

Study with diabetes drug measures how extra calories caused weight loss plateau

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Analysis of a trial that used the drug canagliflozin found that as people lost weight, their appetite increased proportionately, leading to consumption of more calories and weight loss plateau (leveling off). The findings provide the first measurement in people of how strongly appetite counters weight loss as part of the body's feedback control system regulating weight. Results are currently available on BioRxiv and will publish in *Obesity* during Obesity Week 2016.

A team led by the NIH's National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) analyzed data from a year-long, placebo-controlled, double-blind trial in people with type 2 diabetes who could eat and drink without restriction by the study. Of the 242 participants, 153 received canagliflozin, a drug that caused a substantial increase in the amount of glucose excreted in their urine. Those people were not directly aware of that calorie loss, which caused a gradual decrease in weight averaging about eight pounds.

The team used a validated math model to calculate the changes in the amount of calories consumed during the study. They found no long-term calorie intake changes in the 89 people who got a placebo. However, for every pound of lost weight, the people treated with canagliflozin consumed about 50 calories per day more than they were eating before the study. This increase in appetite and calorie intake led to slowing of weight loss after about six months.

The measurements are consistent with the researchers' analysis of data from a separate trial on a commercial weight loss program not involving canagliflozin. In the [weight loss program](#) trial, despite the dieters' consistent efforts to reduce calorie intake, their increased appetite resulted in a progressive increase in [calorie intake](#)—three times stronger than the changes in caloric expenditure that typically accompany weight loss—and [weight loss](#) plateau. Findings from the analyses suggest

that persistent effort is required to avoid weight regain.

More information: How strongly does appetite counter weight loss? Quantification of the homeostatic control of human energy intake. doi: [dx.doi.org/10.1101/051045](https://doi.org/10.1101/051045)

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