

# Albuminuria

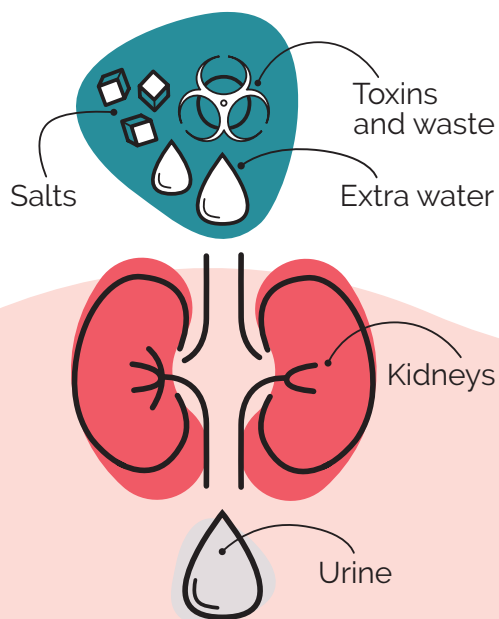
## What is albuminuria?

Albumin is an important **protein** normally found in your blood. It has many roles in the body – carrying hormones, vitamins and enzymes. It is not usually found in the urine.

Your kidneys are responsible for filtering your blood to remove waste products and extra water.

Healthy kidneys normally stop albumin from getting through their filters and entering the urine (wee). There should be very little or no albumin in your urine. If the filters are damaged, albumin can “leak” through and into your urine.

Finding albumin in your urine may be an early sign of chronic kidney disease (CKD).



## Albuminuria or Proteinuria?

Albuminuria and proteinuria mean similar things. Albuminuria refers to unusually high levels of albumin, a specific type of protein, in your urine. Proteinuria refers to abnormal levels of all proteins in the urine, which may or may not include albumin.

## What causes albuminuria?

Albuminuria is caused by kidney damage, specifically when the damage occurs in the glomerulus (the kidney's filter).

This can be temporary (short-term damage), while other times it is chronic (long-term damage). The exact cause for the kidney damage is different for each person and may even be due to several factors combined.

**Albuminuria can occasionally be temporary and may not lead to significant kidney damage, such as when it occurs:**

- Following heavy exercise.
- With a fever.
- During a urinary tract infection.
- Not in the morning, but later in the day (called orthostatic proteinuria).

## Common causes of chronic albuminuria

Some of the most common causes of chronic (long-term) albuminuria include:

- Diabetes (especially if your blood sugars are higher than your target range).
- High blood pressure.
- Stroke, heart attack or heart failure.
- Glomerular disease (such as IgA nephropathy, lupus nephritis, focal segmental glomerulosclerosis (FSGS), or glomerulonephritis).

Having albuminuria may not always mean you have actual kidney damage. This is why repeat testing is so important – to help tell the difference between chronic (long-term) kidney damage and temporary (short-term) stress on the kidneys.








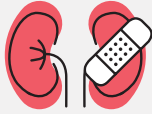

If you are at increased risk, you should have 1 - 2 yearly **Kidney Health Checks**. This is to monitor any changes to your levels of albuminuria, as well as your eGFR and blood pressure. This is so your doctor can act fast, and together with you help manage kidney disease, if it is detected.

## What are the symptoms of albuminuria?

Often, with albuminuria you don't notice any signs or symptoms. If you do, one of the most common ones is foamy or frothing urine. When a very high level of albuminuria is ongoing, you may experience swelling of some areas on your body, e.g. around your eyes, feet and hands.

The amount and type of protein in your urine reflects the changes in your kidneys. A small amount of albuminuria that comes and goes, is usually not a problem. However, sometimes these low levels can be early signs of CKD, that can get worse over time.

You are at increased risk of developing albuminuria if any of the following apply:

	Diabetes		High blood pressure		First Nations Australian aged 18 and over
	Current or past smoker/vaper		Very overweight or obese		Had a stroke, heart attack or have heart failure
	Family history of kidney failure, dialysis, or kidney transplant		History of acute kidney injury		Non-Indigenous Australian aged 60 and over

## What tests detect albuminuria?

The recommended test to detect albuminuria is called the urinary Albumin:Creatinine Ratio, or uACR for short. The uACR test is part of the **Kidney Health Check**, which also includes a blood test to check your kidney function (eGFR), and a blood pressure check.

The uACR test requires you to provide a urine sample. Your healthcare team may ask you to collect a urine sample first thing in the morning (called a first void sample). If this is not possible, you may still be able to do the test using a urine sample collected later in the day (called a spot random sample).

If the test result is positive, meaning there is an increased amount of albumin in your urine, then your doctor will repeat the test at least once within the next three months to see if you have persistent (ongoing) albuminuria.



## Micro vs Macroalbuminuria

These two terms are used to describe the severity of your albuminuria.

- If there are very small or 'micro' amounts of albumin in your urine, this is called microalbuminuria. Your test results will show a uACR between 3-30 mg/mmol. This may also be referred to as low level albuminuria or A2 albuminuria.
- If there are larger or 'macro' amounts of albumin in your urine, this is called macroalbuminuria. Your test results will show a uACR over 30 mg/mmol.

## What is a Kidney Health Check?

A **Kidney Health Check** is quick and simple. You can have 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 how much albumin (protein) is present in your urine. Albumin in your urine is a sign of damage or scarring in the kidneys. This test is called urine-albumin creatinine ratio (uACR).

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).

## How do you treat albuminuria?

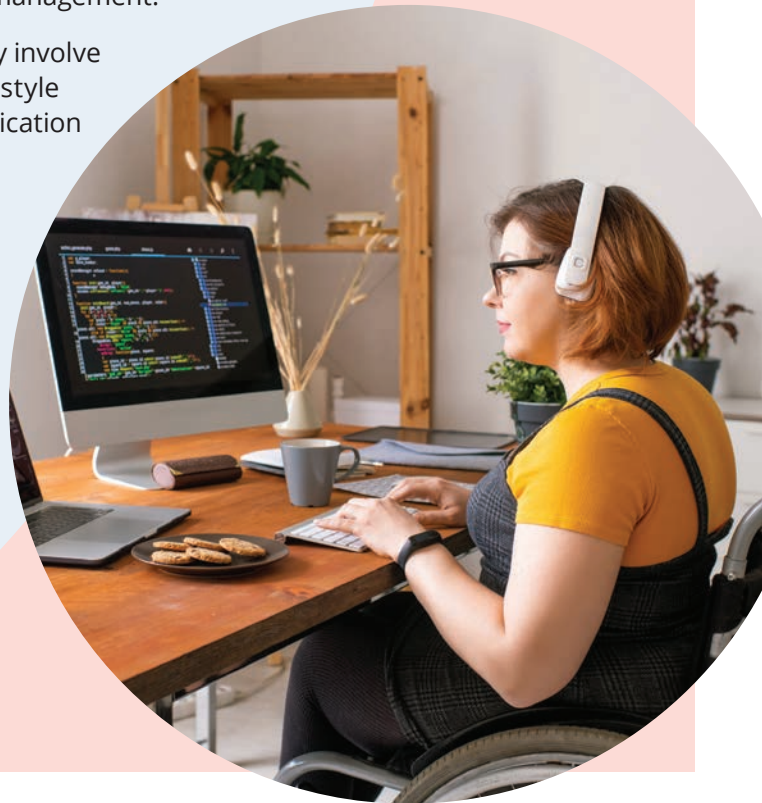
Reducing albuminuria levels is one of the key goals of managing CKD. High albuminuria levels can mean that kidney disease may progress faster. Your doctor will monitor the level of albumin in your urine to find out if it is increasing or decreasing. You may need to have further tests to investigate the cause and extent of any kidney damage.

In some cases, a kidney biopsy is the only way to determine the cause of albuminuria. This is when a doctor removes a small piece of kidney tissue to examine it under a microscope. If the biopsy finds a cause that can be treated, then this treatment may stop the albuminuria.

Medication often prescribed include ACE inhibitors, Angiotensin receptor blockers, SGLT2 inhibitors. If you have diabetes other medications may be added to help with your diabetes management.

If your albuminuria is due to uncontrolled diabetes or high blood pressure, the first goal may be to improve your diabetes and/or blood pressure management.

Your treatment may involve changes to your lifestyle and the use of medication to help lower the amount of albumin in your urine.



### Things to remember:

- ✓ If your kidney filters are damaged, the **protein** albumin passes from the blood into your urine. This is called albuminuria, and it may be an early sign of chronic kidney disease (CKD).
- ✓ People with albuminuria often don't notice any signs or symptoms. If you do, one of the most common ones is foamy or frothing urine.
- ✓ A common test used to identify albuminuria is called a urinary albumin:creatinine ratio (uACR). You should have this test as part of the **Kidney Health Check** every one to two years if you are at increased risk of developing albuminuria or chronic kidney disease.

### What does that word mean?

**ACE inhibitors** – A common medication prescribed by doctors to manage blood pressure.

**Albumin** – A protein in your blood that helps to maintain blood volume and blood pressure.

**Albumin:creatinine ratio (ACR)** – A test used to see how much albumin leaks into your urine when your kidneys are damaged. A urine ACR is a part of a Kidney Health Check.

See *Albuminuria*, *Creatinine*, *Microalbuminuria*, *Macroalbuminuria*.

**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.

**Angiotensin receptor blockers (ARBs)** – A common medication prescribed by doctors to control blood pressure.

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

**Chronic kidney disease (CKD)** – A term used widely to describe kidney damage or reduced kidney function (irrespective of the cause) that persists for more than three months. Sometimes CKD leads to kidney failure, which requires dialysis or a kidney transplant to keep you alive.

**Creatinine** – Waste that is produced by the muscles. It is usually removed from your blood by your kidneys and passes out in your urine (wee). When your kidneys aren't working properly, creatinine stays in your blood.

**Diabetes** – A chronic disease caused by problems with the production and/or action of insulin in the body which helps control blood sugar levels.

**Enzymes** – Proteins made by cells in our body that start chemical reactions. Your kidneys use the enzyme called renin to control the levels of water and salt in your body. Many are used to break down the foods we eat so our body can use them.

**Estimated glomerular filtration rate (eGFR)** – An estimation of glomerular filtration rate (GFR). GFR is the best measure of kidney function and helps to determine the stage of kidney disease. It shows how well your kidneys are cleaning your blood.

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

**Healthcare team** – The team of people involved in your care. This may include health professionals, family members, loved ones, and yourself.

**Hormone** – A chemical made by glands in the body. Hormones circulate in the bloodstream and control the actions of certain cells or organs.

**Macroalbuminuria** – When larger ('macro') amounts of a protein called albumin leak into the urine if the kidneys are damaged. Compare *Microalbuminuria*.

**Microalbuminuria** – When small ('micro') amounts of a protein called albumin leak into the urine if the kidneys are damaged. Compare *Macroalbuminuria*.

**Protein** – Substance obtained from food, which builds, repairs, and maintains body tissues. It also helps to fight infections and heal wounds.

**Proteinuria** – The medical term for too much protein in your urine.

**SGLT2 Inhibitors** – A common medication that helps lower blood sugar in people with type 2 diabetes by making them wee out more sugar. It also helps protect kidneys in people with kidney disease by reducing the pressure in the kidney filters and helping the body get rid of excess sugar and salt through their wee.

**Urine** – The name for excess fluid and waste products that are removed from the body by the kidneys. Commonly called wee.

**Urinary Tract Infection (UTI)** – A bacterial infection that can affect the urethra, bladder or kidneys. It may cause pain when urinating and wanting to urinate more frequently. Treatment with antibiotics may be needed.



#### For more information

To access information about CKD, or kidney health, please scan the QR code.

**Free Kidney Helpline 1800 454 363**  
kidney.org.au



If you have a hearing or speech impairment, contact the National Relay Service on **1800 555 677** or **relayservice.com.au** For all types of services ask for **1800 454 363**

This educational resource is supported by a sponsorship provided by Boehringer Ingelheim and Eli Lilly Alliance.

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.