

GLP-1 may have the power to change taste sensitivity in women with obesity

June 1 2024



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Semaglutide improved taste sensitivity, changed gene expression in the tongue that's responsible for taste perception, and changed the brain's response to sweet tastes, according to research presented at [ENDO 2024](#), the Endocrine Society's annual meeting in Boston, Mass.

"People with obesity often perceive tastes less 'intensely,' and they have an inherently elevated desire for sweet and energy-dense food," said Mojca Jensterle Sever, Ph.D., of the University Medical Center in Ljubljana, Slovenia.

Jensterle Sever and colleagues designed a proof-of-concept study on the impact of GLP-1 receptor agonist (GLP-1RA) semaglutide on [taste perception](#). They randomly assigned a sample of 30 women with an average 36.4 BMI to either semaglutide 1 mg or placebo.

"Our findings build upon preliminary animal studies showing that central administration of GLP-1RA medications impacts taste aversion to sweetness," Jensterle Sever said.

For 16 weeks, the researchers measured their taste sensitivity using strips containing different concentrations of four basic tastes. They used functional MRI to measure brain responses to a sweet solution dripping onto the tongue before and after the women ate a standard meal. They also administered a tongue biopsy to evaluate the participants' mRNA expression in the collected tongue tissue.

Those in the treatment group experienced changes in taste perception, taste bud [gene expression](#) and [brain activity](#) in response to sweet taste stimuli.

The genes EYA, PRMT8, CRLF1, and CYP1B1, which exhibited

differential mRNA expression in all the tests in the analysis, are connected to our taste pathways, neural plasticity, and the renewal of taste buds in the tongue.

The study also revealed insights into the brain's response to the GLP-1 receptor, particularly in the angular gyrus—a part of the brain that influences language and number processing, memory and reasoning.

This shift in a person's concept of reward compared with neutral feelings toward taste could have significance for understanding and potentially adjusting taste preferences in people with obesity.

"The general public will be interested to learn of the potential novel effects of this popular therapeutic class widely used for the treatment of diabetes and obesity," Jensterle Sever said. "Clinicians will likely correlate the findings with reports from their patients on changes in desire for certain foods, which go beyond broad changes in appetite and satiety that help them lose weight."

Jensterle Sever expanded on some of the study's limitations adding, "This proof-of-concept study assessed only a specific taste in a study environment, which may not reflect everyday experience. Taste perception can vary significantly from person to person, limiting the generalizability of our results. Additionally, mRNA sequencing has inherent limitations and does not directly represent changes in protein levels or activity."

Jensterle Sever concluded that future studies will clarify whether the efficacy of semaglutide in treating obesity is also a "matter of taste."

Provided by The Endocrine Society

Citation: GLP-1 may have the power to change taste sensitivity in women with obesity (2024, June 1) retrieved 23 June 2024 from <https://medicalxpress.com/news/2024-05-glp-power-sensitivity-women-obesity.html>

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