CONDITION

Hypercholesterolemia

Hypercholesterolemia means having more cholesterol in the blood than is healthy for your heart and blood vessels.

WHAT IT IS
Higher-than-healthy cholesterol levels in the blood

BODY SYSTEM
Heart and circulation

MAIN SYMPTOMS
Usually none, tendon lumps, eyelid deposits, corneal ring

WHAT CAUSES IT
Inherited traits, diet, health conditions, and some medicines

HOW IT IS DIAGNOSED
Lipid blood tests, sometimes genetic testing

MAIN TREATMENT
Heart-healthy habits and cholesterol-lowering medicines

CAN IT BE CURED?
Sometimes - reversible causes can be corrected

IS IT AN EMERGENCY?
Sometimes - chest pain or stroke signs need emergency care

LONG-TERM OUTLOOK
Usually manageable; sustained treatment lowers heart risk

Overview

Hypercholesterolemia means that the level of cholesterol in your blood is higher than is healthy for you. It is a condition rather than an illness that usually makes you feel unwell.

Cholesterol is a waxy substance your body needs to make cell membranes, hormones, and vitamin D. Your liver produces cholesterol, and some also comes from food. Because cholesterol cannot travel through blood by itself, it is carried in particles called lipoproteins.

Low-density lipoprotein, or LDL, carries cholesterol from the liver to the body. When there is too much LDL cholesterol, it can enter artery walls and contribute to fatty deposits called plaques. This process is known as atherosclerosis. Over time, it can narrow arteries or lead to a blood clot, increasing the risk of a heart attack, stroke, or circulation problems in the legs.

High-density lipoprotein, or HDL, helps carry cholesterol back to the liver. It is often called "good cholesterol," but your overall heart risk cannot be judged from HDL alone.

Hypercholesterolemia matters because it can affect your arteries for years without causing symptoms. Finding and managing it early can reduce long-term risk.

Symptoms

Most people with hypercholesterolemia have no symptoms. You cannot reliably tell whether your cholesterol is high from how you feel, your body weight, or your fitness level. A blood test is needed.

Very high cholesterol, especially when inherited, can sometimes cause visible signs:

These signs do not confirm the condition by themselves. Xanthelasma and corneal rings can also occur in people whose cholesterol is not unusually high.

Chest pain, breathlessness, or stroke symptoms are not direct symptoms of high cholesterol. They may indicate a complication involving the heart or blood vessels and need separate assessment.

- Tendon xanthomas: firm cholesterol deposits, often over the Achilles tendon or knuckles
- Xanthelasma: yellowish patches around the eyelids
- Corneal arcus: a pale grey or white ring around the coloured part of the eye, especially when it appears at a young age

Causes and risk factors

Your cholesterol level reflects a mixture of inherited traits, liver function, health conditions, medicines, diet, and other parts of your lifestyle.

Some people inherit changes that make it difficult for the liver to remove LDL cholesterol from the blood. Familial hypercholesterolemia, often shortened to FH, is an inherited form that can cause very high LDL levels from birth. It may affect several people across generations of a family.

Other factors that can raise LDL cholesterol include:

Age and hormonal changes can also affect cholesterol. Cholesterol may rise during pregnancy, but this is often temporary.

A person can have high cholesterol despite eating well, exercising regularly, and having a

weight that is healthy for them. This is particularly common when inherited factors are important.

- Eating patterns high in saturated or trans fats
- Low physical activity
- Smoking
- Excess body weight, particularly around the waist
- An underactive thyroid
- Diabetes
- Some kidney or liver conditions
- Certain medicines

Diagnosis

Hypercholesterolemia is diagnosed with a blood test called a lipid profile or lipid panel. It usually reports:

Some reports also include non-HDL cholesterol, which covers LDL and other cholesterol-carrying particles linked to artery disease.

A fasting sample is not always required. You may be asked to fast before a repeat test if triglycerides are high or if a more specific result is needed.

There is no single cholesterol number that has the same meaning for everyone. Results are considered alongside factors such as your age, blood pressure, smoking history, diabetes, kidney health, family history, and previous heart or circulation problems.

A clinician may repeat the test to confirm an unexpected result. Other blood tests can look for causes such as an underactive thyroid, diabetes, or liver and kidney problems.

Familial hypercholesterolemia may be suspected when LDL cholesterol is particularly high, close relatives have similar results, or heart disease occurred unusually early in the family. A genetic test can sometimes confirm FH, but not every inherited cause is found by current testing. Close relatives may be offered cholesterol testing if FH is diagnosed or strongly suspected.

- Total cholesterol
- LDL cholesterol
- HDL cholesterol

- Triglycerides, another type of blood fat

Treatment and management

Treatment aims to lower LDL cholesterol and reduce your chance of future heart and circulation problems. The best approach depends on your cholesterol levels and overall cardiovascular risk, not on one result alone.

Changes to eating patterns can help. This generally means replacing foods high in saturated fat with sources of unsaturated fat. Examples include using vegetable oils instead of butter, choosing nuts or seeds, and eating fish where suitable. Foods containing soluble fibre, such as oats, beans, lentils, fruit, and vegetables, can also help lower LDL cholesterol.

Regular physical activity supports heart health and can improve several risk factors, even when it produces only a modest change in LDL. If you smoke, stopping reduces cardiovascular risk substantially. Weight loss may improve cholesterol when excess weight is contributing, but cholesterol management is relevant at every body size.

Lifestyle changes may not lower inherited high cholesterol enough by themselves. This is not a personal failure.

Statins like atorvastatin or simvastatin are commonly used cholesterol-lowering medicines. They reduce cholesterol production in the liver and increase the liver's removal of LDL from the blood. Other options include ezetimibe, bempedoic acid, bile acid sequestrants, and injectable treatments that target a liver protein called PCSK9. The choice depends on the reduction needed, other health conditions, side effects, and access to treatment.

Most people tolerate cholesterol-lowering medicine. Muscle aches can occur with statins, although muscle symptoms have many possible causes. Serious muscle injury is rare. Do not stop prescribed medicine without advice unless you are seeking urgent help for a serious reaction.

Tell your prescriber about all medicines and supplements you take because interactions are possible. Discuss pregnancy plans, pregnancy, or breastfeeding before starting, stopping, or changing cholesterol medicine.

Follow-up blood tests check how well treatment is working. They may also monitor liver function or investigate symptoms. Products such as red yeast rice are not a predictable or risk-free substitute for prescribed treatment because their active ingredients and strength can be uncertain.

Complications

The main complication is atherosclerotic cardiovascular disease. This develops when cholesterol-rich plaque builds up inside arteries.

Depending on which arteries are affected, it can lead to:

Risk builds over time. The longer LDL remains high, and the higher it is, the greater the lifetime exposure of artery walls to cholesterol. Smoking, high blood pressure, diabetes, and kidney disease can add to this risk.

Familial hypercholesterolemia can cause artery disease at a younger age than usual if it is not identified and treated. Lowering LDL can meaningfully reduce risk, even when cholesterol has been high for years.

- Coronary artery disease, which reduces blood flow to the heart
- Heart attack
- Ischaemic stroke, caused by blocked blood flow to the brain
- Peripheral artery disease, which reduces circulation to the limbs

Prevention

Inherited hypercholesterolemia cannot be prevented. If you have FH or another inherited form, healthy habits remain valuable, but they cannot change the gene involved.

Some non-inherited cases may be prevented or reduced by eating less saturated and trans fat, staying physically active, avoiding smoking, and maintaining a weight that supports your health.

Treating an underactive thyroid, diabetes, or another underlying condition may improve cholesterol. If a medicine is contributing, it should not be stopped on your own. A clinician can assess whether an alternative is appropriate.

Testing does not prevent high cholesterol, but it can find the condition before complications develop. Earlier testing may be important when close relatives have very high cholesterol or early heart disease.

Living with it and what to expect

Hypercholesterolemia is often a long-term condition. You may not feel any different when your cholesterol rises or falls, so repeat blood tests are important for judging progress.

Lifestyle changes usually need to be continued to maintain their effects. If medicine is prescribed, it is often taken for the long term. Cholesterol generally rises again when an effective medicine is stopped because the underlying tendency has not disappeared.

Your treatment may change over the years. A dose may be adjusted, a second medicine may be added, or an alternative may be used if you develop side effects. Your cholesterol goals may also change if you develop diabetes, kidney disease, or a heart or circulation condition.

Many people manage hypercholesterolemia alongside ordinary work, family life, exercise, and travel. The condition itself usually does not limit daily activity. The focus is on reducing future risk through sustained treatment and attention to other factors such as blood pressure and smoking.

If you have familial hypercholesterolemia, relatives may also need testing. This can help identify family members who have high cholesterol but feel completely well.

When to get medical help

Arrange a routine appointment if you have been told your cholesterol is high, have visible cholesterol deposits, or have a close relative with very high cholesterol or early heart disease. Routine follow-up is also appropriate if you have questions about results, treatment, or possible medicine side effects.

Contact a healthcare service promptly if you develop significant new muscle pain or weakness while taking cholesterol medicine. Seek urgent assessment if this occurs with dark or cola-coloured urine, fever, or severe illness.

Call emergency services immediately for possible signs of a heart attack or stroke, including:

These symptoms are not proof that high cholesterol caused the problem, but they should not wait for a routine appointment.

- Chest pressure or pain, especially with sweating, nausea, or breathlessness
- Sudden weakness or numbness on one side
- Sudden facial drooping
- New difficulty speaking or understanding speech
- Sudden severe loss of vision, balance, or coordination

Common questions

Can I feel when my cholesterol is high?

Usually not. High cholesterol generally causes no symptoms, even when the level is very high. A blood test is the only reliable way to know your level.

Can I lower cholesterol without medicine?

Some people can lower LDL through changes to food, activity, weight, and smoking. The amount of change differs between people. Medicine may still be recommended when LDL is very high, inherited factors are present, or overall heart risk is elevated.

What cholesterol number is too high?

There is no single cutoff that applies to everyone. The importance of your result depends on the different parts of the lipid panel and your overall risk. Someone with previous heart disease or diabetes may need a lower LDL level than someone at lower risk.

Will I need to take a statin forever?

Often, statins are continued long term because they control cholesterol rather than remove the underlying tendency. If treatment stops, LDL commonly rises again. Your need for medicine should be reviewed over time rather than assumed to be permanent without reassessment.

Can a thin or active person have high cholesterol?

Yes. Body size and fitness do not rule it out. Inherited traits, thyroid problems, diabetes, kidney conditions, medicines, and other factors can raise cholesterol in people of any size.

Do I have to stop eating eggs?

Eggs do not need to be avoided by everyone with high cholesterol. For many people, the overall amount of saturated fat in the diet has more effect on LDL than cholesterol in a single food. Your full eating pattern and individual health needs matter.

Sources

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