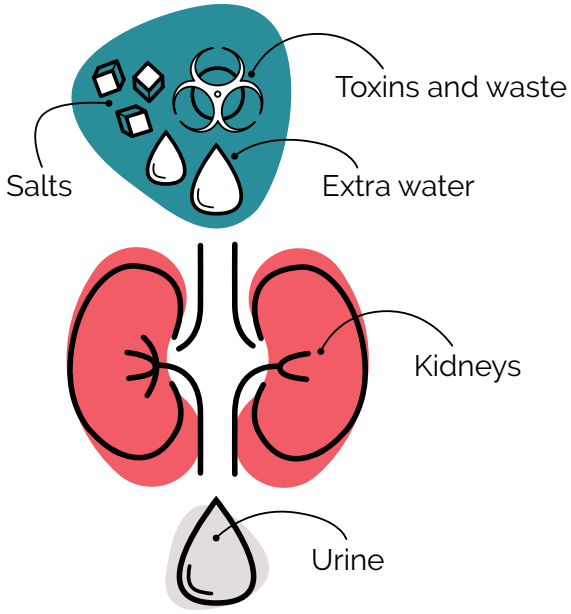
Kidney Health® Australia

Nephritis

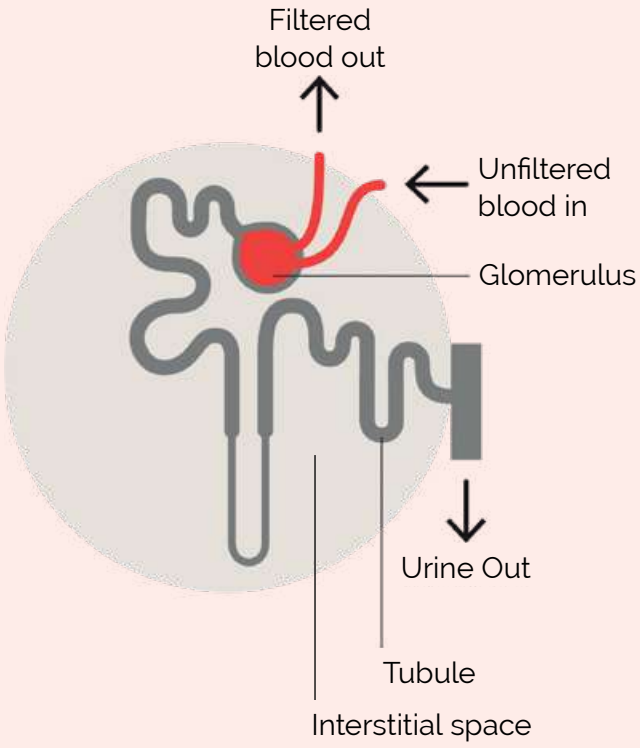
What are kidneys?

The kidneys are organs of the urinary system – the part of the body that makes urine (wee). Most people are born with two kidneys, and each kidney is about the size of a fist and located under the rib cage on either side of your spine (backbone).

Inside each kidney there are about one million tiny filtering units called **nephrons**. Inside a nephron, there is a tiny set of blood vessels called the glomerulus. The glomerulus filters your blood removing toxins and waste which collect in the bladder before leaving the body as urine.



One Nephron



What is nephritis?

Nephritis is inflammation (swelling) of the nephrons, the tiny filters in your kidneys. When nephrons are swollen, they may not filter your blood as well as they should.

Nephritis can happen when your immune system, which normally protects you from germs, starts attacking your own kidney cells by mistake. This can be triggered by infections, certain medicines, or toxins. When this happens, your kidneys can swell and become damaged.

Some long-term illnesses, like lupus, can also cause nephritis. With lupus, the immune system is always overactive and can harm the kidneys over time.

What are the different types of nephritis?

There are many different types of nephritis. Nephritis can occur in different parts of the kidney's filters:

- **Glomerulonephritis:** inflammation of the glomerulus.
- **Interstitial nephritis:** swelling of the space between the kidney tubes.

Acute nephritis happens quickly and usually involves infection. Chronic nephritis has a slow onset and can develop silently over many years. Sometimes, acute nephritis can develop into chronic nephritis.

Different types of nephritis include:

- **Infection-related glomerulonephritis:** Streptococcus (causes strep throat), human immunodeficiency virus (HIV), or skin bacteria cause infection and inflammation.
- **IgA Nephritis:** The body's natural defence creates an antibody called IgA that damages nephrons. This is the most common type of glomerulonephritis.
- **Focal Segmental Glomerulosclerosis (FSGS):** Scarring (or 'sclerosis') develops on small sections of each glomerulus. FSGS is caused by infections, medicines, or may have no known cause.
- **Lupus Nephritis:** Lupus is an autoimmune disease that causes your immune system to make antibodies that attack your own tissues. When lupus affects your kidneys, your immune system attacks the filters of the kidneys.

Nephrotic syndrome involves damage to your nephrons causing them to leak large amounts of protein into your urine. Nephrotic syndrome leads to lower albumin (a protein) in your blood, which can cause your feet, hands, and face to swell with fluid.

Some types of nephritis may lead to nephrotic syndrome, or it can be caused by other conditions like diabetes or lupus. Minimal Change Disease is the most common cause of nephrotic syndrome in children.

What are the symptoms of nephritis?

Depending on the type, you may notice symptoms immediately or symptoms may take years to develop. Because nephritis lowers the kidney's ability to filter wastes, you may notice:

pink, red, or brownish coloured urine

cloudy or foamy urine

high blood pressure

nausea or vomiting

muscle cramps

fatigue

swelling in the face, feet or legs

How is nephritis detected?

Doctors often discover nephritis during routine health visits or during screenings with a Kidney Health Check. You can get a Kidney Health Check at your local health centre, often as part of a regular check-up. It includes three parts:

A **blood pressure check** to see if you have high blood pressure. High blood pressure can damage your kidneys and kidney disease can cause your blood pressure to increase.

A **urine test** to see if any blood cells or albumin (protein) is present in your urine. Albumin in your urine is a sign of damage or scarring in the kidneys. Your doctor will send a urine test away to a lab to test for red blood cells, bacteria, and protein in the urine.

A **blood test** to check your kidney function. This test will measure how well your kidneys are filtering your blood and is called estimated glomerular filtration rate (eGFR).

Your doctor may order a **kidney biopsy** to diagnose certain types of nephritis. A kidney biopsy involves a needle passing through your skin into the kidney to remove a small piece of kidney tissue. Your doctor will use a microscope to view the tissue and learn about the cause of your nephritis.

Other tests help your doctor find a cause for nephritis. These include:

- **a blood culture to look for infections**
- **a blood test to look for antibodies**
- **imaging tests, like a computed tomography (CT) or ultrasound.**

Nephritis is one of the **leading causes** of chronic kidney disease.

What are the complications of nephritis?

Inflamed kidneys **do not filter the blood or protein waste as well**. Blood and protein can leak into your urine, causing dark, foamy urine. Anaemia occurs if your kidney is damaged and cannot make red blood cells. You may develop high cholesterol, increasing your risk for other heart issues. If left untreated, **certain types of nephritis can lead to kidney failure.**

How is nephritis treated?

Treating nephritis involves healing the underlying cause. Most acute types of nephritis heal on their own or with medicines. Your doctor will use medicines to help treat other coexisting problems, like high blood pressure, swelling, or autoimmune disease. Keeping your blood pressure under control is important to protect your kidneys.

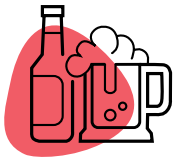
Healthy habits can help with your nephritis. Manage other health conditions (such as diabetes), look after your wellbeing and overall health, follow healthcare advice, and take your prescribed medicines.

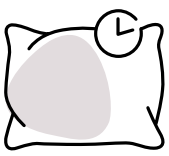
Ways to look after yourself:

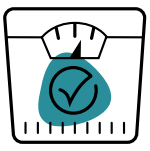

Limit salt


Reduce stress


Keep active


Drink less alcohol


Rest


Maintain a healthy weight


Say no to smoking


Eat healthy foods

Things to remember:

- ✓ **Nephritis causes swelling of the filtering units (nephrons) in your kidney. 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 infections, toxins, or medicines.**
- ✓ **Medicines for underlying causes and complications of nephritis and healthy lifestyle choices can help.**

What does that word mean?

Anaemia – When there are only a small number of red blood cells in your blood, or your 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.

Autoimmune – An autoimmune disorder occurs when a person's immune system mistakenly attacks their own body tissues.

Cholesterol – A naturally occurring, waxy substance made by the body. It is an essential building block of cell membranes, hormones, and vitamin D.

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

Glomerulonephritis – A type of kidney disease that damages the tiny filters in the kidneys. It is sometimes called nephritis.

Glomerulus – One of the key structures that make up the nephron which is the filtering unit of the kidney.

IgA nephritis – A common type of glomerulonephritis where build–up of the IgA antibody damages the kidney filters, allowing protein and blood to leak into the urine.

Immune system – A collection of special cells and chemicals that fight infection–causing agents such as bacteria and viruses.

Kidney biopsy – A small piece of kidney tissue is removed for testing and examination under a microscope.

Kidney ultrasound scan – A probe is moved over the skin, sending, and receiving ultrasound signals, which then make pictures of the kidneys and bladder. This is a diagnostic test, often used to measure the size of the kidneys.

Special Thanks! **This educational resource is supported by a sponsorship provided by Boehringer Ingelheim**