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## Kidneys

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### Summary

- Kidneys are a special filter system for your body.
  - Kidneys remove waste products from the blood and produce urine.
  - Kidneys control the levels of many substances in the blood.
  - Kidneys help to control your blood pressure.
  - Early detection of kidney disease can be life-saving.
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Your kidneys are as important to your health as your heart or lungs. Their main job is to remove waste products from your body. Most people have two kidneys, one on either side of the spine under the lower ribs. They are bean-shaped and reddish brown in colour. Each kidney is about the size of a clenched fist.

### Kidneys are a filter system

The main job of the kidneys is to remove waste from the blood and return the cleaned blood back to the body. Each minute about one litre of blood – one-fifth of all the blood pumped by the heart – enters the kidneys through the renal arteries. After the blood is cleaned, it flows back into the body through the renal veins.

Each kidney contains about one million tiny units called nephrons. Each nephron is made up of a very small filter, called a glomerulus, which is attached to a tubule. As blood passes through the nephron, fluid and waste products are filtered out. Much of the fluid is then returned to the blood, while the waste products are concentrated in any extra fluid as urine (wee).

The urine flows through a tube called the ureter into the bladder. Urine passes from the bladder out of the body through a tube called the urethra. The kidney usually makes one to two litres of urine every day depending on your build, how much you drink, the temperature and the amount of exercise you do.

A healthy kidney can greatly increase its work capacity. With two healthy kidneys, each kidney performs 50 per cent of the normal kidney function. If one kidney is lost, the other kidney can enlarge and provide up to 75 per cent of the normal kidney function (the work of one and a half normally functioning kidneys).

### Other kidney functions

As well as filtering the blood, kidneys:

- make and regulate important hormones in the body that help to control blood pressure, red blood cell production and calcium uptake from the intestine
- maintain body fluid at the correct levels for the body to function
- control body chemistry by regulating the amount of salt, water and other chemicals moving around the body.

### Measuring how your kidneys work

It is difficult to calculate the exact rate at which your kidneys work. The best measure of kidney function is called the glomerular filtration rate (GFR). The GFR can be estimated (eGFR) using a mathematical formula. This formula uses the level of creatinine in your blood to estimate how well your kidneys are filtering waste from your blood. It can indicate if there is any kidney damage.

The higher the filtration rate, the better the kidneys are working. A GFR of 100 mL/min/1.73 m<sup>2</sup> is in the normal range. This is about equal to '100 per cent kidney function'. Based on this measurement system, a GFR of 50 mL/min/1.73 m<sup>2</sup> could be called '50 per cent kidney function' and a GFR of 30 mL/min/1.73 m<sup>2</sup> could be called '30 per cent kidney function'.

If your doctor orders a blood test to learn more about your kidney function, an eGFR result is provided

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automatically, along with your creatinine results.

Your doctor may also test for other signs and conditions that may indicate you have chronic kidney disease. These may include tests for:

- protein in your urine (albuminuria or proteinuria)
- blood in your urine (haematuria)
- high blood pressure
- diabetes.

### **Keeping your kidneys healthy**

Well-functioning kidneys are essential to your overall health. Early detection of kidney disease can be life-saving. Medication and changes to lifestyle, along with an early referral to a kidney specialist, can prevent or delay kidney failure.

If you are at increased risk of **chronic kidney disease**, talk to your doctor about having a regular kidney health check.

### **Where to get help**

- Your doctor
- **Kidney Health Australia** Helpline Tel. **1800 454 363**

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Kidney Health Australia

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