

Anti-obesity vaccine reduces food consumption in animals

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A new therapeutic vaccine to treat obesity by suppressing the appetite-stimulating hormone ghrelin decreases food intake and increases calorie burning in mice, a new study finds. The results will be presented Sunday at The Endocrine Society's 93rd Annual Meeting in Boston.

"An anti-ghrelin vaccine may become an alternate treatment for obesity, to be used in combination with diet and exercise," said Mariana Monteiro, MD, PhD, an associate professor at the University of Porto in Portugal. She is lead investigator of the study.

Ghrelin is a gut hormone that promotes [weight gain](#) by increasing appetite and [food intake](#) while decreasing energy expenditure, or calorie burning. Recent research shows that bariatric surgeries, such as gastric bypass, suppress ghrelin.

"This suggests that there is a hormonal mechanism underlying the weight loss attained by the surgical procedures," Monteiro said.

Monteiro's group developed a [therapeutic vaccine](#) using a noninfectious virus carrying ghrelin, which was designed to provoke an [immune response](#)—development of antibodies against ghrelin—that would suppress this hormone. They then vaccinated normal-weight mice and mice with diet-induced obesity three times and compared them with control mice that received only saline injections.

Compared with unvaccinated controls, vaccinated mice—both normal-

weight and obese mice—developed increasing amounts of specific anti-ghrelin antibodies, increased their [energy expenditure](#) and decreased their food intake, the authors reported. Within 24 hours after the first vaccination injection, obese mice ate 82 percent of the amount that control mice ate, and after the final vaccination shot they ate only 50 percent of what unvaccinated mice ate, Monteiro said.

The effects of each vaccination lasted for the two months of the study, which for the normal 18-month lifespan of mice, corresponds to four human years, she said. They reportedly saw no toxic effects in the mice as a result of the vaccine.

Vaccinated obese mice also displayed a reduced expression of neuropeptide Y (NPY). Monteiro said, "NPY is the most potent signal that increases appetite in the central nervous system. This finding shows that the anti-ghrelin vaccine decreased the feeding signals in the brain."

Provided by The Endocrine Society

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