

Exercise reduces hunger in lean women but not obese women

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Exercise does not suppress appetite in obese women, as it does in lean women, according to a new study. The results were presented Tuesday, June 17, at The Endocrine Society's 90th Annual Meeting in San Francisco.

"This [lack of appetite suppression] may promote greater food intake after exercise in obese women," said Katarina Borer, PhD, a University of Michigan researcher and lead author of the study. "This information will help therapists and physicians understand the limitations of exercise in appetite control for weight loss in obese people."

Borer and her co-workers sought to better understand how changes in body fat level influence appetite and a hormone called leptin, which in animals curbs appetite when body fat increases. When leptin levels rise, it supposedly shuts off appetite and motivates physical activity to burn calories. However, as obese people become fatter, their leptin levels rise, but they become resistant to the actions of this hormone.

"The hormone doesn't do the job it's supposed to do in lean people," Borer said.

In research funded by the National Institutes of Health, Borer's group studied 20 postmenopausal women: 10 lean and 10 obese women. The women ate three weight-maintenance meals a day while participating in three experiments on three separate days. During one experiment they did not exercise.

In the other two experiments the women exercised on a treadmill in the morning and the afternoon. They burned 500 calories each time, for a total of 1,000 calories a day. These two experiments differed by exercise intensity. One involved walking at high intensity, or 80 percent of maximal effort, for 7.5 minutes, with 10-minute rest periods between 10 walking sessions. The other experiment was half as intense (40 percent of peak effort) and involved walking for 15 minutes and resting for 5 minutes.

Every hour and before each meal, subjects recorded their appetite level on a 10-point scale ranging from not at all hungry to extremely hungry. Blood samples were collected every 15 to 60 minutes for hormone measurements.

Obese women claimed they were less hungry than lean women before meals and reported no appetite suppression during exercise, Borer said.

As expected, obese women had much higher leptin levels than in lean women, study data showed. But during intense exercise, obese women did not have reduced production of leptin, as lean women did. Only moderate-intensity exercise lowered leptin in obese women.

"Obesity interferes with leptin's detection of exercise energy expenditure and with appetite suppression," Borer said. "Obese women perhaps need to consciously watch their calories because some of the hormonal satiety [fullness] signals don't seem to work as well."

Source: The Endocrine Society

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