

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.

### **Know the symptoms of stroke.**

If you have any stroke symptoms or see them in someone else, call 911.

- 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 please contact:**

#### **South Carolina Department of Health and Environmental Control**

Division of Diabetes, Heart Disease, Obesity, and  
School Health  
[www.scdhec.gov](http://www.scdhec.gov)

or

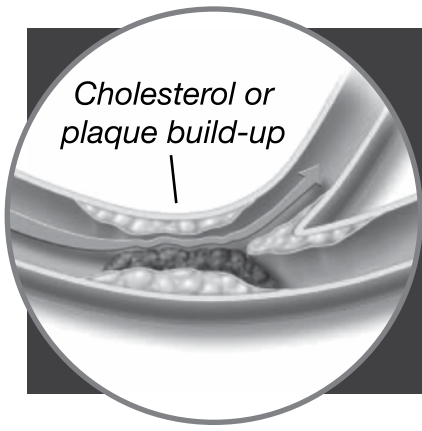
#### **National Heart, Lung and Blood Institute (NHLBI)**

Health Information Center  
(301) 592-8573  
[www.nhlbi.nih.gov](http://www.nhlbi.nih.gov)



# Stroke and Cholesterol





There are many things that can increase the risk for 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.

A low LDL cholesterol level is considered good for your heart health. According to new guidelines from the American Heart Association, your LDL number should not be the main factor in the treatment to prevent stroke. For patients taking statins, a cholesterol lowering medication, the guidelines say they no longer need to get LDL cholesterol levels down to a specific target number.

## What is triglyceride?

Triglyceride is the most common type of fat in the body. The AHA recommends <100 mg/dL as the optimal level of triglyceride. A high triglyceride level combined with low HDL cholesterol or high LDL cholesterol is associated with increased risk of coronary heart disease.

## What is HDL cholesterol?

HDL, called good cholesterol, carries cholesterol away from the tissues to the liver, where it is filtered out of the body. 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. Your total cholesterol score is calculated using the following equation: HDL + LDL + 20 percent of your triglyceride level. A total cholesterol score of less than 180 mg/dL is considered optimal.

## General Cholesterol Guidelines

| Cholesterol Type  | Optimal Level              |
|-------------------|----------------------------|
| LDL Cholesterol   | <b>Less</b> than 100 mg/dL |
| HDL Cholesterol   | 60 mg/dL and <b>above</b>  |
| Total Cholesterol | <b>Less</b> than 180 mg/dL |

## Cholesterol and determining your risk for stroke

Your total cholesterol and HDL (good) cholesterol are among many risk factors your doctor can use to predict your lifetime or 10-year risk for a stroke. Other risk factors your doctor will consider are age, presence of other diseases such as diabetes, smoking, weight, diet, physical activity and whether you have already had a stroke. Talk with your doctor about your risk assessment for stroke.

## 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 they reach 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?

Adults age 20 and over should have their cholesterol checked at least once every four to six years as part of a cardiovascular risk assessment.

## 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.