

Nutrition 911: The First Responders' Guide to Food and Diabetes

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Although benefits of medical nutrition therapy (MNT) in the management of diabetes have been well established, lack of time to address nutrition or the many other diabetes self-management tasks is an obstacle for most physicians. This article offers some simple strategies for physicians to use to address nutrition with both type 1 and type 2 diabetes patients before they are able to see a registered dietitian (RD).

Why Weight Loss Is Not Always Enough for Patients With Type 2 Diabetes

Weight loss is not always enough to bring blood glucose values into target range. There are several potential reasons:

- If loss of β -cell function is severe, weight loss is unlikely to compensate.
- Weight loss does not address postprandial blood glucose excursions.
- Many patients have failed at weight loss or the maintenance of weight loss and need success to build confidence.

Although weight loss is important for a variety of reasons, asking patients who have made multiple unsuccessful attempts at long-term weight loss to again attempt dieting can be frustrating for both patients and physicians. Patients with a poor weight loss track record may tune out additional weight loss advice. Changing the focus from losing weight to controlling carbohydrate intake may allow this type of patient to gain success and build confidence.

Table 1. Food Substitutions

High-Carbohydrate Items	Lower-Carbohydrate Alternatives
Breakfast items, such as: <ul style="list-style-type: none"> • Cereals • Pastries • Breads 	<ul style="list-style-type: none"> • Smaller portions of these items • Diet or light breads • Eggs or egg whites • Lean meats such as: Canadian bacon, center-cut bacon, turkey bacon, or turkey sausage
Beverages, such as: <ul style="list-style-type: none"> • Sugar-containing soda • Fruit juice 	<ul style="list-style-type: none"> • Diet soda • Diet V-8 Splash • Crystal Light • Tomato juice
Side dishes, such as large servings of: <ul style="list-style-type: none"> • Potatoes • Rice • Starchy vegetables 	Nonstarchy vegetables, such as: <ul style="list-style-type: none"> • Green beans • Broccoli • Spinach • Green leafy salads • Cooked greens
Snacks, such as: <ul style="list-style-type: none"> • Crackers • Chips • Fruit 	<ul style="list-style-type: none"> • Sugar-free Jello or popsicles • Lean lunch meat rolled up with light cream cheese • Low-fat cheese or cottage cheese • 2 tablespoons of nuts

Initial Nutritional Counseling for Patients With Type 2 Diabetes

Identifying and reducing excessive carbohydrate intake may reduce postprandial glucose excursions. High postprandial blood glucose has been shown to be an independent risk factor for cardiovascular disease; targeting it has been shown to improve blood glucose control. To assist patients in this goal:

- Help patients identify large servings of juice or milk, carbonated beverages, pasta, bread, cereal, potatoes, or other carbohydrate foods (Table 1).
- Encourage them to make substitutions, such as lean protein and nonstarchy vegetables, to increase meal volume. As patients increase their intake of nonstarchy vegetables, their

intake of calories, fat, and sodium will decrease. Because this approach is not perceived as a diet, it is often more readily adopted by patients.

- Reassure patients that carbohydrates are a vital part of a healthful diet, but remind them that when and how much they consume are also important. The American Diabetes Association (ADA) nutrition recommendations state that, "sucrose-containing foods can be substituted for other carbohydrates in the meal plan or, if added to the meal plan, covered with additional insulin or glucose-lowering medications. Care should be taken to avoid excess energy intake. A dietary pattern that includes carbohydrates from fruits,

Table 2. Sample SMBG Schedule and Results Log

- Monday–Wednesday: test before breakfast (fasting) and 2 hours after breakfast.
- Thursday–Saturday: test before and 2 hours after lunch.
- Sunday–Tuesday: test before and 2 hours after dinner.
- It is important to avoid snacking on carbohydrate foods before the 2-hour test and after dinner. Suggest noncarbohydrate snacks, such as celery with peanut butter, lean lunch meat, or sugar-free Jello.
- If blood glucose is within target 2 hours after dinner but rises by morning with no snacking after dinner, then the dinner meal is not the problem.

Day	Date	Breakfast			Lunch			Dinner		
		Blood glucose before (fasting)	Blood glucose 2 hours after	Carbohydrate consumed	Blood glucose before	Blood glucose 2 hours after	Carbohydrate consumed	Blood glucose before	Blood glucose 2 hours after	Carbohydrate consumed
Mon.		√	√							
Tues.		√	√							
Wed.		√	√							
Thurs.					√	√				
Fri.					√	√				
Sat.					√	√				
Sun.								√	√	
Mon.								√	√	
Tues.								√	√	

vegetables, whole grains, legumes, and low-fat milk is encouraged for good health.”

- Review self-monitoring of blood glucose (SMBG) results to determine a carbohydrate threshold (i.e., how much carbohydrate a patient can eat at a given meal or snack without experiencing excessive postprandial glucose excursions). This can be an indirect measure of a patient’s β -cell responsiveness.

SMBG and Patients With Type 2 Diabetes

Targeted SMBG may give patients great insight while introducing the value of regular blood glucose monitoring. Patients who perform SMBG can often discover for themselves the results of carbohydrate overconsumption and make self-directed changes in their diet and exercise. To encourage patients to perform SMBG:

- Ask patients to check their blood glucose 2 hours after beginning their meal to catch the peak postprandial blood glucose response. The ADA 2-hour postprandial target is < 180 mg/dl.
- To minimize the number of tests patients must perform, suggest that they begin testing and recording results immediately before and 2 hours after one meal for 2–3 consecutive days. Then have them perform the same testing at a different meal for the same number of days. Finally, have them perform the same testing at the third meal of the day. Varying the timing of SMBG, as shown in Table 2, will provide a wealth of information about postprandial blood glucose control without requiring six or more checks per day.

This approach allows patients to see the value of SMBG and to feel invested in any necessary changes in their eating patterns. It will also provide guidance

for the RD regarding which meals need to be addressed. Finally, maintaining a consistent carbohydrate intake while performing targeted SMBG can help identify the appropriate amount of carbohydrate for a particular patient to include in each meal.

Nutritional Considerations for Patients With Type 1 Diabetes

A physiological insulin regimen, which includes separate basal and prandial components, allows patients to adjust their insulin doses to match their carbohydrate intake and physical activity and thus provides more flexibility in carbohydrate intake from meal to meal and day to day without compromising blood glucose control. Adjusting prandial insulin doses based on the carbohydrate content of a meal can facilitate tighter postprandial blood glucose control. Referring patients with type 1 or insulin-requiring type 2 diabetes who use a

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multiple daily injection regimen to an RD to learn carbohydrate counting can help them control meal-mediated fluctuations in blood glucose and normalize their eating habits.

Patients whose insulin regimen involves fixed doses of short- and intermediate-acting insulin need to achieve day-to-day consistency in carbohydrate intake. Referring these patients to an RD for help in adopting a consistent-carbohydrate diet can decrease their risk of hyper- and hypoglycemia. Matching each meal's insulin dose to a patient's preferred carbohydrate intake increases the likelihood that the patient will adhere to carbohydrate targets.

Preparing Patients for an RD Visit

Achieving and maintaining nutrition-related goals takes the coordinated effort of a team. The team may be a specialty diabetes practice or may include only a physician, an RD, and a patient. Physicians play a crucial role in patients' success, by making timely referrals to an RD and by reinforcing the importance of MNT to patients. A positive approach from physicians can have a positive influence on patients' ability to achieve adequate blood glucose control. The

way MNT is introduced can influence patients' success and may increase their likelihood of following through with their RD appointments.

Most patients are initially afraid of seeing an RD and worry that they will not be able to follow their recommended diet or meal plan. Physicians can instill confidence by assuring patients that the RD will help them control their diabetes through simple changes in their eating habits. To support patients' dietary changes and ease their concerns:

- Advise patients not to attempt too many lifestyle changes at one time. At diagnosis, patients must change several other behaviors simultaneously, such as starting new medications, monitoring their blood glucose, and beginning an exercise program. Encouraging gradual dietary changes will allow them to see improvement in glycemic control while they gain confidence in their ability to positively affect their medical condition.
- Provide simple, practical, tangible steps that focus on behavioral goals ("I will walk for 15 minutes, three times each week") rather than weight loss goals ("Let's shoot for losing 10 pounds over the next 3 months").

- Research has shown that diabetes patients who have no outpatient education have more than a fourfold increased risk of developing complications than those who do receive education. Early referral to an RD soon after diagnosis can help patients achieve better glucose control, decrease their risk of complications, and develop positive self-management behaviors at the outset.

- Prepare patients for a positive encounter with the RD by explaining that they will learn how to eat in a way that is satisfying, includes their favorite foods, and helps to control their blood glucose.

MNT is a foundation of diabetes care. Positive messages from physicians regarding its importance are the first step in building a good foundation for diet-related behavior change for patients with diabetes.

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