

'Yo-yo' dieting may provide metabolic health benefits

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Repeatedly losing and regaining weight may lead to improved insulin levels and lower body fat percentages in the long term, even during weight regain phases. The first-of-its-kind study, published ahead of

print in the *American Journal of Physiology—Endocrinology and Metabolism*, was chosen as an APSselect article for September.

Previous research has shown that many people with obesity in the U.S. fall into the pattern of losing and regaining [weight](#). Some studies suggest that this pattern, called "weight [cycling](#)" or "yo-yo dieting," has been associated with [health risks](#) such as high blood pressure and high cholesterol. However, little is known about hormone regulation and body fat composition after multiple episodes of weight cycling.

Researchers studied rats that were exposed to four cycles of calorie-restricted [weight loss](#) followed by weight regain through unlimited access to food ("weight cyclers") over the course of a year. The weight cyclers were compared with a [control group](#) of rats that had unlimited access to food for the full trial period.

By the end of the year-long trial, the control group had gained a significant amount of weight. During each regain period, the rats in the weight cyler group added more weight than had they lost. However, by the third cycle of weight loss and regain, those rats weighed far less than their control counterparts. After the first cycle, when compared with the controls, the weight cyclers ate less during the weight regain periods and had lower body fat mass and insulin levels. In addition, there was no difference in levels of leptin and ghrelin—hormones that control hunger, appetite and weight regulation—between the two groups, which suggests the stability of hormone levels even throughout periods of weight cycling, the research team explained. "The improvement in fat mass as well as improvement in glucose tolerance seen in our [rats](#) that had undergone weight cycling implies metabolic benefits to the periods of caloric restriction, despite the stress of the weight gain times," the researchers wrote.

"Future research should focus on the health implications of weight

cycling, including whether there is beneficial impact on metabolic syndrome," the researchers wrote. "If our findings do apply to humans, then patients and clinicians can take heart that it may be better to try [to lose weight] and eventually regain weight after weight loss by calorie restriction, even repeatedly, than not to try at all," they added.

More information: Jennifer L Rosenbaum et al. Effects of Multiple Cycles of Weight Loss and Regain on the Body-Weight Regulatory System in Rats, *American Journal of Physiology-Endocrinology and Metabolism* (2019). [DOI: 10.1152/ajpendo.00110.2019](https://doi.org/10.1152/ajpendo.00110.2019)

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