



# Cholesterol

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## Cholesterol Screening: Why It Is Important to Have a Cholesterol Test

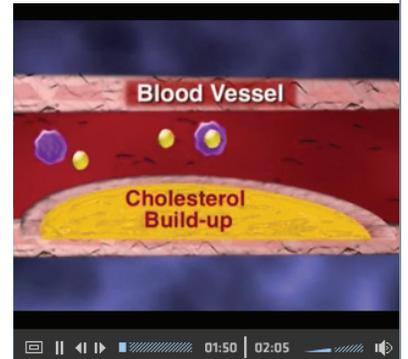
**Cholesterol builds up silently, slowly choking off blood supply to your heart and brain. Get your cholesterol checked.**

You see TV commercials, magazine ads, and pamphlets in your doctor's office – all proclaiming the dangers of high cholesterol. But you feel healthy, and have never worried about your cholesterol or heart problems. So, why do you need to have a cholesterol test?

### What is cholesterol and how does it affect me?

Cholesterol is a fat-like substance that your body needs to function. Your body makes some cholesterol because it is needed to form cell membranes, some hormones and bile acids (which digest fat), for example. But people consume extra cholesterol through foods, especially animal foods like meats and dairy products. Trans fats also raise cholesterol. Trans fats are found in processed foods.

When there is too much cholesterol in your blood, it can build up on the inside walls of your arteries. Over time, the cholesterol buildup, called plaque, can narrow the space for blood to flow through. This can happen in the arteries everywhere in the body. It is most dangerous, though, in the arteries that feed the heart, brain and other vital organs.



### Video Spotlight:

- [What Is Cholesterol and What Are the Types?](#)
- [How High Cholesterol Harms You](#)

When plaque narrows the coronary arteries, it can cause chest pain, shortness of breath and other symptoms of coronary heart disease. If a clot forms on the plaque, it can block the blood flow to the heart muscle, causing a heart attack. If a clot blocks the flow of blood to the brain, it can cause a stroke.

The higher your cholesterol level, the greater your risk of heart disease and stroke. Given that heart disease is a top killer of men and women in the U.S., this is not a risk that you should ignore. But, eating a heart-healthy diet, being physically active and losing weight are things everyone can do to help lower their cholesterol levels and their risks.

## Types of cholesterol

Your doctor may order tests to check your blood levels of cholesterol. Because cholesterol can't dissolve in the blood (it's not water-soluble), it doesn't circulate by itself. Instead, cholesterol travels through the bloodstream linked to "carriers" called lipoproteins.

There are three different types of lipoproteins. The two that are most important to remember in terms of your risk of heart disease are high-density (HDL) and low-density lipoproteins (LDL).

- **LDL.** Cholesterol that is carried on low-density lipoproteins is called LDL cholesterol (the "bad" cholesterol). Higher levels of LDL cholesterol are linked to an increased risk for heart disease. LDL is the main carrier of cholesterol to body tissues.
- **HDL.** Cholesterol that is linked to high-density lipoproteins are called HDL cholesterol (the "good" cholesterol). If you have higher levels of HDL cholesterol, you're at lower risk for heart disease. HDL carries cholesterol away from body tissues.

## Why test?

Cholesterol buildup as plaque can prevent enough blood from flowing to the heart muscle. It is the most common cause of coronary heart disease, and happens so slowly that you are not even aware of it. This plaque can rupture, forming a blood clot that leads to a heart attack or stroke. The higher your LDL cholesterol, the greater your chance of heart attack or stroke. This is why cholesterol screening is so important. Cholesterol can build up for many years before any symptoms develop. So, you can feel healthy and not realize you have high cholesterol.



# Children and Cholesterol

**Adults aren't the only ones at risk for high cholesterol. Kids need healthy habits to keep their cholesterol levels under control, too.**

Keeping a watchful eye on cholesterol levels isn't just for adults. Studies show that a high cholesterol level begins in childhood and progresses slowly into adulthood. The condition often leads to heart disease, the most common cause of death in the United States.

Other evidence suggests:

- Elevated cholesterol levels in childhood may play a role in the development of atherosclerosis (fatty deposits of plaque in the artery walls) in adulthood.
- Lifestyle habits and genetics affect cholesterol levels and heart disease risk.
- Lowering cholesterol levels in children can help lower heart disease risk.

## The dangers of high cholesterol

Over time, when there is too much cholesterol in the blood, it begins to build up in the arteries as plaque. This causes the arteries to become narrow and stiff, reducing blood flow to the heart. Sometimes a plaque can rupture, triggering a blood clot that blocks blood flow to the heart (heart attack).

About half of adults have high or borderline-high cholesterol. This puts them at high risk of illness and death from heart attack, stroke, and related disorders.

## Should my child be tested?

High cholesterol levels usually don't cause symptoms. Most children don't need to have their cholesterol checked. Children age 2 and older who have the following should be tested:

- At least one parent with high cholesterol (240 mg/dL or greater)
- A family history of early heart disease (before age 55)
- An unknown family history of cholesterol or heart disease
- Type 2 diabetes
- Obesity
- Cigarette smoking
- High blood pressure (hypertension)

In some cases, a doctor may suggest checking a child's cholesterol even without these conditions.

The following cholesterol levels apply for children between 2 to 19 years old:

	Desirable	Borderline	High risk
Total Cholesterol	Less than 170 mg/dL	170-199 mg/dL	200 mg/dL or higher
LDL ("bad") Cholesterol	Less than 110 mg/dL	110-129 mg/dL	130 mg/dL or higher

HDL or "good" cholesterol levels should be higher than 35 mg/dL. Triglycerides should be less than 150 mg/dL. Triglycerides are fatty substances in the blood that also up the chance for heart disease.

If you think your child may be at higher risk, talk to your child's doctor for information on how to guide your child toward a heart-healthy life.

## A heart-healthy diet for your child

To ward off high cholesterol, adults and older children should eat plenty of fruits and vegetables, and limit foods high in saturated fat and cholesterol. Having a diet full of whole grains, low-fat and nonfat dairy products, and lean sources of protein can also help your child's health. Sugary and salty foods and drinks should only be consumed in moderation.

But very young children (up to age 2) should not follow a reduced-fat diet, unless directed by their doctor. Fats and cholesterol are vital for growth and development. Depriving children of these substances can hurt them. Check with your child's doctor if you have any concerns about a nutritious diet for your child.

# Would a Cholesterol Drug Help?



**If you have high cholesterol, medicine may help. Learn about statins, fibrates, and other types of cholesterol-lowering drugs.**

You listened to your doctor. You've tried to lose weight, eat a low-fat diet, and get more exercise, and still your cholesterol level is too high. What else can you do?

Making lifestyle changes and changing your diet – as most doctors advise to lower cholesterol levels – may not be enough for some people. If you're one of them, powerful cholesterol-lowering drugs can help.

These medicines can cut the risk of heart attacks and strokes in people with high cholesterol and heart disease.

## What are the most common cholesterol-lowering drugs?

### Statins

- Mevacor (lovastatin)
- Lescol (fluvastatin)
- Pravachol (pravastatin)
- Zocor (simvastatin)
- Lipitor (atorvastatin)
- Crestor (rosuvastatin)

Statins block a substance your liver needs to make cholesterol. They can also remove the bad cholesterol

(LDL) from your blood. Some research has shown that statins may even help your body reabsorb plaque in some cases.

Depending on the drug and dosage, statins can lower LDL cholesterol as much as 60 percent. They can also lower triglycerides and raise HDL (the “good” cholesterol).

Most people can take statins without problems. Serious side effects are rare. Mild symptoms include upset stomach, gas, constipation, abdominal pain or cramps, and muscle aches. These symptoms usually go away as your body adjusts to the drug.

Rarely, a statin can damage your liver. Because of this, you may need regular liver tests.

Rarely, statins can cause severe muscle pain, muscle injury, and kidney damage.

## Selective cholesterol absorption inhibitors

Another class of cholesterol-lowering drugs is called selective cholesterol absorption inhibitors. They block cholesterol from being absorbed in the intestine.

The first drug in this class, Zetia (ezetimibe), was approved in 2002. It may be taken with a statin. It is also found in a combination form with simvastatin called Vytorin. Research is ongoing to see how safe and effective these medicines are.

## Resins or bile acid sequestrants

Resins lower cholesterol by binding with bile acids in your intestines and preventing their recycling through the liver. Bile acids are made in your liver from cholesterol.

Resins include:

- Questran (cholestyramine)
- Colestid (colestipol)
- WelChol (colesevelam)

Some of these drugs may raise triglyceride levels.

## Fibrates

Fibrates are used mainly to lower triglyceride levels. They reduce the production of a substance that carries triglycerides in the blood. Fibrates may also slightly raise HDL, but they do not lower LDL. These drugs include:

- Lopid (gemfibrozil)
- Tricor (fenofibrate)

## Niacin

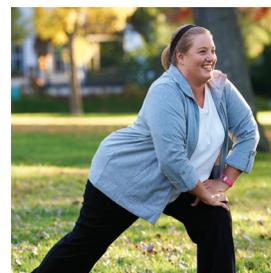
Niacin lowers cholesterol by blocking the production of blood fats. It lowers LDL cholesterol and triglycerides, and raises HDL cholesterol.

It is available by prescription and as a dietary supplement. But only the prescription form should be used to lower cholesterol. This should be done only under a doctor’s guidance. The nonprescription forms are not regulated and are more likely to cause serious side effects.

Side effects of niacin include flushing, itching, and upset stomach. It can also cause liver toxicity and raise blood sugar levels.

## Lifestyle still counts

Taking cholesterol-lowering medications may not be enough to help. You also need to eat healthy and get exercise, too. Talk to your doctor before you increase your activity level.



# What to Do About Your Cholesterol

## Read the basics on cholesterol and how to lower it.

Here’s the story about the good, the bad, and the “other” types of cholesterol.

**HDL is the good type.** HDL cholesterol, or high-density lipoproteins, protects against heart disease, so it’s commonly known as “good” cholesterol. Higher numbers are better.

**LDL is the bad type.** LDL cholesterol, or low-density lipoproteins, increases your risk for heart disease. Too much LDL cholesterol in your blood can build up on the inside walls of your arteries. Over time, the buildup, called plaque, can narrow the space for blood to flow through. Plaque can then break off, causing life-threatening clots that block the blood flow.

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This can happen in the arteries everywhere in the body but is most dangerous in the arteries that feed the heart, brain, and other vital organs.

**Triglycerides.** One of the other types of fat that circulates in the blood is called triglycerides. A high level of triglycerides can also raise heart disease risk. Levels that are borderline high (150 to 199 mg/dL) or high (200 mg/dL or higher) may need treatment in some people.

## Charting the numbers

Cholesterol levels are measured in milligrams (mg) of cholesterol per deciliter (dL) of blood.

Total Cholesterol Level	Category
Less than 200 mg/dL	Desirable
200-239 mg/dL	Borderline high
240 mg/dL and above	High

HDL Cholesterol Level	Category
<40 mg/dL	Low
>60 mg/dL	High

LDL Cholesterol Level	LDL-Cholesterol Category
Less than 100 mg/dL	Optimal
100-129 mg/dL	Near optimal/above optimal
130-159 mg/dL	Borderline high
160-189 mg/dL	High
190 mg/dL and above	Very high

Perhaps you've been told your cholesterol is too high. Or maybe you'd just like to keep it at a healthy level to lower your risk of heart disease as much as possible. What level is best for you in part depends on any other health conditions that you may have. Always follow your doctor's orders for treatment. Plus, think about what kind of lifestyle habits will help you reach your cholesterol goals.

## Change your eating habits

You can do it! Part of the solution toward lowering your cholesterol and cutting your risk of heart disease is to eat less high-fat, high-cholesterol foods. Your doctor may suggest a specific diet for you. Otherwise, this is how you can follow a heart-healthy diet:

- **Choose foods low in saturated fat.** Saturated fat boosts your cholesterol level more than anything else in your diet. Foods from animals are highest in saturated fat. They include fatty cuts of meat, chicken, or other poultry with skin, whole milk, and

whole-milk dairy products, lard, and some vegetable oils like coconut oil, palm kernel oil, and palm oils.

- **Choose lean proteins.** These can take the place of fatty meats and cheeses. Choose fish, skinless poultry, lean meats, dry beans, limited eggs, and nuts. Choose low-fat or fat-free dairy products.
- **Choose foods low in total fat.** Low-fat choices can also help you lose weight, if needed, and lower your cholesterol. The right fats can actually be good for you. Certain polyunsaturated and monounsaturated fats can make up to 35 percent of your total calories. Use them to replace saturated and trans fats. Use olive or canola oil for cooking and baking.
- **Choose foods high in fiber.** This includes fruits and vegetables, whole grains such as whole wheat, oatmeal, brown and wild rice, barley, buckwheat, bulgur, and quinoa. Add in some beans or legumes, such as split peas and lentils, pinto, navy, kidney, black, and garbanzo beans. Beans are rich in lean protein, too.
- **Choose foods low in cholesterol.** Cholesterol is in foods from animals. Replace animal foods with healthy plant-based foods.

## Be more physically active

Physical activity increases HDL cholesterol (the good kind) and lowers triglycerides and LDL cholesterol (the bad kind). Physical activity can help you lower your blood

pressure, lose weight, reduce your stress, and improve your overall fitness, including that of your heart and blood vessels. But always check with your doctor before you increase your activity level.



## Lose weight if needed

Being overweight means that you probably have higher blood levels of cholesterol and triglycerides than you otherwise would. This places you at higher risk for heart disease. If you are overweight, losing even a little weight can help lower LDL cholesterol and triglycerides and raise HDL cholesterol.

# Cholesterol

## Stop smoking if you smoke

Don't smoke and avoid secondhand smoke. Smoking increases your risk for heart disease, stroke, heart attack, and cancer.

## Cholesterol-lowering drugs

If lifestyle changes are not enough to control cholesterol, your doctor may prescribe cholesterol-lowering medications in addition to eating a heart-healthy diet and increasing physical activity.

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