

# The body's own bathroom scales—a new understanding of obesity

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Researchers at Sahlgrenska Academy, University of Gothenburg, Sweden, have found evidence for the existence of an internal body weight sensing system. This system operates like bathroom scales,

registering body weight and thereby fat mass. More knowledge about the sensing mechanism could lead to a better understanding of the causes of obesity as well as new anti-obesity drugs.

"We have discovered a completely new system that regulates [fat mass](#). We hope this discovery will lead to a new direction in [obesity](#) research. The findings may also provide new knowledge about the cause of obesity and, in the long run, new treatments of obesity," says John-Olov Jansson, Professor at Sahlgrenska Academy. "Quite simply, we have found support for the existence of internal bathroom scales. The [weight](#) of the body is registered in the lower extremities. If the [body weight](#) tends to increase, a signal is sent to the brain to decrease food intake and keep the body weight constant."

The study was performed on obese rodents that were made artificially heavier by loading with extra weights. The animals lost almost as much weight as the artificial load. The extra weights caused body fat to decrease and [blood glucose levels](#) to improve.

The body fat regulatory system discovered by the scientists in Gothenburg is the first new one since the discovery of the hormone, leptin, 23 years ago by American scientists. However, today it seems unlikely that leptin alone will become a treatment for obesity.

"The mechanism that we have now identified regulates body fat mass independently of leptin, and it possible that leptin combined with activation of the internal body scales can become an effective treatment for obesity," says Professor Claes Ohlsson at Sahlgrenska Academy, Gothenburg University.

Lately, several studies of human populations have coupled sitting with obesity and bad health. The present results could explain why.

"We believe that the internal [body](#) scales give an inaccurately low measure when you sit down. As a result you eat more and gain weight," says Claes Ohlsson.

The results are published in the scientific journal *Proceedings of the National Academy of Sciences (PNAS)*.

**More information:** John-Olov Jansson et al., "Body weight homeostat that regulates fat mass independently of leptin in rats and mice," *PNAS* (2017). [www.pnas.org/cgi/doi/10.1073/pnas.1715687114](http://www.pnas.org/cgi/doi/10.1073/pnas.1715687114)

Provided by University of Gothenburg

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