

Cholesterol overview



When your blood cholesterol level is raised you may be at increased risk of heart attack, stroke and other cardiovascular diseases.

Some other risk factors for heart disease include diabetes, high blood pressure, having a family history of heart disease, increasing age and lifestyle factors such as smoking, obesity and lack of physical activity. Many people have more than one risk factor for heart disease and the level of risk increases with the number of risk factors. It is, therefore, really important to know what your cholesterol levels are, and to keep them at a healthy level before you develop any problems.

What is cholesterol?

Cholesterol is a white, waxy substance which is a member of the lipid (fat) family. Without cholesterol our bodies could not manufacture a number of important hormones. It is also an essential component of the outer membrane of some cells.

Our liver manufactures most of our cholesterol, while the rest comes from the food we eat. The mix of fats in your diet (saturated versus unsaturated) has a greater effect on your blood cholesterol than the amount of cholesterol you eat.

'Good' and 'bad' cholesterol

Cholesterol and [triglycerides](#) (another important blood fat) are carried through the bloodstream by proteins called lipoproteins.

There are several types of lipoproteins, including:

Low-density lipoproteins (LDL) - LDL forms deposits in the wall of the arteries which turn into plaque, which can block the artery. It's important to have low levels of LDL cholesterol. It is dubbed the 'bad' cholesterol.

High-density lipoproteins (HDL) - HDL carries cholesterol back to the liver. You want to have high levels of HDL in your blood as a kind of cholesterol police, picking up the bad cholesterol. HDL-cholesterol is known as 'good cholesterol'.

Very low-density lipoproteins (VLDL) - VLDLs are made in the liver and their job is to carry fats called triglycerides to different parts of the body. Once the VLDLs drop off some of their fat load, they become LDLs, which carry the remaining cholesterol around the body.

Symptoms

People with high LDL-cholesterol (bad cholesterol) generally have no symptoms. That's why it is important to have a cholesterol test at regular intervals, so that if you have high cholesterol it can be picked up early.

Risk factors for high cholesterol

Some risk factors make it more likely that you will have high cholesterol:

Unhealthy diet: eating a diet that is too high in saturated and trans fats.

High BMI (Body Mass Index): having a high BMI puts you at risk of high cholesterol. Obesity is linked to higher LDL-cholesterol ('bad' cholesterol) and triglyceride levels and lower HDL-cholesterol ('good' cholesterol) levels. Find out your BMI, with our [BMI calculator](#).

Diabetes: having diabetes increases the risk of high cholesterol.

Being inactive: exercise increases good cholesterol (HDL-cholesterol), which removes bad cholesterol from the body - so not getting enough physical activity can put you at risk of having high LDL (bad) cholesterol.

Genetic susceptibility: having a genetic (inherited) susceptibility to high blood cholesterol. If any member of your family has this condition, known as [familial hypercholesterolaemia](#), it is important to have your cholesterol levels checked.

Complications

High blood cholesterol is a risk factor for cardiovascular diseases, such as heart attack and stroke. The excess cholesterol in the bloodstream causes fatty deposits (plaques) to gradually build up in the walls of the blood vessels (atherosclerosis), narrowing the blood vessels and making it harder for blood to flow through.

This can result in:

Angina - when the arteries supplying the heart are affected, [angina](#) can result.

Heart attack - If a plaque is damaged, then a blood clot will form and may plug the artery, or break off and block another artery downstream, causing a [heart attack](#).

Stroke - a blood clot may block an artery to the brain, causing a [stroke](#).

Peripheral arterial disease - if arteries in the legs are affected, you may have leg pain when you walk and other problems resulting from reduced blood supply to the legs. This is known as [peripheral arterial disease](#)

Tests and diagnosis

A [cholesterol test](#) is a simple blood test which measures the amount of cholesterol and other lipids you have in your bloodstream. It usually measures your total cholesterol, LDL cholesterol and HDL cholesterol levels, as well as your levels of triglycerides, another important fat in the blood. Your GP can organise the test. You normally have to fast for 12 hours before the test, but you can drink water during this time.

Your doctor will review your results in the light of any risk factors you have for heart disease, such as diabetes or smoking, and make individualised recommendations for your specific [cholesterol targets](#). These may be different from those of other people.

Who should be tested?

Australian guidelines recommend that the following groups should have regular blood cholesterol and triglyceride tests:

All adults aged 45 years and above.

Aboriginal and Torres Strait Islander people from the age of 35 years - because they are at a higher risk of cardiovascular disease.

How often your cholesterol should be tested varies depending on your individual risk factors - and could be anything between every year to once every 5 years.

Lifestyle

If your lipid results are abnormal, your doctor will suggest you make some changes to your diet and physical activity levels for [cholesterol lowering through lifestyle changes](#). In some people, lifestyle changes may be all that's needed to bring cholesterol levels back into line, avoiding the need for medicines.

The suggested lifestyle changes normally include:

Eat less [saturated fat](#) and foods containing trans fats. Foods that are high in saturated fat or trans fat can lead the body to make excess cholesterol and should be eaten sparingly.

Replace foods containing saturated fats with food that contain [unsaturated fats](#).

Eat according to the Australian [Dietary Guidelines](#) - enjoy a wide variety of nutritious foods and limit foods containing saturated fat, added salt and added sugars.

Eat foods shown to have cholesterol-lowering properties, such as: those high in soluble fibre (like oats, barley, lentils, chickpeas and pears); tree nuts (such as almonds, walnuts and hazelnuts); olive oil; and foods supplemented with sterols or stanols (such as [cholesterol-lowering margarines](#), yoghurt or breakfast cereals).

Keep physically active. Physical activity can raise your HDL (good) cholesterol levels, help you lose weight and lower your other heart risk factors. Try to accumulate at least 30 minutes of moderate [physical activity](#) on most days.

Lose weight if you are [obese or overweight](#). Excess weight contributes to high cholesterol.

Give up smoking. [Quitting smoking](#) can improve your HDL (good) cholesterol levels.

Alcohol. If you drink alcohol, then [drink alcohol only in moderation](#).

Treatment

Some people need medicines in addition to lifestyle changes to bring their cholesterol levels down sufficiently. The type of medicine will depend on the results of your cholesterol test and your lipid profile.

Medicines commonly used for cholesterol/lipid lowering include:

Statins. These are used to reduce LDL-cholesterol (bad cholesterol) levels.

Ezetimibe. Can be used where statins are not suitable, or in addition to statins.

Cholestyramine and colestipol. Can be used where statins are not suitable, or in addition to statins.

Nicotinic acid. This is sometimes used in addition to other cholesterol-lowering medicines.

If you also have high triglycerides, your doctor may prescribe:

Fibrates, e.g. gemfibrozil and fenofibrate.

Fish oil.

According to Australian guidelines, people who need to be treated for high cholesterol (usually with statins) should generally aim for the following targets:

Total cholesterol - less than 4.0 mmol/L

LDL-cholesterol - less than 2.0 mmol/L

HDL-cholesterol - 1.0 mmol/L or more

Triglycerides - less than 2.0 mmol/L

People who have existing coronary heart disease may need to aim for an even lower LDL-cholesterol level of less than 1.8 mmol/L.

Remember, any lowering of either total cholesterol or LDL-cholesterol would be beneficial, even if you don't reach the target levels.

Complementary therapies

Policosanol - a complementary therapy made from sugar cane - has been shown not to work in lowering cholesterol.

Prevention

Following the same lifestyle advice as given above to lower cholesterol will also prevent most people from developing high cholesterol in the first place.

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