



Diabetes Mellitus—Type 2

WHAT IS IT?

Diabetes is a condition with elevated blood glucose due to abnormalities in the metabolism of sugar. People with type 2 diabetes have less insulin in their systems and their tissues are often resistant to its action. As a result of high blood sugar, people with diabetes can develop kidney, eye, nerve and heart disease, and are at greater risk for cancer, especially when they have the condition for many years.

DIAGNOSIS

Diabetes is typically diagnosed by blood tests. A random blood sugar greater than 200 mg/dL, fasting blood sugar greater than 126 mg/dL, or a 3-month “average” blood sugar, called hemoglobin A1c (HbA1c), greater than 6.5% are all diagnostic of diabetes.

TREATMENT

Integrative care is ideal for diabetes management, as it incorporates many modes of optimizing health.

Lifestyle

- **Exercise:** Exercising regularly can prevent the onset of type 2 diabetes and improve its control once diagnosed. Aim for 30 minutes of moderate exercise at least 5 days of the week. Although combining aerobic and resistance exercise is best, practices like yoga, tai chi, qigong, and pilates can also be beneficial.
- **Low glycemic index and load:** These are scores determined for each food that measure the impact of those foods on blood sugar levels. Higher glycemic load foods cause a greater elevation in blood sugar. Eating a low glycemic load diet can improve levels. There are many websites which provide guidance on a low glycemic load diet and you can also ask your healthcare provider for additional guidance.

Medications

- Many pharmaceutical medications enhance the body’s natural insulin or, in the case of advanced type 2 diabetes, there are medications that replace insulin altogether. Common side effects of most diabetes medications include hypoglycemia, or sugars that are too low. Be sure to discuss your diabetes medications with your doctor. Understand how each one acts in the body and what the optimal time is to take each.

Botanical or Dietary Supplements

Make sure to ask your health care provider exactly how and when you should take these.

- **Chromium** is found in a variety of foods but has been shown to lower blood sugar when taken as chromium picolinate at higher doses (>200mcg/day) in supplement form. It may cause abdominal discomfort and should be avoided at very high doses in patients with kidney or liver disease.
- **Alpha-Lipoic Acid (ALA)** has been shown to improve nerve pain from diabetes. The recommended dose of oral alpha lipoic acid is 600mg daily or with 500–1000mg of intravenous alpha lipoic acid daily. Potential side effects include allergic reactions and low glucose (if taken along with insulin). ALA should not be used with cancer treatment.
- **Cinnamon cassia**, the most popular form of cinnamon in the United States, has been shown to lower fasting blood sugar. Dosing is about 1000–2000mg/day and optimally made from a water-based extract if taken in supplement form.
- **Fenugreek** is a common cooking spice in Middle Eastern cuisine and has been shown to lower blood sugar and cholesterol levels. Dosing depends on the formulation used and it may cause urine to smell like maple syrup.

Botanical or Dietary Supplements, continued

- **Gymnema** leaves have been chewed in India for years, and have earned the name “sugar destroyer.” It has been shown to lower glucose levels and can be ingested as a tea three times daily or a supplement (standardized to 24% gymnemic acids) 400–600mg/day.
- **Berberine**, a compound extracted from several plants such as Oregon grape root and Barberry, lowers fasting blood sugar and HbA1c. This is typically dosed as 500mg three times daily, and up to 1000mg two times a day.

MIND-BODY TECHNIQUES

Emotional stress and negative psychological states result in release of hormones that increase blood glucose, decrease insulin sensitivity, and cause inflammation.

There is evidence that mind-body practices such as meditation, progressive muscle relaxation, mindfulness, yoga, guided imagery, and other modalities help reduce the risk for, and treat, type 2 diabetes. These practices elicit the relaxation response which regulates hormones and has the opposite effect of stress.

Notes

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