

TYPE 1 Diabetes Basics

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Type 1 diabetes (T1DM) is a chronic disease that causes a person's pancreas to stop making insulin, a hormone that lets the body use food for energy. It can be diagnosed at any age, but it manifests most often in children and young adults. It occurs after the body's immune system attacks and destroys the insulin-producing cells in the pancreas.

Since people with T1DM can no longer make insulin, they must take daily shots of insulin or use an insulin pump to control their blood sugar. They are also encouraged to follow a specific diet, closely monitor their blood sugar levels, and exercise frequently.

The cause of T1DM is unknown, and there are no ways to prevent or cure the disease. Some studies have found a possible link between milk and T1DM. Others suggest the body may have an immune response to the proteins in milk. This immune response may also attack the body's cells that make insulin.^{1,2} For this reason, among others, the American Academy of Pediatrics no longer suggests dairy milk for

infants. Also, when breast-feeding women eat dairy products, the milk proteins end up in their breast milk. Therefore, breast-feeding mothers may do well to avoid dairy milk.

Although insulin allows people with T1DM to live, it does not cure the disease. Diabetes puts people at risk for problems such as heart disease, blindness, kidney failure, and nerve damage, which can lead to lower leg amputations. However, there is much those with T1DM can do to protect their health. The Diabetes Control and Complications Trial (DCCT) showed this was possible with medication. The study followed 1,441 people with T1DM and compared those who took insulin once or twice a day to those who followed a more intensive program by taking insulin three or four times a day. Over 17 years of follow-up, the extra care taken by the people in the intensive care group paid off. Carefully controlling blood sugar levels to the near-normal range lowered the risk of problems. Heart problems decreased by 50 percent, kidney problems by 39 percent, eye problems by 76 percent, and nerve damage that can cause weakness, numbness, and pain by 60 percent.^{3,4}

The DCCT proved an important point: People with diabetes do not have to develop further complications. With T1DM, insulin will always be needed to maintain health, but a nutritious diet and regular exercise offer additional protection from complications. The risk of people with T1DM developing problems of the heart, kidneys, eyes, or extremities does not only depend on blood sugar control, but blood pressure, cholesterol, and other factors—most of which can improve with a healthful diet and lifestyle.

Dietary Approaches to Managing Diabetes

Along with medication, nutrition is one of the most important parts of diabetes management. The standard diet for diabetes limits foods with carbohydrates, such as breads, fruits, pasta, and other starches that release glucose during digestion. Limiting carbohydrates can shift the balance of our diet to contain unhealthful amounts of fat and protein and less of the foods with beneficial fiber, vitamins, minerals, and phytochemicals (protective factors found in plant foods). While it is true that highly processed carbohydrate products, including those with added sugar—for example, white bread or soda—are poor dietary choices, unprocessed and minimally processed carbohydrate foods are an important part of a healthful diet.

The low-fat vegan diet is a newer approach to eating healthfully and managing diabetes. Unprocessed and minimally processed whole-food carbohydrates are the key: Grains, legumes, fruits, and vegetables are encouraged. On the other hand, animal fat and animal protein, found in meat and dairy products, as well as other fatty foods, such as vegetable oils, are not part of this diet. The vegan diet is healthful and nutritionally adequate.⁵ In addition, it may provide benefits in the prevention and treatment of certain diseases, including alleviating problems associated with T1DM.

Studies show that those who eat a plant-based diet have a lower risk of death from some forms of heart disease, as well as lower blood pressure and “bad” LDL cholesterol.⁶⁻⁸ Healthful vegan diets are also associated with a lower body mass index and lower rates of overall cancer. The reduction of saturated fat and the elimination of cholesterol and animal protein offer protection against problems that medications alone cannot solve.⁵ A study of more than 1,600 women with any degree of kidney damage, a condition found in one in four Americans and many people with diabetes, showed that consumption of animal protein increased risk for kidney damage.⁹ On the other hand, proteins found in plants like beans, grains, and vegetables showed no damaging effect.

Beginning the New Dietary Approach to Diabetes

a. Build Your Meals from the Power Plate

Fill your plate with whole grains, legumes (beans, lentils, and peas), fruits, and vegetables. Drink water. Limit nuts or seeds to a small handful once a day. Visit ThePowerPlate.org for more information.

b. Begin a Vegan Diet—Avoid Animal Products

A vegan diet does not include any animal products - no red meat, poultry, pork, fish, eggs, or dairy products. Animal products contain saturated fat, which is linked to heart disease, insulin resistance, and certain forms of cancer. They also contain cholesterol and, of course, animal protein, which may aggravate kidney problems and calcium loss. All the protein you need can be found in whole grains, legumes, and vegetables.

c. Avoid Added Vegetable Oils and Other High-Fat Foods

Although vegetable oils are healthier than animal fats, oils are not health foods. Avoid oily sauces and salad dressings and foods fried in oil. All fats and oils are high in calories: 1 gram of any fat or oil has nine calories—more than double that of a gram of carbohydrate. The amount of fat that we need each day is actually quite small and comes packed inside the Power Plate’s vegetables, grains, and beans.

d. Favor Foods with a Low Glycemic Index

The glycemic index (GI) ranks carbohydrate foods according to how quickly blood sugars rise after being eaten. A high-GI food will raise blood sugar levels more quickly than a low-GI food. High-GI foods can also raise triglyceride levels. On the other hand, low-GI foods are broken down and absorbed slowly to produce a more gradual rise in blood sugar. The gradual rise associated with low-GI carbohydrates allows more time for the related insulin dose to take action in the body. This results in better blood sugar control following a meal.⁷ Fortunately, beans, oats, sweet potatoes, most fruits, and, surprisingly, white and wheat pasta are among foods that are lower GI champions. Breads such as pumpernickel, rye, multigrain, sourdough, and tortillas, as well as some cereals like bran, muesli, and rolled or steel-cut oats are also lower GI. Grains such as barley, parboiled rice, corn, and quinoa have a low GI. Limit high-GI foods such as sugar and sugary products, white and wheat bread, cornflakes, and puffed rice cereals. One study of 104 children with T1DM found after one year, the group on a flexible low-GI diet had a 0.6 percent lower hemoglobin A1c, (a test which checks long-term blood sugar control), compared with those who used a carbohydrate exchange meal system.^{10,11}

e. Go High Fiber

Intake of fiber is associated with lower death rates from all causes in people with diabetes.¹² Aim for at least 40 grams of fiber each day. Fiber is a type of carbohydrate that isn’t broken down by the human body, so it doesn’t contribute calories or raise blood sugar levels. After fiber is eaten, it moves through the digestive tract and adds bulk to help you feel full and satisfied. Fiber keeps your digestive tract working well and can also help lower your cholesterol levels. To fill up on fiber, choose beans, vegetables, fruits, and whole grains. When eating foods with a label, aim for at least 3 grams of fiber per serving and at least 10 to 15 grams of fiber per meal. Start slowly. Expect a change in bowel habits (usually for the better). Gassiness from beans can be minimized with small servings and thorough cooking, and it is a problem that often improves over time.

f. Add Vitamin B12

Those following a diet free of animal products should take a vitamin B12 supplement to protect blood and nerve cells.

Managing Insulin on a Low-Fat Vegan Diet

A healthful plant-based lifestyle that is low in fat can minimize the amount of insulin required by a person with T1DM. A decrease in dietary fat may be linked to lower insulin needs. This happens because the fat from food can diminish insulin action and intensify the liver’s release of glucose into the blood. As a result, people who have T1DM require less insulin to cover a lower-fat meal than a higher-fat meal with the same amount of carbohydrates. The improved

insulin sensitivity and decreased insulin need may persist for hours after eating a relatively lower-fat meal.^{13,14}

Counting carbohydrates is the most common way to figure out how much insulin is needed for meals and snacks. This does not take into account the amount of fat in food, which can make dosing difficult and result in erratic blood sugar levels. A good example of this is pizza. Pizza is high in fat and widely known to cause high blood sugars.⁹ Regularly following a plant-based diet low in fat may help to eliminate some mystery behind insulin dosing for foods high in fat. Also, the decrease in insulin needs from this healthful lifestyle can help to reduce the risk of low blood sugars and the cost of living with T1DM. It is not unusual to need 30-40 percent less total insulin when always eating a low-fat, low-GI, plant-based diet.¹³

Making the switch to a low-fat vegan diet is a healthful decision that may cause a rapid improvement in insulin sensitivity and a decrease in insulin needs. A person with T1DM should work closely with the members of his or her health care team before, during, and after this lifestyle change in order to manage medications, monitor blood sugar levels, and be sure the diet is nutritious and complete.

Meal Plan

Breakfast:

Steel-cut oatmeal with cinnamon
Nondairy milk: soy or almond
Blueberries
1 ounce walnuts

Lunch:

Lentil soup
Pumpernickel bread
Salad made with mixed greens and fresh, raw vegetables
Low-fat or fat-free salad dressing
Cantaloupe

Dinner:

Minestrone soup
Veggie lasagna made with low-fat tofu replaces ricotta cheese, layered with grilled vegetables

Snack:

Carrot sticks
Hummus

Resources

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