

# LINKING KIDNEY HEALTH, HEART HEALTH, BLOOD PRESSURE AND DIABETES



## INTRODUCTION

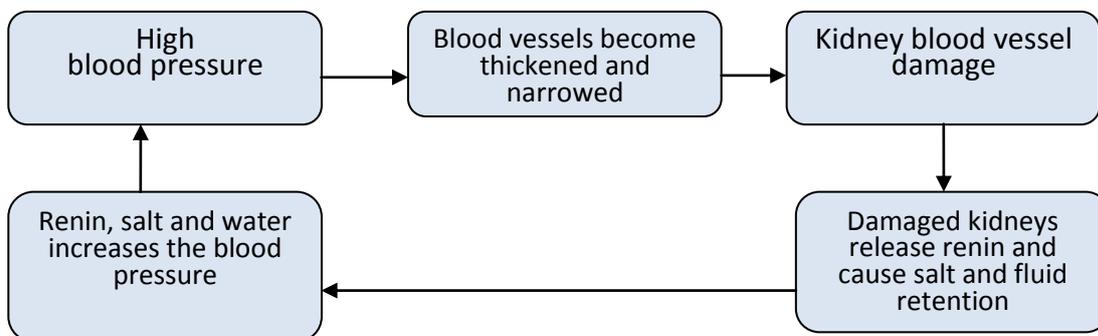
Kidney disease is called a 'silent disease' as there are often no warning signs. It is not uncommon for people to lose up to 90% of their kidney function before getting any symptoms. A sudden drop in kidney function is called Acute Kidney Failure. It is often short lived and treatment is only for a short while. More often kidney function worsens over a number of years and is called Chronic Kidney Disease.

People who have diabetes, high blood pressure and/or cardiovascular disease are at an increased risk of chronic kidney disease. Detection and early management is very important to slow down any damage to the kidneys, and hopefully prevent the need for transplant or dialysis. Treatment will also reduce the risk of death from heart disease.

## BLOOD PRESSURE

Blood pressure is the pressure of the blood in the arteries as it is pumped around the body by the heart. Your blood pressure changes to meet the demands of your body. It is usually at its highest when we exercise and lowest when we sleep. It can also rise due to anxiety, excitement, activity or nervousness.

Blood pressure is closely related to kidney function. High blood pressure can cause kidney damage and kidney damage can cause high blood pressure. Untreated it is a vicious circle.



Blood pressure is usually measured by wrapping an inflatable pressure cuff around the upper arm. Blood pressure has two numbers. The systolic is the heart pumping and the diastolic is the heart at rest. A typical blood pressure recording is 120/80 (120 over 80). Blood pressure is classified as normal, high normal or high. If you have diabetes your blood pressure should be consistently kept below 130/80. If you have chronic kidney disease your blood pressure should be consistently kept below 140/90.

### Systolic/Diastolic Blood Pressure(mmHg)

|                |                               |
|----------------|-------------------------------|
| Normal         | Below 120/80                  |
| Normal to high | Between 120/80 and 140/90     |
| High           | Equal to or more than 140/90  |
| Very high      | Equal to or more than 180/110 |

## DO I HAVE HIGH BLOOD PRESSURE?

A single high reading is not enough to make a diagnosis of 'high blood pressure'. You need to have a series of high readings taken on several different days, at different times, before high blood pressure (also called hypertension) can be confirmed.

Following a healthy lifestyle as discussed later will help to control your blood pressure. You may also need to take medications to control your blood pressure and many of these also protect your kidneys.

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## CARDIOVASCULAR DISEASE

Cardiovascular disease includes all diseases and conditions of the heart and blood vessels, such as arteries and veins. The most common conditions include heart attack, heart failure and stroke.

The link between cardiovascular disease and kidney disease is clearly established. People with kidney disease are 10-20 times more likely to have a heart attack. Also if your kidney damage is caused by diabetes, you are at a much higher risk because diabetes also affects the heart and blood vessels.

## AM I AT RISK OF CARDIOVASCULAR DISEASE?

|   |  |
|---|--|
| Non modifiable risk factors<br>(Things you cannot change) | Being male<br>Advancing age<br>Being post-menopausal<br>Family history   |
| Modifiable risk factors<br>(Things you can change)        | High blood pressure<br>High cholesterol or lipid levels<br>Smoking<br>Being overweight<br>Lack of exercise<br>Poor diet<br>Type 2 diabetes<br>Depression, social isolation and lack of support |

One of the most important things you can do is talk to your doctor about your risk of cardiovascular disease and have your risk factors measured. Your doctor can then talk to you about what treatment is right for you.

**Advanced Chronic Kidney Disease and Cardiovascular Disease:** If you have more advanced chronic kidney disease, you are unable to control levels of certain minerals in your body such as potassium and sodium (salt). Too much potassium may cause an abnormal heart rhythm and too much salt can increase your blood pressure.

The balance of calcium and phosphate levels in blood is also changed by chronic kidney disease. This eventually causes calcium deposits to build up in your blood vessels and heart also known as atherosclerosis. Poor control of calcium and phosphate levels increases the risk over time. Medications called phosphate binders can help to control this.

Chronic kidney disease often causes anaemia which is a drop in red blood cells. Your heart has to work harder to maintain oxygen levels. If the heart works too hard, the heart muscle becomes larger and this can lead to heart failure. An injection called erythropoietin or iron supplements can improve your anaemia.

## DIABETES

Diabetes is a major cause of chronic kidney disease. Diabetes is caused by problems with the production and/or action of insulin. Insulin controls the amount of sugar in your blood. In Type 1 diabetes, the pancreas does not make enough insulin. In Type 2 diabetes, the body cannot use insulin properly. Those people who are overweight, have a family history or have an Aboriginal or Torres Strait Islander background are at greater risk of developing diabetes.

Diabetes damages the nephrons, which are the tiny kidney filters, leading to diabetic kidney disease. In some cases diabetic kidney disease (also known as diabetic nephropathy) causes the kidney filters to become blocked and stop working.

Diabetes may also cause:

**Retinopathy:** the blood vessels of the eyes are damaged leading to blindness or reduced vision. Some ethnic backgrounds are more at risk of retinopathy.

**Neuropathy** People with diabetes may be at more risk of damage to their nerve fibres (neuropathy). This can cause weakness in the arms and legs or problems in organs, eg digestive tract, heart and sexual organs. Neuropathy may have a role in causing damage to the kidneys.

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## WHAT ARE THE SIGNS OF DIABETIC OR BLOOD PRESSURE RELATED KIDNEY DISEASE?

Unfortunately kidney disease often shows no signs until you have lost up to 90% of your kidney function. Kidney function can be measured by a simple blood test, which is known as the glomerular filtration rate or the GFR. As GFR decreases, the kidneys are more damaged.

A GFR above 90 is good. A GFR less than 60 that persists for more than three months means you have chronic kidney disease. Some signs include:

|  |   |
|--|---|
| <b>Increasing amounts of albumin (or protein) in the urine</b> | Increased urine protein is associated with damage to the kidney causing scarring and reduced kidney function.   |
| <b>Rising blood pressure</b>                                   | Even small rises in blood pressure need to be treated as uncontrolled high blood pressure increases the risk of kidney damage.  |
| <b>Declining kidney function</b>                               | If kidney function falls very low, waste and fluid build up in the blood. Symptoms may be general and can include: changes in the amount and number of times urine is passed, tiredness, loss of appetite, headaches, lack of concentration, shortness of breath, nausea and vomiting |

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## KIDNEY HEALTH CHECK

A kidney health check is a simple check of your blood pressure, your urine for protein and a blood test to estimate your GFR (known as eGFR).

If you have diabetes or high blood pressure you should have a kidney health check **every year**.

If you think you have signs of kidney disease, cardiovascular disease, are a smoker, are overweight, have a family history of kidney disease, or are an adult of Aboriginal or Torres Strait Islander origin it is important to see your doctor (GP) and get a kidney health check at least **every two years**.

## CHOOSING A HEALTHY LIFESTYLE

There are a number of ways in which you can reduce the risks of further complications of high blood pressure, diabetes or cardiovascular disease by managing your lifestyle choices.

- Be a non-smoker (for information on quitting smoking, call the Quitline on 13 7848).
- Reduce your salt intake. Avoid adding salt to cooking, buy low salt products and avoid takeaway foods.
- Achieve and maintain a healthy body weight. Your doctor (GP) or an Accredited Practising Dietician (APD) can help if you are having problems with your weight.
- Maintain healthy cholesterol levels, avoid fatty and fried foods.
- Limit your alcohol intake to no more than two standard drinks per day.
- Find 30 minutes to do exercise at least 3 times per week. Walking, bike-riding and swimming are great options. It is recommended to slowly increase your activity level.
- Consider if you can reduce stress in your life and have relaxation times.
- If you have diabetes, closely monitor and control your blood sugar levels. Visit your diabetes health care team regularly.



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## DO YOU NEED MORE INFORMATION?

If you think you are at risk of cardiovascular disease, kidney disease, diabetes or high blood pressure the best place to start for more information is to visit your local doctor or GP.

For more information about kidney health or this topic, please contact Kidney Health Australia: Kidney Information Line (freecall) on 1800 4 KIDNEY (1800 4 543 639) or visit website [www.kidney.org.au](http://www.kidney.org.au)

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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.

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If you are deaf, or have a hearing impairment or speech impairment, contact the National Relay Service [www.relayservice.com.au](http://www.relayservice.com.au):

- TTY users phone 1800 555 677 then ask for 1800 454 363
- Speak and Listen users phone 1800 555 727 then ask for 1800 454 363
- Internet relay users - [www.relayservice.com.au](http://www.relayservice.com.au) - "Make an internet relay call now" then ask for 1800 454 363