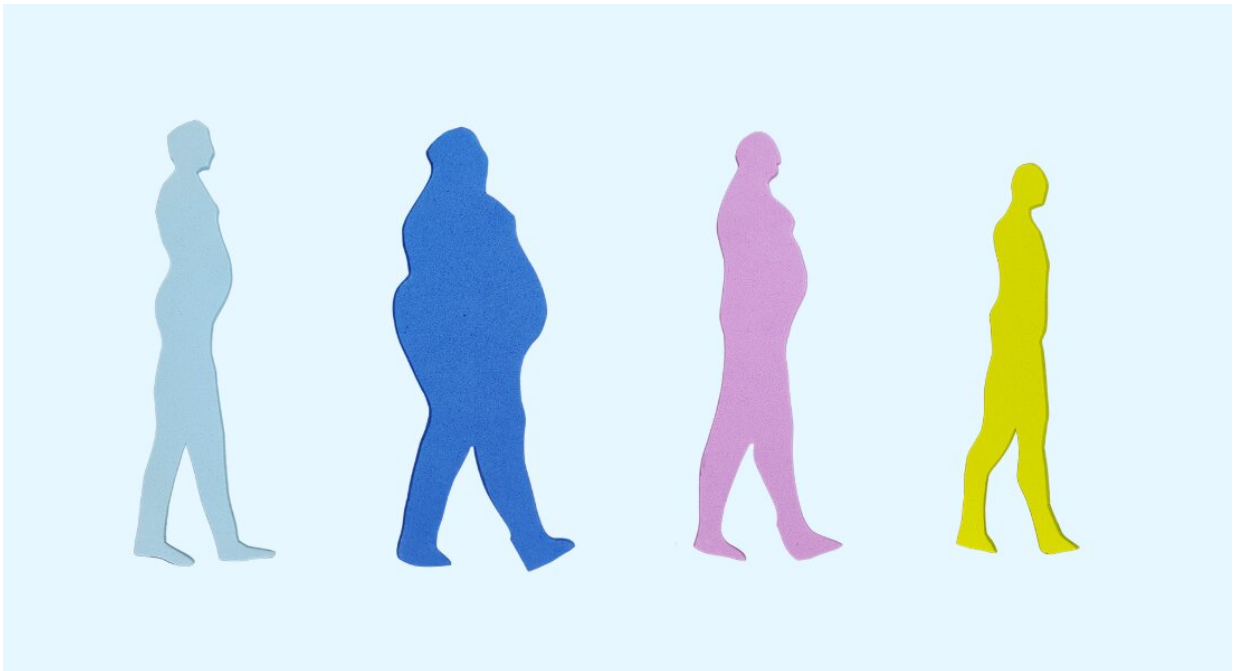


# Hormone may predict ability to maintain weight loss

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"You could speculate whether the people who put on weight again simply lack the appetite-inhibiting effect which neurotensin appears to have," says senior author Signe Sørensen Torekov. Credit: Cathrine Sixhøj Chrone (University of Copenhagen)

Today, in many countries, half of the population is overweight, and the number is increasing. Many people successfully lose weight. The hard part is maintaining the weight loss.

A new study from the University of Copenhagen shows that the [hormone neurotensin](#) may help predict whether people are able to maintain [weight loss](#).

The study, which has been published in the journal *Metabolism*, is a so-called proof-of-concept study, which means that it is the first time that the hormone has been investigated in relation to [weight loss](#) induced by a low-calorie diet.

"Initially, we examined the effect of weight loss in obese mice and concluded that weight loss led to decreased amount of the hormone neurotensin. Subsequently, in a [clinical study](#) we found that weight loss also led to a decreased amount of neurotensin in humans. Interestingly, people who maintained weight loss released more neurotensin than people who regained weight again," explains Professor Signe Sørensen Torekov, who is last author of the study, at the Department of Biomedical Sciences at the University of Copenhagen.

"It may help explain why some people are more successful than others at maintaining weight loss."

Like other appetite gut hormones, neurotensin is released by the intestines when we eat, and the information is compiled in the brain, which will determine whether we should continue eating or feel full.

The participants lost weight during the eight-week, low-calorie diet. The researchers concluded that the people who lost even more weight in the year following the diet released more neurotensin than people who gained weight after completing the diet.

"It is an interesting result. You can speculate whether the people who put on weight again simply lack the appetite-inhibiting effect which neurotensin appears to have," says Signe Sørensen Torekov.

## Studying appetite hormones to learn how humans may maintain weight loss

We know that people who have undergone [bariatric surgery](#) to lose weight release more neurotensin when they eat. It was this [insight](#) that inspired the researchers to study the effect of neurotensin on weight loss.

"We know that other gut hormones, released in greater amounts after obesity surgery, help explain why people who have undergone [obesity surgery](#) are able to maintain weight loss. But no one had studied the role of neurotensin in connection with diet-induced weight loss," says MD and Ph.D. Student Joachim Holt, who is first author of the study.

"Another interesting thing about studying these appetite hormones is to learn how humans may respond to potential treatment and especially the combination of several appetite hormones to maintain weight loss," says Signe Sørensen Torekov.

"However, when researchers first discovered leptin, a key hormone in weight regulation, they learned that amounts drop during weight loss. This could indicate that increasing the amount of leptin in the body would cause people to lose weight."

"But it turns out that people who live with obesity are leptin resistant, which means that they do not respond with weight loss to the hormone. We do not know whether this also applies to neurotensin. So we still have a lot of work ahead of us."

**More information:** Annemette Overgaard Brethvad et al, Increased meal-induced neurotensin response predicts successful maintenance of weight loss—Data from a randomized controlled trial, *Metabolism* (2023). [DOI: 10.1016/j.metabol.2023.155534](https://doi.org/10.1016/j.metabol.2023.155534)

Provided by University of Copenhagen

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