

Patient information from BMJ

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High cholesterol

You need cholesterol to stay healthy. But having too much can increase your risk of heart problems or a stroke. Here, we look at treatments for people who have high cholesterol but have not been diagnosed with heart or circulation problems.

What is high cholesterol?

Cholesterol is a waxy, fatty substance that is found in all the cells in your body. It is carried around your body in your blood.

There are two kinds of cholesterol, and your body needs both types. However, having too much cholesterol - or, more specifically, having too much of the wrong type - can increase your chance of serious heart and circulation problems, such as heart attacks and strokes. The two types of cholesterol are:

- **LDL cholesterol.** This is often called 'bad cholesterol', as it can build up in your blood vessels and cause blockages if you have too much. This increases your risk of heart and circulation problems.
- **HDL cholesterol**, or 'good cholesterol'. This type helps to reduce the amount of bad cholesterol in your blood.

When discussing your cholesterol, your doctor may also talk about another potentially harmful type of fat in your blood called **triglycerides**.

How is high cholesterol diagnosed?

If you've been told you have high cholesterol, this usually means that one, or both, of the following is true:

- You have too much cholesterol in your blood overall
- You have too much bad (LDL) cholesterol in your blood in particular.

To check your cholesterol, your doctor will take a sample of your blood and do a test called a **lipids profile**. 'Lipids' is a general term doctors use for the fats in your blood, including your cholesterol and triglycerides.

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Most people have a lipids profile as part of a general health check-up. You may be asked not to eat anything for 12 hours or so before your blood is drawn for this test.

The amount of cholesterol in your blood is measured using millimoles per litre (mmol/L). As a rough guide, doctors often say a person's cholesterol is at a healthy level if:

- Their total cholesterol is under 5.2 mmol/L ('total cholesterol' includes their good and bad cholesterol and a portion of their triglycerides)
- Their bad (LDL) cholesterol is under 2.6 mmol/L.

However, having cholesterol levels above these numbers doesn't necessarily mean that you need treatment for your cholesterol. This is because people with the same cholesterol levels can have very different risks of heart and circulation problems. For example, a person with a bad (LDL) cholesterol level of 3 mmol/L would probably be advised to have treatment for high cholesterol if they also have other risk factors for heart and circulation problems, such as diabetes and smoking. However, another person with the same cholesterol level but no risk factors might not need treatment.

Your doctor will look at several things to work out your overall risk of heart and circulation problems and whether you need treatment for high cholesterol. These may include your age, whether you smoke, your family history of heart and circulation problems, whether you are overweight, and whether you have certain health problems, such as high blood pressure, kidney disease, or diabetes.

What treatments work?

Doctors usually recommend that all people with high cholesterol make changes to their lifestyle. This is sometimes the only treatment people need. However, your doctor will probably recommend taking medicines as well if:

- Your level of bad (LDL) cholesterol is very high, or
- You have a high risk of heart and circulation problems, or
- Lifestyle changes alone don't improve your cholesterol enough.

Lifestyle changes

Changing what you eat

The amount of fat you eat can affect your cholesterol levels. This doesn't mean that all fat is bad. You just need to be careful about the types of fat you eat.

The less healthy kinds of fat are called saturated fats and trans fats. Saturated fats are found in meat and dairy products. Trans fats are found in some fast foods, biscuits, and baked goods. In general, less healthy types of fat are solid at room temperature. Healthier types tend to be liquids, like olive oil and vegetable oil. These healthier types of fat are called polyunsaturated or monounsaturated fats.

To reduce your bad fats, you should try to eat only lean cuts of meat, and only fat-free or low-fat dairy products. You should also avoid common sources of bad fats, such as fast food.

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Your doctor may also recommend eating more fish, and also more foods that are high in fibre, including fruit and vegetables, nuts, beans, and wholegrain foods.

Making changes to your diet can be challenging. Your doctor may refer you to a dietitian to come up with an eating plan that suits your needs and tastes.

Exercising regularly

This means getting a moderate amount of exercise several times a week. Types of exercise include walking briskly, swimming, walking stairs, or cycling.

Your doctor can provide advice on what types of exercise might be best for you, how much you should do, and for how long. For most people, doctors recommend exercising at a moderate intensity (enough to feel their heart beating and increase their breathing) for 30 minutes, at least three days a week. You don't need to do the 30 minutes all at one time. It can be broken into bouts of physical activity of at least 10 minutes each.

Losing weight (if you're overweight)

Exercising regularly and changing your diet to improve your cholesterol can have another benefit - it can help you lose weight. And losing weight can help to further improve your cholesterol. You can discuss your weight-loss goals with your doctor and work out a plan to reach them.

Taking plant sterols and stanols

These are natural substances found in plants which are similar to human cholesterol. They help lower cholesterol levels by competing with cholesterol to be absorbed by the body. Natural sources of sterols and stanols include wheat germ oil, soybean oil, corn oil, sesame seeds, nuts, and some fruits such as oranges and figs. However, the amount in these foods is too small to have much effect on your cholesterol levels. So treatment with stanols and sterols usually involves taking supplements. You might also eat foods enriched with higher amounts of these substances, such as enriched margarines, yoghurts, fruit juices, and cereal bars.

Stopping smoking

Studies suggest that smoking raises your bad (LDL) cholesterol and lowers your good (HDL) cholesterol. Beyond its effect on cholesterol, smoking is also one of the main risk factors for serious heart and circulation problems, such as heart attacks and strokes. By stopping smoking, you can greatly reduce your risk of these problems. Your doctor can provide advice and support, as well as treatments, to help you stop.

Medicines

Statins are the main drug treatment for reducing high cholesterol, and they work well for most people. Common examples include atorvastatin, rosuvastatin, and simvastatin.

If your cholesterol is still too high while taking a statin, your doctor may increase your dose or try a different statin.

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Statins can cause side effects, but these are rare. You may have blood tests every so often to make sure treatment doesn't damage your liver. Some people who take statins get muscle pain or muscle damage. Tell your doctor if you notice any muscle pain or weakness.

Other drugs sometimes used to treat high cholesterol include **fibrates**, **niacin**, **colestyramine**, and **ezetimibe**. For most people, these drugs aren't as good as statins. However, these treatments can be helpful for people who aren't able to take statins because of side effects.

What will happen to me?

If you've been diagnosed with high cholesterol, making lifestyle changes and taking medicines can work well to improve your cholesterol and reduce your chance of serious heart and circulation problems. Your doctor may also recommend treating other conditions, such as high blood pressure, to further reduce your risk.

To get the full benefit of these treatments and lifestyle changes, you need to commit to them over the long term. Your doctor will regularly check your cholesterol levels and adjust your treatment if necessary.

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