More than 300,000 persons die of sudden cardiac arrest each year. A patient in cardiac arrest has very little chance of survival unless you, the bystander, take immediate action to sustain him or her until the paramedics arrive.

What Is Cardiac Arrest?
Cardiac arrest is a condition in which the heart abruptly stops pumping blood. In many cases, the heart suddenly goes from a regular heartbeat to a random twitching, called ventricular fibrillation. When the heart is quivering like that, blood is not moved through the body, and the patient passes out.

How Do I Recognize a Cardiac Arrest?
Do not waste time trying to determine whether the victim has a pulse. First, you should address the person in a loud voice. If there is no response, shake the person to check if he or she is unconscious. If there is no response, assess the breathing: Is it normal or abnormal? Abnormal breathing means either no breathing at all or intermittent gasping. If you witness a person suddenly collapse for no apparent reason and that person is unresponsive and not breathing normally, you should treat this as a cardiac arrest.

What Should I Do?
First, notify the paramedics. In the United States, you can do this by calling 9-1-1 (the Table and Figure). When you call, many dispatchers ask you if you know continuous-chest-compression or chest compression-alone cardiopulmonary resuscitation (CPR) and, if not, will give you instructions over the phone. Bystanders should immediately start chest compressions and continue until the paramedics arrive (the Table and Figure).

Although very important, chest compressions alone will not restore a heartbeat. A fibrillating heart requires an electric shock from a defibrillator to enable it to resume a normal heart beat. However, until then, chest compressions are the only means to move blood to the patient’s brain, heart, and other organs. Without chest compressions, a fibrillating heart will use up its energy supply and, by the time the paramedics arrive, may no longer be able to respond to a defibrillation shock. As a result, the person will not survive.

If an automated external defibrillator is nearby, have someone look for it and take it to the victim. Do not delay or interrupt chest compressions in the meantime. Attach the automated external defibrillator to the patient, switch it on, and follow the machine’s voice instructions (the Table). Instructions from modern automated external defibrillators are so simple that almost everyone can use them without prior training.

Can I Harm the Patient?
It is not dangerous to perform chest compressions even if the heart is still beating. You cannot make a patient any worse than he or she already is. Yes, you may break ribs, but the alternative is almost certainly death. The patient’s medical history is not important; conditions such as a pacemaker or bypass surgery should not concern you as a bystander.
Why Is Continuous-Chest-Compression CPR Better for Cardiac Arrest?

Presently, only 1 in 4 patients in cardiac arrest receive bystander CPR. Studies have found that bystanders are more willing to start resuscitation efforts if mouth-to-mouth ventilations are not required. In addition, continuous-chest-compression CPR is less complex and therefore easier to learn and remember. It is important to realize that, even when chest compressions are performed continuously and properly on a person in cardiac arrest, the blood flow they generate is so weak that any interruption in chest compressions, even for breathing, lowers the chances of survival.

When Should I Stop?

The simple answer: When either the patient or the paramedics tell you to stop or you are too tired to continue. However, do not stop pressing on the chest if the patient begins to gasp, opens his or her eyes, or moves something, because these are only signs that you are doing a proper job, not that the patient has recovered.

Why Is So-Called “Rescue Breathing” Not Recommended for Cardiac Arrest?

In the past, it was recommended that bystanders should perform CPR that alternates chest compressions with mouth-to-mouth ventilations. Research has shown that traditional CPR is not the best way to treat cardiac arrest. Unlike respiratory arrest, during which the victim does not get enough air and the heart eventually stops because it no longer receives oxygen, a person who collapses because of sudden cardiac arrest was usually breathing normally just seconds before. In this case, there is no point in delaying the start of chest compression by trying to deliver “rescue breaths” to a person whose blood and lungs are full of oxygen. Studies found that the blood of a cardiac arrest victim contains enough oxygen to sustain him or her for several minutes.

More important, mouth-to-mouth breathing takes valuable time away from urgently needed continuous-chest-compressions. Research has shown that lay individuals interrupt each set of chest compressions for an average of 16 seconds while they deliver the heretofore recommended “2 quick breaths.” Even if there are 2 or
more bystanders, it is more helpful to trade off chest compressions than to have 1 person breathe for the victim because compressing the chest hard and fast without stopping is very exhausting.

Standard CPR Still Needed for Respiratory Arrest
Despite continuous-chest-compression CPR being the method of choice for sudden unexpected collapse, conventional CPR with mouth-to-mouth breathing remains the appropriate rescue technique for patients who are in respiratory arrest. In respiratory arrest, which in most cases is caused by drug overdose, alcohol intoxication, carbon monoxide poisoning, a severe asthma attack, drowning, or choking, the primary problem is not the heart but a lack of oxygen (suffocation) that eventually leads to cardiac arrest. Note that in all these circumstances the collapse is neither sudden nor unexpected. Only 1 in 20 arrests is due to respiratory arrest. For respiratory arrest, chest compressions plus ventilation are recommended (the Table).

Disclosures
None.
New Concepts of Cardiopulmonary Resuscitation for the Lay Public:
Continuous-Chest-Compression CPR
Gordon A. Ewy

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