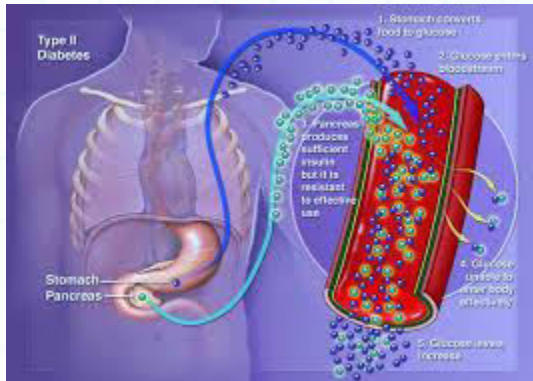


Type 2 Diabetes



Unlike people with type 1 diabetes, the bodies of people with type 2 diabetes make insulin. Nevertheless, either their pancreas does not produce adequate insulin or the body cannot utilize the insulin well enough this is called insulin resistance. or the body cannot use the insulin well enough this is called insulin resistance. When there is not enough insulin or the insulin is not used, as it should be, glucose

(sugar) can't get into the body's cells. When glucose builds up in the blood instead of going into cells, the body's cells are not able to work the right way. Other problems associated with the build-up of glucose in the blood include :

- Damage to the body:** Over time, the high glucose levels in the blood can damage the nerves and small blood vessels of the eyes, kidneys, and heart and lead to atherosclerosis, or hardening of the arteries that can cause heart attack and stroke.
- Dehydration:** The build-up of sugar in the blood can cause an increase in urination, causing dehydration.
- Diabetic coma:** When a person with type 2 diabetes becomes very ill or severely dehydrated and is not able to drink enough fluids to make up for the fluid losses, they may develop this life-threatening complication.

Diabetes mellitus type 2 (formerly noninsulin-dependent diabetes mellitus (NIDDM) or adult-onset diabetes) is a metabolic disorder that is characterized by hyperglycaemia (high blood sugar) in the context of insulin resistance and relative lack of insulin. This is in contrast to diabetes mellitus type 1, in which there is an absolute lack of insulin due to breakdown of islet cells in the pancreas. The classic symptoms are excess thirst, frequent urination, and constant hunger. Type 2 diabetes makes up about 90% of cases of diabetes, with the other 10% due primarily to diabetes mellitus type 1 and gestational diabetes. Obesity is thought to be the primary cause of type 2 diabetes in people who are genetically predisposed to the disease (although this is not the case in people of East-Asian ancestry).

The danger of type 2 diabetes

The rapid rise in the number of adults developing type 2 diabetes is due to:

- Increasing Levels Of Obesity

- A Lack Of Exercise
- Increase In Unhealthy Diets
- An Ageing Population

Even if you feel healthy, you may have a higher than normal blood glucose level (pre-diabetes) and be at risk of getting the condition.

It's therefore important to take preventative measures by making any necessary lifestyle changes, such as eating more healthily, losing weight (if you're overweight) and becoming more physically active

Symptoms type 2 diabetes

Diabetes can cause a variety of symptoms. The main symptoms of undiagnosed diabetes include:

- Increased thirst and frequent urination. Excess sugar building up in your bloodstream causes fluid to be pulled from the tissues. This may leave you thirsty. As a result, you may dri Type 2 Diabetes

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- Increased thirst and frequent urination. Excess sugar building up in your bloodstream causes fluid to be pulled from the tissues. This may leave you thirsty. As a result, you may drink and urinate more than usual.
- Increased hunger. Without enough insulin to move sugar into your cells, your muscles and organs become depleted of energy. This triggers intense hunger.
- Weight loss. Despite eating more than usual to relieve hunger, you may lose weight. Without the ability to metabolize glucose, the body uses alternative fuels stored in muscle and fat. Calories are lost as excess glucose is released in the urine.
- Fatigue. If your cells are deprived of sugar, you may become tired and irritable.
- Blurred vision. If your blood sugar is too high, fluid may be pulled from the lenses of your eyes. This may affect your ability to focus.
- Slow-healing sores or frequent infections. Type 2 diabetes affects your ability to heal and resist infections.

- Areas of darkened skin. Some people with type 2 diabetes have patches of dark, velvety skin in the folds and creases of their bodies — usually in the armpits and neck. This condition, called acanthosis nigricans, may be a sign of insulin resistance.

Diagnosis of type 2 diabetes

It's important for diabetes to be diagnosed early, so treatment can be started as soon as possible.

- Glycated hemoglobin (A1C) test. This blood test indicates your average blood sugar level for the past two to three months. It measures the percentage of blood sugar attached to hemoglobin, the oxygen-carrying protein in red blood cells. The higher your blood sugar levels, the more hemoglobin you'll have with sugar attached. An A1C level of 6.5 percent or higher on two separate tests indicates you have diabetes. A result between 5.7 and 6.4 percent is considered prediabetes, which indicates a high risk of developing diabetes. Normal levels are below 5.7 percent.

- Random blood sugar test. A blood sample will be taken at a random time. Blood sugar values are expressed in milligrams per deciliter (mg/dL) or millimoles per liter (mmol/L). Regardless of when you last ate, a random blood sugar level of 200 mg/dL (11.1 mmol/L) or higher suggests diabetes, especially when coupled with any of the signs and symptoms of diabetes, such as frequent urination and extreme thirst.

- Fasting blood sugar test. A blood sample will be taken after an overnight fast. A fasting blood sugar level less than 100 mg/dL (5.6 mmol/L) is normal. A fasting blood sugar level from 100 to 125 mg/dL (5.6 to 6.9 mmol/L) is considered prediabetes. If it's 126 mg/dL (7 mmol/L) or higher on two separate tests, you have diabetes.

- Oral glucose tolerance test. For this test, you fast overnight, and the fasting blood sugar level is measured. Then you drink a sugary liquid, and blood sugar levels are tested periodically for the next two hours.

A blood sugar level less than 140 mg/dL (7.8 mmol/L) is normal. A reading of more than 200 mg/dL (11.1 mmol/L) after two hours indicates diabetes. A reading between 140 and 199 mg/dL (7.8 mmol/L and 11.0 mmol/L) indicates prediabetes.

If you're diagnosed with diabetes, the doctor may do other tests to distinguish between type 1 and type 2 diabetes — since the two conditions often require different treatments.

Treatments of type 2 diabetes

Some people who have type 2 diabetes can achieve their target blood sugar levels with diet and exercise alone, but many also need diabetes medications or insulin therapy. The decision about which medications are best depends on many factors, including your blood

sugar level and any other health problems you have. Your doctor might even combine drugs from different classes to help you control your blood sugar in several different ways.

Examples of possible treatments for type 2 diabetes include:

Metformin (Glucophage, Glumetza, others). Generally, metformin is the first medication prescribed for type 2 diabetes. It works by improving the sensitivity of your body tissues to insulin so that your body uses insulin more effectively.

Metformin also lowers glucose production in the liver. Metformin usually won't lower blood sugar enough on its own. Your doctor will also recommend lifestyle changes, such as losing weight and becoming more active.

Nausea and diarrhea are possible side effects of metformin. These side effects usually go away as your body gets used to the medicine. If metformin and lifestyle changes aren't enough to control your blood sugar level, other oral or injected medications can be added.

Sulfonylureas. These medications help your body secrete more insulin. Examples of medications in this class include glyburide (DiaBeta, Glynase), glipizide (Glucotrol) and glimepiride (Amaryl). Possible side effects include low blood sugar and weight gain.

Meglitinides. These medications work like sulfonylureas by encouraging the body to secrete more insulin, but they're faster acting, and they don't stay active in the body for as long. They also have a risk of causing low blood sugar, but not as much risk as sulfonylureas do.

Weight gain is a possibility with this class of medications as well. Examples include repaglinide (Prandin) and nateglinide (Starlix).

Thiazolidinediones. Like metformin, these medications make the body's tissues more sensitive to insulin. This class of medications has been linked to weight gain and other more serious side effects, such as an increased risk of heart failure and fractures. Because of these risks, these medications generally aren't a first-choice treatment.

Rosiglitazone (Avandia) and pioglitazone (Actos) are examples of thiazolidinediones.

DPP-4 inhibitors. These medications help reduce blood sugar levels, but tend to have a modest effect. They don't seem to cause weight gain. Examples of these medications are sitagliptin (Januvia), saxagliptin (Onglyza) and linagliptin (Tradjenta).

GLP-1 receptor agonists. These medications slow digestion and help lower blood sugar levels, though not as much as sulfonylureas. This class of medications isn't recommended for use alone.

Exenatide (Byetta) and liraglutide (Victoza) are examples of GLP-1 receptor agonists. Possible side effects include nausea and an increased risk of pancreatitis.

SGLT2 inhibitors. These are the newest diabetes drugs on the market. They work by preventing the kidneys from reabsorbing sugar in the blood. Instead, the sugar is excreted in the urine.

Examples include canagliflozin (Invokana) and dapagliflozin (Farxiga). Side effects may include yeast infections and urinary tract infections.

Insulin therapy. Some people who have type 2 diabetes need insulin therapy as well. In the past, insulin therapy was used as a last resort, but today it's often prescribed sooner because of its benefits.

Because normal digestion interferes with insulin taken by mouth, insulin must be injected. Depending on your needs, your doctor may prescribe a mixture of insulin types to use throughout the day and night. Often, people with type 2 diabetes start insulin use with one long-acting shot at night.

Insulin injections involve using a fine needle and syringe or an insulin pen injector — a device that looks similar to an ink pen, except the cartridge is filled with insulin.

Bariatric surgery: If you have type 2 diabetes and your body mass index (BMI) is greater than 35, you may be a candidate for weight-loss surgery (Bariatric surgery). Blood sugar levels return to normal in 55 to 95 percent of people with diabetes, depending on the procedure performed. Surgeries that bypass a portion of the small intestine have more of an effect on blood sugar levels than do other weight-loss surgeries.

Drawbacks to the surgery include cost, and there are risks involved, including a risk of death. Additionally, drastic lifestyle changes are required and long-term complications may include nutritional deficiencies and osteoporosis.

Pregnancy: Women with type 2 diabetes may need to alter their treatment during pregnancy. Many women use insulin therapy during pregnancy. Cholesterol-lowering medications and some blood pressure drugs cannot be used during pregnancy.

Diet and self help

Increasing the amount of fiber in your diet and reducing your fat intake, particularly saturated fat, can help prevent type 2 diabetes, as well as manage the condition if you already have it. You should:

- Increase your consumption of high fiber foods, such as wholegrain bread and cereals, beans and lentils, and fruit and vegetables
- Choose foods that are low in fat – replace butter, ghee and coconut oil with low fat spreads and vegetable oil
- Choose skimmed and semi-skimmed milk, and low fat yoghurts

- Eat fish and lean meat rather than fatty or processed meat, such as sausages and burgers
- Grill, bake, poach or steam food instead of frying or roasting it
- Avoid high fat foods, such as mayonnaise, chips, crisps, pasties, poppadums and samosas
- Eat fruit, unsalted nuts and low fat yoghurts as snacks instead of cakes, biscuits, Bombay mix or crisps

Weight

If you're overweight or obese (you have a body mass index (BMI) of 30 or over), you should lose weight, by gradually by reducing your calorie intake and becoming more physically active (see below).

Losing 5-10% of your overall body weight over the course of a year is a realistic initial target. You should aim to continue to lose weight until you've achieved and maintained a BMI within the healthy range, which is:

- 18.5-24.9kg/m² for the general population
- 18.5-22.9kg/m² for people of South Asian or Chinese origin

If you have a BMI of 30kg/m² or more (27.5kg/m² or more for people of South Asian or Chinese origin), you need a structured weight loss program, which should form part of an intensive lifestyle change program.

To help you achieve changes in your behavior, you may be referred to a dietician or a similar healthcare professional for a personal assessment and tailored advice about diet and physical activity.

Physical activity

Being physically active is very important in preventing or managing type 2 diabetes.

For adults who are 19-64 years of age, the government recommends a minimum of:

- 150 minutes (2 hours and 30 minutes) of "moderate-intensity" aerobic activity, such as cycling or fast walking, a week, which can be taken in sessions of 10 minutes or more
- Muscle-strengthening activities on two or more days a week that work all major muscle groups (legs, hips, back, tummy (abdomen), chest, shoulders and arms).
- 75 minutes of "vigorous-intensity" aerobic activity, such as running or a game of tennis every week
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Monitoring your blood sugar

Depending on your treatment plan, you may check and record your blood sugar level every now and then or, if you're on insulin, multiple times a day. Ask your doctor how often he or she wants you to check your blood sugar. Careful monitoring is the only way to make sure that your blood sugar level remains within your target range.

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