

FIRST AID

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1. GENERAL

1.01 This section is reissued to include Rescue Breathing as the Bell System preferred choice of artificial respiration methods.

1.02 It conforms to the latest procedures recommended in the American Red Cross First Aid Textbook which is standard for Bell System first aid instruction.

1.03 **KNOW YOUR FIRST AID.** Do not attempt to save time and effort by using second-best methods of First Aid. It is just as important to know the "don'ts" of First Aid as it is to know the "do's."

1.04 Report all injuries to your supervisor as soon as possible.

2. THE WHY AND HOW OF FIRST AID

2.01 First Aid is defined as the immediate and temporary care given to the victim of an accident or illness until the services of a physician can be obtained.

2.02 First Aid training also shows how injuries occur, and helps to reduce accidents by sharpening the desire to prevent injuries.

2.03 In case of serious injury, act quickly as each second of delay is important. Be reluctant to make statements to the victim and to bystanders about the injuries. It is not the First Aider's province to diagnose, evaluate, or predict.

2.04 General Directions

- Keep the victim lying down. Do not transport a seriously injured person unless it is necessary to do so.
- Treat in order listed:
 - Severe bleeding (Part 4.)
 - Stoppage of breathing (Part 7.)
 - Poisoning by mouth (Part 8.)
 - Shock (Part 6.)
- Check for other injuries and plan what to do.
- Obtain the services of a physician. (See next part.)

3. GETTING THE DOCTOR OR AMBULANCE

3.01 If possible, stay with the victim and ask someone else to call a doctor. If necessary, call the police for this purpose. (Consult your List of Physicians and Hospitals, if available.)

3.02 When the doctor is called, give him the following information:

- Cause and probable extent of the injury
- Location of the victim
- What First Aid is being given
- What First Aid supplies are available
- Whether an ambulance is needed

4. WOUNDS AND BLEEDING

4.01 A wound is a break in the skin or mucous membrane. It is caused by force and usually extends into the underlying tissue. Control bleeding and protect wounds from contamination. The danger of tetanus (lockjaw) should be considered in ALL WOUNDS. Guard against infection. (If it occurs, see Paragraph 13.12.)

4.02 Wounds with Severe Bleeding

- Severe bleeding must be stopped without delay. Apply direct pressure on the wound, using a cloth pad or even bare hand, if necessary. (Fig. 1)

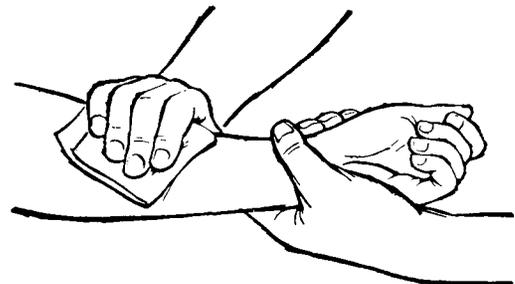


Fig. 1—Direct Pressure on the Wound

- Elevate the bleeding part, if possible.
- If an arm or leg is involved, and direct pressure must be delayed or is not entirely effective, apply digital pressure at pressure points. (Figs. 2 and 3)

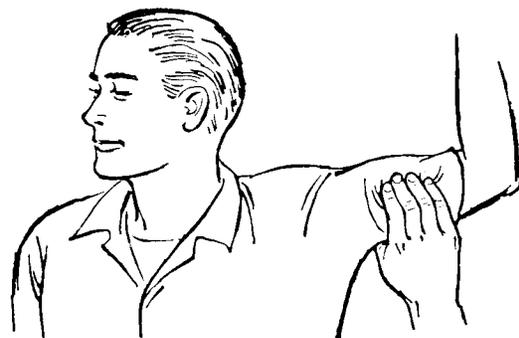


Fig. 2—Finger Pressure on Brachial Artery

Pressure on the inner half of the arm, midway between the elbow and the armpit, compresses the brachial artery against the bone there, causing bleeding in the arm, beyond the point of pressure, to be controlled.



Fig. 3—Hand Pressure on Femoral Artery

Pressure applied just below the groin on the front inner half of the thigh compresses the femoral artery against the underlying pelvic bone. If considerable force is applied, bleeding below the point of pressure will be controlled.

(d) Bandage the pad firmly into place on the wound. Do not remove it once it is in place. If blood saturates the dressing, bandage additional layers of cloth on top of original dressing.

(e) **THE TOURNIQUET SHOULD BE USED ONLY IN EXTREME CASES, WHERE IT IS NECESSARY TO RISK LOSING THE VICTIM'S LIMB IN ORDER TO SAVE HIS LIFE.** If it is to be used:

- (1) Place it close above the wound, between the body and the wound.
- (2) Make sure that it is applied tightly enough to stop bleeding.
- (3) Wrap the material tightly twice around the limb if possible and tie a half knot. (See A, Fig. 4.)
- (4) Place a short stick in the half knot and tie a full knot. (See B, Fig. 4.)
- (5) Twist the stick to tighten the tourniquet until the flow of blood ceases. (See C, Fig. 4.)
- (6) Secure the stick in place with the loose ends of the tourniquet or another strip of cloth. (See D, Fig. 4.)
- (7) A notation should always be made and attached to the victim, giving the time of application and location of the tourniquet.
- (8) **DO NOT RELEASE THE TOURNIQUET ONCE IT HAS BEEN APPLIED. IT IS URGENT THAT SUCH CASES HAVE MEDICAL ATTENTION AS SOON AS POSSIBLE.**

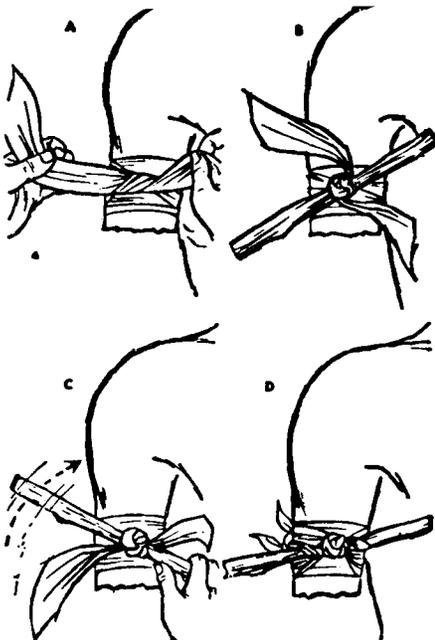


Fig. 4—Application of Tourniquet

4.03 Neck Wounds: These are most frequently made by knives, razors, and windshield glass. The large artery, vein, or both, may be cut.

(a) **First Aid**

- (1) Apply hand pressure both above and below the cut and continue to hold until a doctor directs that pressure be released. One need not worry about getting the hand in the wound in such severe cases.
- (2) A bulky compress of the cleanest material immediately available to maintain pressure may be a great help.

4.04 Minor Wounds in Which Bleeding Is Not Severe

(a) **First Aid**

- (1) Wash your hands thoroughly with clean water and soap.
- (2) Cleanse the injury thoroughly, using plain soap and boiled water or if not available, use first aid antiseptic on a sterile compress.
- (3) Apply first aid antiseptic from first aid kit if available. If not, cover with sterile or clean dressing and bandage snugly.
- (4) Arrange to see a doctor promptly if evidence of infection appears.

4.05 Wounds with Internal Bleeding

(a) Caused by head injury—see Paragraph 9.02.

(b) Caused by other than head injury—may be indicated by appearance of blood at uninjured mouth or nose.

(1) **First Aid**

- (a) Keep the victim lying on his back. Turn the head to one side.
- (b) Raise the head and shoulders if breathing is difficult.
- (c) If the patient is in shock or unconscious, turn him on his side with head and chest lower than hips to prevent blood from being drawn into the lungs.
- (d) Give no stimulants.

4.06 Gunshot Wounds and Other Deep Wounds

(a) **First Aid**

- (1) Keep victim as quiet as possible. Moving may aggravate fractures or the existing damage to internal organs.
- (2) Do not give stimulants. If wound is abdominal, do not give any food or water.
- (3) If air passes through a chest wound as the victim breathes, cover wound firmly with dressing material.
- (4) If intestines protrude, do not force them back into the abdomen; cover with cloths wet with water at body temperature. Water and dressings should be as sterile as possible under the circumstances.

5. BITES AND STINGS

5.01 Animal Bites

(a) **First Aid**

- (1) Wash the wound thoroughly to remove all saliva. Use a gauze compress and a solution of soap and water to scrub the wound; kitchen or laundry soap is best, but any soap will do. Thorough washing of bite wound should be continued at least 10 to 15 minutes; then rinse with clean running water and apply a sterile dressing.
- (2) If possible, steps should be taken to confine the animal so that it will be available for examination to determine whether its bite may have transmitted rabies or tetanus.
- (3) Always consult a physician promptly.

5.02 Snake Bites (Poisonous)

(a) **Prevention**—Most snake bites can be prevented when working in snake-infested regions by wearing high-topped boots or heavy leggings, and by being extremely careful about putting the hands in places where they might be bitten.

(b) Symptoms

(1) Bite of a rattlesnake, copperhead, or cotton-mouth moccasin leaves one or two small puncture wounds. Since the coral snake chews rather than bites, it leaves no fang marks. Severe pain, swelling and discoloration of the poisoned part occurs rapidly.

(2) General weakness, shortness of breath, nausea, vomiting, weak and rapid pulse, dimness of vision, possibly unconsciousness.

(c) First Aid

(1) Start at once. Have victim lie down and keep quiet, as muscular activity increases circulation resulting in more rapid absorption of the venom.

(2) If bite is on an extremity, tie a constricting band—**not a tourniquet**—firmly above the bite.

(3) Sterilize a knife or razor blade with a match flame, first aid antiseptic or alcohol and make incisions. Try with one of them to get into the venom deposit point. Crosscuts, about one-fourth inch long, may be made at each fang mark and over the suspected deposit point. Make shallow cuts through the skin in the crossways direction; longitudinal cuts may be deeper. Muscles and nerves run in a longitudinal direction and a deep crosscut may sever them. Beware of cutting muscles and nerves of the fingers, hands or wrist, for they lie immediately below the skin, and their injury may cause much disability. Apply suction, using the mouth or suction cup. Continue suction for an hour or more.

5.03 Snake Bites (Non-poisonous)**(a) Symptoms**

- (1) Horseshoe-shaped row of teeth marks.
- (2) Absence of symptoms other than those usually following minor wound.

(b) First Aid

- (1) Cleanse wound thoroughly with clean water.
- (2) Apply sterile dressing.

5.04 Insect Bites and Stings**(a) First Aid**

- (1) Remove the "stinger" if still present.
- (2) If possible, ice or ice water should always be applied.
- (3) Apply a paste made of baking soda and cold cream, or a compress moistened with ammonia water.
- (4) Avoid scratching the bite.

5.05 Tick Bites

Rocky Mountain spotted fever is transmitted by tick bites, and despite its name, the disease can occur in any part of the country.

(a) First Aid

- (1) First remove the tick by covering it with any kind of available oil. If the tick does not disengage at once, wait half an hour, then remove all parts of it with tweezers.
- (2) Gently scrub the area thoroughly with soap and water.

5.06 Spider, Scorpion and Tarantula Bites**(a) First Aid**

- (1) If on an extremity, apply a constricting band for **5 minutes only** just above the bite. (See Fig. 4.)
- (2) Keep the affected part lower than the rest of the body and apply ice, ice water or any cold application locally for two hours.
- (3) Obtain medical attention.

6. SHOCK (DUE TO PHYSICAL INJURY)

6.01 All seriously injured persons should be given first aid for shock.

6.02 Definition: Shock is a depressed condition of many of the body functions due to failure of enough blood to circulate through the body following serious injury. Causes low resistance, possibly death.

6.03 Factors which make shock worse: Pain, rough handling, improper transportation, continued bleeding, excessive cold or heat, stoppage of breathing, sight of blood. The effects of shock may be lessened by keeping the victim lying down and comfortable.

6.04 Symptoms

- (a) Weakness of the victim.
- (b) Skin: Pale, cool, moist—perspiration on forehead, lips, palms.
- (c) Pulse: Rapid, sometimes weak or absent.
- (d) Breathing: Fast, shallow, irregular, occasional deep breaths.
- (e) Eyes: Vacant, lackluster.
- (f) General: Thirst, nausea, indifference, restlessness.

6.05 First Aid

- (a) Keep the victim lying down.
- (b) Do not add heat; simply prevent a large loss of body heat by covering, if necessary, with blanket, overcoat, newspapers, etc. Do not cause sweating.
- (c) Fluids: Water in small amounts, if victim is conscious, is helpful.

7. ARTIFICIAL RESPIRATION

7.01 Rescue is usually the first step. Electric shock, inhalation of gas, and drowning are the commonest causes of stoppage of breathing. Every Plant man should be thoroughly familiar with the rescue techniques where electricity or gas is involved, including rescues from manholes, poles and power wires, as covered in Sections 010-100-011, 010-100-012, and 010-100-013, respectively.

Some of the important points to remember in effecting rescues are listed below:

(a) Electricity

- (1) Cut off current supply, if possible.
- (2) Break the contact by separating the victim from the source of the electrical power, making sure that in the process you don't expose yourself to contact with the victim or the source of electricity. Use rubber gloves, long dry sticks, dry rope, dry folded cloths and stand on insulating material, if possible.

(b) Gas

- (1) Recognize the danger of explosion.
- (2) If in a building, shut off both gas and electric supply.
- (3) Ventilate the space thoroughly before attempting rescue.

(c) Drowning

Unless you are an expert swimmer and trained in life saving, keep out of the water when rescuing a drowning person. Instead, "Row or throw." (Learn American Red Cross life saving and water safety techniques.)

7.02 General Directions

(a) **START AT ONCE AND DON'T GIVE UP.** There are many cases on record wherein a person apparently dead has been revived after several hours of continuous artificial respiration.

(b) The purpose is to restore natural respiration by maintaining an alternating decrease and increase in the expansion of the chest and thereby an adequate air exchange.

(c) The mouth-to-mouth rescue breathing method is the Bell System Standard for general use. However, in the rare case where it is impracticable to use this method, another means of ventilating the lungs should be used.

(d) The only equipment necessary to perform rescue breathing is carried with you at all times—your hands, your mouth and your repetitive breathing.

7.03 Additional Related Directions (Regardless of method used.)

- Begin artificial respiration immediately.
- A mechanical resuscitator operated by a trained person should be used when available.
- If assistance is available, have blankets or other suitable material placed over and under victim.
- When breathing starts, keep the victim lying down and treat for shock (Part 6).

7.04 Mouth-to-Mouth (Rescue Breathing)

If there is foreign matter visible in the mouth, wipe it out quickly with your fingers or a cloth wrapped around your fingers.

- Tilt the head back so the chin is pointing upward (Fig. 5). Pull or push the jaw into a jutting-out position (Fig. 6 and Fig. 7).



Fig. 5



Fig. 6



Fig. 7

These maneuvers should relieve obstruction of the airway by moving the base of the tongue away from the back of the throat.

- Open your mouth wide and place it tightly over the victim's mouth. At the same time pinch the victim's nostrils shut (Fig. 8) or close the nostrils with your cheek (Fig. 9). An alternative is to close the victim's mouth and place your mouth over his nose (Fig. 10). Blow into the victim's mouth or nose. (Air may be blown through the victim's teeth, even though they may be clenched.)

The first blowing efforts should determine whether or not obstruction exists. This will be apparent if there is resistance to your blowing effort and if the victim's chest fails to rise.

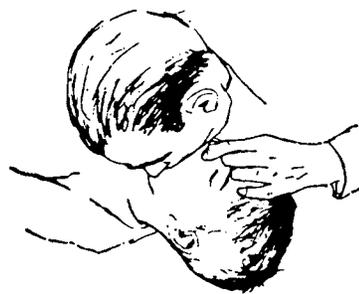


Fig. 8



Fig. 9



Fig. 10

- Remove your mouth, turn your head to the side, and listen for the return rush of air that indicates air exchange. Repeat the blowing effort.

For an adult, blow vigorously at the rate of about 12 breaths per minute. For a child, take relatively shallow breaths appropriate for the child's size, at the rate of about 20 per minute.

- The rise and fall of the victim's chest wall is the best indication that you are correctly administering Rescue Breathing. "Keep your eye on the chest wall."

- If you are not getting air exchange, recheck the head and jaw position (Figs. 5, 6 and 7). If you still do not get air exchange, quickly turn the victim on his side and administer several sharp blows between the shoulder blades for the purpose of dislodging any obstructing matter (Fig. 11). Again sweep your fingers through the victim's mouth to remove foreign matter.

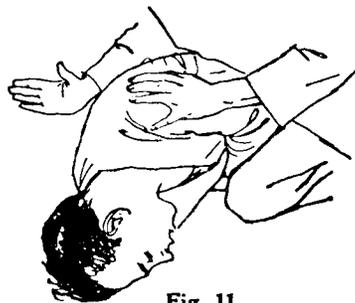


Fig. 11

Those who do not wish to come in contact with the person may hold a cloth over the victim's mouth or nose and breathe through it. The cloth does not greatly affect the exchange of air.

7.05 Mouth-to-Mouth (Rescue Breathing) Technique for Infants and Small Children

If foreign matter is visible in the mouth, clean it out quickly as described previously.

(a) Place the child on his back and use the fingers of both hands to lift the lower jaw from beneath and behind, so that it juts out (Fig. 12).

(b) Place your mouth over the child's mouth AND nose (Fig. 13), making a relatively leakproof seal. Breathe into the child, using shallow puffs of air in order to prevent damage to the child's lungs. The breathing rate should be about 20 per minute. "Keep your eye on the chest wall."



Fig. 12

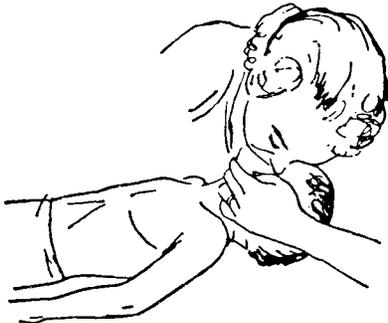


Fig. 13

If you meet resistance in your blowing efforts, recheck the position of the jaw. If the air passages are still blocked, the child should be suspended momentarily by the ankles (Fig. 14) or inverted over one arm (Fig. 15) and given two or three sharp pats between the shoulder blades, for the purpose of dislodging any obstructing matter. Check the mouth for foreign matter and remove it quickly.

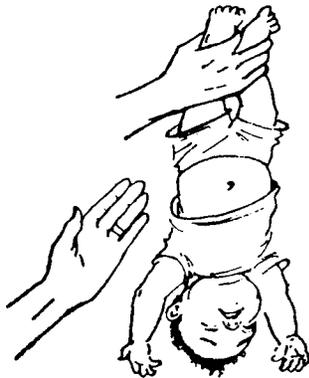


Fig. 14



Fig. 15

7.06 Back Pressure-Arm Lift Method

It is possible that because of the nature of the injury or other circumstances, the manual method of artificial respiration should be used. It is re-emphasized that mouth-to-mouth (Rescue Breathing) is the preferred method because of: effectiveness, practicality, speed of application and simplicity.

(a) Place the victim in the face-down, prone position. Bend his elbows and place his hands one upon the other. Turn his face to one side, placing the cheek upon the hands. (Fig. 16.)

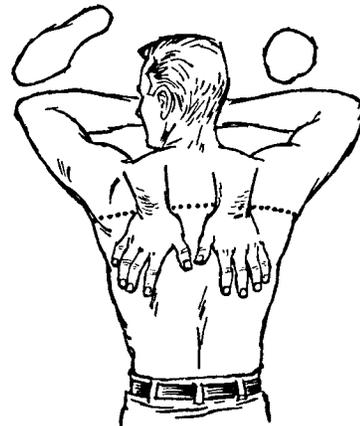


Fig. 16—Position of Victim

(b) Position of the operator—Kneel on either the right or left knee at the head of the victim, facing him. Place your knee at the side of the victim's head close to his forearm. Place your other foot near his elbow. If it is more comfortable, kneel on both knees, one on either side of the victim's head. Place your hands upon the flat of the victim's back in such a way that the palms lie just below an imaginary line running between the armpits. With the tips of your thumbs just touching, spread your fingers downward and outward. (Fig. 17.)



Fig. 17—Position of Operator

(c) Take it easy! Rock forward until the arms are approximately vertical and allow the weight of the upper part of your body to exert slow, steady, even pressure downward upon the hands. This forces air out of the lungs. Your elbows should be kept straight and the pressure exerted almost directly downward on the back. You do not need much pressure. (Fig. 18.)



Fig. 18—Compression Phase

(d) Release the pressure, avoiding a final thrust, and commence to rock slowly backward. Place your hands upon the victim's arm just above his elbows. (Fig. 19.)

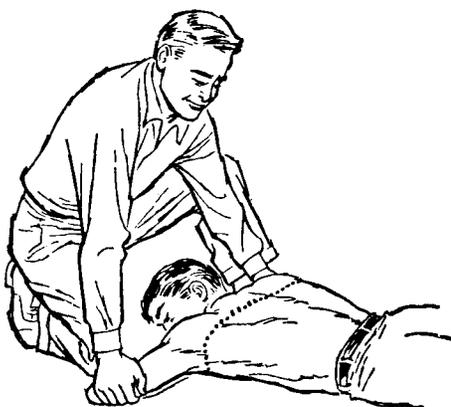


Fig. 19—Position for Expansion Phase

(e) Draw his arms upward and toward you. Apply just enough lift to feel resistance and tension at the victim's shoulders. Do not bend your elbows, and as you rock backward the victim's arms will be drawn toward you. Then lower the arms to the ground. This completes the full cycle. The arm lift expands the chest by pulling on the chest muscles, arching the back, and relieving the weight on the chest. The cycle should be repeated 12 times per minute at a steady rate. The compression and expansion phases should occupy about equal time with the release periods being of minimum duration. (Fig. 20.)

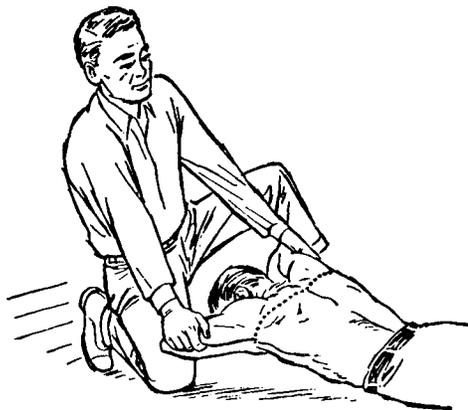


Fig. 20—Expansion Phase

8. POISONING BY MOUTH

8.01 "Hurry" is the word to associate with poisoning by mouth. Give First Aid without delay. If possible, have someone call a doctor, poison control center or hospital while you give First Aid.

8.02 **Symptoms**—These vary greatly according to the kind and amount of poison taken and the time elapsed. Many poisons cause no symptoms until absorbed into the system. Others cause burns in the mouth or abdominal pain. There may be nausea, vomiting, visual disturbances, convulsions, headache, or deep sleep.

8.03 First Aid

(a) **When the poison is not an acid, alkali, strychnine, or kerosene:**

- (1) Dilute the poison. Quickly administer fluid (milk and/or water) in large amounts.
- (2) Induce vomiting—Strong baking soda solution or milk of magnesia. Repeat the dilution and induction of vomiting until fluid is returned clear. If fluid can not be administered, use fingers or spoon in the mouth to induce gagging and vomiting.

(3) If the antidote is given on the label, administer it as directed. If no specific antidote is known, administer a universal antidote of two parts by volume of crumbled burnt toast, one part strong tea, and one part milk of magnesia.

(b) **When the poison is an acid:**

- (1) Dilute the poison. Quickly administer fluid (milk and/or water).
- (2) **Do not induce vomiting.** Neutralize with weak alkali (baking soda in water, or milk of magnesia); then give milk, olive oil, or egg white to protect the digestive tract lining.
- (3) If the antidote is given on the label, administer it as directed.

- (c) **When the poison is an alkali:**
- (1) Dilute the poison. Quickly administer fluid (milk and/or water).
 - (2) **Do not induce vomiting.** Neutralize with weak acid (vinegar, lemon juice). Follow with milk, olive oil or egg white.
 - (3) If the antidote is given on the label, administer it as directed.
- (d) **When the poison is a petroleum product such as kerosene, solvents or insecticides:**
- (1) Dilute the poison. Quickly administer fluid (milk and/or water).
 - (2) Vomiting should not be induced.

9. INJURIES TO BONES, JOINTS, AND MUSCLES

9.01 Fractures

- (a) **Definition**—A break in a bone.
- (1) **Simple**—closed fracture not associated with an open wound.
 - (2) **Compound**—open fracture has wound extending from the skin to the fracture area.
 - (3) **Comminuted**—bone is broken into small pieces. May be closed or open.
- (b) **Symptoms**—Swelling, tenderness to touch, deformity, pain on motion, discoloration, bleeding.
- (c) **First Aid**
- (1) For all fractures:
 - (a) Keep broken ends quiet.
 - (b) Keep joints on each side quiet.
 - (c) Treat for shock. (Paragraph 6.05)
 - (d) When in doubt, handle as fracture.
 - (e) If possible, apply ice bag over painful area.
 - (f) Do not move before immobilizing. Use splints, arm sling, newspapers, magazines, etc.
 - (g) Provide transportation if needed.
 - (h) Call a doctor.
 - (2) Additional measures for compound fracture:
 - (a) Control bleeding.
 - (b) Apply clean dressing to wound.

9.02 Head Injuries: Concussion and Fracture of Skull

- (a) **Important:** A concussion is an injury to the brain caused by a blow to the head and may or may not involve a skull fracture. Concussion must be expected in any accident due to force. Whether or not the skull is fractured is not important compared to the possible injury to the brain. The primary treatment for both is the same, and in both cases it is essential to keep the victim as quiet as possible.
- (b) **Symptoms**—Some or all of the following may be present:
- (1) Evidence of a blow, head wound, or swelling.
 - (2) Unconsciousness—total or partial—even if only for a few seconds after an accident.
 - (3) Eye pupils unequal in size.
 - (4) Headache—dizziness.
 - (5) Paralysis of extremities.
 - (6) Bleeding from the nose, an ear canal, or the mouth.
- (c) **First Aid**
- (1) **EXTREMELY IMPORTANT: KEEP THE VICTIM LYING DOWN AND QUIET!**
 - (2) **DO NOT GIVE STIMULANTS.**
 - (3) If his face is flushed, elevate his head slightly.
 - (4) If the victim is unconscious, turn his head to one side.
 - (5) Loosen clothing about his neck.
 - (6) Merely lay a dressing on the wound.
 - (7) Reassure the victim, if conscious.

9.03 Fracture of Neck or Spine

- (a) If at all possible, do not move the victim; summon a physician to the scene.
- (b) Keep the victim flat on his back.
- (c) Do not allow his head to tilt forward or sideways.
- (d) If transportation is absolutely essential, even for a few feet, use a firm support such as a shutter, board, or door.

9.04 Dislocations

- (a) **Definitions**—A dislocation is a displacement of a bone end from the joint. The surrounding ligaments and other soft tissue always suffer some injury.
- (b) **Symptoms**—Swelling, tenderness to touch, deformity, pain on motion, discoloration.
- (c) **First Aid**
- (1) Keep the affected part quiet.
 - (2) Do not attempt to reposition the dislocated bone.
 - (3) Obtain medical attention.
 - (4) Treat for shock. (Paragraph 6.05)

9.05 Strains and Sprains

- (a) **Definitions**
- (1) **Strain**—A strain is an injury to a tendon or muscle.
 - (2) **Sprain**—A sprain may be described as a stretching or tearing of the ligaments around a joint.
- (b) **Symptoms**
- (1) **Strain**—Pain and stiffness.
 - (2) **Sprain**—Pain, swelling, lack of use, discoloration.
- (c) **First Aid**
- (1) **Strain**—
 - (a) Rest and apply heat.
 - (b) Rubbing may help.
 - (c) In severe cases call a doctor.
 - (2) **Sprain**—
 - (a) Elevate the injured member and apply cold applications.
 - (b) If ankle is sprained apply bandage over shoe. Immobilize if transported.
 - (c) If lower extremities are involved, avoid weight bearing.
 - (d) In severe cases see a doctor.
 - (e) Always have sprains X-rayed.

10. BURNS

- 10.01 **Causes:** Dry heat, flame, hot metal, hot liquid, steam, electricity, sunburn, and chemicals.
- 10.02 **Effects:** Shock, infection, permanent damage, death.
- 10.03 **Degrees of Burns**
- (a) Skin merely reddened—(1st Degree).
 - (b) Skin blistered—(2nd Degree).
 - (c) Deeper tissue destroyed—(3rd Degree).
- 10.04 **First Aid**
- (a) **Thermal Burns**
- (1) Extensive area burns, such as those covering the back or chest area or a large portion of one or more extremities.
 - (a) Treat for shock.
 - (b) Exclude air from the burn by the application of a thick dressing; if the dressing is sterile it will assist in the prevention of further contamination. Use lint-free material.
 - (c) The dressing should be kept dry.
 - (d) Do not break blisters.
 - (e) Transport at once to a doctor or the hospital.
 - (2) Small area burns—apply medicated ointment and a sterile dressing.

(3) **Thermal burn of the eye.** If pain can be tolerated, irrigate the eye gently to remove foreign material. Cover the eye with a dry sterile dressing or clean cloth, and immediately seek medical aid. Do not apply oil or ointments unless necessary to relieve pain pending medical care.

(b) **Chemical Burns**

(1) Wash away the chemical with large amounts of water. Then, if specific chemicals for treatment are indicated on the label, apply them, if available. For creosote burns, wash with hot water and soap; apply Creosote Burn Wash. (See Section 010-100-010.)

(2) **Acid or alkali burn of the eye.** Quickly irrigate the eye thoroughly with plain tap water for several minutes. Remove any particles of the chemical, have the patient close his eye, place a dressing over the lid and snugly bandage. Obtain immediate medical attention.

(c) **Sunburn**

(1) Mild sunburn—medicated ointment, cold cream, salad oil or shortening may be applied. Do not use butter or oleomargarine.

(2) Severe sunburn—obtain medical advice.

11. ILL EFFECTS OF EXCESSIVE HEAT

11.01 Exposure to excessive heat may result in heat exhaustion, heat stroke, and heat cramps, the first-named being most common. In exhaustion cases, the temperature is approximately normal; in stroke, it is high. Most likely to be affected are the aged, the obese, the very young, alcohol addicts, and those suffering from any disease that impairs the strength of the entire body.

11.02 Heat Exhaustion

(a) **Symptoms**—Fatigue, headache, vomiting, nausea. Temperature remains near normal, and unconsciousness is rare. In severe cases, perspiration is profuse, weakness is extreme, and the skin is pale and clammy. Heat cramps may be present. (See Paragraph 11.04.)

(b) **First Aid**

(1) Provide bed rest.

(2) Every 15 or 20 minutes give a half glass of water in which a half teaspoonful of salt has been dissolved.

11.03 Heat Stroke

(a) **Symptoms**

(1) Usually begins with a sharp pain in the head and dizziness, followed almost immediately by unconsciousness.

(2) Skin is dry and very hot, face flushed, breathing difficult.

(3) Temperature is very high. Pulse is rapid and full.

(b) **First Aid**

(1) Arrange for medical care without delay.

(2) Move victim to a cool place—indoors if possible—and provide bed rest.

(3) Remove clothing and sponge the body with alcohol or lukewarm water to reduce the body temperature to a more tolerable level, as indicated by a pulse rate of 110 per minute or less. Resume sponging if temperature rises again.

(4) When victim is fully conscious give a half glass of water in which a half teaspoonful of salt has been dissolved. Provide covering according to victim's comfort.

11.04 Heat Cramps

(a) **Symptoms**—Pain in abdominal muscles or limbs following profuse perspiration.

(b) **First Aid**

(1) Apply firm, steady pressure to painful part.

(2) Apply warm wet towels to painful part.

(3) Give a half glass of water in which a half teaspoonful of salt has been dissolved. Repeat several times at 15-minute intervals.

12. ILL EFFECTS OF EXCESSIVE COLD

12.01 **Frostbite:** The freezing of a part of the body, usually the nose, ears, cheeks, fingers, or toes.

(a) **Symptoms**

(1) Condition may not be evident to victim.

(2) Feeling of intense coldness or numbness. Pain in early stages, later subsiding.

(3) Dead white, glossy skin, later changing to yellow.

(4) Blisters may appear.

(b) **First Aid**

(1) Handle a frozen or frostbitten part with the greatest care.

(2) Firm pressure against the part with the warm hand is helpful, but **RUBBING IT WITH THE HAND OR SNOW IS DEFINITELY HARMFUL.**

(3) If out of doors, cover the frozen part with woolen material.

(4) Make the victim warm and remove him to a warm room as soon as possible.

(5) If the frozen part is still cold or numb, rewarm it by immersing it in **lukewarm** water, or by wrapping in blankets. Do not rub or expose to extreme heat, such as a hot stove, hot water bottle, heat lamp, etc., because excessive heat may increase the damage.

(6) Once fingers or toes are rewarmed, encourage the victim to exercise them. Do not disturb blisters.

12.02 Prolonged Exposure to Cold

(a) **Symptoms**

(1) General numbness.

(2) Difficulty of movement or staggering.

(3) Drowsiness or failing eyesight.

(4) Unconsciousness in advanced cases.

(b) **First Aid**

(1) Give artificial respiration if breathing has stopped.

(2) Move the victim to warm room as soon as possible.

(3) Rewarm the victim as rapidly as possible by wrapping him in warm blankets or by immersing him in a tub of warm, but not hot, water.

(4) When the victim reacts to above First Aid, give him a hot drink and dry his body thoroughly if water was used to rewarm him.

13. COMMON EMERGENCIES (Listed alphabetically)

13.01 Apoplexy (Stroke)

(a) **Symptoms**

(1) Unconsciousness usually occurs.

(2) Loud, heavy breathing.

(3) Slow, strong pulse.

(4) Partial paralysis, indicated in an unconscious person by lack of muscular tension if one of the extremities is moved.

(b) **First Aid**

(1) Obtain medical care immediately.

(2) Place the victim on his back, or if breathing is difficult, place him on his side to allow saliva to drool from his mouth.

(3) Cover the victim sufficiently to prevent chill.

13.02 Appendicitis

(a) **Symptoms**—Abdominal pain, usually generalized in the beginning, later localized especially in lower right region; nausea, vomiting, mild fever, and constipation or diarrhea may be present.

(b) **First Aid**

(1) Obtain medical attention without delay.

(2) Do not administer laxatives, food, or water.

(3) An ice bag placed over the painful area may help relieve discomfort, but it should be understood that this merely removes a symptom, and does not correct the condition.

13.03 Blisters

This paragraph applies only to blood blisters and water blisters caused by pinching and chafing; see Paragraphs 10.04 and 12.01 for blisters due to burns and frostbite, respectively.

(a) First Aid

- (1) Wash thoroughly with soap and warm water, dry, and apply a small amount of first aid antiseptic to edge of blister, puncture at this point with a sterilized needle, or other sharp sterile object and press out the fluid.
- (2) Apply a sterile dressing held in place with a light bandage.
- (3) If the blister has already burst, wash with soap and water and apply sterile dressing.
- (4) Consult a doctor if the blister is very extensive, or if there is evidence of infection.

13.04 Boils and Sties**(a) First Aid**

- (1) Sties and boils in the facial region should be kept as free as possible of all pressure. Boils in other regions may be covered lightly with compresses saturated with the following solution:
 - 1 tablespoonful of Epsom salts
 - 1 pint of warm water
- (2) Never squeeze a boil. If it breaks, however, wipe away the pus with a sterile pad wet with rubbing alcohol.

13.05 Bruises and Contusions**(a) First Aid**

- (1) Usually no special care is required. Apply cold packs, use ice when available, and elevate the injured member to reduce swelling and relieve pain.

13.06 Convulsions in Young Children**(a) Symptoms**

- (1) Muscle spasms and twitching of various degrees.
- (2) Stupor or sleep may follow spasms.

(b) First Aid

- (1) Provide bed rest and quiet. Maintain calm demeanor in child's presence.
- (2) Call a doctor.
- (3) Unless directed by a doctor, do not give an enema, bath, or warm packs.

13.07 Epileptic Fits**(a) Symptoms**

- (1) An attack of epilepsy is generally preceded by a loud cry, and the victim generally falls. This is followed by unconsciousness accompanied by convulsive, jerking movements of the muscles.

(b) First Aid

- (1) Prevent victim from harming himself by placing pillow, coat or blanket under his head.
- (2) Place folded compress, clean handkerchief, piece of wood or pleated bandage between his teeth at one side of his mouth to prevent him from biting his tongue. Do not obstruct breathing.
- (3) Do not restrain convulsive movements or give stimulant.
- (4) When jerking has ceased, loosen clothing about the neck, and keep the victim quiet.

13.08 Eye Injuries

(a) Types—Eye injuries are divided into three groups for first aid purposes:

- (1) Group 1 cases—injury to the eyelids and soft tissue around the eye.
- (2) Group 2 cases—injury to the surface of the eyeball.
- (3) Group 3 cases—injury that extends through the surface of the eye into deeper tissue.

(b) First Aid

(1) Group 1 cases—Open wound should be covered with a sterile dressing and snug bandage. Bruises or "black eyes" may be given cold applications immediately after injury, followed by warm applications after swelling has been controlled.

(2) Group 2 cases—

(a) If injury is due to entry of a chemical, flush the eye thoroughly and repeatedly with clean water. Obtain medical attention at once.

(b) If injury is due to entry of a foreign body:

(1) Pull down the lower lid and see if the body lies on the surface of the lid's lining. If so, it can be lifted off gently with the corner of a clean handkerchief or a piece of moist cotton wrapped around a clean toothpick. (Never use dry cotton around the eye.)

(2) Grasp the lashes of the upper lid gently between the thumb and forefinger while the victim looks upward. Pull the upper lid forward and down over the lower eyelid. A foreign body on the lining of the upper lid can be dislodged and swept away with the tears.

(3) Flush the eye with a cool solution. This can be done with an eyedropper or small bulb syringe, if available.

(3) Group 3 cases—Lay a sterile compress or clean cloth over eye, and make no attempt at further first aid. Obtain medical care as quickly as possible. If necessary to transport victim, keep him flat, using stretcher or substitute.

13.09 Fainting**(a) First Aid**

(1) Often a person feels faint and can prevent fainting by lowering his head as though to tie his shoe. If further care is necessary, treat for shock. (Paragraph 6.05)

13.10 Heart Attack**(a) Symptoms**

- (1) Chest pain.
- (2) Shortness of breath.
- (3) Bluish color of lips and fingernails.

(b) First Aid

- (1) Keep the victim quiet and as comfortable as possible.
- (2) Obtain medical care at once.

13.11 Hernia (Rupture)

(a) Symptoms—A protrusion or bulge in any region of the abdomen from the navel to the crotch.

(b) First Aid

- (1) Have the victim lie down and refrain from physical activity.
- (2) If the bulge does not subside, apply cloths saturated with cold water.
- (3) If the above measures fail, have the victim lie on his abdomen and bring his knees up under his chest.
- (4) Do not attempt to reduce the bulge by pressure.
- (5) Send for a doctor.

13.12 Infection

(a) Symptoms—Pain, swelling, redness, heat, pus, red streaks, tenderness.

(b) First Aid

- (1) Apply hot solutions (2 level teaspoonfuls of salt per quart of boiled water). Be sure applications do not burn the victim.
- (2) Keep the victim at rest. Keep the affected part quiet. **Get medical care as soon as possible.**

13.13 Insulin Reaction

(a) **Symptoms**—Confused, stuporous, mentally disturbed, or unconscious condition, with no other apparent reason for the condition. Diabetics should wear a tag or carry a readily accessible card to identify them; however, the first aider should search for such identification only in the presence of a witness.

(b) First Aid

- (1) Administer any food or drink containing sugar.
- (2) Send for a doctor.

13.14 Nosebleed**(a) First Aid**

- (1) Have the victim sit up with his head thrown slightly back, breathing through his mouth. Loosen his collar and anything tight around his neck.
- (2) Apply cold packs over his nose.
- (3) Pressing the nostrils together firmly for 4 or 5 minutes often stops the bleeding and gives opportunity for a clot to form.
- (4) Have the victim avoid blowing his nose for a few hours. If these measures do not stop the bleeding, a physician is needed at once.

13.15 Plant Poisoning

(a) **Types**—Ivy, oak, and sumac. (See Figs. 21, 22, and 23.)

(b) **Prevention**—Learn to recognize these plants in their various forms at all seasons of the year and avoid contact with them at all times. Even the smoke from burning plants may be harmful; avoid it wherever possible.

(c) **Symptoms**—After contact with these plants, the skin becomes red and swollen and itches violently. Soon small blisters begin to form, which may unite into large blisters. Frequently these become infected. Fever and general discomfort may result.

(d) First Aid

- (1) As soon as possible, wash the exposed part with soap and water, then sponge it with rubbing alcohol and apply calamine lotion.
- (2) If discomfort continues, one part of Burow's solution diluted with 25 parts of water may be applied with a compress for 20-minute periods.

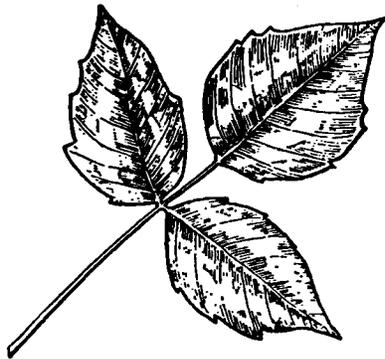


Fig. 21—Poison Ivy

Grows as a climbing plant and is found on fences, poles and trees. Also, grows as a crawling plant and a low shrub. Leaves are green in spring and summer but turn to brown in fall. All of the plant, including the roots, is poisonous. The berries, when present, are white.

Closely related to the ivy plant, similar in appearance and habits of growth, but with the edges of the leaves more deeply notched. It is not a tree and is in no way related to the oak family.



Fig. 22—Poison Oak



Fig. 23—Poison Sumac

A shrub or small tree which may grow 20 feet high. Distinguished from the nonpoisonous sumac by its loose, drooping clusters of berries, which are always white. Leaves are orange colored in spring, green in summer and orange or russet in the fall.

13.16 Splinters**(a) First Aid**

- (1) If the splinter is near the surface, it may be picked out. Apply first aid antiseptic to the skin and remove the splinter with a knife point, needle, or tweezers that have been sterilized. Induce bleeding.
- (2) Apply first aid antiseptic to the wound and cover with clean compress.
- (3) If the foreign body is buried deeply, or if the wound is of considerable size, apply first aid antiseptic and a proper dressing. Always see a doctor.

13.17 Unconsciousness—Cause Unknown**(a) Possible Causes**

- (1) Asphyxia (See Part 7.)
- (2) Shock (See Part 6.)
- (3) Poisoning, including sleeping pills (See Part 8.)
- (4) Head Injury (See Paragraph 9.02.)
- (5) Heat Stroke (See Paragraph 11.03.)
- (6) Heart Attack (See Paragraph 13.10.)
- (7) Apoplexy (Stroke) (See Paragraph 13.01.)
- (8) Epilepsy (See Paragraph 13.07.)
- (9) Insulin Reaction (See Paragraph 13.13.)

(b) First Aid

- (1) Give artificial respiration if the victim is not breathing.
- (2) Move the victim as little as possible until the cause of unconsciousness can be determined.
- (3) If necessary to prevent the victim from choking on vomitus, blood, etc., place him on his abdomen, with his head turned to one side.
- (4) Send for a doctor without delay.

14. TRANSPORTATION

14.01 In rendering emergency assistance in serious accident or illness, there is no greater need for calmness than in the procedures associated with transportation.

14.02 The objective is to avoid subjecting the patient to unnecessary disturbance during planning, preparation, and transfer, to prevent injured body parts from twisting, bending, and shaking. **TAKE THE NECESSARY TIME AND EFFORT TO PROVIDE GOOD TRANSPORTATION.** (More harm is done through improper transportation than through any other measure associated with emergency assistance.)

14.03 If a person must be lifted to safety before a check for injuries can be made, the body should not be jackknifed. An attempt should be made to give adequate support to each extremity, the head and the back, keeping the entire body in a straight line and maintaining it immobile. One method for accomplishing this is:

(a) 3-Man Hammock Carry—Victim Lying Face Up—Supine

- Step 1. All carriers kneel on the knee towards the victim's feet. (See Figs. 24 and 25.)
- Step 2. No. 1 cradles the victim's head and shoulders with his top arm. His other arm is placed under the victim's lower back.
- Step 3. No. 2 slides his top arm under the victim's back above No. 1's bottom arm, and his other arm just below the buttocks.
- Step 4. No. 3 slides his top arm under the victim's thighs above No. 2's bottom arm. His other arm is placed under the victim's legs below the knees.

Note: The hands of carriers No. 1 and No. 2 should be placed about halfway under the victim's body at this stage. (See Fig. 26.)

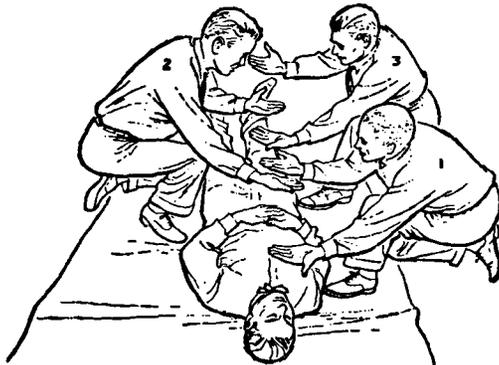


Fig. 24—Hammock Carry Step 1—Position of Bearers



Fig. 25—Hammock Carry—Showing Interlocking Grip

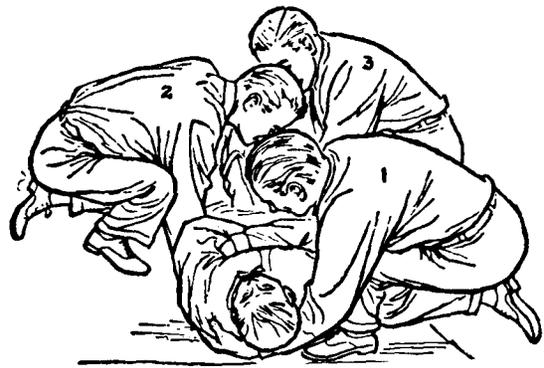


Fig. 26—Position of Bearers—Ready to Lift

Step 5. At a signal, the victim is lifted to the carriers' knees and rested there while the hands are slid far enough under the victim to allow rotation of the hands inward to secure an interlocking grip. (See Fig. 27.)



Fig. 27—Position of Bearers—Lifting Victim to Knees

Step 6. At the next signal, all carriers stand erect with the victim.

14.04 If the victim must be pulled to safety, he should be pulled in the direction of the long axis of his body, not sideways. If available, a blanket or similar object placed beneath the victim will serve as a drag and lessen the danger of aggravating any injuries.

(a) Blanket Drag

- (1) Place the blanket diagonally beneath the victim.
- (2) Cross the arms of the victim over his chest, then fold the lower end and sides of the blanket over the victim.
- (3) Drag the victim by grasping the end of the blanket near the victim's head.

14.06 Methods of Transportation**(a) Litter (Stretcher)**

- (1) If no litter is available, one may be improvised. Use a cot or door, or use two poles with a blanket as shown in Fig. 30; a strong sheet, rugs, or coats may be substituted for the blanket.

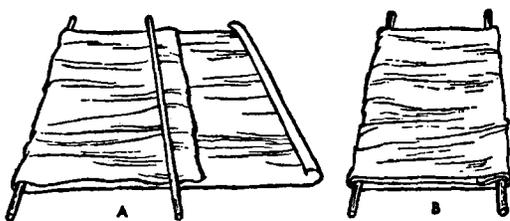


Fig. 30—Improvised Litter

(b) Traction Blanket Lift (5 Men and Victim)

Position of victim—supine

Step 1. Pleat a standard army blanket in folds about 1 ft. long and place on the floor just above the victim's head so that the pleated blanket will "feed out" from the bottom.

Step 2. Fold back the top pleat so that the man at the head and the two men at the shoulders can kneel on the fold.

Step 3. No. 1 takes the position on one or both of his knees and grasps the victim's head in the standard manner for applying traction. (See Fig. 31.)

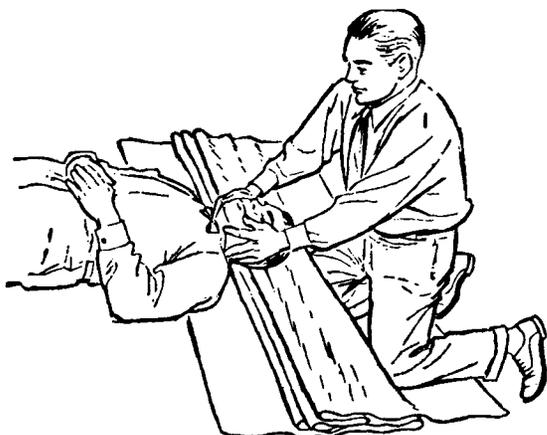


Fig. 31—Placing the Blanket under the Victim

Step 4. Nos. 2 and 3 kneel on one or both knees at the victim's shoulders, placing one hand flat under his shoulder blade and the other in his armpit. (See Fig. 32.)



Fig. 32—Holding Victim against the Pull of the Blanket

Step 5. Nos. 4 and 5 grasp the bottom pleat of the blanket and pull the blanket under the victim while Nos. 1, 2 and 3 hold the upper portion of the victim's body in place.

Step 6. Roll the blanket tightly at the sides until it fits the contour of the victim's body.

Step 7. Nos. 2 and 3 (on opposite sides) grasp the blanket with the top hands at the victim's shoulder and the bottom hands at his lower back. Nos. 4 and 5 grasp blanket with top hands at his hips and lower hands at his legs (below knees). No. 1 remains at his head, holding slight traction. (See Fig. 34.)



Fig. 34—Rolling Edges Tightly for Firm Grip

Step 8. At a signal, Nos. 2, 3, 4 and 5 lean back in opposite directions, using the back muscles and body weight. This will lift the victim 6 to 8 inches from the floor so that a litter can be slid underneath him. Use same procedure for victim in prone position. (See Fig. 36.)

(c) Suspension Lift

Step 1. The victim lies in a prone position with his hands under his chin, similar to the position assumed in artificial respiration. (See Fig. 38.)

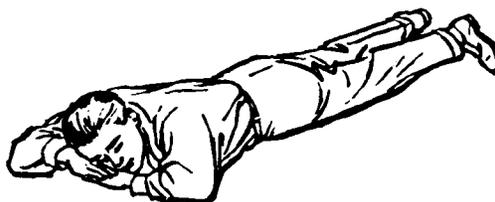


Fig. 38—Position of Victim

Step 2. Carrier 1 kneels on one or both knees at the victim's head. He carefully slides his hands under the mid-forearms of the victim until the upturned palms of his hands rest under the victim's armpits. (See Fig. 39.)

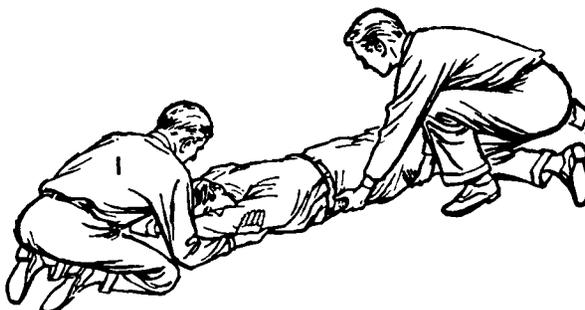


Fig. 39—Position of Carrier No. 1

Step 3. Carriers 2 and 3 grasp the victim's hipbone with their top hands and his knee cap with their lower hands. (See Fig. 40.)



Fig. 40—Position of Carriers

Step 4. On signal, all lift together so that the victim is raised 5 or 6 inches from the floor (just high enough to slide a litter underneath). (See Fig. 41.)

Note: Care should be taken so that the body is lifted as a unit. Also, carriers 2 and 3 should shift the weight toward carrier 1 when raising the victim.



Fig. 41—Lifting and Placing of Litter

(d) MANY OTHER METHODS OF TRANSPORTATION ARE USEFUL. LEARN FIRST AID AND KNOW THEM ALL.

14.07 Methods of Transfer

(a) These include special methods for short-distance transfers, the walking assist, manual carries, transfer by supporting devices such as stretchers and cots, and transfer by vehicles.

It is difficult for inexperienced people to lift and carry a person gently. Their efforts may not be well coordinated. They need careful explanations.

(b) The best device for short-distance transfers is the stretcher or cot.

It is important to remember that the short-distance transfer is harmful unless the injured parts are immobilized. "Splint them where they lie" unless there is urgent danger in delay.

(c) Unless there is unusual urgency, it is best to wait until an ambulance is available.

Aside from rare exceptions, the drive should be at moderate speeds, with gentle stops and starts, and with observance of all safety rules.

15. BELL SYSTEM FIRST AID KITS

15.01 **Maintenance.** The Bell System First Aid Kits contain standard materials with which first aid work is to be done on the job. It is, therefore, necessary to become familiar with their contents, to know where each article should be found, and to learn the best method of using it. The list of contents inside each kit shows the proper location of each article. It is very necessary that a complete supply be kept in the kit at all times and each article located where it can be found without delay or confusion. A used article should be replaced as soon as possible so that a supply will be available for the next emergency.

15.02 **General Precautions.** Use of the first aid kit should be in accordance with the precautions given during first aid instruction.

15.03 **Use of Contents.** Most of the articles included in the first aid kits are placed in individual packages. These packages have illustrated instructions on them which explain briefly the uses and methods of handling the articles they contain.