

More Protein, Fats Boost DASH Diet's Benefits

BY MITCHEL L. ZOLER
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DALLAS — The health benefit of the carbohydrate-rich diet that's endorsed by the U.S. Department of Agriculture was improved by shifting some of the diet's calories to either protein or unsaturated fat in a study with 164 people.

"In the setting of a healthy diet, partial replacement of carbohydrate with protein or with monounsaturated fat can further lower blood pressure, improve lipid profiles, and reduce estimated coronary heart disease risk," Dr. Lawrence J. Appel said at the annual Scientific Sessions of the American Heart Association.

The benchmark diet that served as the baseline was a modified DASH diet, so named because it was first tested in the Dietary Approaches to Stop Hypertension (DASH) trials, a series of studies run by Dr. Appel and his associates. The efficacy of the DASH diet for lowering blood pressure was so well established that it was endorsed last year by the Dietary Advisory Committee of the U.S. Department of Agriculture, and it's also been recommended in other reports and guidelines.

But the DASH diet has certain flaws, such as reducing serum levels of HDL cholesterol and a failure to lower serum levels of triglycerides (TG). This prompted Dr.

Appel and his associates to compare a carbohydrate-rich diet similar to the DASH diet with two investigational modifications: one boosted protein levels, especially plant protein, while reducing carbohydrates, and the other increased unsaturated fat, especially monounsaturated fat, while also reducing carbohydrates. Results from the study were published concurrent with the meeting report (JAMA 2005;294:2455-64).

The study enrolled healthy adults aged at least 30 years who had a systolic blood pressure of 120-159 mm Hg or a diastolic pressure of 80-99 mm Hg. Excluded were patients with diabetes, those with an active or a prior diagnosis of cardiovascular disease, and those with a serum level of LDL cholesterol of more than 220 mg/dL or a fasting TG level of more than 750 mg/dL.

The participants followed each diet for 6 weeks, followed by a 2-week washout period between diets. Each individual received standardized meals. The weight of each participant was monitored daily, and total daily calories were adjusted for each person daily to maintain their weight within 2% of baseline levels, so that any changes in blood pressure and serum cholesterol levels were attributable solely to diet. A total of 164

people completed at least two of the study diets.

The protein diet cut systolic pressure by an average of 1.4 mm Hg, compared with the DASH-like diet, a statistically significant difference. The fat diet dropped systolic pressure by 1.3 mm Hg, also a significant reduction, reported Dr. Appel, professor of medicine at Johns Hopkins University in Baltimore.

Serum levels of LDL cholesterol averaged 3.3 mg/dL lower with the protein diet compared with the higher carbohydrate diet, a statistically significant drop. The fat diet lowered LDL cholesterol by a mean of 1.5 mg/dL, not a significant difference.

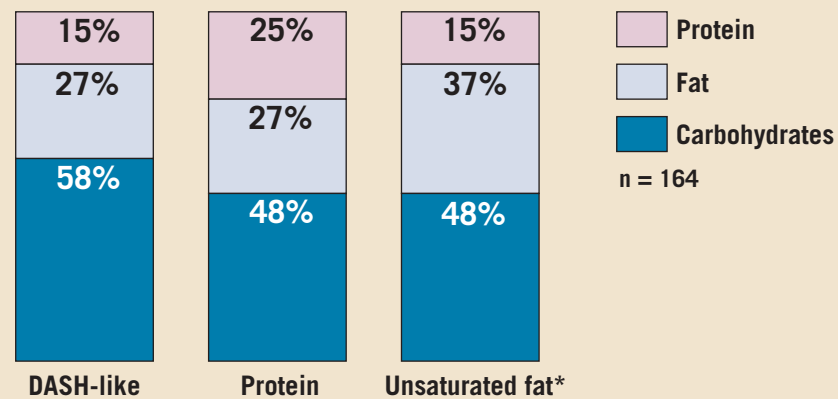
The estimated 10-year risk of a coronary heart disease event based on the Framingham risk score averaged 4.0% when participants were on the protein diet, 4.3% on the unsaturated fat diet, and 5.1% on the DASH-like diet. Other measures showed that the protein diet cut TG levels by 15.7 mg/dL and the fat diet cut them by 9.6 mg/dL (see table). HDL-cholesterol levels were significantly reduced with the protein diet but were significantly increased with the unsaturated fat diet.

Modified Diets Improved Clinical Measures Relating to 10-Year CHD Risk

Measure	Protein Diet	Unsaturated Fat Diet
LDL cholesterol	-3.3 mg/dL	-1.5 mg/dL
HDL cholesterol	-1.3 mg/dL	+1.1 mg/dL
Triglycerides	-15.7 mg/dL	-9.6 mg/dL
Systolic blood pressure	-1.4 mm Hg	-1.3 mm Hg
Framingham risk score	-5.8%	-4.2%

Notes: Changes are relative to measures in subjects while on a DASH-like diet. All 164 subjects followed each diet for 6 weeks.
Source: JAMA 2005;294:2455-64

Macronutrient Composition of Diets



*Fat content is 21% monounsaturated.
Source: Dr. Appel

Waist Girth, Exercise Tolerance Predict Cardiovascular Event Risk

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DALLAS — Waist girth and exercise tolerance each gave significant prognostic information about a person's risk for cardiovascular death or coronary events that went beyond the Framingham risk score, according to data collected from more than 30,000 people.

As a result of these findings, "we're planning to incorporate waist girth and exercise tolerance into our use of the Framingham risk score," Radim Jurca, Ph.D., said at the annual scientific sessions of the American Heart Association.

Dr. Jurca and his associates assessed the prognostic role of waist girth using data collected from 33,192 men who were without symptoms of coronary heart disease or cardiovascular disease when they underwent a baseline examination at the Cooper Clinic in Dallas during 1979-2003. Waist girth was measured with a tape at the umbilicus. The men were then followed for an average of 14 years, during which time there were 624 cardiovascular deaths, 366 coronary heart disease deaths, and 680 "hard" coronary events that were either coronary deaths or nonfatal myocardial infarctions.

The researchers divided the group into

tertiles of about 11,000 men each, defining groups with a waist girth of less than 89 cm, of 89-97 cm, or above 97 cm.

The incidence of cardiovascular and coronary events tracked with increases in waist girth. For example, the rate of cardiovascular disease deaths during the 14 years of follow-up was about 0.010% among men in the lowest waist-girth tertile, about 0.012% among those with a girth of 89-97 cm, and about 0.020% among those in the highest tertile, a linear trend that was statistically significant after adjustment for age, examination year, and the Framingham risk score.

In a regression model the risk of cardiovascular death rose by 17% for every 5-cm increase in waist girth, said Dr. Jurca, an exercise physiologist at the Cooper Institute in Dallas.

Similar analyses showed that a 5-cm increase in girth boosted the risk of coronary deaths by 11%, and the risk of coronary events by 15%.

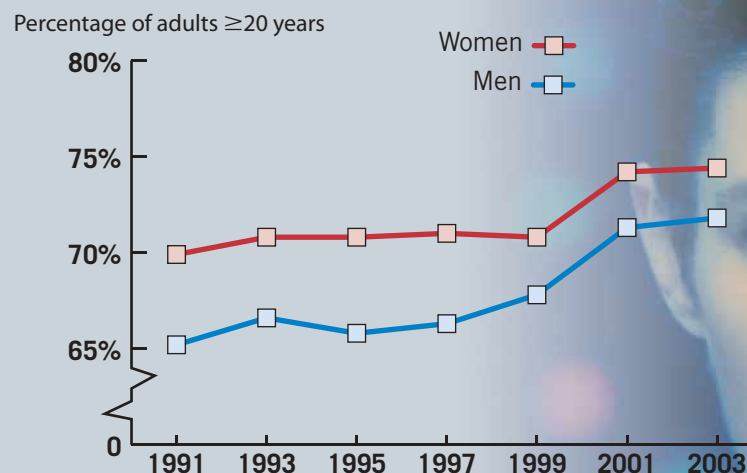
A similar calculation was done substituting exercise tolerance for waist girth. In this case, the study group included 12,805 women and 41,708 men who were asymptomatic at the time of their first examination during 1970-2002. They were followed for an average of 17 years.

The analysis showed that for each metabolic equivalent that exercise capacity increased, a person's risk of cardiovascular death, coronary death, or a hard coronary event was reduced by about 20%, Michael J. LaMonte, Ph.D., said in a separate report at the meeting.

This effect was statistically independent of the Framingham risk score, as well as age, examination year, family history of cardiovascular disease or diabetes, and ECG abnormalities, said Dr. LaMonte, director of epidemiology at the Cooper Institute.

DATA WATCH

More Women Than Men Report Cholesterol Screening



Note: Based on a nationwide survey of more than 1 million adults.
Source: Centers for Disease Control and Prevention