



American Stroke
Association

A Division of American
Heart Association 

American Heart
Association 

Fighting Heart Disease and Stroke

Targeting the Facts

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- Sign up for CPR course
 - Call 9-1-1 at first signs of heart attack and stroke

Our quick guide to heart disease, stroke and risks

Heart Attack

A heart attack occurs when the blood supply to part of the heart muscle (the myocardium) is severely reduced or stopped because one or more of the heart's arteries is blocked. This is usually caused by atherosclerosis, the buildup of fatty deposits (plaque) inside artery walls. The plaque can rupture, causing a blood clot to form and block the artery. If the blood supply is cut off for more than a few minutes, heart muscle cells suffer permanent injury or die. This can kill or disable someone, depending on how much heart muscle is damaged.

Warning Signs

Some heart attacks are sudden and intense, but most start slowly, with mild pain or discomfort. Often the people affected aren't sure what's wrong and wait too long before getting help. Here are some signs that can mean a heart attack is happening.

- **Chest discomfort.** Most heart attacks involve discomfort in the center of the chest that lasts more than a few minutes, or that goes away and comes back. It can feel like uncomfortable pressure, squeezing, fullness or pain.
- **Discomfort in other areas of the upper body.** Symptoms can include pain or discomfort in one or both arms, the back, neck, jaw or stomach.
- **Shortness of breath.** This feeling often comes along with chest discomfort. But it can occur before the chest discomfort.
- **Other signs.** These may include breaking out in a cold sweat, nausea or lightheadedness.

If you or someone you're with has chest discomfort, especially with one or more of the other signs, don't wait longer than 5 minutes before calling for help. Call 9-1-1...Get to a hospital right away.

Calling 9-1-1 is almost always the fastest way to get lifesaving treatment. Emergency medical services (EMS) staff can begin treatment when they arrive — up to an hour sooner than if someone gets to the hospital by car. The staff are trained to revive someone whose heart has stopped. You'll also get treated faster in the hospital if you come by ambulance.

Sudden Death and Cardiac Arrest

Sudden death (also called sudden cardiac death or SCD) occurs when the heart stops abruptly (cardiac arrest). Death can occur within minutes after the victim collapses. The most common underlying cause of cardiac arrest is coronary heart disease. The term "massive heart attack" is often mistakenly used to

describe SCD. A heart attack may cause cardiac arrest and sudden death, but it's not the same thing.

Most cases of cardiac arrest (also called sudden cardiac arrest) that lead to sudden death occur when the heart's electrical impulses become rapid (ventricular tachycardia) and then chaotic (ventricular fibrillation or VF). This irregular heart rhythm causes the heart to suddenly stop pumping blood. No statistics are available for the exact number of cardiac arrests that occur each year. However, about 250,000 people a year die of coronary heart disease (CHD) without being hospitalized. That's about half of all deaths from CHD — more than 680 Americans each day.

When Minutes Count

During cardiac arrest, a victim becomes unresponsive, stops normal breathing, and loses pulse or other signs of circulation. If the victim receives no treatment, brain damage can start to occur in just 4 to 6 minutes. If the victim receives immediate cardiopulmonary resuscitation (CPR), it will keep blood flowing to the heart and brain until definitive treatment is provided. CPR consists of mouth-to-mouth rescue breathing and chest compressions. VF cardiac arrest can be reversed if the victim is treated with an electric shock to the heart within a few minutes. The electric shock can stop the abnormal rhythm and allow a normal rhythm to resume. This process, called defibrillation, is done using a defibrillator.

A victim's chances of survival after VF cardiac arrest are reduced by 7 to 10 percent with every minute that passes without treatment. Few resuscitation attempts succeed after 10 minutes have elapsed. It's estimated that more than 95 percent of cardiac arrest victims die before reaching the hospital. In some cities with public access defibrillation programs, when bystanders provide **immediate** CPR and the first shock is delivered **within 3 to 5 minutes**, the reported survival rates from VF cardiac arrest are as high as 48 to 74 percent.

Defibrillators used to be available only in hospitals. Now, thousands of portable automated external defibrillators (AEDs) are used in emergency vehicles and in many high-traffic public areas. Lay rescuers can be trained to use them. If survival rates from sudden cardiac arrest increased from 5 percent to 20 percent, up to 40,000 more lives could be saved each year.

- If symptoms last more than a few minutes, call 9-1-1 or have someone drive you to the hospital right away. If you're the only person with the victim, and the victim is unresponsive, begin CPR immediately. If you don't know CPR, use an AED if one is available and if you're trained to use it. • Clot-busting drugs can be given to some people within minutes of a heart attack.

Stroke

A stroke occurs when a blood vessel that brings oxygen and nutrients to the brain bursts or is clogged by a blood clot or some other particle. Because of this rupture or blockage, part of the brain doesn't get the blood and oxygen it needs. Deprived of oxygen, nerve cells in the affected area of the brain die within minutes.

There are four main types of stroke. Two are caused by blood clots or other particles (ischemic strokes), and two by bleeding (hemorrhagic strokes). One kind of ischemic stroke, cerebral thrombosis, is the most common type. It occurs when a blood clot (thrombus) forms and blocks blood flow in an artery bringing blood to part of the brain. Blood clots usually form in arteries narrowed by fatty deposits called plaque. Cerebral embolism, another kind of ischemic stroke, occurs when a wandering clot or some other particle (an embolus) forms away from the brain, usually in the heart. The bloodstream carries the clot until it lodges and blocks blood flow in an artery leading to or in the brain.

A subarachnoid hemorrhage occurs when a blood vessel on the brain's surface ruptures and bleeds into the space between the brain and the skull (but not into the brain itself). Another type of hemorrhagic stroke occurs when a defective artery in the brain bursts, flooding the surrounding tissue with blood. This is a cerebral hemorrhage. Bleeding from an artery in the brain can be caused by a head injury or a burst aneurysm. Aneurysms are blood-filled pouches that balloon out from weak spots in the artery wall. They're often caused or made worse by high blood pressure. If an aneurysm bursts in the brain, it causes a stroke.

After-Effects of Stroke

When brain cells injured by a stroke can't work, the part of the body they control can't work either. This is why a stroke can be so devastating. Brain injury from a stroke can affect the senses, motor activity, speech and the ability to understand speech. It can also affect a person's behavior and thought patterns, memory and emotions. Paralysis or weakness on one side of the body is common. These effects may be temporary or lasting, depending on the area of the

Warning Signs

- Sudden numbness or weakness of the 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.

Any of the above symptoms may be temporary and last only a few minutes. This may be due to a "mini-stroke" called a transient ischemic attack (TIA). TIAs are extremely important indicators of an impending stroke. Don't ignore them! If symptoms appear, call 9-1-1 to get medical attention immediately.

brain affected and the extent of the brain injury. Injured and dead brain cells can't heal or replace themselves. Recovery from a severe stroke usually takes months or years of medical treatment, rehabilitation therapy and determined effort by the stroke survivor. Many survivors never regain all their lost functions. Stroke is a leading cause of serious, long-term disability.

Preventing Stroke

Risk factors are traits and lifestyle habits that increase the risk of disease. The risk factors for stroke that you can control or treat are:

- high blood pressure
- tobacco use
- diabetes mellitus
- carotid or other artery disease
- atrial fibrillation or other heart disease
- a history of TIAs ("mini-strokes")
- a high red blood cell count
- sickle cell anemia
- high blood cholesterol
- physical inactivity
- overweight and obesity
- excessive alcohol intake and
- some illegal drugs.

Work with your healthcare provider to reduce or control as many risk factors as you can.

Rx for Survival

the emergency medical services (EMS) immediately. Note the time that the first symptom started. • If you can't access the EMS, one having symptoms, don't drive yourself, unless you have absolutely no other option. • If someone collapses suddenly and is CPR, the EMS dispatcher can tell you what to do. Use an automated external defibrillator to shock the victim's heart, if an AED is are a major advance in treating acute heart attack and stroke. If given within a few hours of the start of a heart attack, they can minimize heart damage. If given within 3 hours of the onset of a stroke caused by blood clots, they can reduce long-term disability.

Risk Reduction Checklist for Heart Attack and Stroke

What You Can Do on Your Own:

- **Don't use tobacco** — It's the No. 1 preventable cause of serious illness such as heart disease, stroke, lung cancer and emphysema.
- **Be physically active** — It can build endurance, control blood pressure, reduce cholesterol levels, aid in weight control and reduce your risk of developing diabetes.
- **Eat healthy foods** — Foods high in saturated fat and cholesterol contribute to atherosclerosis, a primary cause of heart attack and stroke. Too much salt can cause high blood pressure in some people.
- **Watch your weight** — Obesity is a major risk factor.
- **Avoid excessive alcohol** — One or two drinks a day may help increase "good" HDL cholesterol, but heavy drinking can contribute to high blood pressure, heart disease and stroke.

What You Can Do With Your Doctor's Help:

- **Have regular checkups** — A doctor can pinpoint major risk factors such as smoking, elevated cholesterol or blood pressure, excess weight and diabetes.
- **Control your cholesterol** — Cholesterol is a natural substance found in all living tissue, but when too much of it builds up in your arteries — either because of a high-fat diet or hereditary factors — it can be dangerous. A simple blood test can show the level of cholesterol in your blood. If it's too high, dietary changes, exercise, weight loss, and/or drug therapy can bring it down to a safer level.
- **Keep tabs on your blood pressure** — Even if it's less than 130/85 mm Hg, have it checked at least every two years. If it's above 130/85, have it checked annually or according to your doctor's recommendations.
- **Keep diabetes in check** — If you have an inherited tendency toward diabetes, your risk of heart attack and stroke is automatically increased. But your doctor can detect diabetes or a pre-diabetic condition and prescribe a program to minimize the risk.

Risks You Can't Control:

- **Age** — The risk gradually increases as people age, but this doesn't mean that younger people are immune. Advanced age is a powerful predictor of increased risk of heart attacks or strokes.
- **Sex** — Before menopause, women have a much lower death rate from coronary attack than men. **Women's risk rises sharply after menopause, probably because of hormonal changes, but it still remains lower than men's in the same age group.**
- **Heredity** — Some families have a higher-than-normal genetic risk of heart attack and stroke. **African Americans are more likely than Caucasians to have high blood pressure, and they tend to have strokes earlier in life and with more severe results.** If you've inherited higher risks, it's even more important to reduce those risks you CAN control.

2002 Heart and Stroke Statistics

Coronary Heart Disease

- This year about 1.1 million Americans will have a first or recurrent coronary attack. Over 45 percent of these patients will die — 250,000 of them before they reach a hospital. Coronary heart disease is the nation's single leading cause of death.
- About 7.5 million Americans age 20 and older have survived a heart attack (myocardial infarction). About 6.4 million Americans have angina pectoris (chest pain or discomfort due to reduced blood supply to the heart).

Stroke

- Each year about 600,000 people suffer a new or recurrent stroke in the United States. More than 167,000 of these people die, making stroke the third leading cause of death.
- About 4.6 million U.S. stroke survivors are alive today, many of them with permanent stroke-related disabilities.
- Women account for more than 6 in 10 stroke deaths.

Atherosclerosis

- In this disease, fatty buildup narrows arteries and reduces blood flow. It's the primary cause of many of the 697,000 deaths that occur annually from coronary heart disease and stroke.
- About 20 percent of American adults (41.3 million people) have cholesterol levels of 240 mg/dL or higher — the point at which it becomes a major risk factor associated with atherosclerosis. **Your total cholesterol should be below 200 mg/dL.**

High Blood Pressure

- Of all people with high blood pressure, 31.6 percent are unaware of it, and only 27.4 percent are on medication and have it controlled. 26.2 percent are on medication but don't have under control, and 14.8 percent aren't on medication.
- Up to 95 percent of high blood pressure cases stem from unknown causes, but the condition is easily detectable and most cases can be controlled with proper treatment. **Your blood pressure should be below 140/90 mm Hg.**

Tobacco Smoke

- An estimated 25.0 million men and 22.6 million women — representing more than 24 percent of the adult U.S. population — put themselves at increased risk of heart attack and stroke by smoking cigarettes.
- Each day more than 6,000 people under age 18 try a cigarette, and each day more than 3,000 of them become daily smokers.

Physical Inactivity

- Data from a 1999 Centers for Disease Control and Prevention study show that 73 percent of American adults did not achieve the recommended amount of physical activity (30 minutes or more of vigorous physical activity at least 3–4 days per week).

Overweight and Obesity

Among Americans ages 20–74, the following people are overweight or obese:

- 61.5 percent of non-Hispanic white men and 46.8 percent of non-Hispanic white women.
- 58.4 percent of non-Hispanic black men and 68.3 percent of non-Hispanic black women.
- 69.3 percent of Mexican-American men and women.

Diabetes Mellitus

- Two-thirds of people with diabetes die of some form of heart or blood vessel disease.

For more information about heart disease and stroke or about the statistics in this publication, contact your nearest American Heart Association or call 1-800-AHA-USA1 (1-800-242-8721), or visit the AHA's Web site at americanheart.org.