



### Treat high cholesterol

Some people may need to treat high cholesterol with medicine.

- Drugs called statins may help reduce the size of plaque particles that can clog or harden the arteries. Studies have shown that drugs called statins may be effective in reducing the risk of stroke or transient ischemic attack (TIA), or ministroke.
- Several other types of cholesterol-lowering drugs also are available.
- It's important to take medicine exactly as directed, even when you feel well.

### What can I do to prevent stroke?

A high cholesterol level is just one of many risk factors of stroke. To lower your risk, follow National Stroke Association's Stroke Prevention Guidelines:

- Know your blood pressure. If it is high, work with your doctor to lower it.
- Find out if you have atrial fibrillation. If you do, work with your doctor to manage it.
- If you smoke, stop.
- If you drink alcohol, do so in moderation.
- Know your cholesterol level.
- If you are diabetic, follow your doctor's advice carefully to get your blood sugar level under control.
- Include exercise in your daily routine.
- Enjoy a lower sodium (salt), lower fat diet.

- Ask your doctor if you have circulation (blood flow) problems which increase your risk for stroke. If so, work with your doctor to control them.
- Know the symptoms of stroke. If you have any stroke symptoms or see them in someone else, call 911.

### Stroke Symptoms

- Sudden numbness or weakness of face, arm or leg, especially on one side of the body
- Sudden confusion, trouble speaking or understanding
- Sudden trouble seeing in one or both eyes
- Sudden trouble walking, dizziness, loss of balance or coordination
- Sudden severe headache with no known cause

### For more information:

National Heart, Lung and Blood Institute  
(NHLBI)  
Cholesterol Education Project  
1-800-575-WELL (575-9355)  
[www.nhlbi.nih.gov/chd](http://www.nhlbi.nih.gov/chd)



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1-800-STROKES  
(1-800-787-6537)

# Stroke and Cholesterol





Every year, more than 750,000 Americans have a stroke or brain attack. A stroke occurs when a blood clot blocks a blood vessel or artery, or when a blood vessel breaks. These things can interrupt blood flow to an area of the brain, cutting off vital supplies of oxygen. This lack of blood and oxygen can kill brain cells that control such things as moving, thinking, speaking and breathing.

There are many things that can cause a stroke. One of these is the gradual build-up of cholesterol, called plaque.

What is cholesterol?

Cholesterol is a soft, waxy fat (lipid) that is made by the body. It is found in the bloodstream and in all of your body’s cells. Your body needs cholesterol to form cell membranes, some hormones and vitamin D.

Cholesterol is also found in some foods, such as eggs, meats and dairy products.

How does cholesterol affect stroke risk?

Cholesterol or plaque build-up in the arteries can block normal blood flow to the brain and cause a stroke. High cholesterol may also increase your risk for stroke by raising your risk for heart disease, a stroke risk factor.

Because cholesterol does not dissolve in the blood on its own, it must be carried to and from cells by particles called lipoproteins. There are two types of lipoproteins: low-density lipoproteins (LDL) and high-density lipoproteins (HDL). Recent studies show that high levels of LDL (“bad”) cholesterol and triglycerides (blood fats) raise the risk of ischemic (clot caused) stroke. Plaque can also increase risk of a ministroke called transient ischemic stroke (TIA) where stroke symptoms go away within 24 hours. High levels of HDL (“good”) cholesterol also may reduce stroke risk.

What is LDL cholesterol?

Due to its artery-clogging properties, LDL cholesterol is often referred to as “bad” cholesterol. LDL carries cholesterol into the blood stream and to your tissues where your body can store it. This type of cholesterol can cause plaque build-up, a thick, hard

substance that can clog arteries. The plaque can eventually cause arteries to narrow or become blocked completely, causing stroke or heart attack.

What is HDL cholesterol?

HDL carries cholesterol away from the tissues to the liver, where it is filtered out of the body. High levels of HDL, also called good cholesterol, seem to protect against stroke and heart attack. A low HDL level may indicate a greater stroke or heart disease risk.

What do my cholesterol levels mean?

Cholesterol levels are measured in milligrams (mg) of cholesterol per deciliter (dL) of blood. Combined LDL and HDL cholesterol should not equal more than 200 mg/dL. If the total cholesterol is more than 200 or if the HDL level is less than 40, risk of stroke and heart disease could increase.

General Cholesterol Guidelines

|                     |  |  |
|---------------------|--|--|
| Total Cholesterol   |  |  |
| Less than 200 mg/dL | Desirable                              |  |
| 200-239 mg/dL       | Borderline high                        |  |
| 240 mg/dL and above | High                                   |  |
| LDL Cholesterol     |  |  |
| Less than 100 mg/dL | Optimal (ideal)                        |  |
| 100-129 mg/dL       | Near optimal/above optimal             |  |
| 130-159 mg/dL       | Borderline high                        |  |
| 160-189 mg/dL       | High                                   |  |
| 190 mg/dL or above  | Very high                              |  |
| HDL Cholesterol     |  |  |
| Less than 40 mg/dL  | Major heart disease factor             |  |
| 60 mg/dL and above  | Gives protection against heart disease |  |

What are the right levels for me?

The best cholesterol levels for you may depend on several things. Having other risk factors may change your cholesterol goal. Also, cholesterol goals may be different for people who have already had a stroke or heart attack. Ask your doctor what cholesterol level is right for you.

What increases cholesterol levels?

Many things can affect cholesterol levels. Some you can change and some you can’t.

Things you can change:

- Diet – Foods high in saturated fat and cholesterol can increase cholesterol levels
- Weight – Being overweight can increase your cholesterol levels
- Exercise – People who are not active tend to have higher cholesterol levels

Things you cannot change:

- Family history – If someone in your family has high cholesterol, you are more likely to have high cholesterol
- Age – Most people experience an increase in cholesterol levels until the age of 65
- Gender – Women under age 50 tend to have lower cholesterol and those in menopause have higher levels

How often should I be checked for high cholesterol?

- All adults age 20 and older should have their cholesterol checked at least once every five years.
- Cholesterol should be checked more frequently in men older than 45 and women older than 55.
- People with a family history of high cholesterol should also be checked more often.

How do I check my cholesterol?

Your doctor will give you a simple blood test.

What can I do to manage my cholesterol?

Eat a healthy diet

- Eat low-fat foods – especially foods low in saturated fat. This includes vegetables, fruits, lean meats such as chicken and fish, low-fat dairy products and a limited number of egg yolks.
- Bake, broil, steam or grill your food (instead of frying).
- Add fiber to your diet, including whole grains or dried beans.

***Good eating habits not only can help lower your cholesterol but also may reduce other stroke risk factors such as high blood pressure and being overweight.***

Include exercise in your daily routine

- Be physically active at least 30 minutes for five or more days a week.
- Every little bit of exercise – a brisk walk, bicycle ride, swim or yard work – can improve your health.
- Exercise with a friend.
- Make small changes: Take the stairs instead of the elevator or park farther out in the parking lot.
- Check with your doctor before starting any exercise program.

