

Effects of the Dietary Approaches to Stop Hypertension (DASH) Eating Plan on Cardiovascular Risks Among Type 2 Diabetic Patients: A Randomized Crossover Clinical Trial

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Study Summary

This brief report described the results of a small crossover trial conducted in Iran in which 31 patients followed the Dietary Approaches to Hypertension (DASH) diet and a control diet, each for 8 weeks, randomly assigned to one or the other first. The control diet included a macronutrient composition of 50%-60% carbohydrates, 15%-20% protein, < 30% total fat, and < 5% of caloric intake from simple sugars. The DASH diet was rich in fruits, vegetables, whole grains, and low-fat dairy products and low in saturated fat, total fat, cholesterol, refined grains, and sweets. Analysis of 3-day food diaries allowed for assessment of the overall caloric intake as well as types of foods consumed. The outcomes of interest were cardiometabolic risk factors, including body weight, blood pressure, fasting glucose, glycated hemoglobin (A1c), and lipids.

Caloric intake did not differ between the 2 diets, nor did intake of protein, total fat, or total carbohydrates. However, participants on the DASH diet had lower sodium intake and higher intakes of calcium (1299 vs 912 mg/day), potassium (4399 vs 3219 mg/day) and fiber (30 vs 26 g/day). In the DASH vs the control diet, the number of servings of fruit (5 vs 3), vegetables (6.8 vs 4), dairy (3 vs 2), and whole grains (4.5 vs 2.5) was higher in the DASH diet. Favorable changes produced by 8 weeks of a DASH diet are shown in the Table.

Table. DASH vs Control Diet

Variable	DASH*	Control*	P value
Weight loss	5 kg	2 kg	.006
A1c	-1.7%	-0.5%	.02
Systolic BP	-13.6 mm Hg	-3.1 mm Hg	.04
Diastolic BP	-9.5 mm Hg	-0.7 mm Hg	.04
Fasting glucose	-29.4 mg/dL	-12.8 mg/dL	.04
LDL cholesterol	-17.2 mg/dL	-2.7 mg/dL	.02
HDL cholesterol	4.3 mg/dL	1.3 mg/dL	.001

*All values represent mean changes from baseline

A1c = glycated hemoglobin; BP = blood pressure; DASH= Dietary Approaches to Hypertension; HDL = high-density lipoprotein; LDL = low-density lipoprotein

Viewpoint

These are truly remarkable results. After just 8 weeks, the DASH diet produced a 5-kg weight loss as well as the metabolic changes sought after for good diabetes management. For example, A1c was reduced from 7.7% to 6.1%, a reduction at least as great as can be expected from most

oral antihyperglycemic agents.^[1] Blood pressure was also favorably reduced, although this is not surprising given that the DASH diet was originally developed for that purpose.^[2]

Of note, the DASH diet also increased HDL cholesterol by about 10%, approximately equal to what one would expect from fibrate therapy.^[3,4] Although definitive evidence for raising HDL cholesterol remains elusive, low HDL is common in patients with diabetes.^[5] Raising HDL cholesterol appears to reduce atherosclerosis^[6] and may provide incremental benefits in patients who have achieved low LDL levels.^[7]

The current study was small, with about a quarter of participants lost to follow-up, and was conducted in Iran, so it may be difficult to generalize these findings. Nevertheless, the impressive results deserve attention and, more important, replication in a more representative sample. These results suggest that the DASH diet could go a long way toward achieving many therapeutic goals for patients with diabetes.