

# HEART DISEASE AND CHRONIC KIDNEY DISEASE



If you have a chronic condition such as Chronic Kidney Disease (CKD), it is important to learn all you can about the condition and its complications. You can then work with your health care team to stay healthier. The more you know, the better you can take care of yourself!

By acting early, you can help prevent some of the long-term complications of chronic kidney disease such as cardiovascular or heart disease.

## WHAT IS CARDIOVASCULAR DISEASE?

Cardiovascular disease (CVD) includes all diseases and conditions of the heart and blood vessels, such as arteries and veins. The most common diseases and conditions include heart attack, heart failure, stroke, blockages in the blood vessels and vascular kidney disease.

## WHAT ARE THE RISK FACTORS FOR CVD?

Some of the risk factors are linked to lifestyle choices like diet and exercise. Other risk factors are common to everyone, including:

- Age - your risk increases with age. Women are more at risk after menopause as their cholesterol levels increase.
- Gender - men are at more risk
- Family history of CVD can put you at increased risk
- Hereditary factors such as race - people of Aboriginal and Torres Strait Islander descent are at higher risk
- Depression - may also be a risk factor
- Chronic health conditions, e.g. kidney disease, high blood pressure, high cholesterol, obesity, metabolic disorders e.g. diabetes.

**People with chronic kidney disease are 10 - 20 times more likely to have a heart attack. CVD remains the leading cause of death for people on dialysis and those who have a transplanted kidney. People at every stage of chronic kidney disease are at more risk of CVD, although those in the later stages have the highest risk.**

## WHY DOES KIDNEY DISEASE INCREASE YOUR RISK?

The kidneys help to control and maintain your body's chemical balance. For example, the kidneys make hormones that regulate the electrolytes and fluid balance. Hormones such as renin and angiotensin control how well the blood vessels expand and contract so the kidneys play an important role in maintaining healthy blood pressure.



If your kidneys aren't working properly your blood pressure can rise. If high blood pressure is left unchecked it tends to thicken the blood vessel walls causing blood vessels to narrow. High blood pressure can also damage small blood vessels taking blood to the kidney filters and the filters themselves. Severe, uncontrolled blood pressure weakens the heart muscle, enlarges the heart and can cause kidney failure.

Your kidneys control the acid level in your body plus the levels of minerals and salts such as potassium, chloride, bicarbonate, phosphate, sulphates, magnesium, sodium (salt), calcium and potassium. These minerals and salts are called electrolytes. Electrolytes are found in the food that you eat. Electrolytes are important as they keep you healthy, but too much or too little can make you sick. For instance, if you have too much sodium your body retains water. Repeated fluid overload can damage your heart. Too much potassium may cause an abnormal heart rhythm and not enough magnesium can affect heartbeat and change mental state.

The balance of calcium and phosphate levels in blood is also upset 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 of cardiovascular disease over time.

Chronic kidney disease often causes anaemia, a serious disease leading to other health conditions if left untreated. For example when the numbers of red blood cells drop, your heart works harder to maintain oxygen levels. If the heart works too hard, the heart muscle becomes larger and can lead to heart failure.

If your kidney damage is caused by diabetes, you are at a much higher risk of CVD because diabetes also affects the heart and blood vessels. Good control of blood glucose and blood pressure levels is essential.

See *Kidneys and Blood Pressure*, *Kidneys and Diabetes* brochures and fact sheets about *Chronic Kidney Disease*, *Anaemia* plus *Calcium and Phosphate* for more information.

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## **HOW CAN YOU REDUCE YOUR RISK OF CVD?**

The best way to reduce the risk of CVD is to control and maintain a healthy blood pressure, cholesterol level and blood glucose level if you have diabetes. If you have chronic kidney disease, this usually means using medication as well as having a healthy lifestyle. Identifying chronic kidney disease early and slowing the progression to end-stage kidney failure as well as reducing other risk factors is important in reducing your risk of CVD.

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## **HOW DO MEDICATIONS HELP TO REDUCE CVD?**

Managing your medication is an important part of treatment. Your doctor may prescribe a variety of medications to treat chronic kidney disease, most are designed to control blood pressure and help regulate the body's chemistry. This medication can include:

- Cholesterol or lipid (fat) lowering medications: For the general population, the recommended level of cholesterol is no higher than 5.5mmol/litre.

However for people with chronic kidney disease, diabetes and in other high-risk groups for CVD, the recommended level is less than 4. This lower target is often difficult to achieve without medication.

Various medications can lower cholesterol levels. Not everyone takes the same type of blood lipid medication and often a combination of drugs is used. One common drug is called a statin. Statins lower LDL cholesterol and triglyceride levels and boost the HDL levels.

- Blood pressure medication: Good blood pressure control can slow the progression of chronic kidney disease, delay the need for dialysis, maintain your heart health and increase the life of a transplant. If you have chronic kidney disease, your blood pressure target is 130/80. Different types of blood pressure tablets work in different ways, so it is not unusual for more than one type to be prescribed. The dose may alter according to your needs.

In recent years angio-converting enzyme (ACE) inhibitors and angiotensin receptor blockers (ARB) have been used to keep your blood vessels opened and relaxed. ACE inhibitors prevent a hormone called angiotensin from forming and narrowing your blood vessels. Both these medications also help protect your kidney function. Other medication called beta-blockers helps to lower blood pressure by allowing it to beat slower and less forcefully. Calcium-channel blockers help the blood vessels to relax by keeping calcium out of your blood vessels and heart.

A diuretic or water pill is often prescribed as well as it helps rid your body of extra fluid and sodium through your urine.

- Phosphate binders: Your doctor may prescribe a medication called a phosphate binder to take with your meals and snacks containing phosphate. This is given to lower the amount of phosphate absorbed from the food you eat. Phosphate binders are taken with food and act by trapping the phosphate in the gut before it has a chance to move into the blood. There are several types of phosphate binders.
- Erythropoietin (EPO): EPO is used to treat anaemia. It can be given as an injection on a weekly, fortnightly or even monthly basis depending on your blood results. The dose varies from person to person. Your doctor uses the level of haemoglobin in your blood and your body weight to decide on the dose. EPO can cause high blood pressure but it is better to treat blood pressure than to stop taking this medication.
- Folic acid with vitamins B12 and B6 to lower amino acid levels.
- Bicarbonate supplement to treat acidosis.
- Aspirin: Low doses of aspirin may be given to improve blood circulation. Caution should be taken if used by people on dialysis or post transplant.

Medication should only be taken as advised by your health care team. Each medication is given for a particular reason and should be taken as directed.

Never change a dose or stop taking a medication without your doctor's approval. To prevent unwanted side effects, it is important to tell your doctor about all your medications including those sold over-the-counter such as vitamins and herbal supplements.

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## **DO HEALTHY LIFESTYLE CHOICES HELP TO REDUCE CVD?**

Healthy lifestyle choices can help to improve your overall health so lower your risk of CVD. They can also reduce the amount of medication you need or make your medication work better. Healthy lifestyle choices include:

- Being a non-smoker
- Eating a healthy diet with plenty of fruit and vegetables plus low in salt and saturate fat unless otherwise directed by your doctor
- Staying fit by doing at least 30 minutes of physical activity on most days of the week
- Maintaining a healthy weight
- Doing things that help you to relax and reduce stress
- Drinking alcohol only in moderation
- Avoiding certain medications

It is important to take control of your own health. Talk to your health care team to get practical advice about the best way to reduce your risk of CVD.

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## **WHY DOES CHOLESTEROL INCREASE THE RISK?**

Cholesterol is a type of fat or lipid, which the body needs to stay healthy. It is not necessary to eat foods that are high in cholesterol as your body is very good at producing its own.

There are two types of cholesterol, which is a white and waxy substance:

- Low-density lipoprotein (LDL) cholesterol – you need a small amount of LDL but sometimes it is called the 'bad' cholesterol because the excess goes into the bloodstream and clogs up your arteries.
- High-density lipoprotein (HDL) cholesterol - called the 'good' cholesterol because it helps to take the LDL cholesterol out of the bloodstream.
- Triglycerides – the most common form of stored fat in your body. Usually only a small amount is found in your blood. Triglycerides may not cause fatty deposits in your arteries but are often linked to low HDL or a tendency towards diabetes. Both increase your risk of CVD.

The liver is the main processing centre for cholesterol. When we eat animal fats, the liver makes cholesterol and returns any it can't use to our bloodstream. When there is too much cholesterol circulating in our bloodstream, it can build up into fatty deposits. These deposits cause the arteries to narrow and can eventually block the arteries completely, leading to heart disease and stroke.

If you have diabetes your LDL particles are unusually small and dense, which can be more harmful to blood vessels. Your triglycerides and HDL levels are often too low so people with diabetes are at higher risk of CVD.

## **CAN DIET HELP TO REDUCE CHOLESTEROL?**

You can reduce your cholesterol level using a combination of medication and dietary changes. It is very important to talk to your doctor or a dietitian experienced in kidney disease before making any changes to your diet. Your eating plan has to be designed with your special needs in mind. If you are on dialysis, you could be asked to limit your salt, phosphate, potassium or fluid intake but only if these are causing problems. Some people have to take supplements. People with kidney transplants have a much less restricted diet.

Dietary cholesterol often comes from saturated fats that are found mostly in animal products. These are some dietary tips:

- Limit the amount of cholesterol-rich foods you eat.
- Eat plenty of fresh fruit, vegetables and wholegrain foods. These are high in fibre and may improve your blood lipid levels.
- Choose low or reduced fat milk, yoghurt and other dairy products or have 'added calcium' soy drinks.
- Choose lean meat (meat trimmed of fat or labelled as 'heart smart').
- Limit fatty meats, including sausages and salami, and choose leaner sandwich meats like turkey breast or cooked lean chicken.
- Have fish (fresh or canned) at least twice a week.
- Replace butter and dairy blends with polyunsaturated margarines.
- Use unsaturated cooking oils labelled as 'polyunsaturated' or consisting of canola or olive oils.
- Include foods in your diet that are rich in soluble fibre and healthy fats, such as nuts, legumes and seeds. Be aware that some nuts such as brazil and macadamia are high in saturated fats.
- Limit your dairy foods such as cream, whole milk and cheese.

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## **WHY IS EXERCISE IMPORTANT?**

Regular physical activity or exercise can help lower your risk of CVD by:

- Lowering your 'bad' and increasing your 'good' cholesterol
- Reducing your triglyceride level
- Improving fitness of heart and lungs
- Helping to maintain a healthy weight
- Helping to control blood pressure and blood sugar

The key is to start slowly and gradually increase the time and intensity of your activities. Physical activity leads to increased strength, stamina and more energy. If you are only starting out, aim to do some physical activity for at least 30 minutes 3-4 times weekly. The 30 mins can be broken down into smaller blocks, e.g. 3 x 10 mins, which can be increased as you become fitter. It is important to stop exercising and tell your health care team if you get:

- Chest pain or pressure
- Dizziness or light-headedness
- Irregular or fast heart rate that persists when the activity is completed
- Excessive shortness of breath

If you have advanced kidney disease but not yet on dialysis or had a transplant, you may find it difficult to improve your fitness - do as much as is comfortable.

Here are some tips:

- Increase incidental exercise – walk the dog, take the stairs, get off the bus a stop earlier, mow the lawns.
- Set mini goals that are achievable, e.g. walk around the block twice a day for a week, then two blocks twice a day, etc.
- If you feel soreness after exercising that lasts for more than two hours, next time do less or don't do the activities that seem to be causing problems. Don't stop your physical activity all together.
- It is always a good idea to talk to your health care team for advice before starting a new exercise program, particularly if you are not very fit.

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**For more information about healthy kidneys or this topic, please contact Kidney Health Australia: Kidney Information Line (free call) on 1800 682 531 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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