

# How to Save a Life

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## STORY AT-A-GLANCE

- › Everyone is capable of learning how to do CPR, but according to the American Heart Association 70% of people in the U.S. feel helpless in an emergency
- › CPR may be necessary during a heart attack, electrocution, near drowning, stroke or other medical condition or injury
- › Learning when CPR is necessary and some simple ways of performing it correctly, may save the life of someone you love, as 70% of heart attacks happen at home

***Editor's Note: This article is a reprint. It was originally published March 18, 2017.***

Everyone is capable of learning how to do cardiopulmonary resuscitation (CPR), but according to the American Heart Association, 70% of people living in the U.S. feel helpless during an emergency.<sup>1</sup> This is alarming as 70% of all cardiac arrests happen at home, meaning the person you save may be someone you love.

For the first time in 50 years, the American Heart Association released a snapshot of heart disease and stroke statistics that indicate those who are treated only by medical personnel after a heart attack at home, had a 10.6% survival rate, while those who received bystander CPR had a 31.4% survival.<sup>2</sup>

However, CPR is not only useful in the event of a heart attack. The concepts can be used to save a life following an accident or injury as well.

If bystander CPR is not performed, the survival rate drops by 7% every minute.<sup>3</sup> If it takes 10 minutes for emergency personnel to attend to a cardiac arrest casualty, without bystander CPR, survival drops to 2%.<sup>4</sup>

There are several places in your community where you can learn and practice CPR. Call your local police or fire department, YMCA/YWCA or community recreation center. Each of these locations may know where CPR classes are held in your community.

## **What Is CPR?**

Cardiac arrest is an electrical malfunction of the heart that may be triggered by a blockage to one of the coronary arteries or from an electrical condition. An irregular heartbeat will disrupt blood flow to your brain, lungs and other organs, leading to death.

When CPR is performed in the first minutes after a heart has stopped it can double or triple the person's chance of survival.<sup>5</sup>

In 1891 Dr. Friedrich Maass performed the first chest compressions on a person, but it wasn't until 1903 that Dr. George Crile reported the first successful resuscitation using chest compressions.<sup>6</sup> The objective behind CPR and chest compressions is to circulate oxygenated blood to the brain and heart.

Without oxygen, your brain can survive for an average of five minutes before becoming permanently damaged. When done properly, CPR may dramatically increase a person's chances of surviving. However, many people don't do anything during an emergency, saying they are concerned they will do more damage. Clive James, trainer with St. John Ambulance commented:<sup>7</sup>

*"The most common thing people say to us is they wouldn't do anything because they wouldn't want to make things worse. But in the case of cardiac arrest, you can't make it worse because if you don't do something that person will die."*

The process of CPR helps push oxygen into the lungs and circulate it around the body. It is one of the easiest things you can learn that will make a critical difference to another

person, possibly even someone you love.

CPR may be used after a massive heart attack, drowning or drug **overdose** that renders a person unable to breathe on their own.

During a **heart attack** the heart may have stopped first and breathing second.

Conversely, during a drowning or drug overdose, the individual may stop breathing first and the lack of oxygen to the heart will stop the heart muscle. In both cases, CPR can be used to save a life.

## **Recognize When CPR Is Necessary**

According to a report by the British Heart Foundation (BHF), embarrassment over doing mouth-to-mouth resuscitation may stop 6 of every 10 people from doing CPR when it's needed.<sup>8</sup> The same report indicated that only between 30% and 40% of bystanders will intervene when they see someone collapse. Medical director of the BHF, Sir Nilesh Samani comments:<sup>9</sup>

*"There is definitely a certain amount of embarrassment about stepping in, as well as a lack of confidence.*

*It is clear that we need a revolution in CPR by educating more people in simple lifesaving skills and the use of external defibrillators, and for the subsequent care of a resuscitated patient to be more consistent and streamlined."*

There are a couple simple ways of telling if someone needs CPR. Knowing when to give CPR is as important as knowing how. Be aware too that some criminals prey on empathetic people who may stop at the side of the road to help.

This doesn't mean you shouldn't stop, but think twice about putting yourself in a potentially dangerous situation, and call emergency personnel prior to stopping.

These are some of the signs you may look for to determine that someone may need CPR.<sup>10,11</sup> Your response is important and may make the difference between life and

death. Remember, you don't have to be perfect in order to make a difference in someone's life.

Someone appears fine one minute and you see or hear them collapse.

You don't see or hear any respirations (breathing).

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You check for a heartbeat at the carotid artery and can't find a pulse.

You don't get a response from shaking, yelling and otherwise looking for a response; look for eye movements, sounds from the mouth or movement of the arms or legs.

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A **near drowning victim** who is not responsive and/or doesn't appear to be breathing.

You witness an electrocution injury. Electricity may trigger an irregular heartbeat or stop the heart entirely.

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You suspect drug use and the individual is not breathing or doesn't have a pulse.

You suspect exposure to large quantities of smoke, such as a burning building and the individual is unresponsive.

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## How to Do CPR

In this video produced by the BHF, Vinnie Jones demonstrates hands only CPR. Remember to dial the emergency number for your country, using 999 recommended in the video if you're in Britain. Hands only CPR is recommended by the American Heart Association if the individual is breathing on their own or if you are not trained in CPR, or not confident, or unwilling to do ventilation.<sup>12</sup>

In their report, the BHF found people were not doing compressions quickly enough. They now recommend doing compressions in beat to the song "Stayin' Alive" as it is exactly the rate needed. These are the recommended steps for CPR:<sup>13,14</sup>

**Before starting CPR** – Ensure you and the individual who has collapsed are in a safe place, away from open electrical lines, out of the way of traffic or away from fire.

Immediately call your local emergency number. Emergency personnel would rather arrive on scene to find the individual didn't need their services than you wait until it is too late. The individual may not require CPR; however, if they have collapsed, they likely need emergency services.

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**Ensure the individual needs CPR** – Place the individual flat on their back and open the airway by tilting the head back with the hand closer to the head and lifting the jaw forward with your hand that is closer to the individual's feet.

Listen for breathing. Check for a pulse at the carotid artery in the neck. While the head is tilted back, feel for the corner of the mandible or lower jaw. Run your first and second finger down one side of the neck and pause close to where you may feel for a swollen lymph gland.

Do not use your thumb as your thumb also has a pulse. During a moment when your own heart may be racing, it will be difficult to tell the difference between the pulse in your thumb and the pulse in the individual's neck.

Hold your fingers in place for at least 15 seconds. Do NOT check for a pulse on both sides of the neck at the same time as you may stop blood flow to the brain. If the individual is not breathing or does not have a heartbeat, then start CPR.

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**Start CPR** – Your hand placement on the chest will be above the little bone (xyphoid process) at the end of the sternum or breast bone. If you are uncertain, open the individual's shirt so you can feel the little bone and go above it.

Kneel on the side of the individual, with your shoulders over their chest. Extend your non-dominant hand, with your fingers extended. Place your dominant hand on the back of the extended hand and interlace your fingers. Keeping your fingers off the individual's chest, place the heel of your hand over the sternum.

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**Compressions** – Keep your hand on the individual's chest at all times, without bouncing up and down. Your movements will come from your hips and not your shoulders or knees. This way takes less energy from you and will allow you to do CPR for a longer period of time without fatigue.

Move your body up and down with your elbows straight, the heel of one hand on the sternum and your fingers off the chest. Compress the chest approximately 5 to 6 cm or about 2 inches. Do this to the beat of the song, "Stayin' Alive" or approximately 100 to 120 beats per minute.

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**Ventilations** – If you have been trained and are comfortable doing so, incorporate two breaths for every 30 compressions.

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**Continue CPR** – Continue CPR until the individual is breathing and has a heart rate independent of compressions, or when emergency personnel take over for you.

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### **Recovery position**

This video demonstrates how to place someone in the recovery position. If an individual has a heartbeat and is breathing but unconscious, place them in the recovery position. In this position fluids are able to drain without being aspirated (breathed into the lungs) and the person is able to breathe without hindrance.

Do NOT use this position if you suspect the person has a neck or back injury. To place a person in the recovery position, kneel next to them. Place the arm closest to you at a right angle to the body with the palm up.

Pull the other arm away from you across their chest and place the back of the hand against their face next to you. Lift the leg furthest from you to bend the knee until the foot is flat to the floor. Next, roll them toward you using their knee and keeping their hand against their face. Make any adjustments necessary to their hand or knee to keep their airway open.

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## How to Recognize a Stroke

A **stroke** may also trigger the need for CPR and may require fast action to save a life. The type of medical treatment will be determined by the type of stroke the individual experiences. An ischemic stroke happens when a clot blocks the transportation of oxygen rich blood to the brain and a hemorrhagic stroke occurs when a blood vessel ruptures.<sup>15</sup>

The faster a person is treated, the lower the risk of lingering disability or death from the event. The more quickly a stroke is recognized and the individual is taken to the hospital, the earlier treatment can be initiated. The National Stroke Association teaches the acronym FAST to identify someone who is suffering the symptoms of a stroke.<sup>16,17</sup>

Damage from a stroke affects muscle actions, speech and thinking abilities. Using the following acronym will help you remember the symptoms.

- **Face** — One area of the face will droop. Ask the person to smile to make a droop more obvious.
- **Arms** — Ask the person to raise both arms above their head. They will either not be able to raise one of their arms (strokes usually affect one side of the body), or one of their arms will begin to drift downward.
- **Speech** — Ask the person to repeat a simple phrase and listen for a strange tone or slurred speech. If you are unsure, ask them to repeat a second phrase.
- **Time** — Immediate action is essential to early treatment. If you see or experience any of these symptoms, call your local emergency number immediately. The individual may protest, but it's likely they aren't thinking clearly during an event.

If someone having a stroke loses consciousness, it is important to assess if they are breathing and have a heart rate. If one or both are not present, initiate CPR until emergency personnel arrive. If they are breathing and have a heartbeat, place them in the recovery position until emergency personnel arrive.

## What to Do – Sharp Force Trauma

Another instance that requires immediate and specific action is if someone suffers a penetrating wound or sharp force trauma. If an individual experiences significant blood loss or shock, they may require CPR. Any wound that has a penetrating object still inside the body should not be removed as the object may have transected an artery. When removed it may cause significant and life-threatening bleeding.<sup>18</sup>

Any injury that penetrates the chest may result in instant difficulty breathing, but should not be removed at the scene until medical professionals are present to stem bleeding and institute first aid to re-inflate the individual's lung. In these cases it is essential that emergency personnel are notified immediately.

An object may also penetrate the eye and, while not life-threatening, may result in blindness. **Corneal abrasions**, blunt injuries and penetrating injuries may result from participating in sporting events, car accidents or recreational accidents. In these cases:<sup>19,20</sup>

- Call your local emergency number for immediate help.
- Do not touch the eye, rub it or try to remove the object from the eye.
- Do not put pressure on the eyelid or eye and do not examine it.
- Ask the individual to close the other eye to prevent straining the eye muscles and moving the injured eye.
- Protect the eye with a paper cup or by placing thick bandages above and below the eye.

## Sources and References

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