



HEART UK  
THE CHOLESTEROL CHARITY



# Understanding Cholesterol

**HEART UK – The Cholesterol Charity**  
providing expert support, education and influence

## What is cholesterol?

**Cholesterol is a fatty substance, vital for good health. It helps form cell membranes, various hormones, bile and vitamin D. We get some cholesterol from our diet but most is made in our liver.**

### Understanding cholesterol

Cholesterol and other blood fats are carried in the blood by proteins. When these proteins and fats combine they are called lipoproteins. There are two main lipoproteins:

**Low density lipoprotein (LDL)** – LDL takes cholesterol to the cells. But if there is too much, more than the cells need, it can start to build up in the walls of our arteries, causing them to narrow. Over time these fatty deposits (plaques) can start to restrict blood flow to the heart muscle, brain, arms, legs and vital organs. For this reason LDL is often called “bad cholesterol”.

**High density lipoprotein (HDL)** – carries excess cholesterol away from the cells, back to the liver where it can be broken down and removed from the body. For this reason HDL is often referred to as “good cholesterol”.

### What causes high cholesterol?

Anyone can have high cholesterol, even if they are slim, eat well and are physically active. Most people won't notice any tell-tale signs of high cholesterol.

Cholesterol levels are affected by your family history, age, your lifestyle, some medicines and medical conditions. You are more likely to have unhealthy levels of cholesterol if:

- Close family have high cholesterol
- Your diet is high in saturated fat
- You are not physically active
- You drink too much, or you smoke
- You carry too much weight around your middle

An inherited condition – **familial hypercholesterolaemia** (FH for short) – can cause very high cholesterol, even if you have a healthy diet and lifestyle.

An underactive thyroid gland can also raise cholesterol but if treated your cholesterol should return to your normal levels.

## Why should I lower my cholesterol?

Having too much cholesterol in your blood can increase your risk of:

**Narrowing of the arteries** – this is when arteries become furred up and harden. As a result less blood can flow through them. The medical name for this is atherosclerosis

**Angina** – a dull, heavy or tight pain in the chest which can spread to the left arm, neck, jaw or back. It is caused by a restriction in blood flow to the heart muscle and often brought on by exercise

**A heart attack** – a serious medical emergency. Blood supply to the heart muscle is completely blocked, often caused by a blood clot

**Coronary heart disease** – the main arteries supplying the heart muscle become clogged with cholesterol rich plaques

**A stroke** – a serious medical emergency. Blood supply to the brain is completely blocked

**A TIA or mini stroke** – a temporary interruption in blood flow to the brain

**Peripheral artery/vascular disease (PAD or PVD)** – occurs when blood flow to the legs (and/or arms) is restricted.

**These are often referred to as circulatory or cardiovascular diseases (CVD).**

Your risk of these conditions also increases as you get older and if you have other risk factors:

- Type 2 diabetes
- High blood pressure
- You smoke
- You have too much fat around your middle
- You are of South Asian origin

### Why am I being advised to lower my cholesterol?

Your health care professional may have advised you to lower your cholesterol because:

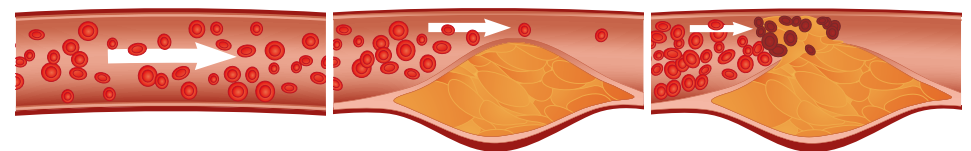
- It is above the normal level expected for a person of your age and gender
- Your risk of heart and other circulatory diseases over the next 10 years is moderate or high
- You have too much “bad” cholesterol and too little “good” cholesterol
- Your risk of a heart attack or stroke at an early (young) age is too high



Other HEART UK leaflets:

- Healthy Eating Guide
- Blood Fats Explained
- Familial Hypercholesterolaemia

### Cholesterol plaques cause arteries to narrow



## Low HDL cholesterol (& high triglycerides)

Some people have very low levels of HDL (good) cholesterol in their blood. This is often combined with high levels of triglycerides.

**Triglycerides** are a type of dietary fat. After a meal triglyceride, from foods, enter the blood. Most triglyceride is removed from the blood within a few hours of eating and is used for energy or stored for later.

If your triglyceride levels are high it means your body could be struggling to remove fat from your blood after a meal.

Having low HDL cholesterol and high triglycerides can be inherited, but for most people this pattern of blood fats is related to their body shape and size.

### An unhealthy waistline

Having too little HDL cholesterol and too much triglyceride in the blood is a sign that you have too much fat around your waistline. An unhealthy waistline can also increase your risk of developing type 2 diabetes, liver and heart disease.

This is because some fat becomes trapped in your liver and pancreas. This fat can prevent these organs from working properly.

The table below provides a guide to healthy waist measurements. Measure your waist around the widest point, on or near your tummy button.

### When might I need medication?

As well as eating healthily and having a healthy lifestyle, your doctor may advise you to take a medicine called a statin, especially if you are diabetic, have FH (see page 2), or are at increased risk of heart disease. Statins are generally safe and well tolerated.



Be active more often



Regular blood pressure checks



Maintain a healthier weight

### Aim for a healthy waist measurement

	Increased health risk	Serious health risk
<b>Women</b>	80 cm (32 inches) or above	88 cm (35 inches) or above
<b>Men</b>	94 cm (37 inches) or above	102 cm (40 inches) or above
<b>Asian men</b>	90 cm (36 inches) or above	101 cm (39 inches) or above

## How to improve your cholesterol and triglyceride levels

### Here are some things you could do:

- Enjoy a varied diet with plenty of fruit and vegetables and low fat dairy foods
- Swap foods high in saturated fats for those with more heart healthy fats (see table below)
- Replace white bread, pasta, rice, flour, breakfast cereals etc. with their wholemeal or wholegrain equivalents
- Include heart healthy foods such as oats, beans and peas
- Have more meat free meals
- If your cholesterol remains high consider using plant sterol/stanol fortified foods such as spreads, yogurts and mini-drinks. These can be used to lower cholesterol as part of a healthy diet but are not suitable for children (unless advised by your doctor or dietitian) or during pregnancy or breastfeeding

### What else can I do to reduce my risk?

- Take regular physical activity – at least 150 minutes of moderate activity each week. Brisk walking is ideal
- If you smoke, give up!
- Have your blood pressure checked regularly
- If you have diabetes, keep it under good control
- Make your GP aware of any family history of early heart disease
- If stress is a problem, take time to relax
- If you are prescribed a medicine, take it
- Keep alcohol to sensible limits
- Follow our Ultimate Cholesterol Lowering Plan® – see our website for details

### And if you are overweight:

- Aim for a healthier weight and shape
- Decrease portion sizes, use low fat spreads and limit snacking
- Cut down on sugar, sugary foods and drinks



Talk to your GP



Take time to relax



Enjoy a varied diet

### Healthy swaps

#### Swap these

Fatty meat, butter, lard, ghee, suet, coconut oil, cream, full fat dairy (milk, cheese, yogurt), and any foods made from these such as pies, pastry, cakes, puddings, biscuits and confectionery.

#### For these

Vegetable, nut and seed oils. Spreads and salad dressings made from healthy oils.

Oily fish (salmon, mackerel, sardines, trout etc), avocado, unsalted nuts and seeds.

## Your cholesterol test

Your doctor can arrange to measure the amount of cholesterol in your blood. This will involve taking a sample of blood from your arm and sending it to a laboratory **or** taking a small amount of blood from your finger and checking this with a desk analyser. Sometimes you may be asked to fast overnight. This is important if triglyceride (another blood fat) is being measured. Most tests will measure your:

- Total (serum) cholesterol (TC)
- HDL cholesterol
- Triglyceride (usually a fasting test)

These results can be used to calculate your:

- LDL cholesterol
- Non-HDL cholesterol
- Total cholesterol to HDL (TC:HDL) ratio

Your results should measure both the **amount** and the **quality** of the fats in your blood.

### Record your results here:

Fasting Test .....  YES  NO  
Date of test.....  
Total cholesterol.....mmol/L  
HDL cholesterol.....mmol/L  
Triglyceride.....mmol/L  
LDL cholesterol.....mmol/L  
Non-HDL cholesterol.....mmol/L  
TC:HDL Ratio.....mmol/L

### What should my levels be ?

In the UK cholesterol and triglycerides are measured in millimoles per litre (mmol/L).

#### Cholesterol levels – healthy adults should aim for a:

- Total cholesterol of 5 mmol/L or less
- Non-HDL cholesterol of 4 mmol/L or less
- LDL cholesterol of 3 mmol/L or less
- HDL over 1 mmol/L (man) or over 1.2 mmol/L (woman)

#### Triglyceride levels – healthy adults should aim for a:

- Fasting triglyceride of 1.7 mmol/L or less
- Non-fasting triglyceride level of 2.3 mmol/L or less

### What about those at higher risk?

If you have existing heart disease, or are at higher risk of developing heart disease, your doctor may advise you to reduce your cholesterol and triglyceride levels further.

It is best to discuss this with your doctor when they review your treatment. Any target levels your doctor suggests will depend on the cause of your high cholesterol and triglycerides, your age and any other risk factors you have.

You may be referred to a lipid clinic to see a doctor who is an expert in treating people with raised blood fats.

## Your stories

**HEART UK – The Cholesterol Charity – is the only UK charity providing expert support, education and influence for people with raised cholesterol and other blood fats. Here are some of the people and families we have helped:**

### Les Parry

Les was shocked to find out he had high cholesterol and needed a triple heart bypass operation.

“Since discovering my cholesterol levels were high I’ve made changes – eating more fish, salads, fruit and white meat. I exercise at home regularly and enjoy several brisk walks each week. My cholesterol levels are now lower, I’ve lost weight and I’m fitter.”

### Steve Forster

Following a check-up at his GP, Steve was told that he had inherited a form of high cholesterol – familial hypercholesterolaemia, and was advised to eat better, be more active and take medication.

“Since learning I have high cholesterol I have incorporated brisk walking into my everyday routine and enjoy cycling. Being more active and eating better helps keep both my cholesterol and weight down.

Finding out I had such high cholesterol was quite a shock, but I’m able to do something positive about it.”

### Lynn Siggins

“My Dad had a heart attack at 49 and needed a quadruple heart bypass. He was slim, ate well and was fit, but he did smoke a bit.

I was at a similar age when I was told I too had high cholesterol levels, despite being fit, eating well and never smoking.

High cholesterol can affect anyone, so it’s really important to get checked and do something about it.”

**Help us to help others – if you would like to make a donation towards our work please see how to donate overleaf.**



Les Parry



Steve Forster



Lynn Siggins with her dad



## Where can I find out more?

Our range of materials include our **Healthy Eating Guide**, **Blood Fats Explained** and **Familial Hypercholesterolaemia** booklets. There are factsheets on a range of topics on our website including foods that help lower cholesterol, healthy oils and fats and handy tips for eating out.

### Call/email our Cholesterol Helpline

0345 450 5988/ask@heartuk.org.uk

A free and confidential service offering information on cholesterol and an opportunity to talk things over with qualified nurses and dietitians.

### Donate

Please help to fund our work. All our materials are free, but you can make a donation towards our work via our website: [www.heartuk.org.uk](http://www.heartuk.org.uk)

### Raise funds

There are many ways you can raise funds for HEART UK. Visit our website for more information: [www.heartuk.org.uk](http://www.heartuk.org.uk)

### National Cholesterol Month

October is National Cholesterol Month – a whole month devoted to raising awareness and funds for HEART UK.

### Literature and general enquiries

Call us on 01628 777046.

### Go online

Advice and lots more information is available on our website [www.heartuk.org.uk](http://www.heartuk.org.uk). Check out our frequently asked questions, recipe ideas, what your cholesterol numbers mean and sign up to our free monthly e-newsletter for more facts and tips to help manage cholesterol.

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