



THE SILENT EPIDEMIC

Everything you need to know about
Type 2 Diabetes

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Introduction

Type 2 Diabetes is considered as the silent epidemic because it is quietly among the leading causes of morbidity and mortality worldwide. Capable of affecting people of all ages and walks of life, this disease has wide-ranging effects that not only kills, but also significantly reduces the quality of life of patients.

While not as talked about as other diseases such as HIV and heart disease, type 2 Diabetes is a global health concern. Today, we will talk about everything you need to know about type 2 Diabetes, the silent epidemic.

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Defining Type 2 Diabetes

Diabetes mellitus is a disease that affects how the human body metabolizes glucose, the main source of energy of the human body. This can either be caused by a lack of production of insulin by the pancreas or a decrease in response to glucose.

People with this disease are unable to properly utilize glucose for normal bodily functions. Instead, the glucose accumulates in the blood. This can lead to a wide range of health problems that will be discussed later. Any of these complications can lead to the death or permanent disability of the patient.

There are 2 types of diabetes mellitus, type 1 diabetes and type 2 diabetes. Type 1 diabetes, also called as early-onset diabetes (but this term is not being used anymore), is caused by the lack of production of insulin.

Insulin is a hormone produced at the pancreas that plays a significant role in the metabolism of glucose. The presence of this hormone triggers the uptake of glucose into tissues and conversion of it into energy.

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When there is lack of insulin production, the level of glucose in the blood increases, leading to the sequelae associated with diabetes mellitus.

In contrast with type 1 diabetes, type 2 diabetes is not caused by a lack of insulin production. In fact, most type 2 diabetics produce more insulin than a normal person, especially during the early stages of the disease.

Instead, people with type 2 diabetes does not properly respond to the presence of insulin, an effect known as “insulin resistance”.

Because your body does not respond to insulin production, this would lead to an increase of glucose in the bloodstream, leading to the symptoms and complications associated with diabetes.

Statistically, the number of people with type 2 diabetes worldwide outnumbers that of people with type 1 diabetes. Type 2 diabetes is also one of the leading causes of hospitalizations in many parts of the world.

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Also, people with diseases such as kidney disease, blindness, and hypertension has associated type 2 diabetes. While there was a time when this type of diabetes was only associated with those in advanced age, the age of people developing diabetes is now becoming lower.

Now, there are more people in the pediatric age that is being diagnosed with type 2 diabetes, which is a major concern for health policy makers worldwide.

How Type 2 Diabetes Develops

So how does type 2 diabetes develop? While the process of its development is not yet completely understood by health care professionals, it is mainly explained by the inability of the body to respond to insulin.

Because the body does not respond to the insulin produced, glucose accumulates in the blood, which leads to the multiple complications associated with the disease. In an act of compensation, the pancreas produces more insulin. If the resistance isn't resolved, the pancreas eventually gives out, leading to pancreatic failure.

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If blood glucose remains uncontrolled, a patient can die from multiple causes secondary to diabetes (more on this later).

There are multiple risk factors associated with the development of type 2 diabetes. Having at least one of these risk factors makes you more prone to developing this disease than the general population.

The more risk factors a person has, the higher his/her chance of developing diabetes sooner or later in life. The risk factors for type 2 diabetes are as follows.

- 1. Weight** - Body weight is considered as one of the controllable risk factors for type 2 diabetes, as well as other diseases such as hypertension. Your risk of being diabetic is directly proportional to the number of kilograms/pounds above the recommended body weight for your height, age, and gender.

If you are overweight, you are more prone to developing type 2 diabetes. However, people of normal weight (or even those who are underweight!) can still develop type 2 diabetes.

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- 2. Abdominal fat** - The amount of abdominal fat, also called visceral fat, around the person's belly is also considered as a risk factor for developing type 2 diabetes. The person's risk for developing type 2 diabetes is directly proportional to the circumference of his/her waist.

A waistline greater than 40 inches for men and more than 35 inches for women is a major risk factor for developing type 2 diabetes. While the cause for this is still unknown, it is hypothesized that visceral fat has a direct effect on the body's responsiveness to insulin.

- 3. Family history** - It is possible that there is a genetic component to a person's risk of developing type 2 diabetes. People who have family members who are diabetes are at a higher risk of developing type 2 diabetes sooner or later in life.

This risk becomes significantly higher if the relative is a parent or a sibling. So if someone in your family has diabetes, you need to take extra care of your health.

- 4. Racial profile** - The person's race is also linked to one's risk of developing type 2 diabetes. This is perhaps due

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to the genetic component of this disease. Races that are more at risk of developing type 2 diabetes include blacks, Hispanics, Asians, and American Indians.

If you belong to any of these races, you need to take extra precautions to avoid developing diabetes. Also, your course of prevention and management may be much tighter.

- 5. Age** - Age is also considered as a risk factor for developing type 2 diabetes. This is due to a wide range of reasons. A person's metabolic activity decreases as he/she ages, making them more susceptible to increased glucose levels. Also, people advancing in age tend to exercise less and have weaker metabolism, making them gain weight faster.

With added weight comes a higher risk of developing diabetes. People above the age of 45 are at a higher risk of developing type 2 diabetes, but diabetics are getting younger every year.

- 6. Inactivity** - A sedentary lifestyle is directly linked to the development of type 2 diabetes. This is why this disease

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is considered to be more common in urban areas, where multiple technologies make walking less necessary and exercise hours become lesser due to hectic schedules.

If a person gets little to no exercise, his/her risk of developing type 2 diabetes becomes much higher.

- 7. Pregnancy** - Pregnant women can develop diabetes while she is pregnant, a condition that is called gestational diabetes. If poorly managed during and after pregnancy, it can potentially develop into type 2 diabetes.

If a woman developed gestational diabetes in any of her pregnancies, she automatically becomes at risk of developing type 2 diabetes. Also, women who give birth to babies weighing more than 4 kilograms are at a higher risk of developing type 2 diabetes.

- 8. Polycystic ovarian syndrome (PCOS)** - Having PCOS is another risk factor for developing type 2 diabetes. Women with PCOS have abnormal hormone levels, which affects multiple bodily functions including the proper processing of glucose.

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If a woman's PCOS is left untreated or poorly managed, a woman can end up developing type 2 diabetes, which can persist even when the PCOS is resolved.

Signs and Symptoms

The signs and symptoms of type 2 diabetes can be subtle yet wide-ranging. One of the reasons why this disease is called the silent epidemic is because diabetics usually don't have noticeable symptoms until late in the disease, when treatment is already difficult and complications have started to develop.

Individually, these symptoms are not enough to clinch a diagnosis of type 2 diabetes. However, the presence of any of these symptoms, especially when they appear together, should prompt immediate medical attention for proper workup for diabetes.

1. **Weight loss** - A person with type 2 diabetes may develop sudden weight loss. Because of the imbalance between the levels of the pancreatic hormones insulin and glucagon, your body's response is to increase production of glucose thru conversion of fat.

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This would lead to weight loss and much higher levels of glucose in the body, which of course would be left underutilized by the body due to insulin resistance. Diabetics, especially those with advanced disease, will end up losing a significant amount of weight as the disease progresses.

- 2. Lethargy or weakness** - This is yet another side effect of the body's inability to properly use glucose due to insulin resistance. Because the body is unable to use glucose, all bodily functions become compromised, which can manifest itself as weakness.

Diabetics tend to get tired easy both physically and mentally, and they sometimes compensate for it by eating.

- 3. Numbness of the extremities** - A diabetic can experience numbness or a tingling sensation in their skin, especially in the hands and feet. This is because of the effect of diabetes in the nerves, a phenomenon known as diabetic neuropathy (more on this in the complications section).

Over time, a diabetic may have little or no sensation left,

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especially in the hands and feet. The tingling sensation may also persist, which can make even daily tasks difficult to complete.

- 4. Blurring of vision** - Diabetics may start to develop poor vision as the disease progresses. People unaware that they have diabetes may attribute it to loss of visual acuity for other reasons, but in fact it may actually be caused by diabetes.

Beyond changes in visual acuity, a person may start developing blind spots in one or both eyes. Depending on the severity of the disease, the blurring of vision can be progressive and sometimes irreversible.

- 5. Changes in urine** - Your urine will change significantly once you start developing diabetes mellitus. Even at the early stages of the disease, you will start excreting urine with an unusually high concentration of glucose.

This is because if the excess glucose in the blood is not utilized properly, the only route for it is to be expelled thru the urine. This is why the urine of diabetics would sometimes attract ants! The level of glucose in urine depends on the severity of the diabetes.

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- 6. Changes in urination habits** - A person with diabetes will start to have changes in urination habits even at the early stages of the disease. Logically, with the increased levels of blood glucose caused by diabetes, your body will compensate by urinating more.

A person's urine output can increase dramatically once he/she becomes a diabetic. Diabetics can urinate as much as 3 liters a day, sometimes getting the urge to pee at any given time.

- 7. Increased feeding and drinking** - A diabetic can have increased feeding and drinking. Because of poor utilization of glucose in the body, a person eats more frequently and at larger volumes to compensate with their erratic blood glucose levels.

Also, a diabetic can have an increased urge to drink, often feeling disproportionately thirsty. This is mainly due to the dehydration caused by the increased urination associated with diabetes.

- 8. Poorly healing wounds** - Diabetics are especially known for their poor wound healing. This is due to many

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reasons. Diabetics have poor blood flow, especially at the extremities, due to cardiovascular changes caused by diabetes.

Also, excess glucose may support the growth of pathologic bacteria which can slow down healing. Lastly, diabetes may lower a person's immune response, which can cause wounds to heal much slower. If your wounds heal much slower than usual, you might have diabetes.

The presence of any of these symptoms should alert you that something wrong is happening to your body. If you (or someone you know) is starting to experience any of these symptoms, especially if they come together, you should get tested for possible diabetes.

The earlier type 2 diabetes gets diagnosed, the better your chance of reversing it and its sequelae. One of the ways to do it is by detecting symptoms associated with diabetes.

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Complications

One of the scariest things about type 2 diabetes is it is connected to a long list of complications. Any of these complications can worsen to the point that it can cause death or permanent disability.

Worse, they progress much faster as your glucose control becomes poorer. A diabetic's window for treatment becomes smaller as the complications get worse. Here is a list of complications associated with the progression of type 2 diabetes.

1. **Hypertension** - There is a direct association between diabetes mellitus and hypertension. There are 2 mechanisms that can explained the increased blood pressure associated with type 2 diabetes.

The prolonged increase in concentration of the blood due to the increased glucose can significantly increase blood pressure.

Also, the atherosclerotic changes in the blood vessels caused by diabetes can further worsen hypertension.

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This is partly why diabetics are more often than not also hypertensive.

- 2. Heart disease** - Heart disease is one of the leading causes of death for people with diabetes. A person's risk of having a heart attack significantly increases when you have type 2 diabetes.

First, you are more prone to develop atherosclerosis. This means your coronary arteries are prone to blockage, which can lead to a heart attack.

Also, hypertension caused by diabetes puts a lot of strain in your heart, making it work harder. Eventually, it may fail, leading to a heart attack and possibly sudden death.

- 3. Strokes** - Strokes can be caused by either an ischemic or hemorrhagic event in the brain, leading to death of brain tissue.

An ischemic event can be triggered by blockage of an artery in the brain due to atherosclerosis or a blood clot. Meanwhile, a hemorrhagic event may be triggered by the rupture of a blood vessel, probably secondary

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to atherosclerotic weakening of the blood vessel or increased blood pressure.

- 4. Kidney disease** - The kidney is one of the most compromised organs in diabetics. There are 2 ways for your kidneys to get compromised when you get diabetes. First, your nephrons, the filtrating units of your kidney, can get damaged by the constant filtration of excess glucose in your blood.

Second, the resultant hypertension from diabetes can damage the blood supply of the kidneys. These 2 effects can occur simultaneously, eventually leading to kidney failure. When kidney failure happens, only dialysis or a transplant can save the patient.

- 5. Blindness** - The eyes are prone to getting damaged due to type 2 diabetes. People with diabetes are more prone to developing cataracts and glaucoma, which can be blinding if not managed properly.

Another way that diabetes can cause blindness is by causing aneurysms on arteries found inside the eye. When these arteries rupture, they can cause hemorrhage inside the eye and deprive sensitive structures of their

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blood supply. If not resolved, these hemorrhages can cause blindness.

- 6. Diabetic neuropathy** - Peripheral neuropathy is one of the more dreaded complications of diabetes mellitus. Diabetes often damages the nerves found on the hands and feet, most commonly beginning at the fingers and toes.

A patient may feel numbness, tingling sensations, pain, or a burning sensation on the affected areas. Eventually, the nerve damage can become so severe that sensation may be lost completely.

Other manifestations of diabetic neuropathy is constipation (due to damage in gastrointestinal nerves) and erectile dysfunction.

- 7. Skin infections** - One major problem associated with all types of diabetes mellitus is poor wound healing. Because of factors such as poor immunity, impaired circulation, and lack of appropriate sensation, a wound may not heal properly.

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This wound can then fester, causing cellulitis, pus formation, and in severe cases, gangrene and sepsis. Sometimes, due to nerve compromise, the patient may not even know the wound exists. The foot is most prone to non-healing wounds associated with diabetes.

- 8. Sleep apnea** - Sleep apnea is a condition wherein breathing becomes obstructed when a person sleeps. This can cause the person to wake up at inappropriate times and get poor quality of sleep overall.

While the relationship between sleep apnea and type 2 diabetes is not yet fully understood, the incidence of sleep apnea is higher with diabetics compared to non-diabetics.

- 9. Type 1 diabetes** - Interestingly, people with type 2 diabetes can actually end up developing type 1 diabetes. Because of insulin resistance, the pancreas is forced to produce higher amounts of insulin.

Eventually, there would be a point when the beta cells of the pancreas will start to break down from the workload.

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This would lead to an insufficiency in insulin production, which further worsens the patient's diabetes and makes it more difficult to manage.

10. Complicated pregnancies - Type 2 diabetes can make pregnancy of otherwise healthy women of gestational age complicated. Being diabetic makes a pregnancy more prone to macrosomia, a condition where the fetus is exceptionally large for its gestational age.

This can make labor difficult and can even necessitate Caesarian section delivery. Also, the fetus also becomes more prone to developing diabetes, either immediately or later in life.

The mother also becomes more prone to hypertension, which can make labor difficult or too dangerous.

How Type 2 Diabetes Is Diagnosed and Monitored?

Given the risks associated with this condition, it is imperative that type 2 diabetes should be promptly diagnosed. With

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proper diagnosis, a proper treatment and monitoring plan can be established to prevent the complications of diabetes from developing.

There are multiple ways for diabetes to be diagnosed. From the most basic tests to the most advanced ones, here are some of the most commonly used diagnostic methods for detecting type 2 diabetes and its severity.

- 1. Blood glucose testing** - This is the most basic test used for detecting potential diabetes mellitus. With the help of a device called the glucometer, your blood glucose levels can be detected within seconds.

This test also requires a very minimal amount of blood, which makes it a very practical test for monitoring blood sugar levels. The problem is that this test is not enough to diagnose someone with diabetes, as food intake (or the lack of it) can significantly alter the results.

- 2. HbA1C** - This is a relatively new method developed for detecting diabetes. Also known as the glycated hemoglobin test, this test will not just detect if you have diabetes, but it can also detect how good is your glucose control for up to 3 months.

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This test is also relatively quick to complete and doesn't require the patient to go fasting. If your HbA1C level is greater than 6.5%, you have diabetes. The higher the value obtained, the poorer the control.

- 3. Fasting blood sugar + OGTT test** - This is another way to identify the amount of glucose in the patient's blood. The fasting blood sugar test and the OGTT test is usually done together to identify not just the patient's blood glucose levels during fasting, but also to identify if the patient's response to glucose is impaired.

First, blood is obtained from the patient to determine his/her fasting blood sugar levels. He/she would then consume 75 grams of oral glucose, and then blood would be obtained 1 and 2 hours after consumption.

The results are suggestive of diabetes if any of the 3 tests show abnormally high glucose levels.

Different countries have different guidelines when it comes to screening for type 2 diabetes. The American Diabetes Association recommends that men and women over the age of 45, those who are overweight, and those who have

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risk factors for cardiovascular diseases should be screened annually for diabetes.

Other tests can be performed to determine if your diabetes is either type 1 or type 2, or if you have a combination of both. If it's identified that you have diabetes, a plan for management is then given for strict compliance.

Treatment Options

The good thing about type 2 diabetes is that if managed early, it can be reversible without causing any serious complications to your health.

However, one should take action quickly under the guidance of health professionals to make sure that complications associated with diabetes would not develop in the long run. Here is a list of available treatment options and how they can help you.

1. **Weight management** - Keeping your weight at a manageable level will greatly help in reversing insulin resistance and avoiding the complications of type 2

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diabetes. When you lose weight, you can lower your blood sugar levels.

Losing about 5 percent of your body weight can have a tangible effect on your insulin response, and therefore your blood sugar levels. Reach your ideal weight using safe techniques and you can improve your diabetes significantly.

- 2. Diet modification** - Diabetics need to alter the way they eat if they want to both resolve their type 2 diabetes and avoid the complications associated with its progression.

There is no diet specific for diabetes, but the general guidelines for eating include the following: reduced calorie intake, reduced intake of food containing refined carbohydrates, reduced saturated fat intake, and increased dietary fiber intake.

This approach would help manage blood sugar levels and aid in losing excess weight.

- 3. Regular exercise** - When combined with a balanced diet, regular exercise and physical activity can help you stave off type 2 diabetes and its complications.

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Exercise is a great way to manage weight, burn off excess glucose in your bloodstream, and strengthen the cardiovascular system. A combination of aerobic exercises, strength and flexibility training will yield more benefits than just choosing one method of exercise alone.

Conversely, you should reduce the time you spend on activities that make you sedentary, such as watching TV.

- 4. Medications and insulin therapy** - For cases that cannot be handled by lifestyle modification alone, you would need to use a combination of medications and insulin therapy to keep your blood sugar under control.

The type of medications to be used for you depends on multiple factors such as the severity of your diabetes, the presence of comorbidities, and the ability of the patient to take care of himself/herself.

An understanding of the action and side effects of insulin and diabetes drugs will help your doctor decide which one/s are best prescribed for you.

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5. Regular blood glucose monitoring - Blood glucose monitoring is an essential part of managing type 2 diabetes. The goal is to maintain your blood sugar levels within the normal range.

You won't want your blood sugar levels to be too high or too low at any given moment, and you would want to compensate right away if derangements are present. Blood sugar monitoring is done on a daily basis, with closer intervals used depending on the severity of the diabetes.

Preventive Measures

Ultimately, prevention is still better than cure. Another good news is that while type 2 diabetes is a silent epidemic, there are a lot of ways you can prevent it from developing to begin with. Here are some of the things you can do to prevent diabetes from affecting you and the people you love.

Go back to the start of this article and recall the risk factors associated with developing type 2 diabetes. Do you have one or more of these risk factors? If the answer is yes, the best

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time to take action is now. You will need to take extra care of your body by staying active and eating smart.

You will also need to quit smoking and consume alcohol in moderation. It would also be smart to cut down on unhealthy food, especially those that are rich in artificial sugars.

Last but not least, you will need to have regular consultations with your doctor to identify potential health problems and resolve them right away.

Also, if you are at risk for developing diabetes or you know someone who does, it's great to know that you have people that can help you. Aside from your doctors, there are support groups out there for those dealing with type 2 diabetes.

They can help you out with preventive measures and provide both information and emotional support when you need it.

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Conclusion

Type 2 diabetes, the silent epidemic, is out there, and there are no signs of it going away anytime soon. The good news is that you can do something about it, and that a diagnosis of it should not mean the end of the world.

By using the knowledge you've learned from this article, you can both prevent and manage diabetes properly, while also being able to support someone who might be dealing with this disease.

Type 2 diabetes is both curable and preventable. Together, let's fight the silent epidemic and improve the health of the community.