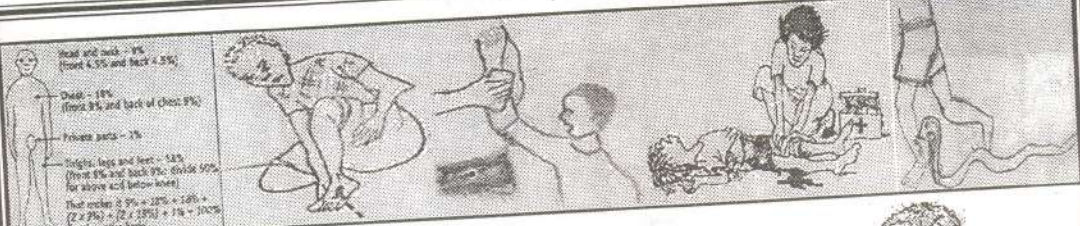
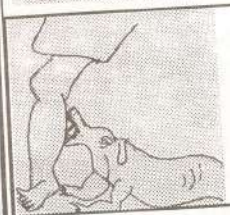


Head and neck - 8%
 (Front 4.5% and Back 3.5%)
 Face - 3%
 (Forehead 1.5% and back of head 1.5%)
 Private parts - 1%
 Arms - 13%
 (Forearm 6% and hand 7%)
 Legs and feet - 13%
 (Forearm 6% and hand 7%)
 For above and below knee
 Total body 100% = 20% + 20% + 20% +
 (2 x 20%) = (2 x 20%) + 10% = 100%
 For the entire body



FIRST AID HAND BOOK



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FIRST AID

First Aid is the immediate treatment given to the victim of an accident or sudden illness, before medical help is obtained.

Aims of First Aid

The main aims of First Aid are:

- To preserve life
- To promote recovery
- To prevent the worsening of the victim's condition

CHAPTER 1

VICTIM ASSESSMENT AND GOALS OF FIRST AID

The effective application of first-aid techniques depends primarily on the ability of the rescuer to assess the situation and to make the proper decisions without delay. These situations can be divided into three types:

- Life-threatening emergencies that require immediate action on the part of the rescuer as well as complex medical follow-up.
- Potentially serious situations that are not life-threatening but that require medical care. This is the most difficult situation for a layperson to judge without first-aid training.
- Those that require simple first aid or self-care.

The goals of first aid are:

1. To restore and maintain vital functions. **The ABC of basic life support (Airway, Breathing, and Circulation)** are always the first priority.
2. To prevent further injury or deterioration
3. To reassure the victim and make him or her as comfortable as possible

The order in which first aid should be provided is:

- **First: Assess victim for signs of life.** For an adult if signs of life are absent, call for help. (For children, attempt rescue breathing for one minute before calling for help.)
- **Second: Restore respiration if breathing has stopped.** (See "Cardiopulmonary Resuscitation" and "Choking and Obstructed Airway")
- **Third: Restore heart action if there is no discernible heartbeat or pulse.**
- **Fourth: Stop bleeding.**
- **Fifth: Treat for shock.**

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- If there are other bystanders, one should immediately summon help while emergency first aid is being administered. After help has been called, other first-aid measures can then be initiated, depending upon the circumstances.

CHAPTER 2 CARDIOPULMONARY RESUSCITATION

DEFINITION

Cardiopulmonary resuscitation encompasses more than one simple rescue technique for saving someone whose heart or breathing has stopped. It requires learning the physical skills of artificial respiration (mouth-to-mouth breathing) and closed chest compressions as well as the proper timing and a specific sequence in which to use the skills.

Always perform life support techniques as quickly as possible after an injury. Except under very unusual circumstances, brain damage is likely to occur 4 to 6 minutes after cardiopulmonary arrest and the likelihood and severity of this damage increase each minute thereafter. In the case of a life-threatening medical emergency, life-support techniques should be offered in the following order:

1. Call for help.
2. Restore breathing if breathing has stopped (particularly important for children pulled from the water).
3. Restore circulation if there is no heartbeat or pulse.
4. Stop any bleeding.
5. Treat for shock.

DIAGNOSIS: WHEN TO OFFER CPR

CPR should be offered to victims who are unconscious and have no breath or heartbeat. When you approach an apparently unconscious person, call and shake the victim to determine whether he or she is indeed unconscious or merely sleeping.

If the victim is indeed unconscious, you must be sure that the **airway—the passage between the mouth and lungs**—is not blocked by the tongue or an object, which would prevent breathing. If there is no obstruction, determine if the victim is breathing and if there is a pulse, indicating circulation.

Depending on the state of the victim, you will start mouth-to-mouth breathing alone or chest compressions interspersed with breathing. You must continue until the victim revives, a trained person takes over, or you become exhausted.

PERFORMING CPR

Treatment must be offered quickly to avoid brain damage from lack of blood and oxygen. To help you establish a sense of timing, and to make sure that you are spending adequate but not too much, time on each step, the recommended time span for each activity is provided in parentheses.

The three most important emergency medical procedures are:

- Artificial respiration (for drowning victims, this action alone may be life-preserving)
- Cardiopulmonary resuscitation (CPR)
- Clearing obstructed airways from choking (Heimlich maneuver)

FIRST STEPS (4-10 SECONDS)

1. ESTABLISH UNRESPONSIVENESS

When presented with a seemingly unconscious victim, first establish unresponsiveness by shaking the person firmly and shouting "Are you okay?" It is important to be sure that the person really is unconscious, so that you don't do CPR unnecessarily.



Establish unresponsiveness by shaking the victim gently by the shoulders. At the same time, call out for help.



Support the victim's neck with one hand as you turn him over with the other.

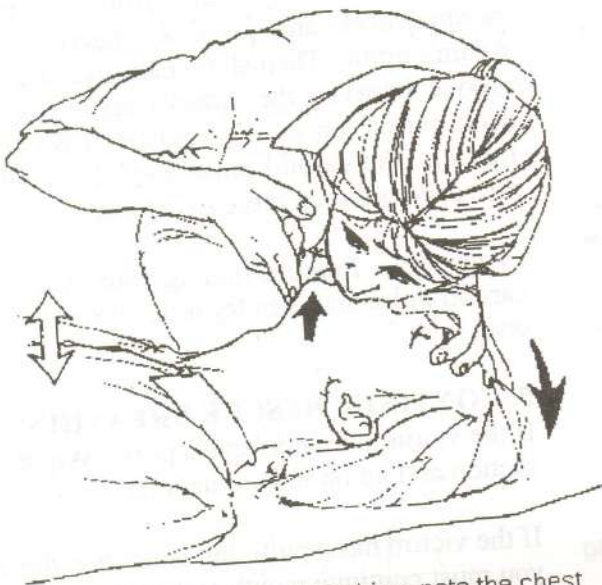
2. CALL FOR HELP At the same time as you establish unconsciousness; call out for help, even if no one is in sight.

3. POSITION THE VICTIM

If you find the victim lying face down, turn him over, rolling him toward you. First, take the arm that will be on the underside as he rolls and stretch it out straight over his head. Put one of your hands behind his neck to support it as you turn him (see figure) with your other hand, grasp his upper arm and roll him over gently.

If you see the chest rise and fall, but do not hear or feel air, the victim is attempting to breathe, but the airway is still blocked.

3. GIVE 2 EVEN BREATHS (3-5 SECONDS)



When you give rescue breathing, note the chest movements with the breaths.

If there is no evidence of breathing, keep your hands in place on the forehead and lifted chin (see figure). Using the hand on his forehead, pinch his nostrils together tightly with your thumb and forefinger to keep the air from escaping through his nose.

Take a deep breath, open your mouth wide, and place it completely over the victim's mouth to make a tight seal with your lips. Exhale deliberately and evenly 2 breaths of 1 to 1 1/2 seconds each. Take your mouth away to inhale between breaths and to allow air to escape from the victim's lungs.

As you administer rescue breathing, note chest movement as an

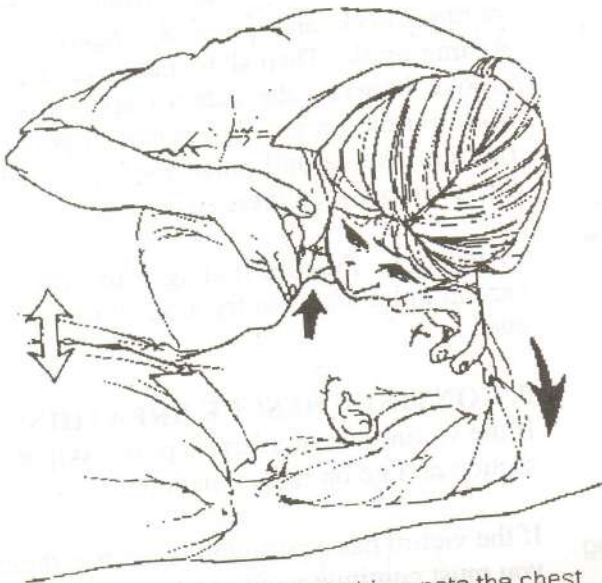
indication of an open airway. Although you will feel some resistance from the victim's lungs, you should be able to feel air going in as you blow and to see the chest rise and fall.

Practice tip: To get a sense of what rescue breathing feels like, blow against your tightly clenched fist. The resistance you feel is akin to the feeling of a blocked airway. Now make a tiny hole in your fist and blow again. You will have to blow forcefully and you will still feel some resistance, but you should feel the air going through.

4. CHECK FOR PULSE (5-10 SECONDS)

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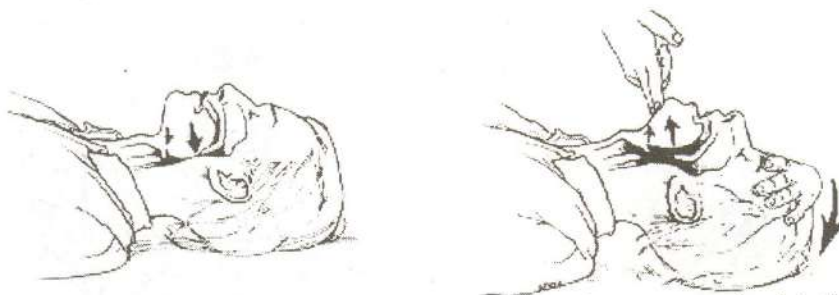
4. CHECK FOR PULSE (5-10 SECONDS)

RESTORE BREATHING (3-5 SECONDS)

1. OPEN THE AIRWAY

Once the person is on his back and you are sure he is unconscious, open the airway to be sure that he can breathe. In an unconscious person, the tongue relaxes and falls against the back of the throat, preventing air from getting from the mouth and nose to the lungs

Kneel at right angles to the person's shoulder on whichever side is more convenient or comfortable. Using the hand closer to the victim's head, place your palm across his forehead, and firmly tilt the head backward. Two fingers of the other hand are placed below the bone of the chin and lifted forward. This chin lift tilts the head back and opens the airway (see figure below). Avoid closing the mouth completely as you will need the lips open slightly for mouth-to-mouth breathing.



The drawing at left shows airway obstruction from the tongue and epiglottis. Figure at right shows the airway obstruction cleared by tilting the head and lifting the chin.

If an injury to the neck is suspected, the chin lift alone should be used to open the airway. Tilting of the head in the presence of injury to the spine or the neck could cause further injury to the spinal cord.

Practice tip: Lie on the floor and extend your neck back until your chin is pointing straight up and you have trouble swallowing. This is approximately the correct position for opening the airway.

2. CHECK FOR BREATHING

With your hands still in place on the victim's forehead and lifted chin, check for breathing. Looking toward his chest, bend over so that your cheek is almost touching his nose and mouth.

- Look to see if his chest is rising and falling.
- Listen for sounds of breathing.
- Feel if there is expired air on your cheek.

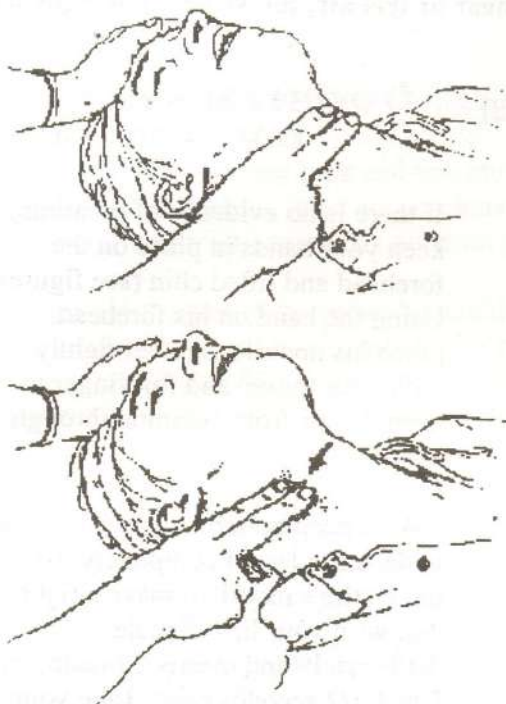
and your elbows are locked. Now, bear down and then come up, bear down and come up, keeping your elbows locked. In order to create enough pressure to circulate the blood, you must depress the chest of an average adult 1 1/2 to 2 inches with each compression. The proper speed is 80 to 100 compressions per minute. To get the right speed and rhythm, count out loud as you do the compressions, saying "1 and 2 and 3 and 4 and 5!" Rest on each "and," then compress on each number.



Follow the bottom margin of the rib cage up the notch where it meets the breastbone.



Place the middle finger on the notch and the index finger next to it.



Locate the carotid pulse by placing 2 fingers on the Adam's apple, then sliding them into the groove on the side of the neck toward you.

Once you have given 2 even breaths, check to see if the victim has a pulse. The easiest place to check a pulse is on either of the carotid arteries, which run down on both sides of the neck. Keeping one hand on the forehead, take your hand from under the victim's neck and place 2 fingers on his Adam's apple. Then slide them over into the groove between the Adam's apple and the neck muscle on the side closer to you. (see figure). The carotid pulse should be felt in the space between these structures.

Practice tip: Practice finding your own carotid pulse and then try it on someone else.

5. CONTINUE RESCUE BREATHING

If the victim does not have a pulse, skip this section and go on to Circulation.

If the victim has a pulse but is not breathing, you must continue mouth-to-mouth respiration. Check the pulse after every 12 breaths. If there is a pulse, continue breathing once every 5 seconds or 12

breaths per min until the victim begins to breathe on his own or medical help arrives.

RESTORE CIRCULATION

If there is no pulse, you will have to create artificial circulation of the blood by compressing and releasing the chest.

1. POSITION YOURSELF

Kneel next to the victim's chest, about midway between shoulder and waist. Find the bottom margin of the rib cage, down near the abdomen. Using the hand closer to the victim's feet, follow the edge of the ribs as your fingers move up toward the center of the chest. You will feel a notch where the ribs meet the breastbone (see figure below, left). Put your middle finger on this spot and then put your index finger next to your middle finger (see figure on the right) Now place the other hand next to the index finger. Place your other hand on top of the first. You can either interlace your fingers or keep them straight, *but at no time should they rest on the chest (see figures). To avoid injuring the ribs, only the heel of your hand should touch the chest.*

2. BEGIN COMPRESSIONS

Shift your weight forward on your knees until your shoulders are directly over your hands

CHAPTER 3

CHOKING AND OBSTRUCTED AIRWAY

DEFINITION AND CAUSE

People who are choking may still be conscious and have circulation but are unable to breathe because something- usually food-is lodged in the throat. Frequently, a choking victim clutches the throat with thumb and forefinger, a universal signal of distress.

Children choke more frequently than adults, usually on a toy or food fragment.

DIAGNOSIS AND TREATMENT OF A CONSCIOUS VICTIM

Before you do anything to assist a person you think is choking, ask the victim to talk. If talk is possible, the airway is not completely obstructed and it is best to leave the victim alone until he can dislodge the food or object himself by coughing, throat-clearing, or with his fingers. If the victim cannot talk, the airway is completely obstructed and you should assist in dislodging the obstruction. The technique recommended by the American Heart Association is a series of abdominal thrusts known as the *Heimlich maneuver*.

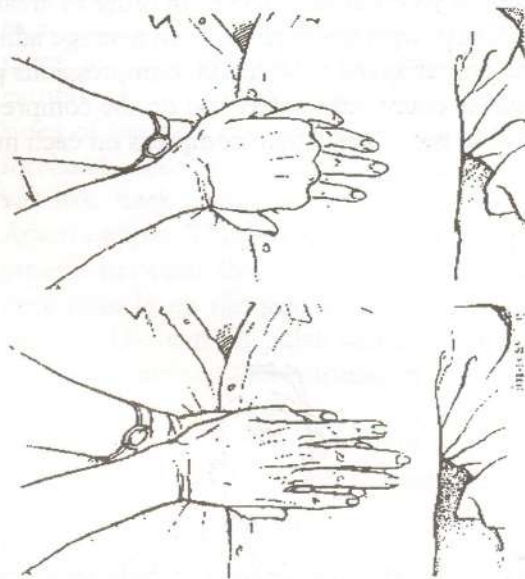
ABDOMINAL THRUSTS, OR HEIMLICH MANEUVER

1. The victim should be sitting or standing. Grasp the victim from behind with your hands around his waist.
2. Make a fist with one hand and place the thumb side on the victim's abdomen, midway between the waist and the rib cage. Grasp the fist with your other hand and thrust forcefully inward and upward. Each new thrust should be a separate and distinct movement (see figure below left). This maneuver can be done successfully if the victim is sitting in a straight-backed chair (such as in a restaurant).

You can also perform the Heimlich maneuver on yourself. Make a fist with one hand, place the thumb side midline in the upper abdomen above your navel and below your breastbone, grasp the fist with your other hand and then press inward and upward with a quick motion.



Place the heel of the other hand next to the index finger.



Placing one hand on top of the other, either interlock the fingers or keep them straight.

3. ALTERNATE COMPRESSIONS WITH RESCUE BREATHING

After each 15 compressions (counting to 5, 3 times), perform 2 rescue breaths. Take your hands off the chest, place them on the chin and forehead as before, pinch the nostrils, seal the mouth, and give 2 strong breaths, watching out of the corner of your eye for the chest to rise.

Go back to the chest, find the correct hand position again, and do 15 more compressions, followed by 2 more breaths. Repeat this cycle of 15 and 2 for a total of 4 times, which takes about 1 minute. Then check again for pulse and breathing. If neither has returned, you must continue alternating compressions and breathing until the patient revives, qualified help comes, or you are too exhausted to continue.

CPR ON INFANTS AND CHILDREN

Although the steps and the sequence in which they are performed remain the same for infants and children as for adults, modifications should be made to compensate for the smaller lung capacity and faster respiration rate of babies. In infants excessive backward tilting of the head should be avoided. It is easier to seal your mouth over both the baby's nose and mouth. Remember that an infant will need much less air than an adult. A slow, deliberate delivery will reduce the likelihood of forcing air into the stomach, causing distention. Rescue breathing is the single most important maneuver in rescuing a non breathing child or infant. If repeated rescue breathing attempts do not result in airflow into the lungs, evidenced by chest movement, a foreign body obstruction should be suspected. Chest compressions should be considerably less forceful than those used on adults.



Abdominal thrusts on an unconscious victim.



Chest thrusts on a pregnant or obese unconscious victim.

3. FINGER SWEEP

Sweep the mouth of the victim if abdominal or chest thrusts do not dislodge the obstruction.

- 1) Open the victim's mouth wide by grasping the chin.
- 2) Still holding the chin, bend the forefinger of the other hand and with your hooked finger probe deep into the mouth along the insides of the cheeks. Then go back to the open airway position and attempt rescue breathing (see figure below).
- 3) If the airway is still not open, back blows, abdominal (or chest) thrusts, finger sweeps, and rescue breathing should be repeated rapidly as many times as is necessary to remove the obstruction. Occasionally, an open handed blow to the back may dislodge the obstruction and can be tried at this time. The longer the victim goes without oxygen, the more relaxed the muscles become, and this may release the foreign object, so that one of these maneuvers may ultimately be successful.



Grasp the chin while using the hooked forefinger of the other hand to sweep the mouth for the obstruction.



Abdominal thrusts (Heimlich maneuver) on conscious victim.



Chest thrust for pregnant or obese conscious victims.

CHEST THRUSTS If the victim is pregnant or especially obese, it is safer and easier to do a chest thrust rather than an abdominal maneuver. The same two-fist technique is used, but the victim is grasped at the breastbone instead of the abdomen. (see figure above right)

DIAGNOSIS AND TREATMENT OF AN UNCONSCIOUS VICTIM

If you have begun the initial steps of CPR, including attempts to open the airway, and you cannot see the chest rise and fall when you administer rescue breathing, you should assume that the airway is obstructed and assist the victim as follows.

- 1. ABDOMINAL THRUSTS** 1. Kneeling next to or astride the victim, place the heel of one hand on the abdomen midway between the waist and the rib cage.
2. Place the other hand on top of the first (as you would for chest compressions, but on the abdomen rather than the chest) and thrust inward and upward. Give several quick thrusts.

CHAPTER 4

FRACTURES

Fractures are of two types:

Simple or closed fractures: The broken bone is not visible through the skin nor is there a skin wound near the fracture site.

Compound or open fracture The bone protrudes through the skin or the skin has been cut due to the injury. Here a skin wound is always present.

All broken bones need medical attention. If you are not sure whether or not a bone has been broken, consult the doctor

GENERAL FRACTURE SYMPTOMS

- Inability to move the injured part
- Pain, tenderness to the touch
- Swelling, discoloration
- Deformity or misalignment
- Bone pokes through the skin (compound fracture)
- Internal bleeding (particularly in the case of broken ribs or pelvis)
- Bone can be heard or felt breaking

GENERAL TREATMENT OF FRACTURES

- Check the ABC's (airway, breathing, circulation). Survey the victim for other injuries and observe closely for signs of shock.
- No attempt should be made to reset or straighten a broken bone; it should be splinted where it lies, with a minimum of movement.
- If the bone has pierced the skin, bleeding should be controlled by direct pressure. Place a sterile dressing over the wound, splint the extremity, and take the victim to an emergency room.

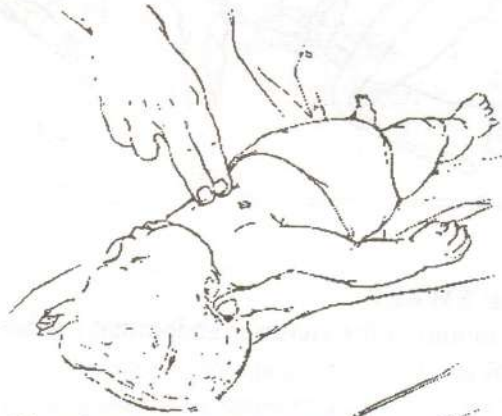
Does the victim have severe bleeding from an open fracture?

- Monitor for shock, breathing and pulse.
- Have the victim lie flat.
- Elevate the victim's feet 8 to 12 inches.
- Cover the victim with a blanket or other item to keep him or her warm.
- Remove clothing covering the wound. Cut clothing away, if necessary.
- To protect yourself against possible disease:

IN INFANTS: If an infant does not have an infection and the airway is completely obstructed, a combination of back blows and chest thrusts should be used to dislodge the obstruction, whether or not the infant is conscious. If the airway is only partially blocked (the infant can make noise) and the infant is making attempts to breathe and cough, let her continue. Use a combination of back blows and chest thrusts to dislodge the airway obstruction while straddling the infant on your arm.



Deliver back blows with one hand while you support the infant with the other.



Chest thrusts to clear an obstructed airway use the same fingers and position as chest compressions, but a jabbing motion.

TRANSPORTING THE VICTIM

A fundamental rule of first aid dictates that the victim should not be moved but should be treated where he/she lies. However, there are circumstances in which a severely injured person must be moved to prevent further injury from fire, an explosion, fumes, or other potentially life-threatening hazards. Follow these guidelines.

- If possible, short-distance transport should be accomplished on a firm surface such as a stretcher, or a board that will provide even support for the entire body
 - If the victim must be dragged to a safe place, pull her lengthwise, not sideways.
 - If possible, try to place a blanket under the person so that the edge of the blanket can be pulled carrying her weight.
 - In any situation where spinal injury is suspected and the patient must be moved, the spine and the neck must be kept in alignment. Do not move the neck.
-
-

blood vessels in this part of the body, but bleeding can usually be easily controlled with pressure.

- Take the person to a doctor.

SYMPTOMS OF A NECK OR SPINE FRACTURE

- Neck or back pain
- Odd position of the head or neck
- Feelings of numbness, weakness, or paralysis in an arm, hand, leg or other part of the body

TREATMENT

- Check for vital signs and perform CPR if necessary.
- Keep the person absolutely still. Reassure the person if she is conscious, but do not allow her to move the head or neck. Immobilize the individual's head and neck in the position in which she lies. Support the back of the neck by carefully sliding a rolled pad underneath and by placing pads, pocketbooks, or other stabilizing items at the sides of the head.
- If the person must be moved because of immediate, life-threatening danger (for example, fire, explosion, or noxious fumes), head and spine movement must be prevented. Immobilize head and spine by rolling her onto a firm object such as a stretcher, board, or door. If these are not available, a blanket may be used under the victim and dragged along the ground (see figure). At all times head and spine movement must be prevented.



Transporting the victim. If it is absolutely necessary to remove a victim from an accident scene, try to place the patient on a blanket, and then drag the blanket instead of bodily pulling the injured person. If a blanket is not available, drag the person by the armpits using your body as a support.