



# DIABETES AWARENESS

## TYPES, RISKS AND CONTROL

Currently it is estimated that 1 in 11 adults (415 million people) have diabetes, although approximately 46% of people with diabetes are thought to be undiagnosed.

By 2040, it is expected that over 640 million of the world's adult population may be living with the disease.

The causes are complex, but the increase is largely due to a rapid growth in global obesity levels and physical inactivity. People with diabetes need to manage their disease to stay healthy.

Although there is no cure, some forms of diabetes can be treated and its consequences avoided or delayed through diet, physical activity, medication, regular screening and treatment for complications.

This month we take a closer look at diabetes, highlighting the symptoms, risks, diagnosis and treatment for the disease.

## WHAT IS DIABETES?

Diabetes is a chronic disease which occurs when the pancreas does not produce enough insulin, or when the body cannot effectively use the insulin it produces.

When functioning correctly our bodies break down sugars and carbohydrates into glucose, a necessary energy source for cells. Glucose is transported through the bloodstream to the body's cells where it can be used to provide energy for daily activities. To utilise glucose for energy our bodies require insulin, a hormone made in the pancreas, which regulates blood sugar.

When the amount of glucose in blood rises to a certain level, the pancreas will release more insulin to push more glucose into the cells, causing blood glucose levels to drop. To keep blood glucose levels from dropping too low the body releases glucose from storage kept in the liver.

Diabetes occurs when:

- The pancreas does not produce any insulin
- The pancreas produces very little insulin
- The body does not respond appropriately to insulin

When the body's cells can't take in the glucose, it builds up in the bloodstream.

Hyperglycaemia, or raised blood sugar, is a common effect of uncontrolled diabetes and over time can damage many of the blood vessels in the kidneys, heart, eyes, or nervous system. If left untreated diabetes can cause heart disease, stroke, kidney disease, blindness, and nerve damage to nerves in the feet.

There are three main forms of diabetes:

**Type 1 diabetes** which is characterised by a lack of insulin production.

**Type 2 diabetes** which results from the body's ineffective use of insulin.

**Gestational diabetes** which affects women during pregnancy.



## Did you know?

*The number of people with diabetes has risen from 108 million in 1980 to 415 million today.*

### Type 1 diabetes

People with type 1 diabetes produce no insulin and must use insulin injections on a daily basis to control their blood sugar. The cause of type 1 diabetes is not known and there is no cure for this form of the disease.

Type 1 diabetes, is sometimes referred to as 'Juvenile diabetes', as this form of diabetes most commonly starts in people under the age of 20, but may occur at any age.



## Did you know?

*Diabetes prevalence has been rising more rapidly in middle and low-income countries.*

## RISK FACTORS FOR TYPE 1 DIABETES

### Family history

Having a relative with type 1 diabetes is a high-risk factor. If you have a close family member with type 1 diabetes and you have not yet been checked it is imperative that you arrange a consultation with your doctor to get tested. A simple blood test can diagnose type 1 diabetes.

### Diseases of the pancreas

Pancreatic diseases can hinder the ability to make insulin.

### Genetics

The presence of certain genes indicates an increased risk of developing type 1 diabetes.

### Age

Although type 1 diabetes can appear at any age, it appears at two noticeable peaks. The first peak occurs in children between 4 and 7 years old, and the second is in children between 10 and 14 years old.

## Symptoms of type 1 diabetes

The symptoms of type 1 diabetes often occur suddenly and can be severe. They include:

- Increased thirst
- Excessive urine excretion
- Increased hunger (especially after eating)
- Dry mouth
- Frequent urination
- Unexplained weight loss (even though you are eating and feel hungry)
- Fatigue (weak, tired feeling)
- Blurred vision or vision changes
- Laboured, heavy breathing

Consult with your doctor if you notice any of the above signs or symptoms in you or your child.



### Did you know?

*Diabetes is a major cause of blindness, kidney failure, heart attacks, stroke and lower limb amputation.*

## TREATMENT FOR TYPE 1 DIABETES

Treatment for type 1 diabetes includes:

- Insulin administration
- Carbohydrate, fat and protein counting
- Frequent blood sugar monitoring
- Eating healthy foods
- Exercising regularly and maintaining a healthy weight

Treatment for type 1 diabetes involves taking insulin, which needs to be injected through the skin into the fatty tissue below. The methods of injecting insulin include:

- Syringes
- Insulin pens - pre-filled cartridges and needle
- Jet injectors – Sprays insulin through the skin via high pressure air

If you or your child suffer from type 1 diabetes, regularly consult with your doctor on treatment plans and progress.

The treatment goal of type 1 diabetes is to keep blood sugar levels as close to normal as possible to delay or prevent complications.

## LIFESTYLE CHANGES FOR TYPE 1 DIABETES

Having type 1 diabetes requires significant lifestyle changes that include:

Frequent testing of blood sugar levels

Careful meal planning

Daily exercise

Taking insulin and other medications as needed

People with type 1 diabetes can lead long, active lives if they carefully monitor their glucose, make the necessary lifestyle changes, and adhere to the treatment plan.

## TYPE 2 DIABETES

Type 2 diabetes is much more common than type 1, accounting for approximately 90% of all diabetes worldwide, and is largely the result of excess body weight and physical inactivity.

Unlike people with type 1 diabetes, people with type 2 diabetes produce insulin. However, the insulin their pancreas secretes is either not enough, or the body is resistant to the insulin. When there isn't enough insulin or the insulin is not used as it should be, glucose can't get into the body's cells.

Type 2 diabetes usually occurs in people over 40 years of age who are overweight, but can occur in people who are not overweight. Sometimes referred to as "adult-onset diabetes," until recently, this type of diabetes was seen only in adults but it is now also occurring increasingly frequently in children.

Although in many cases type 2 diabetes is preventable, it remains the leading cause of diabetes-related complications such as blindness, non-traumatic amputations, and chronic kidney failure requiring dialysis.

## RISK FACTORS FOR TYPE 2 DIABETES

### Obesity and overweight

Obesity is the main risk factor for type 2 diabetes. Obese people have insulin resistance, so, the pancreas must work harder to produce more insulin and try to keep blood sugar levels within the normal range.

### Fat distribution

If the body mostly stores fat in the abdomen region, the risk of type 2 diabetes is greater than if it stores fat elsewhere.

### Physical Inactivity

People who are physically inactive are at greater risk of developing type 2 diabetes. Physical activity helps control your weight, uses up glucose as energy and makes cells more sensitive to insulin.

### Family history

Risk increases if a parent or sibling has type 2 diabetes.

### Race/Ethnicity

People of South Asian, African Caribbean or Middle Eastern ethnicity are more likely to develop type 2 diabetes.

### Age

The risk of type 2 diabetes increases with age, especially after age 45.

### Prediabetes

Sometimes, doctors can detect the likelihood of type 2 diabetes before the condition actually occurs. Prediabetes occurs when a person's blood sugar levels are higher than normal, but not high enough for a diagnosis of type 2 diabetes. Left untreated, prediabetes often progresses to type 2 diabetes.

### Polycystic ovarian syndrome

This is common condition in women characterised by irregular menstrual periods, excess hair growth and obesity. Women with polycystic ovarian syndrome are at increased risk of developing type 2 diabetes.

### Symptoms of type 2 diabetes

Symptoms of type 2 diabetes may be similar to those of type 1 diabetes, but are often less marked. As a result, the disease may be diagnosed several years after onset, once complications have already arisen.

Possible symptoms may include:

- Increased thirst
- Excessive urine excretion
- Increased hunger (especially after eating)
- Dry mouth
- Unexplained weight loss
- Fatigue (weak, tired feeling)
- Blurred vision
- Headaches
- Yeast infections
- Slow-healing sores or cuts
- Numbness or tingling of the hands and feet

If you are experiencing any of the symptoms outlined above, talk with your doctor about diabetes testing and preventative measures you can take now to reduce the chance of type 2 diabetes.



### Did you know?

*Almost half of all deaths attributable to high blood glucose occur before the age of 70 years. The World Health Organisation projects that diabetes will be the seventh leading cause of death in 2030.*

## TREATMENT FOR TYPE 2 DIABETES

Treatment for type 2 diabetes requires daily monitoring of blood sugar levels. For some people with type 2 diabetes, diet and exercise are enough to keep the disease under control. However, others will require medication, which may include insulin and an oral drug.

Creating and maintaining a weight management, nutrition and exercise programme in conjunction with a doctor, is key to managing type 2 diabetes. By paying close attention to what is eaten and when, the effects of rapidly changing blood sugar levels can be avoided or lessened.

If you have type 2 diabetes it is important to talk to your doctor regularly, catching complications early allows for intervention, education, and referral to a specialist when needed.

## LIFESTYLE CHANGES FOR TYPE 2 DIABETES

In many cases type 2 diabetes and its side effects can be prevented or delayed, by adopting some simple healthy lifestyle changes.

To help prevent type 2 diabetes and its complications, people should:

Achieve and maintain healthy body weight

Be physically active

Eat a healthy diet, avoiding sugar and saturated fats

Do not smoke

## GESTATIONAL DIABETES

Gestational diabetes is high blood sugar that develops during pregnancy, when the body cannot produce enough insulin to meet additional requirements, and usually disappears after giving birth.

Although it can occur at any stage of pregnancy, it is usually diagnosed in the 24th to 28th week. Diagnosis is generally through prenatal screening, rather than through reported symptoms.

Left untreated, gestational diabetes increases the risk of complications, during pregnancy and at delivery, to both the mother and her unborn child.

## RISK FACTORS FOR GESTATIONAL DIABETES

### Obesity

Being overweight or obese prior to pregnancy can lead to gestational diabetes.

### Previous history

If a woman has had gestational diabetes during previous pregnancies, she is more likely to get it again.

### Family history

Women are considered to be at higher risk of gestational diabetes if a parent or sibling has had it.

### Age

The risk of gestational diabetes increases with the pregnant woman's age.

### Race/Ethnicity

Women of South Asian, African Caribbean or Middle Eastern ethnicity are more likely to develop gestational diabetes.

## How can gestational diabetes affect an unborn child

High blood glucose levels during pregnancy can cause problems for your baby, such as:

- Premature birth
- Higher risk of type 2 diabetes in later life
- Weighing too much, increasing risk of injury during delivery
- Having low blood glucose (hypoglycaemia) at birth
- Having breathing difficulties

## How can gestational diabetes affect a mother

**Preeclampsia:** Women with gestational diabetes are more likely to develop preeclampsia, a condition which can occur during pregnancy where women develop high blood pressure and too much protein in their urine.

Preeclampsia can cause serious problems for pregnant women and their unborn child. The only cure for preeclampsia is to give birth.

### Caesarean section:

Gestational diabetes may increase a woman's likelihood of requiring a caesarean section, because the baby has become quite large.

### Type 2 diabetes:

Women who had gestational diabetes during pregnancy are more likely to develop type 2 diabetes later in life.

# TREATMENT FOR GESTATIONAL DIABETES

The health and safety of both the mother and unborn child can be managed during pregnancy by taking steps to control blood glucose levels.

Treatment for gestational diabetes includes:

- Meal planning
- Adequate daily physical activity
- Monitoring and controlling pregnancy weight gain
- Insulin to control blood sugar levels if needed

Generally, blood sugar levels for woman with gestational diabetes will return to normal within six weeks of childbirth.

## COMPLICATIONS OF DIABETES

The development of diabetes complications depends on how long an individual has had diabetes, and on how they have managed their diabetes.

Eventually, diabetes complications may be disabling or even life-threatening. Possible complications include:

### **Cardiovascular disease**

People with diabetes are more likely to have heart disease or stroke. Diabetes increases the risk of various cardiovascular problems, including coronary artery disease with chest pain, heart attack and narrowing of arteries.

### **Nerve damage**

Diabetes can result in damage to capillaries, which nourish nerves, causing numbness, tingling, pain or loss of feeling in the hands, arms, feet and legs.

### **Kidney damage**

Diabetes can damage the kidneys filtration system, which may lead to kidney failure or irreversible end-stage kidney disease, requiring dialysis or a kidney transplant.

### **Eye damage**

Diabetes can damage the blood vessels of the retina, potentially leading to blindness. Diabetes also increases the risk of other eye conditions, such as cataracts and glaucoma.

### **Foot damage**

Diabetes can result in poor blood flow to the feet, increasing the risk of various foot complications.

### **Skin conditions**

People with diabetes may be more susceptible to bacterial and fungal skin problems.

### **Hearing impairment**

Hearing problems are more common in people with diabetes.



### **Did you know?**

*1 in 7 births are affected by gestational diabetes.*

Remember, keeping blood glucose levels under tight control helps to prevent or delay complications.



### **Did you know?**

*Healthy diet, regular physical activity, maintaining a normal body weight and avoiding tobacco use are ways to prevent or delay the onset of type 2 diabetes.*

If you have diabetes and are concerned about any of the complications outlined above, consult with your doctor.

# PREVENTING DIABETIC COMPLICATIONS

Simple lifestyle measures have been shown to be effective in preventing or delaying the onset of some forms of diabetes and associated complications, including:



## Did you know?

*Europe has the highest prevalence of children with type 1 diabetes.*

### Be physically active



Exercise is crucial for the prevention of diabetic complications and is an essential element in a diabetic treatment programme, regardless of the type of diabetes.

Exercise can improve the body's use of insulin, improve circulation and may lower blood sugar levels. Speak with your doctor about creating an exercise plan, and always consult your doctor before starting an exercise programme.

Aim to be active for at least 30 minutes every day with these practical tips:

- Try cycling, jogging or walking part of the journey to work
- Always take the stairs or walk up the escalator
- Get active at lunchtime – try walking or jogging with a colleague
- Allocate some time every evening for exercise – it's good for body and mind

### Eat a healthy and balanced diet



A healthy and balanced diet is vital for people with diabetes, to keep their blood glucose levels at near normal levels.

Talk with your doctor about creating a meal plan, which will outline the types of foods that should be eaten and the best times to eat them.

For people with type 1 diabetes, the timing of insulin dosage is determined by activity and diet. When they eat, and how much they eat are just as important as what they eat.



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Managing diabetes is a daily challenge. It is essential to monitor and control blood sugar levels, choose healthy foods, maintain a healthy weight and exercise regularly, in addition to administering the recommended medications.

It is the responsibility of each individual to manage their diabetes. Talk to your doctor about how you can best care for your diabetes, and discuss a diabetes treatment plan that will help you to stay healthy.

### Avoid tobacco



If you smoke, stop today. Cigarette smoking damages almost every organ of the body, causes many diseases, and reduces the health of smokers in general.

Smokers with diabetes have higher blood sugar levels, making the disease more difficult to control and putting them at greater danger of developing complications such as blindness, nerve damage, kidney failure and heart problems. Speak with your doctor or local smoking cessation group for advice and help on quitting.

### Manage blood pressure



High blood pressure can result in complications of diabetes, including diabetic eye disease and kidney disease. Many of the things people do to help control their diabetes will also help control their high blood pressure, such as:

- Control blood sugar levels
- Stopping smoking
- Eating healthily
- Exercising daily
- Maintaining a healthy weight
- Limiting salt intake