

Hormone, oxytocin, shows potential as weight-loss treatment

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A reproductive hormone helps regulate food intake and energy metabolism without causing adverse effects, a new animal study finds. The results will be presented Monday at The Endocrine Society's 94th Annual Meeting in Houston.

Secreted by the brain, the neural hormone, oxytocin, helps initiate contractions of the uterus and breast-milk-producing glands during childbirth and nursing. Prior research by lead author Yuko Maejima, Ph.D., and her co-investigators also linked oxytocin to the process of controlling energy intake and use.

"These findings reveal novel anti-obese and anti-metabolic-syndrome effects of oxytocin," said Maejima, who also is an assistant professor in the physiology department at Jichi Medical University in Shimotsuke, Tochigi, Japan. "Thus, our results provide an avenue for developing an oxytocin-based effective and safe treatment of obesity."

Excess weight is a risk factor for numerous diseases, including diabetes, heart and blood-vessel disease, and cancer, and is a major problem throughout the world. [Obesity rates](#) have more than doubled since 1980, according to statistics from the World Health Organization, which indicate that more than 1.4 billion adults are overweight and upwards of 500 million are obese.

In an obese animal model, the investigators found that daily injections of oxytocin reduced the amount of food the animals consumed, as well as

decreased their body weight during, and for nine days after, treatment.

Similar results were observed with oxytocin administered by implanted mini pumps. This drug-delivery method also reduced fat in the liver, improved [glucose tolerance](#), and decreased abdominal fat, which is a major risk factor for heart and blood-vessel, or cardiovascular disease. Additionally, the mini pumps decreased the size of fat-storage cells, or adipocytes, but did not adversely affect blood pressure or activity levels.

"The finding that peripheral oxytocin treatment has no effect on the normal blood-pressure levels or the locomotor activity of this mouse model suggests that oxytocin may not influence the cardiovascular system or emotions," Maejima said.

To induce obesity, investigators first fed the animal model a high-fat diet. They then administered oxytocin via injection for 17 days, and through the implantable mini pumps for 13 days.

Portions of this research were previously published in the journal *Aging* (Maejima Y, Iwasaki Y, Yamahara Y, Kodaira M, Sedbazar U, Yada T. Peripheral [oxytocin](#) treatment ameliorates obesity by reducing food intake and visceral fat mass. *Aging* (Albany NY) 3(12), 1169-1177, 2011.).

Provided by The Endocrine Society

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