

Stomach hormone ghrelin increases desire for high-calorie foods

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The "hunger" hormone ghrelin, which acts in the brain to stimulate hunger and increase food intake, heightens the appeal of high-calorie foods over low-calorie foods, according to a study that will be presented Tuesday at The Endocrine Society's 92nd Annual Meeting in San Diego.

"It raises the possibility that drugs that block the action of ghrelin may help reduce cravings for high-calorie foods and so help people lose weight," said lead author Tony Goldstone, MD, PhD, a consultant endocrinologist with the MRC Clinical Sciences Centre at Imperial College London in the U.K.

The results also suggest, according to Goldstone, that an increased release of ghrelin from the stomach into the blood may explain why a person who skips breakfast also finds high-calorie foods more appealing than low-calorie foods.

In the new study, healthy, nonobese adults—13 men and 5 women—viewed pictures of food on three separate mornings: once after skipping breakfast and twice about 90 minutes after eating breakfast. On one of the visits when subjects ate breakfast, they received an injection of salt water (as a control) 40 minutes before viewing the food pictures, and on the other visit with breakfast, they received an injection of ghrelin. Neither the volunteers nor the investigators were aware of which injection was given on which visit.

Pictures of high-calorie foods included chocolate, cake and pizza.

Among the low-calorie foods pictured were salads, vegetables and fish. Using a keypad, the subjects rated how appealing they found each food picture.

The appeal of low-calorie foods did not differ significantly between visits. High-calorie foods were of similar appeal to low-calorie foods when subjects ate breakfast and then received a salt-water injection. However, high-calorie foods, especially sweet foods, were of greater appeal when subjects fasted and when they received ghrelin after eating [breakfast](#).

"Ghrelin mimicked fasting in biasing food appeal toward high-calorie foods," Goldstone said. "Changes in which foods we prefer to eat when missing meals may be explained by changes in the levels of ghrelin in our blood to help regulate our overall calorie intake."

Goldstone's group obtained functional magnetic resonance images—MRIs— of brain activity while subjects rated how much the food pictures appealed to them. After analyzing these images, the researchers expect to identify the brain "reward" systems through which [ghrelin](#) affects food preferences.

Provided by The Endocrine Society

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