

PATIENT INFORMATION–Diabetes Type 2

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What is diabetes type 2?

Diabetes is a disease. People with diabetes have a persistently elevated blood sugar (glucose). Persistently elevated blood glucose may cause damages to many organs in the body over time, especially the eyes, kidney, nerves, and heart. If the blood glucose is too high, it will cause symptoms, including frequent urination, thirst, dehydration, blurry vision, and yeast infections.

What causes diabetes type 2?

Diabetes is caused when the hormone insulin does not work normally. Hormones are chemicals made in an organ of the body that enter the blood stream, and have effects on other organs. The hormone insulin is made in the pancreas. Insulin moves glucose from the bloodstream into cells. The cells in the body burn glucose to get the energy they need. When there is not enough insulin activity, glucose remains in the blood. The cells in the body do not get the energy they need to work properly. And the glucose levels in the blood go up.

Who is at risk for diabetes type 2?

All ethnic and racial groups are affected by diabetes. Persons of African, Latino, Native American, South Asian subcontinent, and East Asian descent are at higher risk for diabetes. Additionally, people who have overweight or obesity, and those with a first degree relative with diabetes, have a higher risk for diabetes.

What are the symptoms and complications of diabetes type 2?

If the blood glucose is too high now, it will cause symptoms, including frequent urination, thirst, dehydration, blurry vision, and yeast infections. If the blood glucose remains high over time it will cause tissue damage.

Kidney damage may cause high blood pressure, swelling from protein leaking into the urine, and eventually fatigue (from the buildup of waste in the blood). Diabetes is the leading cause of kidney damage in the US.

Cataract formation is accelerated in diabetes, leading to gradual loss of vision. More worrisome, the blood vessels inside the eyeball become weak and may bleed inside the eyeball. This is a major cause of loss of vision in diabetes. The macula, a part of the eye necessary for vision, may also be affected. The macula becomes swollen, and this may also lead to loss of vision. Diabetes is the leading cause of blindness in the US.

Nerve damage is manifested by abnormal sensation of the skin, like “pins and needles”, or “ants crawling on the skin”. Some people experience pain from the nerve damage. And over time the nerves die, leading to a complete loss of sensation of the skin. This puts people at risk for sores and ulcers. If the ulcers become infected, there may be a need to amputate the infected part. Diabetes is the leading cause of non-traumatic amputations in the US.

The symptoms and complications of diabetes can be prevented by good blood glucose control.

How is diabetes type 2 diagnosed?

Diabetes type 2 is diagnosed by laboratory testing. There are four ways to diagnose diabetes type 2:

- **Fasting** blood glucose of 126 mg/dL or more on two consecutive occasions, in the absence of stress (which can make the blood glucose go up).
- **Any** blood glucose of 200 mg/dL or more, in the presence of symptoms of a high blood glucose.
- **Oral glucose tolerance test**, where a person comes in to the laboratory after an overnight fast, ingests a drink with 75 grams of glucose, and the blood glucose is measured 2 hours later. A blood glucose of 200 mg/dL or more is diabetes type 2.
- **Hemoglobin A1c** (A1c, this is a blood test that gives the average level of blood glucose over the past three months). An A1c, drawn at any time, of 6.5% or higher.

What are the treatment options for Diabetes type 2?

The first line of treatment for diabetes type 2 is implementing a healthy lifestyle. This requires education. Better nutrition and more physical activity, which usually lead to weight loss, go a long way in controlling the blood glucose. If improving a person's lifestyle is not enough, a number of medications given by mouth or by injection are available to lower the blood glucose. There are many choices, so it is best to work with your physician to determine which ones are right for you. Some physicians will suggest weight loss management with medications or surgery if you have obesity and a high risk for complications from diabetes.

What steps can I take to support my treatment?

A key component of managing diabetes is improvement in your own lifestyle. Specifically, you should improve your nutrition, and increase your physical activity. A reduced-calorie, balanced meal plan that is low in fried and fatty foods is excellent. Physicians may recommend a plant-based, (Mediterranean) meal plan. Walking at least 30 minutes five times a week is helpful.

If you choose to participate in daytime fasts, it is important to adjust the content of your pre-dawn and evening meals. Some steps to take include:

- Decreasing intake of refined carbohydrates like sugary drinks, breads made with flour
- Increasing intake of foods containing omega-fatty acids like cold-water fish, lentils, and canola oil
- Easing intake of foods containing saturated and trans fatty acids and cholesterol; fried foods are a no-no
- Increasing intake of fruits and vegetables excluding pineapples and bananas
- Decreasing intake of salt and salty foods like potato chips and processed meats

Sticking to your treatment plan is essential for success in treating diabetes type 2. Perfection is not possible, but keeping a daily meal and physical activity plan as much as possible is the first step. Dosing medications as prescribed is very important. If medications are not affordable, or they cause side effects, contact your doctor immediately.

The most important thing to happen is for you to get a good education about your disease. Diabetes is a life-long disease, so give yourself the time to learn as much about it as you can.

Questions to ask your doctor:

Knowledge is power. If you do not know what you do not know, there is not much that you can do. So ask questions, and take charge. Here are examples of questions you can ask your doctor to improve your diabetes type 2 medical care:

- Since I have diabetes, what can I do to help my children?
- How do I screen for diabetes complications?
- How often do I need blood testing?
- Are there other health care professionals, like dietitians, nurse educators, physical activity coaches, eye specialists, foot specialists, or psychologists, that I should see for my diabetes care?
- What are potential side effects of the medications I take?
- How much weight do I need to lose to be healthier?
- If I do have a complication of diabetes type 2, how can I prevent it from getting worse?

Additional Resources:

Healthful Diets during Ramadan

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Indian Foods: AAPI's Guide to Nutrition, Health, and Diabetes

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