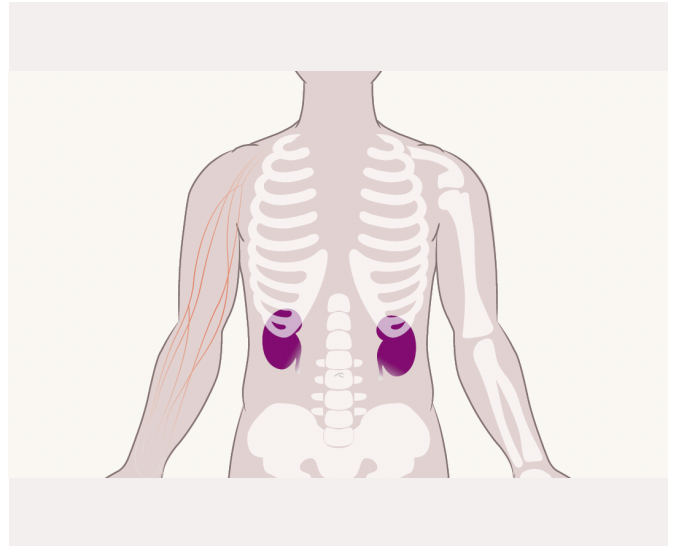


Factsheet **Chronic kidney disease and HIV**

Key points

- HIV may contribute to kidney disease but the two most common causes are diabetes and high blood pressure.
- Lifestyle changes can help keep kidney disease under control.
- Your HIV clinic will monitor your kidney function regularly.



The kidneys are organs that filter blood and help maintain the optimal balance of salts and minerals in the body. The kidneys filter waste products out of blood and get rid of them in the urine, while keeping substances the body needs. The kidneys also release hormones that regulate blood pressure, stimulate red blood cell formation and help the body regulate the calcium stores that are required to keep bones strong.

When the kidneys fail, excess fluid and waste products build up in the body, making you feel unwell, gain weight, become breathless and develop swollen hands and feet.

- The term ‘kidney disease’ refers to any abnormal kidney function, even if there is only slight damage.
- *Chronic* kidney disease (CKD) refers to a loss of kidney function that continues for a long period of time.
- *End-stage* kidney disease describes a near-complete loss of kidney function, which would result in death without replacement therapy such as dialysis or a kidney transplant.
- *Acute* kidney injury refers to a sudden loss of kidney function that happens within a few hours or days.
- You may hear doctors talk about renal disease or renal problems. This is the same as kidney disease.

The two most important causes of kidney disease are diabetes and high blood pressure. Both conditions can often be successfully prevented or treated.

In diabetes, excess glucose in the blood injures tiny structures inside the kidneys called nephrons, while high blood pressure damages the small blood vessels that surround the

nephrons. In both cases, this makes it harder for the kidneys to sort waste from substances that should be reabsorbed into the body.

Your lifestyle and kidney disease

Changes to your lifestyle can reduce the risk of [diabetes](#) and [high blood pressure](#) developing or getting worse. This will, in turn, help prevent kidney disease.

Lose weight if you're overweight.

Exercise regularly.

Don't smoke.

Eat a healthy, balanced diet. Eating foods low in sodium and high in potassium can lower your blood pressure.

Limit your intake of drugs and alcohol.

If you have been diagnosed with kidney disease, the same lifestyle changes will help manage the condition. Your doctor or dietitian may give you specific advice about food and drink. In general, you should choose foods with less salt, have smaller quantities of foods that are rich in protein, and eat foods that are healthy for your heart.

Who is at risk?

People over the age of 50, including people living with HIV, are at greater risk of kidney disease. Because of genetic factors, you are at greater risk if a close family member has had kidney disease or if you are black or Asian.

Diabetes, high blood pressure, raised [cholesterol](#), [hepatitis B](#) and [hepatitis C](#) all make kidney problems more likely.

[Use of drugs](#) (such as ecstasy, cocaine, ketamine and heroin) and heavy [drinking](#) can contribute to kidney problems. Long-term use of some over-the-counter painkillers (including ibuprofen), protein supplements and some herbal products can also damage the kidneys. It's worth telling your doctor if you use any of these products so that he or she can monitor your kidney function.

Kidney disease in people living with HIV

HIV itself may contribute to kidney disease. Individuals who have a low [CD4 count](#) or were diagnosed at a late stage are at greater risk of developing kidney disease. A high [viral load](#) is associated with kidney disease.

Overall, HIV treatment protects the kidneys. In particular, it will protect you from HIV-specific forms of kidney disease, such as HIV-associated nephropathy. Now that most people living with

HIV receive HIV treatment, these forms of kidney disease are rare. They still sometimes occur in people who are diagnosed with HIV at a late stage.

"If the underlying cause of your kidney disease is diabetes or high blood pressure or high levels of cholesterol, a vital part of treating kidney disease is to manage this condition."

However some anti-HIV drugs can contribute to kidney problems in a minority of people. For this reason, HIV clinics monitor the kidney function of people taking HIV treatment regularly. If there is any sign of a problem, your doctor may suggest switching to an alternative treatment.

- Tenofovir disoproxil fumarate (*Viread*) is a widely used drug that is also included in the combination pills *Truvada*, *Atripla*, *Stribild* and *Eviplera*. The drug works well for most people but occasionally can cause a range of kidney problems.
- Protease inhibitors including atazanavir (*Reyataz*), lopinavir (in *Kaletra*) and indinavir (*Crixivan*, now rarely used) can occasionally cause kidney stones (an accumulation of the drug in a hard lump inside the kidney) and other forms of kidney disease.

Another reason for high rates of kidney disease in people living with HIV is that many HIV-positive people have risk factors for kidney disease such as [smoking](#) and high blood pressure.

Symptoms

Kidney disease can be present for years without causing symptoms. When symptoms occur they can include tiredness; swollen ankles or feet; itching; shortness of breath; nausea and vomiting; and an increasing need to urinate, especially at night.

If left unmanaged, kidney disease can cause a wide range of complications and contribute to heart disease, fragile bones and [sexual problems](#).

Diagnosis and monitoring

Your HIV clinic will monitor your kidney function regularly. As a result, any decline in kidney function is likely to be noticed in good time. Tests are done on samples of urine and blood.

If a urine test finds higher levels of protein in urine this may be a sign of kidney problems. Similarly, high levels of a waste product called creatinine in the blood may indicate a loss of kidney function. (A healthy kidney retains protein in blood and excretes creatinine in urine. When the kidney is damaged, it may do the opposite.)

The results of the blood test should be adjusted for your age, sex and race. These provide a

measure called glomerular filtration rate (GFR) which is the main measure used to monitor kidney function.

A GFR above 90 is normal kidney function; between 60 and 89 shows mild kidney disease; between 30 and 59 is moderate kidney disease; between 15 and 29 is severe kidney disease, and below 15 is end-stage kidney disease.

Other tests may be done to assess the level of damage to your kidneys. A renal ultrasound is a safe and painless test that uses sound waves to make images of the kidneys, showing their structure. During a kidney biopsy, a small sample of kidney tissue is removed while the area is numbed with a local anaesthetic. Then the cells can be examined under a microscope.

Treatment and management

If the underlying cause of your kidney disease is diabetes, high blood pressure or high levels of cholesterol, a vital part of treating kidney disease is managing this condition. Because having kidney disease raises the risk of heart problems in the future, you will also need to take steps to improve your heart health.

By making lifestyle changes and taking medications to control these conditions, kidney damage can be limited. Lifestyle changes include stopping smoking, healthy eating and physical activity.

Taking HIV treatment will also help keep kidney disease under control.

You may need to take drugs to lower blood pressure (ACE inhibitors or angiotensin receptor blockers), to lower cholesterol levels (statins), to control anaemia (erythropoietin or iron supplements) or to relieve swelling (diuretics).

Because kidney damage impairs the body's ability to remove drugs, your doctor may need to adjust the doses of some of your anti-HIV drugs and other medications.

If you are taking any drugs which could contribute to kidney disease (for example, tenofovir disoproxil fumarate), these may need to be changed.

If your kidneys stop working completely, you would need replacement therapy such as dialysis (using medical technology to filter waste from the blood) or a kidney transplant.

Doctors specialising in kidney disease and renal medicine are called nephrologists. Your GP may also be involved in managing your condition.

It's best for the doctors treating your kidney disease 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 not any [drug-drug interactions](#) between the different medicines you are taking.

Other sources of information

For more information, you may find these two organisations helpful:

- National Kidney Federation: www.kidney.org.uk. You can contact their helpline team on 0845 601 02 09.
- British Kidney Patient Association: www.britishkidney-pa.co.uk. Telephone 01420 541424.

Find out more

Type 2 diabetes and HIV Simple factsheet

High blood pressure Simple factsheet

Side-effects Information booklet