



A DASH-like diet can decrease cardiovascular risk, but barriers to implementation exist

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A BUMPER STICKER popular in rural Minnesota when I was a boy in the 1950s gave the following two-line message:

I RAISE BEEF

I EAT BUTTER

Although large gardens provided ample supplies of fresh fruits and vegetables, dietary staples also included ham, bacon, gravies, and fresh eggs (properly seasoned with salt, pepper, and occasionally ketchup). Fortunately, this diet, which predisposes to hypertension, dyslipidemia, obesity, and diabetes, was tempered by the rigorous daily exercise regimen typical of the rural Minnesotan at that time. This exposure to diets high in fat and sodium is not unique to the Midwestern US, but is also part of the historical culinary experience in many cultures; sausages, fettucini Alfredo, and green vegetables fried in bacon fat are but a few examples. In the 21st century the fast food hamburger, fried chicken, and buffalo wings accompanied by a supersized order of fries are the modern-day equivalents of my Minnesota experience 5 decades ago.

Ironically, were it not for these cultural realities, studies like the DASH diet studies would be unnecessary. In the context of our current nutritional culture, what are the implications of the three studies reviewed by the authors in this issue of the *Journal*? First, they demonstrate that diets low in saturated fat and sodium have favorable effects on blood pressure (and by inference should have a

favorable effect on cardiovascular outcomes). Second, they suggest that implementation in the general clinical arena not only is necessary but also is often difficult. Each of these issues will be discussed in turn.

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There are several observational studies that demonstrate that cultures whose diets are traditionally low in saturated fat and sodium typically not only have a lower risk for hypertension, but also have lower prevalences of obesity, diabetes, dyslipidemia (all components of the “metabolic syndrome”), and coronary heart disease (CHD). The Seven Countries study¹ reported that CHD mortality was directly correlated with consumption of animal-based food and inversely correlated with vegetable food groups; more specifically, there were positive correlations of CHD with butter, meat, pastries, and milk and negative correlations with legumes and oils. Other populations whose original diets were more DASH-like have sometimes westernized, with corresponding adverse effects on CHD risk factors and CHD prevalence. Pima Indians from the Gila River region in Arizona have a much higher prevalence of obesity than their counterparts who stayed in Mexico.² Japanese men who live in Hawaii have twice the prevalence of CHD as their native Japanese counterparts (and about half the risk of the average American male). Both low activity levels³ and high fat intake⁴ have been associated with increased CHD risk. Micronesians

Barriers to lowering risk are many



(whose discovery that bird guano was a source of income, for example) “westernized” their diet and exercise habits; they now have a much higher prevalence of diabetes.^{5–7}

The DASH diet studies are intervention-al studies that affirm that diets high in fruits, vegetables, and grains with reduced sodium content have a favorable effect on cardiovascular risk factors—especially weight and blood pressure, which were the primary measures in these studies. By inference, favorable effects on lipids, glucose, and CHD are likely.

There are serious concerns about the global increase in the prevalence of obesity, diabetes, dyslipidemia, hypertension, and CHD risk.⁷ The compelling observational data, as well as intervention trial data from studies such as those reviewed in this issue of the *Journal*, suggest that changes in nutrition and exercise could obviate many of these risks. Why then is implementation so difficult? The authors have suggested intervention strategies that would likely be successful to help reduce cardiovascular risk factors. What are the barriers to successful implementation? A few examples will suffice. At the most formative times in their lives, children see the following as a part of their “edu-

cational experience”: school lunches—the antithesis of the DASH diet—are provided at the same time that funding for physical education programs is constrained. When children get home they are bombarded by advertisements (designed by marketing experts) for high-fat/high-salt diets and are subjected to the seductive addiction of the computer screen and video games. For many of these children the evening meal is delivered by someone with a pizza. Even for adults, successful lifestyle modification requires ongoing education and support. In the daily practice of medicine successful implementation is limited by lack of reimbursement and time in physicians’ offices. Regular formal consultation for medical nutrition therapy is often not reimbursed, or too few visits to achieve success are covered by insurance. The marketing competition from diet books, whose messages often contain little scientific data, confound health education efforts. Finally, health care providers’ messages in many major health care delivery organizations are diluted when patients can rightly ask, “How can you recommend this diet regimen when you permit fast food restaurants to exist in your food court or cafeteria area?”

■ REFERENCES

1. Menotti A, Kromhout D, Blackburn H, et al. Food intake patterns and 25-year mortality from coronary heart disease: cross-cultural correlations in the Seven Countries Study. *Eur J Epidemiol* 1999; 15:507–515.
2. Ravussin E, Valencia ME, Esparza J, Bennett PH, Schultz LO. Effect of a traditional lifestyle on obesity in Pima Indians. *Diabetes Care* 1994; 17:1067–1074.
3. Hakim AA, Curb JD, Petrovitch H, et al. Effects of walking on coronary heart disease in elderly men: the Honolulu Heart Program. *Circulation* 1999;100:9–13.
4. McGee DL, Reed DM, Yano K, Kaga A, Tillitson J. Ten-year incidence of coronary heart disease and the Honolulu Heart Program: relationship to nutrient intake. *Am J Epidemiol* 1984; 119:667–676.
5. Zimmet P, Arblaster M, Thoma K. The effect of westernization on native populations. Studies on a Micronesian community with high diabetes prevalence. *Aust NZ J Med* 1978; 8:141–146.
6. Ringrose H, Zimmet P. Nutrient intakes in an urbanized Micronesian population with a high diabetes prevalence. *Am J Clin Nutr* 1979; 32:1334–1341.
7. Zimmet P, Alberti KG, Shaw J. Global and societal implications of the diabetes epidemic. *Nature* 2001; 414:782–787.

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