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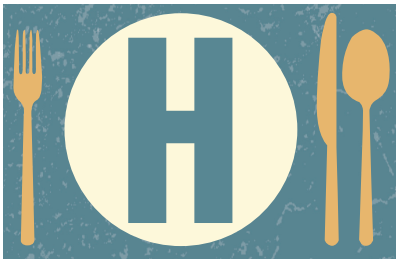
What's new in nutrition for adults with diabetes?

By Robin Nwankwo, MPH, RD, CDE, and Martha Funnell, MS, RN, CDE, FAADE



Have you heard this faulty advice?
- All people with diabetes should be on a diabetic or American Diabetes Association (ADA) diet.
- White potatoes and other white foods are "bad carbs" that people with diabetes should avoid.
- Sweets, foods made with sugar, fried foods, and alcohol are also off-limits.
- Everyone who takes insulin should count carbs.
- Everyone with diabetes should follow sodium restrictions.

Many adults with diabetes ask, "What can I eat?" Unfortunately, they're often given the incorrect advice listed above. So what can your staff members tell your patients about how to plan meals to reach their glycemic, weight, and other targets? The evidence-based guidelines outlined in this article can help you answer that question.

Nutrition therapy recommendations

In 2012, the ADA formed an expert committee to review the latest research and revise the nutrition guidelines that were developed in 2008 for adults with type 1 and type 2 diabetes.[1] The task force included dietitians and nurses, a physician, and a pharmacist. These updated guidelines, published in 2013, have also been incorporated into the ADA Standards of Medical Care for Diabetes.[2]

A key element of the 2013 recommendations is the focus on working collaboratively with patients and matching the meal plan to the person with diabetes and his or her lifestyle and cultural preferences.[1] Meal planning for diabetes has evolved to include many options that can be matched to patients' personal preferences, goals, and treatment.

The general goal of nutrition therapy is "to promote and support healthful eating patterns, emphasizing a variety of nutrient-dense foods in appropriate portion sizes, in order to improve overall health."[1]

The specific goals are to:
- attain individualized glycemic, BP, and lipid goals
- achieve and maintain body weight goals
- delay or prevent complications of diabetes
- address individual nutrition needs based on personal and cultural preferences, health literacy and numeracy, access to healthful food, and willingness and ability to make behavioral changes
- maintain the pleasure of eating by providing positive messages about food and limiting food

choices only when indicated by scientific evidence
• provide practical tools for day-to-day meal planning rather than focusing on individual macro- and micronutrients and single foods.[1]

Matching food and treatment

A simple nutrition plan, such as healthful eating, the plate method, or portion control, is often the starting point for people with type 2 diabetes. (See *Sorting out simple eating plans.*) Adults with type 1 or type 2 diabetes using multiple injections of insulin can learn to quantify carbohydrates (that is, use carbohydrate counting) to match mealtime insulin doses with carbohydrates. For patients who are overweight or obese, modest weight loss may be beneficial, especially early in diabetes.[3] Intensive lifestyle interventions (such as medical nutrition therapy [MNT], counseling, behavior change, and physical activity) with ongoing support are needed and recommended for weight loss.[1,3,4] MNT is the evidence-based nutrition care provided by a registered dietitian nutritionist. It includes assessment, diagnosis, intervention, and monitoring.[1] (See *Key strategies for matching nutrition recommendations to the treatment plan* for more information.) Pharmacologic options for weight management such as orlistat (tetrahydrolipstatin) are also available.[5]

Sorting out simple eating plans

- Healthful eating: This method is based on a balanced diet representing each of the five main food groups—protein, grains, fruits, vegetables, and dairy.
- Plate method: This method is used to manage blood glucose and portions by creating a healthful meal using a dinner plate. Fill half of the plate with nonstarchy vegetables, a quarter with protein, and a quarter with starch. Add a piece of fruit and a glass of milk or water.
- Portion control: This method is used to manage the amount and type of food consumed by using information about serving sizes, calories, and nutrient content.

Sources: American Diabetes Association. Create your plate. www.diabetes.org/food-and-fitness/food/planning-meals/create-your-plate/.
CDC. Cutting calories. How to avoid portion size pitfalls to help manage your weight. www.cdc.gov/healthyweight/healthy_eating/portion_size.html.
Nordqvist C. What is healthy eating? What is a healthy diet? www.medicalnewstoday.com/articles/153998.php.
U.S. Department of Agriculture. Choose my plate. www.choosemyplate.gov.

Eating patterns

There's no "diabetic or ADA" diet or ideal percentage of calories from carbohydrate, protein, and fat for people with diabetes.[6] Meal planning can range from simple methods, such as healthful eating and/or portion control, to more complex methods, including carbohydrate counting. Mediterranean style eating, the Dietary Approaches to Stop Hypertension diet, the low-fat Therapeutic Lifestyle Changes program, a low-carbohydrate diet, and vegetarian/vegan diets have all been shown to have some benefit for people with diabetes, although it's difficult to differentiate the benefits of the meal planning method from the weight loss that often occurs.[1,6-10] Low glycemic index diets may modestly improve hyperglycemia, although the results of long-term studies are mixed due to the variability in glycemic impact and fiber intake.[11]

Here are the latest recommendations on nutritional components:

Carbohydrates. Although no specific amount of carbohydrate intake is recommended for people with diabetes, monitoring carbohydrates remains a key element in managing blood glucose levels. Many factors influence postprandial glucose levels, including the amount and type of carbohydrates, whether they're eaten alone or as part of a meal, and the types of food eaten at the same time.[12,13] The estimated average requirement for carbohydrate

Key strategies for matching nutrition recommendations to the treatment plan[1]

- **No medications or oral medications:** Utilize portion control and/or healthful choices.
- **Secretagogues:** Include carbohydrates at each meal; don't skip meals.
- **Biguanides (metformin):** Take with largest meal or 15 minutes after a meal to minimize gastrointestinal adverse reactions.
- **Incretin mimetics (glucagon-like peptide-1 receptor agonists):** Require daily or twice-daily premeal injection or once weekly any time during the day regardless of meal times.
- **Fixed daily insulin:** Requires consistent injection time and carbohydrate intake (time and amount).
- **Premixed insulin:** Requires consistent injection and meal times, and consistent carbohydrate intake; don't skip meals.
- **Intensive insulin program (basal/prandial):** Use carbohydrate counting and flexible insulin dosing to match carbohydrate intake; don't take prandial (rapid-acting or "mealtime") insulin if not eating.

needed for brain function is 100 g/day derived from all sources, including gluconeogenesis from protein catabolism and lipolysis.[12] The Recommended Daily Allowance for most American adults is a minimum of 130 g/day.[14] Many people with diabetes use 45 to 60 g of carbohydrate per meal and 15 to 30 g per snack as a starting point. Eating a consistent amount of carbohydrates at consistent times throughout the day (that is, about the same amount at breakfast each day) helps keep blood glucose levels more even. To prevent hypoglycemia, including some carbohydrates in each meal and not skipping meals and snacks is recommended, especially for those using insulin and certain oral agents.[1]

Intake of sugar-sweetened beverages should be limited. Vegetables, fruits, whole grains, legumes, and dairy products are preferred over sweetened beverages because of the additional health benefits they provide.[1] No evidence shows that artificial sweeteners are harmful when consumed in the usual amounts.[15]

Protein and fat. The amount of protein recommended for people with diabetes is the same as for other adults, but proteins lower in fat are emphasized.[1] Foods high in protein increase the insulin response in patients with type 2 diabetes and don't raise blood glucose levels. Consequently, carbohydrates high in protein, such as milk, shouldn't be used to treat or prevent hypoglycemia.[1,2]

Limiting protein was once recommended for people with kidney damage or disease. However, research has shown that these restrictions have no benefit for improving estimated glomerular filtration rate or slowing the progression of kidney disease.[16,17]

Key nutrition patient education messages[1]

- No one diet is recommended for diabetes. Eating patterns and meal planning have replaced standardized diet plans.
- There are no foods you should eat or forbidden foods that you shouldn't eat. Moderation is key.
- Plan ahead for your visit to the dietitian. Take a list of foods you eat routinely and those that are important for your culture, family, or lifestyle.
- Monitoring your blood glucose levels before and 2 hours after you eat provides useful information about the effects of food and whether your medication is correctly matched to your meals.
- Use the total carbohydrate content on food labels when counting or monitoring carbohydrates. The sugar content is included in the carbohydrate content and doesn't have to be counted separately.
- If your meal plan doesn't work for your life, family, or culture, then it doesn't work and needs to be changed.
- Let family members and friends know how they can help you so that they don't become the "diabetes police."
- There's no such thing as "cheating on your diet." As an adult, you have the right to make choices about what you eat and to evaluate the results.
- Keep a record of your food intake and what was occurring when you ate. For instance, were you at a work birthday party, at a movie, with your family, or feeling stressed? Knowing why you chose to eat is often as important as knowing what you ate.
- Make changes one step at a time. Focus on specific behaviors to change (such as not eating while watching TV) rather than outcomes such as pounds lost.
- There's no one best or right way to handle holidays or special events. Make a plan ahead of time for how you'll manage your eating pattern. Evaluating the result will help you plan for the next occasion.
- No one expects you to be perfect. If one day doesn't go well or as planned, forgive yourself and start over the next day.

The recommendations for fat and omega-3 fatty acid intake are also the same as for the general public.[1] To reduce cardiovascular risk, the quality of fat seems to be more important than its quantity. Substituting monounsaturated fat for saturated and trans fats is emphasized.[18] In addition, the ADA now recommends a statin for all adults with diabetes who are between ages 40 and 75.[2]

Sodium, fiber, supplements, and alcohol. The recommendation for sodium (less than 2,300 mg/day) and fiber (25 to 30 g/day) intake is the same as for the general public, with 50% of fiber intake as whole grains.[1] The ADA recently raised its recommended BP goals for adults with diabetes to less than 140/90, although lower levels are still preferred if they can be achieved without undue treatment burden.[2]

Vitamin and mineral supplements and antioxidants, including omega 3 supplements, aren't routinely recommended.[19,20] Alcohol can be included in moderation (that is, for women, one drink or less per day; for men, two drinks or less per day).[1] Because hypoglycemia can occur with alcohol intake and be mistaken for intoxication, patient education needs to include the importance of food intake with alcohol and additional self-monitoring of blood glucose.

Role of the nurse

Stress to patients that the purpose of meal planning isn't to follow, comply, or adhere to a diet, but to

Finding reliable nutrition resources

Steer your patients to sources of trustworthy information, such as these websites.

- Academy of Nutrition and Dietetics: www.eatright.org
- American Diabetes Association: www.diabetes.org
- National Diabetes Education Program: www.yourdiabetesinfo.org/healthsense
- National Heart, Lung, and Blood Institute: www.nhlbi.nih.gov
- Nutrition.gov: www.nutrition.gov
- Obesity Society: www.obesity.org
- U.S. Department of Agriculture: www.choosemyplate.gov; www.nutrition.gov; www.ars.usda.gov/Services/docs.htm?docid=17032

find an approach they can use daily that can be adjusted as needed. The timing and dosage of medications are then planned to fit their eating patterns.

A recent joint position statement from the ADA, the American Association of Diabetes Educators, and the Academy of Nutrition and Dietetics, as well as the ADA National Standards for Diabetes Care, recommends that all patients with diabetes be referred for both Diabetes Self-Management Education and Support (DSME/S) according to the National Standards for DSME/S and MNT at diagnosis and as needed.[2,21,22] Referral to a dietitian for MNT can improve outcomes.[23] If these aren't available on an inpatient basis, then the necessity of both of these services should be emphasized to patients with diabetes and their family members, and referrals made as needed.

Nurses can provide important points as part of patient education. (See *Key nutrition patient education messages*.) For more information for your patients, see *Finding reliable nutrition resources.*

Be sure to take advantage of teachable moments during all encounters and during a hospitalization. For example, pointing out foods high in carbohydrates or providing opportunities to practice carbohydrate counting for typical meals personalizes information relevant to the patient.

Keep in mind that a lifetime of eating habits can be extremely difficult to change. Struggling with meal planning can contribute to diabetes-related distress and affect self-management and outcomes.[24] To help reduce the burden, avoid making judgments, and let patients know you understand that managing diabetes is difficult. Emphasize that not all changes need to be made at one time. Involve the patient's family if he or she wishes. Providing information or referrals for DSME/S, MNT, and mental health or other supportive resources can help patients become more fully engaged and effective in their self-management efforts.

Customized outcomes

Meal planning for diabetes has changed a great deal in recent years. Creating a personalized, treatment-based eating plan has replaced the "one size fits all" approach. Learning about evidence-based guidelines can help nurses provide both consistent and effective messages for their patients with diabetes. NM

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In the Department of Learning Health Sciences at the University of Michigan Medical School in Ann Arbor, Mich., Robin Nwankwo is the research coordinator and Martha Funnell is an associate research scientist.

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