

# Cardiopulmonary resuscitation – 1

*Cardiopulmonary resuscitation, CPR*

Cardiopulmonary resuscitation (CPR) is one of the most important of all emergency medical procedures. If a person's heart or breathing has stopped, CPR is essential in order to avoid brain damage, which usually begins in 4 to 6 minutes after cardiopulmonary arrest. CPR is also a way of assessing and dealing with a medical emergency.

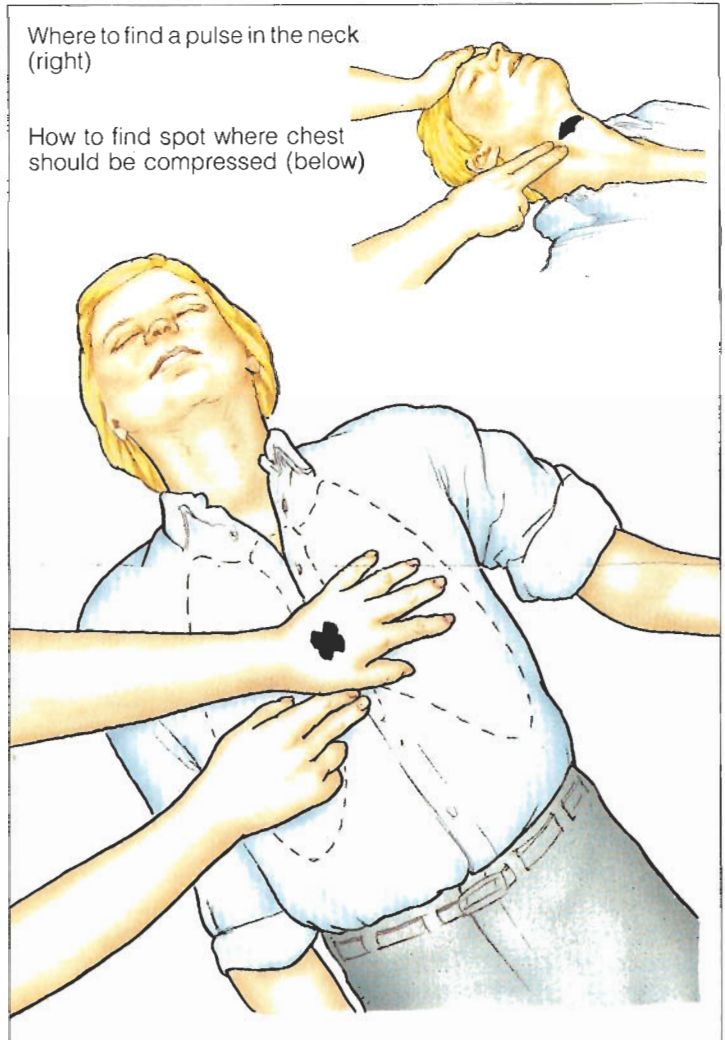
## First aid for cardiopulmonary arrest

The following is the CPR method taught by the American Heart Association. CPR methods taught by the American Red Cross or other emergency services may vary slightly, but all have the same goal of maintaining circulation until medical help is available.

1. Be sure the person is truly unconscious and not merely sleeping. Tap him or her on the chest, shout, and shake the shoulders gently. If this does not produce a response, call for help. (If you are alone, go on to the next steps.) When calling for help, be sure to give your precise location, address, and telephone number.
2. Position the victim for CPR. To do CPR, the person must be lying flat on the back on a straight, firm surface. If the victim is lying face down, you

Where to find a pulse in the neck (right)

How to find spot where chest should be compressed (below)



will have to roll him or her over. Do this by rolling the person toward you with one of your hands supporting the neck as you turn him or her over.

3. Open the airway. During unconsciousness, the tongue relaxes and can

block the airway. To clear the airway, place one of your palms across the forehead and, using your other hand, lift the chin up and forward. At the same time, gently push down on the forehead. In this head-tilt, chin-lift maneuver, the chin

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should be lifted so that the teeth are brought almost together, but do not fully close the mouth. As the jaw is tilted and the neck is extended, the tongue will move out of the airway. **NOTE:** Do not do this maneuver if there is any chance that the person has a neck injury. Instead, use your fingers to move the tongue out of the airway.

4. Check for breathing. Sometimes opening the airway is all that is needed to get the person breathing again. Look to see if the chest is rising and falling, listen for sounds of breathing, and place your cheek next to the victim's nose and mouth and see if you feel any air being expelled. Do this for several seconds. If you find no signs of breathing, try opening the airway again.
5. Begin mouth-to-mouth breathing. Remove your hand from the forehead and pinch his or her nostrils together. Take a deep breath and place your open mouth completely over the victim's mouth. Exhale completely into the person's mouth. Take your mouth away, inhale quickly, and repeat 4 times.
6. Check the pulse. Put one hand back on the forehead, take your other hand from under the



Proper placement of hands for chest compressions.

person's neck and put two fingers into the groove between the Adam's apple and the neck muscle on the side next to you. You should feel the pulse of the carotid artery here. Move your fingers around if you don't feel it at once, and keep trying for 5 or 10 seconds.

If there is no pulse, begin chest compressions. The objective is to maintain circulation until medical help arrives. This is done, in effect, by squeezing the heart between the breastbone and the backbone. The chest compression creates a positive pressure that forces blood out of the heart.

When you release the pressure, blood flows back into the heart.

To do CPR, you should:

1. Kneel next to the victim's chest, midway between the shoulder and waist.
  2. Find the tip of the breastbone (as illustrated), and place your hands in position for CPR.
  3. Shift your weight forward, and with your elbows locked, bear down on the victim's chest, compressing it 1½ to 2 inches.
  4. Compress the chest for about a half second, then relax it for a half second, compress again, and so forth. As you compress and relax, count "1 and 2 and 3 and 4 and 5." Each time you reach 5, you should have done 5 compressions.
  5. After you have done 15 compressions, take your hands off the chest, and place them on the neck and forehead as before. Pinch the nostrils, then administer 2 strong breaths into the mouth.
  6. Resume the position for chest compressions, and do 15 more. After 4 cycles of compressions and mouth-to-mouth breathing, check again for a pulse and breathing.
  7. If neither pulse nor breathing have returned, resume the CPR. Continue until help arrives, the victim revives, or you can no longer continue.
- The accompanying drawings show how to do the basics of CPR.