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### **Study Zeroes In on Calories, Not Diet, for Loss**

Tara Parker-Pope, New York Times,

For people who are trying to lose weight, it does not matter if they are counting carbohydrates, protein or fat. All that matters is that they are counting something.

That is the finding of the largest-ever controlled study of weight-loss methods published on Wednesday in The New England Journal of Medicine. More than 800 overweight adults in Boston and Baton Rouge, La., were assigned to one of four diets that reduced calories through different combinations of fat, carbohydrates and protein. Each plan cut about 750 calories from a participant's normal diet, but no one ate fewer than 1,200 calories a day.

While the diets were not named, the eating plans were all loosely based on the principles of popular diets like Atkins, which emphasizes low carbohydrates; Dean Ornish, which is low-fat; or the Mediterranean diet, with less animal protein. All participants also received group or individual counseling.

After two years, every diet group had lost and regained about the same amount of weight regardless of what diet had been assigned. Participants lost an average of 13 pounds at six months and had maintained about 9 pounds of weight loss and a two-inch drop in waist size after two years. While the average weight loss was modest, about 15 percent of dieters lost more than 10 percent of their weight by the end of the study. Still, after about a year many returned to at least some of their usual eating habits.

The lesson, researchers say, is that people lose weight if they lower calories, but it does not matter how. "It really does cut through the hype," said Dr. Frank M. Sacks, the study's lead author and professor of cardiovascular disease prevention at the Harvard School of Public Health. "It gives people lots of flexibility to pick a diet that they can stick with." Dr. Sacks said that to reduce bias the researchers avoided associating any of the diets with well-known commercial eating plans. While attendance at counseling sessions was linked with better weight loss, that was not true for every dieter. In some groups, people lost large amounts of weight even though they attended only a few counseling sessions. The real question for researchers, Dr. Sacks said, is what are the biological, psychological or social factors that influence whether a person can stick to any diet. "The effect of any particular diet group is minuscule, but the effect of individual behavior is humongous," Dr. Sacks said. "We had some people losing 50 pounds and some people gaining five pounds. That's what we don't have a clue about. I think in the future, researchers should focus less on the actual diet but on finding what is really the biggest governor of success in these individuals."

## **Heart-healthy, Reduced-calorie Diets Promote Long-term Weight Loss**

Regardless of Fat, Protein, and Carbohydrate Content  
NIH News,

Heart-healthy diets that reduce calorie intake -- regardless of differing proportions of fat, protein, or carbohydrate -- can help overweight and obese adults achieve and maintain weight loss, according to a study funded by the National Heart, Lung, and Blood Institute (NHLBI) of the National Institutes of Health, and published Feb., 26, 2009, in the New England Journal of Medicine.

Researchers from the Preventing Overweight Using Novel Dietary Strategies (POUNDS LOST) study found similar weight loss after six months and two years among participants assigned to four diets that differed in their proportions of these three major nutrients. The diets were low or high in total fat (20 or 40 percent of calories) with average or high protein (15 or 25 percent of calories). Carbohydrate content ranged from 35 to 65 percent of calories. The diets all used the same calorie reduction goals and were heart-healthy-low in saturated fat and cholesterol while high in dietary fiber.

On average, participants lost 13 pounds at six months and maintained a 9 pound loss at two years. Participants also reduced their waistlines by 1 to 3 inches by the end of the study. Craving, fullness, hunger, and diet satisfaction were all similar across the four diets. "These results show that, as long as people follow a heart-healthy, reduced-calorie diet, there is more than one nutritional approach to achieving and maintaining a healthy weight," said Elizabeth G. Nabel, M.D., director, NHLBI. "This provides people who need to lose weight with the flexibility to choose an approach that they're most likely to sustain -- one that is most suited to their personal preferences and health needs."

In the POUNDS LOST study, 811 overweight and obese adults aged 30 to 70 were assigned to one of four diets, and asked to record their food intake in a diary or an online tool that showed how intake compared with goals. Group diet counseling sessions were held at least twice per month throughout the two years of the study, and individual sessions were held every eight weeks. Participants were given personalized calorie goals, ranging from 1,200 to 2,400 calories per day, which reduced their overall caloric intake as compared with their daily energy requirement. All participants were asked to do moderate-intensity physical activity, such as brisk walking, for at least 90 minutes per week. Study participants were diverse in gender and ethnicity, with 38 percent men and 22 percent representing minorities. Participants did not have diabetes or severe heart disease but could have had other risk factors, such as high blood pressure or high cholesterol.

Overweight is defined by having a body mass index (BMI) -- a calculation of the relationship between weight and height -- greater than 25 and less than 30. Those with a BMI of 30 or higher are considered to be obese. Sixty-six percent of American adults are overweight and of those, 32 percent are obese, according to the Centers for Disease Control and Prevention.

Research was conducted in Boston at Harvard University School of Public Health and at the Pennington Biomedical Research Center of Louisiana State University in Baton Rouge, La. Diets were adapted during sessions to the diverse cuisines from these two regions of the country.

"We were encouraged that, in addition to achieving and maintaining weight loss, study participants experienced other positive health changes as well," said Catherine M. Loria, Ph.D., a nutritional epidemiologist at NHLBI and co-author of the study. "The findings emphasize the importance of weight loss in reducing heart disease risk." All diets improved risk factors for cardiovascular disease at both six months and two years in ways consistent with previous studies. Improved risk factors include reduced levels of triglycerides, LDL (bad) cholesterol, lowered blood pressure, and increased HDL (good)

cholesterol. All diets decreased the presence of metabolic syndrome, a cluster of related conditions, overweight, high triglycerides, high blood sugar, high blood pressure, and low HDL cholesterol, which increases heart disease risk.

Previous studies have shown that a loss of 5 to 10 percent of body weight will help reduce risk factors for heart disease and other medical conditions. In this study, 15 percent of patients achieved a 10 percent weight loss after two years.

"This new information should focus weight loss approaches on reducing calorie intake rather than any particular proportions of fat, protein or carbohydrate. This is important information for health professionals who prescribe weight loss for their patients, and for adults who are seeking ways to sustain a healthful eating pattern," said Frank M. Sacks, M.D., principal investigator of POUNDS LOST and Professor of Cardiovascular Disease Prevention in the Nutrition Department at the Harvard School of Public Health.

The target nutrient compositions of the four diets were:

-- Low-fat, average protein: 20 percent fat, 15 percent protein, 65 percent carbohydrate

-- Low-fat, high protein: 20 percent fat, 25 percent protein, 55 percent carbohydrate

-- High-fat, average protein: 40 percent fat, 15 percent protein, 45 percent carbohydrate

-- High-fat, high-protein: 40 percent fat, 25 percent protein, 35 percent carbohydrate

While the design of the POUNDS LOST study called for physical activity targets to be set at 90 minutes per week, many people need more physical activity in order to achieve their weight loss goals. For more information, see the 2008 Physical Activity Guidelines for Americans at < [www.health.gov/paguidelines](http://www.health.gov/paguidelines)>.

Further information about this trial (NCT00072995) can be found at < [www.clinicaltrials.gov](http://www.clinicaltrials.gov)>.

Part of the National Institutes of Health, the National Heart, Lung, and Blood Institute (NHLBI) plans, conducts, and supports research related to the causes, prevention, diagnosis, and treatment of heart, blood vessel, lung, and blood diseases; and sleep disorders. The Institute also administers national health education campaigns on women and heart disease, healthy weight for children, and other topics. NHLBI press releases and other materials are available online at < [www.nhlbi.nih.gov](http://www.nhlbi.nih.gov)>.

The National Institutes of Health (NIH) -- The Nation's Medical Research Agency -- includes 27 Institutes and Centers and is a component of the U.S. Department of Health and Human Services. It is the primary federal agency for conducting and supporting basic, clinical and translational medical research, and it investigates the causes, treatments, and cures for both common and rare diseases. For more information about NIH and its programs, visit < [www.nih.gov](http://www.nih.gov) >.

## RESOURCES:

- Diseases and Conditions Index: Overweight and Obesity: <  
[http://www.nhlbi.nih.gov/health/dci/Diseases/obe/obe\\_whatare.html](http://www.nhlbi.nih.gov/health/dci/Diseases/obe/obe_whatare.html) >
- Aim for a Health Weight Resources: <  
[http://www.nhlbi.nih.gov/health/public/heart/obesity/lose\\_wt/index.htm](http://www.nhlbi.nih.gov/health/public/heart/obesity/lose_wt/index.htm) >
- NHLBI DASH Menu Planner: <  
<http://hp2010.nhlbihin.net/menuplanner/menu.cgi>>
- Learn About Overweight and Obesity: <  
<http://www.healthfinder.gov/prevention/ViewTopic.aspx?topicID=29&areaID=0> >

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Frank M. Sacks, M.D., George A. Bray, M.D., Vincent J. Carey, Ph.D., Steven R. Smith, M.D., Donna H. Ryan, M.D., Stephen D. Anton, Ph.D., Katherine McManus, M.S., R.D., Catherine M. Champagne, Ph.D., Louise M. Bishop, M.S., R.D., Nancy Laranjo, B.A., Meryl S. Leboff, M.D., Jennifer C. Rood, Ph.D., Lilian de Jonge, Ph.D., Frank L. Greenway, M.D., Catherine M. Loria, Ph.D., Eva Obarzanek, Ph.D., and Donald A. Williamson, Ph.D. Comparison of Weight-Loss Diets with Different Compositions of Fat, Protein, and Carbohydrates. *NEJM*. 360(9):859-873. 2009

## ABSTRACT

**Background** The possible advantage for weight loss of a diet that emphasizes protein, fat, or carbohydrates has not been established, and there are few studies that extend beyond 1 year.

**Methods** We randomly assigned 811 overweight adults to one of four diets; the targeted percentages of energy derived from fat, protein, and carbohydrates in the four diets were 20, 15, and 65%; 20, 25, and 55%; 40, 15, and 45%; and 40, 25, and 35%. The diets consisted of similar foods and met guidelines for cardiovascular health. The participants were offered group and individual instructional sessions for 2 years. The primary outcome was the change in body weight after 2 years in two-by-two factorial comparisons of low fat versus high fat and average protein versus high protein and in the comparison of highest and lowest carbohydrate content.

**Results** At 6 months, participants assigned to each diet had lost an average of 6 kg, which represented 7% of their initial weight; they began to regain weight after 12 months. By 2 years, weight loss remained similar in those who were assigned to a diet with 15% protein and those assigned to a diet with 25% protein (3.0 and 3.6 kg, respectively); in those assigned to a diet with 20% fat and those assigned to a diet with 40% fat (3.3 kg for both groups); and in those assigned to a diet with 65% carbohydrates and those assigned to a diet with 35% carbohydrates (2.9 and 3.4 kg, respectively) ( $P > 0.20$  for all comparisons). Among the 80% of participants who completed the trial, the average weight loss was 4 kg; 14 to 15% of the participants had a reduction of at least 10% of their initial body weight. Satiety, hunger, satisfaction with the diet, and attendance at group sessions were similar for all diets; attendance was strongly associated with weight loss (0.2 kg per session attended). The diets improved lipid-related risk factors and fasting insulin levels.

**Conclusions** Reduced-calorie diets result in clinically meaningful weight loss regardless of which macronutrients they emphasize. (ClinicalTrials.gov number, NCT00072995 [ClinicalTrials.gov] .)

<http://content.nejm.org/cgi/content/full/360/9/859>