

# Obese stomachs tell us diets are doomed to fail

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The way the stomach detects and tells our brains how full we are becomes damaged in obese people but does not return to normal once they lose weight, according to new research from the University of Adelaide.

Researchers believe this could be a key reason why most people who lose weight on a diet eventually put that weight back on.

In laboratory studies, University of Adelaide PhD student Stephen Kentish investigated the impact of a high-fat diet on the gut's ability to signal fullness, and whether those changes revert back to normal by [losing weight](#).

The results, published in the *International Journal of Obesity*, show that the nerves in the [stomach](#) that signal fullness to the [brain](#) appear to be desensitised after long-term consumption of a high-fat diet.

"The stomach's [nerve](#) response does not return to normal upon return to a normal diet. This means you would need to eat more food before you felt the same degree of fullness as a healthy individual," says study leader Associate Professor Amanda Page from the University's Nerve-Gut Research Laboratory.

"A hormone in the body, leptin, known to regulate [food intake](#), can also change the sensitivity of the nerves in the stomach that signal fullness. In normal conditions, leptin acts to stop food intake. However, in the

stomach in high-fat diet induced obesity, leptin further desensitises the nerves that detect fullness.

"These two mechanisms combined mean that obese people need to eat more to feel full, which in turn continues their cycle of obesity."

Associate Professor Page says the results have "very strong implications for obese people, those trying to lose weight, and those who are trying to maintain their weight loss".

"Unfortunately, our results show that the nerves in the stomach remain desensitised to fullness after weight loss has been achieved," she says.

Associate Professor Page says they're not yet sure whether this effect is permanent or just long-lasting.

"We know that only about 5% of people on diets are able to maintain their weight loss, and that most people who've been on a diet put all of that weight back on within two years," she says.

"More research is needed to determine how long the effect lasts, and whether there is any way - chemical or otherwise - to trick the stomach into resetting itself to normal."

**More information:** [www.nature.com/ijo/journal/va0...ull/ijo2013138a.html](http://www.nature.com/ijo/journal/va0...ull/ijo2013138a.html)

Provided by University of Adelaide

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