algal sources, typically higher in DHA
- Flaxseed oil
- MCT oil

The total amount of fat in the diet appears to be less important than the composition of fats. Menopausal women are advised to prioritize polyunsaturated and omega-3 fatty acids over saturated fats, and to limit saturated fat to no more than 10% of daily fat intake.

## What about seed oils?

Seed oils are a topic of ongoing debate in nutrition.

Many commonly used seed oils, such as soybean, corn, sunflower, safflower, and canola oil, contain polyunsaturated fats that can support heart health when used in place of trans fats or highly processed saturated fats.

### At the same time, concerns have been raised about:

- High intake of omega-6 fatty acids relative to omega-3 fatty acids in modern diets
- The degree of processing and refining some industrial seed oils undergo
- The repeated heating and oxidation that can occur during deep frying and commercial food preparation

Rather than viewing all seed oils as inherently “good” or “bad,” it may be more helpful to focus on overall dietary patterns, balance, and quality.

### Practical ways to support a healthier dietary pattern include:

- Choosing minimally processed oils when possible
- Avoiding repeatedly heated oils used in deep frying
- Emphasizing whole-food sources of healthy fats
- Including omega-3-rich foods as part of a balanced diet

Taken together, these habits can help support a more favorable inflammatory and metabolic environment.

## Whole Grains

Whole grains provide fiber, which can support healthy blood sugar regulation and cardiovascular health. It's recommended that menopausal women consume 30—45 g fiber per day.

**Unless otherwise indicated, include whole grains such as:**

- Buckwheat
- Millet
- Oats
- Rice (brown, black, red, and wild)
- Quinoa

In addition to being used as a component of healthy meals, whole grains are also available as flour, which can be used in baking to incorporate more fiber and nutrients. Some examples include oat, buckwheat, and quinoa flour.

**Supplemental fibers may include:**

- Himalayan tartary buckwheat powder
- Flaxseed meal
- Chia seeds

### A word of caution about rice and arsenic

Rice may contain arsenic, a toxic heavy metal. Parboiling rice is shown to be the most effective way to remove arsenic from rice. To parboil rice:

1. Boil fresh water.
2. Add rice and boil for 5 minutes.
3. Discard the water.
4. Add fresh water to the rice and cook according to normal preparation instructions.

Note: Choose gluten-free options as needed or as directed by your healthcare provider.

## Key Nutrients for Perimenopause

**Calcium:** Almonds, beans, cheese, collard greens, fortified foods (e.g., plant-based milks), kale, milk, sesame seeds, soft-boned fish (e.g., sardines), tofu, yogurt

**Choline:** Egg yolk

**Magnesium:** Almonds, beans, brown rice, cashews, chia seeds, pumpkin seeds, soybeans, spinach

**Vitamin C:** Berries, broccoli, cherries, citrus fruits, peppers, tomatoes

**Vitamin D:** Egg yolk, dairy products, fatty fish (e.g., salmon, trout, and sardines), fortified foods

**Vitamin K:** Broccoli, collards, kale, natto (fermented soybeans), soybeans, spinach

### A note on calcium supplements

Calcium is important for bone health in menopause. However, an intentional, balanced diet can likely meet your calcium requirements and is preferred over regular supplementation unless a deficiency exists. Some evidence suggests that calcium supplements may negatively affect heart health, though the evidence remains controversial. Working with a healthcare provider is advised to help you assess individual nutrients and supplement needs.

# What to Limit in Perimenopause

While much of your nutrition strategy will focus on what you add in — like protein and fibrous plants — there are also some foods that make it harder to feel steady in perimenopause.

## Food Sensitivities, Intolerances, and Allergies

If you suspect you have reactions to particular foods, we recommend working with your healthcare provider to determine whether you have any food sensitivities, intolerances, or allergies through laboratory testing or an elimination diet.

## Common problematic foods include:

- Caffeine (e.g., coffee, energy drinks, soft drinks, teas)
- Corn (e.g., chips, tortillas)
- Dairy products (e.g., cheese, milk, yogurt)
- Gluten (e.g., barley, rye, wheat, spelt)
- Peanuts
- Shellfish

## Alcohol

Drinking alcohol may increase the risk of vasomotor symptoms, especially night sweats. For women experiencing bothersome vasomotor symptoms, it may be best to limit or refrain from alcohol.

## Processed or Refined Carbohydrates

These foods may affect blood sugar regulation and the body's natural inflammatory response. You may notice that you feel particularly tired after eating them.

### Common problematic foods include:

- Bread, especially white bread
- Chips
- Crackers
- Fruit juice
- Pancakes and waffles
- Pastas
- Ready-to-eat cereal
- Soft drinks
- White flour
- White sugar and other refined sweeteners

## Dietary Advanced Glycation End Products (AGEs)

These foods are rich in damaged, complex proteins and fats called Advanced Glycation End Products (AGEs). AGEs may disrupt the body's natural inflammatory balance.

### Common problematic foods include:

- Grilled, fried, or roasted meats
- High-fat and aged cheeses
- High-fat spreads
- Roasted nuts

## Reducing AGEs through cooking

Reduce the AGE content of meals by changing how you cook. Cooking methods to reduce AGEs include low-heat cooking, moist-heat methods (e.g., boiling and steaming), and acidic marinades.

# Why You Need to Hydrate in Perimenopause

If you're feeling less thirsty during perimenopause, it may be due to hormonal changes.<sup>[44]</sup> However, proper hydration is essential, as it aids in delivering nutrients, regulating heat balance, supporting mood and concentration, maintaining mucous membranes, hydrating the skin, and supporting healthy detoxification. It is also critical to support regular bowel movements, urination, and sweating — our three routes of eliminating waste from our bodies.

If you find water boring, try adding fruits like oranges, lemons, limes, and grapefruit, herbs like mint, cilantro, and rosemary, or vegetables like cucumbers. Get creative and combine some of these. For example, cucumber and mint, or grapefruit and rosemary, are great combinations. Making ice cubes with fruits and herbs can be a fun way to drink more water, too!

Additionally, if you drink water but still don't feel hydrated, you may consider mineralizing your water using Sole (pronounced sol-'ay), a super-saturated Himalayan crystal salt solution made by dissolving Himalayan salt in water until fully saturated. One study demonstrated that mineralized water increased hydration indicators by 10% and effectively stabilized pH.

# What to Eat for a Healthy Gut Microbiome

The good news is that you can support your gut health and estrobolome through simple, everyday habits.

## Feed your gut with fiber.

. Fiber helps your body remove used hormones through the digestive tract. Without enough fiber, estrogen may be reabsorbed instead of eliminated.

Focus on vegetables (especially leafy greens and cruciferous vegetables like broccoli and cauliflower), beans and lentils, seeds such as flax and chia, and whole, minimally processed plant foods.

## Eat a variety of plant foods.

Different plants feed different types of beneficial bacteria. A more diverse gut microbiome supports better estrogen balance.

Aim to “eat the rainbow” by including a wide range of colorful fruits and vegetables throughout the week. Polyphenols from colorful fruits and vegetables (e.g., berries of all types, herbs and spices, cocoa powder) are also supportive of the gut microbiome.

### Support regular digestion.

Regular bowel movements are important for hormone clearance. Support this by drinking enough water, eating fiber-rich foods, and moving your body daily.

### Include fermented foods.

Fermented foods can help support beneficial gut bacteria. Depending on what you can tolerate, try small, regular amounts of yogurt or kefir, sauerkraut, kimchi, or fermented vegetables.

Fermented foods can be consumed daily, and products like kimchi and sauerkraut can contribute to your daily vegetable intake. If you are unaccustomed to eating fermented foods, it may be best to start with small servings and gradually increase your intake to reduce unwanted digestive symptoms, such as bloating and gas. Some individuals may not be able to comfortably consume these foods because of food sensitivities or intolerances, such as histamine intolerance.

# What Does It All Look Like? A Practical View into Everyday Eating

Meals are among the most powerful daily inputs for stabilizing your metabolic system during perimenopause.

Here is a simple framework to improve your eating:

- Anchor every meal with protein
- Add fiber-rich plants, especially a diversity of colors
- Include healthy fats
- Avoid eating carbohydrates on their own
- Support the gut daily with fiber and fermented foods
- Eat earlier in the day and lighter in the evening

## Breakfast Options (front-load protein and fiber)

### Savory Hormone-Balancing Bowl

- Pasture-raised eggs sautéed with spinach, mushrooms, and broccoli
- Side of quinoa or buckwheat
- Half an avocado
- Sprinkle of pumpkin seeds

#### Why this works for you

Protein, fiber, and fat help slow the rise in blood glucose and support satiety. Cruciferous vegetables support estrogen metabolism.

### Blood Sugar—Steady Smoothie

- Unsweetened almond or soy milk
- Protein powder (pea, hemp, or whey)
- Frozen berries (blueberries and raspberries)
- Ground flaxseed and chia seeds
- Handful of greens
- Optional: cocoa powder

#### Why this works for you

Balanced macronutrient intake with polyphenols supports both metabolic and gut health.

## Fiber-Rich Oat Bowl

- Steel-cut oats
- Stir in collagen or protein powder
- Top with walnuts, cinnamon, and berries
- Side of plain yogurt or kefir

### Why this works for you

This turns a carbohydrate-heavy breakfast into a more balanced meal for glucose control.

## Lunch Options (steady energy, microbiome support)

### Rainbow Protein Salad

- Mixed greens and arugula
- Grilled salmon or tempeh
- Chickpeas or lentils
- Cherry tomatoes, shredded carrots, purple cabbage
- Olive oil and lemon dressing
- Sprinkle of seeds

#### Why this works for you

High fiber and plant diversity support the estrobolome and hormone balance.

### Nourish Bowl

- Base of brown rice or quinoa
- Grilled chicken or tofu
- Roasted vegetables (broccoli, sweet potato, zucchini)
- Fermented side, such as kimchi or sauerkraut
- Tahini or olive oil dressing

#### Why this works for you

Combines fiber, protein, and fermented foods to support your gut and hormone health.

## Mediterranean Plate

- Sardines or grilled chicken
- Greek-style salad (cucumber, tomato, olives, herbs)
- Hummus with raw vegetables
- Small portion of whole grain pita or lentils

### Why this works for you

Omega-3 fats, fiber, and polyphenols help support a healthy inflammatory response and metabolic health.

## Dinner Options (lighter, lower glycemic, calming)

### Simple Protein and Vegetables Plate

- Baked wild salmon or lentil patties
- Steamed greens such as kale, chard, or broccoli
- Olive oil drizzle with herbs
- Small side of roasted root vegetables

#### Why this works for you

A lower evening glucose load supports your circadian metabolism.

### Stir-Fry for Hormone Balance

- Tofu, shrimp, or chicken
- Mixed vegetables (bok choy, bell peppers, mushrooms)
- Garlic, ginger, sesame oil
- Served over cauliflower rice or a small portion of brown rice

#### Why this works for you

Fiber, protein, and anti-inflammatory compounds support metabolic and gut health.

## Gut-Supportive Soup and Side

- Lentil or vegetable soup with garlic, onions, and herbs
- Side salad with olive oil
- Optional fermented vegetables

## Why this works for you

Supports digestion, hydration, and hormone clearance.

## Optional Snacks (if needed)

- Apple with almond butter
- Greek yogurt with berries and seeds
- Handful of nuts with dark chocolate
- Hummus with vegetables

# Phytoestrogens for Menopause

Phytoestrogens have a chemical structure similar to estrogen and can be found in a variety of foods, including soy and flaxseeds, as well as herbs such as clover and alfalfa.

Soy is of particular interest for menopausal women. As a source of isoflavones, a type of phytoestrogen, soy has several benefits, including the potential to support bone health, metabolic health, and cardiovascular health. Soy foods are also high in protein and contain branched-chain amino acids (BCAAs), which play an important role in muscle growth. Soy consumption is most known for its role in supporting vasomotor symptoms. It is best to choose soy products that are certified organic.

## Examples of soy-containing foods include:

- Edamame (immature soybean)
- Miso
- Natto
- Soy milk
- Tempeh
- Tofu
- Whole soybeans

Some women may experience greater health benefits from consuming soy foods compared to others because of their ability to produce equol, which is a metabolite of an isoflavone known as daidzen. Equol is of importance because it has greater antioxidant activity and estrogenic potency compared to other isoflavones.

However, equol production varies between individuals due to differences in the gut microbiome. Though approximately 50–60% of adults from Japan, China, and Korea are equol producers, this number is only 25–30% of adults in Western countries.

Your ability to produce equol may change over time; however, more research is needed to identify how this may happen. One study suggests that equol production increased with higher intake of carbohydrates. On the other hand, high intake of dietary fats may reduce equol production. Finally, promoting diversity in the gut microbiome by eating a variety of plant foods may help support equol production.

# Reducing Toxins in Food Preparation and Selection

Food does more than provide nourishment. It also carries information from the environment in which it was grown, processed, packaged, stored, and prepared. While it is impossible to eliminate all environmental exposures, reducing the overall toxic burden from food can support the body's natural detoxification systems, hormonal balance, metabolic health, and long-term resilience.

One helpful starting point is choosing foods that are as close to their natural state as possible. Whole, minimally processed foods generally contain fewer additives, preservatives, artificial colors, flavor enhancers, and packaging-related contaminants. Fresh vegetables, fruits, legumes, nuts, seeds, herbs, spices, and high-quality proteins can help provide protective nutrients and phytochemicals that support the body's antioxidant and detoxification pathways.

When possible, consider choosing organic versions of foods that are more heavily sprayed with pesticides, especially thin-skinned produce. Washing produce thoroughly, peeling when appropriate, and varying food choices may also help reduce repeated exposure to agricultural chemicals. Food storage and preparation methods matter as well. Heating food in plastic containers can increase the migration of chemicals such as bisphenols and phthalates into food, particularly with fatty or acidic foods. Using glass, stainless steel, ceramic, or cast iron cookware and storage containers may help reduce exposure. Avoiding scratched nonstick cookware and minimizing heavily charred or burnt foods can also be beneficial, as high-heat cooking may generate potentially harmful compounds.

Water quality is another important consideration. Filtered water may help reduce exposure to contaminants such as chlorine byproducts, heavy metals, microplastics, and other environmental pollutants depending on the filtration system used.

Certain foods may naturally support the body's detoxification processes. Cruciferous vegetables such as broccoli, cabbage, kale, arugula, and Brussels sprouts contain sulfur-containing compounds that support liver detoxification pathways. Colorful plant foods rich in polyphenols and antioxidants may also help protect cells from oxidative stress associated with environmental exposures.

Reducing toxic load is not about fear or perfection. It is about creating a more supportive environment for the body over time through small, sustainable choices that align with overall health and vitality.

## Chapter 3 References

41. Nappi, R. E., Chedraui, P., Lambrinoudaki, I., & Simoncini, T. (2022). Menopause: a cardiometabolic transition. *Lancet Diabetes & Endocrinology*, 10(6), 442–456. [https://doi.org/10.1016/S2213-8587\(22\)00076-6](https://doi.org/10.1016/S2213-8587(22)00076-6)
42. Godsland, I. F. (2005). Oestrogens and insulin secretion. *Diabetologia*, 48(11), 2213–2220. <https://doi.org/10.1007/s00125-005-1930-0>
43. Yan, H., Yang, W., Zhou, F., Li, X., Pan, Q., Shen, Z., Han, G., Newell-Fugate, A., Tian, Y., Majeti, R., Liu, W., Xu, Y., Wu, C., Allred, K., Allred, C., Sun, Y., & Guo, S. (2019). Estrogen improves insulin sensitivity and suppresses gluconeogenesis via the transcription factor Foxo1. *Diabetes*, 68(2), 291–304. <https://doi.org/10.2337/db18-0638>
44. Erdélyi, A., Pálfi, E., Túű, L., Nas, K., Szűcs, Z., Török, M., Jakab, A., & Várbíró, S. (2023). The importance of nutrition in menopause and perimenopause — a review. *Nutrients*, 16(1), 27. <https://doi.org/10.3390/nu16010027>
45. Wolever, T. M. S., Zurbau, A., Koecher, K., & Au-Yeung, F. (2024). The effect of adding protein to a carbohydrate meal on postprandial glucose and insulin responses: a systematic review and meta-analysis. *Journal of Nutrition*, 154(9), 2640–2654. <https://doi.org/10.1016/j.tjnut.2024.07.011>
46. González-Rodríguez, M., Pazos-Couselo, M., García-López, J. M., Rodríguez-Segade, S., Rodríguez-García, J., Túnñez-Bastida, C., & Gude, F. (2019). Postprandial glycemic response in a non-diabetic adult population: the effect of nutrients is different between men and women. *Nutrition & Metabolism*, 16, 46. <https://doi.org/10.1186/s12986-019-0368-1>
47. Calvo-Malvar, M., Lado-Baleato, Ó., Cao Ríos, A., Porca Fernández, C., Benítez-Calvo, A., Fernandez-Merino, C., Sánchez-Castro, J., Wagner, R., Matabuena, M., & Gude, F. (2025). Age, sex, BMI, meal timing, and glycemic response to meal glycemic load. *JAMA Network Open*, 8(9), e2533193. <https://doi.org/10.1001/jamanetworkopen.2025.33193>
48. Oyelowo, O. T., Taire, E. O., & Ajao, O. I. (2022). Skipping the first active meal appears to adversely alter reproductive function in female than male rats. *Current Research in Physiology*, 5, 414–420. <https://doi.org/10.1016/j.crphys.2022.10.001>
49. Witbracht, M., Keim, N. L., Forester, S., Widaman, A., & Laugero, K. (2015). Female breakfast skippers display a disrupted cortisol rhythm and elevated blood pressure. *Physiology & Behavior*, 140, 215–221. <https://doi.org/10.1016/j.physbeh.2014.12.044>
50. Reytor-González, C., Simancas-Racines, D., Román-Galeano, N. M., Annunziata, G., Galasso, M., Zambrano-Villacres, R., Verde, L., Muscogiuri, G., Frias-Toral, E., & Barrea, L. (2025). Chrononutrition and energy balance: how meal timing and circadian rhythms shape weight regulation and metabolic health. *Nutrients*, 17(13), 2135. <https://doi.org/10.3390/nu17132135>
51. Kessler, K., & Pivovarova-Ramich, O. (2019). Meal timing, aging, and metabolic health. *International Journal of Molecular Sciences*, 20(8), 1911. <https://doi.org/10.3390/ijms20081911>
52. Paragliola, R. M., Marchetti, M., Montagna, C., Corsello, S. M., & Peluso, G. (2025). Feeding the rhythm — effects of food and nutrients on daily cortisol secretion: from molecular mechanisms to clinical impact. *International Journal of Molecular Sciences*, 26(22), 11230. <https://doi.org/10.3390/ijms262211230>
53. Ayyadurai, V. A. S., Deonikar, P., & Bannuru, R. R. (2022). Attenuation of low-grade chronic inflammation by phytonutrients: a computational systems biology analysis. *Clinical Nutrition ESPEN*, 49, 425–435. <https://doi.org/10.1016/j.clnesp.2022.03.010>







# Chapter 4

## Dietary & Herbal Supplements for Perimenopause

A high percentage of women seek alternative and complementary medicine approaches to help support comfort during this stage.<sup>[54][55]</sup> This may be due to several factors, including unwanted side effects or limitations of HRT.<sup>[56]</sup>

- Organizing Dietary Supplements by Mechanism of Action
- Select Botanicals for Perimenopause
- Herbal Support for Symptom Relief

# Organizing Dietary Supplements by Mechanism of Action

One of the most confusing aspects of choosing dietary supplements during perimenopause is that many products are grouped together simply because they are used for similar symptoms. Yet supplements can work through very different biological pathways.

Organizing supplements according to their primary mechanism of action can help create a more personalized and strategic approach. Rather than viewing all supplements as interchangeable, it may be more helpful to think about them in functional “buckets” based on how they interact with physiology.

## Endocrine Modulation

These supplements support communication within the body's endocrine system rather than supplying hormones directly. They may help the body adapt to changing hormonal rhythms and signaling patterns during midlife transitions.

Maca is often described as an endocrine adaptogen because it appears to influence hypothalamic-pituitary signaling and support the body's own regulatory capacity. Rather than acting like estrogen, it may help support balance across multiple endocrine pathways related to mood, energy, sleep, and reproductive function.

Examples include:



Maca-GO® (Femmenessence®)

# Phytoestrogens

Phytoestrogens are naturally occurring plant compounds with structural similarities to estrogen. Some can weakly bind to estrogen receptors and may influence estrogen-related signaling in tissues such as bone, blood vessels, skin, and the brain.

These compounds do not function identically to human estrogen, and their effects can vary depending on factors such as gut microbiome composition, life stage, and individual metabolism. In some individuals, phytoestrogens may help support comfort during the menopausal transition.

## Examples include:

- Soy isoflavones
- Red clover

# Herbal Support for Symptom Relief

Certain herbs are traditionally used to help manage common menopause-related symptoms such as occasional sleep disruption, tension, mood changes, or hot flashes. These botanicals are often used for targeted symptom support rather than broad endocrine regulation.

Some herbs may support the nervous system and relaxation pathways, while others may influence thermoregulation or neurotransmitter activity. Their mechanisms are often multifactorial and may involve interactions with the nervous, endocrine, and immune systems.

## Examples include:

- Maca-GO® (Femmenessence®)
- Ashwagandha (*Withania somnifera*)
- Black cohosh (*Actaea racemos*)
- Saffron (*Crocus sativus*)
- Siberian rhubarb (ERr 731®, *Rheum rhaponticum*)

## Musculoskeletal and Cellular Energy Support

Some supplements support the body's energy-producing systems directly, particularly within muscle, brain, and cellular metabolism.

These nutrients may become increasingly important during and after menopause, when changes in estrogen can influence muscle mass, strength, recovery, and mitochondrial function.

Creatine is best known for supporting muscle performance and strength, but it also plays an important role in cellular energy production through the phosphocreatine energy system. Emerging research suggests creatine may support healthy aging by helping maintain lean body mass, physical function, cognitive performance, and recovery capacity. Because perimenopausal women are at increased risk for age-related declines in muscle and bone health, creatine is receiving growing attention as a foundational tool for musculoskeletal resilience and metabolic health.

### Examples include:

- Creatine monohydrate
- Creatine hydrochloride (HCl)

## A Functional Perspective

Many supplements fit into more than one category. For example, some botanicals may have antioxidant effects in addition to endocrine activity, while others influence both mood and sleep pathways. Understanding the primary mechanism of action can help simplify decision-making and encourage more thoughtful, individualized use.

Rather than asking, “What supplement should I take for menopause?” it may be more useful to ask:

- What system am I trying to support?
- Is the goal endocrine signaling, symptom relief, sleep support, antioxidant protection, or metabolic resilience?
- What is the root physiological shift occurring in my body?

This type of framework can help create a more personalized and systems-based approach to supplementation.

# Select Botanicals for Perimenopause

## Endocrine Modulation

### Maca-GO® (*Lepidium peruvianum Chacon*)

Clinical research suggests the potential of maca for supporting healthy hormone levels in healthy peri- and post-menopausal women by supporting the endocrine communication through the HPTAO axis rather than introducing exogenous hormones. Note that this research only applies to this particular combination of bioavailable, proprietary maca phenotypes and not just any “maca”.

In a four-month randomized, double-blind, crossover pilot study, 18 healthy perimenopausal women (aged 41–50 years) were assigned to either take placebo for two months followed by two months of Maca-GO® (two grams per day) or first take Maca-GO® (two grams per day) for two months followed by placebo for two months. Maca-GO® is a standardized, concentrated, proprietary, highly bioavailable, gelatinized, organic phenotype formulation containing maca. It is commercially known as Femmenessence® (Symphony Natural Health).

Blood samples were collected from all participants at baseline and each month while enrolled in the study. After two months of Maca-GO®, independent of whether the groups started with or ended with Maca-GO®, **the following results were reported:**

- Significant increase in estradiol with a natural plateau at a level that would be biologically appropriate for a woman's stage of life
- Significant increase in progesterone
- Significant increase in FSH, yet still within the menopausal range

These results translated to a 74–87% improvement in self-reported quality of life scores, including hot flashes, night sweats, heart palpitations, nervousness, disrupted sleep, and mood changes. Additionally, study participants experienced positive changes in high-density lipoprotein cholesterol (HDL-C) and body mass index. Positive changes were also seen with triglycerides and blood pressure, though results were not statistically significant. These results reflect this specific study population and may not represent individual experiences.

## Why the Type of Maca Matters.



With this in mind, it is essential to note that the type of maca should be carefully considered—not just any maca supplement will do. In fact, up to 17 different colors of maca exist, each displaying varying characteristics. Based on this, where and how the maca was grown and harvested may alter maca's nutrition and functional profile, which could impact how it is used in the body. The combination of colors found in Maca-GO® have been used in both animal studies and human trials. They have been found to have a favorable impact on various hormone levels and may be included in a comprehensive hormone health plan.

In summary, the Femmenessence (Maca-GO®) line of women's products is the only clinically-tested dietary supplement for women that supports healthy hormone levels without the introduction of exogenous hormones.

For perimenopausal women, Femmenessence MacaLife® can help support healthy hormone production through the hypothalamic-pituitary-

thyroid–adrenal–ovarian (HPTAO) axis. Femmenessence MacaLife® for perimenopausal women has a 74–87% success rate in symptoms. Anecdotally, women report improvements in as little as 2 days, with an average of 21 days, in areas such as normal hormone balance, hot flashes and night sweats, dryness and lack of desire, balanced mood, energy and sleep, heart health, and hair, skin, and nails.



### A Note on Personalized Guidance

As hormone balancing is very individualized, we recommend contacting our Medical Team at [team@symphonymaturalhealth.com](mailto:team@symphonymaturalhealth.com) if you need guidance with a particular clinical situation.

# Phytoestrogens

## Red Clover (*Trifolium pratense*)

Red clover is a flowering plant used in traditional medicine to support symptoms associated with menopause. The effects of red clover are thought to be due to its isoflavone content, which imparts estrogen-like effects. The main isoflavones in red clover are aglycones, formononetin, and biochanin A.

A systematic review and meta-analysis of randomized controlled trials reported that women who took red clover had fewer hot flashes per day than those who took a placebo. The effect of red clover was reported to be stronger in postmenopausal women with at least five hot flashes per day. A 12-week treatment duration was more effective, and higher doses around 80 mg/day resulted in better outcomes.

Although these results are promising, more research is needed to clearly understand red clover's role in menopausal symptoms. The optimal dosage and duration of red clover supplementation for treating menopausal symptoms remain unclear and most likely vary substantially among individuals.

# Phytoestrogens

## Soy Isoflavones

Soy contains naturally occurring phytoestrogens known as isoflavones, primarily genistein, daidzein, and glycitein. These compounds can bind to estrogen receptors, particularly estrogen receptor beta (ER $\beta$ ), and may exert mild estrogen-like or selective estrogen-modulating effects in the body. Because estrogen levels decline during menopause, soy isoflavones have been widely studied for their potential role in supporting menopausal symptoms, cardiovascular health, and bone health.

Research suggests that soy isoflavones may modestly reduce the frequency and severity of hot flashes, particularly in women who experience more frequent vasomotor symptoms. Some evidence indicates that benefits may be greater in individuals who can produce equol, a metabolite formed from daidzein by specific gut bacteria, highlighting the importance of the gut microbiome in phytoestrogen metabolism and response.

While many studies support the safety and potential benefits of soy isoflavones for menopausal women, findings remain mixed due to differences in dosage, supplement form versus whole foods, duration of use, and individual variability in metabolism. More research is needed to better understand which individuals are most likely to benefit and the optimal intake levels for different health outcomes.

# Herbal Support for Symptom Relief

## Maca-GO® (*Lepidium peruvianum* Chacon)

As discussed above, Maca-GO® is a proprietary preparation of maca traditionally used to support hormonal balance, energy, mood, and resilience during the menopausal transition. Unlike hormone therapy, maca does not contain hormones or phytoestrogens. Instead, it is believed to work through modulation of the endocrine (HPTAO) axis, helping to support the body's own endocrine communication and adaptation processes.

Clinical studies suggest that Maca-GO® may help reduce common menopause-related symptoms such as hot flashes, night sweats, mood changes, sleep disturbances, and low energy while also supporting quality of life and well-being in perimenopausal women.

## Ashwagandha (*Withania somnifera*)

Ashwagandha is an adaptogenic herb traditionally used in Ayurvedic medicine to support stress resilience, mood balance, and healthy energy levels.<sup>[57]</sup> During perimenopause, fluctuations in estrogen and progesterone are often accompanied by increased stress sensitivity, disrupted sleep, anxiety, and fatigue. Because the stress response system (the HPA axis) becomes more sensitive to disturbances during this stage, botanicals that support the body's natural cortisol balance may be especially helpful.

In an 8-week randomized, double-blind, placebo-controlled study of perimenopausal women experiencing mild to moderate climacteric symptoms, ashwagandha supplementation resulted in significant improvements in menopause-related quality of life (MENQOL), Menopause Rating Scale (MRS) scores, hot flash severity, and overall symptom burden compared with placebo.<sup>[58]</sup> Improvements were also observed in hormonal balance markers, suggesting that ashwagandha may help support endocrine function during the perimenopausal transition.

Additional research supports ashwagandha's role in stress physiology and mood regulation. Preclinical studies evaluating sustained-release ashwagandha (AshwaSR) demonstrated reductions in pro-inflammatory cytokines, including TNF- $\alpha$  and IL-1 $\beta$ , as well as decreased oxidative stress markers.<sup>[59]</sup> In a clinical trial, healthy adults taking AshwaSR for 2 months experienced improvements in perceived stress, sleep quality, and psychological well-being.

These findings suggest that ashwagandha may be particularly helpful for women experiencing mood changes, poor stress tolerance, sleep disruption, and vasomotor symptoms during perimenopause. As with all adaptogenic herbs, individual response may vary, and working with a healthcare provider can help determine the most appropriate dose and duration for your needs.

## Black Cohosh (*Actaea racemosa*)

Black cohosh is a popular herbal medicine, with its earliest recorded use dating back to the 17th century. A meta-analysis of available data from 43,759 women, of which 13,096 were given black cohosh, reported significant improvement in various menopausal symptoms, including hot flashes, sweating, and mood disturbances.

The effects reported for black cohosh were comparable to those of standard HRT. However, black cohosh presented with fewer adverse events, making it better tolerated among menopausal women. Additionally, black cohosh was not observed to change hormone levels.

Black cohosh may be a safe option to consider for women experiencing menopausal symptoms. As with other herbal treatments, it is recommended to work with your healthcare provider to establish a safe but effective dose, duration, and frequency.

## Saffron (*Crocus sativus*)

Saffron is a culinary spice and medicinal botanical traditionally used to support mood, emotional well-being, and nervous system balance.<sup>[60]</sup>

A 12-week parallel-group, double-blind, randomized controlled trial in perimenopausal women found that saffron extract supplementation significantly improved symptoms of anxiety and depression compared to placebo.<sup>[61]</sup> Participants also reported improvements in overall emotional well-being, suggesting saffron may offer meaningful support for the psychological symptoms that often accompany hormonal transition.

Because mood changes are often reported in perimenopause, saffron may be a valuable option for women whose primary concerns include emotional balance, irritability, anxiousness, or low mood.

## Siberian Rhubarb (ERr 731®, *Rheum rhaponticum*)

ERr 731® is a standardized extract derived from Siberian rhubarb (*Rheum rhaponticum*) and has been studied specifically for its potential to support perimenopausal symptoms. Its effects are thought to be related to selective estrogen receptor activity, particularly through estrogen receptor-beta pathways, allowing it to support symptoms without acting as traditional hormone replacement therapy.<sup>[62]</sup>

In a 12-week prospective study, women taking ERr 731® experienced a significant 67% reduction in Menopause Rating Scale (MRS) scores, reflecting broad improvements in menopausal symptoms, including hot flashes, sleep disruption, mood changes, and fatigue.<sup>[63]</sup> Additional benefits were also observed in metabolic markers, including improvements in fasting glucose, postprandial glucose, and HbA1c.

A systematic review and meta-analysis also reported significant improvements in MRS scores with ERr 731®, further supporting its use as a well-studied botanical option for perimenopausal symptom management.<sup>[64]</sup>

These findings suggest Siberian rhubarb may be particularly helpful for women seeking support for both vasomotor symptoms and the metabolic shifts that often occur during perimenopause. As with all botanical therapies, individualized guidance from a healthcare provider is recommended.

# Musculoskeletal and Cellular Energy Support

## Creatine

Creatine is one of the most well-studied supplements for supporting cellular energy production and may be particularly valuable in perimenopause, when age-related muscle changes in muscle, bone, and brain energy metabolism become more pronounced.

When paired with resistance training, creatine may help support:

- Muscle mass and strength
- Functional performance and recovery
- Bone health (indirectly through greater muscle loading and possibly direct effects on bone cells)
- Cognitive function and mental energy

Most studies have used creatine monohydrate, which remains the most extensively researched, effective, and cost-efficient form. Creatine hydrochloride (HCl) is another commonly used form that may be better tolerated by some individuals, although it has been studied less extensively. Current evidence does not clearly demonstrate superior benefits of HCl over monohydrate.

A common evidence-based dose is 3–5 grams daily, taken consistently rather than cycled. Some experts suggest that women—particularly those in peri- and postmenopause—may benefit from doses in the range of 5–10 grams per day, depending on body size, dietary intake, and individual goals. Importantly, a loading phase is not necessary for most people.

Creatine may cause a small increase in body weight initially due to greater water retention within muscle tissue, which is generally considered a normal and expected response rather than fat gain. Creatine is also considered safe for most healthy adults, but individuals with kidney disease or other significant medical conditions should consult their healthcare provider before starting supplementation.

### A note on herbal supplements

Although the herbs presented in this section are naturally occurring, they may be contraindicated with certain medications or health conditions. It's important to discuss herbal supplements with your healthcare provider before beginning them.

## Chapter 4 References

54. Posadzki, P., Lee, M. S., Moon, T. W., Choi, T. Y., Park, T. Y., & Ernst, E. (2013). Prevalence of complementary and alternative medicine (CAM) use by menopausal women: a systematic review of surveys. *Maturitas*, 75(1), 34–43. <https://doi.org/10.1016/j.maturitas.2013.02.005>
55. Buhling, K. J., Daniels, B. V., Studnitz, F. S. G. V., Eulenburg, C., & Mueck, A. O. (2014). The use of complementary and alternative medicine by women transitioning through menopause in Germany. *Complementary Therapies in Medicine*, 22(1), 94–98. <https://doi.org/10.1016/j.ctim.2013.12.004>
56. Xi, S., Liske, E., Wang, S., Liu, J., Zhang, Z., Geng, L., Hu, L., Jiao, C., Zheng, S., Henneicke-von Zepelin, H. H., & Bai, W. (2014). Effect of isopropanolic *Cimicifuga racemosa* extract on uterine fibroids in comparison with tibolone. *Evidence-Based Complementary and Alternative Medicine*, 2014, 717686. <https://doi.org/10.1155/2014/717686>
57. Balkrishna, A., Kukreti, A., Sharma, N., Srivastava, D., & Arya, V. (2026). Efficacy and safety of *Withania somnifera* (Ashwagandha) in the management of menopausal symptoms. *Pharmacological Research — Natural Products*, 10, 100478.
58. Gopal, S., Ajgaonkar, A., Kanchi, P., Kaundinya, A., Thakare, V., Chauhan, S., & Langade, D. (2021). Effect of an ashwagandha (*Withania Somnifera*) root extract on climacteric symptoms in women during perimenopause: a randomized, double-blind, placebo-controlled study. *Journal of Obstetrics and Gynaecology Research*, 47(12), 4414–4425. <https://doi.org/10.1111/jog.15030>
59. KrishnaRaju, A. V., Somepalli, V., Thanawala, S., & Shah, R. (2023). Efficacy and anti-inflammatory activity of ashwagandha sustained-release formulation on depression and anxiety induced by chronic unpredictable stress. *Journal of Experimental Pharmacology*, 15. Published July 25, 2023.
60. Srivastava, R., Ahmed, H., Dixit, R. K., Dharamveer, & Saraf, S. A. (2010). *Crocus sativus* L.: a comprehensive review. *Pharmacognosy Reviews*, 4(8), 200–208. <https://doi.org/10.4103/0973-7847.70919>
61. Lopresti, A. L., & Smith, S. J. (2021). The effects of a saffron extract (affron®) on menopausal symptoms in women during perimenopause: a randomised, double-blind, placebo-controlled study. *Journal of Menopausal Medicine*, 27(2), 66–78. <https://doi.org/10.6118/jmm.21002>
62. Keiler, A. M., Papke, A., Kretzschmar, G., Zierau, O., & Vollmer, G. (2012). Long-term effects of the rhapontic rhubarb extract ERr 731® on estrogen-regulated targets in the uterus and on the bone in ovariectomized rats. *Journal of Steroid Biochemistry and Molecular Biology*, 128(1–2), 62–68. <https://doi.org/10.1016/j.jsbmb.2011.08.016>
63. Shah, J., Chandanani, S., Reddy, J., Kirubamani, H., Boruah, A. M., Jain, A., Mane, S., Biniwale, P., Mathur, P., Ridhorkar, A., Natarajan, S., & Tiwari, B. (2021). Evaluation of the efficacy and safety of Rheum rhaponticum root extract (ERr 731) for menopausal symptoms in perimenopausal Indian women: an interim analysis. *Journal of Mid-Life Health*, 12(2), 108–115. [https://doi.org/10.4103/jmh.jmh\\_86\\_21](https://doi.org/10.4103/jmh.jmh_86_21)
64. Dubey, V. P., Sureja, V. P., & Kheni, D. B. (2024). Efficacy evaluation of standardized Rheum rhaponticum root extract (ERr 731®) on symptoms of menopause: a systematic review and meta-analysis study. *Journal of Biomedical Research*, 38(3), 278–286. <https://doi.org/10.7555/JBR.37.20230219>





# Chapter 5

## Exercise & Movement: Moving Your Body Through the Transition

- How Exercise Supports Perimenopause
- Bone Health and Exercise
- Muscle Loss and Exercise
- Training Guidelines for Perimenopause
- Tips for Moving More in Perimenopause

## How Exercise Supports Perimenopause

You may be used to hearing about the many benefits of exercise, but in perimenopause, exercise may be more important than ever. Perimenopause is a pivotal time for exercise interventions to support bone density and strength, heart health, body composition, and even cognitive processes such as executive function and memory.<sup>[65]</sup> Yet, despite exercise being one of the most effective ways to support health, nearly 32% of women globally are considered physically inactive.<sup>[65]</sup>

Exercise can also support more restful sleep, relief from menopausal symptoms such as headaches and irritability, and pelvic floor strength.<sup>[66][67]</sup> Exercise in perimenopause can mean traditional strength training, mind-body exercises like Pilates and tai chi, walking, dancing, and more.<sup>[68]</sup> In fact, one study found that six months of tai chi was associated with improvements in muscle strength, bone health, and hormone levels, including estrogen, testosterone, progesterone, and FSH, in perimenopausal women.

## Bone Health and Exercise

Bone mineral density begins declining approximately one year before the final menstrual period, coinciding with changes in estrogen and FSH levels. Because bone is a living tissue, it responds to changing conditions, including exercise. Though you can support bone health through a variety of exercises — such as walking, Pilates, tai chi, qigong, and yoga — it's likely that high-intensity strength training and impact exercises are best for supporting bone health. These exercises produce strong muscle contractions and exert high loads on the bone, which can help keep bones strong over time.

# Muscle Loss and Exercise

Your muscle mass is an investment in your longevity — it drives metabolic health and helps you remain sensitive to the blood sugar-balancing effects of insulin.<sup>[69][70]</sup> Having muscle mass and strength — and bone strength — preserves your functional independence as you age.

Exercise is essential for maintaining and building muscle. Resistance or strength training with free weights, exercise machines, or exercise bands is an effective option. If you have joint discomfort or higher body weight, aquatic exercise can help build muscle mass and strength while reducing impact on painful joints.

## Should perimenopausal women take creatine?

Creatine is endogenously produced in the body, but it is also used as a dietary supplement for sports performance and cognitive health. Due to changes in creatine metabolism that may be influenced by low estrogen levels, perimenopausal women may especially benefit from creatine supplementation, particularly when paired with resistance training to support muscle mass and strength.

# Training Guidelines for Perimenopause

Training guidelines specific to perimenopause are still evolving, but available evidence points to the benefits of both aerobic and strength training. Below are training guidelines recommended for healthy adults.<sup>[71]</sup>

|                    | Aerobic Training                                                             | Strength Training                                                                                                                                                                 |
|--------------------|------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Days Each Week     | Five days per week                                                           | At least twice per week                                                                                                                                                           |
| Time Commitment    | 150 to 300 minutes per week, with sessions lasting at least 15 to 30 minutes | Choose 8–10 exercise movements (e.g., squat, bicep curl) and perform each for 1 to 3 sets. Choose weights that allow for 8 to 12 repetitions.                                     |
| Exercise Intensity | Moderate to vigorous                                                         | General population: moderate intensity or 40–60% 1RM for 8 to 12 repetitions. For those wanting to maximize strength: high-intensity training at >80% 1RM for 1 to 6 repetitions. |
| Examples           | Brisk walking, running, cycling, hiking, or swimming                         | Exercises using free weights (e.g., dumbbells, barbells), body weight (e.g., push-ups, squats), machines, or resistance bands                                                     |

## How Much Weight Should I Be Lifting?

Strength training should be challenging enough to stimulate muscle and bone growth, but it should not be painful or compromise your recovery. In order to know if you're lifting the right amount of weight, it can help to become familiar with your one-repetition maximum (1RM), which is the maximum amount of weight you can lift for a single repetition without compromising your form.

If you're new to strength training, do not test your 1RM, as you may hurt yourself. Instead, aim for weights that are about 40—60% of your 1RM. In this range, you should be able to complete a set with 4—6 repetitions still “in reserve.” In other words, if you choose a weight that makes you feel like you could easily do 7 or more additional repetitions, it might be time to choose something heavier.

As you become more familiar with strength training, it may be appropriate to increase your effort to 80% of your 1RM or higher. Keep in mind that progressing the load is a slow, steady process; aim for only 2% to 10% increases at a time.

If you're not confident in strength training, consider working with a personal trainer, either individually or in group classes, who can guide you through safe movements.

# Tips for Moving More in Perimenopause

## Move in a way that is enjoyable for you.

Whether it's strength training, water workouts, walking, Pilates, dancing, hiking, or yoga, choose activities you enjoy. Everyone has a preferred way to move, and it's okay if it takes some time to find yours.

## Prioritize resistance training.

Squats, lunges, push-ups, resistance bands, weightlifting, and bodyweight exercises help maintain muscle mass, bone health, and metabolic health.

## Stay social and accountable.

Social support improves consistency and makes exercise more enjoyable. Join an exercise class, hiking group, or other group fitness activity.

## Align your exercise routine with your energy levels and schedule.

Consider when you feel best exercising and schedule accordingly. When exercise fits more seamlessly into your lifestyle, you'll likely find it easier to be consistent.

## Support your exercise with proper nutrition.

Nutrition will give you the energy you need to perform, recover, and feel great while moving.

## Take rest days.

Rest days are an essential part of exercise — they allow your body time to recover and adapt. At the beginning of your fitness journey, you may need to incorporate more rest days.

## Chapter 5 References

65. Bucciarelli, V., Mattioli, A. V., Sciomer, S., Moscucci, F., Renda, G., & Gallina, S. (2023). The impact of physical activity and inactivity on cardiovascular risk across women's lifespan: an updated review. *Journal of Clinical Medicine*, 12(13), 4347. <https://doi.org/10.3390/jcm12134347>
66. Philip, A. E., Singh, H., Nanjundiah, S. Y., Samudrala, P. C., Theunissen, D. W., Robinson, J., & Banerjee, I. (2025). Impact of exercise on perimenopausal syndrome: a systematic review of randomized controlled trials. *Cureus*, 17(3), e80862. <https://doi.org/10.7759/cureus.80862>
67. Capel-Alcaraz, A. M., García-López, H., Castro-Sánchez, A. M., Fernández-Sánchez, M., & Lara-Palomo, I. C. (2023). The efficacy of strength exercises for reducing the symptoms of menopause: a systematic review. *Journal of Clinical Medicine*, 12(2), 548. <https://doi.org/10.3390/jcm12020548>
68. Xu, H., Liu, J., Li, P., & Liang, Y. (2024). Effects of mind-body exercise on perimenopausal and postmenopausal women: a systematic review and meta-analysis. *Menopause*, 31(5), 457–467. <https://doi.org/10.1097/GME.0000000000002336>
69. Roberts, C. K., Hevener, A. L., & Barnard, R. J. (2013). Metabolic syndrome and insulin resistance: underlying causes and modification by exercise training. *Comprehensive Physiology*, 3(1), 1–58. <https://doi.org/10.1002/cphy.c110062>
70. Hevener, A. L., Ribas, V., Moore, T. M., & Zhou, Z. (2020). The impact of skeletal muscle ER $\beta$  on mitochondrial function and metabolic health. *Endocrinology*, 161(2), bqz017. <https://doi.org/10.1210/endocr/bqz017>
71. Paluch, A. E., Boyer, W. R., Franklin, B. A., Laddu, D., Lobelo, F., Lee, D., McDermott, M. M., Swift, D. L., Webel, A. R., & Lane, A., on behalf of the American Heart Association et al. (2023). Resistance exercise training in individuals with and without cardiovascular disease: 2023 update: a scientific statement from the American Heart Association. *Circulation*, 149(3), e217–e231. <https://doi.org/10.1161/CIR.0000000000001189>





# Chapter 6

## Lifestyle & Environment: Supporting Your Whole Self

A healthy lifestyle plays a vital role in hormone health, especially during perimenopause when hormonal shifts contribute to common symptoms. Encouragingly, research suggests that practicing lifestyle strategies, such as maintaining a balanced diet, engaging in regular physical activity, managing stress, avoiding endocrine disruptors, supporting nervous system regulation, and prioritizing sleep, can significantly improve your experience during this transition. One of the most impacted areas of daily life during perimenopause is sleep, which plays a crucial role in both hormone balance and cognitive function.

- Sleep: The Foundation of Hormone Health
- Supporting Nervous System Regulation
- How Perimenopause Affects Mental Health and Mood
- A Word About Endocrine Disruptors
- Libido and Vaginal Changes: Why Your Sex Life May Feel Different

# Sleep: The Foundation of Hormone Health

Sleep is more than rest — it is hormone medicine. Sleep influences cortisol rhythm, blood sugar regulation, appetite hormones, mood stability, and how the brain processes stress. When sleep becomes disrupted, the effects often ripple into nearly every other symptom of perimenopause, including hot flashes, anxiety, cravings, fatigue, and brain fog.

## Why You're Not Sleeping Well in Perimenopause

Some, but not all, data show that sleep difficulties increase as women transition through menopause. It's estimated that between 40—60% of women experience insomnia-related concerns. You may find that your sleep disturbances are associated with vasomotor symptoms, like hot flashes and sweating, which occur in up to 80% of women. Additionally, fluctuating hormone levels, changes in blood sugar metabolism, and nighttime leg discomfort can contribute to changes in sleep.

Another explanation for sleep disturbances may be natural age-related changes in melatonin levels, which help regulate the circadian rhythm and sleep patterns. Research shows that melatonin levels begin declining during perimenopause and continue to drop after menopause, which may impact restful sleep.

Aside from its role in sleep, melatonin — whether produced within the body or consumed as a supplement — is also an antioxidant. A specific plant-based melatonin, known as Herbatonin®, was tested in published research and shown to have 950% greater antioxidant potential and free-radical scavenging capacity than synthetic melatonin, as measured by the Oxygen Radical Absorbance Capacity (ORAC). Herbatonin® is the first plant-based

melatonin supplement and may help support healthy sleep and cellular health.

Circadian biology also becomes increasingly important during this stage. Your circadian rhythm is your body's internal clock, helping regulate not only sleep, but also cortisol release, blood sugar control, digestion, body temperature, and hormone signaling.<sup>[72]</sup> Late-night light exposure,<sup>[73]</sup> irregular sleep schedules,<sup>[74]</sup> shift work,<sup>[75]</sup> and inconsistent meal timing<sup>[76]</sup> can all disrupt this rhythm, potentially making hormone symptoms feel more intense. Supporting circadian rhythm often improves more than just sleep — it helps restore overall metabolic and endocrine stability.<sup>[77][78]</sup>

Emerging research suggests that menopause is not only a reproductive milestone, but also a marker of broader circadian and metabolic health.<sup>[79]</sup> In a large cross-sectional analysis of over 112,000 women from the UK Biobank, both earlier and later stages of menopause were associated with a higher likelihood of circadian syndrome — a cluster of metabolic, sleep, and mood-related disturbances. Compared to women who entered menopause between the ages of 50 and 54, those with premature menopause (<40 years) had a significantly higher likelihood of circadian syndrome. The relationship followed a U-shaped pattern, suggesting a “window” of optimal timing for better overall circadian and metabolic health.

These findings reinforce an important shift in how we think about hormone health. Rather than focusing solely on extending estrogen exposure, it may be more helpful to support the systems that regulate hormonal rhythms — especially sleep, metabolism, and stress biology. Supporting circadian alignment through consistent sleep-wake cycles, light exposure, meal timing, and nervous system regulation may not only improve symptoms in the present but also reflect deeper endocrine resilience over time.

## Tips for Better Sleep

The following tips can help you get quality sleep:

- Adhere to a sleep routine by having a regular sleep-wake schedule
- Dim lights two hours before bed
- Sleep in a dark room or use an eye mask
- Use a plant-based melatonin supplement (Herbatonin®) when appropriate
- Turn devices like phones, tablets, and TVs off or set to 'night mode' to avoid endocrine-disrupting blue light
- When waking at night to use the restroom, avoid turning on lights unless it is unsafe to do so
- Consider trying a temperature-controlled mattress topper to help keep the body cool during the night
- Get morning sunlight exposure, when possible, as natural light early in the day helps anchor your circadian rhythm and supports nighttime melatonin production.<sup>[80]</sup>
- Be mindful of caffeine timing, especially in the afternoon and evening, as stimulants can interfere with both nervous system regulation and sleep quality.<sup>[81]</sup>

## Melatonin Beyond Sleep

Melatonin may have diverse benefits beyond sleep for perimenopausal women. Some evidence suggests that melatonin may affect bone health through its effects on bone remodeling, its ability to support or correct the circadian rhythm of bone tissue, Research shows that melatonin levels begin declining during perimenopause and continue to drop after menopause, which may impact restful sleep. Though melatonin is a natural substance, it's best to work with your healthcare provider if addressing certain health conditions.

# Supporting Nervous System Regulation

Perimenopause often increases sensitivity to stressors. You may notice that things that once felt manageable — poor sleep, a busy week, skipped meals, overexercising, or emotional stress — now affect your mood, energy, and symptoms much more quickly. Fluctuating estrogen and progesterone can change how your body responds to stress, making you feel more reactive, anxious, overstimulated, or emotionally drained.

Nervous system regulation does not mean eliminating stress completely. It means helping your body return to a state of safety and recovery more easily.

## Helpful strategies may include:

- Daily movement, especially walking, strength training, yoga, or gentle stretching
- Breathwork or mindfulness practices to help regulate stress response
- Spending time outdoors and getting natural light exposure
- Reducing overstimulation from screens, noise, and constant multitasking
- Creating predictable routines around meals, movement, and sleep
- Protecting recovery time and avoiding over-scheduling

These simple practices help signal safety to the body, supporting cortisol balance, emotional resilience, and a smoother hormonal transition.

In addition to lifestyle strategies that support physical health, strategies that promote mental, emotional, and spiritual health should also be considered. Managing stress levels, building a supportive community, reducing exposure to endocrine disruptors in your environment<sup>[82]</sup>, and using creative activities to help process the changes that occur during the menopausal transition are essential to a whole-body approach to women's health.

# How Perimenopause Affects Mental Health and Mood

“Menopause is a process that involves the whole woman — body, mind, and spirit — and is inclusive of physical, mental, emotional, and spiritual aspects.”

– Margaret T. C. Harris, PhD, menopause researcher

## Emotional Health

Menopause affects nearly every body system, significantly impacting a woman's quality of life. Further, data from a large cohort report that women experience higher average levels of stress, and they are more likely to rate their stress levels higher compared to men.

Additionally, studies suggest that stress levels differ in early perimenopause compared to postmenopause. For example, early perimenopausal women experienced significantly higher levels of stress and were more likely to be bothered by mood-related symptoms and poor memory. Compared to early perimenopausal women, postmenopausal women are thought to have better coping and emotional regulation skills, which may be associated with higher optimism and better stress management, leading to better quality of life. Higher psychological resilience may be associated with better adjustment through the menopausal transition.

This matters because higher perceived stress is associated with more severe vasomotor, psychosocial, physical, and sexual symptoms. Along with a woman's body and mood changing in ways that can feel unfamiliar, she's often navigating challenging life transitions. These can include evolving family dynamics, career transitions, changes in her financial situation, divorce or relationship changes, health problems of loved ones, and deaths of parents or friends.

Mindfulness, or the act of non-judgmentally paying attention to the present moment, may be helpful as it's associated with improved perceived stress scores and improved quality of life.

You can practice mindfulness by taking brief pauses throughout the day, especially when you feel overwhelmed. Take this time to reflect on how you're feeling right now. Grounding techniques, such as focusing on the senses, can help bring you back to the present moment.

Additionally, the practice of being kind to oneself when facing a difficult situation — known as self-compassion — is associated with lower cortisol levels in older women. You can start practicing self-compassion by paying attention to your inner voice: Is she critical or supportive? Treat yourself with warmth and understanding, as you would a close friend.

The emotional challenges of menopause are deeply connected with cognitive and mental health changes. As stress levels rise and life demands shift, many women also experience noticeable changes in memory, concentration, and overall mental clarity. These cognitive shifts, alongside hormonal fluctuations and structure changes in the brain, may contribute to mental health challenges in menopause.

## Cognitive and Mental Health

Women experience cognitive, behavioral, and mental health changes during the menopausal transition. While these changes are often associated with hormonal shifts, they may also have roots in structural changes in the brain during this time. Pioneering research conducted by Lisa Mosconi, PhD, and her colleagues has uncovered several changes that occur in the brains of menopausal women, including decreased volume of both white and gray matter, decreased ability of the brain to generate energy from glucose, and even increases in amyloid-beta protein — a substance that has been studied in relation to neurodegenerative conditions.

### Cognitive Health.

Gray matter is important for the processing and interpreting of information, while white matter supports normal nerve transmission and communication between different brain regions. The normal decline in estrogen that accompanies menopause is thought to contribute to decreased gray and white matter volume. These changes are associated with memory and cognitive concerns, which have been reported to partially recover as a woman progresses to later stages of postmenopause, indicating the brain's (and body's) capacity to adapt to significant hormone changes.

Apart from the changes reported with gray and white matter volume, the brain's ability to generate energy from glucose declines during the menopausal transition. This might feel like brain fog, memory issues, and fatigue. Similar to changes in gray and white matter, changes to energy production appear to partially recover as women progress to later stages of postmenopause.

Finally, compared to premenopausal women, amyloid-beta plaque has been found to increase in perimenopausal and postmenopausal women, suggesting an association between estrogen levels and amyloid-beta plaque. It should be noted that amyloid-beta plaque levels were more pronounced in peri- and postmenopausal women who carried the APOE-4 genetic variation, signifying a gene-hormone interaction.

These findings are relevant to menopausal women especially because cognitive difficulties, such as changes in memory, concentration, and decision-making, are often experienced.

## Mental Health.

A growing body of research suggests that these structural and metabolic changes in the brain not only impact cognitive function but may also play a role in mood regulation. Similar brain regions affected by menopause, such as the prefrontal cortex, hippocampus, and amygdala, are involved in emotional regulation and stress responses. As estrogen levels decline from early perimenopause through late postmenopause, disruptions in these brain regions may contribute to an increased risk of mood-related complaints. Research suggests that 45% to 69% of menopausal women experience mood-related concerns, while 40% to 60% experience memory-related concerns.

Beyond these physical, emotional, and mental changes, the experience of menopause is a deeply personal and transformative experience. It may call for reflection, connection, and a renewed sense of purpose and meaning. Some women may choose to turn to spiritual practices for guidance and reflection.

## A Word About Endocrine Disruptors

Endocrine disruptors are chemicals in our everyday environment that can interfere with the body's hormone signaling. Think of them as “imposters” or “blockers” that can mimic, disrupt, or alter how hormones like estrogen, progesterone, and thyroid hormones communicate. Because hormones act as messengers across the entire body, even small disruptions can ripple through systems involved in mood, metabolism, sleep, and reproductive health.

For women, this becomes especially relevant during times of hormonal transition like perimenopause and menopause. As the body's natural hormone rhythms shift, it may become more sensitive to outside influences. Endocrine disruptors have been linked in research to changes in menstrual cycles, fertility challenges, thyroid balance, and metabolic health. While exposure is often low-level and cumulative, the concern is less about a single exposure and more about the overall “body burden” over time.

These chemicals are more common than most people realize. They can be found in plastics (like BPA and phthalates), personal care products (fragrances, parabens), household cleaners, pesticides on food, nonstick cookware, and even in water and air. In many cases, exposure happens daily and without obvious awareness.

The good news is that small, consistent changes can meaningfully reduce exposure. This is not about perfection — it's about awareness and gradual shifts that support a more balanced internal environment for your hormones to function as they're designed to.

## What to Do

- Choose glass, stainless steel, or ceramic for food and drinks, especially when heating
- Store and reheat food without plastic whenever possible
- Wash fruits and vegetables thoroughly; prioritize organic for high-residue produce
- Use fragrance-free or naturally scented personal care and cleaning products
- Read labels and look for simpler ingredient lists (fewer synthetic additives)
- Ventilate your home regularly to reduce indoor air pollutants
- Filter your drinking water if possible
- Support your body's natural detox pathways with fiber-rich foods, hydration, and regular bowel movements
- Include a colorful, plant-rich diet to provide nutrients that support liver function

## What to Avoid

- Microwaving food in plastic containers or wrap
- Relying heavily on canned foods or packaged items with plastic linings
- Using old, scratched nonstick cookware
- Assuming “fragrance” on a label is harmless, it often contains undisclosed chemicals
- Handling receipts frequently (they can contain BPA)
- Using plastic water bottles repeatedly, especially when exposed to heat
- Reliance on heavily processed foods with additives and preservatives

# Libido and Vaginal Changes: Why Your Sex Life May Feel Different

If your sex life feels different during perimenopause, you are not alone. Many women notice changes in desire, arousal, comfort, and overall interest in intimacy. These shifts can feel confusing, especially if they seem to come on suddenly or without a clear reason.

There is a real biological basis for these changes, and emotional and lifestyle factors are also involved. Understanding both can help you feel more informed and supported.

## What is changing in your body

During perimenopause, levels of estrogen, progesterone, and testosterone begin to fluctuate:

- Estrogen supports vaginal tissue, lubrication, and blood flow. As levels change, vaginal tissue can become thinner, drier, and more sensitive, which may lead to discomfort or pain with intercourse.
- Testosterone plays a role in sexual desire. As levels gradually decline, you may notice a decrease in libido or spontaneous interest in sex.
- Progesterone influences mood and sleep. When sleep is disrupted or mood feels less stable, the desire for intimacy can naturally decrease.

These are normal physiological changes, not necessarily a reflection of your interest in your partner or desire to maintain intimacy.

## Why Desire May Feel Different

Libido is not just driven by hormones. It is also shaped by your overall energy, stress levels, emotional connection, and how you feel in your body.

### During perimenopause, you may be experiencing:

- Increased stress or mental load
- Changes in sleep quality
- Shifts in body composition or self-image
- Less spontaneous desire.

For many women, desire becomes less automatic and more connected to context. This means it may arise after feeling relaxed, connected, or physically comfortable, rather than appearing out of nowhere.

## Vaginal Changes and Comfort

Vaginal dryness, irritation, or discomfort are common but often under-discussed.

### You may notice:

- Less natural lubrication
- A feeling of tightness or sensitivity
- Increased risk of irritation or urinary discomfort.

These changes are related to shifting estrogen levels and can affect both comfort and confidence during intimacy.

## What Can Help

**Use lubrication when needed.** this can make a significant difference in comfort and enjoyment.

**Stay connected to your body.** Gentle movement, pelvic floor awareness, and regular touch can support blood flow and sensation.

**Prioritize sleep and stress support.** When your body feels rested and calm, desire is more likely to follow.

**Support your hormones through nutrition and lifestyle.** Balanced meals, stable blood sugar, and regular movement all play a role in overall hormone health.

**Communicate openly.** Sharing what you are experiencing with your partner can reduce pressure and create space for connection.

If symptoms like pain or significant dryness persist, a healthcare provider can help guide you through additional options, including targeted therapies.

## A Different Rhythm, Not a Loss

**Your sex life is not disappearing. It is changing.** Perimenopause can be a time to redefine intimacy in a way that feels supportive, connected, and aligned with your body as it is now. With understanding and the right support, many women find that their experience of intimacy becomes more intentional, communicative, and fulfilling in this next phase of life.

## Chapter 6 References

72. Reddy, S., Reddy, V., & Sharma, S. (2023). Physiology, circadian rhythm. In StatPearls. StatPearls Publishing. <https://www.ncbi.nlm.nih.gov/books/NBK519507/>
73. Higuchi, S. (2024). Light at night and circadian rhythms: from the perspective of physiological anthropology research. *Journal of Physiological Anthropology*, 43, 32. <https://doi.org/10.1186/s40101-024-00380-5>
74. Lotti, S., Napoletano, A., Dinu, M., Picchi, E., Faraguna, U., Giangrandi, I., Cesari, F., Marcucci, R., Sofi, F., & Colombini, B. (2025). Sleep irregularity and short sleep duration are associated with less favorable cardiometabolic profiles in healthy adults: a cross-sectional study. *Nutrients*, 17(23), 3763. <https://doi.org/10.3390/nu17233763>
75. Joshi, A., & Sundar, I. K. (2023). Circadian disruption in night shift work and its association with pulmonary disease. *Advanced Biology*, 7(11), e2200292. <https://doi.org/10.1002/adbi.202200292>
76. Reytor-González, C., et al. (2025). Chrononutrition and energy balance: how meal timing and circadian rhythms shape weight regulation and metabolic health. *Nutrients*, 17(13), 2135. <https://doi.org/10.3390/nu17132135>
77. Schrader, L. A., Ronnekleiv-Kelly, S. M., Hogenesch, J. B., Bradfield, C. A., & Malecki, K. M. C. (2024). Circadian disruption, clock genes, and metabolic health. *Journal of Clinical Investigation*, 134(14). <https://doi.org/10.1172/JCI170998>
78. Lloyd, M., Prakash, B. A., Zhao, L., Ni, G., Ru, Y., & Vasudevan, S. R. (2025). Circadian rhythms in metabolism and mental health: a reciprocal regulatory network with implications for metabolic and neuropsychiatric disorders. *Current Opinion in Physiology*, 45, 100836. <https://doi.org/10.1016/j.cophys.2025.100836>
79. Su, T., Ding, L., Wei, Z., Chen, Z., Liu, L., Li, X., Lian, Z., Aimuzi, R., & Li, R. (2026). The association between age at menopause and circadian syndrome: a study based on the UK Biobank. *BMC Public Health*. <https://doi.org/10.1186/s12889-026-27424-y>
80. de Menezes-Júnior, L. A. A., Sabião, T. da S., Carraro, J. C. C., Machado-Coelho, G. L. L., & Meireles, A. L. (2025). The role of sunlight in sleep regulation: analysis of morning, evening and late exposure. *BMC Public Health*, 25, 3362. <https://doi.org/10.1186/s12889-025-24618-8>
81. Gardiner, C., Weakley, J., Burke, L. M., Roach, G. D., Sargent, C., Maniar, N., Townshend, A., & Halson, S. L. (2023). The effect of caffeine on subsequent sleep: a systematic review and meta-analysis. *Sleep Medicine Reviews*, 69, 101764. <https://doi.org/10.1016/j.smrv.2023.101764>
82. Inman, Z., & Flaws, J. A. (2024). Endocrine disrupting chemicals, reproductive aging, and menopause: a review. *Reproduction*, 168(5), e240113. <https://doi.org/10.1530/REP-24-0113>







# Closing

## A New Beginning

- Key Takeaways By Chapter
- Resources
- Full Bibliography

Menopause does not need to be defined by suffering. For many women, it can become a transformative phase of life — an opportunity to reconnect with themselves, step more fully into their voice, and redefine what well-being looks like moving forward.

When a woman is supported physically, hormonally, emotionally, and mentally, the effects often extend far beyond symptom relief. She may feel more energized to pursue long-delayed goals, deepen relationships, explore new passions, advocate for others, or simply care for herself in ways she may not have prioritized before.

With support through nutrition, lifestyle, and high-quality dietary supplements designed to nourish the endocrine system and support hormonal balance, women can navigate menopause with greater resilience, clarity, and confidence.

Perhaps most importantly, no two women experience menopause in the same way. This transition is deeply personal, and every woman deserves the space to define it for herself.

Menopause is not the end of your hormone story. It is the beginning of a new phase — and we are here to support you every step of the way.

Many factors affect the health of menopausal women. Our goal is to help you improve hormone health with a “Whole Health” approach. This approach allows you to make changes in many areas of your life, from diet to exercise, and more. If you are unsure about certain areas of your health, working with a health professional who can customize a plan to meet your individual needs is best.

# Key Takeaways By Chapter

## Chapter 1

### Empowerment & Knowledge

- Menopause marks the end of a woman's menstrual cycle and reproductive years.
- The median age at menopause in the United States is 51 years, but perimenopause begins, on average, 2—8 years before the final menstrual period.
- Symptoms of menopause can range from hot flashes and thinning skin to changes in bone and cognitive health, but each woman experiences menopause in her own way.
- Menopause is a dynamic and multidimensional experience that should be viewed as a natural process, not a disease.

## Chapter 2

### Hormones

- During menopause, estrogen and progesterone decline, while FSH and LH levels rise, contributing to common symptoms like hot flashes, mood changes, and metabolic shifts.
- With lower estrogen and SHBG levels, testosterone becomes more bioavailable, potentially contributing to symptoms like increased belly fat, changes in libido, and altered metabolism.
- Menopause affects leptin and ghrelin, contributing to increased hunger and cravings despite higher fat stores, which may contribute to weight gain.
- As ovarian function declines, fat tissue plays a critical role in estrogen production, which may explain why the body naturally increases fat storage.
- Understanding how hormones change and applying lifestyle strategies can help women feel more at home in their bodies.

## Chapter 3

### Diet & Nutrition

- Diet plays an important role in health after menopause, when women have an increased risk of certain health conditions.
- Prioritizing protein supports muscle health and physical function, which helps maintain independence as you age.
- Consuming colorful plants and whole grains that are rich in fiber can help support a healthy inflammatory response and the maintenance of normal blood sugar levels.
- Phytoestrogens, such as those from soy foods, can support bone, metabolic, and cardiovascular health, as well as vasomotor symptoms.

## Chapter 4

### Dietary & Herbal Supplements

- A range of botanicals — including ashwagandha, maca, red clover, black cohosh, saffron, and Siberian rhubarb — have been studied for their potential to support perimenopausal symptoms.
- Femmenessence MacaLife® is the only clinically tested dietary supplement for perimenopausal women that supports healthy hormone levels without introducing exogenous hormones.
- Phytoestrogens like soy isoflavones can support bone, metabolic, and cardiovascular health.
- Always discuss herbal supplements with your healthcare provider before beginning them.

## Chapter 5

### Exercise & Movement

- Exercise during menopause supports bone health, cardiometabolic health, cognitive health, muscle mass, and much more.
- Resistance training is particularly important to support bone health, and both muscle mass and strength, but exercise can also mean dancing, swimming, Pilates, and many more activities.
- Menopausal women may benefit from creatine supplements, especially when paired with resistance training to support muscle mass.
- Menopause-related changes may increase the risk of falling; always consider exercise safety and ask for guidance when needed.

## Chapter 6

### Lifestyle & Environment

- Hormonal changes can disrupt sleep, but consistent routines, dim lighting in the evening, and temperature control may improve sleep quality.
- Stress management, mindfulness, and supportive relationships play an important role in easing the mental and emotional challenges of menopause.
- Menopause is not an end but a new beginning, offering an opportunity for self-reflection, personal growth, and redefining one's purpose in life.
- Reducing exposure to endocrine disruptors through simple, consistent changes can support a more balanced hormonal environment.
- Practices like tai chi and qigong may support hormone balance and overall well-being during the menopausal transition.

# Resources

## Finding a Practitioner

Finding a healthcare provider who understands perimenopause and aligns with your values is one of the most important steps you can take. Look for practitioners who specialize in women's hormonal health, integrative medicine, or menopause care.

### Helpful questions to ask a new provider:

- Do you have experience managing perimenopause?
- Are you open to discussing both conventional and integrative approaches?
- How do you approach hormone testing and interpretation?

## Tracking Tools

Consider using a cycle tracking app or printable cycle log to monitor your symptoms, cycle length, and patterns over time. This data is valuable both for your own awareness and for conversations with your healthcare provider.

### What to track:

- Cycle length and flow
- Symptoms (hot flashes, sleep, mood, energy)
- Food, movement, and stress patterns

## Femmenessence Products

Femmenessence® MacaLife® is formulated specifically for perimenopausal women and is the only clinically tested dietary supplement that supports healthy hormone levels through the HPTAO axis without introducing exogenous hormones.

For personalized guidance, contact:

**The Symphony Natural Health Medical Team:**  
[medical.team@symphonynaturalhealth.com](mailto:medical.team@symphonynaturalhealth.com)



## Recommended Reading

For those who want to go deeper, the following books offer valuable perspectives on perimenopause, hormonal health, and the menopausal transition:

- “The Menopause Brain” — Lisa Mosconi, PhD
- “Estrogen Matters” — Avrum Bluming, MD & Carol Tavris, PhD
- “Is It Me or My Hormones?” — Marcelle Pick
- “The New Menopause” — Mary Claire Haver, MD

# Full Bibliography

All references are listed below in order of first appearance. In the digital version, DOI links are active hyperlinks. In print, each DOI can be entered directly into any browser or at [doi.org](https://doi.org) to access the original source.

## Chapter 1

1. Zhang, T., Wan, Y., & Geng, L. (2024). Unraveling the core and bridge menopausal symptoms of perimenopausal women: a network analysis. *Menopause*. <https://doi.org/10.1097/GME.0000000000002431>
2. Bresolin, S., Islam, R. M., Bond, M., & Davis, S. R. (2026). Symptom profiles in the late reproductive stage, earlier premenopause and early perimenopause in the absence of vasomotor symptoms: a cross-sectional study. *BMJ Sexual & Reproductive Health*. <https://doi.org/10.1136/bmjshr-2025-203075>
3. Barber, K., & Charles, A. (2023). Barriers to accessing effective treatment and support for menopausal symptoms: a qualitative study capturing the behaviors, beliefs, and experiences of key stakeholders. *Patient Preference and Adherence*, 17, 2971–2980. <https://doi.org/10.2147/PPA.S430203>
4. Wegrzynowicz, A. K., Walls, A. C., Godfrey, M., & Beckley, A. (2025). Insights into perimenopause: a survey of perceptions, opinions on treatment, and potential approaches. *Women (Basel)*, 5(1), 4. <https://doi.org/10.3390/women5010004>
5. Wu, J., Liu, Y., Song, Y., Wang, L., Ai, J., & Li, K. (2022). Aging conundrum: a perspective for ovarian aging. *Frontiers in Endocrinology*, 13, 952471. <https://doi.org/10.3389/fendo.2022.952471>
6. Carlson, K., & Vadakekut, E. S. (2026). Menopause. In StatPearls. StatPearls Publishing. <https://www.ncbi.nlm.nih.gov/books/NBK507826/>
7. Camon, C., Garratt, M., & Correa, S. M. (2024). Exploring the effects of estrogen deficiency and aging on organismal homeostasis during menopause. *Nature Aging*, 4(12), 1731–1744. <https://doi.org/10.1038/s43587-024-00767-0>

## Chapter 2

8. Patel, P., Patil, S., & Kaur, N. (2025). Estrogen and metabolism: navigating hormonal transitions from perimenopause to postmenopause. *Journal of Mid-Life Health*, 16(3), 247–256. [https://doi.org/10.4103/jmh.jmh\\_75\\_25](https://doi.org/10.4103/jmh.jmh_75_25)
9. Kawakita, T., Yasui, T., Yoshida, K., Matsui, S., & Iwasa, T. (2023). Associations of LH and FSH with reproductive hormones depending on each stage of the menopausal transition. *BMC Women's Health*, 23, 286. <https://doi.org/10.1186/s12905-023-02438-5>
10. Tepper, P. G., Randolph, J. F., Jr., McConnell, D. S., Crawford, S. L., El Khoudary, S. R., Joffe, H., Gold, E. B., Zheng, H., Bromberger, J. T., & Sutton-Tyrrell, K. (2012). Trajectory clustering of estradiol and follicle-stimulating hormone during the menopausal transition among women in the Study of Women's Health across the Nation (SWAN). *Journal of Clinical Endocrinology & Metabolism*, 97(8), 2872–2880. <https://doi.org/10.1210/jc.2012-1422>

11. Allshouse, A., Pavlovic, J., & Santoro, N. (2018). Menstrual cycle hormone changes associated with reproductive aging and how they may relate to symptoms. *Obstetrics and Gynecology Clinics of North America*, 45(4), 613–628. <https://doi.org/10.1016/j.ogc.2018.07.004>
12. Wang, Y., Islam, R. M., Bond, M., & Davis, S. R. (2025). Testosterone and pre-androgens by age and menopausal stage at midlife: findings from a cross-sectional study. *eBioMedicine*, 121, 105972. <https://doi.org/10.1016/j.ebiom.2025.105972>
13. Talaulikar, V. (2022). Menopause transition: physiology and symptoms. *Best Practice & Research Clinical Obstetrics & Gynaecology*. <https://doi.org/10.1016/j.bpobgyn.2022.03.003>
14. Torrens, J. I., Sutton-Tyrrell, K., Zhao, X., Matthews, K., Brockwell, S., Sowers, M., & Santoro, N. (2009). Relative androgen excess during the menopausal transition predicts incident metabolic syndrome in mid-life women: SWAN. *Menopause*, 16(2), 257–264. <https://doi.org/10.1097/gme.0b013e318185e249>
15. Sutton-Tyrrell, K., Wildman, R. P., Matthews, K. A., Chae, C., Lasley, B. L., Brockwell, S., Pasternak, R. C., Lloyd-Jones, D., Sowers, M. F., Torrens, J. I., & SWAN Investigators. (2005). Sex-hormone-binding globulin and the free androgen index are related to cardiovascular risk factors in multiethnic premenopausal and perimenopausal women enrolled in the Study of Women Across the Nation (SWAN). *Circulation*, 111(10), 1242–1249. <https://doi.org/10.1161/01.CIR.0000157697.54255.CE>
16. Uygur, M. M., Yoldemir, T., & Yavuz, D. G. (2018). Thyroid disease in the perimenopause and postmenopause period. *Climacteric*, 21(6), 542–548. <https://doi.org/10.1080/13697137.2018.1514004>
17. Woods, N. F., Carr, M. C., Tao, E. Y., Taylor, H. J., & Mitchell, E. S. (2006). Increased urinary cortisol levels during the menopausal transition. *Menopause*, 13(2), 212–221. <https://doi.org/10.1097/01.gme.0000198490.57242.2e>
18. Kurylowicz, A. (2023). Estrogens in adipose tissue physiology and obesity-related dysfunction. *Biomedicines*, 11(3), 690. <https://doi.org/10.3390/biomedicines11030690>
19. Sowers, M. R., Wildman, R. P., Mancuso, P., Eyvazzadeh, A. D., Karvonen-Gutierrez, C. A., Rillamas-Sun, E., & Jannausch, M. L. (2008). Change in adipocytokines and ghrelin with menopause. *Maturitas*, 59(2), 149–157. <https://doi.org/10.1016/j.maturitas.2007.12.006>
20. Di Carlo, C., Tommaselli, G. A., & Nappi, C. (2002). Effects of sex steroid hormones and menopause on serum leptin concentrations. *Gynecological Endocrinology*, 16(6), 479–491. PMID: 12626035.
21. Lee, C. G., Carr, M. C., Murdoch, S. J., Mitchell, E., Woods, N. F., Wener, M. H., Chandler, W. L., Boyko, E. J., & Brunzell, J. D. (2009). Adipokines, inflammation, and visceral adiposity across the menopausal transition: a prospective study. *Journal of Clinical Endocrinology & Metabolism*, 94(4), 1104–1110. <https://doi.org/10.1210/jc.2008-0701>
22. Siregar, M. F. G., Terauchi, M., Sari, R. A., Adella, C. A., Prabudi, M. O., Barus, M. N. G., Rivany, R., Tobing, I. D. L., & Azmeila, S. (2024). Comparison of leptin and estrone levels between normal body mass index and obese menopausal women. *Narra J*, 4(2), e745. <https://doi.org/10.52225/narra.v4i2.745>
23. Harper-Harrison, G., Carlson, K., & Shanahan, M. M. (2024). Hormone replacement therapy. In StatPearls. StatPearls Publishing. <https://www.ncbi.nlm.nih.gov/books/NBK493191/>
24. Edelweishia, M., Christoper, A., Theresia, E., & Angelia, V. (2025). Review of hormonal replacement therapy options for the treatments of menopausal symptoms. *Korean Journal of Family Medicine*, 46(5), 299–306. <https://doi.org/10.4082/kjfm.25.0039>
25. Yanachkova, V., Vasileva-Slaveva, M., Kostov, S., & Yordanov, A. (2025). Reconsidering hormone replacement therapy: current insights on utilisation in premenopausal and menopausal women: an overview. *Journal of Clinical Medicine*, 14(20), 7156. <https://doi.org/10.3390/jcm14207156>

26. Tulloh, L. (2025). Restoring trust in menopause management: menopause hormone therapy is not a panacea, and physical activity remains a critical intervention. *British Journal of Sports Medicine*, 59(12), 828–829. <https://doi.org/10.1136/bjsports-2025-110217>
27. Liu, Q. K. (2024). Mechanisms of action and therapeutic applications of GLP-1 and dual GIP/GLP-1 receptor agonists. *Frontiers in Endocrinology*, 15, 1431292. <https://doi.org/10.3389/fendo.2024.1431292>
28. Linge, J., Birkenfeld, A. L., & Neeland, I. J. (2024). Muscle mass and glucagon-like peptide-1 receptor agonists: adaptive or maladaptive response to weight loss? *Circulation*, 150(16), 1288–1298. <https://doi.org/10.1161/CIRCULATIONAHA.124.067676>
29. Sievenpiper, J. L., et al. (2025). Nutritional and lifestyle supportive care recommendations for management of obesity with GLP-1 based therapies: an expert consensus statement using a modified Delphi approach. *Obesity Pillars*, 17, 100228. <https://doi.org/10.1016/j.obpill.2025.100228>
30. Doles, N., Ye Mon, M., Shaikh, A., Mitchell, S., Patel, D., Seehusen, D., & Singh, G. (2025). Interpreting normal values and reference ranges for laboratory tests. *Journal of the American Board of Family Medicine*, 38(1), 174–179. <https://doi.org/10.3122/jabfm.2024.240224R1>
31. Juliana, N., Maluin, S. M., Effendy, N. M., Abu, I. F., & Azmani, S. (2025). Cortisol detection methods and the hormone's role in evaluating circadian rhythm disruption. *International Journal of Molecular Sciences*, 26(18), 9141. <https://doi.org/10.3390/ijms26189141>
32. US Preventive Services Task Force; Nicholson, W. K., et al. (2025). Screening for osteoporosis to prevent fractures: US Preventive Services Task Force recommendation statement. *JAMA*, 333(6), 498–508. <https://doi.org/10.1001/jama.2024.27154>
33. Ho-Pham, L. T., Nguyen, H. G., Nguyen-Pham, S. Q., Hoang, D. K., Tran, T. S., & Nguyen, T. V. (2023). Longitudinal changes in bone mineral density during perimenopausal transition: the Vietnam Osteoporosis Study. *Osteoporosis International*, 34(8), 1381–1387. <https://doi.org/10.1007/s00198-023-06757-z>
34. El Khoudary, S. R., Chen, X., Qi, M., Matthews, K. A., Karlamangla, A. S., Gold, E. B., Harlow, S. D., Thurston, R. C., Joffe, H., Pavlovic, J., & Greendale, G. A. (2025). The relation between systemic inflammation and the menopause transition: SWAN. *Journal of Clinical Endocrinology & Metabolism*, 110(11), e3566–e3576. <https://doi.org/10.1210/clinem/dgaf175>
35. Matsui, S., Yasui, T., Kasai, K., Keyama, K., Kato, T., Uemura, H., Kuwahara, A., Matsuzaki, T., & Irahara, M. (2016). Changes of liver enzymes and triglyceride during the menopausal transition in Japanese women. *Journal of Obstetrics and Gynaecology*, 36(6), 806–811. <https://doi.org/10.3109/01443615.2016.1154516>
36. Auerbach, M., DeLoughery, T. G., & Tirnauer, J. S. (2025). Iron deficiency in adults: A review. *JAMA*, 333(20), 1813–1823. <https://doi.org/10.1001/jama.2025.0452>
37. Choi, M. S., Seiger, E. R., & Murray-Kolb, L. E. (2025). Cognitive function in peri- and postmenopausal women: Implications for considering iron supplementation. *Nutrients*, 17(11), 1762. <https://doi.org/10.3390/nu17111762>
38. Balendran, S., & Forsyth, C. (2021). Non-anaemic iron deficiency. *Australian Prescriber*, 44(6), 193–196. <https://doi.org/10.18773/austprescr.2021.052>
39. Choe, S.-A., & Sung, J. (2020). Trends of premature and early menopause: A comparative study of the US National Health and Nutrition Examination Survey and the Korea National Health and Nutrition Examination Survey. *Journal of Korean Medical Science*, 35(14), e97. <https://doi.org/10.3346/jkms.2020.35.e97>
40. Roberts, R. E., Farahani, L., Webber, L., & Jayasena, C. (2020). Current understanding of hypothalamic amenorrhoea. *Therapeutic Advances in Endocrinology and Metabolism*, 11, 2042018820945854. <https://doi.org/10.1177/2042018820945854>

## Chapter 3

41. Nappi, R. E., Chedraui, P., Lambrinoudaki, I., & Simoncini, T. (2022). Menopause: a cardiometabolic transition. *Lancet Diabetes & Endocrinology*, 10(6), 442–456. [https://doi.org/10.1016/S2213-8587\(22\)00076-6](https://doi.org/10.1016/S2213-8587(22)00076-6)
42. Godsland, I. F. (2005). Oestrogens and insulin secretion. *Diabetologia*, 48(11), 2213–2220. <https://doi.org/10.1007/s00125-005-1930-0>
43. Yan, H., Yang, W., Zhou, F., Li, X., Pan, Q., Shen, Z., Han, G., Newell-Fugate, A., Tian, Y., Majeti, R., Liu, W., Xu, Y., Wu, C., Allred, K., Allred, C., Sun, Y., & Guo, S. (2019). Estrogen improves insulin sensitivity and suppresses gluconeogenesis via the transcription factor Foxo1. *Diabetes*, 68(2), 291–304. <https://doi.org/10.2337/db18-0638>
44. Erdélyi, A., Pálfi, E., Túű, L., Nas, K., Szűcs, Z., Török, M., Jakab, A., & Várbiro, S. (2023). The importance of nutrition in menopause and perimenopause — a review. *Nutrients*, 16(1), 27. <https://doi.org/10.3390/nu16010027>
45. Wolever, T. M. S., Zurbau, A., Koecher, K., & Au-Yeung, F. (2024). The effect of adding protein to a carbohydrate meal on postprandial glucose and insulin responses: a systematic review and meta-analysis. *Journal of Nutrition*, 154(9), 2640–2654. <https://doi.org/10.1016/j.tjnut.2024.07.011>
46. González-Rodríguez, M., Pazos-Couselo, M., García-López, J. M., Rodríguez-Segade, S., Rodríguez-García, J., Túñez-Bastida, C., & Gude, F. (2019). Postprandial glycemic response in a non-diabetic adult population: the effect of nutrients is different between men and women. *Nutrition & Metabolism*, 16, 46. <https://doi.org/10.1186/s12986-019-0368-1>
47. Calvo-Malvar, M., Lado-Baleato, Ó., Cao Ríos, A., Porca Fernández, C., Benítez-Calvo, A., Fernandez-Merino, C., Sánchez-Castro, J., Wagner, R., Matabuena, M., & Gude, F. (2025). Age, sex, BMI, meal timing, and glycemic response to meal glycemic load. *JAMA Network Open*, 8(9), e2533193. <https://doi.org/10.1001/jamanetworkopen.2025.33193>
48. Oyelowo, O. T., Taire, E. O., & Ajao, O. I. (2022). Skipping the first active meal appears to adversely alter reproductive function in female than male rats. *Current Research in Physiology*, 5, 414–420. <https://doi.org/10.1016/j.crphys.2022.10.001>
49. Witbracht, M., Keim, N. L., Forester, S., Widaman, A., & Laugero, K. (2015). Female breakfast skippers display a disrupted cortisol rhythm and elevated blood pressure. *Physiology & Behavior*, 140, 215–221. <https://doi.org/10.1016/j.physbeh.2014.12.044>
50. Reytor-González, C., Simancas-Racines, D., Román-Galeano, N. M., Annunziata, G., Galasso, M., Zambrano-Villacres, R., Verde, L., Muscogiuri, G., Frias-Toral, E., & Barrea, L. (2025). Chrononutrition and energy balance: how meal timing and circadian rhythms shape weight regulation and metabolic health. *Nutrients*, 17(13), 2135. <https://doi.org/10.3390/nu17132135>
51. Kessler, K., & Pivovarova-Ramich, O. (2019). Meal timing, aging, and metabolic health. *International Journal of Molecular Sciences*, 20(8), 1911. <https://doi.org/10.3390/ijms20081911>
52. Paragliola, R. M., Marchetti, M., Montagna, C., Corsello, S. M., & Peluso, G. (2025). Feeding the rhythm — effects of food and nutrients on daily cortisol secretion: from molecular mechanisms to clinical impact. *International Journal of Molecular Sciences*, 26(22), 11230. <https://doi.org/10.3390/ijms262211230>
53. Ayyadurai, V. A. S., Deonikar, P., & Bannuru, R. R. (2022). Attenuation of low-grade chronic inflammation by phytonutrients: a computational systems biology analysis. *Clinical Nutrition ESPEN*, 49, 425–435. <https://doi.org/10.1016/j.clnesp.2022.03.010>

## Chapter 4

54. Posadzki, P., Lee, M. S., Moon, T. W., Choi, T. Y., Park, T. Y., & Ernst, E. (2013). Prevalence of complementary and alternative medicine (CAM) use by menopausal women: a systematic review of surveys. *Maturitas*, 75(1), 34–43. <https://doi.org/10.1016/j.maturitas.2013.02.005>
55. Buhling, K. J., Daniels, B. V., Studnitz, F. S. G. V., Eulenburg, C., & Mueck, A. O. (2014). The use of complementary and alternative medicine by women transitioning through menopause in Germany. *Complementary Therapies in Medicine*, 22(1), 94–98. <https://doi.org/10.1016/j.ctim.2013.12.004>
56. Xi, S., Liske, E., Wang, S., Liu, J., Zhang, Z., Geng, L., Hu, L., Jiao, C., Zheng, S., Henneicke-von Zepelin, H. H., & Bai, W. (2014). Effect of isopropanolic *Cimicifuga racemosa* extract on uterine fibroids in comparison with tibolone. *Evidence-Based Complementary and Alternative Medicine*, 2014, 717686. <https://doi.org/10.1155/2014/717686>
57. Balkrishna, A., Kukreti, A., Sharma, N., Srivastava, D., & Arya, V. (2026). Efficacy and safety of *Withania somnifera* (Ashwagandha) in the management of menopausal symptoms. *Pharmacological Research — Natural Products*, 10, 100478.
58. Gopal, S., Ajgaonkar, A., Kanchi, P., Kaundinya, A., Thakare, V., Chauhan, S., & Langade, D. (2021). Effect of an ashwagandha (*Withania Somnifera*) root extract on climacteric symptoms in women during perimenopause: a randomized, double-blind, placebo-controlled study. *Journal of Obstetrics and Gynaecology Research*, 47(12), 4414–4425. <https://doi.org/10.1111/jog.15030>
59. KrishnaRaju, A. V., Somepalli, V., Thanawala, S., & Shah, R. (2023). Efficacy and anti-inflammatory activity of ashwagandha sustained-release formulation on depression and anxiety induced by chronic unpredictable stress. *Journal of Experimental Pharmacology*, 15. Published July 25, 2023.
60. Srivastava, R., Ahmed, H., Dixit, R. K., Dharamveer, & Saraf, S. A. (2010). *Crocus sativus* L.: a comprehensive review. *Pharmacognosy Reviews*, 4(8), 200–208. <https://doi.org/10.4103/0973-7847.70919>
61. Lopresti, A. L., & Smith, S. J. (2021). The effects of a saffron extract (affron®) on menopausal symptoms in women during perimenopause: a randomised, double-blind, placebo-controlled study. *Journal of Menopausal Medicine*, 27(2), 66–78. <https://doi.org/10.6118/jmm.21002>
62. Keiler, A. M., Papke, A., Kretzschmar, G., Zierau, O., & Vollmer, G. (2012). Long-term effects of the rhapontic rhubarb extract ERr 731® on estrogen-regulated targets in the uterus and on the bone in ovariectomized rats. *Journal of Steroid Biochemistry and Molecular Biology*, 128(1–2), 62–68. <https://doi.org/10.1016/j.jsbmb.2011.08.016>
63. Shah, J., Chandanani, S., Reddy, J., Kirubamani, H., Boruah, A. M., Jain, A., Mane, S., Biniwale, P., Mathur, P., Ridhorkar, A., Natarajan, S., & Tiwari, B. (2021). Evaluation of the efficacy and safety of Rheum rhaponticum root extract (ERr 731) for menopausal symptoms in perimenopausal Indian women: an interim analysis. *Journal of Mid-Life Health*, 12(2), 108–115. [https://doi.org/10.4103/jmh.jmh\\_86\\_21](https://doi.org/10.4103/jmh.jmh_86_21)
64. Dubey, V. P., Sureja, V. P., & Kheni, D. B. (2024). Efficacy evaluation of standardized Rheum rhaponticum root extract (ERr 731®) on symptoms of menopause: a systematic review and meta-analysis study. *Journal of Biomedical Research*, 38(3), 278–286. <https://doi.org/10.7555/JBR.37.20230219>

## Chapter 5

65. Bucciarelli, V., Mattioli, A. V., Sciomer, S., Moscucci, F., Renda, G., & Gallina, S. (2023). The impact of physical activity and inactivity on cardiovascular risk across women's lifespan: an updated review. *Journal of Clinical Medicine*, 12(13), 4347. <https://doi.org/10.3390/jcm12134347>

66. Philip, A. E., Singh, H., Nanjundiah, S. Y., Samudrala, P. C., Theunissen, D. W., Robinson, J., & Banerjee, I. (2025). Impact of exercise on perimenopausal syndrome: a systematic review of randomized controlled trials. *Cureus*, 17(3), e80862. <https://doi.org/10.7759/cureus.80862>
67. Capel-Alcaraz, A. M., García-López, H., Castro-Sánchez, A. M., Fernández-Sánchez, M., & Lara-Palomo, I. C. (2023). The efficacy of strength exercises for reducing the symptoms of menopause: a systematic review. *Journal of Clinical Medicine*, 12(2), 548. <https://doi.org/10.3390/jcm12020548>
68. Xu, H., Liu, J., Li, P., & Liang, Y. (2024). Effects of mind-body exercise on perimenopausal and postmenopausal women: a systematic review and meta-analysis. *Menopause*, 31(5), 457–467. <https://doi.org/10.1097/GME.0000000000002336>
69. Roberts, C. K., Hevener, A. L., & Barnard, R. J. (2013). Metabolic syndrome and insulin resistance: underlying causes and modification by exercise training. *Comprehensive Physiology*, 3(1), 1–58. <https://doi.org/10.1002/cphy.c110062>
70. Hevener, A. L., Ribas, V., Moore, T. M., & Zhou, Z. (2020). The impact of skeletal muscle ER $\beta$  on mitochondrial function and metabolic health. *Endocrinology*, 161(2), bqz017. <https://doi.org/10.1210/endocr/bqz017>
71. Paluch, A. E., Boyer, W. R., Franklin, B. A., Laddu, D., Lobelo, F., Lee, D., McDermott, M. M., Swift, D. L., Webel, A. R., & Lane, A., on behalf of the American Heart Association et al. (2023). Resistance exercise training in individuals with and without cardiovascular disease: 2023 update: a scientific statement from the American Heart Association. *Circulation*, 149(3), e217–e231. <https://doi.org/10.1161/CIR.0000000000001189>

## Chapter 6

1. Reddy, S., Reddy, V., & Sharma, S. (2023). Physiology, circadian rhythm. In StatPearls. StatPearls Publishing. <https://www.ncbi.nlm.nih.gov/books/NBK519507/>
2. Higuchi, S. (2024). Light at night and circadian rhythms: from the perspective of physiological anthropology research. *Journal of Physiological Anthropology*, 43, 32. <https://doi.org/10.1186/s40101-024-00380-5>
3. Lotti, S., Napoletano, A., Dinu, M., Picchi, E., Faraguna, U., Giangrandi, I., Cesari, F., Marcucci, R., Sofi, F., & Colombini, B. (2025). Sleep irregularity and short sleep duration are associated with less favorable cardiometabolic profiles in healthy adults: a cross-sectional study. *Nutrients*, 17(23), 3763. <https://doi.org/10.3390/nu17233763>
4. Joshi, A., & Sundar, I. K. (2023). Circadian disruption in night shift work and its association with pulmonary disease. *Advanced Biology*, 7(11), e2200292. <https://doi.org/10.1002/adbi.202200292>
5. Reytor-González, C., et al. (2025). Chrononutrition and energy balance: how meal timing and circadian rhythms shape weight regulation and metabolic health. *Nutrients*, 17(13), 2135. <https://doi.org/10.3390/nu17132135>
6. Schrader, L. A., Ronnekleiv-Kelly, S. M., Hogenesch, J. B., Bradfield, C. A., & Malecki, K. M. C. (2024). Circadian disruption, clock genes, and metabolic health. *Journal of Clinical Investigation*, 134(14). <https://doi.org/10.1172/JCI170998>
7. Lloyd, M., Prakash, B. A., Zhao, L., Ni, G., Ru, Y., & Vasudevan, S. R. (2025). Circadian rhythms in metabolism and mental health: a reciprocal regulatory network with implications for metabolic and neuropsychiatric disorders. *Current Opinion in Physiology*, 45, 100836. <https://doi.org/10.1016/j.cophys.2025.100836>
8. Su, T., Ding, L., Wei, Z., Chen, Z., Liu, L., Li, X., Lian, Z., Aimuzi, R., & Li, R. (2026). The association between age at menopause and circadian syndrome: a study based on the UK Biobank. *BMC Public Health*. <https://doi.org/10.1186/s12889-026-27424-y>
9. de Menezes-Júnior, L. A. A., Sabião, T. da S., Carraro, J. C. C., Machado-Coelho, G. L. L., & Meireles, A. L. (2025). The

role of sunlight in sleep regulation: analysis of morning, evening and late exposure. BMC Public Health, 25, 3362. <https://doi.org/10.1186/s12889-025-24618-8>

10. Gardiner, C., Weakley, J., Burke, L. M., Roach, G. D., Sargent, C., Maniar, N., Townshend, A., & Halson, S. L. (2023). The effect of caffeine on subsequent sleep: a systematic review and meta-analysis. *Sleep Medicine Reviews*, 69, 101764. <https://doi.org/10.1016/j.smr.2023.101764>
11. Inman, Z., & Flaws, J. A. (2024). Endocrine disrupting chemicals, reproductive aging, and menopause: a review. *Reproduction*, 168(5), e240113. <https://doi.org/10.1530/REP-24-0113>

\* These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.

(c) Symphony Natural Health 2026. All rights reserved.



Symphony<sup>®</sup>

NATURAL HEALTH