

Cardiac Arrest

Definition:

Sudden cardiac arrest is the sudden loss of all heart activity due to an irregular heart rhythm. Breathing stops. The person becomes unconscious. Cardiac arrest can be fatal if it lasts longer than 10 minutes without CPR. Brain damage can happen after just five minutes.

Sudden cardiac arrest isn't the same as a heart attack. A heart attack happens when blood flow to a part of the heart is blocked. However, a heart attack can cause a change in the heart's electrical activity, leading to sudden cardiac arrest.

Causes:

- Arrhythmia and ventricular fibrillation
- Cardiomyopathy (enlarged heart)
- Coronary artery disease
- Valvular heart disease
- Blood loss
- Lack of oxygen
- High levels of potassium and magnesium
- Long QT syndrome

Symptoms:

- Sudden collapse
- No pulse
- No breathing
- Loss of consciousness

Treatment:

- Call for help
- CPR (Cardiopulmonary Resuscitation)
- AED (Automated External Defibrillator)
- Send to the ER

For adult CPR, do the following:

- Make sure the area around the person is safe.
- Tap the shoulder of the person and talk loudly: "Are you okay?"
- Yell for help and send a bystander to get an AED, or if you are alone, bring the AED and start CPR.

- Check the person's breathing and the carotid pulse simultaneously for a minimum of five seconds but no more than 10 seconds. Tilt their head back, put your face near their cheek to see if you can hear or feel the breath, and look along their chest to see if it is rising and falling. At the same time, place your index and middle fingers on your neck to the side of your windpipe.
- Start CPR if the person is not responding, breathing, or only gasping and has no pulse.
- Provide 30 compressions at a pace of 100 to 120 beats per minute, pushing down twice per second (roughly matching the rhythm of the song "Staying Alive" by the BeeGees). Ensure the compression depth falls within the range of 2 to 2.4 inches (5 to 6 cm), allowing the chest to fully rise before initiating the next compression. Open the airway and give two breaths.
- Continue giving compressions and breaths until the AED arrives, until advanced help arrives and assumes care, or until the person begins to respond.

N.B: Performing CPR can be tiring. If someone is available to help, change roles every two minutes and perform five cycles of 30 compressions and two breaths in adult CPR.

For child CPR (1 year to puberty):

CPR in children is very similar to CPR in adults. In children, you can either use one-handed or two-handed compression. The depth of the compression will be two inches (5 cm).

If you are two rescuers doing CPR, perform cycles of 15 compressions and two breaths.

If you are alone and didn't see the child collapse, do two minutes of CPR, then bring the AED and call for help.

For chest compressions, do the following:

- Position the person on their back on a firm, flat surface.
- Remove clothing at the neck and chest area.
- Feel for the end of the breastbone (sternum).
- Place the heel of one hand on the lower half of the breastbone. Put the other hand on top of the first.
- Press straight down at a rate of 100 to 120 beats per minute and a depth between 2 to 2.4 inches (5 to 6 cm).
- Allow the chest to fully recoil between compressions. Your hands should remain in contact with the person without bouncing or leaning on the person.

To give breaths, do the following:

- Put one hand on their forehead.
- Place your fingers on the bony part of their chin.
- Gently tilt the head back while lifting the chin.
- Hold the person's airway open as described above and pinch their nose shut.

- Take a deep breath and seal your mouth around the person's mouth, or if a mask is available, ensure a good seal between the mask and the person's face.
- Blow into their mouth for one second and watch their chest rise.
- Repeat with a second breath.
- If the chest does not rise, reposition the airway and repeat the maneuver. If the person's chest fails to rise within 10 seconds, begin chest compressions again.

N.B: As a rescuer, if you are untrained in CPR, then give the "hands-only".

To use an AED, do the following:

- Turn the power on.
- Expose the chest.
- Apply pads on the victim.
- Clear the person.
- Analyze the rhythm.
- Follow the prompts: shock advised; no shock advised.
- Resume CPR with compressions.
- If a person has a medication patch on his or her chest, remove it before attaching the AED pads. Additionally, a noticeable bulge under the skin of his or her chest may indicate the presence of a pacemaker. In such cases, do not position the AED pads directly over this device and adjust the placement accordingly.
- Pediatric pads should be used if the child is younger than eight years old or weighs less than 25 kg. Standard pads (adult) may be used if pediatric pads are unavailable. Do not let the pads overlap. You may need to put one of the pads on the child's back if the child is small. Some AEDs have a switch that can be set to deliver a pediatric shock. If available, turn this switch on.

N.B: AED will tell you to clear the scene every two minutes.

Rescue breathing:

Rescue breathing is needed if a person collapses and stops breathing but has a pulse.

A person may need rescue breathing in the following situations:

- Near drowning
- Overdose or poisoning
- Choking
- Carbon monoxide poisoning
- Severe asthma attack

Rescue breathing in adults: give one rescue breath every 5 to 6 seconds or about 10 to 12 breaths per minute.

Rescue breathing in child (age 1 to puberty): give one rescue breath every 2 to 3 seconds or about 20 to 30 breaths per minute.

Check for a pulse every two minutes. If you do not feel a pulse, begin CPR.