

# Study finds more belly fat, less muscle after crash dieting

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Extreme dieting causes short-term body changes that may have long-term health consequences, according to a new study. The findings will be presented today at the American Physiological Society's (APS) Cardiovascular, Renal and Metabolic Diseases: Sex-Specific Implications for Physiology conference in Knoxville, Tenn.

Women are more likely than men to participate in "crash" diets in which [body weight](#) decreases rapidly and dramatically. Extreme dieting has short- and long-term risks with possible damage to the heart, kidneys and circulatory system.

Researchers examined female rats given a 60 percent calorie reduction in their diet, roughly comparable to reducing from a 2,000 calorie daily diet to an 800-calorie diet in humans. Within three days, the extremely reduced-calories diet lowered body weight and caused cycling—similar to a menstrual cycle—to temporarily stop. The diet also led to a decrease in a number of metabolic factors and functions, including body weight, blood volume, blood pressure, heart rate and kidney function. Returning to typical eating patterns quickly restored cycling, body weight, blood pressure and heart rate. However, the animals had a higher accumulation of abdominal fat three months after the diet ended compared to animals that did not follow the diet. "Even more troubling was the finding that angiotensin II, a hormone in the body, was more potent at increasing blood pressure in the rats that were on the reduced-calorie diet," said Aline de Souza, Ph.D., first author of the study.

Although the rats' [blood pressure levels](#) in recovery remained normal, higher-than-normal blood pressure responses to angiotensin II may increase the risk of developing high [blood pressure](#). Together with the increase in belly fat, these changes in body composition may cause long-term health risks for people who have previously crash dieted.

**More information:** Aline de Souza, PhD, of Georgetown University, will present "Long-term consequences of food restriction on body composition and angiotensin system" in a poster session on Tuesday, October 2, at the Crowne Plaza Knoxville.

[www.the-aps.org/mm/Conferences ... onferences/SexGender](http://www.the-aps.org/mm/Conferences...onferences/SexGender)

Provided by American Physiological Society

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