



Health Connections

LINKING NUTRITION RESEARCH TO PRACTICE

DIETARY PATTERNS:

Important Templates for Nutrition Guidance

The complexity of any individual food is enormous. The “whole” food is more than the sum of its nutrient parts, and foods often convey benefits greater than their individual nutrients. Dietary patterns introduce an even greater complexity to dietary guidance, but with the potential to provide far-reaching benefits. This issue of *Health Connections* explores the health and lifestyle benefits of using a dietary pattern-based approach to counseling. These benefits include implementation of the Dietary Guidelines to lower the risk of chronic disease and to promote wellness, and increased acceptability among diverse population groups through the use of a variety of commonly available foods.

Nutrients, Foods, Dietary Patterns, Lifestyle—Fundamental Interrelationships for Health

Epidemiology supports the relationship between dietary patterns and other lifestyle practices in maintaining health and preventing disease. However, studies to identify individual nutrients in this relationship are often inconclusive. Hence, a basic premise of the Dietary Guidelines for Americans 2005 (located at www.healthierus.gov/dietaryguidelines) is that nutrient needs be met primarily through foods as part of dietary patterns such as USDA’s food guidance system, “MyPyramid,” and the DASH diet (see sidebar) that also help lower the risk of chronic diseases including cardiovascular disease, type 2 diabetes, osteoporosis and certain cancers.

MyPyramid and the DASH diet provide templates for population-based nutrition guidance, yet can accommodate individualized food preferences due to the variety of foods in the recommended patterns’ food groups. Although nutrition guidance has evolved to be lifestyle-relevant, at the same time nutrient-based health advice is still prevalent—and popular—due to its simplicity.

Examples include:

- foods ranked on the glycemic index, total antioxidant capacity or “debit” or “credit” score according to nutrient profile
- “traffic light” or other graphics on package labeling
- policies, nutrient standards or legislation targeting sales of individual foods.

The intent of these efforts may be to guide consumers’ food choices, but a focus on any specific nutrient or food ignores the fundamental relationship between a food’s use by an individual in the context of a healthy dietary pattern and lifestyle.

DASH—An Eating Plan for Improved Health

The DASH (Dietary Approaches to Stop Hypertension)¹ and DASH-Sodium² trials were controlled-feeding trials undertaken to discover the effect of dietary patterns on blood pressure reduction. The DASH study compared three eating plans: a “control” diet similar to what many Americans currently eat (low in potassium, magnesium and calcium, and the macronutrient profile and fiber content corresponding to average consumption); a “fruit and vegetable” diet higher in fiber, potassium and magnesium than the control diet; and a “combination” diet now known as the DASH diet, rich in fruits and vegetables, low-fat dairy foods and reduced in total and saturated fat and cholesterol.

continued on page 2



Mary Jo Feeney, MS, RD, FADA

HEALTH CONNECTIONS EDITOR

Mary Jo Feeney specializes in nutrition communications and marketing. With over 30 years experience in public health nutrition and education, she currently is a leading consultant to the food, agriculture and health care industries. A charter Fellow of the American Dietetic Association, Mary Jo served on the Board of Directors of both the American Dietetic Association (ADA) and its Foundation (ADAF) and received the association’s Medallion Award in 1996.

Overall, the DASH diet significantly lowered mean systolic blood pressure by 5.5 mmHg and diastolic blood pressure by 3.0 mmHg compared to the control diet—similar in magnitude to some pharmacological therapies. The fruit and vegetable diet lowered blood pressure by about half this magnitude. Studies using the DASH diet and analyses of subsets of the DASH trials have further demonstrated beneficial effects of the DASH diet on lipid profile³ and features of the metabolic syndrome.⁴

DASH Supports Health and Well-Being

The DASH diet is nutrient-dense, providing several shortfall nutrients identified by the Dietary Guidelines Advisory Committee (calcium, magnesium, potassium) and providing the foundation for improved health and well-being.

DASH Diet and USDA's MyPyramid Food Guidance System

Sample of USDA's food guidance system and the DASH diet at the 2,000-calorie level. NOTE: Table updated to reflect 2006 DASH diet. All servings are per day unless otherwise noted.

Food Groups and Subgroups	USDA Food Guidance System Amount	DASH Diet Amount
Fruit Group	2 cups (4 servings)	2 to 2.5 cups (4 to 5 servings)
Vegetable Group	2.5 cups (5 servings)	2 to 2.5 cups (4 to 5 servings)
<ul style="list-style-type: none"> • Dark green vegetables • Orange vegetables • Legumes (dry beans) • Starchy vegetables • Other vegetables 	<ul style="list-style-type: none"> 3 cups/week 2 cups/week 3 cups/week 3 cups/week 6.5 cups/week 	
Grain Group	6 ounce-equivalents	6 to 8 ounce-equivalents (6 to 8 servings)
<ul style="list-style-type: none"> • Whole grains • Other grains 	<ul style="list-style-type: none"> 3 ounce-equivalents 3 ounce-equivalents 	
Meat and Beans Group	5.5 ounce-equivalents	6 ounces or less; meats, poultry, fish 4 to 5 servings/week; nuts, seeds and legumes
Milk Group	3 cups	2 to 3 cups
Oils	27 grams (6 teaspoons)	8 to 12 grams (2 to 3 teaspoons)
Discretionary Calorie	267 calories	
<ul style="list-style-type: none"> • Example of distribution: <li style="padding-left: 20px;">Solid fat <li style="padding-left: 20px;">Added sugars 	<ul style="list-style-type: none"> 18 grams 8 teaspoons 	~2 tsp of added sugar (5 tbsps/week)

Source: <http://www.health.gov/dietaryguidelines/dga2005/document/html/chapter2.htm>

Increased intake of fruits and vegetables contribute dietary fiber, phenolic compounds, carotenoids and other compounds linked to overall health. The calcium in dairy products lowers the risk of osteoporosis; consuming adequate dairy may also help prevent colorectal cancer, kidney stones and help with weight control. In an analysis of the DASH-Sodium study, the DASH diet reduced bone turnover, which, if sustained, may improve bone health.⁵ Those who adopt the DASH diet may also benefit from the displacement of less nutritious, highly processed energy-dense foods with the foods from the recommended pattern.

In summary, results from DASH support the benefits of scientifically sound food selection patterns, not only on chronic disease reduction but on improved health.

PRACTICE POINTS FOR THE HEALTH PROFESSIONAL

- Rather than a clinical diet for lowering blood pressure and reducing risk of chronic disease, consider the DASH diet—a dietary pattern-based template—for *all* healthy individuals to implement the Dietary Guidelines and meet their nutrient recommendations.
- The trend toward individualized diets can make meal planning challenging. The DASH diet can serve as the household foundation, with each member adjusting the pattern according to personal preference.
- Clients with blood pressure in the pre-hypertensive range—systolic pressure 120-139 and diastolic 80-89 mmHg—can use the DASH diet to bring their blood pressure back into the “normal” range, thereby avoiding or postponing the need for drug therapies.
- For clients who think eating well takes too long to see results, DASH is an example of a dietary approach to wellness that brings relatively quick results. In clinical trials, benefits were seen within two weeks of starting the diet.
- Some examples to increase the intake of low-fat dairy foods consistent with the DASH diet until the three-a-day goal is met include:
 - o Top any fruit with ½ cup low-fat yogurt for a quick, satisfying treat.
 - o Substitute milk for water in soups and sauces.
 - o Add ½ cup shredded low-fat cheese to a green salad or sprinkle over vegetables.
 - o Wrap string cheese with favorite grilled vegetables.
- Consumer research indicates that the favorite diet in America is one that is called “my own.” Take advantage of consumers’ interest in such individualization and discuss the DASH diet or MyPyramid in terms of food-choice flexibility.

Penny Kris-Etherton, Ph.D. R.D., Department of Nutritional Sciences, The Pennsylvania State University, State College. Member, Dietary Guidelines Advisory Committee 2005.



Penny Kris-Etherton, Ph.D., R.D.

Q. What are some advantages of using a food-pattern approach to help consumers meet nutrition guidance recommendations?

A. Food-based dietary recommendations help consumers select foods that help lower their risk of many chronic diseases without having to convert individual nutrient requirements into food choices. Using food patterns facilitates implementation of the Dietary Guidelines because different foods can be chosen within each food group. Consumers have great flexibility to meet their nutrient needs, within an appropriate calorie range and based on their taste preferences, lifestyle, cultural practices and finances.

There is interest in investigating the health benefits that dietary patterns confer beyond reduction of chronic disease risk. As health professionals, we have the opportunity to better communicate to consumers that they can improve their health through food choices. Since chronic diseases are appearing earlier in life, consumers may be receptive to a realistic food-based approach to improved well-being.

Q. What suggestions do you have for health professionals to help consumers adopt the DASH diet or MyPyramid as the basis for their food choices?

A. The challenge is to help consumers get to the recommended pattern from where they are. The DASH diet differs from what consumers typically eat—about twice the number of servings of fruits, vegetables and low-fat dairy products. Consumers raise their eyebrows when I talk about nine servings of fruits and vegetables. To get them there, we need to break down the target goal into increments so consumers say, “I can do that.” For example, while the recommended intake may be three daily servings of low-fat milk/milk products, the message for someone consuming less than one serving may be how to add the equivalent of ½ serving daily until the goal is met.

Q. Are attempts to identify good and better food choices by visual graphics (e.g., “traffic light” labeling or nutrient rating systems) counter to a food-pattern approach to balanced food choices?

A. Consumers should understand that food-specific identifiers target foods that can be

incorporated into a total dietary pattern, and are not intended to label foods as “good” or “bad.” A food-pattern approach to healthy eating considers more than a food’s nutrient profile—it also considers portion size and frequency of use.

Health professionals must provide this perspective and ensure clients that all foods, in moderation, can fit in a healthy diet. The focus should not be on specific foods or even specific meals; rather it is diet quality over time that counts. Thus, it is true that there are not good foods or bad foods, but foods that can be part of a recommended dietary pattern.

Q. What are some barriers or emerging issues around using a dietary-pattern approach to nutrition guidance?

A. When you consider nutrient needs in the context of our relatively sedentary lifestyles, there is not a lot of room for extras. We must craft messages that address calories. Both the DASH diet and MyPyramid offer patterns at different calorie levels. Rather than identify specific foods consumers should avoid, approach this topic in a positive manner from the standpoint of discretionary calories. Give consumers examples of how they can use these calories on a daily basis—whether for ‘extras’ such as dessert or for larger portions of nutrient-dense foods from the food groups.

Another issue is individualized nutrition—consumers are looking to meet their individual needs, yet at the same time the members of their family may have different needs. The logistics of meeting everyone’s health needs and goals are daunting and can make mealtime challenging. The DASH diet can serve as the household foundation, with each member adjusting the pattern according to personal preference.

With respect to the future, nutrient requirements will keep evolving. How can food-based dietary patterns meet these needs in a sedentary population? What will be the role of food fortification and supplements? In future editions of the Dietary Guidelines, I think we will need to consider these issues and others, including requirements for bioactive food components.

REFERENCES

1. Appel LJ for the DASH Collaborative Research Group. *N. Engl. J. Med.* 1997; 336:1117-1124.
2. Sacks FM et al. *N. Engl. J. Med.* 2001; 344:3-10.
3. Obarzanek E et al. *Am J Clin Nutr* 2001; 74: 80-9.
4. Azadbakht L. *Diabetes Care* 2005. 28(12):2823-31.
5. Lin PH et al. *J Nutr.* 2003; 133(10):3130-6.
6. NPDD Group’s 21st Annual *Eating Patterns in America* report. www.npd.com/press/releases/press_070110.html. Accessed 2/23/07.