

Why diets backfire: A year or more after weight loss, the desire to eat grows stronger

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Losing weight is, for most people, the easy part. The bigger challenge is trying to keep it off for more than a year.

New research helps explain why people in this second stage are so much more prone to failure.

In a nutshell, people who have shed a significant chunk of their weight are hungrier and have a stronger desire to eat for at least a year after transitioning from weight loss to weight-loss maintenance. And even when their hormones send loud satiety signals to the brain after a meal, they still don't feel full.

The new study, published Thursday in the *American Journal of Physiology-Endocrinology and Metabolism*, falls in line with a growing field of research that explores the body's tenacious and multi-pronged response to weight loss.

In a bid to ensure that lost weight is regained, the human body has been found to reset its thermostat to burn fuel more efficiently, to economize in calorie-burning movements and to rev up the impulse to find and eat food.

Researchers believe these responses evolved to protect humans against wasting away during times of famine. But in societies where calorific foods are never in short supply, these adaptations have worked to the detriment of dieters.

Moreover, in people who have become obese, there's growing suspicion that these responses become harder to override. In recent years, researchers have found evidence that obesity makes the brain more "deaf" to some of the gut's satiety signals, and more keenly attuned to signals of hunger.

The new research offers some validation for that surmise.

To study the effects of weight loss in 35 severely obese subjects,

Norwegian researchers helped them lose close to a tenth of their weight. They provided dietary advice, exercise coaching and psychotherapy during several three-week stays at a wooded retreat in eastern Norway. All the subjects had a body-mass index greater than 42 (a BMI over 30 is considered obese) at the outset of the study.

At one year, when subjects had lost an average of close to 24 pounds, they returned to the retreat to map out maintenance plans.

Every six months from enrollment to two years out, researchers checked in to conduct a series of tests. Before and for three hours after meals, they gauged subjects' subjective feelings of hunger, fullness and desire to eat, and asked how much food they planned to consume. And they measured circulating levels of five separate hormones that regulate appetite to see how they responded to the prospect of a meal or a meal just eaten.

What they found was the body's reaction to weight loss shifted over time.

In the short run—four weeks after their exercise-and-weight-loss regimens got underway—the subjects had lost an average of 3.5 percent of their body weight. Their levels of appetite-boosting hormones had risen rapidly—probably a response to their getting roughly 3{ hours of exercise per day while at the retreat.

But they did not report increased hunger or desire to eat. And with rising levels of satiety hormones, they were feeling more full in the wake of eating a meal.

As they met their weight-loss goals, however, things changed.

At the end of a year of dieting and exercise, the study's participants had

lost about 7.4 percent of their weight and had improved their fitness considerably. But they reported to researchers a significant increase in their hunger and desire to eat. And the sensations of fullness they reported after meals had plummeted.

Two years after enrolling in the study—and a year into their weight-maintenance programs—the subjects had, on average, kept the weight from coming back. But they continued to report levels of hunger and desire to eat that were just as high or higher than at the end of Year One. And they reported feeling no more full after a meal.

At both time points, their hormone levels continued to show increases in appetite-stimulating compounds, as well as those that would signal fullness. Though they lost the weight and—with the study's unusual level of support—managed to keep it off, they were hearing the loud cries of their hunger-boosting hormones. The fullness ones, not so much.

The good news, according the researchers: A sustained and supportive program of dietary restriction and physical activity does induce weight loss and can help very obese patients keep the weight off.

The bad news: "Patients with severe obesity who have lost significant amounts of weight ... will have to deal with increased hunger in the long-term."

If these patients are to beat the odds and sustain their weight loss, professionals working with them will have to find ways to help them cope with that, they added.

More information: Silvia R Coutinho et al. Impact of weight loss achieved through a multidisciplinary intervention on appetite in patients with severe obesity, *American Journal of Physiology-Endocrinology and Metabolism* (2018). [DOI: 10.1152/ajpendo.00322.2017](https://doi.org/10.1152/ajpendo.00322.2017)

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