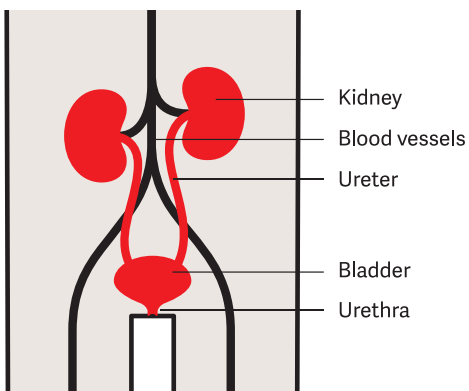


Fact sheet

Nephritis

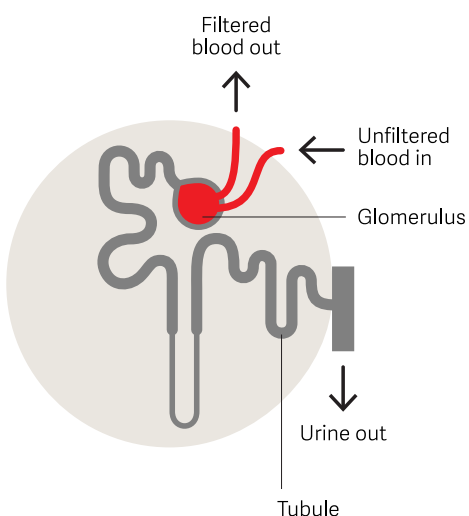


How do the kidneys work?

The kidneys are two large bean-shaped organs located in your lower back.

Each kidney contains up to one million nephrons, the filtering units of your kidneys. Inside a nephron, there is a tiny set of blood vessels called the glomerulus. The glomerulus filters your blood allowing excess fluid and waste to be removed in your urine.

One Nephron



What is nephritis?

Nephritis (also called glomerulonephritis) is a group of diseases that cause inflammation (swelling) of the nephrons. This can reduce your kidney's ability to filter waste from your blood.

What causes nephritis?

Most types of nephritis are caused by your body's immune system reacting to an 'insult' of some sort. This might be a medication, poison, infection or a change in the way your immune system behaves. Your immune system makes antibodies to attack bacteria or poisons. These antibodies can damage your kidneys and nephrons, causing swelling and scarring.

What are the different types of nephritis?

There are many different types of nephritis. It can vary from a mild, non-damaging condition to a serious problem causing kidney failure. Some types of nephritis appear mild at first but can later cause high blood pressure or become more serious.

Nephritis is often described as acute or chronic. The acute form develops suddenly, sometimes after a throat or skin infection. These infections may need treatment such as antibiotics. Chronic nephritis develops silently over several years and can lead to kidney failure. Sometimes an acute attack can cause chronic nephritis years later.

Different types of nephritis include:

Focal nephritis: Less than a half of your nephrons have scarring, and blood and a small amount of protein are found in your urine. This type of nephritis does not usually show signs of more severe kidney disease. There may not be any symptoms until blood and protein are discovered in your urine during routine tests. IgA nephritis (also called IgA nephropathy) is a type of focal nephritis. This is the most common type of nephritis in Australia. For further information see the *IgA Nephritis* fact sheet.

Diffuse nephritis: Most of your nephrons are affected, and there are high levels of protein in your urine. You may have other symptoms, such as swelling of your arms, legs and face due to water retention and high blood pressure.

Nephrotic syndrome: Damage to the nephrons causes them to leak large amounts of protein into your urine but little blood. Losing this protein means your body does not have the amount of protein it needs. You may notice swelling of your feet and ankles, and your blood cholesterol level will rise. Nephrotic syndrome may be caused by different types of glomerulonephritis and also by other conditions, such as diabetes and lupus.

In children, nephrotic syndrome is usually due to Minimal Change Disease. It is called this because the disease only shows very mild damage to the glomeruli. The cause of Minimal Change Disease is unknown. It is usually treated with corticosteroids. Adults can sometimes develop Minimal Change Disease as a result of taking some medicines or due to other conditions, such as cancer.

What complications might I notice?

Some types of nephritis have very few complications. However, most people with nephritis have at least one of the following problems:

- Blood in your urine (haematuria) - can make urine pink or cola-coloured
- Protein in your urine (albuminuria) - can cause frothy urine
- High blood pressure (hypertension) - can cause damage if left untreated, such as headaches, dizziness, strokes and shortness of breath
- High cholesterol which can lead to heart disease and stroke
- Oedema - swelling to face, feet, legs and hands due to build up of salt and water in your body
- Anaemia - not enough red blood cells in your blood, which can cause tiredness and shortness of breath
- Kidney failure, which may need dialysis or transplant

The complications you experience will depend on the cause and amount of your kidney damage.

See *Chronic Kidney Disease, Blood in Urine, Albuminuria, Blood Pressure and Chronic Kidney Disease*, and *All About Anaemia* fact sheets for more information on these topics.

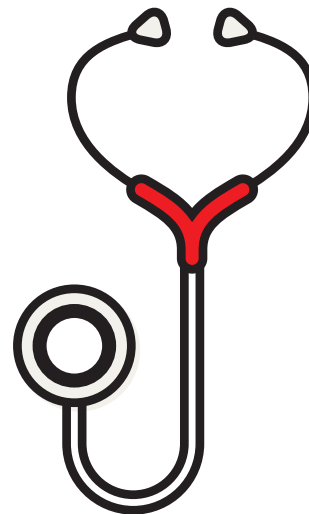
How is nephritis detected?

Unfortunately, nephritis may not be discovered until significant damage has been done to your kidneys. It is often found by routine health checks including:

- Looking into the cause of high blood pressure.
- A blood test for your kidney function.
- A urine test for protein or blood in your urine.

Sometimes further tests are needed:

- **Kidney biopsy** - A needle is passed through your skin into the kidney to remove a small piece of kidney tissue to be checked under a microscope.
- **Ultrasound** - An instrument is moved over the skin, sending and receiving signals to make pictures of your organs, including kidneys and bladder.
- **Computerised Tomography (CT) Scan or Magnetic Resonance Imaging (MRI)** - Radio-frequency wavelengths and a strong magnetic field are used to provide clear and detailed pictures of your kidneys and bladder.



How is nephritis treated?

There are many types of nephritis and the treatment will depend on which type of nephritis you have. Many types of nephritis require observation but no treatment, and rarely lead to long-term kidney damage.

Control of **high blood pressure** is the most important treatment for nephritis. Your doctor may prescribe medications to reduce your blood pressure and help to protect your kidney function. Fish oil supplements may help to reduce inflammation, and a diuretic (to remove excess water and reduce swelling) may also be suggested.

Talking to your kidney specialist (nephrologist) will help decide whether these are useful treatment options for you. New treatments are being tested to see if it can help to slow down kidney failure.



THINGS TO REMEMBER

- Nephritis causes inflammation (swelling) of your nephrons. This can reduce your kidney's ability to filter waste from your blood.
- Most types of nephritis are caused by your body's immune system reacting to an 'insult' of some sort. This might be a medication, poison, infection or a change in the way your immune system behaves.
- Controlling your blood pressure is the most important treatment for nephritis.

What does that word mean?

Albuminuria - Occurs when albumin is present in the urine. There are filters in the kidneys that prevent large molecules, such as albumin, from passing through. If these filters are damaged, albumin passes from the blood into the urine.

Anaemia - When there are only a small number of red blood cells in the blood or the blood cells are not working properly. Red blood cells carry oxygen, so if you have anaemia you can feel weak, tired and short of breath.

Blood pressure - The pressure of the blood in the arteries as it is pumped around the body by the heart.

Corticosteroids - Mediations that inhibit the body's immune response and are often used to treat a range of conditions including inflammation.

Computed tomography (CT Scan) - An imaging procedure that uses special x-ray equipment to create a series of detailed pictures or scans of areas inside your body.

Diabetes - A chronic disease caused by problems with the production of and/or action of insulin in the body.

Haematuria - The medical term for blood in your urine.

Lupus - Lupus is a chronic condition that results from a malfunctioning immune system where normal healthy tissue is damaged.

Magnetic resonance imaging (MRI) - An imaging procedure that uses a magnetic field and radio wave energy to make detailed pictures or scans of areas inside your body.

Nephron - The tiny parts of the kidney that filter blood to make urine. There are over one million filters in each kidney.

Oedema - When your body does not get rid of enough liquid (water). This can cause swollen or puffy ankles, face or hands, or shortness of breath. Also known as fluid retention.

Ultrasound - An imaging procedure where an instrument is moved over the skin, sending and receiving signals to make pictures of your organs, including kidneys and bladder.

For more information about kidney or urinary health, please contact our free call Kidney Health Information Service (KHIS) on 1800 454 363.

Or visit our website kidney.org.au to access free health literature.

This is intended as a general introduction to this topic and is not meant to substitute for your doctor's or health professional's advice. All care is taken to ensure that the information is relevant to the reader and applicable to each state in Australia. It should be noted that Kidney Health Australia recognises that each person's experience is individual and that variations do occur in treatment and management due to personal circumstances, the health professional and the state one lives in. Should you require further information always consult your doctor or health professional.

Kidney Health Australia gratefully acknowledges the valuable contribution of Dr Chen Au Peh (Nephrologist) in the review of this material.



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