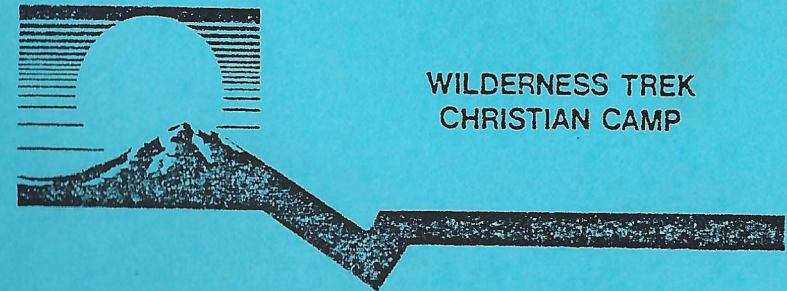


EDD EASON



WILDERNESS TREK
CHRISTIAN CAMP

**FIRST AID
AND
MOUNTAIN MEDICINE**

EMERGENCY MEDICAL SERVICES (EMS) SYSTEM

An EMS system is a community-wide, coordinated means of responding to an accident or sudden illness. You should know about these three features of an EMS system: (1) entry into the system, (2) rescue and transportation, and (3) hospital emergency facilities.

Entry into the System. Two kinds of action are needed to enter a victim into the EMS system:

Action 1: Bystanders provide immediate emergency care, which greatly increases the survival chances of a victim of an accident or sudden illness. As many people as possible should be trained in first aid and CPR.

Action 2: At the same time or as soon as possible, another bystander "activates the EMS system." Telephone 911 or 0 or the local EMS number (see inside front cover of phone directory). There is space for emergency numbers on the back cover of this book. When you call for help, tell:

1. WHERE the emergency situation is, with cross streets if possible.
2. PHONE NUMBER you are calling from.
3. WHAT HAPPENED—heart attack, auto accident, fall, etc.
4. HOW MANY persons need help.
5. WHAT is being done for the victims.

NOTE. YOU HANG UP LAST. Let the person you called hang up first.

Rescue and Transportation. Upon receiving the emergency call, trained professional/paraprofessional personnel are sent to the scene to provide more definitive care. These individuals bring knowledge and the necessary tools to rescue, stabilize, and transport victims.

Hospital Emergency Facilities. At the hospital, further stabilizing care is given and medical procedures are begun by physicians, nurses, and technicians. However, all of the sophisticated equipment and specialized training available at emergency facilities will be of value only if immediate care is given on the scene and the EMS system is activated.

EXAMINING AND CHECKING THE VICTIM

Examine the victim carefully and check for injuries. Keep checking until medical help arrives. If you found no serious burns on your first careful examination, you should not find any later. However, minor burns may develop blisters that need to be protected with a bandage. A wound may start to bleed again.

Keep checking to see if the victim is conscious. An unconscious victim may have been breathing when you checked at first but may have stopped since then. Keep checking an unconscious person for breathing and heartbeat.

EIGHT TOPICS IN EMERGENCY ACTION

These actions are given in order in which you might take them in an emergency.

1. RESCUE the victim and yourself.
2. Restore or maintain BREATHING and HEARTBEAT.
3. Control heavy BLEEDING.
4. Treat for POISONING.
5. Prevent SHOCK.
6. EXAMINE the victim carefully.
7. Seek MEDICAL HELP.
8. KEEP CHECKING the victim until medical help is obtained.

1). Number these victims of an automobile accident in the order in which you would care for them.

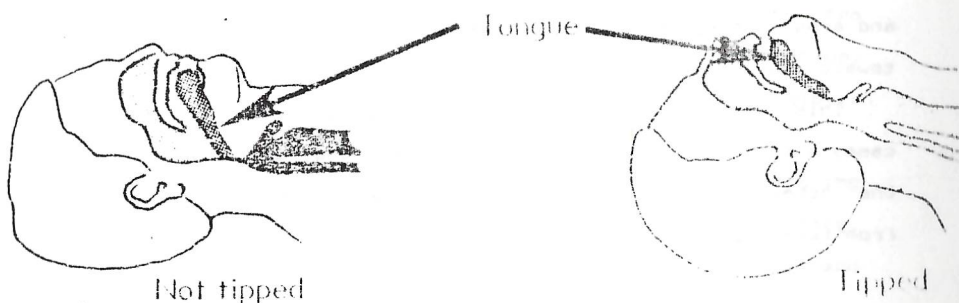
[] A person who is trapped in a car, conscious, and seems NOT to be injured. The car is not burning and in a dangerous place.

[] A person who is unconscious, breathing, and bleeding SLIGHTLY from a wound on the arm.

[] A person who is not breathing.

THE AIRWAY STEP

The first step for an unconscious person is the AIRWAY step: tip the head back to open the airway, and check for breathing. Tip the person's head WAY BACK, until the chin points straight up. Tipping the head moves the lower jaw forward, and the tongue is attached to the lower jaw, so tipping the head moves the tongue away from the back of the throat and opens the airway. If you do not tip the head, the tongue may block the airway.



Place one hand on the victim's forehead and apply firm, backward pressure with the palm. To help tip the head way back, gently lift the victim's neck or chin with your other hand.

HEAD TIP with NECK LIFT

There are three important points to remember when you tip the head with the neck lift.

- Apply the major force with the hand that is on the forehead.

- Place the hand under the neck near the base of the skull.

- Support and lift gently with the hand under the neck.

As you tip the head, put your ear down near the mouth and look at the chest. LOOK, LISTEN, and FEEL for breathing for about 5 seconds. If the person is breathing, you will see the chest rise and fall, hear air at the mouth and nose, and feel air on your cheek.

4. What are the two parts of the AIRWAY STEP? _____
the head and check for _____.

5. When you use the head tip-neck lift, the major force is applied with the hand that is []a. on the forehead.
[]b. under the neck.

6. Place the hand under the neck near the []a. shoulders. []b. base of the skull.

7. Use the hand under the neck to []a. lift forcefully. []b. support and lift gently.

8. How do you check for breathing?

[]a. Check the pulse at the neck.

[]b. Check the pupils of the eyes.

[]c. Look at the chest; listen and feel for air coming out of the mouth.

HEAD TIP with CHIN LIFT

When you tip the head, you can use the neck lift or the chin lift. There are five important points to remember for the chin lift.

- Apply the major force with the hand on the forehead.

- Place your fingertips under the bony part of the jaw near the chin.

- Support and lift the jaw with your fingertips, but avoid closing the mouth

- Do not push on the soft tissues of the throat-this may block the airway.

- If necessary, pull the lower lip down slightly with your thumb to keep the mouth open.

HOW SHOULD YOU TIP THE HEAD?

The head tip-neck lift is well known and has been used successfully for many years. The head tip-chin lift has been shown to produce a better airway in some cases. You should learn both.

When you tip the head, be sure to put your ear near the victim's mouth and look at the chest to check for breathing. Someone who has stopped breathing may start to breathe again when you tip the head.

9. What is the AIRWAY step? Tip the head and check for breathing for about

- [1a. one second
- [1b. 5 seconds.

10. When you do the head tip-chin lift, place your fingertips under the

- [1a. bony part of the jaw near the chin.
- [1b. soft part of the throat near the chin.

THE QUICK STEP

If the person is not breathing, give 4 quick, full breaths. This is called the QUICK step.

Keep the head tipped. Pinch the nose so air will not come out the nose when you blow into the mouth. Take a deep breath and open your mouth wide. Cover the victim's mouth with your mouth. Make a good seal.

Give 4 BIG breaths as fast as you can, without letting the lungs deflate between breaths. Remove your mouth from the victim's mouth between breaths just long enough to get a fast gulp of air for the next breath.

Give breaths right on top of each other, without pauses. This expands the lungs fully and gives a lot of oxygen quickly.

11. The 4 quick breaths should be

- [1a. small breaths.
- [1b. full breaths.

12. How long do you pause between each of the 4 quick breaths?

- [1a. About 3 seconds between each breath. [1b. Only long enough to get a breath.

THE CHECK STEP

After you give 4 quick breaths, check for breathing again. This is called the CHECK step. To help remember the first steps for an unconscious person, use the phrase "A Quick Check".

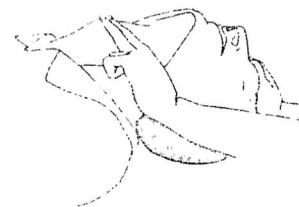
A-Airway: Tip the head and check for breathing.

QUICK-Give 4 QUICK, full breaths.

CHECK-CHECK the pulse and breathing.

Check the pulse on the side of the neck near you. Keep the head tipped with your hand on the forehead. Place the fingertips of your other hand on the Adam's apple, the slide your fingers into the groove at the side of the neck. Check the pulse and breathing for at least 5 seconds but no more than 10 seconds.

Find your own pulse now.



Start here.



Check pulse here.

13. What are the steps for A Quick Check?

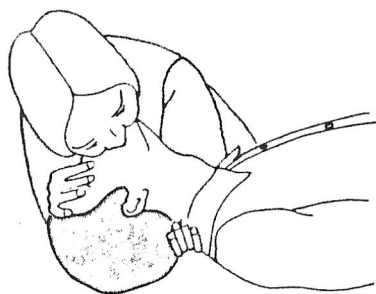
A=Airway: _____ and _____ check

Quick=Give _____

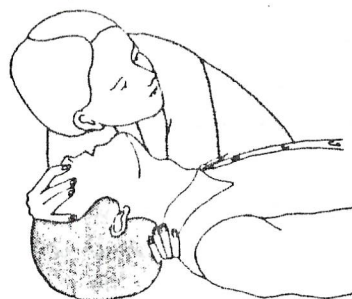
Check=Check the _____ and check _____.

If the person is not breathing but HAS a pulse, give mouth-to-mouth breathing. If the person is not breathing and DOES NOT HAVE a pulse, cardiopulmonary resuscitation (CPR) is needed and the EMS system should be activated. If you have not been trained in CPR, give mouth-to-mouth breathing. The heart may be beating even though you did not find a pulse, so mouth-to-mouth breathing may keep the person alive.

Get ready to give more breaths this way: 1) Be sure the head is still tipped. 2) Pinch the nose shut again. 3) Take a deep breath, open your mouth wide, and make a tight seal over the victim's mouth.



Blow to fill up the lungs.
Watch the chest rise.



Listen and feel for air.
Watch the chest fall.

Do these steps once every 5 seconds. It may help to count, "One, one-thousand; two, one-thousand; three, one-thousand; four, one-thousand; b-r-e-a-t-h-e."

14. When you take a breath, turn your head to look at the victim's [1a. chest. [1b. forehead.

15. What phrase will help you to remember the first steps for an unconscious person?

After a victim starts to breathe again, watch to be sure he or she keeps breathing.

Give care to prevent shock:

-Keep the victim lying down and at a comfortable temperature.

-Raise the feet and legs if moving the legs does not cause injury or pain.

-Raise the head AND shoulders if the victim has trouble breathing or has a head injury. Do not put the head on a pillow, because this may bend the neck and block the airway. Do not raise the head or shoulders if you suspect a neck or back injury.

Call a doctor or ambulance, or take the victim to a hospital or life-support unit.

In some cases, a person can be kept alive with mouth-to-mouth breathing but will not start breathing without medical treatment. Mouth-to-mouth breathing may be needed for a very long time. Keep giving mouth-to-mouth breathing until the victim recovers, medical personnel take over, or you are certain the victim is dead.

MOUTH-to-NOSE BREATHING

Sometimes you cannot make a good seal over the mouth:

-Air may leak out when you blow.

-The victim's mouth or jaw may be injured.

-The victim's jaws may be shut tight so that you cannot open the mouth to give a breath.

-Your mouth may be too small.

If you cannot make a good mouth-to-mouth seal, give

16. While you blow into the NOSE, what do you do with the person's mouth?

- [1a. Close the mouth
- [1b. Open the mouth

AIR IN THE STOMACH

When you are giving mouth-to-mouth breathing, the victim's stomach may fill up with air. Air in the stomach can push against the lungs, making it difficult or impossible to give full breaths. You can expel the air by pushing on the stomach, but this is dangerous to do because the victim may vomit and inhale the vomit into the lungs. When you give breaths, try to blow just hard enough to make chest rise, because you are likely to force air into the stomach if you blow too hard.

If the stomach is bulging with air and you can not inflate the lungs, take these steps:

- 1) Turn the victim on on one side.
- 2) Push on the stomach with your hand between the rib cage and the waist.
- 3) Clean out the mouth if the victim vomits.
- 4) Roll the victim onto thir back and continue mouth-to-mouth breathing.

Take these steps ONLY IF air in the stomach is keeping you from giving breaths.

DENTURES

It may be hard to make a good mouth-to-mouth seal on a person who wears dentures(false teeth) if the dentures slip out of place and allow the lips to cave in. Try to hold dentures in place by holding the chin up with the chin lift.

If you can not hold the dentures in place, take them out and give mouth-to-mouth breathing or mouth-to-nose breathing.

BABIES AND CHILDREN

Mouth-to-mouth breathing, CPR, and first aid for airway obstructions are simular for adults and children, but some changes are needed for the smaller sizes and faster breathing and heartbeats of children. In discussing methods for young people, we will call anyone under one year of age a "baby" and anyone between one year and eight years a "child". Methods for adults should be used on these older than eight. These guidelines are approximate. In an emergency, use your best judgment-do not try to be exact about age because a slight difference will not be critical.

CHECKING CONSCIOUSNESS. Check consciousness the same way as for an adult: tap or gently shake a baby or child, and shout. If the victim is unconscious, do A QUICK CHECK.

THE AIRWAY STEP. Put one hand on the forehead and the other hand (or as many fingers as will easily fit) under the neck. Tip a baby's head gently, not as far as an adult's. Put your ear down close to the mouth and look at the chest. Look, listen, and feel for breathing.

THE QUICK STEP. If there is no breathing, give the QUICK step. Keep the head tipped. Open your mouth wide and put it over the mouth AND nose of a baby or child. If a child is too large for you to make a good seal over the mouth AND nose, pinch the nose and make a seal over the mouth, as for an adult.

Give a baby four QUICK, GENTLE PUFFS. A puff is about the amount of air you can hold in your cheeks. Remove your mouth from the baby to get each new puff, but do not pause between the 4 quick puffs.

Give a child 4 quick, gentle breaths. Give enough air to make the chest rise.

If the head tip-neck lift does not open the airway, use the head tip-chin lift method.



THE CHECK STEP. After the Quick step, do the CHECK step.

Check the pulse of a baby with your fingertips on the inside of the upper arm. Place the tips of two fingers halfway between the elbow and the shoulder. Place your thumb on the opposite side of the arm, and squeeze gently. Check the pulse of a child at the neck, just as for an adult. Check for at least 5 seconds, but not more than 10 seconds.

Keep your ear near the victim's mouth and look at the chest to check breathing again while you check the pulse.

If a baby is NOT breathing but DOES have a pulse, give mouth-to-mouth-and-nose breathing. Give one puff every 3 seconds-faster than for an adult. You can count, "One, one-thousand; two, one-thousand; b-r-e-a-t-h-a."

Give a child one breath every 4 seconds-slower than for a baby but faster than for an adult. When you open the airway, the victim may struggle to breathe or breathe weakly. If the victim does not seem to be getting enough oxygen, give breaths. Time your breaths with the victim's efforts to breathe. One sign of not enough oxygen is blue lips.

If the victim is not breathing and does not have a pulse, CPR is needed and the EMS system should be activated. If you have not been trained in CPR, give mouth-to-mouth breathing. The heart may be beating even though you did not feel it.

When you give breaths, the stomach may fill up with air. This happens more often with babies and children than with adults. It is caused by blowing too hard or by a partially blocked airway. If the stomach seems to be filling with air, check that the head is tipped and that you are not blowing too hard. If air in the stomach keeps you from giving breaths, take these Steps:

1) Turn the victim on one side. 2) Push on the stomach with your hand between the rib cage and the waist. 3) Clean out the mouth if the victim vomits. 4) Roll the victim onto

Take these steps ONLY IF the stomach is bulging with air and you cannot inflate the lungs. It is dangerous to push on the stomach because the victim may vomit and inhale the vomit into the lungs.

When you give breaths, try to blow just hard enough to make the chest rise, because you are likely to force air into the stomach if you blow too hard.

OBSTRUCTED AIRWAY

CONSCIOUS VICTIM

You may see someone choke on food, or you may suspect choking if a person collapses while eating. Signs of breathing difficulty are wheezing, gasping, choking, coughing, and grasping the throat.

If the person is not coughing, ask, "Can You speak?" A person who has a completely blocked airway CANNOT BREATHE, COUGH, OR SPEAK.

If the airway is almost completely blocked, there are high-pitched noises when inhaling, great difficulty breathing, and very weak or no coughing. First aid is the same for a completely blocked airway and for one that is almost completely blocked.

Someone who is coughing forcefully should be let alone. Watch closely and encourage the person to cough. Normal coughing is more effective than any method taught in this lesson, so do not interfere. Do not give back blows or anything else.

If the person CAN SPEAK, do not try to remove an object from the airway.

17) A person who coughs forcefully should be

1) a. given care for a completely blocked airway.

2) b. let alone and watched.

18) A person who coughs weakly and has great difficulty breathing should be

- [] a. given care for a completely blocked airway.
- [] b. let alone and watched.

19) If a person is in distress, is not coughing, but CAN speak,

- [] a. try to remove an object from the airway.
- [] b. do not try to remove an object from the airway.

If the victim's airway is blocked, give 4 back blows right away, then 4 thrusts.

BACK BLOWS. Stand just behind and to the side of a victim who is standing or sitting. Support the victim with one hand on the chest. The victim's head should be lower than the chest if possible, so gravity will help remove the object. Give 4 sharp blows over the spine, between the shoulder blades, as rapidly as possible. Hit with the heel of your hand, hard enough to knock the object loose.

If 4 back blows do not dislodge the object, give 4 thrust. Give thrusts either to the upper abdomen (abdominal thrusts) or to the lower chest (chest thrust).

ABDOMINAL THRUSTS. Give abdominal thrusts in the midline of the abdomen, between the waist and the bottom edge of the rib cage. Never push on the edge of the rib cage or on the xiphoid, because you may injure the victim.

To give 4 abdominal thrusts, put the inside of your fist (thumb) against the midline of the abdomen, between the rib cage and the waist.

Grasp your fist with your other hand and press it into the victim's abdomen with a quick inward and upward thrust. Repeat 4 times if required.

If back blows and thrusts do not work at first, repeat the series of 4 back blows and 4 thrusts as long as the

20) When you give abdominal thrusts, what part of your fist do you place against the victim?

- [] a. The palm side.
- [] b. The thumb side.

21) Where do you place your fist?

- [] a. Over the edge of the rib cage.
- [] b. Between the rib cage and the waist.

22) Abdominal thrusts are given quickly,

- [] a. inward and upward.
- [] b. straight back.

If your airway becomes completely blocked, you will not be able to speak. Let people who are nearby know right away, before you pass out. Hold one hand to your throat--this is the "distress signal of choking."

If you are alone, give yourself thrusts. Press your fist between your rib cage and waist with a quick, inward and upward thrust, or lean forward and press your abdomen quickly over any firm object, such as the back of a chair or a porch railing.

CHEST THRUSTS. Reach around the chest from behind, with your arms directly under the victim's armpits. Place the thumb side of your fist on the middle of the sternum at about the level of the armpits. Grasp your fist with your other hand, and pull straight back with quick thrusts.

If the victim is in advanced pregnancy or so large that you cannot reach around the waist, give chest thrusts, not abdominal thrusts to avoid injury to the ribs.

UNCONSCIOUS VICTIM

The first step for an unconscious person is the Airway step--tip the head and check for breathing. If the person is not breathing normally, try to give breaths. If air will go

If air will not go into the lungs when you try to give the 4 quick breaths, retip the head and try again-you may not have tipped the head far enough, and the tongue may be blocking the airway. If you still cannot get air into the lungs, and object is probably blocking the airway. Take these steps:

- 1) 4 back blows.
- 2) 4 thrusts.
- 3) Sweep your finger through the mouth (finger sweep).
- 4) Try again to give breaths.

Try to remember, "Breaths, blows, thrusts, sweep."

BACK BLOWS. Roll the victim toward you against your knees, by pulling at the hip and shoulder. Hit the victim with the heel of your hand, 4 times, over the spine, between the shoulder blades. Give the blows as rapidly as possible. Hit hard enough to knock the object loose.

23) If you cannot inflate the lungs the first time you try to give breaths,

- [] a. retip the head and try again.
- [] b. give 4 back blows.

24) Which way do you roll an unconscious victim to give back blows?

- [] a. Toward you.
- [] b. Away from you.

Right after you give 4 back blows, roll the victim onto the back and give 4 abdominal thrusts or 4 chest thrusts.

ABDOMINAL THRUSTS. Put the heel of one hand on the victim's abdomen, between the rib cage and waist. Then put your other hand on top of the first. Point the fingers directly over the victim's abdomen, press inward and upward with 4 quick thrusts. Do not press to either side because you may injure the victim. You may kneel astride the victim's hips, or one thigh, or alongside the victim.

Abdominal thrusts can be given from alongside the victim as well as from astride the victim. Each position has advantages:

-Astride: may be easier to push straight; may be easier for small rescuer.

-Alongside: rescuer does not have to move from astride the victim to give back blows, sweep the mouth, and give breaths.

CHEST THRUSTS. The chest thrust is an alternative to the abdominal thrust for unconscious victims as well as for conscious victims.

For giving chest thrusts to an unconscious person, the body position and hand position are the same as for chest compressions in CPR.

FINDING WHERE TO GIVE CHEST THRUSTS

Find the lower edge of the victim's rib cage on the side near you. Use your hand that is nearer the victim's feet.



With the middle and index fingers, trace the edge of the ribs up to the notch where the ribs meet the sternum. Keep your middle finger on the notch and place your index finger next to it on the lower end of the sternum.

Put the heel of your other hand on the sternum next to your fingers. Put the hand you measured with on top. Push straight down. Keep your fingers off the chest.

If you push on the xiphoid by mistake, it may bend in and injure the liver. It is better to be too high on the

FINGER SWEEP. After giving 4 thrusts, grasp the tongue and lower jaw between your thumb and fingers, and pull up.

With the index finger of your hand, follow down along the inside of one cheek, deep into the throat to the base of the tongue. Sweep in from the side. Do not poke straight in, because that may push the object down. Use a hooking action, across toward the other cheek, to loosen and remove the object.

For an unconscious victim, remember, "Breaths, blows, thrusts, sweep."

25) To give abdominal thrusts, place the heel of the hand

- [] a. over the edge of the rib cage.
- [] b. between the rib cage and the waist.

26) Place your other hand on top of the first hand and give the thrusts

- [] a. straight toward the ground.
- [] b. upward, toward the lungs.

27) You give 4 back blows and 4 thrusts to an unconscious victim. After giving the thrusts, you

- [] a. sweep in the mouth
- [] b. give 4 more back blows.

28) If you CAN force air into the lungs but think there may be an object in the airway,

- [] a. stop giving breaths and try to remove the object.

- [] b. keep giving breaths.

29) You have retipped the victim's head but still cannot blow air into the lungs. Number the steps to show the order in which you will do them.

- [] 1 Finger sweep.
- [] 4 thrusts.

After sweeping the mouth, whether or not you remove the object, tip the head and try to give breaths. If air will go into the lungs, repeat 4 back blows, 4 thrusts, and sweeping. Then try to give breaths. KEEP REPEATING THIS SEQUENCE: breaths, blows, thrusts, sweep. After the victim has been without oxygen awhile, muscles in the throat relax. Methods that did not work at first may work later.

Sweep after giving thrusts. Also sweep whenever you see an object in the mouth or throat of an unconscious victim.

A victim who is given mouth-to-mouth breathing, back blows, or thrusts may vomit. Roll a victim who vomits toward you on one side and clean out the mouth with your fingers. Then roll the victim back and continue.

HEART ATTACK AND STROKE

SIGNALS OF HEART ATTACK

A person of any age may have a heart attack. The most frequent victims of heart attack (cardiac arrest) are persons who are overweight, those who smoke, and older persons.

The most common signal that someone is having a heart attack is uncomfortable pressure, squeezing, fullness, or pain in the center of the chest. Sometimes the pain is in the upper abdomen and seems to be indigestion. Pain may travel out from the center of the chest to the shoulders and arms, neck and jaw. Other signals are sweating, nausea, shortness of breath, and a feeling of weakness.

Anyone who has persistent signals of heart attack should get medical care at once. Call the paramedics or rescue squad or take the person to a hospital right away. If you think you may be going to have a heart attack, get help immediately. Have someone take you to a hospital if possible.

CARDIOPULMONARY RESUSCITATION (CPR)

The heart and lungs work together. The air that is breathed into the lungs gives oxygen to the blood. The heart circulates blood, carrying oxygen to brain and to the rest of the body. There are many conditions that can cause the heart to stop beating (cardiac arrest). These include all accidents that cause breathing to stop, as well as heart attacks.

If a person stops breathing, the heart may keep beating for a while. In this case, mouth-to-mouth breathing is needed. If a heart attack, illness, or injury makes the heart stop beating, breathing will not continue. In this case, CPR is needed.

In CARDIOPULMONARY RESUSCITATION, CARDIO refers to the heart and PULMONARY refers to the lungs. CPR is the combination of mouth-to-mouth breathing, which supplies oxygen to the lungs, and chest compressions, which circulate blood. By giving CPR, you breathe and circulate blood for a person whose heart and lungs have stopped working. The purpose of CPR is to keep a person alive until the heart and lungs start working again, or until medical help is obtained.

If you have not taken a course in CPR, we urge you to do so. CPR should be given only by persons who are properly trained.

30) Name three signals that a person is having a heart attack and should get help right away.

1. _____
2. _____
3. _____

31) Can cardiac arrest be caused by an accident?

[] a. Yes. [] b. No.

32) Can people of any age have cardiac arrest?

[] a. Yes. [] b. No.

STROKE

A stroke is usually caused by a blood clot or by bleeding in the brain. Serious brain damage may produce unconsciousness, heavy breathing, and paralysis on one side of the body. The pupils of the eyes may be of unequal size.

If a stroke is slight, there may be dizziness or headache, sudden failure of memory, change of mood, muscular difficulty speaking, or ringing in the ears.

First aid for a stroke is to keep the victim lying down, maintain normal body temperature, and get medical help immediately. Do not give anything to eat or drink.

Place a person who is unconscious or partly conscious on one side to allow fluids to drool from the mouth. If necessary, give mouth-to-mouth breathing (or CPR, if it is needed and you are trained).

When any signs of a stroke appear suddenly, especially in older persons, you should:

- protect the victim against accidents and physical exertion.
- suggest medical attention.

33) Check all of the things to do for a person who has a severe stroke:

- [] a. Position lying down on the back or on the side.
- [] b. Give plenty of fluids to drink.
- [] c. Maintain normal body temperature.
- [] d. Bandage the head.
- [] e. Get medical help immediately.
- [] f. Give mouth-to-mouth breathing if necessary.

Some ways to help prevent heart attack and stroke are:

- Have a medical checkup every year after the age of 40.
- Do not smoke.
- Control your weight.
- Do not exercise strenuously if you are not used to it.
- Get adequate rest.

WOUNDS

The objectives of first aid for serious wounds are to stop the bleeding, protect wounds from contamination and infection, give care to prevent shock, and get medical help.

DIRECT PRESSURE AND ELEVATION

Direct pressure and elevation will stop bleeding from most wounds. ALWAYS USE DIRECT PRESSURE. Use a thick pad of cloth. Press hard. If you cannot get a pad right away, apply direct pressure with your bare hand until you get a pad. Elevate the wound when you apply direct pressure if it does not cause pain and if you do not suspect broken bones.

Direct pressure is better than a pressure point or a tourniquet, because direct pressure stops circulation only at the wound.

PRESSURE POINTS

If you use a pressure point, KEEP USING DIRECT PRESSURE (and elevation, when suitable). ADD the pressure point.

Do not use a pressure point for an arm or leg wound unless direct pressure and elevation do not stop the bleeding. When bleeding is under control, gradually release the pressure point. Keep direct pressure on the wound, then bandage into place the cloths that were used to stop the bleeding.

Follow these steps for a wound that is not on an arm or leg:

- 1) Stop the bleeding with direct pressure.
- 2) Bandage into place the cloths used to stop the bleeding.
- 3) Give care to prevent shock.
- 4) Get medical care.

WHEN TO CLEAN WOUNDS

If a wound is large, deep, or has been bleeding heavily, do not remove the cloths that were used to stop the bleeding. DO NOT clean a serious wound that has finally stopped bleeding—it may start to bleed again. Serious wounds should be cleaned only by trained medical personnel.

Clean a small wound with ordinary mild hand soap or mild detergent. First wash your own hands, then wash the wound. Rinse it thoroughly WITH CLEAN WATER. Put a clean, dry dressing and bandage on the wound.

33) A pad used to stop bleeding should be

☐ a. thick

☐ b. thin.

34) If elevation does NOT cause pain, elevate wounds on the arms and legs,

☐ a. even if the victim has unsplinted fractures.

☐ b. only if the victim does not have unsplinted fractures.

35) What method is best and is used FIRST for stopping bleeding?

☐ a. Tourniquet.

☐ b. Direct pressure (and elevation).

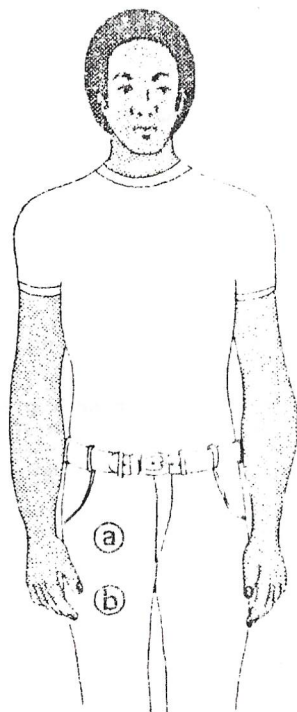
☐ c. Pressure points.

36) If you cannot get a pad right away, stop severe bleeding with

☐ a. a pressure point.

☐ b. your bare hand.

37) In this picture, which circle shows the location of a leg pressure point?



☐ a.

☐ b.

38) If you use a pressure point,

☐ a. do not apply direct pressure

☐ b. keep applying direct pressure.

TOURNIQUET

When you use a tourniquet, you risk sacrifice of a limb in order to save a life. The only time when there is not this risk is when the accident has amputated part of a limb and the tourniquet is tied right above the wound.

If you have decided to use a tuourniquet, make it tight enough to stop all bleeding. A loose tourniquet will restrict the flow of blood in the veins without stopping the flow of blood in the arteries. This will cause MORE blood loss, because the blood will pass into the wounded area through the arteries but will not return to the heart through the veins.

NOSEBLEED

To stop a nosebleed, apply direct pressure by firmly pinching both nostrils shut with a thumb and forefinger. The victim should sit down and lean slightly forward, not backward. Leaning back or tipping the head back will cause blood to run down the throat and make the victim feel ill. The victim is usually able to pinch his or her own nose.

Keep pinching until the bleeding stops. If bleeding does not stop, you may have to pack the bleeding nostril lightly with gauze and squeeze again. (Do not use cotton. Cotton will get stuck.) Get medical help for frequent nosebleeds and nosebleeds that will not stop.

39) What method of controlling bleeding is so dangerous that you should use it only if nothing else works?

☐ a. Tourniquet.

☐ b. Pressure point.

☐ c. Direct pressure.

40) Direct pressure will control bleeding in

☐ a. almost all cases.

☐ b. only a few cases.

SHOCK

During your First through examination of the victim, after giving urgent care, give care to prevent shock. This kind of shock is not an electric shock. Shock can happen to anyone who is badly hurt or who has lost a lot of blood or body fluid.

Shock depresses the body functions and can keep the heart, lungs, and other organs from working normally. It can be made worse by extreme pain and fright. Even if injuries do not directly cause death, the victim can go into shock and die. Anyone with a serious injury must have medical

A trained medical person can treat shock by giving fluids directly into the blood vessels (intravenous fluids) to replace body fluids lost through an injury or illness. A first aider cannot do this, but he or she can give care that will help prevent shock.

Do your best to comfort, quiet, and soothe the victim. Keep him or her lying down, comfortable, and a normal temperature. If it is hot, provide shade; if it is cold, provide protection from cold both under and over the victim. Be very careful around the victim when giving first aid. DO NOT say anything that might scare the victim, or that might make them doubt your ability as a first aider; be confident, but know your limitations.

STANDARD POSITION for giving care for shock: feet up, injury elevated. Do not elevate the injury if a broken bone is suspected. Do not elevate ANY unsplinted fractures.

If the victim has a head wound or is having trouble breathing, elevate the HEAD AND SHOULDERS. Do not elevate the feet and the head at the same time.

The victim should be flat on the back if fractures are suspected and not splinted, if elevation is painful, or if you are unsure about which position is correct.

A victim who is bleeding from the mouth, vomiting, or may vomit should lie on one side, so fluid will drain from the mouth.

41) How should you position someone who is having trouble breathing?

[] a. Feet and bandaged wounds elevated.

[] b. Elevate the head and shoulders.

42) How do you position someone is bleeding from the mouth? _____

43) How do you position someone with unsplinted fractures? _____

POISONING

Poisoning is a more or less likely cause of sudden collapse, depending upon the situation in which you find the person. Vomiting and heavy, labored breathing may indicate poisoning. So may a deep sleep from which the victim cannot be aroused or eye pupils that are very large or very small. These signs may also indicate disease, internal injuries, or other problems. Look for a container that can tell you what the victim may have eaten or drunk.

Check around the mouth for signs of chemical burns. Smell the breath. Suspect poisoning if there are burns around the mouth, or if the breath smells very strong like gasoline.

If the victim is conscious, FIRST dilute any poison with water or milk. Give one glass to an adult and somewhat less to a child.

As soon as you have given water or milk and tried quickly to identify the poison, call the poison control center or a doctor. If you cannot reach either one, call your city's emergency number or a hospital emergency number. Say, "I have a poisoning emergency," so that you will be talking to the correct person. Then say:

-What is wrong.

-Who you are.

-Where the victim is.

-Age and condition of the victim.

-What the victim was poisoned by (if known) and how much poison was taken (if known).

-What you have done.

DO NOT HANG UP THE TELEPHONE FIRST.

It is best to call a poison center, because they have current information on what to do for many poisons. They will tell you whether or not to make the victim vomit, and they will tell you what else to do for the victim.

The directions for antidotes on many poison containers are NOT correct, so do not give anything but water or milk unless a poison center or doctor tells you to. Some incorrect treatments can cause more damage than the poison itself! A poison center will have the most up-to-date advice.

Find out from your instructor the nearest poison center number. Call it in an emergency, even if it is a long-distance call. Keep syrup of ipecac, activated charcoal, and epsom salts on hand. The poison center may want you to use one or more of these.

The steps for a CONSCIOUS victim of poisoning are:

FIRST: Dilute the poison by giving water or milk to drink.

THEN: Try quickly to identify the poison, but do not waste time.

Call the poison center, hospital, or doctor.

Give care to prevent shock.

If the person is unconscious or in convulsions, do not give water or milk. NEVER give an unconscious person something to drink. Keep checking breathing. Try to identify the poison and call for advice right away. Have the person lie on one side, so that fluids such as vomit will not block the airway.

44) What is the first step for a CONSCIOUS victim of poisoning?

- ☐ a. Call the poison center.
- ☐ b. Give water or milk to drink.
- ☐ c. Cause vomiting.

45) What do you do right away for an UNCONSCIOUS victim of poisoning?

- ☐ a. Check breathing and call the poison center.

☐ b. Give water or milk to drink.

If you cannot get advice from a poison center or doctor right away, and the victim is conscious, you must decide whether to make the victim vomit. Right after giving water or milk to drink, make the victim vomit these poisons:

-Too much medicine or the wrong medicine.

-Pest poisons. These include bug and rat poison and weed killers.

To make the victim vomit, tickle the back of the throat with your finger or give syrup of ipecac, following directions on the container.

Cause vomiting ONLY IF the victim is conscious, you cannot get advice, and you are certain the poison should be vomited.

Some poisons should NOT be vomited. Signs that tell you NOT to cause vomiting are:

-Burns around the lips or mouth. Poisons that burn the mouth and throat, such as drain cleaners and toilet cleaners, should not be vomited. These are strong alkalis and acids.

-Breath odor like kerosene or gasoline. Petroleum products should not be vomited.

Do not cause vomiting if you are not certain that you should. Do not cause vomiting if the victim is unconscious, exhausted, or having convulsions. Make sure the victim keeps breathing, give care to prevent shock, and get medical help as soon as possible.

46) Which of these poisons may cause burns in the mouth and throat?

- ☐ a. Aspirin.
- ☐ b. Kerosene.
- ☐ c. Drain cleaner.

47) If you can contact a poison control center, should you try to decide whether the victim should vomit a poison?

- ☐ a. Yes
- ☐ b. No.

Pest poisons, such as bug poison and weed killer, can poison a person not only if swallowed, but also if absorbed into the body through the skin. If any pest poisons are spilled, dusted, or misted onto the skin or clothing, wash them off immediately. If you become ill after being exposed to such products, get medical care or call a poison center for advice.

Small children are often poisoned because they put in their mouths almost everything they pick up. Put poisons, medicines, and household cleaners high in a cupboard that small children cannot open even if they climb up. If you have to put a poison in a new box or jar, put on a large label: POISON and what the poison is. Do not leave any poisons, even with labels, around children who can not read.

Many plants, fruits, and berries are poisonous. Do not eat a part of any plant unless you are sure it is safe.

48) If bug poison or weed killer gets on your skin,

- ☐ a. wash it off immediately.
- ☐ b. rub it off with your hand.

49) If you feel ill after being exposed to bug poison or weed killer,

- ☐ a. drink plenty of fluids and rest in bed.
- ☐ b. get medical help.

BURNS

SEVERITY OF BURNS

The severity of a burn is determined by three factors:

— DEPTH of the burn. This is called "degree". First-degree burns are mild, second-degree burns are deeper, and third-degree burns are deepest.

— SIZE or extent of the burn. A very large burn is one that covers, for example, one side of the upper or lower half of an arm or leg, or the upper or lower back.

— LOCATION of the burn. Burns on critical areas of the body are especially dangerous. The four critical areas are the hands, feet, face, and genital organs.

DEGREE tells only about depth—not about size of location. The severity of a burn depends upon how deep the burn is, and how much of the body it covers, and where on the body it is located.

In addition to depth, size, and location, the age and physical condition of the victim can contribute to the seriousness of burns.

There is danger of infection in any burn, especially if there are blisters or loss of skin. Any burn that seems to become infected must receive medical care as soon as possible.

Burns on the face, nose, or mouth may indicate burns in the breathing passages. Such burns can cause the airway to swell and keep the person from breathing. Keep checking breathing, give mouth-to-mouth breathing if necessary, and get immediate medical help.

50) The severity of a burn depends upon

- ☐ a. depth, size, and location.
- ☐ b. depth and size, but not location.
- ☐ c. size and location, but not depth.

51) What are the four critical areas of the body?

- ☐ a. Hands, feet, arms, and legs.
- ☐ b. Hands, feet, face, and genitals.
- ☐ c. Feet, legs, genitals, and torso.

52) If a person has burns on the face, be alert for injury to the

53) The danger of infection in a severely burned area is

- ☐ a. very low.
- ☐ b. moderate.
- ☐ c. very high.

54) If a burn becomes infected, medical care is required

- ☐ a. within a week.
- ☐ b. as soon as possible.

THIN BURNS

A first-degree burn is not very deep. It involves only the surface layers of the skin. A second-degree burn goes deeper into the underlayers of the skin.

A mild first-degree burn on a person with light skin is pink or reddish—a mild sunburn, for example. On a person with dark skin, the color of a mild burn might not show. There are few or no blisters and little or no swelling.

DEEP BURNS

Deepburns cause a moderate to large amount of swelling.

A MODERATELY deep second-degree burn may have large blisters or skin that peels away, leaving a small amount of raw, red area underneath.

A DEEP second-degree burn will have large blisters and some skin may be burned away. If the burn is open, it will ooze clear body fluids, giving it a wet surface.

A THIRD-degree burn goes all the way through the skin. It may involve bone, muscle, and other tissue beneath the skin. A third-degree burn may be red and raw with ashy white

or black charred areas. However, it may not be possible to tell a third-degree burn from a second-degree burn. Third-degree burns destroy nerve endings and flesh, so a third-degree burn may hurt less than a second-degree burn. Absence of pain does not mean that a burn is mild.

MEDICAL CARE

Third-degree burns will not heal properly without medical care, and third-degree burns larger than 4 centimeters (1 1/2 inches) in diameter will need skin grafts. All third-degree burns need medical care.

All large second-degree burns, and ALL SECOND-DEGREE BURNS ON CRITICAL AREAS, no matter what size, need medical care.

Anyone who is burned may have some areas of first-degree burn and other areas of second-degree and third-degree burn. Base your decisions about first aid and medical care on the worst burns.

55) What are the four critical areas of the body?

- a. _____ b. _____
- c. _____ d. _____

56) What three factors determine the severity of a burn?

- a. _____ b. _____ c. _____

57) You think a burn by grease may be as deep as a third-degree burn, but you cannot tell for sure. You should assume that it is a

- ☐ a. second-degree burn.
- ☐ b. third-degree burn.

FIRST AID FOR HEAT BURNS

The three major objectives of first aid for heat burns are to relieve pain, to reduce the chance of infection by preventing contamination, and to reduce the likelihood of shock.

Cooling will reduce the pain of a burn. Aspirin may be given to a conscious person who has mild burns, if the person is not allergic to aspirin. Pain requiring stronger medication should be treated by a doctor.

SMALL, THIN BURNS. Cool water can be used directly on a small burn that is not very deep. Put cool water on the burn right away. Immerse it if possible. Do not add anything to the water. Cool the burn until pain is reduced. Then gently pat the area dry with sterile gauze.

A small, thin burn does not need to be bandaged unless there are open areas or blisters that need protection. If necessary, cover the burn with a dry, sterile dressing. Hold the dressing in place with a bandage or tape. You may leave the dressing on the burn for a day or two, or change it more often, as it suits the victim.

LARGE, THIN BURNS. Cool a large, thin burn with water immediately and until pain subsides. Dry it gently and cover it with a thick, dry, sterile dressing. Dry, insulated cold packs may be used over the dressing if they make the victim more comfortable.

DEEP BURNS. Most moderate second-degree and deeper burns have open areas where blisters break or skin is burned away. DO NOT put water directly on an open burn to cool it. Water increases the danger of infection in open burns. Instead, cover the burn with a thick, dry, sterile dressing and bandage. If burned clothing is sticking to a burn, place the dressing right over it. Do NOT remove clothing that is sticking to a burn.

Dry, insulated cold packs may be used over a dressing on small areas such as the face, hands, and feet. Do not wet the dressing. Do not use cold packs if their weight causes pain.

CARE TO PREVENT SHOCK

Have the victim lie down, elevate burned areas if elevation does not cause pain or further injury, maintain a

The major cause of shock in burn victims is massive loss of body fluid through the burned area. Water may be given by mouth to someone who has thin burns or a small, deep burn. Do not give fruit juices or alcoholic beverages to a burn victim. A victim with large, deep burns must be given special treatment by medical personnel.

CAUTIONS

- * Do not put anything oily or salty, such as butter, on a burn. Salt makes a burn hurt worse and draws more fluid out of the burned tissue. Anything oily will have to be removed from a burn before medical treatment can be given.

- * Do not use water directly on burns to cool them if the skin is blistered or broken.

- * In order to heal properly, burns should not be rubbed by clothing or bandages. No burn should bear weight.

- * Medical personnel who are caring for the victim of severe burns should change dressings and bandages.

- * Do not remove charred clothing that is stuck to a second or third-degree burn.

HEAT BURNS OF THE EYE

Heat burns of the eye can be caused by a splash of hot grease or a hot cinder from an open fire. Gently FLOOD water into any eye burn except a very deep burn caused by heat. Then examine the eye. If a cinder or other object is loose on the surface of the eye, gently touch it out with the corner of a clean handkerchief or sterile bandage.

Cover the eye with a thick, dry, sterile dressing, and bandage the dressing in place. Tell the person not to rub the eye. If a cinder or any other object cannot be removed or is embedded in the eye, keep the eye from moving by bandaging both eyes. If possible, bandage both eyes for any eye burn or injury.

Treat deep eye burns caused by heat as third-degree burns: do NOT flood the eye with water. Bandage both eyes, put a cold pack over the bandage on the injured eye, elevate the head and shoulders, and give care to prevent shock.

Immediate medical care is needed for any burn of the eye and for any object embedded in the eye. If possible, get care from an eye doctor (ophthalmologist).

58) If charred clothing is sticking to a burn, the clothing should be

- ☐ a. removed before you bandage the burn.
- ☐ b. left on the burn when you bandage it.

59) One way to relieve the pain of a small, deep burn is to

- ☐ a. cool it with cold packs.
- ☐ b. warm it with hot packs.

60) If you put a burn in water, should you add anything to the water?

- ☐ a. Yes
- ☐ b. No

61) Do you put water into deep heat burns of the eye?

- ☐ a. Yes.
- ☐ b. No.

62) Which burns may be cooled directly in water?

- ☐ a. Small, thin burns with no open tissue.
- ☐ b. Large, deep burns with open tissue.

FIRST AID FOR CHEMICAL BURNS OF THE SKIN

If a strong chemical gets on skin, wash it off quickly. It may cause burns or an allergic reaction, or it may be

Take off all clothing on which a chemical has spilled, including clothing that is touching a burn.

Note how care for chemical burns is different from care for heat burns: wash ALL chemical burns, and remove clothing from ALL chemical burns. Followup care for chemical burns is the same as for heat burns.

Call a poison control center to find out if there are other steps you can take. But wash the chemical off first, before you call. Some product labels tell how to neutralize chemicals, but these directions may be wrong. Do not try to neutralize a chemical with another chemical unless a poison center or doctor tells you what to do.

After you have washed the chemical off, cover the burn with a thick, dry, sterile dressing and bandage, give care for shock, and get medical help immediately.

63) Remove clothing from a burn that was caused by

- ☐ a. chemicals.
- ☐ b. fire or heat.

64) Wash a chemical burn

- ☐ a. only if it is NOT deep and open.
- ☐ b. even if it IS deep and open.

65) What do you do first for a chemical burn?

- ☐ a. Wash the chemical off for at least 5 minutes.
- ☐ b. Neutralize the chemical, then wash it off for at least 5 minutes.

CHEMICAL BURNS OF THE EYE

If someone gets a chemical in an eye, put the eye under gently running water that is neither very hot nor very cold as soon as possible. Have the victim hold the eyelids open, or hold them open with your fingers, so the water will run

Have the victim remove contact lenses while water is being obtained or is first run into the eye. Do not delay washing the eye, but remove the lens as soon as possible.

Run water from the inside to the outside of the eye, with the burned eye nearer to the floor, so that the chemical is not washed into the other eye. Some chemicals keep burning for a long time and are difficult to remove, so wash the eye for about 15 MINUTES. After you have washed the eye, examine it carefully. If you see any loose specks of chemical on the eye, gently lift them off with gauze or clean cloth.

Cover the eye with a dry, sterile dressing. If possible, help keep the burned or injured eye from moving by bandaging BOTH eyes. Get immediate medical care.

66) Wash a chemical out of an eye for at least

- [] a. 1 minute.
- [] b. 5 minutes.
- [] c. 15 minutes.

67) Wash a chemical off the skin for at least

- [] a. 1 minute.
- [] b. 5 minutes.
- [] c. 15 minutes.

68) If a person with chemical in an eye is wearing contact lenses,

- [] a. remove the lens right away, delay washing until you are sure it is out of the burned eye.
- [] b. remove the lens right away, but do not delay starting to run water in the eye.

69) While chemical is being washed from the eye,

- [] a. keep the eye open, even if you have to hold it open with your fingers.
- [] b. tell the victim to keep the eye open unless it

Many drugs and chemicals are used in spray form. None of these should be sprayed in the eyes or inhaled into the lungs. If something is sprayed into the eyes, first aid is the same as for any other chemical burn of the eye: wash it all out.

PREVENTION OF BURNS

Many fires and burns result from carelessness with cigarettes, matches, electricity, and gasoline. Be careful when working around electrical wiring, such as when pruning trees where branches may fall on wires, and when working on the roof of a building. Do not pour gasoline from one container to another when you are in an enclosed space, such as a shed or garage. Do not pour gasoline near a hot engine, such as a chain saw or lawn mower. Do not add charcoal lighting fluid to a smoldering fire.

Most chemical burns can be avoided by following warnings on labels. Handle strong chemicals carefully and keep them away from children.

BLISTERS

PREVENTING BLISTERS

The most common complaint of inexperienced hikers is blisters, and the most common cause is new or ill-fitting boots. A common mistake is to buy boots that are too loose in the instep which allows the foot to jam forward in the boot going down hill, producing "downhill blisters." Hiking boots should hold the instep securely to prevent the foot from pushing forward. "Uphill blisters" are common over the heel or the tendon at the back of the ankle (Achilles tendon).

•• Blisters can be avoided by (1) buying properly fitting boots, (2) breaking them in prior to long walks or climbs, (3) putting adhesive tape over areas that blister prior to starting the walk, and (4) wearing a light, thin pair of socks under the heavy wool socks.

Once a blister, or hot spot, is formed; further injury to the area should be prevented by covering it with tape, moleskin, or a doughnut of felt. A lubricant such as Skin Lube or Vaseline may be used under the tape on the hot spot to keep the tape from hurting the blister. Ruptured blisters should be treated in the same manner as an abrasion. The feet should be kept meticulously clean with soap and water to prevent infection.

TREATMENT FOR BLISTERS

1) The most common blisters are of two types, (a) FRICTION OR BURN, and (b) BLOOD OR PINCH. With friction blisters, the rubbing of shoes, boots, or equipment creates heat. To protect the flesh beneath, nature lifts the outer layer of skin and fills the void with lymph. In the blood blister, the skin is pinched, the flesh is bruised, blood and lymph mix and fill the area. With the blood blister we often have damage to the surrounding tissues, causing added pain and discomfort.

2) In both cases, the method of treatment is to remove this covering-this outer layer of skin- and treat the area as a new open wound. Nature has sacrificed this outer layer of skin. The removal of this layer of skin is a delicate procedure. Sterilize the instruments. Sterilize the hands with ALCOHOL- allowing to dry without wiping. Scrub blister and surrounding area thoroughly.

3) With sterilized scissors and tweezers, carefully cut away skin over the blister. BE CERTAIN THAT ALL OUTER EDGES ARE TRIMMED EVENLY. Clean any debris from wound with sterile gauze pads.

4) Apply an antibiotic cream, or Strawberry Ointment to a fresh gauze pad; place the pad over the wound. spray the surrounding area with Tuf-Skin, if available, and tape the dressing securely in place. This dressing should be replaced daily, after a thorough cleansing of the wound.

5) Build up the area surrounding the blister to remove pressure on the tender wound, if needed. White felt, moleskin or Chiropodist felt may be used. Thickness of the pad is optional, but THE WOUND MUST BE PROTECTED from direct pressure, especially on all edges. Continue dressings and padding until all soreness is gone.

70) Unbroken blisters should

[] a. be left alone.

[] b. be broken, excess skin removed, and treated as an open wound.

[] c. be taped to prevent friction and rubbing.

71) At the first signs of a hot spot or blister one should

[] a. apply lubricant and tape to prevent rubbing.

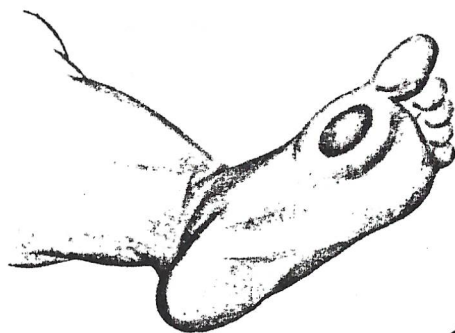
[] b. continue on until the blister forms and breaks, then treat as an open wound.

STANDARD TREATMENT WHEN REMOVING BLISTERS

①

The most common blisters are of two types. (1.) friction or burn, and (2.) blood or pinch. With friction blisters, the rubbing of shoes or equipment creates heat. To protect the flesh beneath, nature lifts the outer layer of skin and fills the void with lymph. In the blood blister, the skin is pinched, the flesh is bruised, blood and lymph mix and fill the area. With the blood blister we often have damage to the surrounding tissues, causing added pain and discomfort.



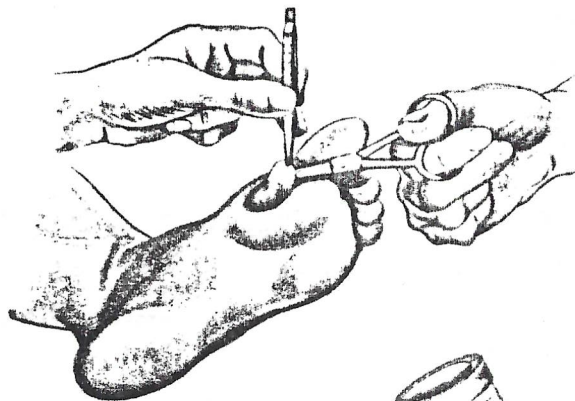


2

In both cases, the suggested method of treatment is to remove this covering—this outer layer of skin—and treat the area as a new open wound. Nature has sacrificed this outer layer of skin. Why permit it to remain to cause complications and possibly hinder safe recovery? The removal of this layer of skin is a delicate procedure. Sterilize the instruments. Sterilize the hands by washing with **Iso-Quin**—allowing to dry without wiping. Scrub blister and surrounding area thoroughly.

3

With sterilized scissors and tweezers, carefully cut away skin over blister. Be certain that all outer edges are trimmed evenly. Clean any debris from wound with sterile gauze pads.



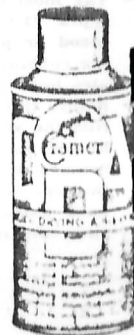
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Place 3" x 3" gauze pad over blister area and pour on **Nitrotan**. Soak pad thoroughly. If time permits, apply a **Cramer Elastic Wrap** to press gauze pad against wound. Hold this "**Nitrotan** Compress" against the wound for 20 minutes to one hour. (One hour preferred.)



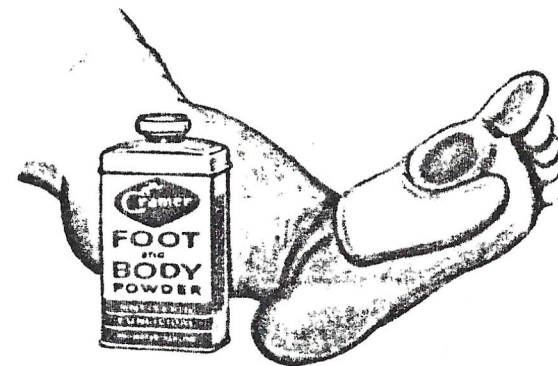
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Apply **Strawberry** Ointment to a fresh gauze pad. Remove "**Nitrotan** Compress" and place the ointment dressing over wound. Spray surrounding area with **Tuf-Skin** or **Q.D.A.** and tape dressing securely in place. Then dust with **Foot and Body Powder**. This ointment dressing must be replaced daily, after a thorough cleansing of the wound.

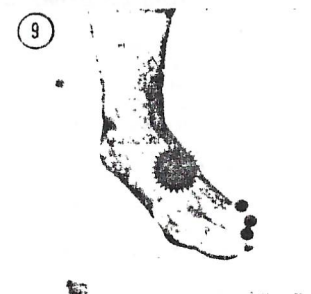
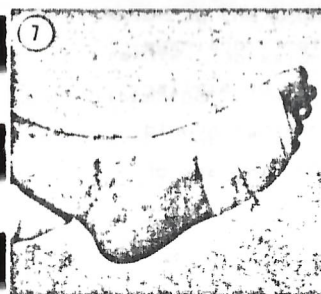
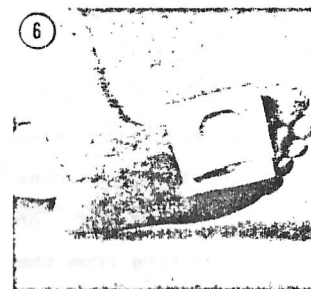
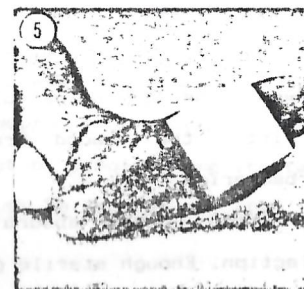


6

This drawing illustrates a method of building up the area surrounding the blister to remove pressure on the tender wound. White felt, moleskin or **Chiropodists** felt may be used. Thickness of pad is optional, but the wound must be protected from direct pressure, especially on all edges. Continue dressings and padding until all soreness is gone.



4. Apply **Cramer's Strawberry Ointment** to a 3" x 3" gauze pad. The Ointment should be spread about 1/8" thick. 5. Put this dressing over the wound. 6. Cut a hole in a 1/4" felt pad slightly larger than the blister, and place directly over the Ointment dressing.



7. Spray area with **Tuf-Skin** or **Q.D.A.** and secure firmly in place. Finally, dust bandage, socks, and inside shoes with **Foot Powder** to remove friction. Change dressing daily. This pad removes pressure from wound and, in most cases, allows immediate play.

Watch for blisters in the areas indicated by the dotted lines. This standard procedure applies to all of them.

BANDAGING

A bandage should perform several functions: covering and protecting the wound to aid in the control of infection, providing compression to help control bleeding and swelling, and immobilizing the injured area to reduce pain and promote healing.

ANTI-SEPSIS. The dressings covering a wound must be sterile to prevent infection or, if infection has occurred, to limit it to the organisms already present. A clean, but not necessarily sterile, bandage is placed over the dressings to keep them dry and prevent them from being soiled. Water or perspiration seeping into the wound from the outside inevitably carries in bacteria.

Dressings on infected wounds absorb the discharge resulting from the infection. Enough sterile gauze should be placed over the wound to prevent this discharge from reaching the surface of the bandage and contaminating the clothing or other wounds.

Dressings which are contaminated by purulent drainage (containing pus) must be handled with forceps or similar instruments which can be sterilized. Such dressings should never be touched with the fingers, and should be disposed of by burning. If more than one wound or more than one accident victim is to be cared for, the infected wounds should be put off until last. The attendant must scrub his hands thoroughly after dressing each wound to prevent the spread of infection between wounds or individuals.

COMPRESSION. For the first three to four days after injury all major wounds should be covered with a compression bandage to control bleeding and swelling and to provide immobilization. A number of gauze pads should be unfolded, crumpled, and placed over the dressing which covers the wound. Then the dressings and crumpled gauze should be

wrapped with a continuous bandage which applies moderate pressure over the wound. The bandage should be snug but not tight—not nearly as tight as the type of bandage used to control hemorrhage. Only gentle compression is desired; there must be no constriction if the wound is on an extremity.

SPLINTING. Splinting of soft tissue wounds is best accomplished by the application of a compression dressing. Injured hands should be splinted in the position of function.

PROTECTION. Enough dressings must be included in the bandage to protect the wound from further trauma—either striking against some object or simply being irritated by clothing. The bandage also must be secured so that it does not become dislodged.

BANDAGING MATERIALS. Lacerations may be covered by one of the plastic dressing materials such as "Telfa" which do not stick to the wound and are therefore much less unpleasant to remove. Abrasions, puncture wounds, some avulsions, and all infected wounds require gauze which has been impregnated with petroleum jelly to prevent it from adhering to the wound surface. With all wounds, sterile gauze pads four inches square should be placed over the initial layer to absorb any drainage and provide cushioning.

For bandaging, materials such as "Kling" which have a certain amount of elasticity are much more satisfactory than plain gauze rolls. Elastic materials are easier to use, stay in place better, and exert a modest pressure on the wound. A two- or three-inch elastic bandage can be used for this purpose and offers the advantage of serving a number of other useful purposes as well.

If there is a chance of the wound being wet, it can be covered with waterproof tape. Otherwise waterproof tape should not be used since perspiration accumulates

underneath, tending to macerate (soften) the skin and also causing the tape to come loose.

The skin on which tape is to be placed should first be swabbed with tincture of benzoin. During subsequent dressing changes the tape should not be removed. If the tape is clipped off at the edge of the dressing and the new layer of tape placed on top of the old, the skin irritation associated with repeatedly stripping off the tape can be avoided.

SPECIAL INJURIES

LACERATIONS. Lacerations, which are produced by cutting or tearing injuries, may be clean and straight, like an incision, or ragged and irregular. These wounds should be treated for bleeding and infection as previously described. Small tags of skin or other tissue in ragged lacerations should be snipped off with sterile scissors. Removal of these fragments causes little pain or bleeding and helps prevent infection.

A severe laceration may damage blood vessels, nerves, or tendons as well as the skin. Any attempt to repair these structures in the field would almost inevitably lead to further damage and increase the danger of severe infection. The wound should be bandaged as usual, the patient evacuated, and restoration of the damaged structures left to surgery at a later date.

PUNCTURE WOUNDS. Puncture wounds which have only a small external opening may extend deeply into the underlying tissue. Deeper structures may be damaged and infection can develop in the depths of the wound. Bleeding should be encouraged in order to wash out any foreign material and debris. A small piece of gauze should be inserted in the opening of the wound to prevent it from being sealed and to permit the exudate from infected areas to drain to the outside. In remote areas where evacuation requires several

days or more, antibiotic therapy may be desirable. Foreign bodies may be removed from the wound if they are superficially located and extraction does not require probing; otherwise foreign bodies should be left in place to be removed later.

The greatest danger from puncture wounds is tetanus. The organisms which produce this disease grow in wounds where they are not reached by air. However, the disastrous effect of tetanus can be prevented by prior inoculations with tetanus toxoid. Such inoculations should be obtained every five to ten years, but particularly before a major expedition to a remote area.

ABRASIONS. Abrasions are produced by forceful contact with a rough surface and although usually superficial, can extend quite deeply and produce serious damage. Since abrasions rarely produce severe bleeding, the main objectives of treatment are to prevent infection and to promote healing. All large fragments of foreign material should be removed from the wound with sterile forceps. However, the removal of numerous small embedded particles usually aggravates the injury and should not be attempted. Most foreign material is extruded during healing. The rest, if bothersome, should be removed under more propitious circumstances.

The wound should be covered with a single layer of sterile gauze impregnated with petroleum jelly. Then a bandage with several layers of sterile gauze should be applied to absorb the exudate (drainage) always produced by such open wounds. During subsequent dressing changes the petroleum gauze should not be removed unless it spontaneously separates from the surface of the wound. Crusts which form should be left in place unless infection supervenes, in which case they should be removed to permit drainage.

Infection can be recognized in abrasions by the copious (abundant), purulent exudate (discharging pus). This type of

exudate is easily distinguished from the scanty, watery exudate normally produced by such wounds. The exudate associated with infection usually floats the petroleum gauze off the wound. If infection occurs, the petroleum gauze should be replaced with a fresh layer and the wound bandaged with a thick dressing.

AVULSIONS. Avulsions are wounds in which tissues are pulled or torn away. The loss most commonly involves only a small area of skin with a little of the subcutaneous (underlying) tissue. Frequently the skin is not severed along one side, creating a tissue flap. In contrast the most severe injury of this type is a traumatic amputation in which a limb is completely severed.

Avulsions in which the tissue is completely lost should be treated in the same manner as an abrasion. (There is no sharp dividing line between a superficial avulsion and a deep abrasion.) However, wounds in which the full thickness of the skin is lost do not heal without skin grafting. Obviously the victims of such injuries must be evacuated to a hospital.

If a flap of skin remains, it should be thoroughly cleaned and replaced in its original position. The wound should be bandaged with a bulky compression dressing and the entire limb should be splinted. This flap of skin is, in effect, a skin graft. In the absence of infection the injured area may heal without further difficulty.

Any muscle or fatty tissue adherent to the bottom of the flap usually dies following the injury and should be trimmed from the skin flap if possible. If the fragment of adherent tissue is large, the base of the wound should be covered with petroleum impregnated gauze, and the flap with the attached fat or muscle replaced. Then the injury should be bandaged with a compression dressing, and the victim rapidly evacuated.

If all of a skin flap does not survive, either as a

result of infection, movement, inadequate blood supply, or other factors, the nonliving portion of the flap turns black after seven to ten days. This black tissue may be trimmed away with sterile scissors. (If bleeding is encountered the tissue is still alive and may be saved.) In the event of death of all or a large part of the flap the victim must be evacuated.

For major injuries antibiotic therapy should be started at once. Infection can be minimized in wounds with skin flaps remaining, thus promoting healing without grafting. Although wounds in which the tissue is totally lost are almost certain to eventually become infected, damage by the infection can be minimized.

CONTUSIONS. Contusions or bruises are injuries in which the tissues are crushed, producing bleeding into the damaged areas. Usually the subcutaneous tissue and muscle are injured and there is no break in the overlying skin.

The ideal treatment for a severe contusion is immediate rest for the injured area until bleeding has ceased. However, such treatment may be impractical in some mountaineering circumstances. Cessation of bleeding requires six to eight hours. After that much time has elapsed, the injured muscles may be so stiff and painful that the victim is unable to walk, even though he had not been particularly disabled immediately following the injury. Therefore the recipient of a severe contusion should make every effort to get out of a remote area without stopping to rest for more than a few minutes, unless he has adequate supplies to tide him over for a period of three to four days. The alternate prospects are either being stranded for this time or being carried out by his companions.

If circumstances do not require immediate evacuation, the area of injury should be elevated and put to rest. If extensive or progressive swelling develops, a pressure dressing can be applied. The dressing should encompass the entire limb, from the finger tips or toes to well above the

After twelve to eighteen hours, movement of the injured area may be resumed, if tolerated, in order to speed resorption of the blood. Heat in the form of hot packs, heated and padded stones, or a hot water bottle may help to accelerate blood resorption and to relieve some of the discomfort.

Cold applications-snow, ice, or wet clothes-to a contusion immediately after injury may have some benefit. Cold applications do have a tendency to reduce the pain, and also cause the blood vessels in the area to constrict, reducing the hemorrhage into the tissues. Care must be exercised to avoid cold injury (frostbite), particularly on the extremities. Also cold application may hasten the appearance of disabling pain and stiffness with severe contusions and its use must be tempered by consideration of the circumstances in which injury has occurred and the need for rapid evacuation.

Stiffness persisting for more than two weeks in a muscle which has been severely bruised may herald the onset of calcium deposition in the injured tissues. This process continues until the entire clot has been transformed into bone-about twelve to eighteen months. Although such calcium deposits cause little disability, the muscle should be rested as much as possible while the process is active to minimize the extent of calcification. Diagnosis depends upon x-ray demonstration of the calcium deposits.

WOUNDS OF THE HANDS AND FEET. Wounds of the hands or feet are of particular importance because these structures are so anatomically complex. All wounds in these areas must be thoroughly cleansed, but no tissue should be cut away unless it is obviously dead. In bandaging, care must be taken that the fingers or toes are separated by gauze to prevent maceration (softening) from the continuous dampness produced by perspiration. A bulky pressure dressing should be applied and the hand should be splinted in the "position of function." Antibiotic therapy should be instituted at the

time of injury and evacuation begun immediately, particularly for hand injuries.

NECK INJURIES. Neck injuries require special attention because vital blood vessels and respiratory passages are located there. The danger from injury to these structures is so great that severe wounds in this location should not be treated in the same manner as soft tissue wounds elsewhere. No effort should be made to wash out the wound, remove foreign bodies, or disturb any blood clots. The wound should be covered with a bandage which does NOT encircle the neck and the victim evacuated immediately. (Superficial wounds which do not involve vital structures do not require special treatment.)

Respiratory obstruction must be avoided by ensuring an open airway. Cervical fractures, head wounds, or chest wounds associated with the injury must receive appropriate attention.

VASCULAR INJURIES. Blood vessel injuries cannot be repaired in the field. However, vascular surgery has recently been developed to the point that many such injuries can be successfully treated if surgery is begun early enough. Time is most important for those injuries in which the remaining blood supply to the rest of the extremity is just barely adequate to permit survival of the limb. A limb with an injury of this kind should be kept lower than the rest of the body so that gravity assists the flow of blood beyond the site of the injury. However, the dependent position also causes fluid to collect in the tissues, producing swelling which tends to prevent blood from reaching the tissues. Therefore, in caring for such injuries, the limb must be maintained in the lowest position in which swelling does not occur. A number of adjustments in the position of the limb are usually necessary before the best level is found.

A limb with impaired circulation must be carefully protected from any subsequent injuries. Inadequacy of the blood supply prevents normal healing in such tissues.

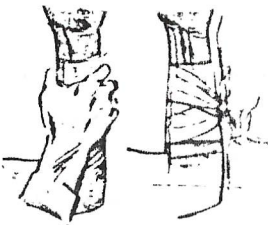
Furthermore, since any bacteria in the wound would not be destroyed by the body's defenses in the usual manner, the limb could be lost from infection.

Spurting blood must be stopped quickly. Grab the wound with your bare hand and press down firmly. Raising the cut arm or leg above body level will help control bleeding.

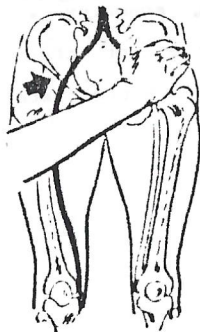


Remember: MOST bleeding can be stopped by direct pressure.

Use your free hand to get a pad of cloth of some kind. Let go of the wound long enough to place the pad. Wrap something around pad to keep it in place. Get medical help.



Square knot

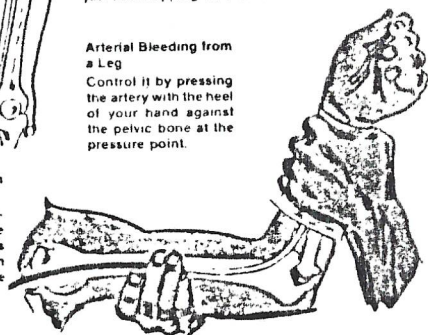


Spurting blood comes from an artery—one of the blood vessels that carry blood from the heart out into the body. Some bleeding from a cut artery can be controlled by pressure.

Pressure on four pressure points—two on each side of the body—can be used to control bleeding of arm and leg. Press the artery against the bone at the pressure point. It acts just like stepping on a water hose.

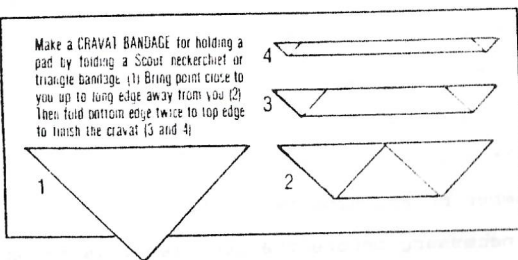
Arterial Bleeding from a Leg

Control it by pressing the artery with the heel of your hand against the pelvic bone at the pressure point.



Arterial Bleeding from an Arm

Control it by squeezing the artery with the flat of your fingers against the upper-arm bone at pressure point.

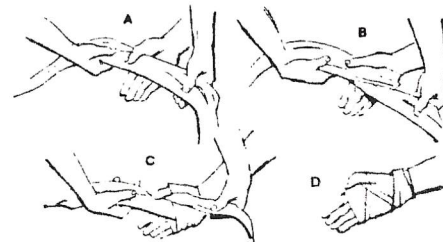


Make a CRAVAT BANDAGE for holding a pad by folding a Scout neckerchief or triangle bandage. (1) Bring point close to you up to long edge away from you. (2) Then fold bottom edge twice to top edge to finish the cravat. (3 and 4)

PRESSURE POINTS



CRAVAT BANDAGE FOR PALM



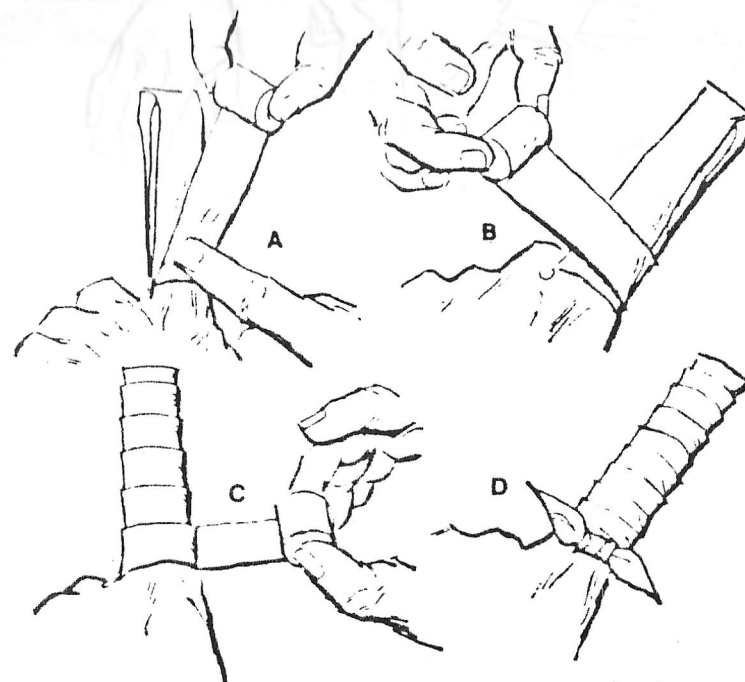
PRESSURE BANDAGE

Wrap smoothly and neatly.

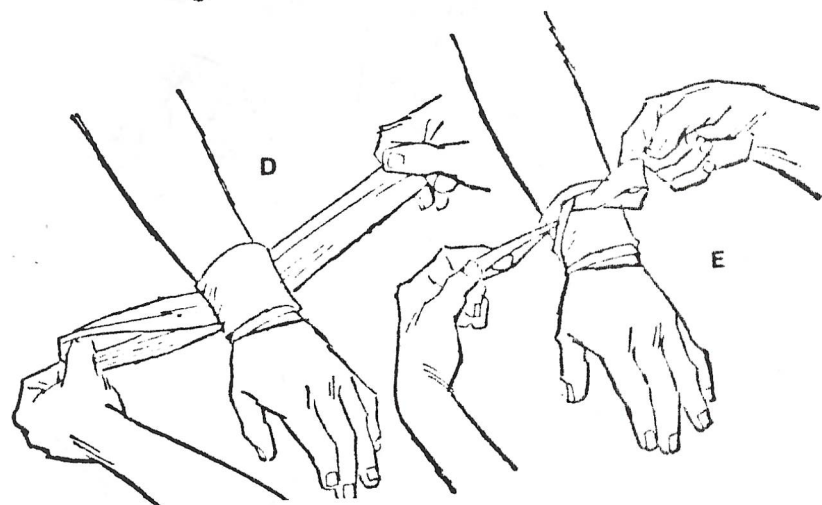
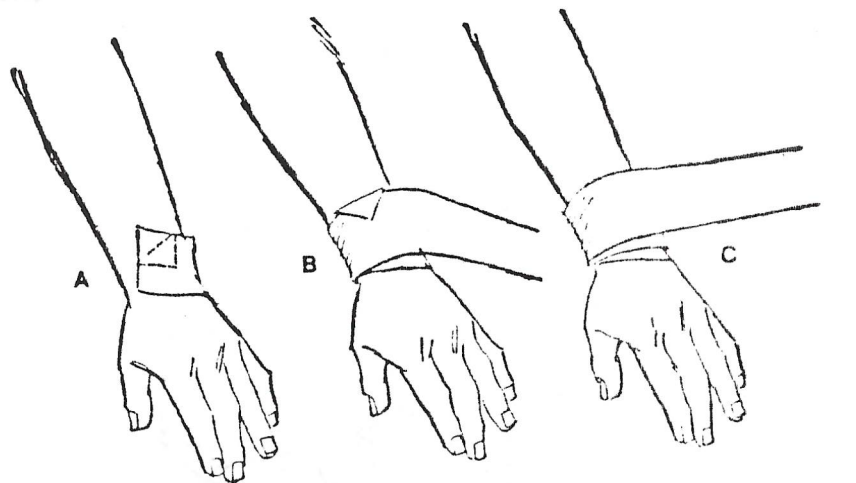


Hold compress firmly in place.

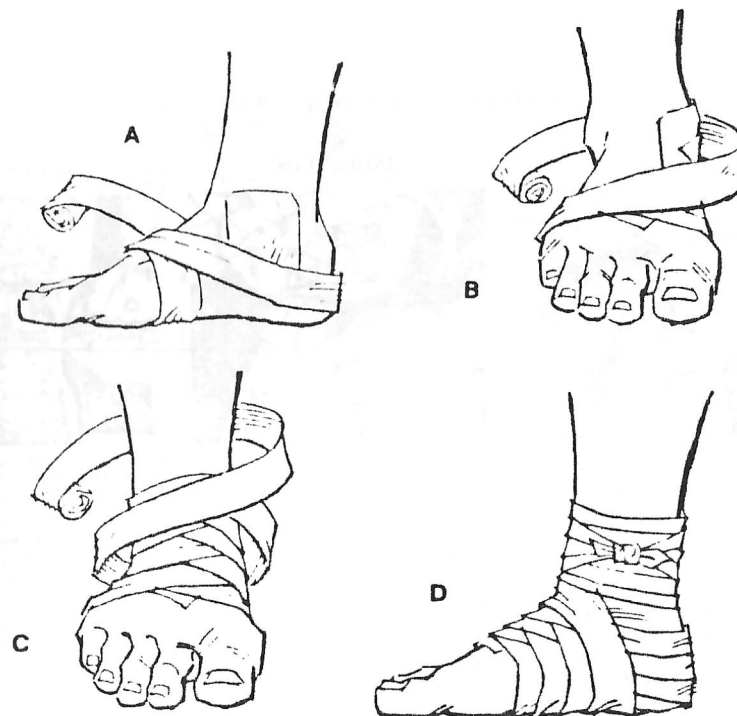
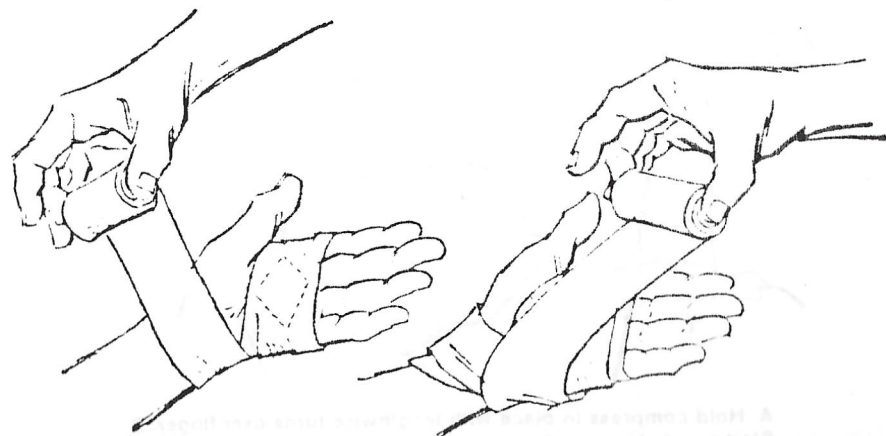
FINGER



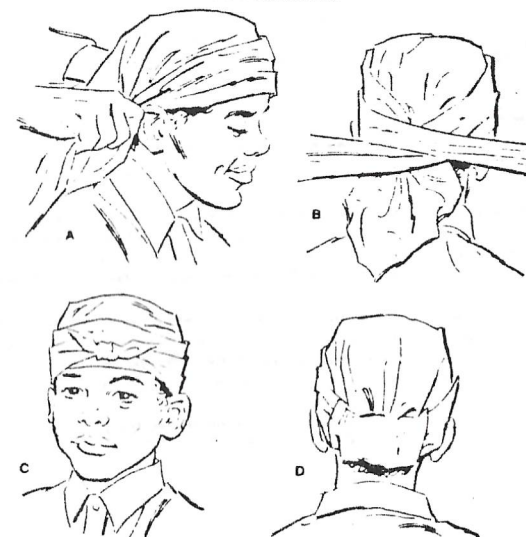
A. Hold compress in place with lengthwise turns over finger. B.



HAND



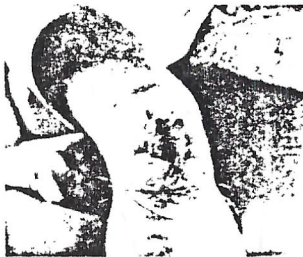
TRIANGULAR BANDAGE FOR THE HEAD



Use when entire scalp needs to be covered.

BANDAGING OF OPEN WOUNDS

THE INJURY



Experiments by Drs. Cameron Hinman and Howard Mladack of the University of California indicate that open wounds heal faster when covered than when exposed to air. The practice of covering and protecting open wounds is particularly important in athletics where and when continual reinjury is possible.

Strawberries, slide burns and abrasions are denuding or rubbing off of the skin by mechanical means. A strawberry is an abrasion caused by sliding on floor or

CINDER SUDS

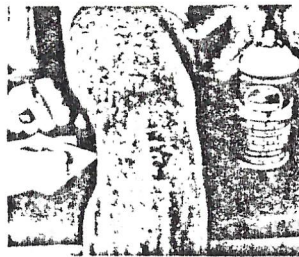


ground. Lacerations are jagged types of tears in and below the skin—extremely susceptible to infection and often needing stitches.

STEP-BY-STEP PROCEDURE—1 THROUGH 6

1. Flush away loose dirt and debris by spraying with Cramer Cinder Suds Aerosol Soap. Scrub with sterile gauze pads until thoroughly cleansed—a most important step to prevent infection. 2. Apply dry, sterile gauze pad and saturate with Nitrotan, to kill bacteria—to stop super-

CLEAN WOUND



ficial bleeding and lymph oozing—to reduce pain, and to promote healing. Severity and depth of wound determine length of time that Nitrotan should be used. Cover this saturated gauze pad with Cramerol to keep injury moist by confining Nitrotan in pad only. 3. Next, spiral a Cramer Elastic Wrap securely over the entire bandage. This completes what we call a Nitrotan Compress. Leave on for 2 hours. For deeper, more severe wounds, the compress may be kept on for a longer

NITROTAN COMPRESS

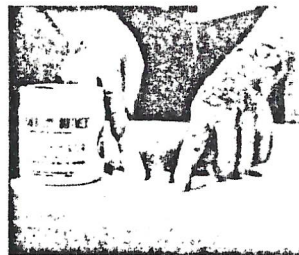


period—even overnight.

If it is apparent that the wound is of a laceration type that will need a few stitches, get to the doctor so that he can suture (stitch) the wound before it swells and makes this operation difficult.

Complete the treatment of the superficial wounds by spreading Cramer's Strawberry Ointment 1/8-inch thick on a gauze pad. Remove Nitrotan Compress and apply Strawberry Ointment dressing over wound. Re-apply Elastic Wrap securely in place.

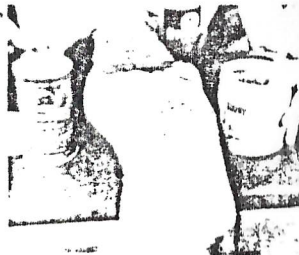
STRAWBERRY OINTMENT



When Strawberry Ointment is spread on a gauze pad and held in place over an open wound, we have what we call an "artificial scab". The ointment melts at body temperature and fills the cracks and crevices of the wound. Because Strawberry Ointment is antiseptic, it assists nature by inhibiting the growth of germs that cause infection. It should be remembered that nature does the work, and we help by providing antiseptic conditions conducive to healing.

In athletics, where we receive bump

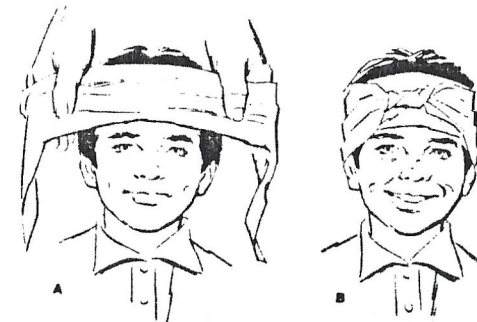
REWRAPPED



after bump, the "artificial scab" actually provides better protection than allowing a normal scab to form. The "artificial scab" should be renewed daily and kept in place until the wound is entirely healed.

A considerable saving can be made by using elastic tape to make bandages. It adheres well to the skin and conforms to bony areas like ankle, elbow, and knee. All of these bandages stay in place better by painting or spraying surrounding area with Tuf-Skin or Q.D.A.

CRAVAT BANDAGE



HEAD INJURIES, INTERNAL INJURIES, AND GUNSHOT WOUNDS

EXAMINE THE VICTIM

Carefully examine the victim for injuries and for other conditions that may not be as obvious as severe bleeding or stopped breathing. In some emergencies you will examine the victim right away; in others you will first give urgent care and then examine the victim more carefully.

Start at the head and work toward the feet. Look for anything that does not seem normal. Is the victim awake? In a daze? Unconscious? Are there lumps, bumps, bruises, cuts, deformed body parts, or other signs of injury? The victim may be able to tell you what happened or where it hurts. Bystanders may also be able to tell you what happened.

HEAD INJURY

Some signs of head injury are:

- Bumps, bruises, or cuts on the head.
- Headache.
- Dizziness.
- Unconsciousness (immediate or delayed half an hour or more).
- The pupil of one eye larger than the other.
- Sleepiness or inability to be awakened.
- Bleeding or fluid draining from the mouth, nose, or ears.
- Facial muscles or other body parts paralyzed or working abnormally.

It is sometimes hard to decide if there has been a head injury. Any or all of the signs may be present OR ABSENT in a victim of a head injury.

Whenever an accident involves force (a fall, an automobile accident, a blow to the head) or a person suffers unconsciousness, headache, or dizziness after an accident, there may be a head injury.

Unconsciousness and extreme sleepiness signal more-serious head injuries, but if any of the signs are present within a few days after an accident, get medical care immediately.

Keep an injured head, neck, or spine from moving, bending, or twisting. A person with head injuries that you can see may also have neck and spine injuries that you cannot see. A victim with such injuries must be tied to a backboard for transportation. Persons with neck or spine injuries must be moved as a unit, in a straight line—not one part at a time. If you are not trained to use a backboard, DO NOT MOVE the victim if you suspect such injuries.

First aid for a head injury or suspected head injury is:

-Keep the victim lying flat or, if you are quite sure there is no injury to the neck or back, with the head and shoulders raised slightly. Do not raise the feet.

-Watch carefully for stopped breathing.

-Get medical help immediately.

-Do NOT give stimulants, alcohol, or other fluids to drink.

If transportation is necessary, handle the victim very gently.

An unconscious victim should lie on one side so that fluids can drain from the mouth. Check breathing of an unconscious person OFTEN.

72) How can you keep fluids from blocking the airway of an unconscious person?

[] a. Place the person on the back with the feet raised.

73) How should you treat a victim of head injury?

[] a. Gently, with as little movement as possible.

[] b. Carefully help the victim to sit up.

INTERNAL INJURIES

Internal injuries may be caused by accidents involving force, and by penetrating wounds.

Signs of internal injury are pain and tenderness; faintness; nausea; vomiting or coughing up blood; blood in the urine or feces; cool, clammy skin; restlessness; thirst; and a rapid, weak pulse.

If ANY internal injury is suspected, the person should lie down and not be moved without proper transportation in a lying position. Do not give fluids by mouth.

GUNSHOT WOUNDS

The size of a gunshot wound on the surface does not indicate how serious the internal injuries are. Gunshot wounds often cause fractures in addition to other internal injuries. Examine the victim carefully. There may also be more bullet wounds or a wound on the opposite side where the bullet left the body.

If a lung is punctured, air will go in and out of the wound and the lung may collapse and stop working. Bandage the chest firmly to prevent this.

74) What do you do if you suspect a broken neck?

Keep the neck and spine from _____.

75) Can you always tell for sure if someone is hurt or bleeding inside?

[] a. Yes.

[] b. No.

76) Even if there are no obvious injuries, the victim of a serious accident should lie down and be seen by a doctor. The victim may have

[] a. internal injuries or loss of appetite.

77) Does the size of a gunshot wound on the surface tell you how serious the internal injuries are?

[] a. Yes.

[] b. NO.

78) If a person's chest is penetrated, you should bandage the wound firmly. Why?

[] a. To keep air from going in and out through the wound.

[] b. To keep the person's chest from moving.

EYE INJURIES

FOREIGN OBJECT ON THE SURFACE OF THE EYE OR EYELID

Follow these steps to remove a speck of dirt from the outside of the eyeball or from the inside of the eyelid:

1) Keep the victim from rubbing the eye. Rubbing may push the object into the eyelid and make removal more difficult.

2) Have the victim blink and try to make tears. The dirt may be loosened and swept away by tears.

3) Wash your hands thoroughly before examining the victim's eye.

4) Pull down the lower lid to see if the speck is on the inner surface of the lid. If so, lift it off gently with the corner of a clean handkerchief.

5) If you cannot see the speck, it may be on the inside of the upper lid. Have the victim look down. Grasp the lashes of the upper lid gently between the thumb and forefinger and pull the lid out and down over the lower lid. This may dislodge the dirt.

6) If the dirt is not yet removed, flush the eye with clean water, using an eye dropper or small bulb syringe.

If these steps do not work, put a clean dry dressing over the eye and bandage both eyes (if possible); get medical help. Never try to use a solid object, such as a toothpick, to remove an object from the eye.

SERIOUS INJURY OF THE EYE

The whole eye may be damaged in a serious injury; vision may be lost. Put a dry, sterile or clean dressing over a seriously injured eye. Cover both eyes to keep the injured eye from moving.

If an object is sticking in or embedded in the eye, do not try to remove the object or wash the eye. Cover the eyes with a bandage but do not press on the object or the injured eye.

Call ahead to an eye specialist or take the victim to a hospital emergency room. The victim should be transported lying down. The sooner medical care is obtained the greater the chances of saving the victim's sight.

INJURY OF THE EYELID

A torn eyelid is serious and must be repaired immediately. Blindness will result from long exposure of the eye without an eyelid. If there is no dirt or object to get stuck in the eye, stop bleeding by gently applying direct pressure. Apply a sterile or clean dressing, and bandage it in place. Seek medical care without delay.

ANIMAL AND HUMAN BITES

An animal or human bite that breaks the skin will probably become infected if not given medical care. Wash the wound with soap and water. Flush it with running water if possible. Then cover it with a sterile dressing and get medical care. Tell the victim not to move the injured area more than necessary, until medical attention can be given.

A person who is bitten by an animal may become infected by tetanus or rabies.

Warm-blooded animals, such as dogs, cats, bats, rats, and squirrels, can transmit rabies. Rabies is transmitted when the saliva from an infected animal contacts an open wound (even a scratch) or any normal body opening, such as the mouth or eye. The infected animal can transmit rabies by

EYE INJURY



For eye injury, put dressing over eye, then use cravat bandage to cover both eyes.

After a person has been bitten by a rabid animal, there is a period of time while the disease develops. If the person receives immunization (a series of shots) soon enough after being bitten, rabies can be prevented.

There is no proved or widely available cure after rabies has developed. Most victims of rabies die once the final stages appear. For this reason you must find out right away if a bite was caused by a rabid animal.

Animals show varying signs of rabies. THE BEHAVIOR OF AN ANIMAL WITH RABIES MAY BE UNUSUAL. For example, a wild animal with rabies may not run away from you. An animal with rabies may be drooling, irritable, unusually active, or clearly dangerous. On the other hand, a rabid animal may be unusually quiet or loving. The animal may also be partly paralyzed.

An animal that bites someone must be watched by health personnel to find out if it has rabies. Catch it or restrain it, taking care not to be bitten. Do not kill the animal unless you have to. Avoid damaging the head. Get help from the police, a veterinarian, or local public health authority. They will know where and how long such an animal is to be kept and watched-usually for 15 days.

If you MUST kill an animal to keep it from getting away, preserve the head. Keep it in ice, if possible, but do not freeze it. Take it to a veterinarian who will examine the brain for signs of rabies.

79) Before seeking medical care for an animal or human bite,

[] a. wash the wound with soap and water; rinse; apply a dressing.

[] b. apply a dressing but do not wash the wound.

80) If an animal bites someone, which is better to do?

[] a. Kill the animal; then take it to a veterinarian.

[] b. Restrain the animal; have it examined by a veterinarian.

FRACTURES, SPRAINS, AND STRAINS

FRACTURES: When we say that a bone is fractured, we simply mean that it's broken. There are two main kinds of fractures: closed (simple) and open (compound).

In a closed (simple) fracture, the bone is broken and there is no wound. If a bone is broken in two places and there is no wound, we have two closed (simple) fractures. Or a bone may split only part way through. That is a greenstick fracture--still a closed (simple) fracture that occurs only in a child but one that is often overlooked.

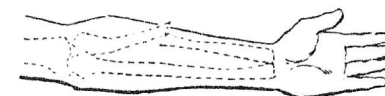
In a compound (open) fracture there is a broken bone and a wound through the skin at the break. The wound is caused in one of two ways. One, a broken end of the bone cuts through the skin at the time of injury or later. The broken end may stay out, but usually it slips back under the skin and cannot be seen. Two, a bullet, ax edge, or other object penetrates the skin and breaks the bone. Because the wound contains germs along its entire path, infection is a special danger.

SIGNS OF FRACTURES

First, fractures seldom cause much pain if the body part is kept still. There may be a throbbing or a feeling of fullness, but often there is little pain. This lack of pain after falls people, and they call a fracture a sprain. If you ask a victim with a fracture if it hurt when the accident happened, he might say that he really had no pain or that he was too excited to notice. Sometimes he says he had severe pain at the moment of injury.



A closed (simple) fracture.



An open (compound) fracture.

Second, the body part usually is tender. It hurts when you press on the skin over the fracture. It may not hurt much—just enough to be uncomfortable. But gentle, firm pressing on one spot may cause a lot of pain.

Third, the injured part gradually swells if a bone is broken. You may have to look closely for the swelling. If the bone lies deep under muscle (as it does in the upper part of the thigh), it may be impossible to either to see swelling or feel tenderness. Sometimes the part seems out of shape—in an abnormal or unusual position. If you aren't sure there's a swelling or a change in shape, compare the injured part with its opposite or with your own body part. If there has been some bleeding under the skin, you may notice that the area near the fracture is red or purple.

Fourth, the victim will not want to move the injured part. He may be able to move it (although he shouldn't), but usually he holds it quite still to avoid pain. If he bends the joints just above or below the fracture beyond a certain point, it will often hurt.

GENERAL FIRST AID

A few general rules apply to all fractures. Follow these before you attempt to immobilize (fix it so it cannot be moved) a fracture.

Tell the victim to lie or sit quietly. For example, do not permit him to stand or put his weight on a leg if he has a possible break in his leg. Far too often, people try out the leg. DO NOT DO THIS !! All fractures should be splinted where they lie. Apply the splint before moving or transporting the victim.

Examine him carefully, without moving body parts that may be injured. Check for fracture signs. Find out from him what happened. Stop any bleeding and apply a dressing. Do not wash or put fingers in wound.

If you (or the victim) think a bone may be broken, treat it as a fracture. See that broken ends and nearby joints cannot move, bend, or twist. How to prevent this movement or

immobilize a fracture is described later. If possible, put an ice bag over the painful area.

Do not try to move him until you have immobilized the fracture. Give first aid for shock and summon medical help.

Whether the victim has a simple (closed) or compound (open) fracture, you will have to immobilize (fix it so it cannot be moved) the part containing the broken bone. You can do this by applying bandages, splints, and slings. Standard first aid kit splints, of course, will not always be available, so you may have to make your own. You can use a pillow, board, magazine, newspaper, heavy cardboard, or almost any rigid flat material. Rough-surfaced splints need to be padded. However, put cloth padding between any splint and the body whenever the splint might rub against the skin.

Use enough bandages to hold the splint in place. With square knots, tie the bandages so they hold the splint firmly, but not tight enough to cause discomfort. Try not to tie directly over the broken bone. Use handkerchiefs or any available strips of cloth as ties if regular bandages are not available.

If you feel that the clothing can be removed without harming the injury further, do so; otherwise, apply the splint over the clothing. In case there is no splint material available, you can immobilize an injured leg by tying it to the good leg. It will act as a splint. Be sure to put padding between the two legs.

B1) You cannot tell whether a person's ankle is broken or sprained. You should assume it is

- () a. sprained.
- () b. broken.

B2) A man who has just been in an auto accident has a pain in his neck. His neck is not swollen or tender. What should you do?

- () a. Ask the victim if he can move his head.
- () b. Have the victim remain quiet and not move.

83) Which fractures are the most difficult to identify?

[] a. Closed.

[] b. Open.

SPRAINS AND STRAINS

The ankles, fingers, wrists, and knees are most often sprained. Sprains are usually the result of forcing a limb beyond the normal range of a joint. The ligaments, tendons, and blood vessels are stretched or torn. The signs of a sprain are swelling, tenderness, pain on motion, and discoloration. It is usually impossible to tell a sprain from a closed fracture without an X-ray. Small chip fractures often accompany sprains.

Always immobilize a sprain as you would a fracture, and get medical help. Elevate the joint and put cold, wet cloths or an ice bag on it during the first half hour after the accident to retard swelling.

A strain is injury to muscles. The fibers are stretched or torn. Back strains are often caused by improper lifting. Lift with your legs, not your back. A person with a strain should rest and have warm, wet applications on the injured muscles. A person with a strained back should lie flat on the back on a hard surface, and obtain medical advice.

DISLOCATIONS

A dislocation is a displacement of a bone end from a joint. Dislocations are usually caused by falls and blows. Fractures may accompany a dislocation. Unless given proper care, a dislocation may occur repeatedly.

The signs of a dislocation are similar to those of a closed fracture: swelling, tenderness to touch, deformity, pain, and discoloration.

Do NOT try to reduce a dislocation. Keep the part quiet and get medical care. Immobilize a dislocated shoulder with an arm sling during transportation.

84) How can you tell the difference between a closed fracture and a sprain?

[] a. You can tell by feeling the injured area.

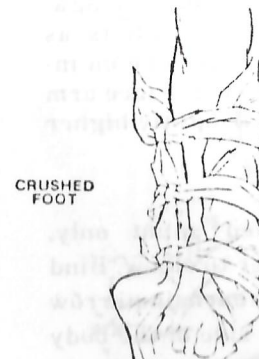
[] b. You cannot usually tell the difference.

85) How do you care for a strain?

[] a. Rest and mild exercise.

[] b. Warm, wet applications, and mild exercise.

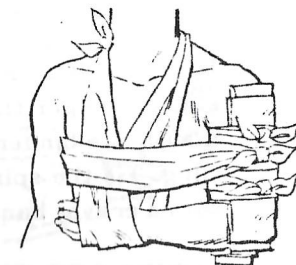
[] c. Rest, and warm, wet applications.



CRUSHED FOOT



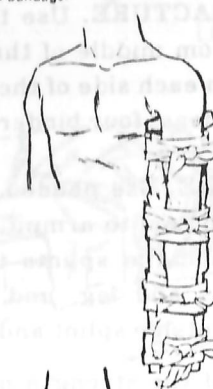
For fractures of lower jaw, put hand below jaw and raise it gently until upper and lower teeth meet. Support jaw with bandage.



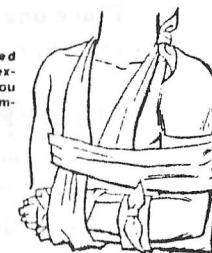
Use padded splints and narrow sling for fracture of the arm.



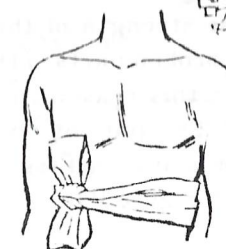
BROKEN COLLARBONE



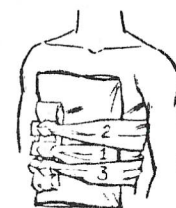
For fractured elbow, leave extremity as you find it and immobilize.



B



For fractured rib, place cravat over break. As victim breathes out, tighten cravat and tie. Repeat with other cravats as indicated.



COLLARBONE AND SHOULDER FRACTURE. No splint necessary. Place the forearm in a sling with the hand raised about 8 cm (3 in.) higher than the elbow. Tie the upper arm against the side of the body with a wide cravat bandage. Make sure the bandage is not so tight that it stops the circulation in the arm.

LOWER-ARM OR WRIST FRACTURE. Use splint of magazine or thick newspaper. Or use two padded wooden splints, as long as the distance from elbow to knuckles. Place one on inside of arm, the other on outside, and bind together. Place arm in a wide sling with the thumb up and the hand slightly higher than the elbow.

UPPER-ARM FRACTURE. Use one padded splint only, slightly longer than the distance from shoulder to elbow. Bind it with two binders on outside of arm. Place forearm in narrow sling. Tie the splinted upper arm against the side of the body with a cravat bandage.

LOWER-LEG FRACTURE. Use two padded splints, as long as the distance from middle of thigh to just beyond the heel. Place one splint on each side of the injured limb and bind them together, using at least four binders.

THIGH FRACTURE. Use padded splints, one for outside the leg extending from heel to armpit, one for inside the leg from heel to crotch. Bind the splints together. Use four binders around the splints and leg, and three binders around the upper part of the outside splint and the body.

NOTE: Because of the strength of the muscles of the upper leg, they may pull the broken parts of the thigh bone out of line and into the flesh. For this reason the method given is early emergency care only. The patient should not be moved any great distance without a so-called traction splint. Ambulances carry such splints. A doctor will bring one if he is told of thigh fracture.

NOTE: All knots should be square knots.

BROKEN BONES



Collarbone



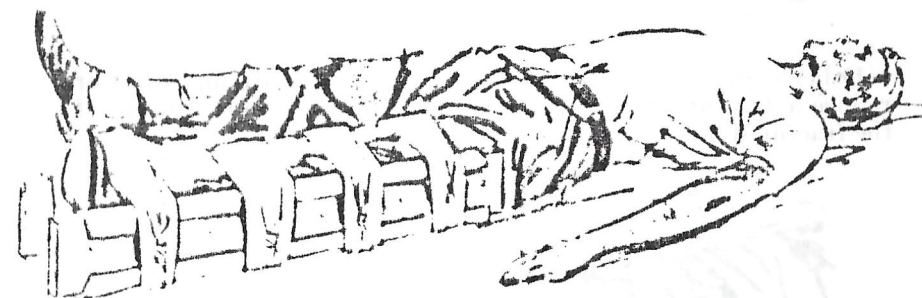
Shoulder



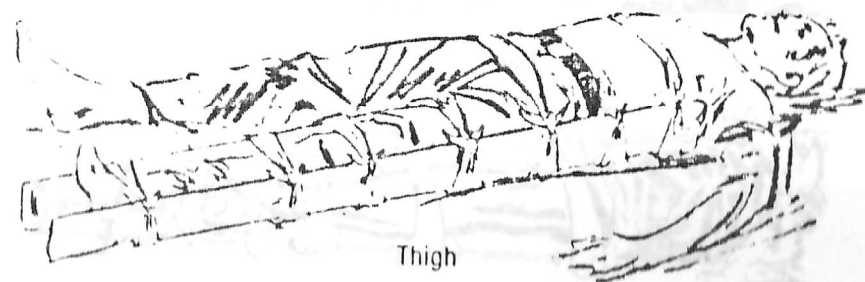
Upper arm



Lower arm

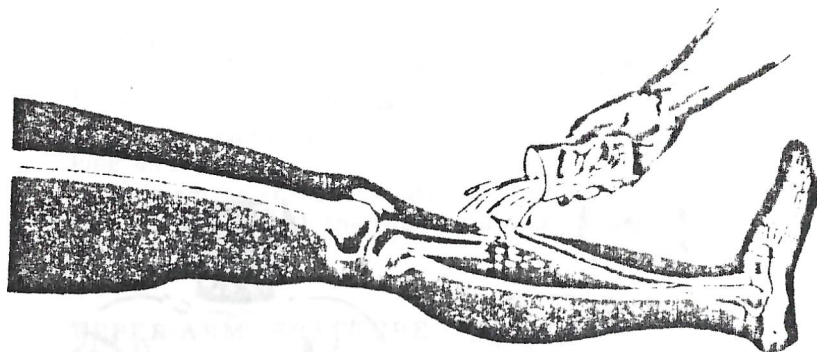


Lower leg



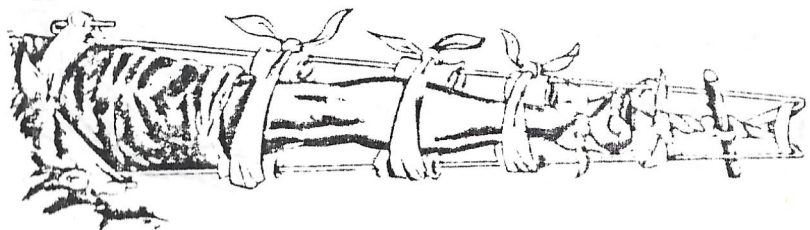
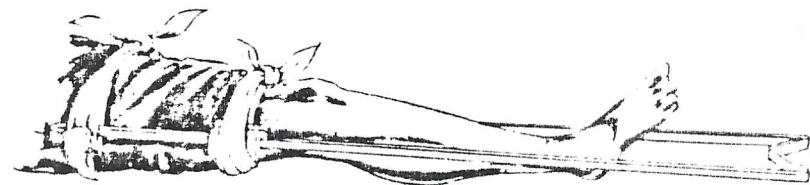
Thigh

An exception to this preliminary immobilization of bone ends will be necessary in the case of an open fracture where a broken end of bone still sticks out of the wound is that it cannot be left in that position. Before straightening the limb and allowing the bone to slip back under the skin, the bone end should be carefully checked but not handled. If it appears to be dirty (street dirt, floor dirt, earth, or human or animal excreta) it should be rinsed.



Do not handle the bone with your hands. A one (1%) percent saline solution (1 teaspoonful of salt to 1 quart of water) should be used to rinse the area as shown above. Use sterile (boiled) water if possible; if not, use safe warm drinking water, then while bone end is still wet, traction may be applied sufficient to let the bone end slip back under the skin and be in approximate alignment.

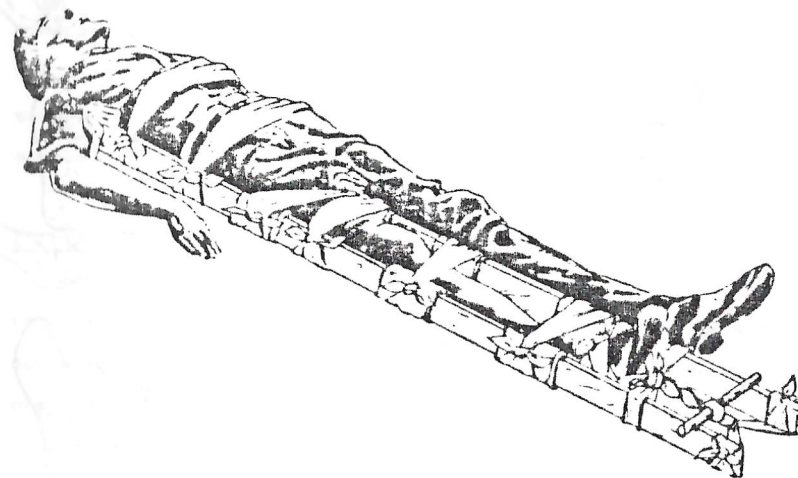
Other than the necessity described above *do not* attempt to set or reduce a fracture, you may cause severe damage to the inside of the fractured limb.



Before applying traction the necessary splinting material should be checked to be sure it is long enough and strong enough to maintain the desired amount of traction after the splint is applied. Do not attempt to use traction unless you have someone to assist you.

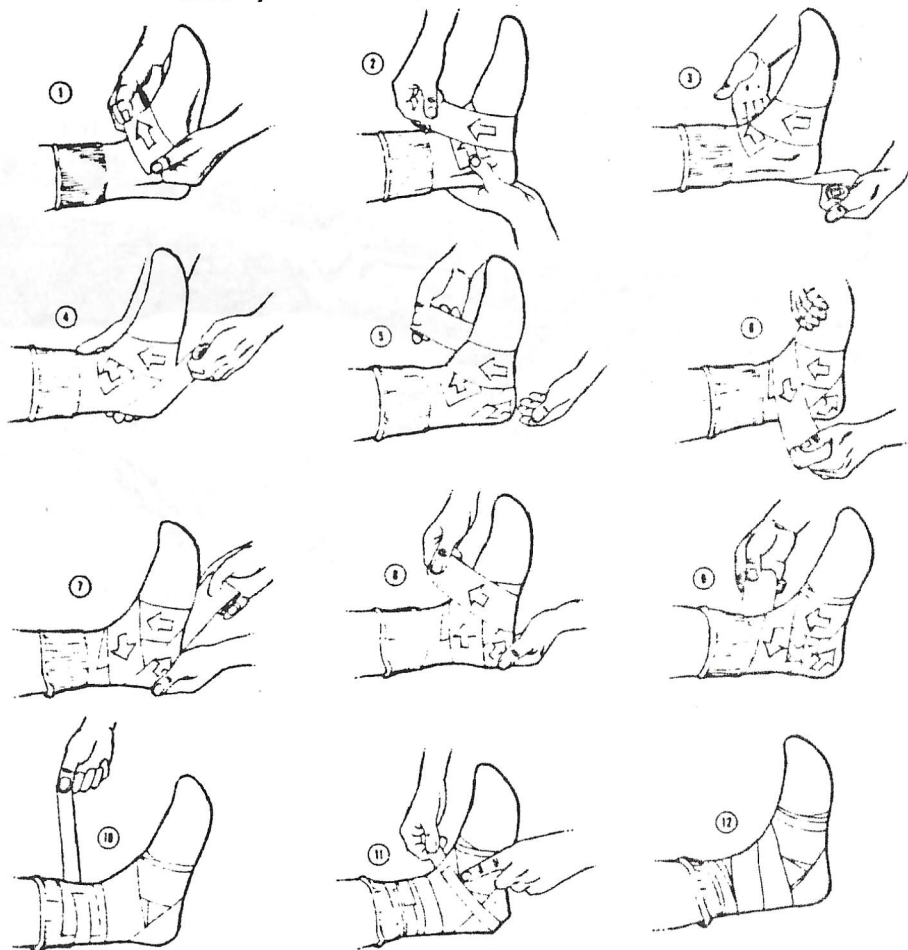
After a fracture occurs the muscles contract and may make traction difficult or impossible except under anesthesia. The length of time for this contraction to occur varies with the severity of the fracture.

Never Force Traction. If the muscles have not contracted, traction may be applied with a steady even "pull" or traction.



THE LOUISIANA WRAP

You can prevent some needless ankle taping and save \$ on tape if you will teach your entire squad to use this type ankle wrap.



These drawings illustrate the application of the "Louisiana type ankle wrapping" over a sock. Some trainers call it "The Heel lock method."

Figures from 1 to, and including 8, illustrate the application. Steps 3, 4, 5, 6, 7, and 8, are repeated to provide two lifts on each side of the heel. For this double lock a 96" wrap is required.

Following Step 8 the wrap is spiraled up over the ankle as shown in 9, 10, and 11. Two pieces of tape are used to secure, one

around the top (10) and one across the heel (11). For added strength and support the whole job can be covered with a heel lock with 1" tape (12) and then followed with anchor strips.

COMMENT:

Most trainers consider this the best method of wrapping an ankle for protection. It takes practice to perfect it and extreme care must be taken to prevent wrinkles which could cause blisters.

FAINTING, EPILEPSY, AND OTHER SOURCES OF CONVULSIONS

FAINTING

Fainting happens when the blood supply to the brain is reduced for a short time. A person who feels faint should lie down with the head low. If lying down is not possible, the person should sit down, lower the head between the knees, and breath deeply.

A person who has fainted will recover consciousness almost immediately. He or she should rest lying down for ten minutes or more until recovery is complete. If recovery is not immediate, get medical advice, because the case is not simple fainting. If fainting occurs frequently, get medical advice.

EPILEPSY

According to careful estimates, about 1 in every 100 children has epilepsy. That means there may be someone with epilepsy in one of your classes or your church. You may not even be informed that he or she is subject to seizures. People with epilepsy who are not under a physician's care, and some of those who are being treated, are subject to convulsions or short periods of unconsciousness. Some seizures involve more physical activity than others.

SIGNIFICANT SINGNES. Of course, there is little trouble recognizing a generalized convulsive seizure. But keep your eye open for repeated occurrences of two or more of the symptoms listed below happening together and without variation. They may indicate a partial seizure or a type known as absence.

- * Tic-like movements
- * Rhythmic movements of the head
- * Purposeless sounds and body movements
- * Head dropping
- * Lack of response
- * Eyes rolling upward
- * Chewing and swallowing movements

With the less dramatic form of epileptic seizure, the person may only be unconscious for a few moments or may experience altered consciousness and be to some extent aware of what is going on around him. You may notice some minor convulsions--jerky movements of his arms and legs, head, or eyes. The attack lasts only a short time, sometimes only seconds.

Epileptic seizures can also be more dramatic. The victim loses consciousness, falls, then has a series of convulsion spasms of the muscles. His face may get red and the veins in his neck may swell. He breathes hard and loud and may even vomit. He usually will go into a series of strong muscle spasms which involve the whole body. There may be a brief halt in breathing. Once the attack is over, the victim goes into a deep sleep. When he wakes up, he may be confused at first and not know what happened.

CONVULSIONS are sometimes associated with head injury, poisoning, infections, diseases that are accompanied by a fever, and toxemia in pregnancy, as well as with epilepsy. Whatever the cause, convulsions usually begin violently. The victim becomes unconscious. The muscles may be rigid for a few seconds or for as long as half a minute, followed by jerking movements and foaming at the mouth or drooling. The attack gradually becomes less severe, after which the victim is usually drowsy or disoriented for a time.

DO NOT restrain someone who is having convulsions, but protect the person from injury. Push away nearby objects. DO NOT put anything into the victim's mouth. DO NOT force anything between the teeth.

When the jerking is over, keep the person lying down on one side so vomit or other fluid will not be breathed into the lungs. Loosen the clothing around the neck, and keep the airway open. If the victim stops breathing, give mouth-to-mouth breathing or, if you cannot open the mouth, mouth-to-nose breathing. After each breath into the nose,

you may need to open the victim's lips to allow air to escape.

A victim of convulsions needs to sleep. If the person gets up right away and walks around, he or she may have another attack. Provide for undisturbed rest. DO NOT question, disturb, or embarrass the victim. Any victim of convulsions should have immediate medical care.

86) How can you tell the difference between fainting and a more serious condition?

- ☐ a. In most cases you cannot tell the difference.
- ☐ b. A victim of fainting will recover almost immediately.

87) Check the THREE most important things to do for any victim of convulsions.

- ☐ a. Give fluids to drink.
- ☐ b. Give mouth-to-mouth or mouth-to-nose breathing if necessary.
- ☐ c. Obtain medical care.
- ☐ d. Recommend mild exercise.
- ☐ e. Keep the person from injury.

EMERGENCY RESCUE AND TRANSFER

RESCUE: One of your first decisions in an emergency is whether or not to move the victim. Generally speaking, you should NOT attempt to move a seriously injured person unless the terrain or weather condition presents a threat to the victim's safety.

A minimum of six persons is needed to evacuate a victim of average size over rugged terrain. If the distance is not greater than 3-5 miles you may consider this type rescue for a person whose injuries are not too serious, the equipment is available, personnel are available and the victim's spirits are high. Consider sending for assistance or signaling for help.

LEADERSHIP: It is imperative to have good leadership qualities to carry out a successful rescue. One person should be appointed to be in charge. He/she must be able and willing to delegate responsibility in stressful situations.

SENDING FOR ASSISTANCE: A minimum (if possible) of two persons should be sent to obtain assistance. These procedures should be followed:

1) Send along a written report which includes:

- a. Location of the accident
- b. Condition of the injured
- c. Aid that has been provided
- d. PINPOINT location on map or diagram
- e. Method of signaling
- f. Type of terrain involved
- g. Suggested method of evacuation deemed necessary.

2) DO NOT send anyone for help if the weather constitutes a threat to their personal safety.

MOVING THE INJURED: If this is absolutely necessary follow these guidelines.

- 1) DO NOT rush (hurry makes waste)
- 2) Make systematic examination of injured
- 3) Treat where they lie
- 4) Improvise a stretcher
 - a. Coats & sticks (if smaller victim)
 - b. Lashing with ropes and sticks
 - c. Lashing and overlapping backpack frames together
- 5) Pad stretcher with sleeping bags and ensolite pads.
- 6) Strap the victim FIRMLY to the stretcher.

7) Lifts/carries - Generally speaking, more harm is done through improper movement and transportation than any other means. If, because of extenuating circumstances, you must move a seriously injured person you should consider the following:

- a. Anyone found unconscious, who has fallen, should be suspected of spinal injuries.

b. Treat all injuries before attempting a lift.

c. Immobilize injured extremities before moving

d. Treat for shock

e. Practice lifts on a well, uninjured person prior to lifting the injured.

f. Test the stretcher with a larger person than the one to be transported.

g. Carry out the lift in a very slow and methodical manner (have a designated leader and perform by "count")

HELICOPTER EVACUATION: This is a preferred method of evacuating a seriously injured person. Usually the safest method. They are sometimes limited due to high elevations and high winds (above 35 mph). If there is to be a helicopter evacuation follow these guidelines:

1) Have area clearly marked (level area if possible)

2) Have method to show wind direction (smoke, cloth or flag)

3) Have all to stay clear of landing area until pilot beckons assistance.

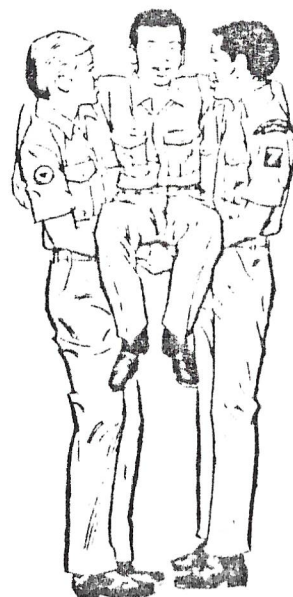
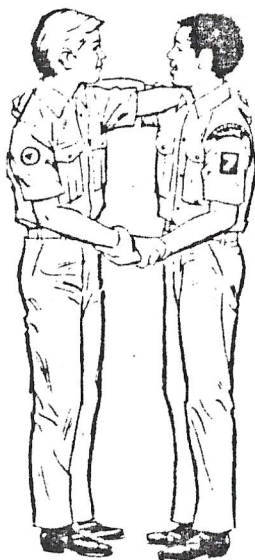
PACK-STRAP CARRY



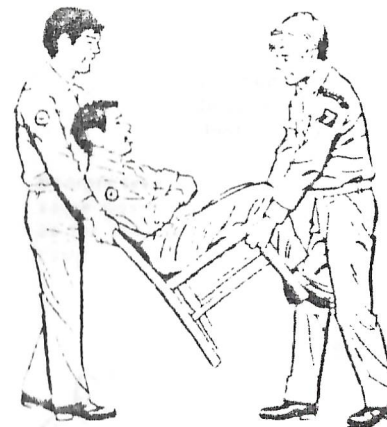
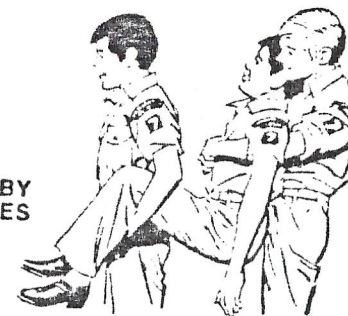
WALKING ASSIST



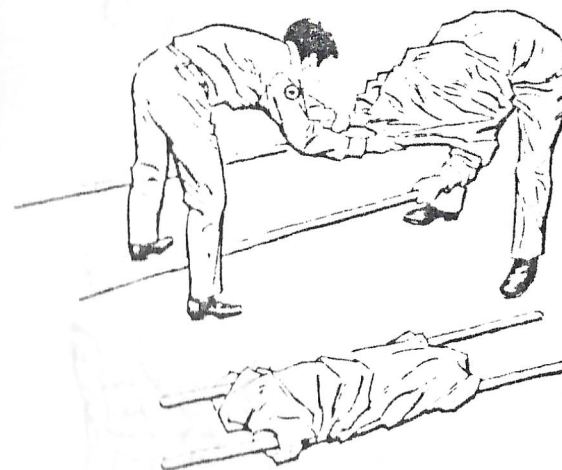
TWO-HANDED CHAIR CARRY



CHAIR CARRY

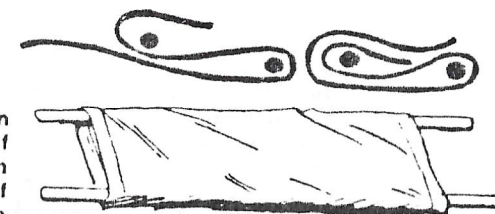
CARRY BY
EXTREMITIES

IMPROVISED STRETCHER

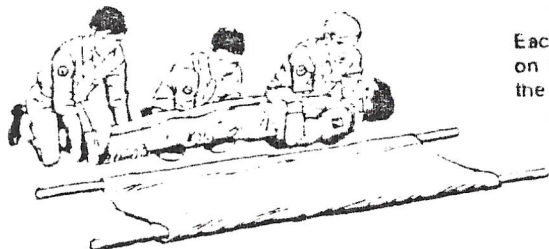


Two Scout shirts and two poles will make a strong stretcher. Shirts are used inside out, with all the buttons buttoned.

For blanket stretcher, place one staff on the blanket. Fold over two-fifths of blanket. Place second staff 6 inches from edge of folded-over part. Bring edge of blanket over staff. Fold over the rest of the blanket.

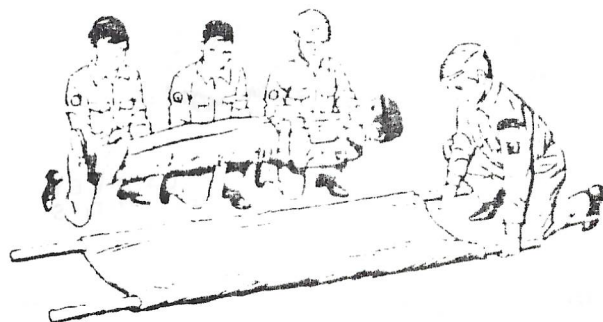


STRETCHER CARRY

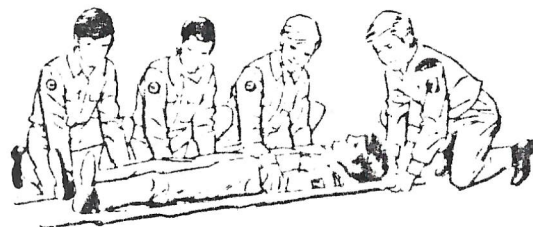


Each man kneels on knee nearest the victim's feet.

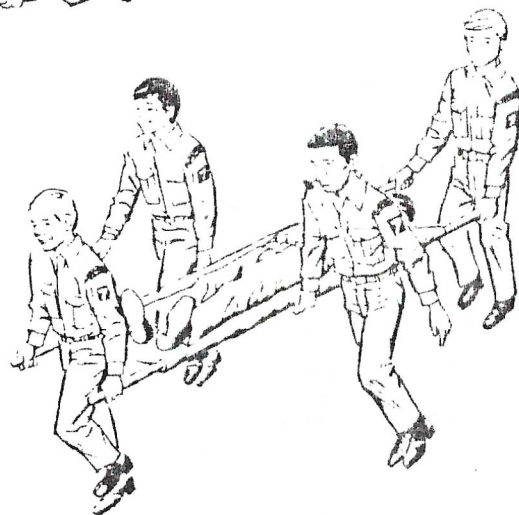
As fourth person says "ready lift," bearers lift the victim and rest him on their knees.



The fourth person slides stretcher close to bearers. "Lower" command is given, and victim is gently placed on the stretcher.

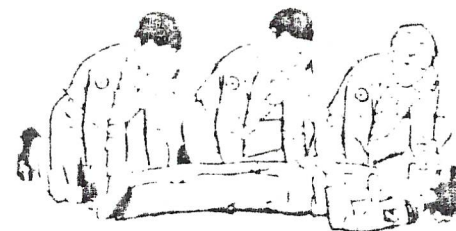


One bearer gives "lift" command. When starting out, front and side bearers step off with left foot; rear bearer with his right foot.



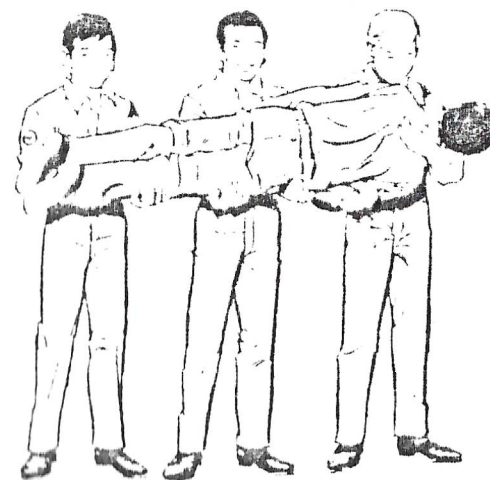
THREE-MAN CARRY

Bearers take same positions as for stretcher carry.



As "ready lift" command is given, bearers lift victim to their knees.

After lifting a victim, the bearers start out on the same foot.



MOUNTAIN MEDICINE & ILLNESSES

HYPOTHERMIA--The essential ingredients in surviving this situation are: being prepared to prevent it, recognizing it if it occurs and knowing how to treat it. On the bottom line, it represents the lowering of the body core temperature--lower it enough, and death will result! Dampness and wind are the most devastating factors to be considered--even more so than temperature. It is possible to die of hypothermia in temperatures far above freezing. Most hypothermia deaths occur in the 30 to 50 range.

Proper insulation is the most important aspect of protection. By far the most valuable insulator when wet is wool. Wool loses only 40 to 60% of its insulating ability when wet. Protect the head and hands with wool. Wool shirts have little bulk and can be an invaluable addition to a day pack. Polarguard and Holofill II garments and sleeping bags have also proven to be valuable additions to the wilderness armamentarium, (equipment). Thinsulate appears very promising. Proper nutrition and avoidance of exhaustion are further factors in preventing hypothermia.

The first response that the body has to a hypothermia condition is vasoconstriction in the skin, thus decreasing the flow of blood to the surface--which, in effect, lowers surface temperature, but preserves the core temperature. If this heat loss continues, the core temperature will begin to fall below 99°.

HYPOTHERMIA

Body coreSymptomsTemp.

99° to 96° Shivering intense and uncontrollable. Unable to perform complex tasks

95° to 91° Violent shivering persists. Difficulty speaking. Sluggish thinking; amnesia starts to appear

90° to 86° Shivering decreases--replaced with muscle rigidity. Exposed skin blue or puffy. Muscle coordination poor; total amnesia. Comprehension dull; generally still able to maintain posture and the appearance of psychological contact.

85° to 81° Victim becomes irrational--drifts into stupor. Pulse and respiration slow; muscles rigid.

80° to 78° Unconsciousness. Reflexes cease. Heartbeat erratic.

Below 78° Pulmonary edema; failure of cardiac and respiratory centers. DEATH.

Treatment is to prevent any further heat loss and immediately add heat to rewarm the victim. The ideal treatment would be to replace the core heat from the inside

out, as subjecting the individual to an outside source of heat would cause the surface blood vessels to open and promote circulation to the surface. Rewarming of the victim very rapidly can also be very dangerous unless performed by a specially trained person. Rewarming of the victim too rapidly can and usually causes severe SHOCK and usually DEATH. * The following steps should be taken: Remove the victim from wind and place him in the best shelter available. Replace wet clothing with dry clothing if possible. Insulate the victim from the ground and add heat gradually. If available, strip the victim and place him in a sleeping bag with a stripped rescuer. Gentle, mild heat can be provided by applying heat pads, hot water bottles or warm rocks in the sleeping bag, be very careful not to burn the victim. A hypothermia victim alone in a well insulated sleeping bag will simply stay cold. If he is conscious, give him warm drinks and candy or sweetened foods, if available. If no sleeping bag or fire is available, have the party huddle together. Avoid the use of alcohol--this may act as a vasodilator, thus releasing cold surface blood to the core. Also do not rub the victim's skin. The victim should breathe in warm moist air. A scarf may be placed over the victim's nose and mouth to aid in prewarming the air. A gentle form of mouth-to-mouth resuscitation can be given, if the victim is breathing, to reduce respiratory heat loss and to help maintain the victim's body core temperature. Use "proximity breathing" (exhaling close to a person's mouth and nose without direct contact) and time (synchronize) your ventilations with his attempts to breathe.

Be sure to monitor the victim closely and carefully for respiratory and cardiac difficulty. Also, move a hypothermic victim as little as possible, this will help to prevent further shock.

In summary, prevention is the key to avoiding death from hypothermia. Here are six steps to the prevention process. 1) Be aware of how dangerous wet, wind and cold can be--avoid unnecessary exposure; 2) Dress for warmth - prepare against wet and wind, remembering wool is your best friend; 3) Have adequate nutrition; 4) Carry emergency bivouac gear, such as a tube or tarp; 5) Bivouac early before coordination and judgment are decreased --know when to quit the struggle against the elements and prepare a camp; 6) Keep active using isometric contractions of various muscle groups to generate heat until desired warmth is produced.

Anyone going outdoors should be prepared for any possible condition that may arise.

FROSBITE is an injury produced by cold in which the affected tissues are frozen. The hands and feet, which are farthest from the heart and have a more tenuous blood supply, and the face and ears, which are usually the most exposed portions of the body, are the areas most commonly involved.

For victims with deep frostbite, rapid warming is the most effective treatment. Refreezing would result in substantial tissue loss. The frozen part should not be thawed if there is any possibility of refreezing the part.

Also, once the victim has been thawed, very careful management of the thawed part is required. The patient actually becomes a stretcher case if the foot is involved. For that reason, it may be necessary to leave the foot or leg(s) frozen and allow the victim to walk back to the evacuation point or facility where the thawing will take place. Peter Freuchen, the great Greenland explorer, once walked days and miles keeping one leg frozen, knowing that when the leg thawed, he would be helpless.

When superficial frostbite is suspected, thaw immediately so that it does not become a more serious, deep frostbite. Warm the hands by withdrawing them into the parka through the sleeves--avoid opening the front of the parka to minimize heat loss. Feet should be thawed against a companion or cupped in your own hands in a roomy sleeping bag, or otherwise in an insulated environment.

The specific therapy for a deep frozen extremity is rapid thawing in warm water (approx. 110°F.) This thawing may take 20 to 30 minutes, but it should be continued until all paleness of the tips of the fingers or toes has turned to pink or burgundy red, but no longer. This will be very painful and will require pain medication (Rx Tylenol #3, 2 tablets at the start of the procedure).

Avoid opening the blisters that form. Do not cut skin away, but allow the digits to autoamputate over the next 3 months. Blisters will usually last 2 to 3 weeks--these must be treated with care to prevent infections (best done in a hospital with gloved attendants).

A black carapace will form in severe frostbite. This is actually a form of dry gangrene. This carapace will gradually fall off with amazingly good healing beneath--efforts to hasten the carapace removal generally result in infection, delay in healing and increased loss of tissue. Leave these blackened areas alone. The black carapace separation can take over six months, but it is worth the wait. Without surgical interference, most frostbite wounds heal in six months to a year. All persons heading into the bush should already have had their tetanus booster (within the previous 10 years). Treat for shock routinely with elevation of feet or lowering of head, as this will frequently occur when these people enter a warm environment.

If a frozen member has thawed and the patient must be transported, use cotton between toes (or fluff sterile gauze from the emergency kit and place between toes) and cover other areas with a loose bandage to protect the skin during sleeping bag stretcher evacuation. If fracture also exists, immobilize when in the field, loosely so as not to impair the circulation any further.

BB) Before obtaining medical care for frostbite,

() a. warm the part quickly. Do not rub or break blisters.

() b. rub the area vigorously to stimulate circulation.

89) A frostbitten part should be warmed

- [] a. in very hot water or near a fire.
- [] b. GENTLY and treated GENTLY.

90) What is most important for a victim of exposure to cold, hypothermia?

- [] a. Immediate warming.
- [] b. Immediate cooling.

91) What can you do if the victim cannot be treated in a warm area?

- [] a. Wrap the victim in blankets or a sleeping bag.
- [] b. Wrap warm objects or other persons inside blankets or a sleeping bag with the victim.

HEATSTROKE

Anyone who has spent time in the outdoors has been sunburned or suntanned at least once. A mild sunburn is no great problem. But some people may stay out in the sun too long. The result; Heatstroke. This represents the complete breakdown of the heat control process (thermal regulation) in the human body. There is a total loss of the ability to sweat, core temperatures rise over 105° F rapidly and will soon exceed 115° F and result in death if this is not treated aggressively. THIS IS A TRUE EMERGENCY! The patient will be confused and rapidly become unconscious. Immediately move the victim into shade or erect a hasty barrier for

shade. Have the victim lie with his head and shoulders raised. Take off his outer clothing, then sponge the body--especially the head--with a wet towel, shirt, or cloth. Use cool or lukewarm water or alcohol if it is available. You actually will be trying to reduce the victim's fever ^{Below 102°} and slow down his pulse rate. If the patient is conscious, give him a drink of water.

Once the patient's head and body cool, stop your first aid for 10 minutes. He may then recover. If he begins to get hot and dry again, sponge him again.

Heatstroke can be prevented. Wear light-colored clothing when out in a hot sun. Avoid play or hard work in direct sunlight for long (30 minutes or more) periods. Drink plenty of water and take a little more salt than usual with meals. Don't overdo the salt; too much is not good for you.

HEAT EXHAUSTION

This is a classic example of SHOCK, but in this case encountered while working in a hot environment. Too much sun can cause heat exhaustion. It can also happen to a person working in an overheated room. Heat exhaustion is different and more common than heatstroke. It may be mild or serious. In mild cases, the victim feels very tired--exhausted--and he may be pale with cold sweat on his forehead. In more serious cases, you'll notice a lot of perspiration. The victim's body will feel clammy. He will not run a fever, but he may vomit and his breathing will be slow. Unconsciousness is rare.

Get the victim to lie in a shady spot. Bed rest is best. His head, however, should be lower than his feet. After he has rested, give him sips of water--1 teaspoon of salt to a glass of water. If the heat exhaustion continues to be serious, call a physician. Usually, the victim recovers with rest.

92) How should you care for a victim of heat stroke?

☐ a. Provide immediate cooling.

☐ b. Provide mild exercise.

93) What are the signs of heat stroke?

☐ a. Pale, clammy skin, profuse sweating, normal body temperature.

☐ b. Hot, dry skin, little or no sweating, high body temperature.

94) Lower the body temperature of a heat stroke victim until it is a safe level--about

☐ a. 39°C (102°F).

☐ b. 41°C (106°F).

95) A young man becomes nauseated after road construction work on a hot day. His skin is hot and dry, and his body temperature is high. What should you do?

☐ a. Put him to bed and give him salt water to drink.

☐ b. Cool him quickly by immersing him in cool water or sponging him all over with cool water or alcohol.

HIGH ALTITUDE ILLNESS--The three major clinical manifestations of this disease complex are outlined below:

ACUTE MOUNTAIN SICKNESS (AMS) - Rarely encountered below 6,500 feet, it is common in persons going above 10,000 feet without taking the time to acclimatize for altitude. Symptoms beginning soon after ascent consists of headache (often severe), nausea, vomiting, shortness of breath, weakness, sleep disturbance and occasionally, periodic breathing.

Prevention, as with all of the high altitude illness problems, is gradual ascent to an altitude above 9,000 feet and light physical activity for the first several days. For persons unable to take adequate time for altitude acclimatization, it may be helpful to take acetazolamide (Diamox) 500 mg every 12 hours for about 3 days prior to ascent and continuing the next couple of days. Also the daily use of Tums, or similar anti-acid tablets and aspirin; or Ascriptin (aspirin with Maalox) have proven very effective in the past few years for reducing the ill effects of high altitude.

Treatment is descent to below 6,500 feet, replacement of fluid loss (particularly important if vomiting has occurred) due to the rapid breathing of air with low relative humidity which is always encountered in cold weather, restriction of salt intake, a high carbohydrate diet and the administration of oxygen. Of these treatments, the descent in altitude is the most important.

HIGH ALTITUDE PULMONARY EDEMA (HAPE) - This problem is rare below 8,000 feet, but occurs at higher altitudes in those

poorly acclimatized. It is more prone to occur in persons between the ages of 5 and 18 (incidence is apparently less than 0.4% in persons over 21 and as high as 6% in those younger), and in persons who have had this problem before or in those who have been altitude acclimatized and who are returning to high altitude after spending two or more weeks at sea level.

Symptoms develop slowly within 24 to 60 hours of arrival at high altitude with shortness of breath, irritating cough, weakness, rapid heart rate and headache which rapidly progress to intractable cough with bloody sputum, low-grade fever and increasing chest congestion.

Descent to lower altitudes is essential and should not be delayed. Medical attention should be received as soon as possible.

CEREBRAL EDEMA (CE) - This is a less common event than the AMS and HAPE just mentioned, but it is more dangerous. Death has occurred from CE at altitudes as low as 8,000 feet but CE is rare below 11,500 feet. The symptoms are increasingly severe headache, mental confusion, emotional behavior, hallucinations, unstable gait, loss of vision, loss of dexterity and facial muscle paralysis. The victim may fall into a restless sleep, followed by a deep coma and death.

Descent is essential, oxygen should be administered and the use of dexamethasone (Decadron) 10 mg intravenously, followed by 4 mg every 6 hours intramuscularly until the symptoms subside. This should ONLY be used under the direct

supervision of a physician. The most important is to get the victim to an immediate descent from the altitude.

As can be noted from the above discussions of AMS, HAPE and CE, the symptoms progress rather insidiously. They are not clear-cut, separate diseases--they often occur together. The essential therapy for each of them is recognition and descent. This is life saving and more valuable than the administration of oxygen or the sophisticated drugs listed above. To prevent them, it is helpful to "climb high, but camp low"--i.e., spend nights at the lowest camp elevation feasible.

96) High altitude sickness can be serious if not treated in the right way.

☐ a. True.

☐ b. False.

97) Is it necessary to acclimate slowly if you are in good shape, physically.

☐ a. Yes.

☐ b. No.

98) What is the most important step in treating any form of Altitude sickness.

☐ a. Give tums and asperin.

☐ b. Desend to a lower altitude.

☐ c. Give oxygen and rest.

GASTROINTESTINAL ILLNESSES

GIARDIASIS * An intestinal parasite called GIARDIA LAMBLIA. Giardiasis, the disease the little giardeas cause, is sometimes called backpacker's fever (because backwoods hikers catch it from drinking untreated water) or Beaver fever (because these large rodents often carry and spread the disease as they travel between aquatic environments). But giardiasis is not limited to remote waters. It's now the most common parasitic disease of humans in the U.S., and it's fast becoming a national concern.

GIARDIA LAMBLIA is a microscopic, one-celled protozoan that can exist in two different forms; one a dormant, tough-walled cyst and the other a mobile, vegetative trophozoite that can swim around with four pairs of flagella and adhere to your intestinal lining with a sucking disk. It's only 10 to 12 microns long by 7 to 10 microns wide. About 8,000 trophozoites can fit on the head of a pin. It is a very tough parasite that can live for four days in 98.6 F water and more than two months as 39 F.

The most surprising thing about giardeasis is the variation in host response to infection, which covers the spectrum from no symptoms at all to serious disease. Giardiasis is not considered to be a killing disease (although it may make you wish you were dead)...and some people experience self-limiting infections that disappear after one to several weeks. Then again many afflicted

individuals struggle through prolonged illnesses that continue for months or even years with symptoms waxing and waning. It can be contracted over and over.

Treatment: Giardiasis is treated with one of three drugs (prescribed by a doctor after diagnosis): Quinacrine hydrochloride (brand name Atabrine): This quinine-based drug is now considered the most effective treatment.

Metronidazole (brand name Flagyl): The FDA regards this as an "investigational" drug for giardiasis.

Furazolidone (brand name Furoxone): As the only anti-giardiasis drug available in suspension, this is useful for infants.

Prevention: Treatment with chemicals is not reliable. NEITHER chlorine nor iodine-two of the most common backcountry water purifiers-is 100% effective against giardia cysts. Boiling will kill giardia cysts. A rolling boil will knock out giardias, other protozoa, and bacteria (not viruses, however). But boiling is inconvenient, time-consuming, fuel-wasting, and of no benefit; if not poured into a container that has just been sterilized by boiling. Portable water filters will work against giardia provided they are capable of filtering objects as tiny as seven microns. Although there are other filters on the market, Pocket Purifier, developed by Southwest, inc. appears to be the most effective filter. It is eight inches by half an inch in diameter, making the unit convenient for anyone operating in the remote back country. * The proper

sanitation while disposing of human waste would help prevent the spread of the disease.

Adequate "cat holes" should be at least 100 feet from water and 6-12 inches deep, with care taken to cover both paper and feces.

Regrettably, cure rather than prevention is currently the most reliable tool against giardiasis. Back country travellers using local water sources should continue to use standard water purification methods including portable filters. People returning from wilderness experiences or developing nations should request their physicians to test them for giardiasis if they suspect the disease. Until more efficient methods of testing for and eliminating giardia in water are developed, preventive efforts will have to be limited to public information.

DIARRHEA--diarrhea is the expulsion of watery stool. This malady can be either a nuisance or an actual threat to life, depending upon its cause and extent. The diarrhea may result from having been constipated too long, in which case the etiology should be readily apparent. This diarrhea is generally of short duration, less than 24 hours. Viral enteritis will also be explosive, but generally short lived. Again, 24 hours is the most common length of time for affliction--at times, a viral enteritis extends itself for several days.

One common cause of Diarrhea among campers is caused by not thoroughly rinsing soap from cooking and eating utensils

with boiling hot water.

CONSTIPATION--One of the currently popular wilderness medical texts has instructions on how to break up a fecal impaction digitally (i.e., using your finger to break up a hard stool stuck in the rectum). Don't let it get that far. In healthy young adults (especially teenagers), there may be a reluctance to defecate in the wilderness due to the unusual surroundings, lack of a toilet and perhaps swarms of insects or freezing cold. It is the group leader's responsibility to MAKE SURE that a trip member does not fecal hoard--i.e., fail to defecate in a reasonable length of time. Certainly one should be concerned after 3 days of no bowel movements.

To prevent this problem, I always include a stewed fruit at breakfast. The use of hot and cold in the morning will frequently wake up the "gastric-colic reflex" and get things moving perfectly well. If the 5-day mark is approaching, especially if the patient--and they HAVE become a patient at about this point--is obviously uncomfortable, it may become necessary to use a laxative. From the medical kit give 1 bisacodyl laxative tablet 5mg at bedtime. If that fails, the next morning take 2 of the tablets. Under winter conditions, when getting up in sub-zero weather might prove abominable, or under heavy insect conditions, take these tablets in the morning, rather than at night, to preclude this massive inconvenience. Any laxative will cause abdominal cramping, depending upon how strong it is. Be expecting this.

99) In high altitudes it is not important to treat drinking water from a clear running stream.

☐ a. True

☐ b. False.

100) In high altitudes is it necessary to drink more water in a days time than at sea level.

☐ a. Yes

☐ b. No

Wilderness Trek Christian Camp First Aid Supplies

Suggested amount for a crew of 12 people.

Percogesic tablets (1 small bottle)
Aspirin (1 small bottle)
Bandages (assortment)
Gauze roll 3" (1)
Gauze pads 3" x 3" (10)
Anti-acid tablets (Tums, Rolaids, etc.)
Donnegel (1 small bottle)
Triangular bandage (2)
Tape 2" x 10 yards (1)
Moleskin 4" x 12" (1)
Antibiotic ointment (1)
Prep pads (10)
Elastic bandage 4" x 10 yards (1)
Absorbent pad (1)
Roller bandage 1 1/2" x 9 feet (1)

Remember :

Additional first aid supplies and personal medications should be the responsibility of each camper.