**Cholesterol: Definition**

[By Mayo Clinic staff](http://www.mayoclinic.com/health/AboutThisSite/AM00057)

Cholesterol is a waxy substance that's found in the fats (lipids) in your blood. While your body needs cholesterol to continue building healthy cells, having high cholesterol can increase your risk of heart disease.

When you have high cholesterol, you may develop fatty deposits in your blood vessels. Eventually, these deposits make it difficult for enough blood to flow through your arteries. Your heart may not get as much oxygen-rich blood as it needs, which increases the risk of a heart attack. Decreased blood flow to your brain can cause a stroke.

High cholesterol (hypercholesterolemia) can be inherited, but it's often the result of unhealthy lifestyle choices, and thus preventable and treatable. A healthy diet, regular exercise and sometimes medication can go a long way toward reducing high cholesterol.

**Causes**

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Cholesterol is carried through your blood, attached to proteins. This combination of proteins and cholesterol is called a lipoprotein. You may have heard of different types of cholesterol, based on what type of cholesterol the lipoprotein carries. They are:

* **Low-density lipoprotein (LDL).** LDL, or "bad," cholesterol transports cholesterol particles throughout your body. LDL cholesterol builds up in the walls of your arteries, making them hard and narrow.
* **Very-low-density lipoprotein (VLDL).** This type of lipoprotein contains the most triglycerides, a type of fat, attached to the proteins in your blood. VLDL cholesterol makes LDL cholesterol larger in size, causing your blood vessels to narrow. If you're taking cholesterol-lowering medication but have a high VLDL level, you may need additional medication to lower your triglycerides.
* **High-density lipoprotein (HDL).** HDL, or "good," cholesterol picks up excess cholesterol and takes it back to your liver.

Factors within your control — such as inactivity, obesity and an unhealthy diet — contribute to high LDL cholesterol and low HDL cholesterol. Factors beyond your control may play a role, too. For example, your genetic makeup may keep cells from removing LDL cholesterol from your blood efficiently or cause your liver to produce too much cholesterol.

**Risk factors**

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You're more likely to have high cholesterol that can lead to heart disease if you have any of these risk factors:

* **Smoking.** Cigarette smoking damages the walls of your blood vessels, making them likely to accumulate fatty deposits. Smoking may also lower your level of HDL, or "good," cholesterol.
* **Obesity.** Having a body mass index (BMI) of 30 or greater puts you at risk of high cholesterol.
* **Poor diet.** Foods that are high in cholesterol, such as red meat and full-fat dairy products, will increase your total cholesterol. Eating saturated fat, found in animal products, and trans fats, found in some commercially baked cookies and crackers, also can raise your cholesterol level.
* **Lack of exercise.** Exercise helps boost your body's HDL "good" cholesterol while lowering your LDL "bad" cholesterol. Not getting enough exercise puts you at risk of high cholesterol.
* **High blood pressure.** Increased pressure on your artery walls damages your arteries, which can speed the accumulation of fatty deposits.
* **Diabetes.** High blood sugar contributes to higher LDL cholesterol and lower HDL cholesterol. High blood sugar also damages the lining of your arteries.
* **Family history of heart disease.** If a parent or sibling developed heart disease before age 55, high cholesterol levels place you at a greater than average risk of developing heart disease.

**Cholesterol: Top 5 foods to lower your numbers**

**Diet can play an important role in lowering your cholesterol. Here are five foods that can lower your cholesterol and protect your heart.**

[By Mayo Clinic staff](http://www.mayoclinic.com/health/AboutThisSite/AM00057) August 2013

Can a bowl of oatmeal help lower your cholesterol? How about a handful of walnuts or even a baked potato topped with some heart-healthy margarine? A few simple tweaks to your diet — like these, along with exercise and other heart-healthy habits — may be helpful in lowering your cholesterol.

**1. Oatmeal, oat bran and high-fiber foods**

Oatmeal contains soluble fiber, which reduces your low-density lipoprotein (LDL), the "bad," cholesterol. Soluble fiber is also found in such foods as kidney beans, apples, pears, barley and prunes.

Soluble fiber can reduce the absorption of cholesterol into your bloodstream. Five to 10 grams or more of soluble fiber a day decreases your total and LDL cholesterol. Eating 1 1/2 cups of cooked oatmeal provides 6 grams of fiber. If you add fruit, such as bananas, you'll add about 4 more grams of fiber. To mix it up a little, try steel-cut oatmeal or cold cereal made with oatmeal or oat bran.

**2. Fish and omega-3 fatty acids**

Eating fatty fish can be heart healthy because of its high levels of omega-3 fatty acids, which can reduce your blood pressure and risk of developing blood clots. In people who have already had heart attacks, fish oil — or omega-3 fatty acids — reduces the risk of sudden death.

The American Heart Association recommends eating at least two servings of fish a week. The highest levels of omega-3 fatty acids are in:

* Mackerel
* Lake trout
* Herring
* Sardines
* Albacore tuna
* Salmon
* Halibut

You should bake or grill the fish to avoid adding unhealthy fats. If you don't like fish, you can also get small amounts of omega-3 fatty acids from foods like ground flaxseed or canola oil.

You can take an omega-3 or fish oil supplement to get some of the benefits, but you won't get other nutrients in fish, such as selenium. If you decide to take a supplement, just remember to watch your diet and eat lean meat or vegetables in place of fish.

**3. Walnuts, almonds and other nuts**

Walnuts, almonds and other nuts can reduce blood cholesterol. Rich in polyunsaturated fatty acids, walnuts also help keep blood vessels healthy.

Eating about a handful (1.5 ounces, or 42.5 grams) a day of most nuts, such as almonds, hazelnuts, peanuts, pecans, some pine nuts, pistachio nuts and walnuts, may reduce your risk of heart disease. Just make sure the nuts you eat aren't salted or coated with sugar.

All nuts are high in calories, so a handful will do. To avoid eating too many nuts and gaining weight, replace foods high in saturated fat with nuts. For example, instead of using cheese, meat or croutons in your salad, add a handful of walnuts or almonds.

**4. Olive oil**

Olive oil contains a potent mix of antioxidants that can lower your "bad" (LDL) cholesterol but leave your "good" (HDL) cholesterol untouched.

Try using about 2 tablespoons (23 grams) of olive oil a day in place of other fats in your diet to get its heart-healthy benefits. To add olive oil to your diet, you can saute vegetables in it, add it to a marinade or mix it with vinegar as a salad dressing. You can also use olive oil as a substitute for butter when basting meat or as a dip for bread. Olive oil is high in calories, so don't eat more than the recommended amount.

The cholesterol-lowering effects of olive oil are even greater if you choose extra-virgin olive oil, meaning the oil is less processed and contains more heart-healthy antioxidants. But keep in mind that "light" olive oils are usually more processed than extra-virgin or virgin olive oils and are lighter in color, not fat or calories.

**5. Foods with added plant sterols or stanols**

Foods are now available that have been fortified with sterols or stanols — substances found in plants that help block the absorption of cholesterol.

Margarines, orange juice and yogurt drinks with added plant sterols can help reduce LDL cholesterol by more than 10 percent. The amount of daily plant sterols needed for results is at least 2 grams — which equals about two 8-ounce (237-milliliter) servings of plant sterol-fortified orange juice a day.

Plant sterols or stanols in fortified foods don't appear to affect levels of triglycerides or of high-density lipoprotein (HDL), the "good" cholesterol.

**Other changes to your diet**

For any of these foods to provide their benefit, you need to make other changes to your diet and lifestyle.

Cut back on the cholesterol and total fat — especially saturated and trans fats — that you eat. Saturated fats, like those in meat, full-fat dairy products and some oils, raise your total cholesterol. Trans fats, which are sometimes found in margarines and store-bought cookies, crackers and cakes, are particularly bad for your cholesterol levels. Trans fats raise low-density lipoprotein (LDL), the "bad," cholesterol, and lower high-density lipoprotein (HDL), the "good," cholesterol.

In addition to changing your diet, keep in mind that making additional heart-healthy lifestyle changes are key to lowering your cholesterol. Talk to your doctor about exercising, quitting smoking and maintaining a healthy weight to help keep your cholesterol level low.

**Alternative medicine**

[By Mayo Clinic staff](http://www.mayoclinic.com/health/AboutThisSite/AM00057)

Few natural products have been proven to reduce cholesterol, but some might be helpful. With your doctor's OK, consider these cholesterol-lowering supplements and products:

* Artichoke
* Barley
* Beta-sitosterol (found in oral supplements and some margarines, such as Promise Activ)
* Blond psyllium (found in seed husk and products such as Metamucil)
* Garlic
* Oat bran (found in oatmeal and whole oats)
* Sitostanol (found in oral supplements and some margarines, such as Benecol)

You may have also heard of another supplement to reduce cholesterol, red yeast. Some brands of red yeast contain lovastatin, the active ingredient in the drug Mevacor. This can be unsafe, since there's no way to determine the quantity or quality of the lovastatin in the supplement.

If you choose to take cholesterol-lowering supplements, remember the importance of a healthy lifestyle. If your doctor prescribes medication to reduce your cholesterol, take it as directed. Make sure your doctor knows which supplements you're taking as well.

**Lifestyle and home remedies**

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Lifestyle changes are essential to improve your cholesterol level. To bring your numbers down, lose excess weight, eat healthy foods and increase your physical activity. If you smoke, quit.

**Lose extra pounds**
Excess weight contributes to high cholesterol. Losing even 5 to 10 pounds can help lower total cholesterol levels. Start by taking an honest look at your eating habits and daily routine. Consider your challenges to weight loss — and ways to overcome them. Set long-term, sustainable goals.

**Eat heart-healthy foods**
What you eat has a direct impact on your cholesterol level. In fact, a diet rich in fiber and other cholesterol-lowering foods may help lower cholesterol as much as statin medication for some people.

* **Choose healthier fats.** Saturated fat and trans fat raise your total cholesterol and LDL cholesterol. Get no more than 10 percent of your daily calories from saturated fat. Monounsaturated fat — found in olive, peanut and canola oils — is a healthier option. Almonds and walnuts are other sources of healthy fat.
* **Eliminate trans fats.** Trans fats, which are often found in margarines and commercially baked cookies, crackers and snack cakes, are particularly bad for your cholesterol levels. Not only do trans fats increase your total LDL ("bad") cholesterol, but they also lower your HDL ("good") cholesterol.

You may have noticed more food labels now market their products as "trans fat-free." But don't rely only on this label. In the United States, if a food contains less than 0.5 grams of trans fat a serving, it can be marked trans fat-free. It may not seem like much, but if you eat a lot of foods with a small amount of trans fat, it can add up quickly. Instead, read the ingredients list. If a food contains a partially hydrogenated oil, that's a trans fat, and you should look for an alternative.

* **Limit your dietary cholesterol.** Aim for no more than 300 milligrams (mg) of cholesterol a day — or less than 200 mg if you have heart disease. The most concentrated sources of cholesterol include organ meats, egg yolks and whole milk products. Use lean cuts of meat, egg substitutes and skim milk instead.
* **Select whole grains.** Various nutrients found in whole grains promote heart health. Choose whole-grain breads, whole-wheat pasta, whole-wheat flour and brown rice. Oatmeal and oat bran are other good choices.
* **Stock up on fruits and vegetables.** Fruits and vegetables are rich in dietary fiber, which can help lower cholesterol. Snack on seasonal fruits. Experiment with vegetable-based casseroles, soups and stir-fries.
* **Eat heart-healthy fish.** Some types of fish — such as cod, tuna and halibut — have less total fat, saturated fat and cholesterol than do meat and poultry. Salmon, mackerel and herring are rich in omega-3 fatty acids, which help promote heart health.
* **Drink alcohol only in moderation.** Moderate use of alcohol may increase your levels of HDL cholesterol — but the benefits aren't strong enough to recommend alcohol for anyone who doesn't drink already. If you choose to drink, do so in moderation. This means no more than one drink a day for women and one to two drinks a day for men.

**Exercise regularly**
Regular exercise can help improve your cholesterol levels. With your doctor's OK, work up to 30 to 60 minutes of exercise a day. Take a brisk daily walk. Ride your bike. Swim laps. To maintain your motivation, keep it fun. Find an exercise buddy or join an exercise group. And, you don't need to get all 30 to 60 minutes in one exercise session. If you can squeeze in three to six 10-minute intervals of exercise, you'll still get some cholesterol-lowering benefits.

**Don't smoke**
If you smoke, stop. Quitting can improve your HDL cholesterol level. And the benefits don't end there. Just 20 minutes after quitting, your blood pressure decreases. Within 24 hours, your risk of a heart attack decreases. Within one year, your risk of heart disease is half that of a smoker's. Within 15 years, your risk of heart disease is similar to that of someone who's never smoked.