

What Is Cholesterol?

Most health-conscious Americans know that high cholesterol is a leading risk factor for coronary heart disease. However, many people may not know what cholesterol is, what it does or even how to control cholesterol levels.

Cholesterol is a waxy substance made by the liver and also supplied in the diet through animal products such as meats, poultry, fish and dairy products. Cholesterol is needed (in the body) to insulate nerves, make cell membranes and produce certain hormones. However, the body makes enough cholesterol, so any dietary cholesterol isn't needed.

Why should you care about your cholesterol level?

High cholesterol is a leading risk factor for heart disease. Excess cholesterol in the bloodstream can form plaque (a thick, hard deposit) in artery walls. The cholesterol or plaque build-up causes arteries to become thicker, harder and less flexible, slowing down and sometimes blocking blood flow to the heart. When blood flow is restricted, angina (chest pain) can result. When blood flow to the heart is severely impaired and a clot stops blood flow completely, a **heart attack** results.

What's the Difference Between LDL and HDL Cholesterol?

Why is LDL cholesterol considered "bad"?

When too much LDL cholesterol circulates in the blood, it can slowly build up in the inner walls of the arteries that feed the heart and brain. Together with other substances it can form plaque, a thick, hard deposit that can clog those arteries. This condition is known as **atherosclerosis**. If a clot forms and blocks a narrowed artery, it can cause a heart attack or stroke. The levels of HDL cholesterol and LDL cholesterol in the blood are measured to evaluate the risk of having a heart attack. LDL cholesterol of less than 100 mg/dL is the optimal level. Less than 130 mg/dL is near optimal for most people. A high LDL level (more than 160 mg/dL or 130 mg/dL or above if you have two or more risk factors for cardiovascular disease) reflects an increased risk of heart disease. That's why LDL cholesterol is often called "bad" cholesterol.

Why is HDL cholesterol considered "good"?

About one-third to one-fourth of blood cholesterol is carried by high-density lipoprotein (HDL). HDL cholesterol is known as the "good" cholesterol because a high level of it seems to protect against heart attack. (Low HDL cholesterol levels [less than 40 mg/dL] increase the risk for heart disease.) Medical experts think that HDL tends to carry cholesterol away from the arteries and back to the liver, where it's passed from the body. Some experts believe that HDL removes excess cholesterol from plaque in arteries, thus slowing the buildup.

What is Lp(a) cholesterol?

Lp(a) is a genetic variation of plasma LDL. A high level of Lp(a) is an important risk factor for developing fatty deposits in arteries prematurely. The way an increased Lp(a) contributes to disease isn't understood. The lesions in artery walls contain substances that may interact with Lp(a), leading to the buildup of fatty deposits.

The triglyceride connection

Triglyceride is a form of fat. It comes from food and is also made in your body. People with high triglycerides often have a high total cholesterol, a high LDL cholesterol and a low HDL cholesterol level. Many people with heart disease also have high triglyceride levels. People with diabetes or who are obese are also likely to have high triglycerides. Triglyceride levels of less than 150 mg/dL are normal; levels from 150-199 are borderline high. Levels that are borderline high or high (200 mg/dL to 499 mg/dL) may need treatment in some people. Triglyceride levels of 500 mg/dL or above are very high. Doctors need to treat high triglycerides in people who also have high LDL cholesterol levels.

What Are Healthy Levels of Cholesterol?

Your total blood cholesterol level

Your total blood cholesterol will fall into one of these categories:

Desirable — Less than 200 mg/dL

Borderline high risk — 200–239 mg/dL

High risk — 240 mg/dL and over

Here is some more explanation about each of these categories.

Desirable

If your total cholesterol is less than 200 mg/dL, your heart attack risk is relatively low, unless you have other risk factors. Even with a low risk, it's still smart to eat foods low in saturated fat and cholesterol, and also get plenty of physical activity. Have your cholesterol levels measured every five years — or more often if you're a man over 45 or a woman over 55.

Borderline high risk

People whose cholesterol level is from 200 to 239 mg/dL are borderline high risk. About a third of American adults are in this (borderline) group; almost half of adults have total cholesterol levels below 200 mg/dL.

Have your cholesterol and HDL rechecked in one to two years if:

- Your total cholesterol is in this range.
- Your HDL is less than 40 mg/dL.
- You don't have other risk factors for heart disease.

You should also lower your intake of foods high in saturated fat and cholesterol to reduce your blood cholesterol level to below 200 mg/dL. Your doctor may order another blood test to measure your LDL cholesterol. Ask your doctor to discuss your LDL cholesterol with you. Even if your total cholesterol is between 200 and 239 mg/dL, you may not be at high risk for a heart attack. Some people — such as women before menopause and young, active men who have no other risk factors — may have high HDL cholesterol and desirable LDL levels. Ask your doctor to interpret your results. Everyone's case is different.

High risk

If your total cholesterol level is **240 or more**, it's definitely high. Your risk of heart attack and stroke is greater. In general, people who have a total cholesterol level of 240 mg/dL have twice the risk of heart attack as people whose cholesterol level is 200 mg/dL.

You need more tests. Ask your doctor for advice. About 20 percent of the U.S. population has high blood cholesterol levels.

Your LDL cholesterol level

Your LDL cholesterol level greatly affects your risk of heart attack and stroke. The lower your LDL cholesterol, the lower your risk. In fact, it's a better gauge of risk than total blood cholesterol. Your LDL cholesterol will fall into one of these categories:

LDL Cholesterol Levels

Less than 100 mg/dL

Optimal

100 to 129 mg/dL

Near Optimal/ Above Optimal

130 to 159 mg/dL

Borderline High

160 to 189 mg/dL

High

190 mg/dL and above

Very High

The key point to remember is, the lower your LDL cholesterol, the lower your risk. Your doctor may prescribe a diet low in saturated fat and cholesterol, regular exercise and a weight management program if you're overweight. If you can't lower your cholesterol with these efforts, medications may also be prescribed to lower your LDL cholesterol. Check these categories and the goals for treatment that can lower your risk of heart attack.

LDL level at which to consider drug therapy

	LDL Level	Goal
People without coronary heart disease and with fewer than two risk factors	190 mg/dL or higher*	160 mg/dL or lower
People without coronary heart disease and with two or more risk factors	160 mg/dL or higher	130 mg/dL or lower
People with coronary heart disease	130 mg/dL or higher**	100 mg/dL or lower

**In men less than age 35 and premenopausal women with LDL cholesterol levels of 190 to 219 mg/dL, drug therapy should be delayed except in high-risk patients such as those with diabetes.*

***In coronary heart disease patients with LDL cholesterol levels of 100 to 129 mg/dL, the doctor should consider whether to initiate drug treatment in addition to the American Heart Association Therapeutic Lifestyle Changes (TLC) diet.*

If you don't know if you have other risk factors for heart disease, check out the American Heart Association's list by [clicking here](#).

Your HDL cholesterol level

In the average man, HDL cholesterol levels range from 40 to 50 mg/dL. In the average woman, they range from 50 to 60 mg/dL. HDL cholesterol that's less than 40 mg/dL is low. Low HDL cholesterol puts you at high risk for heart disease. Smoking, being overweight and being sedentary can all result in lower HDL cholesterol. If you have low HDL cholesterol, you can help raise it by:

- Not smoking
- Losing weight (or maintaining a healthy weight)
- Being physically active for at least 30–60 minutes a day on most or all days of the week

People with high blood triglycerides usually have lower HDL cholesterol and a higher risk of heart attack and stroke. Progesterone, anabolic steroids and male sex hormones (testosterone) also lower HDL cholesterol levels. Female sex hormones raise HDL cholesterol levels.

Cholesterol ratio

Total blood cholesterol is the most common measurement of blood cholesterol. It's the number you normally receive as test results. Cholesterol is measured in milligrams per deciliter of blood (mg/dL). Knowing your total blood cholesterol level is an important first step in determining your risk for heart disease. However, a critical second step is knowing your HDL or "good" cholesterol level.

Some physicians and cholesterol technicians use the ratio of total cholesterol to HDL cholesterol in place of the total blood cholesterol. The American Heart Association recommends that the absolute numbers for total blood cholesterol and HDL cholesterol levels be used. They're more useful to the physician than the cholesterol ratio in determining the appropriate treatment for patients.

The ratio is obtained by dividing the HDL cholesterol level into the total cholesterol. For example, if a person has a total cholesterol of 200 mg/dL and an HDL cholesterol level of 50 mg/dL, the ratio would be stated as 4:1. The goal is to keep the ratio below 5:1; the optimum ratio is 3.5:1.

Your triglyceride level

Your triglyceride level will fall into one of these categories:

Triglyceride Level	Classification
Less than 150 mg/dL	Normal
150–199 mg/dL	Borderline-high
200–499 mg/dL	High
500 mg/dL or higher	Very high

Many people with high triglycerides have underlying diseases or genetic disorders. If this is true for you, the main therapy is to change your lifestyle. This includes controlling your weight, eating foods low in saturated fat and cholesterol, exercising regularly, not smoking and, in some cases, drinking less alcohol. People with high triglycerides may also need to limit their intake of carbohydrates to no more than 45–50 percent of total calories. The reason for this is that carbohydrates raise triglycerides in some people and lower HDL cholesterol. Use products with monounsaturated and polyunsaturated fats.

Checklist for Your Cholesterol Levels

The American Heart Association endorses these National Cholesterol Education Program guidelines:

Total cholesterol less than 200 mg/dL and HDL 40 mg/dL or higher

Unless you have other risk factors for heart disease, your chance of a heart attack is relatively low.

- Eat a low-saturated-fat, low-cholesterol diet and stay physically active to help maintain a desirable cholesterol level.
- Have your cholesterol levels rechecked within five years or at your next physical exam.

Total cholesterol less than 200 mg/dL and HDL less than 40 mg/dL

- Have your LDL ("bad") cholesterol level checked. Your doctor will interpret these numbers for you and tell you when to have your cholesterol levels rechecked.
- Work with your doctor to control any other risk factors you have.
- Take steps to modify your diet and increase your physical activity to reduce your risk.

Total cholesterol 200 to 239, HDL 40 mg/dL or higher and FEWER than 2 risk factors

- You may have twice the risk of coronary heart disease as people whose levels are less than 200 mg/dL.
- Work with your doctor to control any other risk factors you have.
- Have your cholesterol levels rechecked in 1-2 years.
- Take steps to modify your diet and increase your physical activity to reduce your risk.
- Not every person whose cholesterol level is in the 200 to 239 range is at increased risk. Talk with your healthcare professional to understand your risks.

Total cholesterol 200 to 239, HDL less than 40 mg/dL or 2 or MORE risk factors

- You may have twice the risk of coronary heart disease as people whose levels are less than 200 mg/dL.
- Have your LDL ("bad") cholesterol level checked. Your doctor will interpret these numbers for you and tell you when to have your cholesterol levels rechecked.
- Work with your doctor to control any other risk factors you have.
- Take steps to modify your diet and increase your physical activity to reduce your risk.

Cholesterol 240 and above

- Your risk of coronary heart disease is high. It's even higher if you have other risk factors for heart disease.
- Have your LDL ("bad") cholesterol level checked. Your doctor will interpret these numbers for you and tell you when to have your cholesterol levels rechecked.
- Have your doctor test you for other risk factors. Ask for advice on how to help reduce your risk.

Common Misconceptions About Cholesterol**1. Using margarine instead of butter will help lower my cholesterol.**

Both margarine and butter are high in fat, so use both in moderation. From a dietary perspective, the major factor affecting blood cholesterol is how much saturated fat is in the food. Reducing your intake of saturated fat is key to helping control cholesterol. Most soft or liquid margarines have less saturated fat and are preferable to the stick forms for a heart-healthy diet. It's best to select trans fat-free margarines. However, eat all fatty foods in moderation. [Learn more](#) about American Heart Association dietary guidelines.

2. Thin people don't have to worry about high cholesterol.

Overweight people are more likely to have high cholesterol from eating too many fatty foods, but thin people should also have their cholesterol checked regularly. Often people who don't gain weight easily are less aware of how much saturated fat they eat. Nobody can "eat anything they want" and stay heart healthy. Have your cholesterol checked regularly regardless of your weight, exercise habits and diet. [Learn more](#) about what you can do to manage your cholesterol levels.

3. My doctor hasn't said anything about my cholesterol, so I don't have to worry.

Unfortunately, not all physicians are as proactive about healthy lifestyles as they should be. Your health is your responsibility. Make sure that you have a blood cholesterol test and learn how to interpret all the numbers, including HDL (good) cholesterol, LDL (bad) cholesterol and triglyceride levels. If you're in a high or borderline-high range, discuss options with your physician. You may be able to control the levels by eating a diet lower in saturated fat and cholesterol, getting 30–60 minutes of physical activity on most days and quitting smoking. If lifestyle changes alone don't work, your physician may prescribe a cholesterol-lowering medication. [Healthy levels of cholesterol.](#)

4. Since the nutrition label on my favorite food says there's no cholesterol, I can be sure that it's a "heart-healthy" choice.

Nutrition labels on food are very helpful when choosing heart-healthy foods, but you need to know what to look for. Many "low-cholesterol" foods contain high levels of saturated fat or trans fatty acids — both of which contribute to high blood cholesterol. Even foods that claim to be "low-fat" may have a higher fat content than expected. Look for the amount of saturated fat, total fat, cholesterol and total calories in a *serving* of the product. Also check how much a serving is. Often it's smaller than you think. The first ingredient listed is the one used most in the product, so choose products where fats and oils appear later in the ingredient listing. The Food and Drug Administration will require foods to be labeled for trans fats by 2006. Many manufacturers have already begun doing this. Trans fats are found in variable amounts in most foods with partially hydrogenated oils such as baked goods, fried foods and some margarines and dairy products. [Know your fats.](#)

5. Since I started taking medication for my high cholesterol, I don't have to worry about what I eat.

Unless your cholesterol is dangerously high, it's best to try to reduce it by changing your diet. Drug therapy is usually prescribed for those who — despite adequate dietary changes, regular physical activity and weight loss — still have elevated levels of cholesterol. Modern medications have come a long way in helping to control blood cholesterol levels, but making lifestyle changes along with taking medication is the best way to help prevent heart disease. Reducing the amount of saturated fat and cholesterol in your diet and getting 30–60 minutes of exercise on most or all days of the week is recommended, even if you're taking cholesterol-lowering medication. It's also very important to take your medication exactly as your doctor has instructed so it can work most efficiently. [Cholesterol medications.](#)

6. I recently read that eggs aren't so bad for your cholesterol after all, so I guess I can go back to having my two eggs for breakfast every morning.

One egg contains about 213 milligrams of dietary cholesterol. That's a lot given that the daily recommended cholesterol limit is 300 milligrams. An egg a day can fit within heart-healthy guidelines only if cholesterol from other sources, such as meats, poultry and dairy products, is limited. For example, eating one egg for breakfast, drinking two cups of coffee with one tablespoon of half-and-half each, lunching on four ounces of lean turkey breast without skin and one tablespoon of mayonnaise, and having a 6-ounce serving of broiled, short loin porterhouse steak for dinner would account for about 510 mg of dietary cholesterol that day — nearly twice the recommended limit. If you're going to eat an egg every morning, substitute vegetables for some of the meat, or drink your coffee without half-and-half. [Learn more](#) about cooking for lower cholesterol.

7. I'm a woman so I don't have to worry. High cholesterol is a man's problem.

Premenopausal women are usually protected from high LDL (bad) levels of cholesterol, because the female hormone estrogen tends to raise HDL (good) cholesterol levels. Postmenopausal women may find that even a heart-healthy diet and regular exercise aren't enough to keep their cholesterol from rising. If you're approaching menopause, it's especially important to have your cholesterol checked and talk with your doctor about your options. Postmenopausal hormone therapy (PHT, formerly called hormone replacement therapy or HRT) is **not** recommended to prevent heart disease and may not be the best answer for every woman. To read the latest findings on PHT (HRT) and the American Heart Association's position, use our search tool and type in *hormone therapy*.

8. You don't need to have your cholesterol checked until you reach middle age.

It's a good idea to start having your cholesterol checked at an early age. Even children, especially those in families with a history of heart disease, can have high cholesterol levels. And evidence exists that these children are at greater risk for developing heart disease as adults. Lack of exercise, poor dietary habits and genetics can all affect a child's cholesterol levels. You're never too young to develop a heart-healthy lifestyle by eating foods low in saturated fats, getting 30–60 minutes of physical activity on most or all days, and avoiding tobacco products. [Learn more](#) about safe levels of cholesterol in children.