

Mayo Clinic Family Health Disc 2.0 Copyright (c) 1995 IVI Publishing Inc.
and Mayo Foundation for Medical Education and Research

Choking, Breathing Emergencies, and Resuscitation

Choking results from a blockage of the respiratory passage in the throat or windpipe. The flow of air to the lungs is blocked; in turn, the circulation of oxygen to the brain and other cells ceases. If the choking is not dealt with promptly, unconsciousness and death may result.

Choking, heart disease, or other causes may also result in the stoppage of the heart and breathing. In such an emergency, breathing and blood circulation must be restored if the life of the injured person is to be saved. Resuscitation is the process of restoring breathing. Cardiopulmonary resuscitation (CPR) is a technique that combines artificially breathing for the person (mouth-to-mouth resuscitation) and compressing his or her chest to aid circulation.

On the following pages you will learn the basics of determining the nature of the emergency at hand—that is, is your dinner partner having a heart attack or choking on a piece of steak? In addition, you will read about how to react to and deal with the medical emergency, including techniques for dislodging an obstruction in the airway and what is involved in performing CPR. (Effective CPR is a practiced skill. We recommend taking a class in CPR from your local Red Cross or hospital.)

Recognizing an Obstructed Airway

Choking is often the result of inadequately chewed food becoming lodged in the throat (pharynx) or windpipe (trachea). Most often, solid foods such as meats are the cause.

Commonly, persons who are choking have been talking while simultaneously chewing a chunk of meat. False teeth may also set the stage for this problem by interfering with the way food feels in the mouth while it is being chewed. Food cannot be chewed as thoroughly with false teeth as with natural teeth because less chewing pressure is exerted by false teeth.

Panic is an accompanying sensation: The choking victim's face often assumes an expression of fear or terror. At first, he or she may turn purple, the eyes may bulge, and he or she may wheeze or gasp.

Coughing Versus Choking

If a morsel of food "goes down the wrong pipe," often the coughing reflex will resolve the problem. In fact, a person is not choking if he or she is able to cough freely and has normal skin color. However, if the cough is more like a gasp and the person takes on a bluish tinge, the individual is probably choking.

If in doubt, ask the choking person whether he or she can talk. If the person is capable of speech, then the windpipe is not completely blocked and oxygen is reaching the lungs.

The Universal Sign

Clearing an Obstructed Airway

There are several techniques for opening an obstructed airway. First, determine that the individual is unable to breathe: If so, the person will be unable to speak, and his

or her skin, if white, will be taking on a blue, gray, or ashen color.

The Heimlich maneuver is perhaps the best-known technique, but there are several other options for certain situations, as follows:

The Heimlich Maneuver

Finger Sweep.

The simplest method involves reaching a finger into the back of the throat. If you can see into the person's mouth, can you see the cause of the blockage? If so, sweep a finger into the back of the mouth to clear the airway.

This method works only if the blockage is at the very back of the mouth or high in the throat. Be very careful not to push the food or object deeper into the airway. Do not perform a finger sweep in children less than 8 years old unless an object is visible.

Finger Sweep

Unconscious Victim.

If the individual has collapsed, position the person on his or her back, look inside the mouth, and do a finger sweep. Falling unconscious and relaxing muscles may have just loosened the object from the throat. If not, kneel astride the person: place your hands at the base of the rib cage. The heel of one hand should be down, the fingers of the upper hand between those of the lower, grasping the palm. Deliver 5 quick upward thrusts to the abdomen, remembering to be more gentle with a child less than 8 years old.

Abdominal Thrusts

Choking Infant.

Assume a seated position. Hold the infant face-down on your forearm which, in turn, is resting on your thigh. Thump the infant gently five times firmly on the middle of the back using the heel of your hand: The combination of gravity and the blows to the back should release the object blocking the airway.

Infant Obstructed Airway

If the back blows are unsuccessful, hold the infant face-up on your forearm with the infant's head lower than his or her trunk. Using two fingers placed at the center of the infant's breastbone, give five quick chest compressions. If breathing has not resumed, repeat the back blows and chest thrusts: Call for help.

Mouth-to-Mouth Resuscitation.

If one of these techniques opens the airway but the infant does not resume breathing, perform mouth-to-mouth resuscitation (part of CPR).

Cardiopulmonary Resuscitation

This lifesaving technique is applicable to a range of emergencies, including cardiac arrest, choking episode, and drowning. Each has key components in common: The person is unconscious and has ceased breathing. Training in cardiopulmonary resuscitation (CPR) will prepare you to effectively handle these life-threatening

emergencies.

Before proceeding with resuscitation, you must ascertain that the person is actually unconscious and has stopped breathing. You can actually do harm by performing CPR on somebody who does not need it.

Death comes quickly when the heart stops: The absence of oxygenated blood can cause irreparable brain damage in only a few minutes, and death can occur in 8 to 10 minutes. Time is all-important when you are helping an unconscious person who is not breathing. Thus, the first rule if you are alone is to immediately begin cardiopulmonary resuscitation: After 1 minute activate the emergency medical services (EMS) system by calling 911 or your local ambulance. (If you are not alone, direct someone to call EMS as soon as you determine that the unconscious person is not breathing).

The American Heart Association, which sets standards CPR, distinguishes the three parts of the CPR process with the familiar letters ABC: A is for airway, B is for breathing, C is for circulation. Let's take the steps in order:

Clear the Airway.

"A" is for airway. Many procedures are involved in clearing the victim's airway, beginning with an assessment.

Are You Okay? The first step in dealing with an unconscious person is to be sure that he or she is not simply resting or sleeping. Firmly shake or tap his or her shoulder and ask, "Are you okay?"

Summon Assistance. If you get no response, immediately shout for help. If you are alone, begin CPR immediately and continue for one minute before seeking assistance. If you are not alone, direct someone to call your local emergency number (in many communities the number is 911) or your local ambulance service.

Position the Victim. Lay the person on his or her back. If necessary, roll the person over so that he or she is face up. Position yourself at a right angle on your knees, perpendicular to the person's neck and shoulders.

Head Tilt/Chin Lift. This is the primary maneuver for opening an airway. Position your palm on the person's forehead and gently push backward, placing the second and third fingers of your other hand along the side of the person's jaw, tilting the head and lifting the chin forward to open the airway.

Modified Jaw Thrust. If you suspect a neck injury, a modified jaw thrust (without the head tilt) may be used. This is done by placing your hands on each side of the person's face, your thumbs on the cheekbones (but not pushing), and pulling the jaw forward with your index fingers.

Examine the mouth to make sure no foreign material is present. If present, use a finger sweep to clear it.

Adult CPR

Check for Breathing. Check for breathing, positioning your ear directly over the person's mouth. Look across the person's chest for the rise and fall of breathing. Listen for breath sounds. Feel for air on your face. If no breathing is evident, begin mouth-to-mouth resuscitation immediately.

Breathe for the Person.

"B" is for breathing. In the absence of emergency equipment or professional medical help, the restoration of the flow of oxygen to the lungs is best done by mouth-to-mouth resuscitation.

The basis of mouth-to-mouth resuscitation is simple: You are to provide breathing for the victim. You are to expel breath from your lungs into the victim's through that person's nose or mouth.

Deliver Two Slow Breaths. Position yourself at a right angle to the person's shoulder. Use the head tilt/chin lift maneuver and pinch the person's nose closed using your thumb and forefinger.

Take a deep breath. Open your mouth wide, and place it tightly over the victim's mouth. Exhale into the victim. Remove your mouth from the victim's, inhale, and do it again. Deliver two big breaths. Observe the person's chest with each breath to note whether the air you are breathing into the person is actually causing his or her lungs to expand. Make sure you let the person exhale before delivering more breaths. If the victim's stomach bulges excessively, the airway may be blocked, or your breaths may be too full.

Check for a Pulse. After you have delivered two breaths, position two fingers just to the side of the victim's Adam's apple. If the heart is pumping, the carotid artery on either side of the neck should be pulsating. If you do not feel it immediately, move your fingers a fraction of an inch up or down to be sure you are in the right place.

If There Is No Pulse. If there is no pulse, cardiac compressions are necessary to circulate blood to the brain.

Continue Breathing. If the person has a pulse but is not breathing, continue mouth-to-mouth breathing. Using the same technique, blow a big breath into the adult victim every 5 seconds (12 breaths per minute). Take your mouth away between breaths. Listen for signs of breathing and watch chest movement.

If the victim is breathing but the breaths are notably weak, shallow, or labored, mouth-to-mouth resuscitation may still be appropriate. However, coordinate your breathing assistance with the victim's breathing: Deliver a breath when he or she inhales, and allow the person to exhale before you breathe for him or her again.

Call EMS if you haven't already done so. Continue to breathe for the person until he or she breathes on his or her own or until professional medical help arrives.

Restore Circulation.

"C" is for circulation: The blood flow must be restored in order to deliver oxygen to the brain. Without oxygen, brain cells will die and, in a matter of minutes, irreversible damage can result.

If you are unable to find a pulse in an unconscious person, heart compressions are necessary to restore circulation. Also called closed heart massage, the heart compressions must be coordinated with mouth-to-mouth resuscitation: The breathing delivers the air to the lungs, then the heart massage pumps the oxygenated blood to the brain and other parts of the body.

Just as you are to act as a breathing machine for the lungs when you perform mouth-to-mouth resuscitation, performing a heart massage means you are artificially pumping the heart muscle.

Position Your Hands. Work from a kneeling position at right angles to the victim's chest. Find the base of the breastbone at the center of the chest where the ribs form a V. Position the heel of one hand on the chest immediately above the V; with the other hand, grasp the first hand from above, intertwining the fingers.

Lock Your Elbows. Shift your weight forward and upward so that your shoulders are over your hands; straighten your arms and lock your elbows.

Pump the Heart. Shift your weight onto your hands to depress the victim's chest (it should fall about 1 1/2 to 2 inches in an adult). Count aloud as you do it, five times in an even rhythm, slightly faster than 1 compression per second (80-100 per minute): One-thousand-one, one-thousand-two, and so on. Repeat the pattern three times for a total of 15 chest compressions.

Breathe for the Victim. You must also give the person oxygen. Use the same technique outlined above for mouth-to-mouth resuscitation. Use the head tilt/chin lift maneuver to open the airway. Pinch the nose closed with the thumb and forefinger. Take a deep breath, then cover the victim's mouth entirely with yours. Exhale into the victim. Give two slow breaths. Repeat.

Alternate Pumping and Breathing. Pump the person's chest 15 times, then breathe for him or her twice. Establish a regular rhythm, counting aloud. Reassess pulse and breathing after 4 cycles. Call EMS if you haven't already done so. Continue until help arrives if physically possible.

Performing CPR on a Child.

The procedure is essentially the same. The differences are that you use only one hand and pump the child's chest 5 times. You then breathe for the child once, and more gently. Reassess every few minutes.

Performing CPR on an Infant

Child CPR

Two-Person (Two-Rescuer) CPR.

Before beginning, together assess the victim. Then perform one-person CPR while the other rescuer calls 911 for an ambulance. When the other rescuer returns, begin two-person CPR.

Two-person CPR is similar to one-person CPR with the exception that one person provides breathing assistance while the other pumps the heart. Pump the heart at a rate of 80 to 100 times a minute. After each five compressions, a pause in pumping is allowed for a breath to be given by the second rescuer.

Breathing Difficulty Due to Croup, Epiglottitis, or Bronchitis

Severe Asthma Attack

In people with asthma, occasional or even frequent asthma attacks occur. Usually the key symptom is a difficulty in breathing, accompanied by a tightness in the chest and coughing that may bring up excess mucus. Wheezing will be more pronounced when breathing out than when breathing in. Your physician's treatment strategy will be aimed at minimizing or eliminating these breathing difficulties (see Asthma).

Occasionally, however, more serious or even life-threatening asthma attacks may occur. Symptoms of a serious asthma attack may include extreme difficulty in breathing, a bluish cast to the face and lips, severe anxiety, an increased pulse rate, and heavy perspiration. Severe asthma attacks also may occur in a non-asthmatic person exposed to something that causes severe difficulty in breathing, such as croup or insecticide sprays.

Emergency Treatment.

- 1. Establish that the problem is not a choking emergency. People with asthma, like the rest of us, choke on food or other foreign objects that block the airway. If the incident occurs during a meal, see Recognizing an Obstructed Airway.**
- 2. Keep calm and try to reassure the person having the asthma attack.**
- 3. Call the person's physician; if you are unable to reach the physician, call the emergency room at your local hospital.**

Before you call, locate any asthma medications being taken by the person. When speaking with the physician, identify the person with the asthma attack by name and age. Describe the symptoms being experienced and other details about the person's recent medical history. Tell what medications and what dosages the person has been taking.

Follow the physician's instructions: He or she may suggest you go immediately to the hospital or may send an emergency vehicle. In some cases, the recommendation may be that you stay calm, medicate the person with doses of the drugs on hand, and allow the episode to pass.