Blood cholesterol is a fatty substance produced naturally by your liver and found in your blood. Blood cholesterol is used for many different things in your body, but it can become a problem when there is too much of it in your blood.

Some foods contain cholesterol. This is called ‘dietary cholesterol’ and it is found only in animal products. For most people, eating foods high in dietary cholesterol actually only has a small influence on their blood cholesterol.

High cholesterol levels in your blood are mainly caused by eating foods high in saturated fats and trans-fats, and not including foods with unsaturated fats and with fibre.

Types of cholesterol

The two main types of blood cholesterol are:

- low-density lipoprotein (LDL) – also known as ‘bad’ cholesterol because it can add to the build-up of plaque (fatty deposits) in your arteries and increase your risk of getting heart disease
- high-density lipoprotein (HDL) – also known as ‘good’ cholesterol because it can help to protect you against coronary heart disease.

In healthy people, it is normal to have more of the ‘bad’ LDL cholesterol than the ‘good’ HDL cholesterol, but aim to keep your LDL cholesterol down and HDL cholesterol up.

Measuring cholesterol

Most people with high cholesterol feel perfectly well and often have no symptoms. Therefore, the best way to find out if your cholesterol is high is to have a blood test. Ask your doctor for more information.

Causes of high cholesterol

Some causes of high blood cholesterol include: • low intake of foods containing healthy, protective fats – this increases your intake of polyunsaturated and monounsaturated fats, which tend to increase the HDL cholesterol in your blood

- high intake of foods containing saturated fats and trans-fats – such as fatty meats, full-fat dairy products, butter, coconut oil, palm oil and most deep-fried takeaway foods and commercially baked products, such as pies, biscuits, buns and pastries. Foods high in trans-fats include most commercially baked products and deep-fried takeaway foods
- low intake of foods containing fibre – foods that are high in dietary fibre, particularly soluble fibre, can reduce the amount of LDL cholesterol in your blood. Include fibre-containing foods in your diet by choosing vegetables, fruits, wholegrains, nuts and seeds every day.
• **cholesterol in food (dietary cholesterol)** – this has only a small effect on LDL cholesterol (saturated fats and trans-fats in food have a much greater effect). You can include some cholesterol-rich foods, such as offal (liver, pâté and kidney) and prawns, as part of a healthy, balanced diet low in saturated fats and trans-fats. You can also eat up to six eggs a week as part of a healthy, balanced diet low in saturated and trans-fats, without increasing your risk of heart disease

• **genetics** – your family history may affect your cholesterol level. Some people will have high cholesterol even if they follow a healthy, balanced diet low in saturated fats and trans-fats. These people may need to take cholesterol-lowering medicine as prescribed by their doctor.

**Healthy eating tips and cholesterol**

The best starting point for a healthy diet is to eat a wide variety of foods from each of the five food groups, in the amounts recommended. This helps maintain a healthy and interesting diet, and provides a range of different nutrients to the body. Eating a variety of foods promotes good health and can help reduce the risk of disease.

The five food groups are:

- fruit
- vegetables and legumes/beans
- lean meats and poultry, fish, eggs, tofu, nuts and seeds, legumes/beans
- grain (cereal) foods, mostly wholegrain and high fibre varieties
- milk, yoghurt, cheese and alternatives, mostly reduced fat.

Foods are grouped together because they provide similar amounts of key nutrients. For example, key nutrients of the milk, yoghurt, cheese and alternatives group include calcium and protein. These food groups make up the Australian Guide to Healthy Eating (pdf).

Additional tips to help you manage your cholesterol include:

- Limit takeaway foods, such as pastries, pies, pizza, hot chips, fried fish, hamburgers and creamy pasta dishes, to once a week.
- Limit salty, fatty and sugary snack foods, such as crisps, cakes, pastries, biscuits, lollies and chocolate, to once a week.
- Eat plenty of vegetables (aim for five half-cup serves of vegetables every day).
- Choose wholegrain breads, cereal, pasta, rice and noodles.
- Snack on plain, unsalted nuts and fresh fruit (eat two serves of fruit every day).
- Incorporate peas (such as split peas), beans (such as haricot beans, kidney beans, baked beans, three-bean mix) or lentils into at least two meals a week.
- Use spreads and margarines made from canola, sunflower or olive oil, instead of butter.
- Use a variety of oils for cooking – some good choices include canola, sunflower, soybean, olive, sesame and peanut oils.
- Use salad dressings and mayonnaise made from oils such as canola, sunflower, soybean, olive, sesame and peanut oils.
- Include two or three serves of plant-sterol-enriched foods every day (for example, plant-sterol-enriched margarine, yoghurt, milk and bread).
- Have two to three portions (150 grams each) of oily fish every week. The fish may be fresh, frozen or canned.
- Include up to six eggs every week.
- Select lean meat (meat trimmed of fat, and poultry without skin).
- Choose reduced-fat, low-fat or no-fat milk, yoghurt, or calcium-added non-dairy food and drinks.
- Limit processed meats including sausages and deli meats, such as salami.

**Fibre**

If you are trying to lower your blood cholesterol, aim to eat foods that are high in dietary fibre, particularly soluble fibre, because they can reduce the amount of LDL cholesterol in your blood. These foods include fruits, legumes

(such as chickpeas, lentils, soybeans, three-bean mix and baked beans) and cereals (for example, oats and barley).

**Fats**

Following a healthy, balanced diet that is low in saturated fats and trans-fats can help to lower blood cholesterol.

Aim to replace foods that contain unhealthy, saturated and trans-fats with foods that contain polyunsaturated and monounsaturated fats.

Foods high in (unhealthy) saturated fats include:
- fatty cuts of meat
- full fat dairy products such as milk, cream, cheese and yoghurt
- deep fried fast foods
- processed foods such as biscuits and pastries
- takeaway foods such as hamburgers and pizza
- coconut oil
- butter.

Foods high in (unhealthy) trans fats include:
- deep fried foods
- baked goods such as pies, pastries, cakes and biscuits
- butter.

Foods high in (healthy) polyunsaturated fats include:
- margarine spreads and oils such as sunflower, soybean and safflower
- oily fish
- some nuts and seeds.

Foods high in (healthy) monounsaturated fats include:
- margarine spreads and oils, such as olive, canola and peanut
- avocados
- some nuts.

**Triglycerides in your blood**

In addition to cholesterol, your blood also contains a type of fat called triglycerides, which are stored in your body’s fat deposits. Hormones release triglycerides to make energy between meals. When you eat, your body converts any kilojoules it doesn’t need right away into triglycerides.

Like cholesterol, your body needs triglycerides to work properly. However, there is evidence to suggest that some people with high triglycerides are at increased risk of heart disease. If you regularly eat more kilojoules than your body requires, you may have high triglycerides (hypertriglyceridaemia).

Following a healthy diet, as described above, can help to reduce the risk of having high triglycerides. Everyone can benefit from including more foods from the five food groups, and limiting sugary, fatty and salty takeaway meals and snacks.

In addition, limiting intake of sugar-sweetened drinks (such as soft drinks, cordial, energy drinks and sports drinks) and including foods with omega-3 fats (for example, fish such as salmon, sardines and tuna) can help to reduce high triglycerides.

**Treatment for high cholesterol**

Making lifestyle changes, especially changing some of the foods you eat, and exercising, are very important to help reduce high LDL cholesterol.

You may also need to take cholesterol-lowering medicines, such as statins, to help you to manage your cholesterol.
and reduce your risk of having a heart attack or stroke. Talk to your doctor about finding the most appropriate treatment for you.

**Where to get help**

- **Your GP (doctor)**
- **Dietitians Association of Australia** Tel. 1800 812 942 or (02) 6189 1200
- **Heart Foundation Helpline** Tel. 13 11 12