

# Diet and Diabetes: Recipes for Success

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## Diabetes Basics

**G**lucose, a simple sugar, is the body's main fuel. It is present in the bloodstream, but in people with diabetes it cannot get into the cells where it is needed. In type 1 diabetes (which was once referred to as childhood-onset diabetes), the problem is an inadequate supply of insulin, the hormone that ushers sugar into the cells of the body. Without insulin, the cell membranes keep sugar out. About 5 to 10 percent of people with diabetes have this type.<sup>1</sup>

The more common type of diabetes, type 2, usually does not occur until adulthood. In this form, there may be plenty of insulin in the bloodstream, but the cells are resistant to it. Glucose cannot easily get into the cells, and it backs up in the bloodstream. Over the short run, people with uncontrolled diabetes may experience fatigue, thirst, frequent urination, and blurred vision. In the long run, they are at risk for heart disease, kidney problems, disorders of vision, nerve damage, and other difficulties.

## Dietary Approaches to Diabetes

Food can be powerful in preventing and reversing diabetes. However, dietary approaches have changed as we have learned more about the disease.

The traditional approach to diabetes focuses on limiting refined sugars and foods that release sugars during digestion—starches, breads, fruits, pasta, etc. With carbohydrates reduced, the diet may contain an unhealthful amount of fat and protein. So diabetes experts have taken care to limit fats—especially saturated fats that can raise cholesterol levels—and to limit protein for people with impaired kidney function.

The new approach focuses more attention on fat. Fat is a problem for people with diabetes. The more fat there is in the diet, the harder time insulin has in getting glucose into the cells.<sup>2</sup> Conversely, minimizing fat intake and reducing body fat help insulin do its job much better. Newer treatment programs drastically reduce meats, high-fat dairy products, and

oils. At the same time, they increase grains, legumes, fruits, and vegetables. One study found that 21 of 23 patients on oral medications and 13 of 17 patients on insulin were able to get off of their medications after 26 days on a near-vegetarian diet and exercise program.<sup>3</sup> During two- and three-year follow-ups, most people with diabetes treated with this regimen have retained their gains.<sup>4</sup> The dietary changes are simple, but profound, and they work. **Low-fat, vegetarian diets are ideal for people with diabetes.**

A 2006 study, conducted by the Physicians Committee for Responsible Medicine with the George Washington University and the University of Toronto, looked at the health benefits of a low-fat, unrefined, vegan diet (excluding all animal products) in people with type 2 diabetes.<sup>5</sup> Portions of vegetables, grains, fruits, and legumes were unlimited. The vegan diet group was compared with a group following a diet based on American



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Diabetes Association (ADA) guidelines. The results of this 22-week study were astounding:

- Forty-three percent of the vegan group and 26 percent of the ADA group reduced their diabetes medications. Among those whose medications remained constant, the vegan group lowered hemoglobin A1C, an index of long-term blood glucose control, by 1.2 points, three times the change in the ADA group.
- The vegan group lost an average of about 13 pounds, compared with only about 9 pounds in the ADA group.
- Among those participants who didn't change their lipid-lowering medications, the vegan group also had more substantial decreases in their total and LDL cholesterol levels compared to the ADA group.

**This study illustrates that a plant-based diet can dramatically improve the health of people with diabetes. It also showed that people found this way of eating highly acceptable and easy to follow.**

Exercise plays an important role in diabetes management.<sup>6,7</sup> Through regular exercise, the need for insulin injections or oral medications can often be reduced. This holds true not only for people with type 2 diabetes, but also to some extent for those with type 1. Exercising muscles have a voracious appetite for fuel. When an individual is engaged in regular aerobic exercise, glucose is able to enter the cells without the need for as much—or perhaps any—insulin.

While people with type 2 diabetes can often reduce (and sometimes eliminate) medications when their weight is reduced and food and exercise are better controlled, those with type 1 diabetes will always need a source of insulin. The cause of type 1 diabetes remains elusive. Several studies have implicated cow's milk consumption as a possible contributor.<sup>8,9</sup> When milk consumption patterns were examined across various nations, there was a strong correlation with the incidence of type 1 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 required.

## The New Dietary Approach to Diabetes

This new and effective approach to diabetes is remarkably simple. Here are four simple steps to managing your blood sugar (and weight, blood pressure, and cholesterol) with diet.

### 1. Begin a Vegan Diet: Avoid Animal Products

Animal products contain fat, especially saturated fat, which is linked to heart disease, insulin resistance, and certain forms of cancer. These products also contain cholesterol and, of course, animal protein. It may surprise you to learn that diets high in animal protein can aggravate kidney problems and calcium losses. Animal products never provide fiber or healthful carbohydrates.

A *vegan* diet is one that contains no animal products at all. So, you'll want to avoid red meat, poultry, fish, dairy products, and eggs.

### 2. Avoid Added Vegetable Oils and Other High-Fat Foods

Although most vegetable oils are in some ways healthier than animal fats, you will still want to keep them to a minimum. All fats and oils are highly concentrated in calories. A gram of any fat or oil contains nine calories, compared with only four calories for a gram of carbohydrate.

Avoid foods fried in oil, oily toppings, and olives, avocados, and peanut butter. Aim for no more than 2–3 grams of fat per serving of food.

### 3. Favor Foods with a Low Glycemic Index

The glycemic index identifies foods that increase blood sugar rapidly. This handy tool allows you to favor foods that have much less effect on blood sugar. High-glycemic-index foods include sugar itself, white potatoes, most wheat flour products, and most cold cereals.

Quick Glycemic Guide	
High-GI (avoid)	Low-GI (enjoy)
White or wheat bread	Pumpnickel, rye, multigrain, or sourdough bread
Most cold cereals	Old-fashioned oatmeal, bran cereals, Grape-Nuts
Watermelon, pineapple	Most fruits
Baking potatoes	Sweet potatoes
Sugar	Pasta
	Rice, barley, couscous
	Beans, peas, lentils
	Most vegetables

### 4. Go High Fiber

Aim for 40 grams of fiber a day, but start slowly. Load up on beans, vegetables, and fruits. Choose whole grains (try barley, oats, quinoa, millet, whole-wheat pasta, etc.). Aim for at least 3 grams per serving on food labels and at least 10 grams per meal.

**To put these guidelines to work, focus on the New Four Food Groups.** Choose unlimited amounts of grains, legumes, fruits, and vegetables. Modest amounts of nonfat condiments, alcohol, and coffee are also fine.

**Grains:** pasta, rice, high-fiber cereals, corn, oatmeal, couscous, bulgur wheat, millet, barley, rye, etc.

**Legumes:** beans (black, pinto, kidney, garbanzo, white, etc.), peas, split peas, lentils, nonfat soy products

**Fruits:** all, except avocados, olives, pineapple, and watermelon. Bananas, apples, grapes, pears, peaches, oranges, melons, grapefruit, kiwi, and berries, among others, are all good choices.

**Vegetables:** all, except white potatoes. Examples include tomatoes, cucumbers, carrots, broccoli, cauliflower, spinach, kale, collards, squash, green beans, bok choy, sweet potatoes, and artichokes.

**A note on vitamin B12:** Those following a diet free of animal products should take a B12 supplement of at least 5 micrograms per day. Any common multiple vitamin will provide this amount.

### Further Reading

- *Dr. Neal Barnard's Program for Reversing Diabetes: The Scientifically Proven System for Reversing Diabetes Without Drugs* by Neal D. Barnard, M.D.
- [www.pcrm.org/diabetes](http://www.pcrm.org/diabetes)
- *The McDougall Quick & Easy Cookbook: Over 300 Delicious Low-Fat Recipes You Can Prepare in Fifteen Minutes or Less*, by John A. McDougall, M.D. and Mary McDougall

### Recipes

Here are some simple recipes for common foods, prepared without animal products or oils:

#### Masoor Dal Soup

*Makes 6 servings*

Serve this traditional soup of red lentils and spices, as a thick stew on top of jasmine rice or by itself as a delicious warm soup.

- 1 cup masoor dal (red lentils)
- 3 cups water
- 1 teaspoon cumin seeds
- 1 teaspoon grated fresh ginger, soaked in water
- 5 curry leaves
- 1/4 teaspoon turmeric
- big pinch asafetida (optional)
- pinch salt
- 1 tablespoon lemon juice
- 1 tablespoon chopped fresh cilantro

Cook masoor dal in 3 cups water until soft, about 15 minutes. Set aside.

Heat a medium nonstick pan and add cumin seeds; cook at low-medium heat until brown, about 1 minute, but be careful not to burn. Add ginger and curry leaves and cook for 2 minutes. Then add turmeric and asafetida, if using. Stir and immediately add cooked dal (lentils). Add water if necessary to moisten the lentils. If you prefer more of a soup consistency, then add up to 1/2 cup water.

Simmer for about 10 minutes and add salt to taste. Before serving, add lemon juice and garnish with chopped cilantro.

Per serving (1/6 of recipe): 105 calories, 0.4 g fat, 0.1 g saturated fat, 3.7% calories from fat, 0 mg cholesterol, 8 g protein, 18.2 g carbohydrate, 0.4 g sugar, 5.2 g fiber, 52 mg sodium, 20 mg calcium, 3.2 mg iron, 2.1 mg vitamin C, 14 mcg beta-carotene, 0.1 mg vitamin E



#### Gobi Mattar Masala

*Makes 4 servings*

This dish of cauliflower and peas simmered in a mixture of traditional Indian spices is delicious when served hot with chapatis.

- 1 pound fresh cauliflower, chopped into bite-size pieces
- 2 teaspoons salt, plus more to taste
- 1 cup + 6 tablespoons water, divided
- 1 teaspoon coriander seeds
- 1 teaspoon cumin seeds
- 6 bay leaves
- 2 teaspoons ginger-garlic paste
- 2 onions, finely chopped
- 1 medium tomato, finely chopped
- 1 teaspoon garam masala, plus more for garnish
- 1 cup frozen green peas
- 4 coriander leaves, for garnish

Combine cauliflower, salt, and 1 cup water in a pot and boil for 5 minutes. Add 2 teaspoons salt to cauliflower and boil for five minutes.

Heat a nonstick sauté pan and add coriander seeds, cumin seeds, and bay leaves and dry sauté on low-medium heat for 1 minute. Add ginger-garlic paste and simmer for 2 minutes. Add onions and remaining 2 tablespoons water and sauté until translucent. Then add tomato and sauté for 1 minute. Add garam masala and salt to taste. Add cauliflower, peas, and 4 tablespoons water and cook for 5 minutes. Before serving, garnish with a dash more of garam masala and coriander leaves.

Per serving (1/4 of recipe): 72 calories, 0.8 g fat, 0.1 g saturated fat, 9.9% calories from fat, 0 mg cholesterol, 4 g protein, 14.1 g carbohydrate, 5.4 g sugar, 3.7 g fiber, 370 mg sodium, 45 mg calcium, 1.7 mg iron, 39.2 mg vitamin C, 489 mcg beta-carotene, 0.3 mg vitamin E



## Chana Palak

Makes 2 servings

Chickpeas cooked in a mild gravy with spinach purée and tomato makes for a healthy and hearty meal.

- 1 teaspoon cumin seeds
- 1 teaspoon ginger-garlic paste
- 1/2 cup chopped onion
- 4 tablespoons water, divided
- 1/4 cup chopped tomato
- 1 teaspoon garam masala
- 1 teaspoon chana masala
- 1 teaspoon crushed fenugreek leaves, crushed by hand (optional)
- 1/2 cup drained canned chickpeas
- 5 cups chopped spinach
- salt, taste
- 1 teaspoon chopped coriander leaves, chopped

Heat non-stick pan and add cumin seeds. Cook for 1 minute and then add ginger-garlic paste and sauté for 2 minutes. Add onion and 2 tablespoons water and cook over low-medium heat until light brown, then add tomato and continue cooking until mixture thickens. Add garam masala, chana masala, fenugreek leaves, and remaining 2 tablespoons water. Sauté for 2 to 3 minutes. Add chickpeas, mix well, and then add spinach. Let simmer into a gravy-like texture. Add salt to taste. Garnish with coriander leaves.

Per serving (1/2 of recipe): 113 calories, 1.9 g fat, 0.2 g saturated fat, 15.2% calories from fat, 0 mg cholesterol, 6.7 g protein, 19.8 g carbohydrate, 2.8 g sugar, 5.3 g fiber, 256 mg sodium, 141 mg calcium, 5.3 mg iron, 13.1 mg vitamin C, 4042 mcg beta-carotene, 1.9 mg vitamin E

## Chapati

Makes 12 to 15 servings

- 5 cups whole-wheat flour
- 2 cups water at room temperature
- 1 1/2 cups whole-wheat flour in a large plate for dusting the dough

Put flour in a large bowl. Make a well in the middle and pour in a stream of water in the center. Mix flour and water until dough is moist enough to be gathered into a rough mass. Continue mixing until the mixture cleans the sides of the bowl and has become a non-stick, kneadable dough. Rest the dough and cover it with moist cloth for 1 hour to relax and absorb the water.

Then, to roll out the dough, prepare dough balls into the size of a plum. On a floured surface, flatten each ball of dough with your hand. Roll the dough with rolling pin from center of dough. Turn dough few times to make it round and thin, approximately 6 inches in diameter.

To cook the chapati, preheat a cast-iron skillet or heavy base pan over medium heat and flip the rolled dough onto skillet. When the top bubbles appear, turn it over. When top bubbles appear on second side, remove the bread from the skillet. Repeat this procedure for each piece of dough.

Per serving (1/12 of recipe): 195 calories, 1.1 g fat, 0.2 g saturated fat, 5% calories from fat, 0 mg cholesterol, 7.9 g protein, 41.7 g carbohydrate, 0.4 g sugar, 7 g fiber, 4 mg sodium, 21 mg calcium, 2.2 mg iron, 0 mg vitamin C, 3 mcg beta-carotene, 0.5 mg vitamin E

This fact sheet is not intended as a comprehensive program for diabetes. Be aware that a change in diet can produce big results. For some, there is a risk that low blood sugar can occur. See your health care provider before making any changes to your diet.

## References

1. Centers for Disease Control and Prevention. *National diabetes fact sheet: general information and national estimates on diabetes in the United States, 2005*. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention; 2005.
2. Peterson KF, Dufour S, Befroy D, Garcia R, Shulman GI. Impaired mitochondrial activity in the insulin-resistant offspring of patients with type 2 diabetes. *N Engl J Med*. 2004;350:554-671.
3. Barnard RJ, Lattimore L, Holly RG, Cherny S, Pritikin N. Response of non-insulin-dependent diabetic patients to an intensive program of diet and exercise. *Diabetes Care*. 1982;5(4):370-4.
4. Barnard RJ, Massey MR, Cherny 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.
5. Barnard ND, Cohen, J, Jenkins DJ, et al. A low-fat, vegan diet improves glycemic control and cardiovascular risk factors in a randomized clinical trial in individuals with type 2 diabetes. *Diabetes Care*. 2006;29(8):1777-83.
6. De Feo P, Di Loreto C, Ranchelli A, et al. Exercise and diabetes. *Acta Biomed Ateneo Parmense*. 2006;77 Suppl 1:14-7.
7. Thomas DE, Elliott EJ, Naughton GA. Exercise for type 2 diabetes mellitus. *Cochrane Database Syst Rev*. 2006;3:CD002968.
8. Scott FW. Cow milk and insulin-dependent diabetes mellitus: is there a relationship? *Am J Clin Nutr*. 1990;51:489-91.
9. 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.