

Diet and Diabetes

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Diabetes Basics

In diabetes, the cells of the body cannot get the sugar they need. Glucose, a simple sugar, is the body's main fuel. It is present in the blood, but in diabetics it cannot get into the cells where it is needed. When diabetes starts in childhood (insulin-dependent diabetes), it is due to an inadequate supply of insulin, the hormone which ushers sugar into the cells of the body. Without insulin, the cell membranes keep sugar out. This form of diabetes is also called type 1 or childhood-onset diabetes. When diabetes begins in adulthood (non-insulin-dependent diabetes), it is not due to an inadequate supply of insulin; instead, there is plenty of insulin in the bloodstream, but the cells do not respond readily to it. Sugar cannot easily get into the cells, and it backs up in the bloodstream. This form is also called type 2 or adult-onset diabetes. In the short run, people with diabetes may experience episodes of labored breathing, vomiting, and dehydration. In the long run, diabetics are at risk for heart disease, kidney problems, disorders of vision, and other difficulties.

Dietary Approaches to Treat Diabetes

The old approach to diabetes was to focus on eliminating refined sugars and foods that turned into sugars—starches, breads, fruits, etc.—from the diet. The rationale was based on the fact that diabetics' urine contains sugar. Unfortunately, with all of the complex carbohydrates eliminated, fat and protein are all that is left in the diet.

The new approach focuses more attention on fat. Fat is a problem for individuals with diabetes. The more fat there is in the diet, the harder time insulin has in getting sugar into the cell. Exactly why this occurs is not clear. But what is clear is that minimizing fat intake and reducing body fat help insulin do its job much better. Modern diabetic treatment programs drastically reduce meats, high-fat dairy products, and oils. At the same time, they increase grains, legumes, and vegetables. One study found that 21 of 23 patients on oral medications and 13 of 17 patients on insulin were able to stop their medications after 26 days on a near-vegetarian diet and exercise program.¹ During two- and three-year follow-ups, most patients with diabetes treated with this regimen have retained their gains.² The dietary changes are simple but profound, and they work. Low-fat, vegetarian diets are ideal for people with diabetes.

A 1999 study conducted by the Physicians Committee for Responsible Medicine and Georgetown University looked at the health benefits of a low-fat, unrefined, vegan diet (excluding all animal products) in people with type 2 diabetes.³ Portions of vegetables, grains, and legumes were unlimited. The vegan diet group was compared with a group following a diet based on the American Diabetes Association (ADA) guidelines (higher in fat and cholesterol and lower in fiber). The results of this three-month study were astounding. The vegan group lowered their fasting blood sugars 59 percent more than the group following the ADA diet. Many discontinued their medications, another benefit not enjoyed by the ADA group. The vegan group lost an average of 16 pounds, compared with only about 8 pounds in the ADA group. The vegan group also had more substantial decreases in their cholesterol levels, compared to the ADA group. Although this was a small study, it illustrates that a plant-based diet can dramatically improve the health of people with diabetes.

There is a second essential component to managing diabetes. Through regular exercise, the need for insulin injections can often be reduced, and oral medications often become unnecessary. This holds true not only for people with non-insulin-dependent diabetes, but also to some extent for those with insulin-dependent diabetes. Exercising muscles have a voracious appetite for fuel. When an individual is engaged in regular aerobic exercise, the sugar is able to enter the cells without the need for as much—or perhaps any—insulin.

While people with non-insulin-dependent diabetes can often eliminate medications when their weight is reduced and foods and exercise are better controlled, those with insulin-dependence will always need a source of insulin. The cause of insulin-dependent diabetes remains elusive. Several recent studies have implicated cow's milk consumption as a possible contributor.^{4,5} When milk-consumption patterns were examined across various nations, there was a very strong correlation with the incidence of insulin-dependent diabetes. It may be that milk proteins cause an autoimmune reaction in which the body mistakenly attacks its own insulin-producing cells. Even so, a good diet and regular exercise can minimize the amount of insulin these diabetics require. This is especially important given their tendency toward complications, heart disease, and other blood vessel problems that are much more common in people with diabetes. So it is doubly important to keep fit and to keep dietary fat to a minimum.

Patients with diabetes are shortchanged by the typical diet

that doctors recommend to them. The standard ADA diet is still high in fat. The ADA diet limits the amount of butter, eggs, and so forth, but it contains about 300 milligrams of cholesterol per day and about 30 percent of calories from fat.

Managing Your Diabetes with Food

This new and effective approach to diabetes is remarkably simple. Here are three easy steps to managing your blood sugar with diet.

1. Build your diet from fruits, vegetables, legumes, and whole grains.

Choose foods that are high in complex carbohydrates, such as whole grains, vegetables, and legumes. They will also help reduce your blood glucose and your need for medication. Many plant foods also contain soluble fiber, which slows the passage of sugar into your blood stream. Because processing often removes fiber and adds sugar or oil, the closer the carbohydrate-rich food is to its natural state, the better.

2. Avoid the troublemakers—meats of all kinds, dairy products, and eggs.

The best diet avoids meats and other animal products. These foods can encourage insulin resistance, heart problems, and weight gain because they usually contain large amounts of fat, cholesterol, and calories. A better choice is to get your protein from plant foods, such as beans, vegetables, tofu, whole grains, nuts, and seeds, many of which are also high in healthy complex carbohydrates and fiber.

3. Keep added fats to a bare minimum.

Diets high in fat can impair your insulin sensitivity. In other words, insulin will have a hard time doing its job. This is especially true for saturated fat (the kind found in meat, eggs, and dairy products) as opposed to monounsaturated fat (found in olive and canola oils). Plant foods generally tend to be much lower in fat, particularly saturated fat, compared to animal products, so beans, vegetables, and whole grains are good not just for their complex carbohydrates, but also for their lower fat content. Even nuts and seeds, which are fairly high in fat, contain more unsaturated fats and are much better choices than animal products, such as butter, bacon fat, sour cream, and so on, which are high in saturated fat. Even so, don't overdo it—it's still good to limit the amount of any fatty foods.

Further Reading

For more information on diet and diabetes, please see *Healthy Eating for Life to Prevent and Treat Diabetes* by the Physicians Committee for Responsible Medicine with Patricia Bertron, R.D. A sample recipe from the book follows.

Tropical Freeze

Makes 3 1-cup servings

Pureed frozen fruit makes a wonderful dessert, without the fat or refined sugar of ice cream. Look for frozen mango pieces in your supermarket, or you can make your own using fresh mangoes. To freeze bananas, peel, break into chunks, and place loosely in a covered container in the freezer.

- 1 orange (preferably navel), peeled
- 1 cup frozen banana chunks
- 1 cup frozen mango chunks
- 1/2 to 1 cup fortified soy milk or rice milk

Cut orange in half and remove any seeds. Place in a blender with banana, mango, and soy- or rice milk. Blend until thick and very smooth, 2 to 3 minutes. Serve immediately.

Per 1-cup serving: 130 calories; 3 g protein; 28 g carbohydrate; 2 g fat; 4 g fiber; 12 mg sodium; calories from protein: 10%; calories from carbohydrates: 78%; calories from fats: 12%

This fact sheet is not intended as a comprehensive program for diabetes. If you have diabetes, consult your doctor and tailor a program for your needs. But it is important to recognize that, for many, diabetes is a disease that need never occur. In most cases, people with diabetes can manage their disease much better with a food plan that gets most of its calories from complex carbohydrates while minimizing fats. At the same time, regular, vigorous exercise helps insulin work optimally.

References

1. Brand JC, Snow BJ, Nabhan GP, Truswell AS. Plasma glucose and insulin responses to traditional Pima Indian meals. *Am J Clin Nutr* 1990;51:416-20.
2. Barnard RJ, Massey MR, Charny S, O'Brien LT, Pritikin N. Long-term use of a high-complex-carbohydrate, high-fiber, low-fat diet and exercise in the treatment of NIDDM patients. *Diabetes Care* 1983;6(3):268-73.
3. Nicholson AS, Sklar M, Barnard ND, et al. Toward improved management of NIDDM: A randomized, controlled, pilot intervention using a low-fat, vegetarian diet. *Prev Med* 1999 Aug;29(2):87-91.
4. Scott FW. Cow milk and insulin-dependent diabetes mellitus: is there a relationship? *Am J Clin Nutr* 1990;51:489-91.
5. Karjalainen J, Martin JM, Knip M, et al. A bovine albumin peptide as a possible trigger of insulin-dependent diabetes mellitus. *N Engl J Med* 1992;327:302-7.