

The Sleep Cascade

A Wellness Education Guide

Prepared by Dana Lerma, Nurse Practitioner | Lerma Longevity

Hi,

Thank you for being here. If you have read The Hormonal Cascade, you already know your body is not broken, it is responding exactly as biology predicts. This guide picks up one thread from that research and follows it further, because it turns out to matter more than most people realize.

I am a Nurse Practitioner. I am also personally navigating perimenopause, and I have lived the version of this that no scale ever showed me. I started teaching this content because I was frustrated by how little useful information was available to me as a clinician going through this myself.

Here is the short version, then we will walk through the research together. Your scale can stay perfectly still while your body composition changes underneath it. That is not a metaphor. It is what the data shows happens during even short stretches of poor sleep, and perimenopause makes it more likely to happen to you.

Let's walk through it.

Warmly,

Dana Lerma, Nurse Practitioner
Lerma Longevity

What Is Actually Happening in Your Body

The same metabolic and inflammatory systems central to the GLP-1 and cancer research conversation, and to the hormonal cascade of perimenopause, are the systems affected by how you sleep. That is not a coincidence. Insulin resistance and chronic inflammation do not appear only from what you eat or how much you exercise. Sleep is one of the levers that moves them, and it moves them whether or not the scale notices.

This is not one study. It is a converging body of research on what happens to fat distribution and blood sugar regulation when sleep is cut short, even briefly, and why that matters more during a hormonal transition that is already disrupting sleep on its own.

The Sleep Cascade

Losing sleep does not just leave you tired. It sets off a chain reaction that affects fat storage, blood sugar, and hormone regulation at the same time, and each piece feeds the next. Here is what the research shows is happening.

The Scale Blind Spot

Researchers at Mayo Clinic put healthy adults through two weeks of restricted sleep, four hours a night, in a controlled inpatient study. At the end, the scale had barely moved. Body fat percentage, measured by DEXA scan, showed no significant change. By every tool most people use to track their body, nothing had happened.

Then researchers used CT imaging, and found something the scale could not see. Visceral fat, the fat stored around internal organs and the kind most strongly linked to cardiovascular and metabolic risk, had grown by approximately 11 percent. Total abdominal fat area increased by 9 percent. When participants returned to normal sleep for three days afterward, the extra eating stopped, but the visceral fat did not reverse. It kept growing through the recovery period.

The tool most of us trust to track our health was not built to see this. That is the part of the research that changed how I think about sleep.

The Insulin Signal

Separately, sleep researchers at UC Berkeley found that the depth of your sleep, not just the number of hours, predicts how well your body manages blood sugar the next day. Specific patterns of deep sleep brain activity were associated with better insulin sensitivity the following morning, in a study that examined this relationship in more than 600 people and then replicated the finding in nearly 2,000 more.

This adds to earlier research showing that even one week of moderate sleep restriction, five hours a night instead of a full night's rest, measurably reduced insulin sensitivity in healthy adults. Poor sleep does not just make you tired. It changes how your body processes the food you eat that day.

For women in perimenopause this matters twice over. Insulin sensitivity is already declining as estrogen falls, and sleep is already more fragmented for reasons of its own. Each one makes the other harder to manage.

The Cortisol Connection

Estrogen normally moderates cortisol. As it declines, that moderating effect weakens, and the natural early morning cortisol rise happens earlier and more sharply. This is why so many women in perimenopause wake between 2 and 4 AM feeling alert and anxious without an obvious reason. Sleep disruption affects an estimated 40 to 60 percent of women during this transition.

Disrupted sleep raises cortisol further. Elevated cortisol drives visceral fat storage. Visceral fat worsens insulin resistance. Insulin resistance disrupts sleep. Layer the Mayo Clinic and Berkeley findings on top of that loop, and the picture gets clearer. This is not a willpower problem, and it is not something the scale is equipped to catch.

What This Research Does Not Say

The research described here is observational and experimental research in general adult populations, which means it identifies patterns and mechanisms, not guarantees for any one person. The Mayo Clinic and Berkeley studies were not conducted specifically in perimenopausal women. They establish that these sleep-metabolism mechanisms exist, and the biology is understood to extend into midlife, though no trial has tested this exact combination in women navigating perimenopause specifically.

Nothing in this guide is intended to diagnose, treat, or prevent any disease. This guide is wellness education only.

Questions to Bring to Your Provider

1. What does the research on sleep, visceral fat, and insulin resistance mean for someone with my health history?

This opens the conversation without putting your provider on the spot. It invites them to apply the research to your specific situation.

2. How does chronic sleep disruption factor into my longer term metabolic and cardiovascular risk?

This shifts the conversation from feeling tired to the underlying metabolic picture, which is where the most meaningful discussion usually happens.

3. What would you want to know about my sleep patterns before discussing metabolic support options?

This gives your provider the opening to ask the right questions and positions you as an informed, engaged patient.

What This Means for Your Wellness Options

This is education, not medical advice. Every EllieMD protocol requires physician review and approval before anything is prescribed or shipped. What I can do is give you a plain-language look at the compound categories that relate to these pathways.

Here are some of the options women navigating this transition have discussed with their EllieMD physicians.

Four Compounds to Know About

Metabolic Support

GLP-1/GIP (tirzepatide) injections for meaningful metabolic support: healthy body composition, blood sugar balance, and insulin sensitivity. Also available as GLP-1 (semaglutide) for weight management and metabolic health.

Metabolism and Body Composition

Tesamorelin/KPV injection supporting body composition, visceral fat reduction, and gut anti-inflammatory pathways.

Sleep and Recovery

Sermorelin injection, studied for its role in biological pathways associated with sleep quality and overnight restorative rest. Available as injection or capsule.

Sleep Support

DSIP (Delta Sleep-Inducing Peptide) injection, studied for its role in promoting slow-wave sleep and supporting the body's natural sleep-wake regulation. Physician evaluation required.

An Important Note

Which compound, which protocol, and whether any product is appropriate at all is a medical decision made only by your EllieMD physician after a full review of your health history. No two protocols are the same.

Have Questions?

Reach out to me directly before you purchase and I will help you think through which option fits your situation. Once you have purchased, your EllieMD physician handles all medical decisions. I also encourage you to share these options with your primary care physician, especially if you have existing health conditions or take prescription medications.

How to Get Started with EllieMD

Step 1: Register

Type elliemd.com/lermalongevity into your browser, click GET STARTED, and create your free account in about 2 minutes.

Step 2: Complete Your Health Questionnaire

After registering, complete a medical questionnaire about your health history and goals.

Step 3: Purchase Your Compound

Browse to PRODUCTS and select the compound you want to start with.

Step 4: Physician Protocol Design

A licensed EllieMD physician reviews your health history and approves your personalized protocol.

Step 5: Your Protocol Ships to You

Once approved, your compounds ship directly to your door and your physician is available via messaging for any questions.

TO GET STARTED, TYPE THIS INTO YOUR BROWSER:

elliemd.com/lermalongevity

Questions? Email me directly at dana@lermalongevity.com

A Personal Note

I want to be transparent with you. I am personally navigating perimenopause, and sleep has been the hardest part for me, not the number on the scale. I have woken at 3 AM more nights than I can count, done everything right during the day, and still watched my body change in ways that made no sense to me until I found this research. I teach this because I live it.

I became a brand partner with EllieMD because I believe in physician-guided wellness support. I believe women deserve access to options that are grounded in research and overseen by licensed physicians who take their health history seriously.

If anything in this guide resonated, if you read it and thought this is me, I want to hear from you. Dana reviews every wellness assessment personally. You are not a number in a system. You are a woman who deserves a thoughtful, personalized response.

Warmly,

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The research referenced is observational and experimental research in general adult populations, and does not establish cause and effect for any individual. Nothing here diagnoses, treats, or prevents any disease. All products referenced require physician review and approval through EllieMD. Please discuss any wellness protocol with your physician, especially if you have existing health conditions or take prescription medications.

Dana Lerma is an independent EllieMD Brand Partner. EllieMD links in this guide are affiliate links. Dana may earn a commission on services initiated through these links.

References

1. Covassin N, Singh P, McCrady-Spitzer SK, St Louis EK, Calvin AD, Levine JA, Somers VK. Effects of Experimental Sleep Restriction on Energy Intake, Energy Expenditure, and Visceral Obesity. *J Am Coll Cardiol*. 2022;79(13):1254-1265.
2. Vallat R, Shah VD, Walker MP. Coordinated human sleeping brainwaves map peripheral body glucose homeostasis. *Cell Reports Medicine*. 2023;4(7):101100.
3. Buxton OM, Pavlova M, Reid EW, Wang W, Simonson DC, Adler GK. Sleep restriction for 1 week reduces insulin sensitivity in healthy men. *Diabetes*. 2010;59(9):2126-2133.
4. McDonald ES, et al. GLP-1 agonists are associated with a significant reduction in breast cancer incidence in women. *JCO Oncol Pract*. Published online June 2, 2026. ASCO 2026 Abstract 10506.
5. Sleep disruption prevalence during perimenopause, SWAN-affiliated epidemiologic research, carried forward from The Hormonal Cascade guide.

TAKE THE NEXT STEP

Ready to understand what this looks like for your specific situation?

lermalongevity.com/intake

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