

Factsheet Type 2 diabetes and HIV

Key points

- Changes to your lifestyle can reduce your risk of diabetes.
- Diabetes requires frequent monitoring and can have serious consequences if left untreated.
- Rates of diabetes are higher in people living with HIV than in the general population.



When we eat, our body digests food into glucose (blood sugar) which is carried in the bloodstream and enters cells throughout the body where it is used as energy. If you have type 2 diabetes, this process doesn't work well. Glucose cannot enter the cells that need it and instead builds up in your bloodstream.

A substance called insulin helps glucose to enter cells and keeps glucose at the right level in your blood. People with type 2 diabetes have insulin resistance, which means that the insulin cannot work properly, the pancreas does not produce enough insulin, or both.

High levels of glucose in your blood make it thick and sticky and can result in damage to the blood vessels in different parts of the body. If your cells don't get enough glucose, they cannot function properly. Over time, this can lead to serious health problems including heart disease, kidney failure, blindness, and digestive issues. Consistently high levels of glucose can also result in damage to the blood supply to nerves in the hands and the feet. This can cause serious complications in the feet.

Type 2 diabetes requires regular and frequent monitoring of your blood glucose levels. You may need to make significant changes to the food you eat and other lifestyle changes.

This factsheet describes type 2 diabetes, which increasingly affects people living with HIV as

they get older. You may also hear about type 1 diabetes (which usually develops during childhood) and gestational diabetes (which can affect pregnant women). Each condition is managed differently.

You might be told that your levels of blood glucose are higher than normal but not high enough for a diagnosis of diabetes. This is sometimes called pre-diabetes or impaired glucose tolerance. It means that you are at increased risk of developing type 2 diabetes, especially if you don't make changes to your lifestyle.

Your lifestyle and diabetes

Changes to your lifestyle can reduce your risk of diabetes. If you are living with type 2 diabetes, the same lifestyle changes will help keep your blood glucose levels under control.

Lose weight. This is particularly important if you have excess weight around your belly as larger waist sizes are associated with an increased risk of diabetes. You should aim to keep your weight within the ideal range for your height, age and sex. Your doctor, nurse or dietitian can tell you what this range is. Even losing a little weight can make a big difference.

Exercise regularly. You should aim to do at least 150 minutes of **moderate aerobic activity** every week (for example 30 minutes on five days a week). Moderate activity will raise your heart rate and make you breathe faster and feel warmer. It includes activities like walking fast, dancing, gardening and cycling. It is also recommended that you do some muscle-strengthening exercises (lifting weights or doing exercises that use your own body weight like yoga or Pilates).

You could also make sure you walk at least 10,000 steps every day. You can monitor how many steps you walk using an app on your smartphone or buy a cheap pedometer. Ideas to help achieve 10,000 steps every day include parking your car further away from the shops or getting off the bus two stops early. In bad weather, you could walk inside shopping centres or museums.

Eat a healthy, balanced diet. A Mediterranean-style **diet** is recommended, with a lot of vegetables, beans and whole grains. Replace red meat with moderate amounts of chicken and fish. Limit foods and drinks that are high in refined sugar. This may be easier if you plan your meal around vegetables rather than meat, rice or pasta.

If you have been diagnosed with type 2 diabetes, you should mostly eat foods with a low glycaemic index, in other words, ones which only raise blood glucose levels slowly. Also you'll need to keep track of portion sizes of starchy foods (carbohydrates) in order to keep your blood glucose levels in the right range. However low-carb diets are not recommended without the advice of a dietitian. A dietitian at your GP's or HIV clinic can help you find a diet that will suit the way you live and the foods you like to eat.

Who is at risk?

People over the age of 40, including people living with HIV, are more likely to develop diabetes.

Genetic factors play a role in type 2 diabetes. If a close family member (parent or sibling) has had diabetes or a related medical problem (like [high blood pressure](#)), then the risk of developing diabetes is higher. Also, probably due to genetic factors, people of South Asian, African or Afro-Caribbean descent are at much higher risk of developing type 2 diabetes.

Age and genetic factors combine with lifestyle factors. People who are overweight (especially with excess weight around the belly) and people who are physically inactive are more likely to develop diabetes.

[Hepatitis C](#), high blood pressure, high [cholesterol](#) and high triglyceride levels are all associated with an increased risk of diabetes.

Some medications can increase glucose levels and may raise the risk of diabetes. These include corticosteroids like prednisolone and hydrocortisone.

Diabetes in people living with HIV

Rates of diabetes are higher in people living with HIV than in the general population. One important reason is that many people living with HIV have some of the risk factors for diabetes mentioned above.

"The first line of treatment is to devise a healthier eating and physical activity plan to help reduce body weight."

Chronic inflammation (ongoing activation of the immune system) in response to HIV infection may also raise the risk of diabetes. This dysfunctional response of the immune system can harm organs and body systems. HIV treatment and a healthy lifestyle help reduce inflammation, but can't completely eliminate it.

Some anti-HIV drugs may contribute to diabetes risk. These drugs are not generally used today but you may have taken them in the past. They include older nucleoside reverse transcriptase inhibitors (zidovudine, stavudine and didanosine) and older protease inhibitors (indinavir and lopinavir).

Symptoms

Many people develop type 2 diabetes without noticing it. But it can cause symptoms including increased thirst, frequent urination, increased hunger, weight loss, tiredness, blurred vision, slow-healing sores or frequent infections, and areas of darkened skin.

Diabetes can contribute to [sexual problems](#) in both men (problems getting or maintaining an erection) and women (vaginal dryness and other issues).

In the long term, uncontrolled diabetes raises the risk of [heart disease](#), [stroke](#) and [kidney disease](#). Complications of diabetes can affect the skin, eyes, and nerves in the legs, feet and hands.

Diagnosis and monitoring

If you are over the age of 40, your HIV clinic should run a blood test once a year to check the level of glucose in your blood. The test will indicate whether your blood glucose level is normal, higher than normal, or at a level which shows you have diabetes. The test will be more accurate if you fast beforehand (no food and no drinks other than water in the ten hours before the test).

If you are diagnosed with diabetes, the situation will be monitored with the blood glucose test (after fasting) and also a test called haemoglobin A1c. This indicates your average glucose levels over the previous 12 weeks. Results for haemoglobin A1c may be a little different in people taking HIV treatment than in other people – your doctor should take this into account when interpreting the results.

If you are taking diabetes treatment, your doctor may ask you to do daily blood glucose tests at home or work. This involves pricking your finger and applying a small amount of blood to a hand-held meter provided by the NHS. This will help you monitor your health and see if your treatment is working.

Your blood pressure, cholesterol and triglycerides should be measured regularly as part of your HIV monitoring. This is also important for monitoring diabetes.

Treatment and management

The first line of treatment is to devise a healthy eating and physical activity plan to help reduce body weight that, if successful, will bring diabetes under control.

If this approach does not make enough of a difference, drugs may be used as well. You may be given tablets that either encourage the body to produce more insulin or make the existing insulin supply work better. The standard choice is a tablet called metformin, although other tablets are available.

Some people with type 2 diabetes also need daily injections of insulin, but this is not the case for everyone.

Healthcare professionals involved in managing diabetes include [GPs](#), specialist nurses and specialist dietitians. A doctor specialising in diabetes may be a diabetologist or an endocrinologist (a doctor who treats disorders of the glands and hormones, including diabetes).

It's best for the doctors treating your diabetes and your HIV to liaise about your healthcare. (In order for this to happen, you need to give your permission). You can also ask your doctors and pharmacists to check that there are no [drug-drug interactions](#) between your treatments for diabetes and HIV.

Other sources of information

For more information, you may find the website of Diabetes UK helpful: www.diabetes.org.uk.
You can also contact their helpline team on 0845 601 02 09.

Find out more

Chronic kidney disease and HIV Simple factsheet

Nutrition Information booklet

Eight ways to look after your health Basic leaflet with pictures