A Guide to Understanding What Type 2 Diabetes Is

by COLLEEN KELLY

What Is Type 2 Diabetes?

If you've recently been diagnosed with type 2 diabetes, you're probably feeling overwhelmed. After all, being diagnosed with any chronic disease is overwhelming – but having diabetes may mean a change in diet, lifestyle, and a myriad of new medications.

There is a lot to know, and it is likely that your provider discussed much of this information – or referred you to speak with a certified diabetes educator (CDE) and a registered dietitian (RD) to learn more about your condition. It is a great idea to talk with both providers because they can provide individualized education.

If you continue reading, you'll find a guide to what type 2 diabetes is. It provides basic information about your condition.

Understanding What Type 2 Diabetes Is

A straightforward explanation of type 2 diabetes is that your blood glucose levels run too high. However, if you have type 2 diabetes, you know that this explanation is much too oversimplified.

Our pancreas produces insulin. Ideally, our bodies produce the perfect amount of insulin. The insulin acts as a "key" to guide the glucose into the cells, and the cells transport the glucose where it can be utilized for energy.

Type 2 diabetes then occurs when the pancreas doesn't produce enough insulin, or the body does not use the insulin effectively. This causes blood glucose levels to become elevated, and the glucose is unable to reach the cells of the body, where they would be used appropriately.

Type 2 Diabetes vs. Type 1 Diabetes

Although both types of diabetes require monitoring and management of blood glucose levels, there are some stark differences type 1 diabetes and type 2 diabetes.

Type 1 diabetes occurs in five to 10 out of 100 people with diabetes. It is an autoimmune disease, which means that the body's immune system destroys its insulin-making capabilities. Eventually, the person with type 1 diabetes will be unable to make any insulin, whatsoever. This means that they will have to give insulin to survive. It most commonly occurs in childhood but can occur at any age, as it is an autoimmune disease.

Type 2 diabetes occurs in 90 to 95 percent of people with diabetes. As we already explained, the pancreas doesn't make enough insulin, or the body isn't using the insulin effectively (or in some instances, both!)

As discussed, both types of diabetes require careful monitoring of blood glucose levels, as well as management of levels. Both types can also increase the risk of complications if those levels are not carefully controlled, which

we will discuss in greater detail.

What Are the Symptoms of Type 2 Diabetes?

Often, diabetes is called a “silent” disease. Why? Because in some individuals, it can occur for a long time before symptoms manifest.

When symptoms occur, they include:

- Unexplained weight loss
- Increased thirst and urination
- Increased hunger
- Fatigue
- Blurred vision
- Sores that do not heal
- Numbness or tingling in the extremities

Often, these symptoms of diabetes may be mild at first and then worsen over the course of time. Occasionally, people have no signs whatsoever! Sometimes, an individual may not be diagnosed with diabetes until they develop a complication of their disease.

Diagnosis of Type 2 Diabetes

A variety of tests can be performed, if a diagnosis if type 2 diabetes is suspected. For the person who regularly attends the doctor, they may also be screened for type 2 diabetes at frequent intervals. Your physician may order one of these tests at a routine screening.

Glycated Hemoglobin (A1C)

Glycated hemoglobin (A1C) is a blood test that measures your blood glucose levels for approximately the past three months. It measures the glucose molecules that attach hemoglobin. If your blood glucose levels have been running higher, your A1C will subsequently be higher.

- Normal: A1C less than 5.7%.
- Prediabetes: A1C 5.7% to 6.4%
- Type 2 diabetes: A1C 6.5% or greater

Certain conditions may render the A1C test inaccurate, such as having a hemoglobin variant or pregnancy. In these instances, your physician should then order a different screening test.

Random Blood Glucose Test

A random blood glucose test involves a blood sample taken at a random time. Regardless of what was eaten and when, a blood glucose level higher than 200 mg/dL (11.1 mmol/L) is indicative of type 2 diabetes – especially if any of the symptoms listed above are present.

Next page: More tests that aid in diagnosing type 2 diabetes, the causes of type 2 diabetes, and diabetes treatment options.

Diagnosing Tools for Type 2 Diabetes Cont.

Fasting Blood Glucose Test

A fasting blood glucose test involves consuming no calories overnight. A blood glucose level is obtained.

- Normal: less than 100 mg/dL (5.6 mmol/L)
- Prediabetes: 100-125mg/dL (5.6 – 6.9 mmol/L)
- Type 2 diabetes: 126mg/dL (7 mmol/L) or greater on two separate occasions

Oral Glucose Tolerance Test

An oral glucose tolerance test involves fasting overnight, then obtaining a fasting blood glucose level. Then, a sugary liquid is consumed, and blood glucose levels are drawn.

- Normal: less than 140 mg/dL (7.8 mmol/L)
- Prediabetes: 140-199 mg/dL (7.8 – 11.0 mmol/L)
- Type 2 diabetes: 200 mg/dL (11.1 mmol/L) and higher

Causes of Type 2 Diabetes

We don't fully know what causes type 2 diabetes, but we have pinpointed several risk factors that seem to increase the chances of developing type 2 diabetes.

Keep in mind that having these risk factors does not necessarily mean that you will develop type 2 diabetes. You could also have *none* of these risk factors and still develop type 2 diabetes.

- Being overweight tends to predispose people to type 2 diabetes.
- Having excess fat also increases your risk, especially if you carry excess fat in your abdomen.
- Your risk seems to increase if you are inactive.
- A family history of type 2 diabetes increases your risk of developing type 2 diabetes.
- Having a condition called polycystic ovarian syndrome (PCOS) tends to increase the risk of type 2 diabetes.
- Having or had gestational diabetes during pregnancy, as well as having given birth to a baby weighing more than 9 pounds (4 kilograms) predisposes you to type 2 diabetes.
- Certain ethnicities seem to have a higher risk for type 2 diabetes – these are blacks, Hispanics, American Indians, and Asian-Americans.

Traditional and Natural Treatment for Type 2 Diabetes

How you'll be treated for your diabetes is dependent on those pesky little numbers we discussed previously.

The A1C, the fasting and/or random glucose numbers? Yes, your provider will probably use those numbers to determine how you'll be treated.

For example, there are treatment algorithms that are updated yearly, and they are available to providers by the American Association of Clinical Endocrinologists (AACE). These algorithms are based on best practice guidelines and help to guide patients into target blood glucose targets based on A1C results. They may recommend starting.

There are many available diabetic medications that your physician may prescribe. Often, the first medication is called metformin (Glucophage). Other medications (or insulin) are added if this medication is not tolerated, or if blood glucose numbers to do not hit their targets with this medication alone.

Natural Ways to Manage Type 2 Diabetes

You may be tempted to seek "natural" treatments for type 2 diabetes. There are plenty of supplements that you could try but the best natural path to take is getting lots of exercise and changing your regular diet to a diabetic diet.

If you haven't already, ask your physician for a referral to speak with a registered dietitian (RD). Evidence

indicates that those with diabetes who have medical nutrition therapy (MNT) with an RD may see an A1C reduction of 0.3-2%!

And what will an RD teach you about? Carb counting!

You'll need to know how to eat healthfully while balancing your blood glucose numbers, which means eating a balanced number of carbohydrates at each meal and snack. This is extremely important and becomes increasingly important if you begin to take insulin that requires dosing based on your carbohydrate intake.

An RD can also devise an eating plan that will promote body weight goals, as well as blood pressure and lipid goals.

The American Diabetes Association (ADA) recommends that people with type 2 diabetes should engage in 150 minutes of moderate-to-vigorous activity weekly, and this should be spread out over at least three sessions. Also, there should be at least 2-3 sessions of resistance exercise, on nonconsecutive days. Are you reaching these goals?

If you are seeking to learn more about supplements, discuss with your physician. Many supplements will interact with medications used to treat type 2 diabetes.

Next page: Type 2 diabetes and insulin resistance, the complications of type 2 diabetes, and diabetes prognosis.

What Is Insulin Resistance?

According to Joslin Diabetes Center, the definition of insulin resistance is, "The person's body may not be producing enough insulin to meet their needs, so some glucose can't get into the cells. Glucose remains in the bloodstream, causing high blood glucose levels.

"In many cases, the person may be producing more insulin than one might reasonably expect that person to need to convert the amount of food they've eaten at a meal into energy. Their pancreas is working overtime to produce more insulin because the body's cells are resistant to the effects of insulin.

"Basically the cells, despite the presence of insulin in the bloodstream, don't become unlocked and don't let enough of the glucose in the blood into the cells."

Although this is a lengthy definition, it fully encompasses what is going on in the body. And unfortunately, it occurs very frequently with people who have type 2 diabetes.

Remember how we discussed various "natural" treatments for type 2 diabetes? One of those treatments – exercise – is one of the best ways to counter insulin resistance. Activity appears to improve the body's ability to utilize insulin, thereby reducing insulin resistance.

Complications of Type 2 Diabetes

There is a myriad of complications that can occur with type 2 diabetes. Most occur as a result of untreated or undertreated blood glucose levels – meaning that the disease went undiagnosed, or that you did not take proper care of yourself.

Complications of diabetes tend to occur when blood glucose levels run high for extended periods of time. This causes damage to various parts of the body.

Complications can be prevented by controlling blood glucose levels – taking insulin as prescribed, eating healthfully, getting exercise, and taking any oral and/or injectable medication as prescribed.

Possible complications include:

- ***Neuropathy***, which occurs most often in the lower extremities. When the blood vessels that feed the nerves become damaged, numbness, tingling, burning, and pain can develop – and this is called neuropathy. Eventually, this can even progress to an inability to feel the affected limbs. Sometimes, neuropathy can cause also affect internal organs, such as the stomach, and affect digestion (***gastroparesis***) and the penis (***erectile dysfunction***).
- ***Heart and blood vessels*** can become affected – and not necessarily just when blood glucose levels are elevated! Having diabetes increases the risk of cardiovascular problems in general. This includes hypertension, heart attack, stroke, angina, and atherosclerosis.
- ***Nephropathy*** is an irreversible condition of the kidneys that is caused by elevated blood glucose levels.
- ***Diabetic retinopathy*** is an eye condition that is caused by elevated blood glucose levels. Diabetes can also contribute to cataracts and glaucoma.
- ***Skin conditions*** such as bacterial and fungal problems are more likely to occur if your blood glucose levels are elevated. Also, coupled with nerve damage and the lesser likelihood to heal because of elevated blood glucose levels, you may have serious skin infections of the feet that could potentially lead to amputations.

Type 2 Diabetes Prognosis

According to *Epocrates Online*, “When diabetes is diagnosed at age 40, men lose an average of 5.8 years of life, and women lose an average of 6.8 years of life. The overall excess mortality in those with type 2 diabetes is around 15% higher, but ranges from ?60% higher in younger adults with poor glucose control and renal function, to better than those without diabetes for those who are age 65 and over with good glucose control and no renal impairment.”

Note in the quotation above that those adults with mortality improve with good glucose control.

It is difficult to predict mortality (and thus, prognosis) in a highly variable chronic disease. Why? Because much depends on the person who is taking control of their condition.

Although diabetes may increase the likelihood of developing certain other conditions, such as heart attack and stroke, mitigating these risks by adopting other behaviors, such as smoking cessation, weight loss, exercising, and controlling glucose levels all can improve prognosis.