

High blood cholesterol

Cholesterol can be confusing because our bodies need it for survival yet too much of it increases our risk of having a heart attack or stroke. Your doctor or nurse will check your cholesterol levels as part of your Heart Check.

What is cholesterol?

Cholesterol is a white, waxy substance which, despite its bad reputation, is essential for life. It is used by our bodies to make important hormones, to help absorb fat-soluble vitamins, and in the formation of cells. Your liver makes about 70% to 80% of the cholesterol circulating in your body; the rest comes from the food you eat.

Some people have high cholesterol levels because of genetic reasons (a condition called familial hypercholesterolaemia). In others, it may be due to inactivity, obesity, or an unhealthy diet.

Cholesterol is a type of fat. Another name for fats is lipids.

Why does cholesterol cause problems?

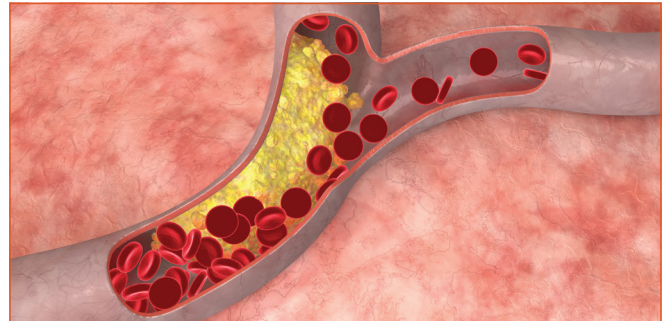
Cholesterol is transported around the body by two main particles:

- LDL cholesterol (LDL-C) – this may be referred to as “bad” cholesterol because if there is too much LDL-C it can build up on the inside of your arteries
- HDL cholesterol (HDL-C) – this may be referred to as “good” cholesterol because these particles carry cholesterol back to the liver where it is broken down.

Cholesterol causes problems when LDL-C levels are too high and some of the LDL particles enter the artery walls where they form hard cholesterol deposits called plaques. These plaques narrow the arteries and make it hard for blood to flow to the heart and around your body. This process is known as atherosclerosis.

What are triglycerides?

Triglycerides are the most common type of fat found in food and our liver also makes them. They are found in almost all foods that contain fat (saturated or unsaturated) and our liver pumps them out when we eat, especially after eating sugar or fructose, refined grains, starchy foods, or drinking alcohol. Excess triglycerides are stored in fat cells for later use and can be converted into LDL-C.



High triglyceride levels are common in people with diabetes, kidney disease, an underactive thyroid gland, who smoke or are inactive, or who are overweight (particularly those who carry extra weight around the waist). Medicines, such as high-dose thiazide diuretics or beta-blockers, oestrogen, tamoxifen, steroids, isotretinoin, and some anti-HIV drugs can also raise triglyceride levels.

High triglyceride levels can also be due to genetic disorders, such as familial combined hyperlipidemia and familial hypertriglyceridemia.

Fortunately, lifestyle changes can significantly lower high triglyceride levels and help manage other risk factors for heart disease.

What is high cholesterol?

In the past, doctors would say you had high cholesterol if your LDL-C, triglycerides, or total cholesterol levels were above specific numbers, and recommendations were mostly based on these numbers.

But cholesterol and high triglyceride levels do not exist in isolation and current guidelines concentrate more on your overall risk of having a stroke or a heart attack in the next five years, rather than whether your cholesterol levels are above or below a specific number. Your risk is calculated as part of your Heart Check and those with the highest risk benefit the most from cholesterol-lowering.

That is not to say that cholesterol numbers do not matter - because they still do, and the lower the number the better.

But the MOST important thing is your overall risk, and having high cholesterol contributes just one part of that risk.

People at high risk of a stroke or heart attack should aim to have LDL-C levels less than 1.8 mmol/L.

The effect that eating eggs has on cholesterol levels is often misunderstood...

- Eggs do contain dietary cholesterol and latest scientific evidence shows no association between increased intake of dietary cholesterol and increased risk of heart disease or stroke⁵.
- Recent studies conducted in healthy people show daily egg intake has little or no effect on blood cholesterol levels^{2,3,4}.
- Heart Foundation recommends “people who are at increased risk of heart disease, including those with Type 2 diabetes, can eat up to six eggs per week. This amount is unlikely to have any substantive influence on their risk of heart disease”¹.

What do cholesterol tests measure?

A sample of your blood will be taken by a laboratory, a nurse, or your pharmacist to measure your cholesterol levels. This may also be called a lipid profile or a lipid test and it measures your:

- HDL-C
- LDL-C
- triglycerides
- total cholesterol (HDL-C plus LDL-C added together)
- total cholesterol/HDL ratio (the cholesterol ratio).

When you get your test results back, your doctor or nurse will explain what the results mean for you.

What happens at a Heart Check?

A Heart Check helps to identify things in your life that may increase your risk of a heart attack or stroke, such as your:

- age
- ethnicity
- height and weight
- blood pressure
- cholesterol levels
- personal medical history
- family medical history
- and if you smoke or have smoked in the past.

All these factors combined estimate your risk of a heart attack or stroke.

Your Heart Check result will be given as a percentage (%).

As a rough guide:

- less than 5% is low risk
- 5–10% is moderate risk
- more than 10% is high risk.

Your doctor or nurse will explain what your result means to you. As an example, a risk of 15% means that out of 100 people like you, 15 will have a heart attack or stroke in the next five years.

This risk assessment helps your doctor decide if you need medication to lower your cholesterol.

What can I do to lower high cholesterol or improve my Heart Check score?

- Cut back on foods that contain saturated fat such as pies, cakes, and chips. Limit foods prepared with butter, coconut, or palm oil.

- Choose lean red meats with the fat removed, poultry without skin, fish, and low-fat milk, yoghurt, and cheese.
- Avoid trans fats which may be listed on a label as hydrogenated or partially hydrogenated oil.
- Eat less sugar and avoid fizzy drinks or fruit juice. Swap white rice, pasta, or baking for whole grains, brown rice, and vegetables. Aim for a fibre intake of 30-40 g/day if you have diabetes or to improve heart health.
- Eat foods high in omega-3 fatty acids, such as fish, kahawai, salmon, sardines, trevally, walnuts, or flaxseed.
- Limit salt on food and how much alcohol you drink. Even small amounts can affect triglyceride levels.
- Lose weight if you're overweight.
- Exercise regularly. Aim for an average of 30 minutes of moderate physical activity at least 5 days a week.
- Stop smoking if you smoke. Smoking can make LDL cholesterol stickier and damage artery walls. Ring QuitLine (0800 778 778) for more information.
- Work with your doctor to keep medical conditions such as diabetes or high blood pressure under control. Take your medicines and see your doctor regularly.
- If lifestyle changes do not lower your cholesterol levels enough, your doctor may recommend a lipid-lowering medicine, such as bezafibrate, atorvastatin, pravastatin, or simvastatin.

Do eggs matter?

Eggs are a great source of protein and also contain many vitamins and minerals, such as selenium, folate, vitamins A, B5, B12, E, Iodine, iron, and zinc, to name just a few.

But because they also contain cholesterol, the question is often asked “**Can eggs be included in a heart-healthy diet?**”

The answer is “**Yes!**”, and the Heart Foundation’s position is that people who are at increased risk of heart disease can eat up to six eggs per week as part of a heart-healthy diet.

But some foods that are commonly eaten with eggs, such as white bread, butter, salt, and processed meats (bacon or sausages), are not so healthy, so cut down on these.

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The NZ Ministry of Healthy Eating and Activity Guidelines state eggs can be enjoyed by most people every day of the week.⁷

- Eggs are a nutritious natural whole food that can be part of a heart-healthy dietary pattern⁶. They are an inexpensive source of protein and other nutrients such as carotenoids, vitamin D, B12, selenium and choline.
- Advice for hyper-responders is best based on their individual response to egg intake as limits will vary according to the individual¹. It is recommended to discuss this with their GP and a registered dietitian.

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