

WHAT IS CARDIAC ARREST AND WHAT TO DO



Sudden cardiac arrest occurs when an electrical malfunction causes the heart to stop beating. It prevents blood flow to the organs, and this can be fatal without immediate treatment.

Below, we look at what happens during sudden cardiac arrest, including the signs and symptoms and what to do next. We also explore treatments, survival rates, and risk factors.

If anyone shows signs of cardiac arrest, such as a loss of consciousness or detectable **pulse**, dial 911 or contact a local hospital's emergency department immediately.

What happens during cardiac arrest?

The heart receives electrical signals that control how often it pumps and in what rhythm. Each heartbeat pushes blood through a complex network of vessels to organs and cells throughout the body.

Disruptions to these electrical signals cause irregular beats, known as **arrhythmias**. There are many types of arrhythmia. Some cause no symptoms, while others can cause cardiac arrest.

Cardiac arrest causes the heart to suddenly stop beating, which prevents blood from moving around the body.





This is **different** from a **heart attack**, which occurs when a blocked blood vessel prevents blood from reaching the heart, damaging its tissues.

Signs and symptoms

Typically the first sign of cardiac arrest is fainting or loss of consciousness. A person experiencing cardiac arrest also has no detectable heartbeat or pulse.

Before losing consciousness, some people experience other symptoms, such as:

- dizziness
- a racing heartbeat
- chest pain
- shortness of breath
- nausea, with or without vomiting

Unlike a heart attack, cardiac arrest **often** occurs suddenly, without any warning. Though the two issues are different, people who have had one or more heart attacks have a higher risk of sudden cardiac arrest.

What to do

Treatment within the **first few minutes** of cardiac arrest can save the person's life. It is vital to act quickly.



If someone shows signs of cardiac arrest:

1. Contact 911 and ask for emergency medical services. If possible, ask a bystander to do this
2. Check if the unconscious person is breathing. If they are not, find an automated external defibrillator (AED) if there is one nearby
3. If none is available, administer CPR by hand. Place both hands on the center of the person's chest and push down firmly **100–120 times per minute**
4. Until the emergency responders arrive, continue administering CPR

AEDs administer a controlled electric shock to people with dangerous heart arrhythmias. They do not release this shock unless there is an abnormal heart rhythm. As a result, they are suitable for anyone to use, with or without training.



AEDs are widely available in public spaces. Using one as soon as possible increases the chances of survival.

If there are no AEDs nearby, continuously performing CPR keeps blood and oxygen flowing to the organs and brain until a medical professional can use a defibrillator to restart the heart.

Treatment

After receiving emergency treatment, a person who has experienced cardiac arrest needs hospital treatment.

At the hospital, doctors closely monitor any symptoms and may use medications to lower the risk of another cardiac arrest. They then perform tests to determine the cause of the arrest. The test results help the doctors develop a long-term treatment plan.

For example, a person with **heart disease** may require surgery to restore blood flow to the heart. The doctors may also recommend an implantable cardioverter defibrillator (ICD).

ICDs are small devices that deliver electrical shocks to the heart to control arrhythmias. This keeps the heart

pumping at a normal rate. A specialized cardiologist places this device beneath the skin of the chest or abdomen.

During their hospital stay, the person needs to rest to allow their body to recover.

Doctors may recommend that the person adopts a diet and lifestyle that supports heart health. They may also recommend cardiac rehabilitation — a short program that provides information and support.

Surviving cardiac arrest

People can survive sudden cardiac arrest. The chances of survival usually depend on how quickly and effectively they receive CPR or defibrillation.

A 2020 review in *BMC Critical Care* looked at 141 studies of survival rates among people who had received CPR for cardiac arrest. The researchers found that blood circulation returned in around 30% of those who had received this intervention, while 22% lived long enough to reach a hospital, and 9% survived until hospital discharge.

Other factors, such as age and general health, also influence the likelihood of surviving cardiac arrest.

Causes and risk factors

Most cardiac arrests result from ventricular fibrillation, a type of arrhythmia. Ventricular fibrillation causes the heart's lower chambers to beat abnormally, preventing the heart from pumping blood to the rest of the body.

Some health conditions also increase the risk of an electrical problem that could cause cardiac arrest. These include:

- ischemic heart disease, which happens when plaque builds up in the arteries, restricting or blocking blood flow
- abnormal **potassium** or **magnesium** levels
- severe blood loss or lack of oxygen
- intense exercise, which can trigger cardiac arrest in people with existing heart conditions
- structural problems, such as enlargement of the heart
- inherited heart conditions, such as long QT syndrome
- the use of stimulant drugs, such as amphetamines

Other risk factors for cardiac arrest include older age, being male, and having a substance abuse disorder.

Prevention

Anyone can reduce the risk of cardiac arrest by adopting a lifestyle that supports heart health. This includes having



a healthful diet, exercising regularly, and not smoking. Having a moderate weight is also important.

People with a higher risk of cardiac arrest, such as people with heart disease, may also require medications to prevent or reduce their risk. A doctor may prescribe drugs that lower **blood pressure** or statins to reduce **cholesterol**.

People who have experienced cardiac arrest before can reduce the risk going forward by having an ICD implanted and closely following their treatment plan.

Summary

Cardiac arrest occurs when the electrical signals that control the heart's movements malfunction, causing the heart to stop beating. As a result, the person faints and their pulse becomes undetectable.

Immediate treatment with CPR and defibrillation is vital for people experiencing cardiac arrest. People can find defibrillators, called AEDs, in public spaces. If none is available, perform CPR until emergency responders arrive and administer defibrillation.

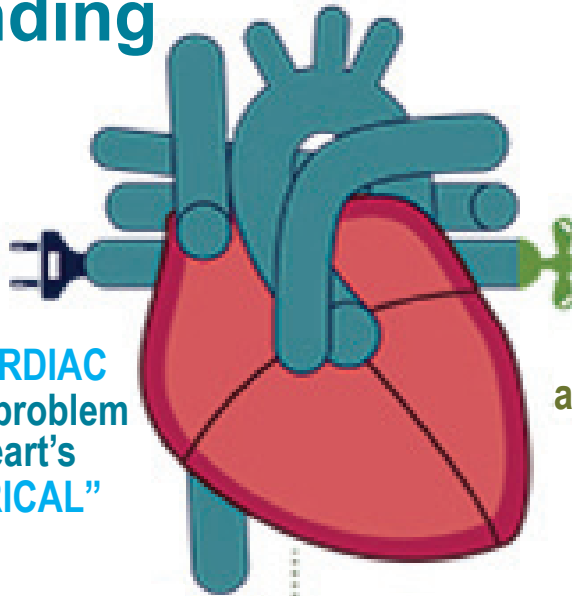
After the person is receiving emergency treatment for cardiac arrest, they will need ongoing care. A physician may recommend surgery, medication, diet or lifestyle changes, or a combination. They will create a long-term treatment plan.



SUDDEN CARDIAC ARREST



Understanding SUDDEN CARDIAC ARREST



VS. HEART ATTACK

A HEART ATTACK affects the "PLUMBLING" of the heart



SUDDEN CARDIAC ARREST is a problem with the heart's **"ELECTRICAL"** system

Usually strikes **WITHOUT WARNING**



The heart **SUDDENLY STOPS BEATING**, and no blood is pumped to the rest of the body



People with sudden cardiac arrest **WON'T HAVE A PULSE**



People may have **EARLY SIGNS**



BLOOD SUPPLY to the heart muscle is **REDUCED OR BLOCKED** but the heart **KEEPS BEATING**



People **HAVE A PULSE**, unless the heart attack causes sudden cardiac arrest

Quick Action **SAVES LIVES**

1. Call 911



2. Immediately start CPR, hands only



3. If available, use an automated external defibrillator (AED) to provide an electric shock to the heart, within minutes



SURVIVAL RATES COULD DOUBLE OR TRIPLE if more people **TAKE ACTION AND KNOW** what to do when someone is in sudden cardiac arrest



Sudden cardiac arrest claims **ONE LIFE EVERY 90 SECONDS**