

# Calorie-restricted weight loss restores ghrelin sensitivity

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In a mouse model, calorie-restricted weight loss reverses the high-fat diet-induced ghrelin resistance that may contribute to rebound weight gain, according to research published online Jan. 10 in *Endocrinology*.

(HealthDay)—In a mouse model, calorie-restricted weight loss reverses the high-fat diet-induced ghrelin resistance that may contribute to rebound weight gain, according to research published online Jan. 10 in *Endocrinology*.

Noting that high-fat diet feeding causes ghrelin resistance in neuropeptide Y (NPY)/agouti-related protein (AgRP) neurons, Dana I. Briggs, Ph.D., of Monash University in Clayton, Australia, and colleagues used a diet-induced obese (DIO) [mouse model](#) to study the role of ghrelin resistance in diet-induced weight loss and rebound weight gain. DIO mice were allocated to receive chow ad libitum or chow diet

with 40 percent [calorie restriction](#) until they reached the weight of age-matched lean controls.

The researchers found that body weight, [glucose tolerance](#), and plasma insulin all normalized with both dietary interventions. Calorie restriction-induced weight loss correlated with increased plasma ghrelin, restoration of ghrelin sensitivity, and increases in total NPY/AgRP mRNA expression.

"We show that calorie-restricted weight loss after diet-induced obesity restores the ability of ghrelin to induce food intake, indicating a reversal of diet-induced obesity ghrelin resistance with diet-induced weight loss," the authors write. "We suggest long-term diet-induced obesity changes the body weight setpoint, and as the body interprets calorie-restricted weight loss as negative energy balance, ghrelin fights to defend this higher body weight. This represents a novel [target](#) to restrict rebound weight gain in humans."

**More information:** [Abstract](#)  
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