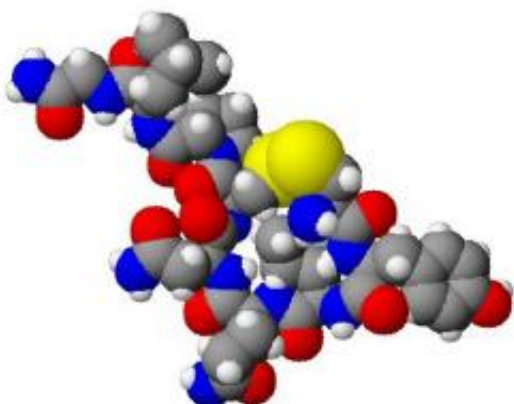


Oxytocin nasal spray improves self-control in overweight men

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Spacefilling model of oxytocin. Created using ACD/ChemSketch 8.0, ACD/3D Viewer and The GIMP. Credit: Wikipedia.

A single dose of oxytocin nasal spray, known to reduce food intake, decreases impulsive behavior in overweight and obese men, according to a preliminary study to be presented Saturday at the Endocrine Society's 98th annual meeting in Boston.

Oxytocin [nasal spray](#) (made by Novartis) is a synthetic version of the hormone oxytocin, which is important for controlling food intake and weight. It is approved in Europe but not in the United States other than in clinical trials. Oxytocin is available in the United States as an intravenous or injectable drug (Pitocin) to induce labor.

Researchers from Massachusetts General Hospital reported last year that oxytocin nasal spray reduced intake of calories and fat at a test meal without affecting appetite, but they were not sure how the drug has that affect. Results of their new pilot study in 10 overweight and [obese men](#) suggest that one way oxytocin lowers food intake might be by improving self-control, said co-investigator Franziska Plessow, PhD, an instructor in medicine at Harvard Medical School and a research fellow in the Neuroendocrine Unit at Massachusetts General Hospital, Boston.

"Knowing the mechanisms of action of intranasal oxytocin is important to investigating oxytocin as a novel treatment strategy for obesity," Plessow said. "This information may allow us to move forward to large clinical trials, identify who can benefit from the drug, and help optimize the treatment."

To demonstrate the study subjects' ability to suppress [impulsive behavior](#), the investigators administered a psychology research test called the stop-signal task. In this test, the subject sat in front of a computer and became trained to respond to a square symbol on the computer screen by pressing a designated left button on the keyboard and to a triangle by pressing a right button. After the subject became familiar with that task, he was told to not press a button when he saw a symbol but heard a beep (the stop signal). Because the beep occurred after the symbols appeared with a varying delay that was adjusted to each subject, the new task required the subject to control the behavioral impulse to respond, Plessow explained.

Participants took the test on two occasions 15 minutes after they self-administered a dose of nasal spray in each nostril. In a randomly assigned order, one day they received oxytocin and another they received a placebo, or dummy drug. Neither participants nor the tester knew which treatment they received. The men ranged in age from 23 to 43 years and were overweight or obese (BMI ranging from 27.7-33.9

kg/m²).

The study, which received pilot grants from the National Institutes of Health-funded Boston Nutrition Obesity Research Center and Nutrition Obesity Research Center at Harvard, had exciting results, according to Plessow. After receiving oxytocin, participants less frequently pressed the button when they were not supposed to. This demonstrated that they were acting less impulsively and exerting more control over their behavior after receiving oxytocin, she said.

Plessow said more study is necessary to determine how oxytocin alters self-control and how important this mechanism is in regulating [food intake](#) since not all overeating relates to poor self-control. They also will need to test the drug in women.

"Our preliminary results in men are promising," she said. "Oxytocin nasal spray showed no strong side effects and is not as invasive as obesity surgery."

Provided by The Endocrine Society

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