

How an Eating Disorder Can Affect Hormones—and How to Get Them Back on Track

After recovering from anorexia nervosa and losing her period, one writer set out to find how hormones affect health and how you can make them work for you and your performance.

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When I was 15, the only thing I lacked more than confidence in my body was motivation to move it. Existing on a diet of chicken fingers and French fries and getting the majority of my physical activity from gym class, I was not yet an athlete.

The moment I stepped foot into a shop at the mall and realized how much my body had changed since I first got my period at age 12, I nearly sprinted out of the store. Now at the age of 35, I know that clothing size has no bearing on the human who is wearing them, but naive teenage Karla who was seeking self-acceptance, looked at her reflection and said: “I’m going to ‘fix’ this.”

My fix meant starting to move more. Within one year, my “health kick” had evolved from using the elliptical machine for 30 minutes per day to joining the cross-country team and running dozens of miles each week with the varsity team. Somehow, it also involved narrowing my diet to include only a handful of foods and not nearly enough fuel.

I was diagnosed with anorexia nervosa at age 16, and by the time I had shrunk down to half of my starting size, my outpatient treatment care team had essentially put me on “bed rest” so I wouldn’t risk losing any more pounds.

I lost weight, yes. But I also lost my personality, any friends that I had gained, and I lost my period.

That was nearly 20 years ago, and the journey to get my cycle back on track has been quite the ultramarathon. After years of cognitive behavioral therapy and support from a dietitian and my doctor, my weight, exercise habits, and eating has stabilized.

I now find so much joy in food after fearing it for so long. I also don’t use cardio as a crutch; I use fitness in all forms— aerobic, strength, and yoga—within reason, as an anxiety-reliever and to feel empowered and unstoppable. I’m no Olympian, but I do enjoy the community I’ve found as a middle-of-the-pack recreational athlete.

My zest for life is back, but my period is still MIA. It returned to the party for a brief two years in my early 30s, thanks to hormonal birth control and gaining a handful of pounds, but it disappeared again early on in the pandemic. My ob-gyn never seems overly concerned when I answer the “when was your last period?” query with “longer ago than I can remember?”

Still, as a female in my 30s, I know that a menstrual cycle—as inconvenient as it can be sometimes—is something that should be happening. And after listening to a podcast interview with Alisa Vitti, the New York City-based creator of The Cycle Syncing Method®, founder of FLOLiving, myFLO app, author of WomanCode and In the FLO, I realized missing it might really be messing with my performance and my well-being.

So I reached out to Vitti and a few other female health pros and asked them to dish about all things hormones and health. Here’s what I found and how it might help you get your cycle, your hormones, and your running at peak performance.

Why athletes may be at higher risk for hormonal imbalance

According to Rachel Fine, R.D., owner of the nutrition counseling firm To The Pointe Nutrition in New York City, who consults with many professional dancers, irregular and absent periods are most often hormone-related, but that's not always the trigger.

Another factor, which many of us have been experiencing far more of over the past two years, could be the reason why a period goes rogue or random: stress. "But even this can arguably be related back to hormone imbalances," Fine says

Research proves that 45 to 50 percent of recreationally active women have some form of menstrual dysfunction, be it totally missing, erratic, or otherwise. In some cases, endometriosis, pelvic inflammatory disease, pituitary tumors, perimenopause, thyroid dysfunction, or uterine polyps or fibroids can lead to changes in one's menstrual cycle.

But if your blood work—looking at hormones like prolactin (active in breast development and milk production), luteinizing hormone (which plays an important role in reproduction), follicle-stimulating hormone, and thyroid-stimulating hormone—comes back within normal ranges, this "dysfunction" is most often a domino effect that starts out as an energy equation.

"Athletes are at an increased risk for irregular periods because of the vulnerability to negative energy balance. When their energy intake (the calories from food) does not mean their energy output (the calories burned from a higher level of physical activity), the body enters a state known as negative energy balance," Fine says.

"There's simply not enough fuel in the form of calories to support the metabolic and physical functioning needed to maintain hormonal balance."

The female athlete calorie equation

Every human needs a certain amount of calories just to exist, says Stacy T. Sims, female athlete performance physiologist and author of *ROAR: How to Match Your Food and Fitness to Your Unique Female Physiology for Optimum Performance, Great Health, and a Strong, Lean Body for Life*. For a 130-pound woman who has about 20 percent body fat, about 1,300 calories per day are necessary to power the heart, brain, muscles, endocrine system, immune system, nervous system, and more. Tack on additional exercise beyond just lying in bed, and calorie needs jump far higher.

Despite what those 1,200- or 1,500-calorie-per-day diet plans might lead you to believe, unless you're a toddler, that's not going to come even close to cutting it in terms of your adult calorie needs. Even just activities of daily living utilize about 800 more calories, Sims says, and if you add in a 45-minute moderate-intensity training run, that's another approximately 400 calories.

"We're looking at a minimum 2,500 calories to fuel this lifestyle," Sims says, and for many women who are training for an event of some sort, this might be an "easy" day. "In my experience, most women barely meet the 2,000-calorie-per-day level, and often this calorie intake bookends the waking hours; maybe breakfast, maybe not, then a light lunch, followed by a larger proportion of calories near the end of the day."

That meal timing might seem like a small detail, but Sims says it can make a big difference—both in terms of your workout recovery abilities and your hormonal health. "If a woman trains fasted [in other words, doesn't have a prerun snack or meal] and then delays food intake postexercise, her body stays in a catabolic, or breakdown, state," Sims says.

This signals a region of the brain called the hypothalamus (which controls the pituitary gland that makes essential hormones, body temperature, hunger, sleep, emotions, and so much more) that there's not enough nutrition coming in to support training stress, as well as normal body functioning.

Having a low body mass index (BMI) can leave the body depleted of amino acids

(protein) and lipids (fat) to keep up adequate hormone levels to produce the menstrual cycle, Vitti says.

“If an athlete is eating fewer calories than their body needs, all the calories go towards maintaining essential organ functions, including maintaining heartbeat and brain activity,” adds [Deena Adimoolam](#), M.D., an endocrinology specialist for Summit Health in Clifton, New Jersey. “If there’s too few calories available, our bodies will stop prioritizing other usual tasks, such as maintaining our reproductive system—of which menstrual cycles are a part.”

How hormonal imbalances influence performance and whole-body health

As a refresher, hormones are chemicals produced by endocrine glands, which then circulate through the blood to tissues and organs to deliver memos about what these cells should do and when they should do it. When hormones are imbalanced, the body can lose its ability to normally manage everything from metabolism and growth to mood and sexual function. So, when your hormones are out of whack, many mechanisms of the body can be—including your menstrual cycle.

That’s a problem, because unless you’ve gone through menopause, are pregnant, or are breastfeeding, “you really do need your cycle,” Vitti confirms. “Every ovulation protects your brain, your bones, and your heart today and protects them for your post-menopausal years.”

In fact, in 2016, The American College of Obstetrics and Gynecologists declared that the menstrual cycle is now considered a fifth vital sign, meaning it’s just as an important biomarker as pulse, body temperature, blood pressure, and breathing rate.

“Any issue with your cycle means that your reproductive hormones—namely progesterone and estrogen—are off, and these hormones trickle down to affect every system of your body. You will feel the effects immediately and for as long as the cycle remains unaddressed,” Vitti says. Beyond period loss, excessive hair growth, unexpected weight gain or loss, always feeling cold and difficulty sleeping can be signs that your body is out of whack hormonally.

After just four days of low energy intake, the hypothalamus begins to send signals to the body to reduce thyroid function, Sims says. If this trend continues, luteinizing hormone (a pituitary-generated compound that triggers the release of an egg) levels disrupt ovulation, creating menstrual cycle dysfunction.

“This does not always lead to amenorrhea (lack of periods), but definitely anovulatory cycles [during which an egg is not released] can shorten cycles or lengthen them,” Sims says. “If there is inadequate nutrition or other impeding factors to normal hormone production, the body does not enter into the follicular phase, which is when the body matures an egg for ovulation. Irregular cycles, missed cycles, and changes in bleeding patterns all can indicate a misstep between nutrient needs and energy expenditure,” among other things.

While it might sound somewhat convenient—and like a bargain—to be able to bypass the tampon aisle, those of us who have fallen off the monthly menstrual track aren’t scoring a great deal to our speed, strength, or skeletons.

“Research shows that in as little as eight weeks, missing a menstrual cycle can impact performance. It plateaus, then declines,” Sims says.

Think of a period as a love note from your body that it has enough nutrients to not only support its usual functions, but also your training. Without enough sustenance to produce hormones within a normal range, your ability to adapt to stressors (including exercise), sleep quality, and skeletal health may begin to decline.

What’s more: Within three to four months of missed periods, female athletes are at higher risk for bone issues like stress fractures, Sims adds. These hormonal fluctuations and inadequate energy as a whole can do a number on your mental health, too, by triggering anxiety, obsessive thoughts, and depression.

If you’ve experienced irregular cycles for six months or more, definitely visit your doctor. Once this lasts for a full year or more, “I definitely begin to get concerned about hormonal health, as well as bone health. A lack of estrogen over long periods of time can lead to conditions of weakening, brittle bones like osteopenia or osteoporosis,” Adimoolam says.

The best way to get your menstrual cycle back on track

As mentioned in the guide to amenorrhea, The Endocrine Society recommends a treatment team including a dietitian to aid in nutrition adjustments, a psychologist or psychiatrist to support behavior change (and treat any disordered eating and assist with stress management) and an endocrinologist to lead the charge on all things hormones.

That first factor—diet—is often the secret sauce, Sims says: “Enough food is essential for women to maintain a baseline healthy body that can then take on training stress, adapt to it and get fitter.”

Vitti believes in her method of syncing your cycle to your exercise and diet and agrees with Sims on the importance of nutrition. “You can bring your cycle back with diet, and it’s actually the best way,” she says. “If you match calorie intake and workout intensity to each phase of your cycle, you will support the production of estrogen, progesterone and other cycle-regulating hormones, plus balance other important hormones like insulin and cortisol and ensure your training schedule follows the infradian rhythm,” or the 28-day pattern that regulates the menstrual cycle.

Here’s a more detailed sneak preview of what to do to get your period back and your hormones on track:

Focus on energy intake

As we mentioned, 2,500 calories per day is just a rough estimate for a training day. Work with a dietitian to dial in the details based on your current training plan.

“Weight gain is not necessarily a side effect of this, but getting appropriate signals to the hypothalamus and the neurons that there is nutrition available is the goal,” Sims says. “The body composition often changes in a favorable manner because the body stops trying to hold onto reserves.” That’s if you’re above a “healthy” BMI, but if you fall at or below, weight gain might be just what the doctor ordered to flip your cycle switch. “Choose slow-burning carbs, healthy fats and adequate protein to keep blood sugar stable, which supports ovulation,” Vitti says.

Move wisely

Until your period returns, it’s wise to decrease training volume, Sims says. With her clients, “we usually maintain the intensity and focus on strength training, plus running drills, with a maximum of four sessions per week that are well-fueled.”

Vitti says you can also design your training program to help your hormones: “Resting cortisol is lower in the first half and higher in the second half of your cycle. Focus more on cardio and high-intensity interval training in the first half [pre-ovulation] and strength in the second half [post-ovulation] to reduce stress and chronic inflammation, prevent injury, speed up recovery and support progesterone production.”

Mind your micros

Micronutrients, that is. “You need the B vitamins, vitamin D3, omega-3 fatty acids and magnesium every day for the endocrine system to have what it needs to function optimally and to replenish what you are using during training,” Vitti says. If you feel like you might fall short in any of these areas, ask your dietitian for advice about how to shift your menu or if supplementation may be beneficial.

The bottom line on eating disorders and hormones

We should think of our hormones as one of the MVPs of our training team—and life, Vitti says.

“If you understand their pattern and support them properly, not only can you avoid annoying period symptoms, but you can also really show up as the person you are designed to be because of your hormones, not in spite of them,” Vitti concludes. “Your active lifestyle can be best organized around these hormones for optimal performance, pleasure, and care for your body.”