

# Type 2 **DIABETES**

...Where To Begin



Type 2 diabetes is the most common form of diabetes. Of the more than 30 million Americans with diabetes, 90% have type 2 diabetes, while the remainder have type 1, or insulin-dependent diabetes.

In type 1 diabetes, the body's own immune system damages the insulin-producing cells in the pancreas. Type 1 diabetes can't be cured and requires daily insulin treatment. In contrast, type 2 diabetes can be managed by diet and lifestyle changes, although some people will also need medication to manage their blood sugar levels.

Type 2 diabetes occurs when the body doesn't handle insulin well or cells stop responding to it, causing blood sugar levels to become too high. Over time, if it isn't treated, high blood sugar causes serious damage throughout the body, resulting in vision problems, skin infections, and an increased risk of heart disease and stroke.

## **Who Gets Type 2 Diabetes?**

Type 2 diabetes begins with a period of prediabetes, when blood sugar levels are elevated but not as high as a full diabetes diagnosis. Prediabetes is more easily reversed than diabetes, so it's important to be aware of both conditions. If your blood sugar is high but you don't yet have diabetes, it's important to make changes to bring your blood sugar down.

The main risk factors for both prediabetes and type 2 diabetes are the same. They include:

- Being overweight or obese
- Having a waist circumference of 40" or more for men, or 35" or more for women
- Being 45 years or older
- Having a family history of diabetes
- Having had gestational diabetes or having given birth to a baby over 9 pounds
- Being sedentary (physically active less than three times a week)
- Being of African American, Hispanic, American Indian, Alaska Native, Pacific Island, or Asian American descent

While the risk of type 2 diabetes increases with age, people of any age can get it. In fact, the number of children diagnosed with type 2 diabetes has steadily increased over the past couple of decades, alongside the rise in childhood obesity. The number of youths under 20 with type 2 diabetes is still small – less than 200,000 children and teens – but as childhood obesity increases, these numbers are likely to increase.

A healthy diet and plenty of activity is the key to preventing type 2 diabetes in children. Only one in three American children get daily physical activity, yet children and teens should be active for at least an hour every day.

## How Diabetes Is Diagnosed

Type 2 diabetes is diagnosed with several tests that show your blood sugar levels. Your doctor will test you if you show symptoms of diabetes. Many doctors will also conduct regular blood sugar tests as part of your annual check-ups. This is important since in its early stages, type 2 diabetes may not show symptoms, or the symptoms may be very mild. You should talk to your doctor about routine diabetes screening if you:

- Have a body mass index (BMI) over 25 (23 if you are of Asian descent) and have high blood pressure, high cholesterol, are sedentary, have a history of polycystic ovarian syndrome (PCOS), or have a family history of diabetes.
- Are older than 45. If your initial test is clear, retests are advised every three years.
- Have a history of gestational diabetes.
- Have prediabetes with mildly high blood sugar.

Diabetes is diagnosed through blood tests. The most common test is a glycated hemoglobin (A1C) test, which measures your average blood sugar level. An A1C level of 6.5% on two separate tests means that you have diabetes, an A1C level between 5.7 and 6.4% shows prediabetes, and less than 5.7 is a normal reading. In some cases, your doctor may also recommend a random blood sugar test, a fasting blood sugar test, or an oral glucose tolerance test.

If your doctor suspects that you might have type 1 diabetes rather than type 2 diabetes, you will need urine tests for specific byproducts that are produced in the kidneys of people with type 1 diabetes.

If you have been diagnosed with prediabetes, it's important to make lifestyle changes as soon as possible to prevent diabetes. The same lifestyle changes are needed with diabetes, and your doctor may also recommend some medications.

## How to Control Diabetes

The first step in treating diabetes is to become educated on diabetes management. Ask your doctor for a referral to a certified diabetes educator, a registered dietitian, or a diabetes education program in your area. Many hospitals and health centers have diabetes courses, and some insurance providers also provide online courses about diabetes.

The more you know about your condition, the more you will be able to take charge of your health. You will need to improve your diet, commit to regular physical activity, and may need medication. The good news is, with these changes, most people can manage their diabetes and may even be able to achieve normal blood sugar levels without requiring medicine.

## Diet

Dietary changes are the number one way to help prevent, treat, and manage type 2 diabetes. Our blood sugar levels are directly connected to what kinds of foods we eat, how much we eat, and when we eat.

If you are newly diagnosed with prediabetes or diabetes, it's important to learn everything you can about how to change your diet to improve your condition. Your doctor can refer you to a diabetes educator or registered dietitian who can help you make changes tailored to your lifestyle, tastes, and medical needs. Working with a professional is the best way to make sure that your diet works for you.

Fortunately, the dietary changes that help you manage diabetes will also help prevent obesity, as well as lowering your risk of heart disease, stroke, and certain cancers. In other words, a diabetes diet involves (with a few specific tweaks) the same healthy eating principles that your whole family should adopt.

The amount that you need to eat each day depends on your current weight, activity level, health, gender, and weight-loss goals (if any). Suggested daily intake can range from 1200 to 3000 calories a day. A dietitian can explain how much you should be eating based on your personal situation. As for what to eat, eat plenty of:

- Fruits and vegetables. The fiber and nutrients in fruits and veggies helps fuel your body and keep you full. However, most fruits and some vegetables are high in carbohydrates, and you may need to limit how many carbohydrates you eat. Speak to your dietitian about exactly how many fruits and vegetables you should eat in a day.
- Whole grains. Whole grains such as oats, brown rice, whole wheat, rye and barley contain fiber and nutrients that can help manage blood sugar. Whole grains do contain carbohydrates, and you may need to control how many portions you have in a day. Again, speak to a dietitian about the right amount for you.
- Lean protein. Protein helps build muscles and keep you full. Good lean protein sources include poultry, lean pork, oily fish such as salmon and mackerel, and legumes. In addition to being an excellent vegetarian source of protein, legumes also contain plenty of fiber.
- Healthy fats. It's important to consume moderate amounts of healthy monounsaturated and polyunsaturated fats such as olive oil, avocados, nuts, and seeds.
- Low-fat dairy foods, which offer protein and minerals that help keep your bones strong.

Reduce or avoid:

- Sugary drinks, such as sodas and energy drinks. Studies show an association between consumption of sugary drinks and diabetes rates.
- Candy, desserts, and other sweet foods. Consuming high-sugar foods can make your blood sugar harder to manage.
- Foods high in saturated fats, trans fats, and cholesterol. These foods include high-fat dairy products, red meats, coconut and palm kernel oil, shortening, egg yolk, and many packaged baked goods and pastries. Diabetics have a high risk of heart attack and stroke, and these foods raise your risk further.
- White rice and white flour. Eating lots of white rice is associated with increased diabetes risk.
- High-sodium foods. Try to keep your sodium to less than 2,300 mg a day, or less if you have high blood pressure.
- Alcohol. Alcohol can cause blood sugar to go up or down, depending on the type and amount consumed. This can make managing blood sugar difficult. An occasional drink can be ok if your diabetes is well managed. Ask your doctor or dietician whether an occasional drink is safe for you.

By changing your diet, you may be able to reduce your need for diabetes medication. Some people are even able to manage their blood sugar levels through diet alone, and no longer need medication. It's important to remember that it's never too late to improve your diet, even if you have been struggling with diabetes for several years. Even the smallest changes can make a big difference in your health.

## **Exercise**

Exercise is an essential component of diabetes management. Exercise helps lower blood sugar and increases insulin sensitivity. It also helps with weight management.

Generally, adults are advised to get at least 150 minutes of brisk movement in each week. That's just 20-30 minutes a day. If that sounds like too much, though, it's ok. Studies have shown that as little as 10 minutes of brisk movement can offer significant health benefits. It's important to know that with exercise, even a little bit is much better than none at all. Brisk movement includes anything that gets your heart rate up, such as brisk walking, riding a bike, household chores, dancing, or any other aerobic activity you choose.

Strength training is also important, and adults should aim for two sessions of strengthening exercises per week. Strength exercises include lifting weights in the gym, as well as some forms of yoga, Pilates, and body weight exercises (calisthenics).

Studies show that both aerobic exercise and strength training can improve blood sugar management. The key is finding an exercise you like to do and doing it regularly.

Before you start exercising, speak with your doctor about how much exercise is safe for you. Exercise affects blood sugar levels, so ask your doctor how to monitor your blood sugar before, during, and after exercise.

## **Weight Loss**

If you are overweight or obese, losing weight will help with diabetes management. For most people, changing your diet and exercise habits as described above will help you reach and maintain a healthy weight for the long-term.

Weight loss does not need to be dramatic or quick to make a difference in your health. A recent study found that people who lost as little as 10% of their body weight within five years of a diabetes diagnosis had better blood sugar management than those that didn't lose weight. For a 200-lb person, that's just 20 pounds. As an example, you could lose twenty pounds in around 40 weeks by cutting just 250 calories a day, which is equal to around three slices of bread.

Talk to your doctor, dietician or diabetes educator about safe, sensible ways to lose weight that make sense for your health and lifestyle.

## **Medication**

Lifestyle changes are essential for managing diabetes, and many people are able to control their diabetes without medication. However, some people need medication to bring their blood sugar under control.

There are many medication options for diabetes and your doctor will discuss a specific plan with you, based on your health history and your blood sugar levels. Diabetes medications include medicines that lower glucose production, increase insulin sensitivity, or increase insulin production. In addition, some people with type 2 diabetes may require insulin therapy.

If you need diabetes medication, expect some trial and error as you work with your doctor to discover the right medication for you. Your medication needs may also change over time. Some people find that as they change their lifestyle, their need for medication is reduced. Others may find that they need to add medication over time. Check in with your doctor regularly to make sure that your current prescriptions are still the best for you.

## **Monitoring Blood Sugar**

Anyone with diabetes will quickly get used to checking their blood sugar levels. If you are on non-insulin medication or can control your diabetes through diet and exercise,

you may not need to check your blood sugar daily. However, if you are on insulin, you will need to check blood sugar levels as often as two to ten times a day.

Your doctor will give you specific blood sugar targets based on your age, other health conditions, severity of diabetes, and other personal considerations. Generally, the American Diabetes Association recommends a target blood sugar range of 80 to 130 mg/dL (4.4 to 7.2 mmol/L) before meals, and less than 180 mg/dL (10.0 mmol/L) two hours after meals.

To test your blood sugar, you will need a device called a glucose meter (glucometer). Your doctor or diabetes educator can recommend the right device for you and teach you how to use it. It's important to carefully follow the instructions on any device you choose. Generally, to test your blood sugar, you will wash and dry your hands, insert a test strip into your machine, prick your finger with a needle or lancet, squeeze out a drop of blood, and touch the test strip to the blood.

Testing your blood sugar helps you manage your medication, and it also gives you valuable insights that can help you take control of your health. If you combine your blood sugar levels with notes about your diet and exercise habits, health, stress levels, and sleep, you will begin to understand how different foods and life events affect your blood sugar.

## **Bariatric Surgery**

Some people who struggle to control their weight in other ways benefit from bariatric surgery. Surgery can help those with a body mass index (BMI) over 35 who have tried and failed other methods to control their weight.

In bariatric surgery, the size of the stomach is surgically altered or a portion of the small intestine is bypassed. Bariatric surgery often produces dramatic improvements in blood sugar levels in people with type 2 diabetes. However, the surgery can have serious side effects and requires life-long lifestyle changes.

If you are considering surgery, speak with your doctor about the risks and benefits. If surgery is right for you, many health insurance plans will cover the costs.

## **Diabetes Complications to Watch Out For**

Managing your diabetes takes constant effort, which can be tiring. However, without constant management, serious complications can result. These include:

### **Vision Problems**

High blood sugar damages the tiny blood vessels throughout the body. The blood vessels in your eyes are particularly delicate and susceptible to damage. When blood

sugar is too high for too long, blurry vision can result. If this is caught early enough, the blood vessels can heal and vision may return to normal. However, if left untreated, vision problems may become permanent, and blindness is a possibility. More than two in five Americans with diabetes have some vision problems. The risk of vision problems is higher if you are also a smoker.

Your best defense against vision loss is to keep your blood sugar, blood pressure and cholesterol within normal ranges, and have a full eye exam each year, which can help catch problems early. If you smoke, speak to your doctor about ways to quit.

## **Slow-Healing Wounds**

As well as damaging the blood vessels in the eyes, high blood sugar can also damage blood vessels in the legs and feet. This leads to reduced circulation in the feet, which can slow the healing of any small injuries. In addition, diabetes can damage nerves in your extremities which can lead to a condition known as peripheral neuropathy, or reduced sensation in the feet and legs. As a result of this nerve damage, people with diabetes sometimes don't feel small blisters, splinters, cuts, or other small wounds in their feet and legs.

Combined with a weaker immune system and slow circulation, a small, unnoticed blister can quickly turn into a serious infection. In some cases, infected tissue has to be surgically removed, and amputation may be required. Fortunately, thanks to better diabetes care, the number of people with diabetes who require amputation has dropped over the past 20 years.

Prevention is your best option to avoid infected wounds. Carefully look after your feet and legs and visit your doctor at the first signs of a problem. Wash and dry your feet daily, regularly inspect your feet for injuries, and always wear clean socks and shoes to help prevent blisters, scratches, bug bites, and other injuries. Regular visits with a podiatrist can help spot problems before they become serious.

## **Heart Disease and Stroke**

People with diabetes are twice as likely to pass away from heart disease or stroke as people without diabetes. To avoid cardiovascular disease, it's important to:

- Keep your blood sugar within normal ranges
- Lower your blood pressure to less than 120/80
- Lower your cholesterol to less than 200 mg/dL
- Maintain a healthy weight
- Quit smoking

Fortunately, the same lifestyle changes that help you manage your diabetes will also help you lower your blood pressure and cholesterol and reach and maintain a healthy



weight. In some cases, your doctor may also prescribe medications to help you manage your blood pressure and cholesterol.

## **Conclusion**

Type 2 diabetes is a serious illness that can be fatal. However, it can be managed with medication and lifestyle changes. With diabetes, your health is in your own hands. By eating a healthy diet and adding daily movement to your routine, you can seize control of your own health and improve your diabetes. You may even be able to get off medication. The important thing to know is that even small changes can make a big difference, and it's never too late to start.