

Stop Losing Sleep Over Hot Flashes and Night Sweats: The Cortisol Connection

If you experience *hot flashes* (called *night sweats* when they wake you up in the middle of the night), you know how unpleasant they can be. A hot flash feels as though your internal thermostat suddenly got stuck at 100-plus degrees. Your blood vessels dilate, sending a surge of warmth through your upper body, sometimes turning your skin red and blotchy. You may sweat profusely, soaking your clothing or bedsheets and then feel a chill as your body temperature suddenly drops back down to normal.

The deep discomfort of hot flashes often interrupts sleep, leading to fatigue, irritability, and impaired thinking and memory. The sleep loss can also cause a gradual decline in overall health and well-being.



While the exact causes of hot flashes are still unknown, they seem to be related to hormonal changes that impact the brain's thermoregulatory center, mostly in women during menopause (though men are not immune). In fact, more than 80 percent of U.S. women report hot flashes, and the majority rate them as moderate to severe. Decreasing levels of estrogen may cause the hypothalamus (the part of the brain that acts as the body's thermostat) to become more sensitive to changes in body temperature. When the hypothalamus senses that your body is too warm, it triggers a cooldown sequence that results in a hot flash.

The Cortisol Connection

A 2015 study published in the May 2016 issue of *The Journal of Clinical Endocrinology & Metabolism* draws a connection between hot flashes and patterns in daily cortisol levels in midlife women.

In healthy adults, cortisol levels rise abruptly within 30 minutes of waking up, and then decline throughout the day. Low cortisol in the morning or throughout the day is usually a symptom of chronic illness or stress. High cortisol in the evening is often connected with chronic stress and poor sleep (insomnia or sleep disturbances). Researchers hypothesized that these same anomalies in cortisol levels may be connected to hot flashes/night sweats.

To test their hypothesis, Drs. Susan Reed, Katherine Guthrie, and colleagues examined daily salivary cortisol concentrations and patterns in midlife women with hot flashes. The study included 306 women (ages 40 to 62). The researchers measured cortisol levels over two consecutive days four times daily – upon waking up, 30 minutes later, in the early afternoon, and at bedtime.

Among study participants, the median percent cortisol rise from awakening to 30 minutes after awakening was 18 percent. In contrast, in normal healthy adults, cortisol levels rise 50 percent to 100 percent within 30 minutes after awakening. Furthermore, women with the greatest hot flash frequency had the lowest cortisol levels 30 minutes after awakening and the highest levels in the early afternoon.

The researchers concluded: *“Taken together, these findings suggest that high frequency of moderate to severe hot flashes may be associated with subtle abnormalities in cortisol concentrations – a pattern consistent with chronic sleep disturbance. More than 80 percent of U.S. women report hot flashes, and the majority rate them as moderate to severe, so the potential magnitude of the impact of our findings is not inconsequential. Individuals with chronic sleep disturbance have greater health risks.”*

Targeting the Root Cause(s)

Although hot flashes are linked to cortisol levels, that connection really doesn't tell us much about what *causes* them. While most women experience hot flashes during menopause – which suggests a strong connection to changing levels of female sex hormones (particularly estrogen and progesterone) – several other conditions may cause or contribute to hot flashes, including the following:

- Stress responses, which can increase levels of the stress hormones adrenaline and cortisol
- Certain medications, such as antidepressants, aspirin, acetaminophen, and medications for lowering blood pressure or cholesterol
- Infections
- Some cancers, including lymphoma
- Hypoglycemia (low blood sugar) or other blood sugar imbalances related to insulin
- Hormone disorders, including hyperthyroidism, pheochromocytoma, and carcinoid syndrome
- Neurological conditions, such as autonomic dysreflexia, post-traumatic syringomyelia, stroke, and autonomic neuropathy
- Some substances, including alcohol, caffeine, nicotine, and spicy foods (with coffee and red wine suspected to be the biggest culprits)

Focusing on the Endocrine System

Keep in mind that hot flashes are a symptom of one or more underlying dysfunctions or conditions related to the *endocrine system* – the chemical messaging system of the body. The endocrine system consists of several interconnected glands and organs, including the hypothalamus (part of the brain), the pineal and pituitary glands, the thyroid and parathyroid glands,

the thymus, the pancreas, the adrenal glands, and the ovaries and placenta (in women) and testicles (in men).

These organs and glands produce and secrete hormones that control a wide range of functions, including the body's ability to maintain a temperature of about 98.6 degrees Fahrenheit. Any disruption in the production of certain hormones can impair the body's ability to self-regulate its temperature.

In women, the problem can often be traced back to imbalances in sex hormones – mainly estrogen and progesterone and, to a lesser degree, testosterone. Men also experience hot flashes, especially men who receive androgen deprivation therapy for prostate cancer, which decreases testosterone.

Diagnosing and Treating Hot Flashes and Night Sweats

Because so many factors can cause or contribute to hot flashes and night sweats, effective diagnosis and treatment involve more than merely destressing and avoiding certain triggers, such as alcohol, caffeine, spicy foods, and nicotine. The process is often like peeling away layers of an onion to find out (and address) what's really going on below the surface.

Here at BioDesign Wellness Center, we spend more time up front to trace symptoms back to their root causes, so that we can provide the most effective treatments without exposing patients to unnecessary and potentially harmful medications. Our diagnostic process includes the following:

- A thorough physical examination
- A careful examination of the patient's medical and family history
- An evaluation of any medications, supplements, and other substances that could be causing problems
- Lab tests for any underlying infections

- Lab tests to check levels of sex hormones – estrogen and progesterone (for women) and testosterone (for women and men)
- Lab tests for levels of stress hormones, including cortisol
- Lab tests for levels of metabolic hormones, including thyroid hormones and insulin

Our clinical findings are similar to those the study presented earlier in this post – cortisol imbalance and stress response affect a large group of women we see who are not sleeping well.

Our first step in balancing hormones is often to assist the person in improving sleep. This can be done using natural methods and supplements and rarely requires prescription medications. We often use unique blends of supplemental nutrients that can improve cortisol balance, reduce anxiety, and improve sleep. Melatonin may be added, as needed.

If you are having trouble sleeping for any reason, we strongly encourage you to be evaluated by a functional and integrative medical practitioner like the ones here at our Tampa Functional Medicine clinic – practitioners who understand the many factors that may contribute to poor sleep. Restful, restorative sleep enables your body to heal itself and recover from the stresses and strains of daily living. If you're not sleeping well, your overall health and fitness will begin to suffer the consequences.

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Disclaimer: *The information in this blog post about hot flashes and night sweats is provided for general informational purposes only and may not reflect current medical thinking or practices. No information contained in this post should be construed as medical advice from the medical staff at BioDesign Wellness*

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