Chronic kidney disease

If you have chronic kidney disease, your kidneys are gradually losing their ability to filter wastes and excess fluid from your blood. It is a serious condition, but there are good treatments that can help slow the disease.

We've brought together the research about chronic kidney disease and talked to experts about the best ways to treat it. You can use our information to talk to your doctor and decide which treatments are best for you.

What is chronic kidney disease?

Chronic kidney disease means your kidneys are losing their ability to filter waste products out of your blood. You may also hear it called chronic renal failure, chronic kidney failure, or chronic renal insufficiency. Chronic means it's a long-term condition, and renal means it involves your kidneys.

Your kidneys are two organs located just below your ribs near the middle of your back, with one on either side of your spine. They filter your blood, getting rid of wastes and extra fluid, which go to your bladder as urine.

Chronic kidney disease happens when something goes wrong with this filtering process. Usually this occurs because someone has had diabetes or high blood pressure for a long time.

- People with diabetes have too much glucose (sugar) in their blood. Over time, this can harm the tiny blood vessels that filter wastes in the kidneys. Diabetes is the most common cause of chronic kidney disease.

- High blood pressure can also damage these tiny blood vessels over time. This is the second-most common cause.

Other, less frequent causes include: blockage in the renal arteries, kidney problems that develop in the womb, inherited diseases (such as polycystic kidney disease), autoimmune diseases (such as lupus and scleroderma), and being around toxic substances for a long time, including leaded paint and soldering materials.

When the kidneys start losing their filtering ability, wastes and fluid build up. This causes problems throughout the body.

Chronic kidney disease is different from acute kidney injury, which happens when your kidneys suddenly stop working. This can occur because of a sudden drop in the blood flow to the kidneys, a sudden blockage of the urine flow from the kidneys, or damage from some illnesses, drugs, or poisons. Acute kidney injury can sometimes be reversed if the kidneys aren't badly damaged. If you've had acute kidney injury, you may have a higher risk of chronic kidney disease and end-stage kidney disease in the future.
What are the symptoms?

Many people with chronic kidney disease don’t have any clear symptoms. In fact, symptoms often don’t appear until there has been significant damage to the kidneys.

Possible symptoms include:

• Tiredness
• Nausea
• Urinating more or less often than usual
• Puffiness around your eyes or swelling in your limbs (oedema)
• Feeling generally ill
• Loss of appetite and weight loss
• Foamy-appearing urine
• Dark-coloured urine (the colour of cola)
• Rashes and itching.

Many symptoms, such as tiredness and nausea, can also be caused by other conditions. This can make chronic kidney disease difficult to diagnose.

If your doctor suspects you could have kidney damage, they will test your blood and urine for signs of damage, and to see how well your kidneys are filtering out waste.

You might also need an ultrasound to spot kidney stones and other blockages, or a biopsy to look for signs of damage under a microscope.

If you do have kidney damage, your doctor will try to find out what caused it. This is important, as treating the underlying cause can help prevent more damage.

What treatments work?

There is no cure for chronic kidney disease but treatments can slow the disease, improve your symptoms, and reduce your risk of complications. The outlook is especially good if you catch the kidney damage early on.

Treating the cause

Treating the underlying cause of your kidney damage is essential. For many people, this will mean closely controlling their diabetes or high blood pressure by taking medicines and following their doctor’s advice on diet, exercise, weight loss, smoking, and other lifestyle factors. This can slow further damage.
Treating high blood pressure

High blood pressure is both a cause and consequence of chronic kidney disease. It happens because of the fluid that builds up in your blood and tissues when your kidneys aren’t filtering properly. If not treated, high blood pressure can cause further damage to your kidneys and also lead to heart disease.

Most people with chronic kidney disease take blood pressure drugs. Your doctor will probably prescribe medicines called **angiotensin-converting enzyme (ACE) inhibitors** or **angiotensin II receptor blockers (ARBs)**. These medicines should improve your blood pressure and how your kidneys work. If these medicines don't help enough or you can't take them for some reason, there are other blood pressure drugs you can try.

Your doctor may aim to lower your blood pressure below what would be normal if you didn't have kidney disease. Studies show this helps protect your kidneys.

Managing your cholesterol

Having chronic kidney disease puts you at higher risk of developing heart disease. Your doctor may prescribe a **statin** to help lower this risk. These drugs reduce your level of 'bad' cholesterol, so there's less to build up inside your blood vessels and cause heart and circulation problems.

Treating problems caused by kidney failure

Chronic kidney disease can cause problems throughout your body. Below, we've described some of the most common problems, and their treatments. You will have regular blood and urine tests to spot many of these problems before they become serious.

- **Fluid retention**: Fluid can build up in your body if your kidneys aren't working well. This can cause swelling in your limbs (oedema), as well as high blood pressure. Drugs called diuretics can help flush excess fluid from your body as urine. Your doctor may also recommend restricting how much fluid and salt you consume each day.

- **Anaemia**: Anaemia is when you have too few red blood cells. This can make you feel very tired and become breathless easily. Anaemia often happens to people with kidney disease because the kidneys aren’t making enough of a chemical messenger called erythropoietin (EPO). EPO helps regulate how many red blood cells your body makes. Treatment involves getting injections with a medicine that works like EPO (an erythropoiesis-stimulating agent). Iron is also important for making red blood cells. So if you are low on iron, you will need to take iron tablets or have iron injections.

- **Weakened bones**: Vitamin D, phosphate, and calcium are all essential for strong bones. If your kidneys are damaged, your supply of these nutrients can get out of balance and cause problems. In particular, your calcium level may get too low, triggering the release of a chemical messenger called parathyroid hormone (PTH). PTH causes more calcium to be taken from your bones, and over time this can lead
to weakened and deformed bones, and swollen joints. To prevent these problems, many people with kidney failure take calcium and vitamin D supplements. Some people also limit the amount of phosphate in their diet, as this can increase the amount of calcium available for their bones. They may also take drugs called phosphate binders, which lower the amount of phosphate in their blood.

- **Too much acid**: If the kidneys aren't removing enough acid from the body, you can get a condition called metabolic acidosis. Often there are no clear symptoms. But if your blood becomes too acidic, this can cause serious problems such as abnormal heart rhythms, seizures, and coma. If tests show your blood is becoming overly acidic, you'll be treated with an antacid called sodium bicarbonate (baking soda).

- **Too much potassium**: If the kidneys aren't working properly, potassium can build up in the blood, causing a condition called hyperkalemia. If not treated, this can lead to abnormal heart rhythms, cardiac arrest, and problems with nerve and muscle control. Your doctor will keep an eye on your potassium level and may recommend limiting potassium in your diet. You may also take a diuretic to help your body get rid of both extra fluid and potassium. If your hyperkalemia becomes severe, this is a medical emergency requiring hospital treatment.

- **Too little protein**: As kidney disease worsens, more and more protein leaks into your urine from your kidneys. This means there's less protein to nourish your body and you may lose weight. Your doctor may suggest changes in your diet to help with this.

**Treating end-stage kidney disease**

If your kidney damage worsens to the point where you have less than 15 percent of your normal kidney function, you have end-stage kidney disease. This means that your kidneys can no longer clear your body of wastes and extra fluid, and you need either dialysis or a kidney transplant.

Doctors typically discuss these treatments with patients before they reach this stage. That way, they’ll have a treatment plan in place once their kidneys are no longer working.

**What will happen to me?**

Chronic kidney disease is a serious long-term illness, but many people live with the condition for many years. The outlook is best if your kidney damage is discovered early. The sooner you start treatment, the sooner you can slow further damage. Some people with kidney disease never need dialysis or a kidney transplant, and manage to stay healthy with treatment.

But even people with advanced kidney disease can achieve a good quality of life by closely following their doctor’s advice and treatment plan.