

From Pyramids to Plates to Patterns: Perspectives on Meal Planning

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There is wide agreement that nutrition is a cornerstone of diabetes management and that an individualized medical nutrition therapy program, preferably provided by a registered dietitian, is recommended for all individuals with diabetes (1,2). However, the debate can get heated when the discussion turns to exactly what defines the meal plan for diabetes, particularly as it relates to the recommended level of carbohydrate (3). At least in type 2 diabetes, there is insufficient evidence to suggest that any particular macronutrient distribution is superior (4). Thus, the American Diabetes Association (ADA) position has been, and continues to be, that there is no single dietary distribution of calories among carbohydrate, protein, and fat for people with diabetes and that macronutrient distribution should be individualized (1,2). Therefore, the most important variable influencing the meal plan should be what the individual with diabetes is willing and able to do.

I have long been interested in nutrition as it relates to public health and how we, as health care professionals, influence consumer behavior. Interestingly, some of the highlights of my career have been punctuated with the release and periodic revision of the U.S. Department of Agriculture's (USDA) *Dietary Guidelines*. When these guidelines first came out in 1980, I had just started a 2-year job at the Joslin Diabetes Center in Boston, Mass. The initial guidelines focused on nutrients

to consume more of (i.e., starch and fiber) or less of (i.e., fat, saturated fat, cholesterol, sodium, and alcohol). In 1992, when I moved from running a diabetes center in New Jersey back to Joslin in Boston, I said good-bye to the "Basic 4" and hello to the "Food Pyramid"—the USDA's latest iteration of the guidelines. I gave an address at the 2005 ADA Scientific Sessions that reflected on public health nutrition messages and explored the pros and cons of food pyramids (5). Although the diabetes education community had been using the "plate method" for some time to teach basic nutrition, the USDA's release of "My Plate" in 2011 served as a visual aid to help promote healthy eating patterns as the previous Food Pyramid was retired.

In the most recent update of the USDA's guidelines, released in 2015, the emphasis of the message for the public is more on food patterns and less on nutrients (Table 1) (6). Nutrition professor Marion Nestle makes an interesting observation in her blog, *Food Politics* (7), however. She points out the USDA guidelines succeed in focusing on patterns when it comes to talking about foods to eat more of (details describing a healthy eating pattern specify more vegetables, fruits, whole grains, fat-free or low-fat dairy, legumes, nuts, seeds, lean meats, and oils) but revert to nutrients when describing foods to limit (<10% from added sugars, <10% from saturated fats, and <2,300 mg of sodium). Nestle sug-

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TABLE 1. 2015 USDA Dietary Recommendations (6)

1. Follow a healthy eating pattern across the lifespan.
2. Focus on variety, nutrient density, and amount.
3. Limit calories from added sugars and saturated fats, and reduce sodium intake.
4. Shift to healthier food and beverage choices.
5. Support healthy eating patterns for all.



FIGURE 1. Current eating patterns in the United States. Percentage of the U.S. population ≥ 1 year of age who are below, at, or above each dietary goal or limit. The center (0) line is the goal or limit. For most, those represented by the orange sections of the bars, shifting toward the center line will improve their eating pattern (8).

gests that this may be for political reasons, with the USDA reacting to pressure from industry to not say “eat less meat,” “eat less processed food,” and “drink fewer sugar-sweetened beverages.” Whatever the reason, consumers are still left confused and needing a calculator to figure out the percentages of exactly what to eat!

It should be pointed out that, although talking about food groups to eat or avoid, rather than specific nutrients to eat or avoid, is certainly more consumer-friendly and realistic, data from the National Health and Nutrition Examination Survey show that typical eating patterns still

do not align well with the USDA’s guidelines. Figure 1 provides a snapshot of current intake levels compared to recommendations for the food groups (and oils), as well as calories from added sugars, saturated fats, and sodium (8). The orange bars represent the percentage of Americans who are not meeting the recommendations and thus indicate where there is room for improvement. When compared to the Healthy U.S.-Style Pattern:

- About three-fourths of the population has an eating pattern that is low in vegetables, fruits, dairy, and oils

- More than half of the population is meeting or exceeding total grain and total protein foods recommendations
- Most Americans exceed the recommendations for added sugars, saturated fats, and sodium

The emphasis on diet quality and healthy food patterns is also taking hold in recommendations for diabetes and prediabetes meal planning. The plate method has been recommended as a tool for simplified meal planning emphasizing healthy eating patterns. However, it was only recently that a randomized controlled trial demonstrated its comparative effectiveness to carbohydrate counting (9). A shift is occurring from meal plans based on percentages of carbohydrate, protein, and fat to eating patterns such as the Mediterranean, DASH (Dietary Approaches to Stop Hypertension), and vegetarian eating patterns, as outlined in several important guidelines and publications (1,2,10,11). Research is showing that consuming a diet containing high-quality foods, as measured by the Healthy Eating Index or the Alternative Healthy Eating Index, is linked with reduced risk of type 2 diabetes (12) and reduced all-cause mortality (13). Thus, although guidelines and research are promoting the use of diet patterns featuring high-quality, nutrient-dense foods, many clinicians are seeking information on exactly how to operationalize these recommendations.

This *Diabetes Spectrum* From Research to Practice section features five articles with a focus on healthy eating patterns. The first three summarize evidence-based research on the Mediterranean, DASH, and vegetarian/plant-based eating patterns. Jackie L. Boucher provides us with a review of the latest research on the Mediterranean diet (p. 72). We learn that this eating pattern not only provides a protective effect against the development of diabetes but, in people with type 2 diabetes, may

improve glycemic control and reduce cardiovascular risk factors.

In the article on the DASH diet, Amy P. Campbell similarly reviews the literature as it relates to a healthy eating pattern for type 2 diabetes and prediabetes (p. 76). Although the benefits of the DASH diet for reducing hypertension are well recognized, evidence points to many additional benefits, including improved glycemic control, decreased weight, and improved insulin sensitivity, despite this diet being somewhat higher in carbohydrates due to an increased emphasis on fruit and vegetable consumption.

The third and final article in the series on eating patterns is by Roman Pawlak, who focuses on vegetarian and plant-based diets (p. 82). There has been much literature extolling the benefits of vegetarian meal patterns, and the Canadian Diabetes Association recently published a comprehensive review supporting the use of plant-based diets for the management of type 2 diabetes (14). All three of these articles include more detailed definitions of each dietary pattern (as there is often diverse interpretation of what each can mean), as well as practical strategies for diabetes educators and clinicians to apply in practice when counseling patients toward one of these healthful eating patterns.

Mindful eating is also a topic of great interest. Although not an eating pattern per se, mindfulness training has been shown to improve eating patterns, such as increasing fruit and vegetable consumption and decreasing energy-dense foods. In her article on p. 89, Carla K. Miller reviews seven research studies on mindfulness-based eating awareness training, including two of her own studies conducted with adults with type 2 diabetes in diabetes self-management education (DSME) programs. After summarizing some of the benefits of mindfulness training on weight, eating patterns, and glycemic control, she suggests some practical ways to

incorporate mindful-eating activities into DSME classes.

To bring the patient perspective to this exploration of current topics in nutrition, we include an article by Dr. Linda J. Piccinino and her colleagues at the National Diabetes Education Program (NDEP) (p. 95). Every 3–4 years, as part of the National Diabetes Survey, the NDEP gathers and analyzes information from people with diabetes regarding their diabetes self-management behaviors. The survey gathers insights into self-management behaviors and possible gaps in education and support. This information helps to identify challenges to address and opportunities for improvement. For example, data from the most recent survey, conducted in 2014, showed that only 30% of people with diabetes surveyed felt “totally confident” in their ability to “eat meals and snacks as recommended.” Learning about such challenges and barriers from people with diabetes can help us shape our interventions to yield the best chance for success.

Finally, in an effort to acknowledge the continuing importance of nutrients despite the recent focus on healthy eating patterns, we include an interesting article by David E. St-Jules and his colleagues at the New York University School of Medicine (p. 101). These authors have been studying the role of dietary phosphorus intake and the increased risk of skeletal and cardiovascular disease in patients who are in early stages of chronic kidney disease. Their article explores strategies for limiting phosphorus intake, recognizing that food additives are a major source of highly bioavailable dietary phosphorus.

As we have journeyed from Pyramids to Plates to Patterns in dietary recommendations, remember the most important “P” is for People with diabetes. Build meal plans around what they eat, what they are willing to eat, and what changes they are ready to make, while keeping them aimed toward high-quality,

nutrient-dense foods. Avoid unnecessary details and calculations, and keep messages simple and focused. Toward that end, I will close with words from two of my favorite nutrition advocates. Although Elliott P. Joslin certainly had a reputation for being fairly rigid with diet and giving patients detailed lists of dos and don'ts, he also cautioned physicians about getting too hung up on the minutia of counting carbohydrates and calories. In his famous textbook about diabetes treatment, he said, “Diabetic patients have too much to do in their daily work to be encumbered with unnecessary details of arithmetic” (15). Similarly, journalist and best-selling author Michael Pollan hit the nail on the head with his straightforward seven-word recommendation for how to eat: “Eat food. Not too much. Mostly plants” (16).

Duality of Interest

No potential conflicts of interest relevant to this article were reported.

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