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New Study Shows How Very Low-carb Diets Take Off The Pounds

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Summary: A new three-week in-hospital study of 10 volunteers found that during the two-week period on a strictly controlled very-low carbohydrate diet, participants lost an average of 3.6 pounds, voluntarily reduced their calorie intake from 3,111 calories per day to 2,164 calories per day, and did not eat more of the readily available fat and protein to make up for the lost carbohydrate calories.

FULL STORY

PHILADELPHIA (March 15, 2005) -- A new three-week in-hospital study of 10 volunteers found that during the two-week period on a strictly controlled very-low carbohydrate diet, participants lost an average of 3.6 pounds, voluntarily reduced their calorie intake from 3,111 calories per day to 2,164 calories per day, and did not eat more of the readily available fat and protein to make up for the lost carbohydrate calories.

The study, "Effect of a Low-Carbohydrate Diet on Appetite, Blood Glucose Levels, and Insulin Resistance in Obese Patients with Type 2 Diabetes," compared a very low-carbohydrate diet with a regular diet. It is published in the March 15, 2005, issue of *Annals of Internal Medicine* and is the subject of a video news release.

During the first study week, participants, who were obese and had mild type 2 diabetes mellitus, ate a regular diet in which they could eat anything and as much as they wanted. They ate about 3,000 calories and 300 grams of carbohydrates per day and remained at entry weight.

In the following two weeks, when restricted to 20 grams of carbohydrates per day, as specified in the Atkins induction diet, and despite readily available protein and fat foods, the participants voluntarily ate about 1,000 fewer calories per day, a calorie intake considered appropriate to their height.

Participants' blood sugar improved on the low-carb diet, with better insulin sensitivity and lower blood triglycerides and cholesterol levels.

"We proved that people lose weight on the Atkins diet because they eat less (consume fewer calories), not because they get bored with the diet or lose body water or because the carbohydrate calories are treated differently by the body than fat or protein calories," said Guenther Boden, MD, a Laura H. Carnell Professor of Medicine and chief of the division of endocrinology/diabetes/metabolism at Temple University School of Medicine.

"All the weight loss was in fat," said Boden, the lead study author. "We weighed and measured every calorie that participants ate and every calorie they spent. We knew what went in and what went out."

"On the very low-fat diet, participants spontaneously reduced their calories by about 1,000 per day. One gram of fat equals 9 calories, so, doing the math, you can determine how much fat will be lost by cutting 1,000 calories."

Boden also believes that the carbohydrates actually stimulated the patients' big appetites during the regular-diet week.

"Participants went from an excessive caloric intake to a normal caloric intake for their height and weight when we reduced their carbohydrates. This indicates to me that it was the carbohydrates that stimulated the excessive appetite," Boden said.

Throughout the three-week study, researchers weighed all food, monitored exercise, measured participants' calorie energy intake, expenditure and body water composition, and tested blood sugar, cholesterol, and several hormone levels believed to be involved in appetite regulation.

"You don't have to cut carbs as drastically as participants did," said Boden. "If you cut carbs modestly, you cut calories, and you'll lose weight."

"The message is: Calories count," Boden said. "If you want to lose weight, you have to decrease your food intake or increase your physical activity. It helps to know that carbohydrates make it more difficult to reduce food intake. So cutting the carbohydrates, at least to some extent, will help keep down the caloric intake. With fewer carbohydrates, you're going to eat fewer total calories a day."

George A. Bray, MD, Chief, Division of Clinical Obesity and Metabolism at the Pennington Biomedical Research Center in Baton Rouge, La., and a well-known researcher in obesity and diabetes, wrote an accompanying editorial, "Is There Something Special about Low-Carbohydrate Diets?"

Bray notes that the study is small but calls it "a nicely done, short-term metabolic ward study." He says that using "many different diets with different approaches to food restriction for individual patients at different times in their efforts to lose weight may be the most effective way a clinician can use the available diets. ... (I) am not yet convinced that one diet has any more value than another -- they all have value."

Annals of Internal Medicine is published in Philadelphia by the American College of Physicians, the largest medical-specialty organization and second-largest physician group in the United States. ACP members include 116,000 internal medicine physicians (internists), related subspecialists, and medical students. Internists specialize in the prevention, detection and treatment of illnesses in adults, reflected in the organization's trademarked phrase Doctors of Internal Medicine. Doctors for Adults.®

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