CHAPTER 14

FIRST AID AND HEALTH

If you do something once, people call it an accident. If you do it twice, they call it coincidence. But do it a third time and you've just proven a natural law.

—Rear Admiral Grace Murray Hopper

In this chapter, you will learn some guidelines on giving first aid in an emergency. You won't be an expert or even qualify to administer first aid. You will learn why first aid is important and the results of properly administered first aid. You will also learn the measures you should take for the treatment of shock, bleeding, burns, and fractures; methods of resuscitation; and methods of moving injured persons.

Personal hygiene is also important, not only to you, the individual, but to the entire ship's company. In this chapter, you will receive pointers for maintaining cleanliness of the body, clothing, and bedding. You will also learn the effects of sexually transmitted diseases.

FIRST AID—ITS PURPOSE, LIMITATIONS, AND GENERAL RULES

Learning Objective: When you finish this chapter, you will be able to—

- Recognize the purpose, general rules, and limitations of first aid.

First aid is the emergency care you give to sick or injured persons until medical care is available. In addition to knowing what to do for a victim, it's just as important to know what not to do.

Your knowledge of first-aid measures and their proper application may mean the difference between life and death, between rapid recovery and long hospitalization, or between temporary disability and permanent injury.

PURPOSE AND LIMITATIONS

The objectives of first aid are to save life, prevent further injury, and limit infection. However, first aid isn't a substitute for proper medical treatment. Keep in mind the objectives of first aid. Everyone in the Navy must know when and how to apply first-aid measures and must be prepared to give assistance to persons injured in battle, collision, fire, and other mishaps.

In administering first aid, you have three primary tasks:

1. Maintain breathing
2. Stop bleeding/maintain circulation
3. Prevent or treat for shock

The first step, of course, is to determine the victim's injuries. When you treat a victim, first consideration usually must be given to the most serious injury. In general, the order of treatment is to restore breathing, stop bleeding, and treat for shock.

Work quickly, but don't rush around frantically. Don't waste time looking for ready-made materials. Do the best you can with whatever is at hand. Send for medical help as soon as possible.

GENERAL FIRST-AID RULES

Although each case involving injury or sickness presents its own special problems, some general rules apply to practically all situations. Before you go on to learn first-aid treatment for specific types of injuries, learn with the following basic rules:

1. Keep the victim lying down; head level with the body, until you have found out what kind of injury has occurred and how serious it is. However, if the victim shows one of the following difficulties, follow the rule given for that specific problem:

   a. Vomiting or bleeding about the mouth and semiconsciousness: If the victim is in danger of sucking in blood, vomited matter, or water, place the victim on his or her side or back with the head turned to one side and lower than the feet.

b. Shortness of breath: If the victim has a chest injury or breathing difficulties, place the victim in a sitting or semisitting position.

c. Shock: If the victim is in shock, place the victim on his or her back with the head slightly lower than the feet. (Shock is explained later in this chapter.)

2. Move the victim no more than is absolutely necessary. To determine the extent of the victim's injuries, carefully rip or cut the clothing along the seams. Removal of clothing in the normal way may make injuries worse, especially if fracture injuries are involved. Shoes may also be cut off to avoid causing pain or increasing an injury. When the clothing is removed, make sure the victim does not become chilled.

3. Keep the victim reassured and as comfortable as possible. If possible, don't let the victim see his or her injuries. The victim can endure pain and discomfort better if he or she is confident of your abilities.

4. Don't touch open wounds or burns with fingers or other objects except when sterile compresses or bandages aren't available and it's absolutely necessary to stop severe bleeding.

5. Don't try to give an unconscious person any solid or liquid substance by mouth. The person may vomit and get some of the material into the lungs when he or she breathes, causing choking and possibly death.

6. If a bone is broken or you suspect that one is broken, don't move the victim until you have immobilized the injured part. That may prove lifesaving in cases of severe bone fractures or spinal cord injuries, for the jagged bone may sever nerves and blood vessels, damage tissues, and increase shock. Of course, threat of fire, necessity to abandon ship, or other similar situations may require that you move the victim. But always keep in mind the principle that moving the victim could do further damage; always weigh the risk of moving the victim against other factors.

7. When transporting an injured person, always see that the litter is carried feet forward no matter what the injuries are. Carrying the litter this way lets the rear bearer observe the victim for any respiratory obstruction or stoppage of breathing.

8. Keep the injured person comfortably warm—warm enough to maintain normal body temperature.

Very serious and mutilating injuries may require heroic first-aid measures on your part. However, the greater the number of injuries, the more judgment and self-control you must exhibit to prevent yourself and well-intentioned bystanders from trying to do too much.

REVIEW 1 QUESTIONS

Q1. Describe the primary purpose of first aid.

Q2. List the primary tasks when administering first aid.

a.

b.

c.

Q3. Describe the general first-aid rule for the following conditions:

a. Shock

b. Broken bones

c. Transporting injured personnel

ARTIFICIAL VENTILATION

Learning Objective: When you finish this chapter, you will be able to—

- Recall the procedures used to administer artificial ventilation.

Student Notes:

A person who has stopped breathing may not be dead but is in immediate critical danger. Life depends on oxygen that is breathed into the lungs and then carried by the blood to every body cell. Since body cells can't store oxygen and the blood can hold only a limited amount (and only for a short time), death will result from a continued lack of oxygen.

The heart may continue to beat and the blood may still be circulated to the body cells for some time after breathing has stopped. For a short time, blood will contain a small supply of oxygen; therefore, the body cells won't die immediately. **For a very few minutes, there's a chance that the person's life may be saved**. A person who's stopped breathing but who is still alive is in a state of *respiratory failure*. The first-aid treatment for respiratory failure is *artificial ventilation*.

Artificial ventilation provides air exchange until natural breathing is reestablished. Artificial ventilation should be given only when natural breathing has stopped. **Never give artificial ventilation to any person who is still breathing**.

Don't assume breathing has stopped if a person is unconscious or if a person has been rescued from the water, from poisonous gas, or from contact with an electrical wire. **Remember, never give artificial ventilation to a person who is breathing naturally**. If the victim doesn't begin spontaneous breathing (breaths by himself/herself) after using the head or jaw tilt techniques (discussed later) to open the airway, give artificial ventilation immediately. If a blocked airway prevents ventilation, one of the "thrust" methods (discussed later) to clear the airway must be performed, followed by another attempt at artificial ventilation.

MOUTH TO MOUTH

To perform mouth-to-mouth ventilation, take the following steps:

1. Clear the victim's mouth of obstructions (false teeth and foreign matter).
2. Place the heel of one hand on the victim's forehead, and use the other hand placed under the chin to tilt back the head to open the airway.
3. Using the thumb and index finger, pinch the nostrils shut.
4. Take a deep breath, cover the victim's mouth with your own, and blow.
5. Then remove your mouth from the victim to allow him or her to exhale.

Observe the victim's chest for movement. If the victim hasn't started to breathe normally, start artificial ventilation with four quick ventilations in succession, letting the lungs inflate only partially. If the victim still doesn't respond, then you must fully inflate the victim's lungs at the rate of 12 to 15 ventilations per minute, or one breath every 5 seconds.

MOUTH TO NOSE

Mouth-to-nose ventilation is effective when the victim has extensive facial or dental injuries or is very young. Mouth-to-nose ventilation creates an effective air seal.

To administer this mouth-to-nose ventilation—

1. Place the heel of one hand on the victim's forehead and use the other hand to lift the jaw.
2. After sealing the victim's lips, take a deep breath, place your lips over the victim's nose, and blow.

Observe the chest for movement and place your ear next to the victim's nose to listen for or feel air exchange. Again, you must continue your efforts at the rate of 12 to 15 ventilations per minute, or one breath every 5 seconds, until the victim can breathe without assistance.

Sometimes during artificial ventilation air enters the stomach instead of the lungs. This condition is called *gastric distention*. It can be relieved by moderate pressure exerted with a flat hand between the navel and the rib cage. Before applying pressure, turn the victim's head to the side to prevent choking on the stomach contents that are often brought up during the process.

BACK PRESSURE/ARM LIFT

The back pressure/arm lift method is an alternate technique used when other methods are not possible. To

Student Notes:

perform the back pressure/arm lift method, do the following steps:

1. Place the victim on the stomach, face to one side, neck hyper extend, with hands under the head.
2. Quickly clear the mouth of any foreign matter.
3. Kneel at the victim's head and place your hands on the victim's back so that the heels of the hands lie just below a line between the armpits, with thumbs touching and fingers extending downward and outward.
4. Rock forward, keeping your arms straight, and exert pressure almost directly downward on the victim's back, forcing air out of the lungs.
5. Then rock backward, releasing the pressure and grasping the arms just above the elbows.
6. Continue to rock backward, pulling the arms upward and inward (toward the head) until resistance and tension in the victim's shoulders are noted. That expands the chest, causing active intake of air (inspiration).
7. Rock forward and release the victim's arms. That causes passive exiting of air (expiration).

Repeat the cycle of **press, release, lift**, and **release** 10 to 12 times a minute until the victim can breathe naturally.

CARDIAC ARREST AND CARDIOPULMONARY RESUSCITATION

Learning Objective: When you finish this chapter, you will be able to—

- Recall the procedures to administer cardiopulmonary resuscitation (CPR).

Cardiac arrest is the complete stoppage of heart function. If the victim is to live, action must be taken immediately to restore heart function. The immediate administration of cardiopulmonary resuscitation (CPR) by a rescuer using correct procedures greatly increases the chances of a victim's survival. CPR consists of external heart compression and artificial ventilation. The compression is performed on the outside of the chest, and the lungs are ventilated either by mouth-to-mouth or mouth-to-nose techniques. **To be effective, CPR must be started within 4 minutes of the onset of cardiac arrest**. The victim should be lying on a firm surface.

CAUTION

A rescuer who has not been properly trained should not attempt CPR. (To learn CPR, you should take an approved course from a qualified CPR instructor.) Improperly done, CPR can cause serious damage. Therefore, it is **never** practiced on a healthy individual for training purposes; a training aid is used instead.

ONE-RESCUER TECHNIQUE

In an unwitnessed cardiac arrest, don't assume that an arrest has occurred solely because the victim is lying on the floor and appears to be unconscious. Before beginning CPR, you should—

1. Try to arouse the victim (shake the victim's shoulders and shout to try to obtain a response).
2. Lie the unconscious victim on his/her back.
3. Kneel at the shoulders and establish an open airway, using the procedures outlined previously in artificial ventilations.
4. Check for breathing by looking, listening, and feeling.
   a. Look to see if the chest is rising and falling.
   b. Listen for air coming from the mouth.
   c. Check close to the victim's mouth and feel for air coming out.
5. If the victim isn't breathing, seal the nose, take a deep breath, and blow four quick breaths into the victim without allowing time for the lungs to deflate fully.
6. Quickly remove your mouth and allow the victim to exhale by himself/herself.
7. Check the carotid pulse as shown in figure 14-1. If no pulse is present, start CPR immediately.

Student Notes:

Figure 14-1.—Feeling for the carotid pulse.

To start **external cardiac compression**—

1. Place the victim on his/her back, establish an open airway, and kneel at right angles to the victim's body.
2. Then locate the victim's sternum (breastbone) by—
   a. Baring the chest and locating the sternum by drawing an imaginary line from one nipple to the other to identify the proper area of the sternum, which is darkened in figure 14-2.
   b. Locating the lower tip of the sternum with the index and middle fingers, placing the heels of your hands above your fingers in the darkened area.

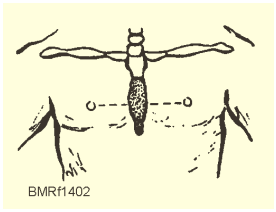


Figure 14-2.—Locating the sternum.

NOTE

There is a small piece of cartilage at the lower end of the sternum (fig. 14-2). A fracture of this area can damage the liver, causing hemorrhage (heavy bleeding) and death. When you place the heels of your hands on the victim's chest, stay above the tip of the sternum.

3. Place the heel of one hand directly on the sternum, and the heel of the other on top of the first. Figure 14-3, view A, shows this technique. Interlock your fingers, and **keep them off the victim's chest**!
4. Lean or rock forward with elbows locked, and apply vertical pressure to depress the sternum (adult) 1 ½ to 2 inches (fig. 14-3, view B).
5. Then release the pressure, keeping the hands in place.
6. Administer 60 to 80 compressions per minute.

You won't get as tired if you use the proper technique, and you will be more effective. Ineffective compression occurs when the elbows are not locked, the rescuer is not directly over the sternum, or the hands are improperly placed on the sternum.

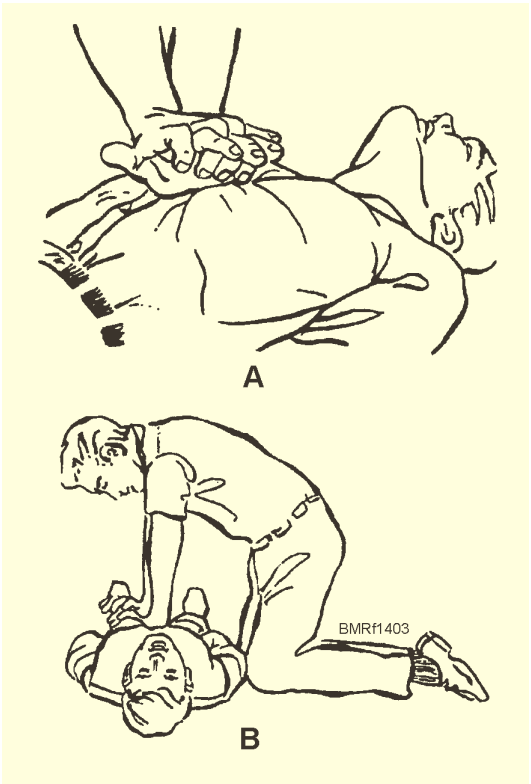


Figure 14-3.—Position for cardiac compression.

Student Notes:

When one rescuer performs CPR, as shown in figure 14-4, the ratio of compressions to ventilations is 15 compressions to 2 ventilations (or 15 to 2). This ratio must continue for four full cycles. Then check for pulse and breathing. If there are still no signs of recovery, continue CPR until the victim can breathe unassisted or you are relieved by medical personnel.

Before reviewing the next technique, let's go over the steps to take in an unwitnessed cardiac arrest involving one rescuer.

1. Determine whether the victim is conscious.
2. Check the vital signs.
3. Ventilate four times. (You may have to remove an airway obstruction at this time.)
4. Again check the vital signs; if none—
   a Begin compression-ventilation rate of 15 to 2 for four complete cycles;
   b. Check pulse, breathing, pupils; if no change,
   c. Continue compression—ventilation rate of 15 to 2 until victim is responsive or you are relieved by medical personnel.

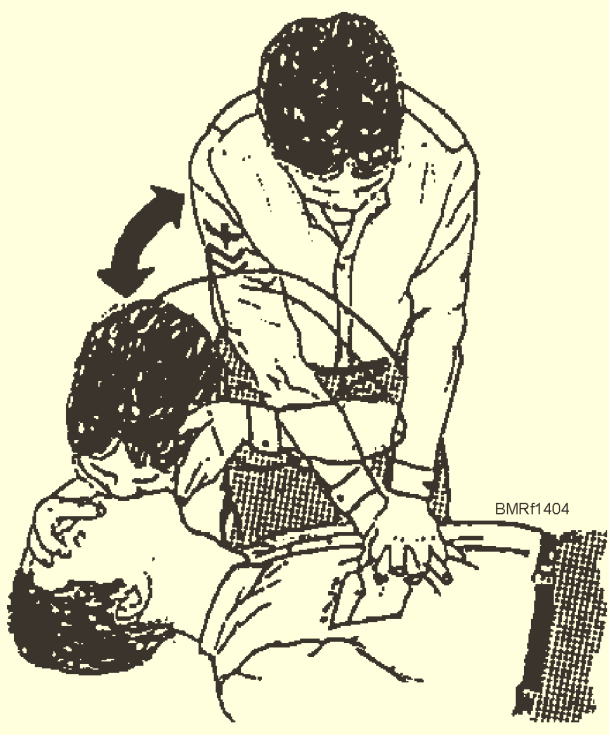


Figure 14-4.—One-rescuer CPR technique.

TWO-RESCUER TECHNIQUE

If two people trained in CPR are on the scene, one performs compressions while the other performs artificial ventilation. The compression-ventilation ratio for two-person CPR is 5 compressions to 1 ventilation (5 to 1). One rescuer is positioned at the chest area and the other beside the victim's head. The rescuers should be on opposite sides of the victim.

To avoid confusion, one rescuer is designated the leader. The leader makes the preliminary checks of the victim's vital signs and performs the initial four ventilations. The second rescuer will perform the compressions.

When CPR is started, the compressions should be given in a constant, methodical rhythm. The rescuer giving the compressions counts them out loud. As the fifth compression is released, the other rescuer ventilates the victim. Do not stop the compressions while ventilation is being given.

AIRWAY BLOCKAGE

Learning Objective: When you finish this chapter, you will be able to—

- Recall the procedures used to clear an airway passage.

Obstruction in the upper airway (throat) is often caused by attempting to chew food and talk at the same time. One of the most reliable indications of an airway obstruction is the inability of the victim to speak. Other indicators are the victim's grasping or pointing at his or her throat, exaggerated breathing efforts, and the skin turning a bluish color. Your first action upon encountering a victim with this problem is to clear the mouth of any food particles, foreign objects, or loose dentures. If that is not effective, you should use one of the following procedures:

Student Notes:

PROCEDURE	STEPS	
Standing abdominal thrust	1.	Stand behind the victim and wrap your arms around the victim's waist (fig. 14-5).
	2.	Grasp your wrist and place the thumb side of your fist against the victim's abdomen, above the navel and just below the rib cage (fig. 14-6).
	3.	Give four quick upward thrusts to the victim. The obstruction should pop out like a champagne cork. If unsuccessful, repeat until the obstruction is dislodged.
Reclining abdominal thrust	1.	Position yourself for the thrust by either straddling the victim at the hips, straddling one leg, or kneeling at the victim's hips.
	2.	Place your hands one on top of the other in the area between the lower end of the sternum and the navel, and give four quick upward thrusts into the abdomen, as shown in figure 14-7.
Standing chest thrust	1.	Bring your arms under the arms of the victim and encircle the lower chest, as shown in figure 14-8.
	2.	Grasp your wrist, keeping the thumb side close to the victim's chest. (Keep your fist on the middle, not the lower part, of the sternum.)
	3.	Press the chest with a sharp, backward thrust.
Reclining chest thrust	1.	Kneel at either side of the victim, place hands in same position as used for CPR.
	2.	Deliver thrusts slowly and downward on the sternum (fig. 14-9).

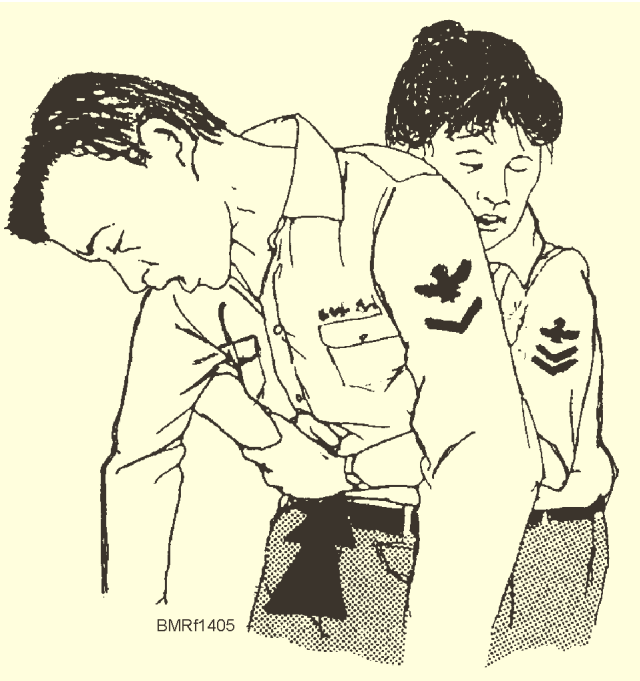


Figure 14-5.—Position for standing abdominal thrust.

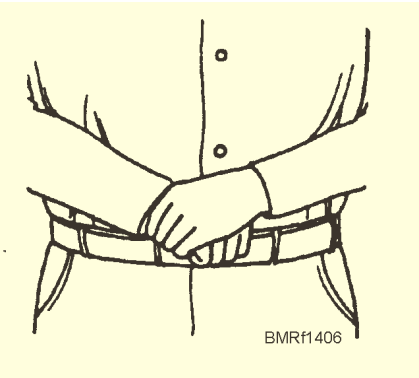


Figure 14-6.—Correct hand positioning.

Figure 14-7.—Position for reclining abdominal thrust.

Figure 14-8.—Position for standing chest thrust.

Figure 14-9.—Position for reclining chest thrust.

REVIEW 2 QUESTIONS

Q1. What is the first-aid treatment for respiratory failure?

Q2. When should artificial ventilation be administered?

Q3. List the three types of artificial ventilation.

a.

b.

c.

Q4. What is cardiac arrest?

Q5. To be effective, CPR must be started within how many minutes of the onset of cardiac arrest?

Q6. When you use the one-rescuer technique of CPR, what is the ratio of compressions to ventilations?

Q7. When you use the two-rescuer technique of CPR, what is the ratio of compressions to ventilations?

Q8. List the symptoms of airway blockage.

a.

b.

c.

Q9. List the four methods you can use to clear a person's airway.

a.

b.

c.

d.

Student Notes:

HEMORRHAGE AND METHODS OF CONTROLLING BLEEDING

Learning Objective: When you finish this chapter, you will be able to—

- Recall the procedures used to control external bleeding.

Blood is circulated throughout the body by three different kinds of blood vessels.

1. Arteries, which are large vessels that carry the blood away from the heart
2. Veins, which are large vessels that carry the blood back to the heart
3. Capillaries, which form a connecting network of smaller vessels between the arteries and the veins

Hemorrhage (escape of blood) occurs whenever there is a break in the wall of one or more blood vessels. In most small cuts, only capillaries are injured. Deeper wounds result in injury to veins or arteries. Bleeding severe enough to endanger life seldom occurs **except** when arteries or veins are cut.

The average adult body contains about 5 quarts (4.75 liters) of blood. One pint of blood can usually be lost without harmful effect—in fact, that's the amount usually given by blood donors. However, the loss of 2 pints (0.95 liter) will usually cause shock, and shock becomes greater as the amount of blood loss increases. (Shock will be discussed later in this chapter.) If half the blood in the body is lost, death almost always results.

Capillary blood is usually brick red in color. If capillaries are cut, the blood oozes out slowly. Blood from the veins is dark red. If a vein is cut, the blood escapes in a steady, even flow. If an artery near the surface is cut, the blood will gush out in spurts that are synchronized with the heartbeats; but if the cut artery is deeply buried, the bleeding will appear to be a steady stream. Arterial blood is usually bright red in color.

In actual practice, you might find it difficult to decide whether bleeding was from a vein or an artery; but the distinction is not usually important. A person can bleed to death quickly from a cut artery; prolonged bleeding from any large cut can, of course, have the same effect. The important thing to know is that **all** bleeding must be controlled as quickly as possible.

The only way to stop serious bleeding is by the application of pressure. In practically all cases, bleeding can be stopped if **pressure** is applied **directly to the wound**. If direct pressure doesn't stop the bleeding, pressure should be applied at the appropriate pressure point. In those very rare cases where bleeding is so severe that it cannot be controlled by either of these methods, pressure can be applied by a tight constricting band. The actual procedures you should use to stop bleeding are shown in chart on pages 14-10 and 14-11.

CAUTION

Never put on a constricting band unless the hemorrhage is so severe that it cannot be controlled in any other way. Once a constricting band has been applied, it should be released only by medical personnel.

BATTLE DRESSINGS

Learning Objective: When you finish this chapter, you will be able to—

- Recall the procedures used to apply battle dressings.

A battle dressing is a combination compress and bandage, in which a sterile gauze pad is fastened to a gauze, muslin, or adhesive bandage. Most Navy first-aid kits contain both large and small battle dressings. Battle dressings are also supplied at battle dressing stations located throughout the ship. Any part of a dressing that is to come into direct contact with a wound should be absolutely sterile. The dressing you find in Navy first-aid kits have been sterilized. Never touch a battle dressing with your fingers, clothing, or any other unsterile object.

When applying a battle dressing, make sure the dressing is the proper size so that it covers the wound completely. Some wounds, such as protruding abdominal wounds, require the dressing to be moistened in sterile water. Battle dressing should be applied so it doesn't allow the dressing to move or slip

Student Notes:

PROCEDURE	STEPS
Direct pressure	In most cases, bleeding can be stopped by the application of pressure directly on the wound. • Place a dressing (sterile or clean, if possible) over the wound and firmly fasten it in position with a bandage. • If bleeding doesn't stop, firmly secure another dressing over the first, or apply direct pressure with your hand to the dressing (fig. 14-10). • In cases of severe hemorrhage, don't worry too much about the danger of infection. The basic problem is to stop the flow of blood. If no material is available, simply place your hand firmly on the wound. Remember, direct pressure is the first method to use when you are trying to control hemorrhage.
Pressure points	Bleeding from a cut artery or vein may often be controlled by applying pressure to the appropriate pressure point. A pressure point is a place where the main artery to the injured part lies near the skin surface and over a bone. Pressure at such a point is applied with the fingers (digital pressure) or with the hand; no first-aid materials are required. The object of the pressure is to compress the artery against the bone, shutting off the flow of blood from the heart to the wound. There are 10 principal points (fig. 14-11) on each side of the body where hand or finger pressure can be used to stop hemorrhage. You should memorize these pressure points so that you will know immediately which point to use for hemorrhage from a particular part of the body. The correct pressure point you should use is the one that is— 1. Nearest the wound. 2. Between the wound and the main part of the body, or between the wound and the heart. Applying finger pressure is very tiring, and it can seldom be maintained for more than 15 minutes. Pressure points are recommended for use while direct pressure is being applied to a serious wound. While pressure is being applied at the appropriate pressure point, an assistant can bandage the wound (or wounds). If available, a battle dressing should be used. After opening the dressing, be careful not to contaminate it. Place the compress portion over the wound, then bind it tightly in place with the attached straps (fig. 14-12). If bleeding continues to be severe even after direct pressure and pressure points have been used, you may have to apply a constricting band.
Constricting band	A constricting band is a band used to cut off the supply of blood to an injured limb. **It can't be used to control bleeding from the head, neck, or body** because its use in these locations would result in greater injury or death. Only use a constricting band when hemorrhage can't be controlled by other means. A constricting band consists of a pad, a band, and a device for tightening the band so that the blood vessels will be compressed. There are several different kinds of ready-made constricting bands. A variety of materials can be used to improvise constricting bands. Any round, smooth pressure object may be used for the pad (such as a compress, a roller bandage, a stone, or a rifle shell), and any long, flat material may be used as the band. Remember, the band must be flat! Belts, stockings, flat strips of rubber, or neckerchiefs can be used; but rope, wire, string, or very narrow pieces of cloth shouldn't be used because they will cut into the flesh. A short stick may be used to twist the band, tightening the constricting band.

PROCEDURE	STEPS
Constricting band (Continued)	A constricting band must always be applied above the wound; that is, toward the body, and it must be applied as close to the wound as practicable. The best object to be used for the pad is either a pad, compress, or similar pressure object. The pad goes under the band. Place it directly over the artery, or it will actually decrease the pressure on the artery and allow greater flow of blood. If a constricting band placed over a pressure object doesn't stop the bleeding, the pressure object is probably in the wrong place. If that occurs, shift the object around until the constricting band, when tightened, controls the bleeding. If no suitable pressure object is available, use the constricting band without it. To apply an emergency constricting band (fig. 14-13) made from something like a neckerchief— 1. Wrap the material (which is a minimum of 2 inches wide) at least twice around the limb and tie an overhand knot. 2. Place a short stick on the overhand knot and tie a square knot over it. Then twist the stick rapidly to tighten the constricting band. The stick may be tied in place with another strip of material. To be effective, a constricting band must be tight enough to stop the blood flowing to the limb. If the pressure from the constricting band is less than the arterial pressure, arterial bleeding will continue. Also, insufficient constricting band pressure may actually increase the amount of bleeding from the veins. So be sure to draw the constricting band tight enough to stop the bleeding. However, don't make it any tighter than necessary. After you have brought the bleeding under control with the constricting band, apply a sterile compress or dressing to the wound, and fasten it in position with a bandage. Some points to remember about using a constricting band are as follows: • Don't use a constricting band unless you can't control the bleeding by any other means. • Don't use a constricting band for bleeding from the head, face, neck, or body. Use one only on the limbs. • Always apply a constricting band above the wound and as close to the wound as possible. • Be sure you draw the constricting band tight enough to stop the bleeding, but don't make it any tighter than necessary. • Don't loosen a constricting band after it has been applied. Don't cover a constricting band with a dressing. If it's necessary to cover the injured person in some way, make sure all other people concerned with the case know about the constricting band. Using a crayon, skin pencil, or blood, make a large *T* on the victim's forehead or on a medical tag attached to the wrist, and note the time the constricting band was applied.

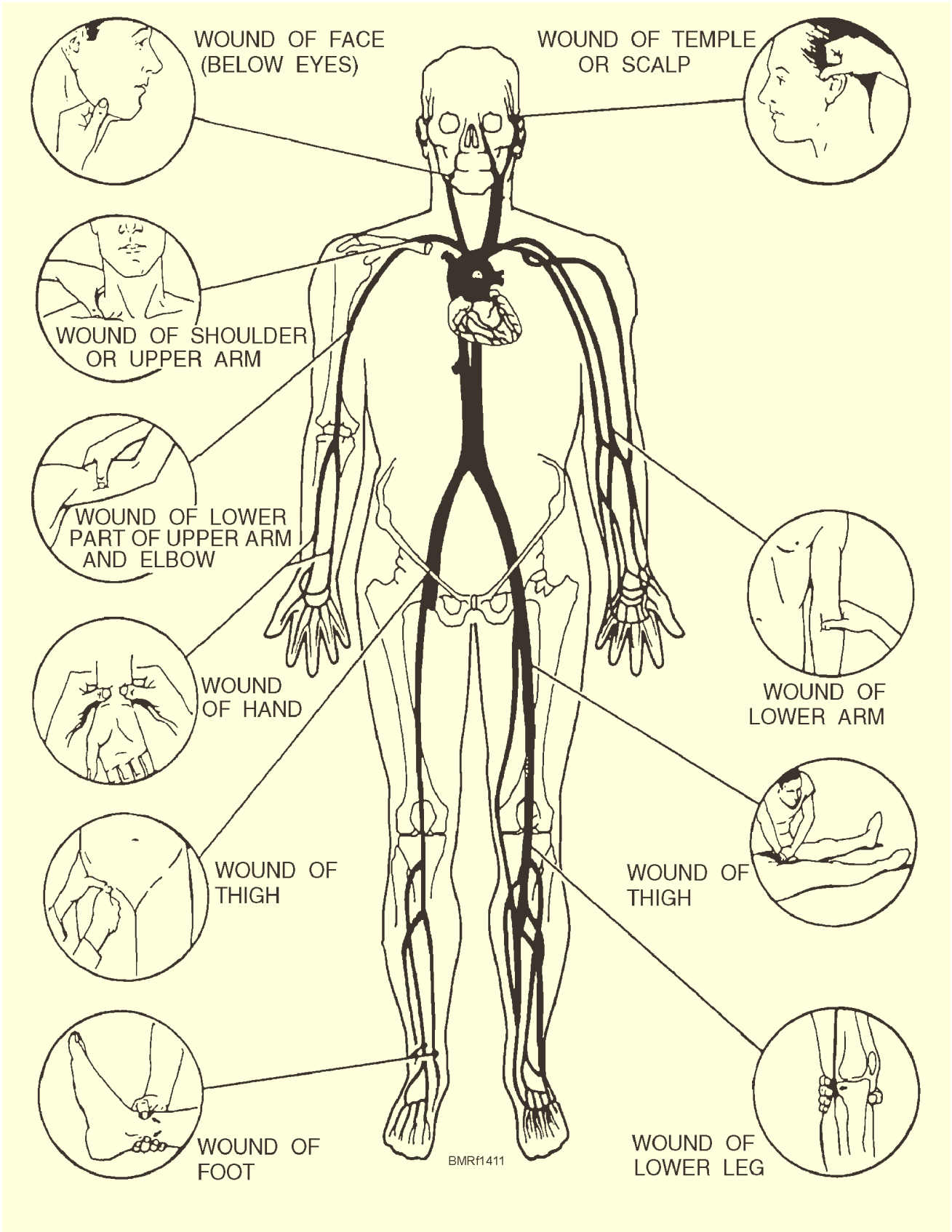


Figure 14-11.—Pressure points for control of bleeding.

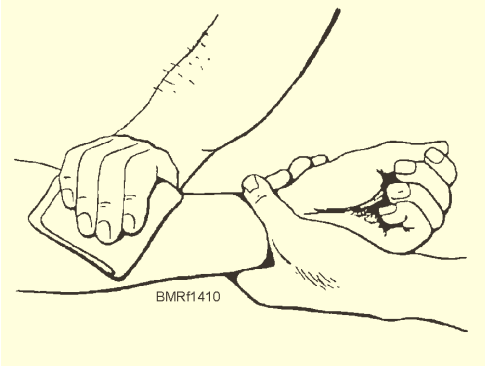


Figure 14-10.—Direct pressure.

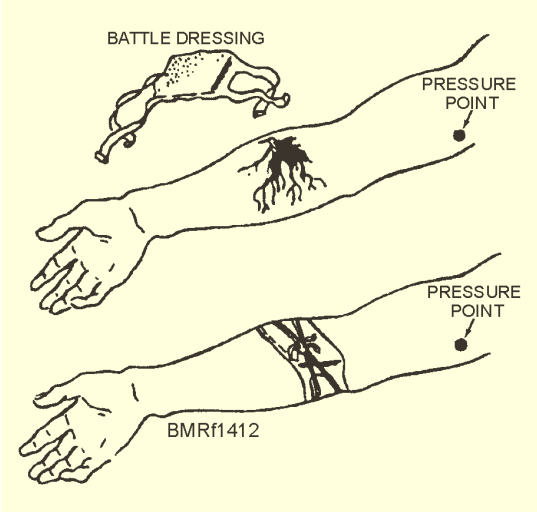


Figure 14-12.—Battle dressing.

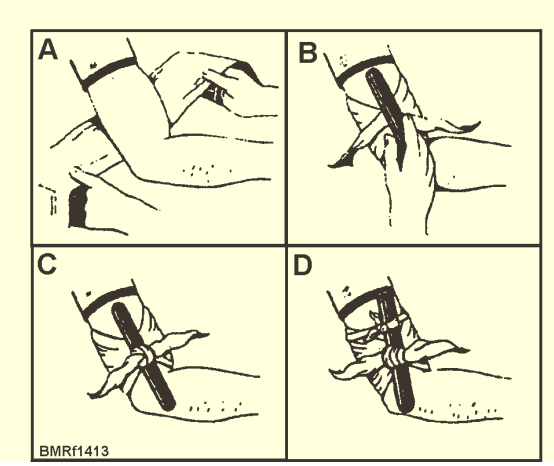


Figure 14-13.—Applying a constricting band.

off the wounded area. Once a battle dressing has been applied to a wound, it shouldn't be removed except by medical personnel. Each ship in the Navy holds periodic training on first aid. There are always new and updated techniques on how to administer first-aid procedures, including how to apply battle dressings. Pay particular attention to these training sessions and learn as must as you possibly can.

REVIEW 3 QUESTIONS

Q1. List the three types of blood vessels the body uses to circulate blood.

a.

b.

c.

Q2. Under what condition is hemorrhage (bleeding) severe enough to endanger life?

Q3. A loss of how many pints of blood will usually cause shock?

Q4. What color is blood carried by (a) capillaries, (b) veins, and (c) arteries?

a.

b.

c.

Q5. What is the only way to stop serious bleeding?

Student Notes:

Q6. What is a constricting band?

Q7. When a battle dressing is applied, what person should release or remove it?

Q8. What is a battle dressing?

Q9. How should you apply a battle dressing?

SHOCK

Learning Objective: When you finish this chapter, you will be able to—

- Recognize the symptoms, prevention, and treatment of shock.

If you've ever hit your finger with a hammer and felt—in addition to the pain—weak, dizzy, and nauseous, then you have experienced a mild form of shock. In this case, the symptoms appeared immediately after the injury, but they may not show up for several hours.

Shock is a condition in which blood circulation is seriously disturbed. Crushed or fractured bones, burns, prolonged bleeding, and asphyxia all cause shock. Shock may be slight or it may be severe enough to cause death. Because all traumatic injuries result in some form of shock, you should learn its symptoms and know how to treat the victim.

HOW TO RECOGNIZE SHOCK

A person who is going into shock may show quite a few signs or symptoms, some of which are indicated in figure 14-14, and are discussed in the following paragraphs. Remember, that signs of shock don't always appear at the time of the injury; and, in many very serious cases, symptoms may not appear until hours later.

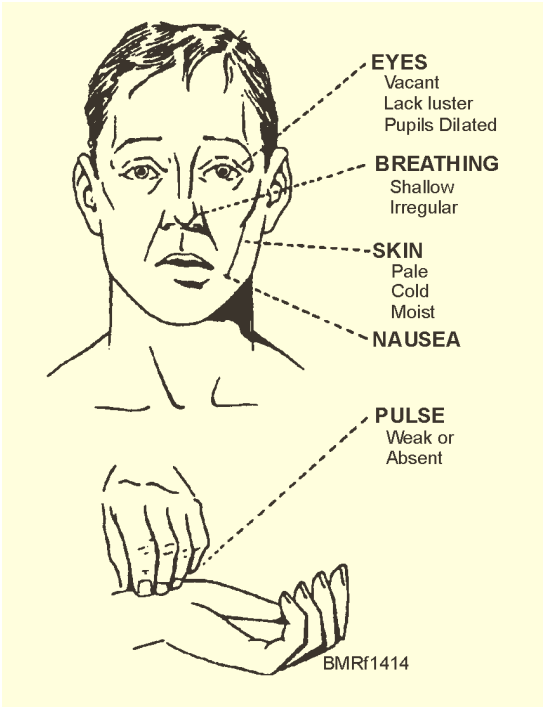


Figure 14-14.—Symptoms of shock.

The symptoms of a person suffering from shock are caused, directly or indirectly, by the disturbance of the circulation of the blood. Symptoms of shock include the following:

- The pulse is weak and rapid.

- Breathing is likely to be shallow, rapid, and irregular, because the poor circulation of the blood affects the breathing center in the brain.

- The temperature near the surface of the body is lowered because of the poor blood flow; so the face, arms, and legs feel cold to the touch.

- Sweating is likely to be very noticeable.

- A person in shock is usually very pale, but, in some cases, the skin may have a bluish or reddish color. In the case of victims with dark skin, you may have to rely primarily on the color of the mucous membranes on the inside of the mouth or under the eyelid or under the nail bed. A person in or going into shock has a bluish color to these membranes instead of a healthy pink.

Student Notes:

- The pupils of the eyes are usually dilated (enlarged).

- A conscious person in shock may complain of thirst and have a feeling of weakness, faintness, or dizziness. The victim may feel nauseous, restless, frightened, and/or anxious. As shock deepens, these signs gradually disappear and the victim becomes less and less responsive to what is going on. Even pain may not arouse the shock victim. Finally, the victim may become unconscious.

You will not likely see all the symptoms of shock in any one case. Some of them may appear only in late stages of shock when the disturbance of the blood flow has become so great that the person's life is in serious danger. Sometimes the signs of shock may be disguised by other signs of the injury. You must know what symptoms indicate the presence of shock, but don't ever wait for symptoms to develop before beginning the treatment for shock. **Remember, every seriously injured person is likely to develop serious shock!**

PREVENTION AND TREATMENT OF SHOCK

You should begin treatment for shock as soon as possible. Prompt treatment may prevent shock or, if it has already developed, prevent its reaching a critical point. Keep the victim lying down and warm. If conscious, the victim should be encouraged and assured that expert medical help will arrive soon.

Keep an injured person warm enough for comfort, but do not let the victim become overheated.

The best position to use to prevent or to treat shock is one that encourages the flow of blood to the brain. If possible, place the injured person on his or her back on a bed, a cot, or a stretcher. Raise the lower end of the support about 12 inches so that the feet are higher than the head (fig. 14-15). If you can't do that and it's possible, raise the feet and legs enough to help the blood flow to the brain. Sometimes it's possible to take advantage of a natural slope of ground and place the victim so that the head is lower than the feet.

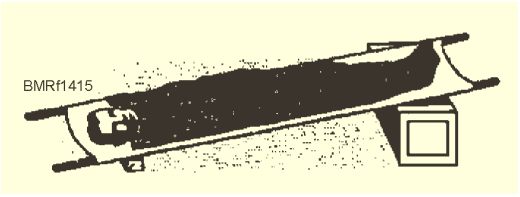


Figure 14-15.—Position for the treatment of shock.

Of course in every case, you'll have to consider what type of injury is present before you can decide on the best position. Here are some examples:

- If a person has a chest wound, he/she may have so much trouble breathing that you will have to raise the head slightly.

- If the face is flushed, rather than pale, or if you have any reason to suspect a head injury, don't raise the feet. Instead, you should keep the head level with or slightly higher than the feet.

- If the person has broken bones, you will have to judge what position would be best both for the fractures and for shock. A fractured spine must be immobilized before the victim is moved at all, if further injuries are to be avoided.

If you have any doubts about the correct position to use, have the victim lie flat on his/her back. **The basic position for treating shock is one in which the head is lower than the feet**. Do the best you can under the particular circumstances to get the injured person into this position. In any case, never let a seriously injured person sit, stand, or walk around.

Administer liquids sparingly, and not at all if medical attention will be available within a short time. If necessary, small amounts of warm water, tea, or coffee may be given to a victim who is conscious. Persons having serious burns are an exception. Burn victims require large amounts of fluids. Water, tea, fruit juices, and sugar water may be given freely to a victim who is conscious, able to swallow, and has no internal injuries. Slightly salted water is also beneficial. **Never give alcohol to a person in shock**.

An injured person may or may not be in pain. The amount of pain felt depends in part on the person's physical condition and the type of injury. Extreme pain, if not relieved, can increase the degree of shock. Make

Student Notes:

the victim as comfortable as possible. Fractures should be immobilized and supported. Immobilization greatly reduces, and sometimes eliminates, pain.

An injured person's body heat must be conserved. Therefore, heat is important in the treatment of shock. Exposure to cold, with resulting loss of body heat, can cause shock to develop or to become worse. You will have to judge the amount of covering to use by considering the weather and the general circumstances of the accident. Often a light covering will be enough to keep the casualty comfortable. Wet clothing should be removed and dry covering provided, even on a hot day. Use blankets or any dry material to conserve body heat. Artificial means of warming (hot water bottles, heated bricks, heated sand) should not ordinarily be used. Artificial heat may cause loss of body fluids (by sweating), and it brings the blood closer to the surface, defeating the body's own efforts to supply blood to the vital organs and to the brain. Also, the warming agent may burn the victim.

REVIEW 4 QUESTIONS

Q1. What is shock?

Q2. List the symptoms of shock.

a.

b.

c.

d.

e.

f.

g.

Q3. True or false. Keep an injured person warm enough for comfort, but do not let the victim become overheated.

Q4. If you suspect a person to be in shock, what is the best position for that person?

SUICIDE

Learning Objective: When you finish this chapter, you will be able to—

- Recognize suicidal tendencies and possible treatment.

Suicide among young adults is a serious and growing problem. Among Navy personnel, approximately 10% of the Navy's nonhostile active-duty deaths are caused by suicide. Among the leading causes of nonhostile deaths in the Navy, suicide ranks third behind accidents and heat-related causes. The most frequent suicide victims in the Navy are enlisted males between the ages of 17 and 24 and in paygrades E-1 to E-6.

Why suicide? There isn't a simple answer as to why people choose to kill themselves. Usually, some emotional trauma is so great they "just want to stop the pain." They feel helpless, hopeless, and worthless. They feel that suicide is the only way out.

CAUSES OF SUICIDE

Most suicides are caused by a combination of events that lead a person to believe that suicide is the only way out. The following are some common causes of suicide:

- The breakup of a close relationship with a loved one or difficulties in interpersonal relationships
- The death of a loved one, spouse, child, parent, sibling, friend, or even a pet
- The loss of social or financial status of the family

Student Notes:

- The compounding and disorienting effects of drugs and/or alcohol

DEPRESSION

Depression is often associated with suicide. In 75% to 80% of all suicides, depression is a contributing factor. Sadness and an occasional "case of the blues" are normal emotions. However, depression isn't a normal emotional state. Depression is a deep sadness that's present almost daily for at least 2 weeks.

WHAT TO DO

If you believe someone you know is suicidal, remember the following:

- Take all threats seriously
- Answer cries for help
- Confront the problem
- Tell the person you care
- Listen actively
- Get professional help
- Don't leave the person alone

REVIEW 5 QUESTIONS

Q1. In the Navy, who is the most frequent suicide victim?

Q2. List the common causes of suicide.

a.

b.

c.

d.

Q3. What condition is often associated with suicide?

Q4. List some actions you should take if someone you know might be suicidal.

a.

b.

c.

d.

e.

f.

g.

BURNS

Learning Objective: When you finish this chapter, you will be able to—

- Recognize the symptoms of, classification of, and first-aid treatment for burns.

The seriousness of a burn depends on two factors—the extent of the burned area and the depth of the burn. Shock can be expected from burns involving 15% or more of the body. Burns involving 20% endanger life. Without adequate treatment, burns of over 30% are usually fatal. The depth of the injury determines whether it is a first-, second-, or third-degree burn.

First-degree burns. First-degree burns are mildest. Symptoms are slight pain, redness, tenderness, and increased temperature of the affected area.

Second-degree burns. Second-degree burns are more serious. The inner skin may be damaged, resulting in blistering, severe pain, some dehydration, and possible shock.

Student Notes:

Third-degree burns. Third-degree burns are worst of all. The skin is destroyed, and possibly also the tissue and muscle beneath it. The skin may be charred, or it may be white and lifeless (from scalds). After the initial injury, pain may be less severe because of destroyed nerve ends. There may be chilling of the body. Some form of shock will result.

Probably the most important aspect is the extent of the burned area. A first-degree burn covering a large area could be more serious than a small third-degree burn. A sunburn, for example, ranging from mild to serious, is easily obtained, particularly if you aren't accustomed to the exposure. If you fall asleep while sunbathing, possible second- or even third-degree burns might occur and could be fatal.

The most effective immediate treatment of burns and of pain is as follows:

1. If the burn area covers **less than 20% of the body**, immerse the burned area in cold water, or apply cold compresses if immersion is impracticable. Cold water not only minimizes pain but also reduces the burning effect in the deeper layers of the skin. Gently pat dry the area with lint-free cloth or gauze.

2. If the burn area covers **more than 20% of the body**, apply sterile, dry bandages. Aspirin is also effective for the relief of pain. Continue treatment until no pain is felt when the burned area is exposed to the air.

Burn victims require large amounts of water, which should be slightly salted. Because of the nature of the injury, most burns are sterile. Therefore, the best treatment for uninfected burns is merely to protect the area by covering it with the cleanest (preferably sterile) dressing available.

Some actions that should **not** be taken when dealing with burns are as follows:

- Never apply ointments to a burn or use petrolatum gauze.
- Don't attempt to break blisters or to remove shreds of tissue or adhered particles of charred clothing.
- Never apply a greasy substance (butter, lard, or Vaseline™), antiseptic preparations, or ointments. These may cause further complications and interfere with later treatment by medical personnel.

REVIEW 6 QUESTIONS

Q1. Define the following types of burns:

a. First-degree burn

b. Second-degree burn

c. Third-degree burn

Q2. If a burn covers less than 20% of a victim's body, you should immerse the burned area in cold water or apply cold compresses. Why should you take these actions?

Q3. If a burn covers more than 20% of a victim's body, what actions should you take?

Q4. When treating burns, you should NEVER take which of the following actions?

a. Apply petrolatum gauze

b. Break blisters

c. Apply butter, lard, or Vaseline™

d. Each of the above

HEAT-RELATED PROBLEMS

Learning Objective: When you finish this chapter, you will be able to—

- Recognize the symptoms of and first-aid treatment for heat-related illnesses.

Student Notes:

Look at figure 14-16. Here, you see a comparison of the symptoms of heatstroke and heat exhaustion. These are dangers you face when working or exposed to conditions that might cause heatstroke or heat exhaustion.

HEATSTROKE

Sunstroke is more accurately called *heatstroke* since it is not necessary for a person to be exposed to the sun for this condition to develop. It is a less common but far more serious condition than heat exhaustion, since heatstroke has a 20% mortality rate. The more important feature of heatstroke is the extremely high body temperature (105˚F [41˚C] or higher) that accompanies it. In heatstroke, the victim has a breakdown of the sweating mechanism and is unable to eliminate excessive body heat built up while exercising. If the body temperature rises too high, the brain, kidneys, and liver may be permanently damaged.

Signs and symptoms of heatstroke. Sometimes the victim may have preliminary symptoms such as headache, nausea, dizziness, or weakness. Breathing will be deep and rapid at first, later shallow and almost absent. Usually the victim will be flushed, very dry, and very hot. The pupils will be constricted (pinpoint) and the pulse fast and strong.

Treatment of heatstroke. When you provide first aid for heatstroke, remember that this is a true life-and-death emergency. The longer the victim remains overheated, the higher the chances of irreversible body damage or even death. First-aid treatment for heatstroke is designed to reduce body heat and includes the following:

- Reduce body heat immediately by dousing the body with cold water, or applying wet, cold towels to the whole body.
- Move the victim to the coolest possible place and remove as much clothing as possible.
- Maintain an open airway.
- Place the victim on his or her back, with the head and shoulders slightly raised.
- If cold packs are available, place them under the arms, around the neck, at the ankles, and on the groin.

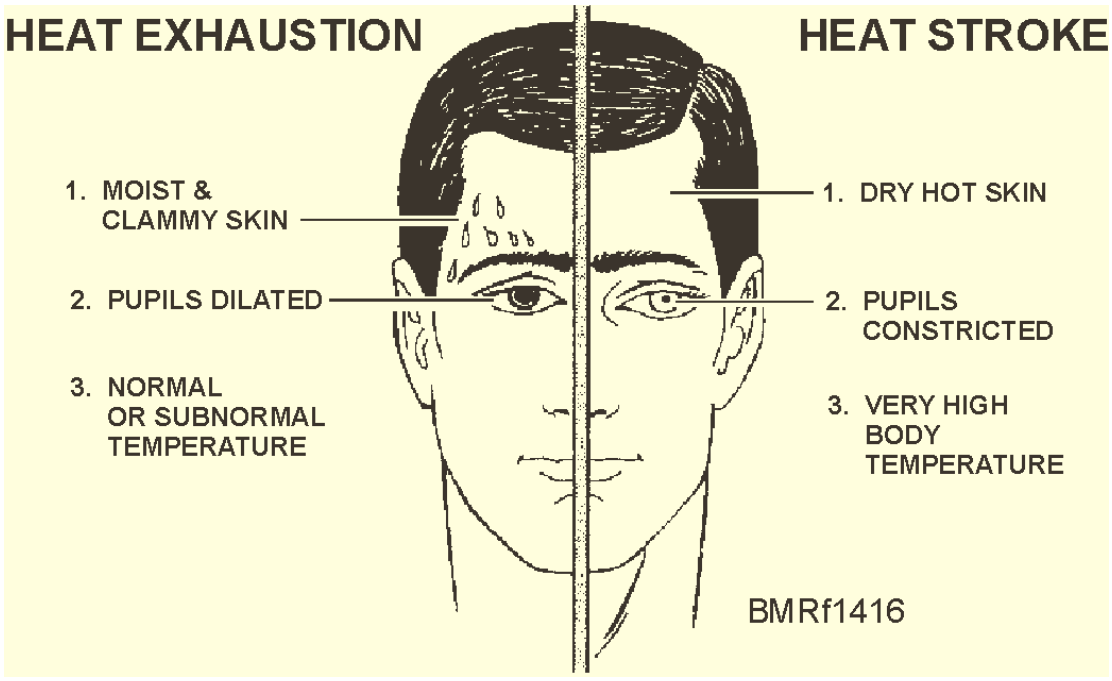


Figure 14-16.—Symptoms of heatstroke and heat exhaustion.

Student Notes:

- Expose the victim to a fan or air-conditioner since drafts will promote cooling.
- Immersing the victim in a cold water bath is also effective.
- Give the victim (if conscious) cool water to drink. Do not give any hot drinks or stimulants.
- Get the victim to a medical facility as soon as possible. Cooling measures must be continued while the victim is being transported.

HEAT EXHAUSTION

Heat exhaustion (heat prostration or heat collapse) is the most common condition caused by working or exercising in hot spaces. Heat exhaustion produces a serious disruption of blood flow to the brain, heart, and lungs. This disruption of blood flow causes the victim to experience weakness, dizziness, headache, loss of appetite, and nausea.

Signs and symptoms of heat exhaustion. Signs and symptoms of heat exhaustion are similar to those of shock: for example—

- The victim will appear ashen gray; the skin cold, moist, and clammy.
- The pupils of the eyes may be dilated (enlarged).
- The vital signs (blood pressure, temperature, pulse, and respiration) usually are normal; however, the victim may have a weak pulse together with rapid and shallow breathing.
- Body temperature may be below normal.

Treatment of heat exhaustion. To treat heat exhaustion victims, you should treat them as if they were in shock.

- Loosen the clothing; apply cool, wet cloths.
- Move the victim to either a cool or an air-conditioned area, and fan the victim.
- Do not allow the person to become chilled.
- If the victim is conscious, administer a solution of 1 teaspoon of salt dissolved in a quart of cool water.
- If the victim vomits, don't give any more fluids.
- Transport the victim to a medical facility as soon as possible.

REVIEW 7 QUESTIONS

Q1. List the three most important signs of heatstroke.

a.

b.

c.

Q2. List the three most important signs of heat exhaustion.

a.

b.

c.

Q3. What is the most important action when treating someone who is showing signs of heatstroke or heat exhaustion?

Q4. True or false. In case of heatstroke/heat exhaustion, you should transport the victim to a medical facility as soon as possible.

FRACTURES, SPRAINS, AND STRAINS

Learning Objectives: When you finish this chapter, you will be able to—

Student Notes:

- Recognize the classification of, symptoms of, and first-aid treatment for fractures.
- Recall the first-aid treatment for strains and sprains.

Simply put, a fracture is a broken bone. The severity of the injury depends on the part of the body affected, the type of fracture, and the amount of tissue damaged.

FRACTURES

In this section, you will learn about fractures—how they're classified and the first-aid you would give the victim. Additional information is given on how to transport victims.

Classification

Fractures may be classified in several ways. However, they are generally classified as are either closed or open. A closed fracture is one in which the skin remains intact. An open fracture is one in which the bone protrudes from the skin. These fractures are shown in figure 14-17.

Symptoms

You can't always tell that a fracture has occurred. However, if the victim has been involved in some form of violence, you may suspect that one or more bones have been broken. The victim may even have heard the bone snap. Some symptoms of a fracture are as follows:

- Pain and tenderness
- Inability to use the part
- Creaking or cracking
- Motion at points other than joints
- Swelling
- Deformity
- Discoloration of skin

Treatment

If you are required to give first aid to a person who has suffered a fracture, you should follow these general rules:

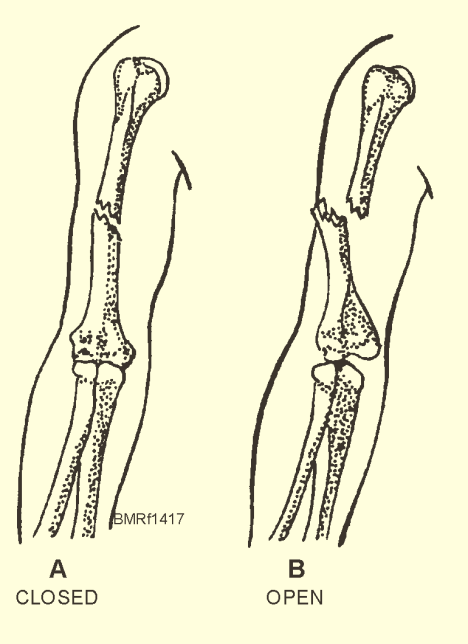


Figure 14-17.—Types of fractures.

- If there is any possibility that a fracture has been sustained, treat the injury as a fracture.
- Get medical aid at the first possible opportunity. All fractures require medical treatment.
- Don't move the victim until splints have been applied to the injured parts, unless the victim's life is in danger.
- Treat for shock.
- Don't attempt to locate a fracture by grating the ends of the bone together.
- Don't attempt to set a broken bone.
- When a long bone in the arm or leg is fractured, the limb should be carefully straightened so that splints can be applied. Pulling gently with your hands in the long axis of the limb is permissible, and it may be all that is necessary to get the limb back into position.
- Apply splints. Emergency splinting may be placed over clothing if the victim will be seen very soon by a medical officer or if the victim will be transported for a short distance. Otherwise, it's best to remove just enough clothing so you can apply well-padded splints

Student Notes:

directly to the injured part. If you decide to remove clothing over the injured part, cut the clothing or rip it along the seams. In any case, **be careful!** Rough handling of the victim may turn a closed fracture into an open fracture. That could increase the severity of shock and cause extensive damage to the blood vessels, nerves, muscles, and other tissues around the broken bone.

If the fracture is open, you must treat the wound before you can deal with the fracture. Bleeding from the wound may be serious. Most bleeding can be stopped by direct pressure on the wound or by finger pressure at the appropriate point. If, after your best efforts, these methods are not successful, use a constricting band; then treat the fracture.

Use of Splints

An essential part of the first-aid treatment is immobilizing the injured part with splints so that the sharp ends of broken bones won't move around and cause further damage to nerves, blood vessels, or vital organs. Splints are also used to immobilize severely injured joints or muscles and to prevent the enlargement of extensive wounds. Before you can use a splint, you need to have a general understanding of the use of splints.

In an emergency, almost any firm object or material can be used as a splint. Such things as umbrellas, canes, swords, rifles, tent pegs, laths, sticks, oars, paddles, spars, wire, leather, boards, pillows, heavy clothing, corrugated cardboard, and folded newspapers can be used as splints. A fractured leg may sometimes be splinted by fastening it securely to the uninjured leg.

Splints, whether ready-made or improvised, must meet the following requirements:

- Be light in weight, but still be strong and fairly rigid.
- Be long enough to reach the joints above and below the fracture.
- Be wide enough so the bandages used to hold them in place won't pinch the injured part.
- Be well padded on the sides that touch the body. If they're not properly padded, they won't fit well and won't adequately immobilize the injured part.
- To improvise the padding for a splint, use articles of clothing, bandages, cotton, blankets, or any other soft material.
- If the victim is wearing heavy clothes, apply the splint on the outside, allowing the clothing to serve as at least part of the required padding.

Although splints should be applied snugly, **never** apply them tight enough to interfere with the circulation of the blood. When applying splints to an arm or a leg, try to leave the fingers or toes exposed. If the tips of the fingers or toes become blue or cold, you will know that the splints or bandages are too tight. You should examine a splinted part approximately every half-hour, and loosen the fastenings if circulation appears to be cut off. Remember that any injured part is likely to swell, and splints or bandages that are all right when applied may be too tight later.

Figure 14-18 shows a method of immobilizing the leg of a person with a broken kneecap. To secure the limb to the splint, belts, neckerchiefs, rope, or any suitable material may be used. If possible, tie the limb at two places above and two places below the break.

Leave the treatment of other types of fractures, such as jaw, ribs, and spine, to medical personnel. **Never try to move a person who might have a fractured spine or neck.** Moving such a person could cause permanent paralysis. Don't attempt to reset bones.

SPRAINS AND STRAINS

A person with a sprain or a strain might have some of the same symptoms as a person who has a fracture. The information contained in this section will help you

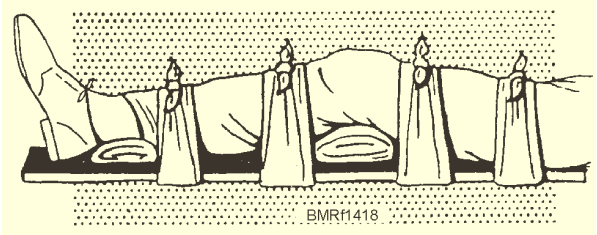


Figure 14-18.—Splinting.

Student Notes:

know what to do if a there is a possibility a shipmate has sustained a strain or a sprain.

Sprains

A sprain is an injury to the ligaments and soft tissues that support a joint. A sprain is caused by the violent wrenching or twisting of the joint beyond its normal limits of movement. Any joint may be sprained; however, sprains of the ankle, wrist, knee, and finger are most common.

SYMPTOMS.—Symptoms of sprains include pain or pressure at the joint, pain upon movement, swelling and tenderness, possible loss of movement, and discoloration.

TREATMENT.—Treat all sprains as fractures until ruled out by X-rays. To treat a sprain, you should take the following actions:

- Application of cold packs for the first 24 to 48 hours.
- Elevation and rest of the affected area.
- Application of a snug, smooth, figure-eight bandage to control swelling and to immobilize (keep from moving) the affected area. (**NOTE**: Check bandaged areas regularly for swelling that might cause circulation problems and loosen bandages if necessary.)
- After the swelling stops (24 to 48 hours), apply moist heat for short periods (15 to 30 minutes).

CAUTION

Do not apply heat until 24 hours after the last cold pack.

After applying first aid, make sure the victim has a follow-up examination by a medical officer. This exam includes X-rays to rule out fractures.

Strains

A strain is an injury caused by the forcible over stretching or tearing of a muscle or tendon. A strain may be caused by lifting excessively heavy loads, sudden or violent movements, or any other action that pulls the muscles beyond their normal limits.

SYMPTOMS.—Symptoms of strains include pain, lameness or stiffness, moderate swelling at the place of the injury, discoloration caused by blood escaping from injured blood vessels into the tissues, possible loss of power, and a distinct gap felt at the site of the injury.

TREATMENT.—To treat a strain, you should take the following actions:

- Elevate the affected area.
- Apply cold packs for 24 to 48 hours.
- After the swelling stops, apply mild heat to increase circulation and aid in healing.

NOTE

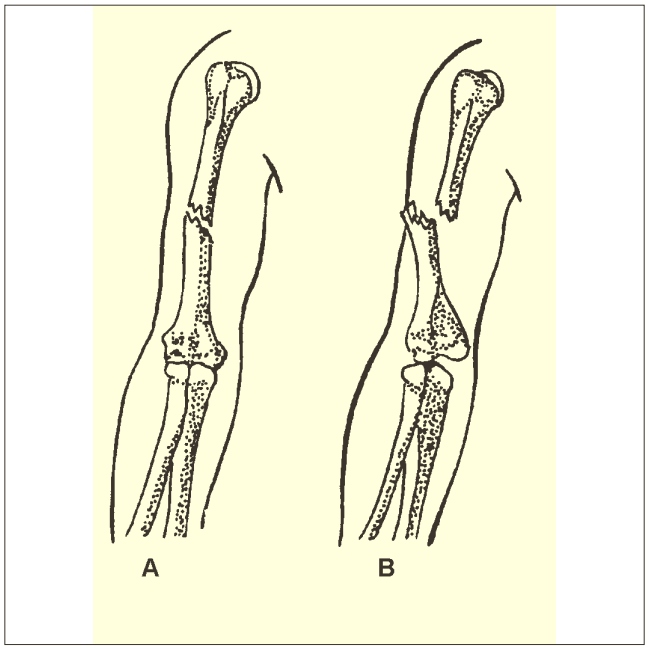
Do not apply heat until 24 hours after the last cold pack.

The victim should be evacuated to a medical facility where X-rays can be taken to rule out the possibility of a fracture.

Student Notes:

REVIEW 8 QUESTIONS

Q1. Label the following fractures.



Q2. List the symptoms of a fractured leg or arm.

a.

b.

c.

d.

e.

f.

g.

Q3. Briefly describe how to give first aid to someone with a fractured leg or arm.

a.

b.

c.

d.

e.

f.

g.

Q4. List the types of fractures that should be treated by medical personnel.

a.

b.

c.

Q5. What is the reason that you should never move a person who might have a fractured spine or neck?

Q6. List the symptoms a victim might have with a sprained or strained leg.

a.

b.

c.

d.

e.

Student Notes:

f.

g.

Q7. Describe the first aid that should be given to a victim suspected of having a sprained or strained leg.

RESCUE PROCEDURES

Learning Objective: When you finish this chapter, you will be able to—

- Recall the procedures to rescue a person.

There are many ways to move victims. The method used depends on several factors—where the victim is located and where the victim is to be taken, assistance available, equipment on hand, and so forth. If available, litters or stretchers should be used.

In you don't have any help, there are several methods you can use to move a victim alone. One method is simply to pick up and carry the victim in your arms, but it can be quite a task if the victim weighs more than you. If a blanket is handy, the victim can be placed upon it and dragged. Two other means are the fireman's carry (fig. 14-19) and the tied-hands crawl (fig. 14-20).

FIREMAN'S CARRY

One of the easiest ways to carry an unconscious person is by the fireman's lift, also called the *fireman's carry* (fig. 14-19).

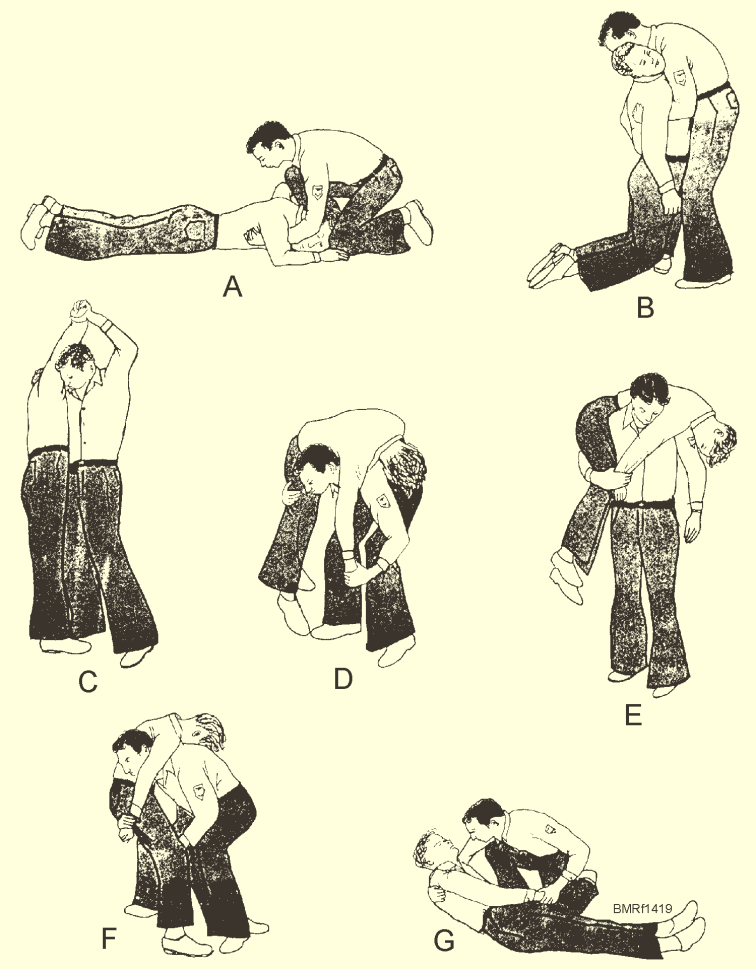


Figure 14-19.—Fireman's carry.

Student Notes:

1. Place the victim face down, as shown in figure 14-19, view A. Kneel on one knee at the head, facing the victim. Pass your hands under the armpits.
2. Raise the victim, as shown in figure 14-19, view B. Take a better hold across the back.
3. Raise the victim to a standing position and stick your right leg between the victim's legs, as shown in figure 14-19, view C. Grasp the victim's right wrist in your left hand and swing the arm around the back of your neck and down your left shoulder.
4. Stoop quickly and pull the victim across your shoulders and, at the same time, put your right arm between the victim's legs, as shown in figure 14-19, view D.
5. Grasp the victim's right wrist with your right hand and straighten up, as shown in figure 14-19, view E.

The procedure for lowering the victim to the deck is shown in figure 14-19, views F and G.

TIED-HANDS CRAWL

The tied-hands crawl shown in figure 14-20 may be used to drag an unconscious person for a short distance; it is particularly useful when you must crawl underneath a low structure.

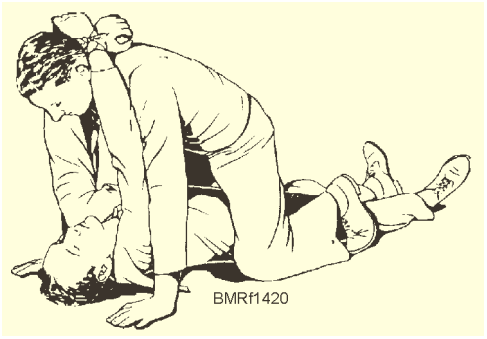


Figure 14-20.—Tied-hands crawl.

RESCUE FROM ELECTRICAL CONTACT

Rescuing a person who has received an electric shock is likely to be difficult and dangerous. Use extreme caution or the rescuer may also be electrocuted.

Don't touch the victim's body, the wire, or any other object that may be conducting electricity.

Some procedures you might use to rescue a person who's received an electric shock are as follows:

- Look for the switch first of all, and if you find it, turn off the current immediately. Don't waste too much time hunting for the switch; however, every second is important.
- If you cannot find the switch, you should try to remove the wire from the victim with a dry broom handle, branch, pole, oar, board, or similar nonconducting object (fig. 14-21).
- It may be possible to use dry rope or dry clothing to pull the wire away from the victim.
- You can also break the contact by cutting the wire with a wooden-handled axe, but that is extremely dangerous because the cut ends of the wire are likely to curl and lash back at you before you have time to get out of the way.

When you are trying to break an electrical contact, always stand on some nonconducting material, such as a dry board, newspaper, or clothing.

Administer artificial ventilation immediately after freeing the person from the wire if the electric shock caused breathing to stop. Check the victim's pulse, since electric shock may also cause the heart to stop. If

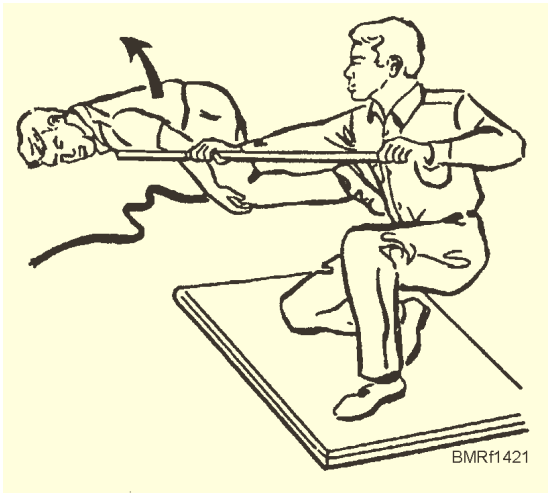


Figure 14-21.—Pushing a victim away from a power line.

Student Notes:

you do not feel a pulse, immediately administer CPR. Get the victim to a medical facility as soon as possible.

TRANSPORTATION PROCEDURES

Learning Objective: When you finish this chapter, you will be able to—

- Recall the procedures to transport a person.

So far, you've learned about the emergency methods used to get an injured person out of danger and into a position where first aid can be administered. As you have learned, these emergency rescue procedures often involve substantial risk to the victim and should be used only when clearly necessary.

Once you've rescued the victim from the immediate danger, **slow down!** Handle and transport the victim with care, being careful about the injuries that have been sustained. In the excitement and confusion that almost always accompany a mishap, you are likely to feel rushed, as though you must do everything rapidly. This is a reasonable way to feel. Speed is essential in treating many injuries and in getting the casualty to a medical officer or hospital. However, it's **not** reasonable to let yourself feel so hurried that you handle the victim roughly or carelessly or transport the victim in a way that will make the injuries worse.

GENERAL PRECAUTIONS

The basic precautions to observe when transporting an injured person are summarized as follows:

- Give necessary first aid **before** attempting to transport the victim if possible. Be sure all injuries have been located. Treat serious breathing problems, bleeding, and shock in that order. Immobilize all fractures, sprains, and dislocations. Do whatever you can to reduce the victim's pain and to make the victim as comfortable as possible under the circumstances.

- Use a regular stretcher if one is available. If you must use an improvised stretcher, be sure it is strong enough. Also, be sure that you have enough personnel to carry the stretcher so that you won't run any risk of dropping the victim.

- Whenever possible, bring the stretcher to the victim instead of carrying the victim to the stretcher.

- Fasten the victim to the stretcher to prevent slipping, sliding, or falling off. Tie the victim's feet together, unless the injuries make it impracticable.

- Use blankets, garments, or other material to pad the stretcher and to protect the victim from exposure.

- As a general rule, an injured person should be lying down, face up, while being moved. However, in some instances the type or location of the injury will necessitate the use of another position. If the victim has a chest wound, raising the head and shoulders may give greater comfort, and ease any breathing difficulties the victim may have. A person who has a broken bone should be moved very carefully so that the injury will not be made worse. If the victim has received a severe injury to the head, the victim should be kept lying on the side or on the back with the head turned to one side to prevent choking on saliva, blood, or vomit while being transported. In all cases, it is important to place the victim in a position that prevents further injuries.

- The stretcher should be carried in such a way that the victim will be moved feet first, so that the rear stretcher bearer can continually watch the victim for signs of breathing difficulty.

- If you must use a motor vehicle to transport a seriously injured person, the best means is an ambulance. If no ambulance is available, a truck or station wagon makes a fairly good substitute. If it is necessary to use a passenger car to transport a seriously injured person, the victim should be put in a place that requires the least amount of bending, twisting, or turning.

- Don't turn the victim over to anyone without giving a complete account of the situation. Be sure the person taking over knows what caused the injury and what first-aid treatment has been given. If a constricting band has been applied, make sure that is known to the person who is taking charge of the victim.

Student Notes:

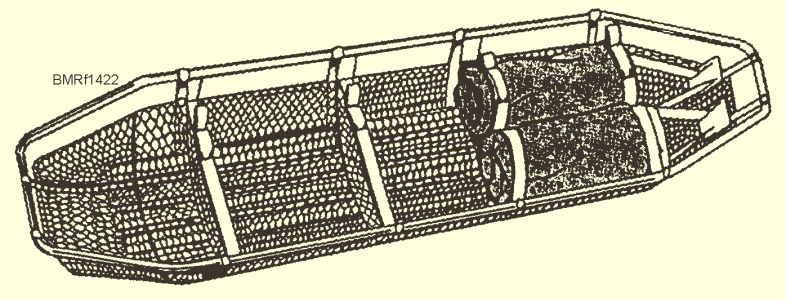


Figure 14-22.—Stokes stretcher.

STOKES STRETCHER

The Navy service litter most commonly used for transporting sick or injured persons is called the *Stokes stretcher* (fig. 14-22). The Stokes stretcher is a wire basket supported by iron or aluminum rods. It's adaptable to a variety of uses, since the victim can be held securely in place, even if the stretcher is tipped or turned. The Stokes stretcher is particularly valuable for transferring injured persons to and from boats. It is also used for direct ship-to-ship transfer of injured persons.

NEIL ROBERTSON STRETCHER

The Neil Robertson stretcher is designed for removing an injured person from engine-room spaces, holds, and other compartments where access hatches are too small to permit the use of regular stretchers.

The Neil Robertson stretcher is made of semirigid canvas. When firmly wrapped around the victim mummy-fashion, it gives sufficient support so the victim may be lifted vertically (fig. 14-23). To keep the injured person from swaying against bulkheads and hatchways while being lifted, tie a guideline to the victim's ankles.

Stretchers of this type can be made on board ship and kept in appropriate places ready for use. If a Neil Robertson stretcher is not available when needed, a piece of heavy canvas, wrapped firmly around the victim, will serve somewhat the same purpose.

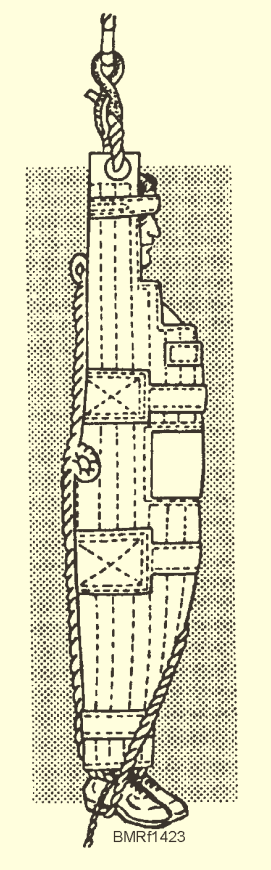


Figure 14-23.—Neil Robertson stretcher.

EMERGENCY RESCUE LINES

An emergency rescue line can be made from any strong fiber line. These lines should be used only in extreme emergencies when an injured person must be moved and no other means is available.

Figure 14-24 shows an emergency rescue line that could be used to hoist a person from a void or small compartment. Notice that a running bowline is passed around the body, just below the hips, and a half hitch just under the arms. Again, a guideline is tied to the victim's ankles.

Student Notes:

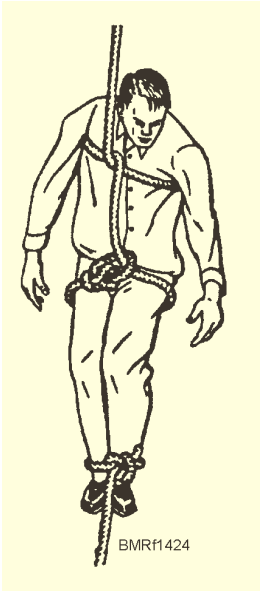


Figure 14-24.—Emergency rescue line.

REVIEW 9 QUESTIONS

Q1. What is one of the easiest ways to carry an unconscious person?

Q2. Describe the precautions you should take when rescuing a person who has received an electric shock.

Q3. How should you carry a stretcher?

Q4. What type of stretcher is used to transport an injured person from engine-room spaces?

Q5. When are emergency rescue lines used?

PERSONAL HYGIENE

Learning Objectives: When you finish this chapter, you will be able to—

- Identify the purpose for personal hygiene.
- Recognize the consequences of not following a personal hygiene program.

Because of the close living quarters in the Navy, particularly aboard ship, personal hygiene is very important. Developing good personal hygiene habits is essential for the good health of the individual and for the protection of the entire crew. For the same reasons, sanitary conditions aboard ship must be maintained at all times. Clean spaces are a necessity. Dirt breeds disease. When spaces are kept clean and orderly, the general well-being of the crew improves and morale increases. No one wants to live or work in a filthy environment. In the Navy and at home, everyone should make it a habit to keep living and working spaces as clean as possible. Maintaining a clean, healthy environment reduces the chances of illness.

Negligence in reporting to the medical officer any matter that affects one's health is inexcusable. It can lead to a more serious illness. Don't ignore minor injuries. An untreated cut or scratch can lead to infection, loss of a limb, and even death. If you can't report for treatment right away, wash the injury with soap and clean water. A large wound should not be washed; cover it with a clean dressing until it can be attended to by medical personnel.

Some practices you can take to be healthy include the following:

Showering. Shower and change underwear daily. After showering, dry thoroughly, particularly your feet to prevent fungus development. Wear shower shoes when taking a shower to avoid contracting athlete's foot.

Shoes and socks. Wear properly fitted shoes and socks. The inner dimensions of the shoe should be about 1/4 inch longer and wider than the foot. Improperly fitted socks and socks with holes can cause blisters. Change your socks daily.

Student Notes:

Toenails and feet. Cut your nails straight across to prevent ingrown toenails. If corns or other foot ailments develop, have them treated at once.

Fingernails. Keep fingernails trimmed and clean.

Hair. Keep your hair neatly trimmed and wash it often.

Bunk linen. Change it at least weekly.

Exercise and sleep. Daily exercise improves bodily functions, increasing muscle tone and physical endurance. Even aboard small ships, it's possible to exercise in some manner. Get as much sleep as watch and work conditions permit.

Diet. Navy food is good and wholesome. It provides a well-balanced diet. Don't be a finicky eater, even though you don't like some foods. Learn to eat a variety of foods; try to avoid putting more on your tray than you care to eat.

ORAL HYGIENE

Many dental disorders begin with the buildup of bacterial plaque that remains undisturbed around the teeth. The purpose of personal oral hygiene is to remove this plaque buildup. Plaque can be removed by proper tooth brushing and flossing techniques.

There are three common dental conditions that are caused by poor dental hygiene:

1. Tooth decay
2. Reddening of the gums
3. Gum and bone disease

Any of these can cause the loss of a tooth; but with proper oral hygiene, these conditions can be controlled or prevented.

Tooth decay can be reduced by cutting down on sweets and by brushing properly. For most people, cavities and gum and bone disease occur primarily between the teeth. No toothbrush can effectively cleanse these areas or the areas behind the last tooth in each arch. You must use dental floss to clean such hard-to-reach areas. You should floss at least once a day, either just before or just after brushing. Unwaxed dental floss should be used in most cases.

Dental cleansing devices, oral irrigators, and commercial mouthwashes are aids to oral hygiene. They may be used in addition to—but not in place of—tooth brushing and flossing. If these devices are electrically powered, they must be safety checked by electrical safety personnel before use.

NOTE

Oral irrigation may be harmful for individuals with cardiovascular problems.

In addition to all of these procedures, you should also have a dental checkup every 6 months or at least once a year. Your dental technician or dentist can show you the proper way to brush and floss your teeth.

SEXUALLY TRANSMITTED DISEASES

Sexually transmitted diseases (STDs) are illness caused by organisms that are transmitted through sexual intercourse or by forms of other intimate body contact with an infected person. The disease germs that cause syphilis and gonorrhea are very fragile and can live for only short periods of time outside the body. Venereal disease is not spread from inanimate objects such as toilet seats, drinking glasses, bed linens, or clothes.

Syphilis and gonorrhea are the two most common sexually transmitted diseases in the United States. Syphilis has had the worst reputation, but it is gonorrhea that is out of control.

Syphilis

Syphilis can attack any tissue or organ of the body and is especially damaging to the brain, spinal cord, blood vessels, and heart.

A painless sore, called a *chancre*, is the first sign of syphilis. The sore usually appears on or around the sex organs about 9 to 90 days after contact with an infected person. The chancre will heal within a few weeks, even without treatment.

Other signs of syphilis that may develop either before or after the chancre goes away are a rash that may cover any part of the body; white, glistening spots in the mouth; and fever, sore throat, and headaches. The rash

Student Notes:

and other signs may not appear or may be so slight as to be unnoticed.

After these signs disappear, the germs may stay hidden for 10 to 20 years. If untreated, the disease causes mental illness, blindness, heart disease, or even death.

Syphilis is not inherited, but a pregnant woman with the disease can give it to her unborn child. These babies are born with congenital syphilis. A baby with congenital syphilis may be born dead or deformed. Congenital syphilis can be prevented if it is detected and treated in time.

The signs of syphilis may resemble many other diseases, or the signs may be slight and be unnoticed. The disease can be detected by a blood test for syphilis.

Gonorrhea

If you have gonorrhea and don't get treatment, you may become sterile. Gonorrhea can damage the sperm ducts in males and the fallopian tubes in females. In men and women, gonorrhea may result in crippling arthritis, meningitis, or heart disease.

The signs of gonorrhea in males usually appear 3 to 5 days after sexual contact with an infected partner. Most men have a pus discharge from the sex organ and a painful, burning sensation during urination. Women rarely have painful symptoms until gonorrhea has seriously damaged their reproductive system. There may be some vaginal discharge or burning during urination, but women will usually have no symptoms and will not know that they have gonorrhea until a sexual partner has been infected.

If you have syphilis or gonorrhea, a cure is as near as your medical department. But early treatment is important. These diseases can be cured even in people who have had the disease for a long time, but the damage to the reproductive organs may be irreversible.

NOTE

Self-treatment or pills from a friend are extremely dangerous.

Genital Herpes Infection

Genital herpes is an increasingly common viral infection that produces recurrent, painful genital sores similar to cold sores that occur around the mouth. At this time, there is no known cure for genital herpes; the infected person may have recurrences of lesions throughout life. Individuals should avoid sexual intercourse when the sores are present because the herpes virus is infectious in this phase of the disease.

Acquired Immune Deficiency Syndrome

The Acquired Immune Deficiency Syndrome (AIDS) was first reported in the United States in mid 1981. AIDS is a serious illness and a public health problem. It's the number one priority of the U.S. Public Health Service.

AIDS is a serious condition characterized by a defect in natural immunity (defense) against disease. People who have AIDS are vulnerable to serious illnesses that aren't a threat to anyone whose immune system is functioning normally. These illnesses are referred to as "opportunistic" infections or diseases.

Investigators have discovered the virus that causes AIDS. The virus is called either *human immune virus* (*HIV*); *human T-lymphotropic virus, type III* (*HTLV-3*); *lymphadenopathy associated virus* (*LAV*); or *AIDS-related virus* (*ARV*). Most people infected with the AIDS virus have no symptoms and feel well. Some develop symptoms that may include tiredness; fever; loss of appetite and weight; diarrhea; night sweats; and swollen glands (lymph nodes), usually in the neck, armpits, or groin. Anyone with these symptoms should see a doctor if the symptoms continue for more than 2 weeks

AIDS is spread by sexual contact, needle sharing, or less commonly, through blood or its components. The risk of getting AIDS is increased by having multiple sexual partners, either homosexual or heterosexual, and sharing needles with people who use illicit drugs. The occurrence of the AIDS in hemophilia patients and persons receiving transfusions provides evidence of transmission through blood. It may be transmitted from infected mother to infant before, during, or shortly after birth.

Student Notes:

Prevention

Using a condom during sex offers some protection. Birth control pills offer no protection against STDs. If you had the disease once and have been successfully treated, that does not grant you immunity against contracting an STD again.

If you have been diagnosed as having an STD and are receiving treatment at the present time, don't attempt to hide the name(s) of your sexual partners. The chances are that one of them infected you or have been infected by you. They deserve the benefit of treatment too. The health department will contact the persons named and treat them. These steps, which are done confidentially, can help in stopping an outbreak of a sexually transmitted disease.

REVIEW 10 QUESTION

Q1. List some of the reasons why personal hygiene is important.

a.

b.

c.

d.

Q2. List the three most common dental conditions caused by poor dental hygiene.

a.

b.

c.

Q3. What methods should you use to avoid dental problems?

a.

b.

c.

Q4. What are the two most common sexually transmitted diseases?

a.

b.

Q5. How is the Acquired Immune Deficiency Syndrome (AIDS) spread?

a.

b.

c.

SUMMARY

In this chapter, you have learned some of the basic steps and procedures required when administering first aid. You may never have the need to use these procedures, but if the situation should arise, by following the procedures outlined, and with additional training, you may be in a position to render what could be life-saving assistance. You also learned the recommended ways of transporting injured personnel so they can receive proper medical attention.

Personal hygiene is an important part of living closely together. A shipmate not overly concerned with keeping himself or herself clean and squared away could affect your physical well-being, but could also affect the morale of a great number of crew members. Keeping yourself clean and squared away will benefit you and the people you come into contact with on a daily basis.

Another topic covered here is sexually transmitted diseases. Being attracted to a member of the opposite sex is a natural reaction. Be aware of the possibility that if you engage in multiple sexual relations, you could become infected with one of the sexually transmitted diseases discussed in this chapter. Being responsible in your sexual relations and using approved protective measures will go a long way toward protecting yourself.

Student Notes:

REVIEW 1 ANSWERS

A1. The primary purpose of first aid is **to safe lives, prevent further injury, and limit infection**.

A2. The primary tasks to take when you administer first aid are to—

a. **maintain breathing**,

b. **stop bleeding and maintain circulation**, and

c. **prevent or treat shock**.

A3. The general first-aid rule for—

a. **shock is to place the victim on his/her back with the head slightly lower than the feet**

b. **broken bones is to keep the person still until you immobilize the injured part**

c. **transport of injured persons is on the litter with the litter carried feet first**

REVIEW 2 ANSWERS

A1. The first-aid treatment for respiratory failure is **artificial ventilation**.

A2. Artificial ventilation should be administered **only when natural breathing has stopped. NEVER give artificial ventilation to a person who is still breathing**.

A3. The three types of artificial ventilation are—

a. **Mouth to mouth**

b. **Mouth to nose**

c. **Back pressure/arm lift**

A4. Cardiac arrest is **the complete stoppage of heart function**.

A5. To be effective, CPR **must be started within 4 minutes** of the onset of cardiac arrest.

A6. When you use the one-rescuer technique of CPR, the ratio of compressions to ventilations is **15 compressions to 2 ventilations**.

A7. When you use the two-rescuer technique of CPR, the ratio of compressions to ventilations is **5 compressions to 1 ventilation**.

A8. The symptoms of airway blockage are—

a. **Inability of the victim to speak**

b. **Exaggerated breathing efforts**

c. **Skin turning blue**

A9. The four methods you can use to clear a person's airway are—

a. **Standing abdominal thrust**

b. **Reclining abdominal thrust**

c. **Standing chest thrust**

d. **Reclining chest thrust**

REVIEW 3 ANSWERS

A1. The three types of blood vessels the body uses to circulate blood are—

a. **Arteries—large vessels that carry blood away from the heart**

b. **Veins—large vessels that carry blood back to the heart**

c. **Capillaries—a connecting network of smaller vessels between the arteries and the veins**

A2. Hemorrhage is severe enough to endanger life **when arteries or veins are cut**.

A3. A loss of **2 pints of blood is usually enough to cause shock**.

A4. Blood carried by—

a. **Capillaries is brick red**

b. **Veins is dark red**

c. **Arteries is bright red**

A5. The only way to stop serious bleeding is the **application of pressure**.

A6. A constricting band is **a pad, a band, and a device for tightening the band so that the blood vessels will be compressed. Only use a constricting band when hemorrhage can't be controlled any other way. Constricting bands are used above the wound. They aren't used for wounds on the head, neck, or body**.

A7. When a constricting band or a battle dressing has been applied, **only medical personnel should release/remove it**.

A8. A battle dressing is **a combination compress and bandage, in which a sterile gauze pad is fastened to a gauze, muslin, or adhesive bandage**.

A9. When applying a battle dressing, you should make sure that the **dressing covers the entire wound**.

REVIEW 4 ANSWERS

A1. Shock is **a condition where the blood circulation is seriously disturbed**.

A2. The symptoms of shock in a person are—

a. **Weak and rapid pulse**

b. **Shallow, rapid, and irregular breathing**

c. **Lower temperature—the arms, face, and legs feel cold to the touch**

d. **Sweating**

e. **Pale skin color; however, in some cases, it may be bluish or reddish**

f. **Dilated (enlarged) pupils**

g. **Thirst and an feeling of weakness, faintness, or dizziness**

A3. **True**, you should keep an injured person warm enough to be comfortable, but not warm enough to become overheated.

A4. If you suspect that a person is in shock, **you should keep the person lying flat on his/her back with the feet slightly elevated (raised) so that the position encourages the blood to flow back to the brain**.

REVIEW 5 ANSWERS

A1. In the Navy, the most frequent suicide victim is **an enlisted male between 17 and 24 years old and in paygrades E-1 through E-6**.

A2. The most common causes of suicide are—

a. **Breakup of a close relationship**

b. **Death of a loved one**

c. **Loss of social or financial status**

d. **Effects of drugs and/or alcohol**

A3. **Depression** is often associated with suicide.

A4. Some actions you can take if you believe someone is suicidal are—

a. **Take all threats seriously**

b. **Confront the problem**

c. **Answer cries for help**

d. **Let the person know you care**

e. **Listen**

f. **Get professional help**

g. **Don't leave the person alone**

REVIEW 6 ANSWERS

A1. Burns are defined as follows:

a. First-degree burn—**Mildest burn. Slight redness, tenderness, and increased temperature of the burned area**.

b. Second-degree burn—**More serious than first-degree burn. Inner skin may be damaged, blistering, severe pain, some dehydration, and possible shock**.

c. Third-degree burn—**Most serious burn. Skin is destroyed and possibly tissue and muscle beneath it. Skin may be charred or white and lifeless (from scalds). Some form of shock will result**.

A2. By immersing the burned area in cold water or by applying cold compresses, you **minimize pain and reduce the burning effect in deeper layers of the skin**.

A3. If a burn covers more than 20% of a victim's body, you should **apply sterile, dry bandages**.

A4. When treating burns you should **NEVER apply petrolatum gauze, break blisters or apply butter, lard, or Vaseline™**.

REVIEW 7 ANSWERS

A1. The three most important signs of heatstroke are—

a. **Dry, hot skin**

b. **Constricted pupils**

c. **Very high body temperature (usually above 105ºF)**

A2. The three most important signs of heat exhaustion are—

a. **Moist, clammy skin**

b. **Dilated pupils**

c. **Normal or subnormal temperature**

A3. The aim of first-aid treatment for heatstroke or heat exhaustion is **to reduce body temperature**.

A4. **True**, in case of heatstroke/heat exhaustion, you should transport the victim to a medical facility as soon as possible.

REVIEW 8 ANSWERS

A1. Fractures are—

a. **Closed fracture**

b. **Open fracture**

A2. The symptoms of a fractured leg or arm include—

a. **Pain and tenderness**

b. **Discoloration of the skin**

c. **Creaking or cracking**

d. **Inability to use the part**

e. **Motion at points other than joints**

f. **Swelling**

g. **Deformity**

A3. To give first aid to someone with a fractured leg or arm, you should—

a. **Get medical aid as soon as possible**

b. **Don't move the victim until splints have been applied, unless the victim's life is in danger**

c. **Treat for shock**

d. **Don't try to find a fracture by grating the ends of the bone together**

e. **Don't try to set a broken bone**

f. **If a long bone in the leg is fractured, carefully straighten the leg so it can be immobilized**

g. **Apply splints**

A4. The types of fractures that should be treated by medical personnel are—

a. **Jaw**

b. **Ribs**

c. **Spine**

A5. You should never move a person who might have a fractured spine or neck because **moving that person might cause permanent paralysis.**

A6. The symptoms a victim might have with a sprained or strained leg include—

a. **Pain, lameness, stiffness, or pressure**

b. **Pain on movement**

c. **Swelling and tenderness**

d. **Discoloration**

e. **With a strain, a distinct gap at the site of the injury**

A7. The first aid that should be given to a victim suspected of having a sprained or strained leg includes **treating all sprains as fractures until ruled out by X-rays**.

REVIEW 9 ANSWERS

A1. One of the easiest ways to carry an unconscious person is to use the **fireman's lift/carry**.

A2. When rescuing a person who has received an electric shock, you should **not touch the victim's body, wire, or any other object that may conduct electricity**.

A3. You should carry a stretcher **with the victim's feet first so the rear stretcher bearer can see the victim for signs of breathing difficulty**.

A4. To transport an injured person from engine-room spaces, a **Neil Robertson stretcher is usually used**.

A5. Emergency rescue lines are used **when an injured person must be transported and no other means is available**.

REVIEW 10 ANSWERS

A1. Personal hygiene is important for the following reasons:

a. **Close living quarters**

b. **Well-being of the crew**

c. **Reduced chance of illness**

d. **Morale increase**

A2. The three most common dental conditions caused by poor dental hygiene are—

a. **Tooth decay**

b. **Reddening of the gums**

c. **Gum and bone disease**

A3. To avoid dental problems, you should—

a. **Brush your teeth**

b. **Floss your teeth**

c. **Have dental checkups every 6 months**

A4. The two most common sexually transmitted diseases are—

a. **Syphilis**

b. **Gonorrhea**

A5. AIDS is spread through—

a. **Sexual contact**

b. **Needle sharing by drug users**

c. **Transfusions**

CHAPTER 15

SURVIVAL

Without a decisive naval force we can do nothing definitive, and with it, everything honorable and glorious.

—George Washington

As you learned in earlier chapters, being a professional Sailor is dangerous. These dangers aren't limited to just your job in the Navy. In times of conflict, your ship or shore station may be in contact with an enemy force or ship. Regardless of your rate, rating, or duty station, you may need to stay alive in the water until you can reach land or be rescued. You must have the knowledge required to live in the field with limited equipment (survival) and to avoid the enemy (evasion). If captured, you also have the responsibility to flee from the enemy (escape) if possible.

This chapter contains information on the principles and techniques of sea survival, evasion, land survival, and escape that have been used successfully worldwide. The information given here is by no means all-inclusive, but should serve to help you if the need arises.

SURVIVAL AT SEA

Learning Objectives: When you finish this chapter, you will be able to—

- Recall the methods and procedures for abandoning ship.
- Identify the techniques for swimming through oil, flames, and debris.
- Recognize the techniques for using clothing and buoyant objects to stay afloat.
- Recognize the procedures used to care for and use personal floatation devices and the use of lifeboats and associated survival gear.
- Recall the characteristics of, use of, and adjustment to CO_2 inflatable and inherently buoyant life preservers.
- Identify the responsibilities and authority of the senior person in a survival situation.

Survival at sea depends on your knowledge, self-control, training, and equipment. The time to learn as much as possible about survival and rescue at sea is **before** you abandon ship, not after you find yourself in the water. The information for survival at sea is general in nature and applies to all Navy ratings.

ABANDONING SHIP

Having to abandon ship isn't pleasant. Your "home" is gone along with most of your possessions and possibly some of your shipmates. You don't know how long you must wait for rescue. However, with the proper knowledge and training, frightening aspects can be greatly reduced. Don't panic and don't give up hope. Remember, the Navy knows you're missing and is searching for you. Also, remember that thousands of persons have survived ships sinking in both wartime and peacetime.

If time permits, the crew will abandon the ship in a planned and orderly manner. In the prepare-to-abandon-ship stage, all personnel go topside and muster at their abandon ship stations, don life jackets, and rig lines and ladders over the side. Bearing and distance to the nearest land, sea and wind conditions, and water temperature are passed over the 1MC (ship's general announcing system). When the order to abandon ship is given, all boats are lowered and lifeboats are released. The crew members then go over the side and board them as quickly as possible.

Know Escape Routes

Many survivors have reported that their shipmates were lost because they were unable to get topside before the ship sank. In many of these cases, the compartments in which personnel were trapped were not cut off—the individuals only thought they were.

Once on board a particular ship, most Sailors learn the easiest ways from their berthing compartments to their stations and automatically use these routes day after day. The habit of using the same hatches and ladders day after day becomes so strong that a person finds it difficult to use other routes. This habit is

especially true of persons whose stations are in the lower part of the ship. However, a hit from a torpedo or bomb or a collision with another ship may flood the compartments normally used or knock out a ladder. Often, some measure to control flooding taken by the damage control party closes off the normal method of travel.

The only answer to this situation is to know your ship. Small ships don't present much of a problem because they have only a few routes you can follow. However, large ships are another matter. Aboard an aircraft carrier or cruiser, learning all the passageways, doors, and ladders takes a long time. During leisure time, learn escape routes from various below-deck sections to the weather decks. Ask the individuals who work in those sections the best way to get topside; then follow that route. The time to experiment is before an emergency occurs, not during one.

Going Over the Side

As in everything else, there is a right way and a wrong way to abandon ship. Whenever possible, go over the side fully clothed. Shoes and clothing may hinder you while swimming; but in lifeboats, a covering of any kind offers protection against the effects of sun and salt water. In a cold climate, wear a watch cap to keep your head warm. Take along a pair of gloves and extra clothes if you can. Even in tropical waters you may feel cool at night because you can do little to keep warm.

Normally, you should leave from whichever side of the ship is lower in the water; but, if the propellers are turning, leave from the bow. Leave by the windward side whenever possible. Leaving from the lee side might protect you from a stiff wind, but the same wind causes the ship to drift down on you, often faster than you can swim. Also, if oil is on the water, you can clear the slick sooner by swimming into the wind.

Never dive, and do not jump unless you have to. Use a ladder, cargo net, line, or fire hose. If you must jump, do so feet first, legs together, and body erect. (First, check the water so you will not land on debris or on other personnel.) Except when jumping into flames, be sure your life preserver is fastened securely, including the leg straps. If you are wearing a vest-type preserver, place one hand firmly on the opposite shoulder to keep the preserver from riding up sharply when you hit the water (in a long drop, the force of impact might hurt your chin or neck). Hold your nose with your other hand. If you are wearing an inflatable preserver, inflate it after you have entered the water.

In the Water

Once you are in the water, your immediate concern is to clear the ship as quickly as possible. Before you rest, you should try to be 150 to 200 yards away from the ship. When the ship goes down, it may create a strong whirlpool effect, which might draw you down with the ship if you are too close. Another advantage of distance is that you will be safer if an explosion occurs.

After you are safely away from the ship, conserve your energy. Don't splash about or shout unnecessarily. If any danger of underwater explosions exists, float or swim on your back with your head and chest as far out of the water as possible. Help your shipmates all you can, and try to stay in groups (fig. 15-1). Get on a lifeboat, of course, as soon as you can. In the meantime, grab anything floatable that comes by, or just relax in the water. Above all, **remain calm!**

SWIMMING AND FLOATING.—Check the chart shown below. It tells you the requirements you must meet to qualify as a third class, second class, and first class swimmer.

Meeting the requirements for swimmer third class won't help you if you have to swim ½ mile to a lifeboat. You can see that by qualifying for swimmer second class, you'd have a better chance to survive. Better yet, qualifying for swimmer first class gives you the best chance for survival.

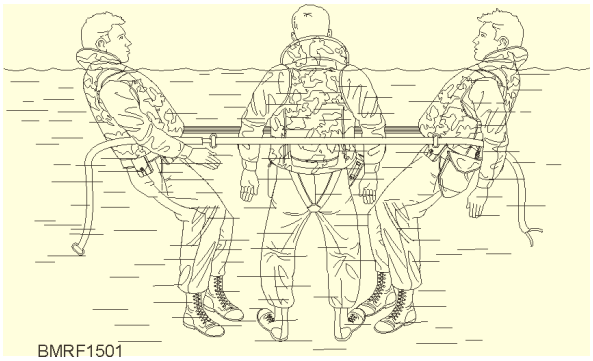


Figure 15-1.—Joining life preservers.

Student Notes:

After abandoning ship, you may have to swim fast, slow, on the water, or under the water. You may have to put on or take off clothes; carry or search for objects; float for hours; or in shark-infested waters, lie still and keep your arms and legs from dangling. There is a lot you might have to do. You can get ready by practicing all the strokes you know.

THIRD CLASS SWIMMER

1. Enter the water feet first from a height of 5 feet
2. Remain afloat for 5 minutes
3. Swim 50 yards

SECOND CLASS SWIMMER

1. Jump from a height of 10 feet
2. Remain afloat for 10 minutes
3. Swim 100 yards, using three survival strokes for at least 25 yards each:
   - Breast stroke
   - Side stroke
   - Elementary back stroke

FIRST CLASS SWIMMER

1. Swim 220 yards
2. Enter the water feet first and immediately swim 25 yards underwater (you may surface for air twice at 25-foot intervals)
3. Remove your trousers or slacks in the water and inflate them
4. Tow another person 25 yards, using the following methods:
   - Cross-chest carry
   - Extended reach (recommended for struggling victims)
   - Grabbing the victims hair from behind and use side stroke (recommended for towing unconscious victims)

Almost all the Navy's shore installations have swimming facilities for your use. Here, you can practice swimming. You should practice various strokes and extend your swimming range. Then, you will feel more confident that you can stay afloat and swim to a distant lifeboat or floating object.

SWIMMING THROUGH FLAMES.—Flame-covered water is a terrifying sight. However, you don't need to be afraid of jumping into flames. If you follow the procedures listed here, you will clear the burning area safely (fig. 15-2).

1. Don't wear an inherently buoyant life preserver (if you have one on, get rid of it).

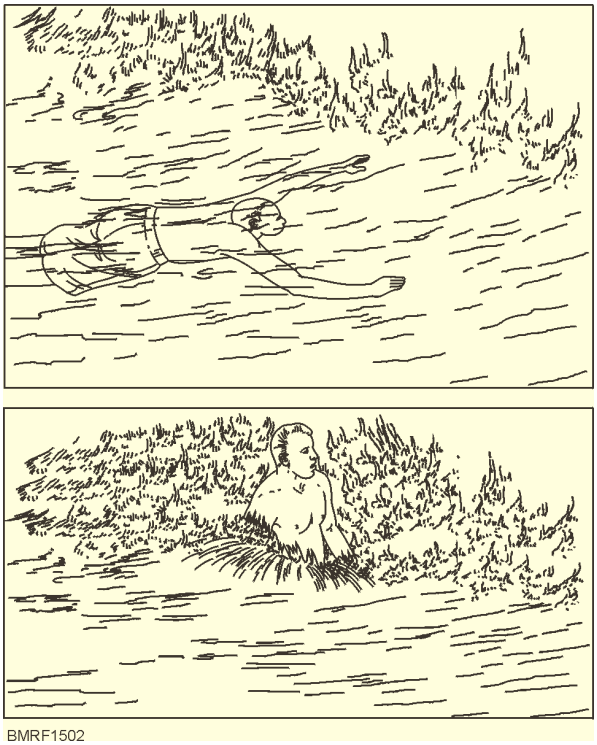


Figure 15-2.—Swimming through flames.

2. If you're wearing a CO_2 preserver, keep it on but don't inflate it.
3. Discard your shoes because they will hinder your underwater swimming.
4. Take a deep breath when you jump from the ship and cover your nose and mouth with one hand and your eyes with the other.

Student Notes:

5. Swim as far underwater as possible.
6. When you must come up for air, extend your arms above your head, then pull them back in a wide sweep to force the upper part of your body above the surface.
7. When you surface, use your hands and arms to make wide sweeping movements across the surface to splash the water and drive away the flames.

NOTE

As you pop up above the surface, try to turn your back to the wind before you take a breath.

8. Submerge again feet first, and repeat the procedure until you're clear of the burning oil.

When going into oil that isn't burning, save your preserver to use as a raft. Keep your face above the surface. Keeping your head above the surface helps keep oil from getting into your eyes and mouth.

AIDS FOR STAYING AFLOAT.—If you're in the water without a life jacket, don't become frightened that you can't stay afloat—you can. Several articles of clothing, including the white hat, provide some flotation when used properly. The most useful article is your trousers or slacks, which you can inflate to serve as water wings.

1. To remove your trousers, lean forward in the water and slowly slip them down over your hips and legs. Don't let go of them—they may sink. To inflate your trousers—
2. Zip them; then float them on the surface with the fly or front turned down.
3. Tie a knot in each leg as close to the cuff as possible.
4. Work the garment around on the surface until the legs are over your shoulders and the knots are behind you, leaving the crotch in front of you.
5. Grasp the waist of the trousers with one hand on each side; then extend your arms straight upward, kicking your feet to get your body as high out of the water as you can.
6. When this position is reached, pull the trousers downward smartly on the surface, trapping a pocket of air in each leg.
7. Then gather the waist under the water and hold in one hand (fig. 15-3). Keep the trousers legs wet by splashing water on them to reduce the loss of the trapped air.

You may use mattress covers, sea bags, laundry bags, and pillowcases in a similar manner. A large amount of debris, such as pieces of wood, empty shell boxes, powder cans, and so forth, is usually present. You can use this debris to stay afloat.

SURVIVAL EQUIPMENT

The two basic categories of flotation devices are life preservers and lifeboats. Each is vital to the survival of a ship's crew if the ship sinks. Other than the lifeboat, the life preserver (commonly called a *life jacket*) is the most important piece of abandon ship equipment.

The inherently buoyant (vest-type) preserver is designed so that, if adjusted properly, it supports you and keeps your head out of the water even if you are unconscious. With a life preserver on, you can stay afloat for many days. Without a life preserver, you have little chance of surviving in the water for any great length of time.

The lifeboat presents the greatest chance of survival because it contains food and water, provides shelter from the elements, and contains equipment that greatly

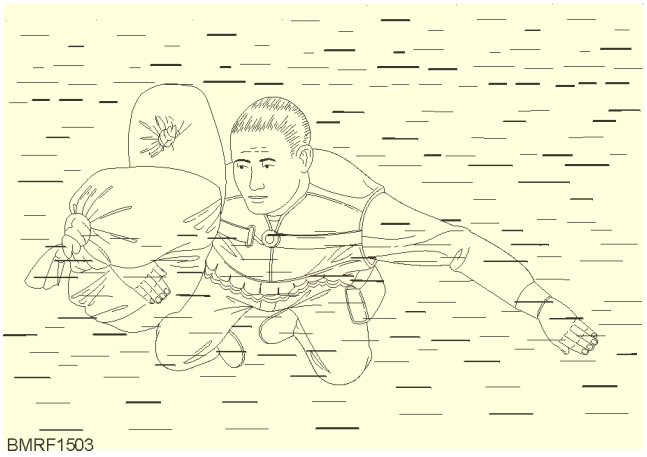


Figure 15-3.—Using inflated trousers/slacks for support.

Student Notes:

enhance your chances for survival.

During wartime, each person aboard ship is issued a life preserver. Wear it or keep it handy at all times. During peacetime, life preservers are stowed in ready-use lockers. Know where your preserver is stowed, how to put it on, and how to release and inflate the lifeboat.

Life Preservers

The Navy uses two types of life preservers—the inherently buoyant and the inflatable types. The inherently buoyant type has several designs. The vest type is the most widely used.

INHERENTLY BUOYANT TYPE.—The inherently buoyant vest type of life preserver (fig. 15-4) uses fibrous glass pads to provide buoyancy. The pads are sealed in plastic waterproof bags placed in an outer

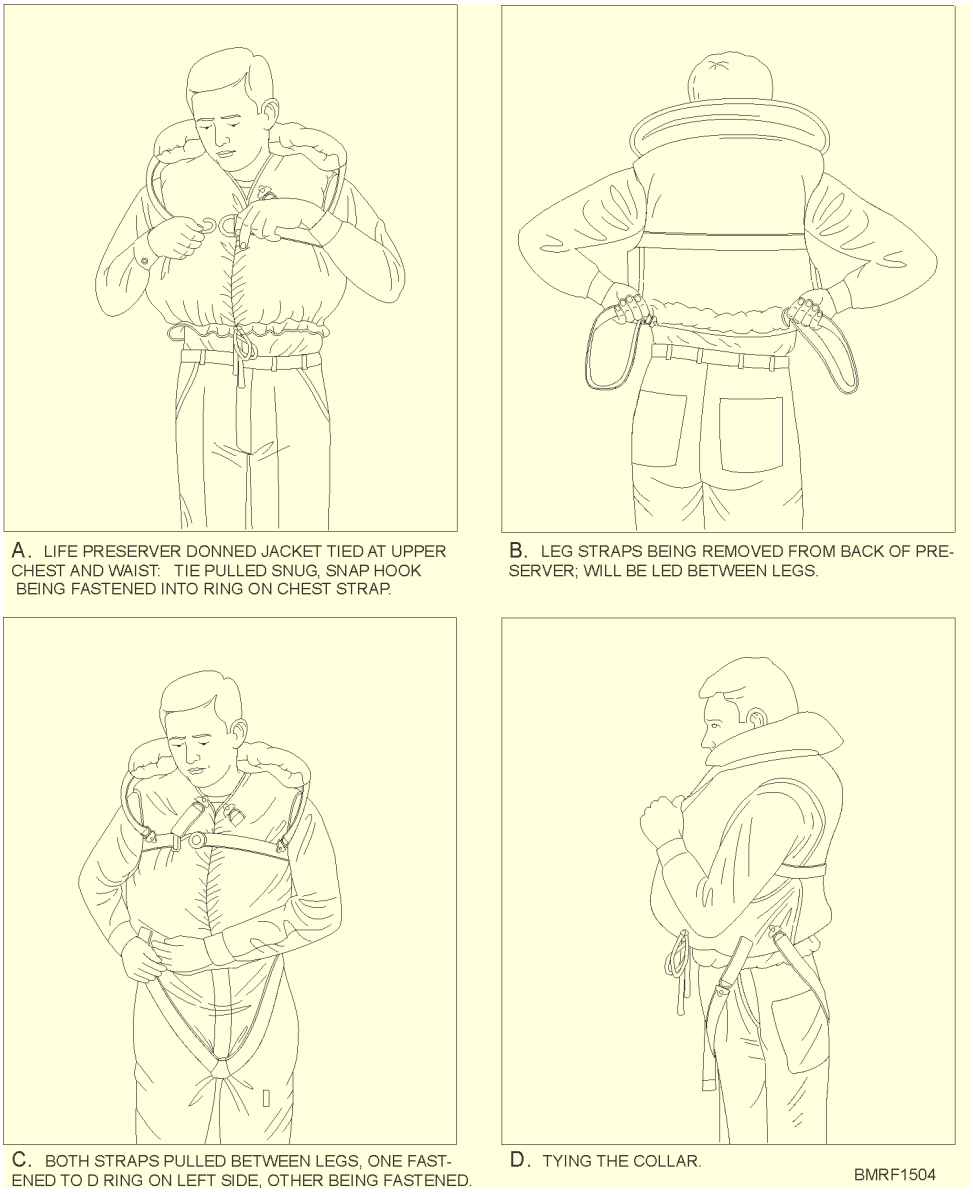


Figure 15-4.—Adjusting the inherently buoyant vest-type life preserver.

Student Notes:

cover or envelope. The preserver has cloth tapes to pull tight for a close fit. Leg straps prevent it from riding up while you are in the water. A body strap across the chest helps give a snug fit and provides a hold for lifting you out of the water. You can also use the strap to attach yourself to a life raft or to other persons in the water.

Put on the vest type of life preserver over your clothing. Tie the upper tapes to make it fit comfortably, and pull the tape at the waist fairly tight to keep the preserver from sliding up in the water. Then adjust the chest strap and fasten the snap hook into the ring. Pull the leg straps as tight as possible without producing discomfort. Tie the collar tapes tightly under the chin. The collar holds the head upright and helps prevent an unconscious person from drowning.

INFLATABLE TYPE.—The inflatable life preserver (fig. 15-5) is made of lightweight, neoprene-coated nylon. It's carried in a pouch container held around your waist on a web belt. You blow up the inflatable preserver either by mouth or by using a carbon dioxide (CO_2) cylinder. It's equipped with a lifting harness, a waist belt, and a wooden toggle and a line for attaching yourself to a life raft or another survivor. Take the following steps when using the inflatable life preserver:

1. Pull the pouch around to the front, remove the preserver from its pouch, and slip it over your head.
2. Grasp the lanyard attached to the CO_2 cylinder and jerk downward. If you need more buoyancy, the life preserver can be orally inflated by taking the following steps:
   a. Turn down the knurled ring at the base of the oral inflation tube as far as it will go.
   b. Depress the mouthpiece by force of the mouth, and blow into the tube as if you were blowing up a balloon.
   c. Release the mouthpiece when inhaling to prevent escape of the air.
3. When the preserver is inflated, lock the oral valve by turning the knurled ring against the mouthpiece.

NOTE

Always wait until you have entered the water to inflate this type of life preserver.

The automatically inflatable work-type life preserver provides you maximum lifesaving protection. At the same time, it doesn't interfere with the jobs you do, such as working over the side, performing underway replenishment (UNREP) duties, working as part of a boat crew, or manning selected battle stations. The automatically inflatable work-type life preserver will—

- Inflate the life preserver if you go into the water in an unconscious or helpless state.
- Allow you to inflate the auto inflatable preserver orally by the auto function device or by using a combination of the two.

The auto-function device uses a water-degradable paper to release a spring that causes two CO_2 cylinders to be punctured and inflate the preserver.

PIN-ON LIGHTS.—Small watertight flashlights or chemically activated light sticks have been developed for use with life preservers to help rescuers see a person in the water more easily at night. The flashlight consists of a one-cell battery case to which is permanently attached a heavy metal safety pin for fastening the light to the preserver. The lens is dome-shaped, providing 360° visibility from above. The chemically activated light sticks are activated by a chemical reaction in the stick.

Wear these lights whenever you use the life preserver. Check the battery at least once a week to see that it works. Replace the battery at least every 6 months. Check the light stick each time you use the preserver, and replace it if you see any indication that the stick has been damaged or used. Remember the following tips when using these lights:

- On the vest-type preserver, pin the light near the top of your shoulder so that the lens points upward.
- When pinning the light on the vest-type preserver, take care not to pierce the waterproof

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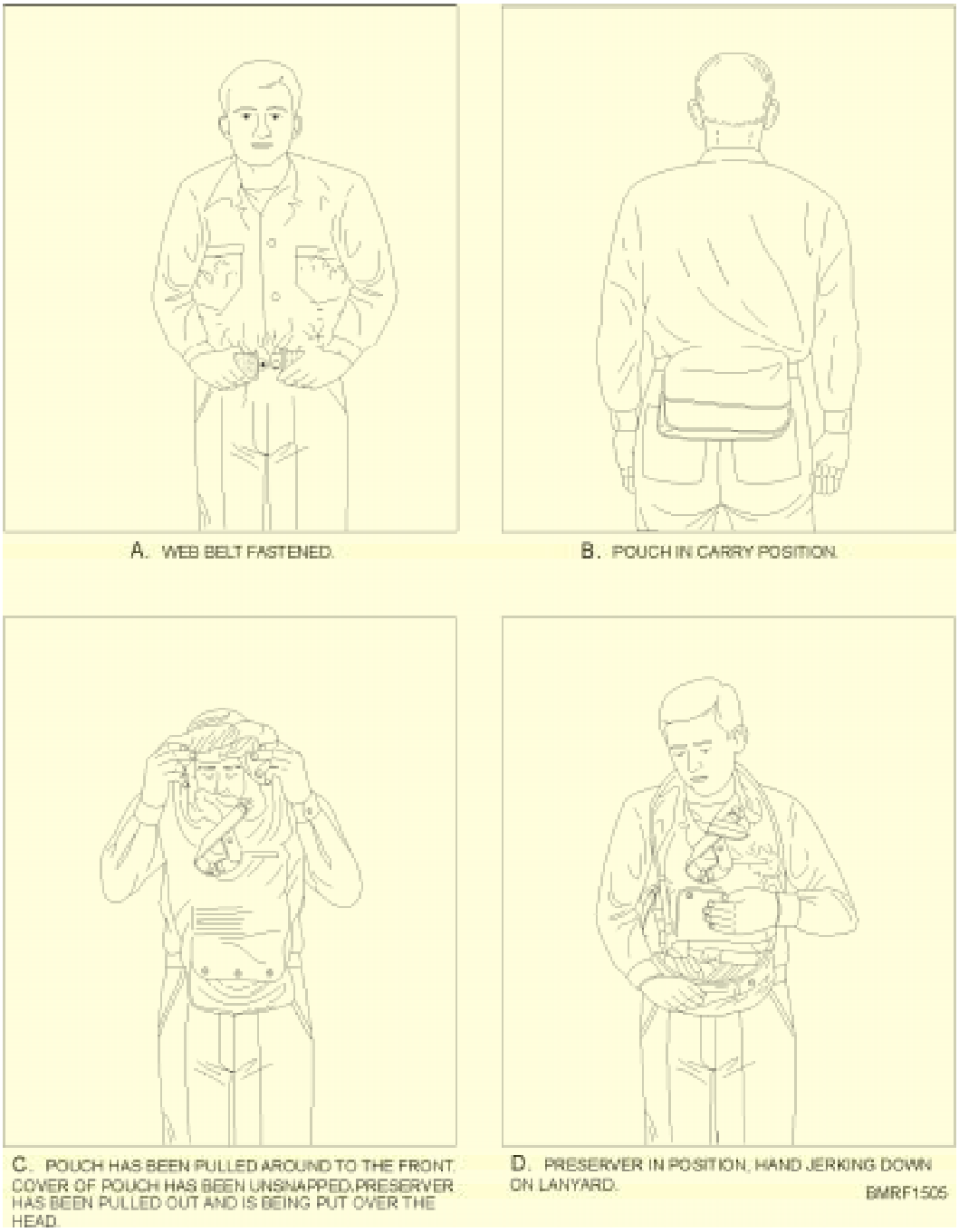

Figure 15-5.—Inflatable life preserver.

covering in which the fibrous glass pads are wrapped.

- Attach the light to the inflatable preserver to the tab provided for this purpose.

Some ships may issue strobe lights. These lights have a brighter intensity. The battery screws in and is water-resistant.

Some commands are issuing chemical lights as life vest pin-on lights. The light used for a pin-on light has a green color when the chemical is activated. You activate the chemical light by squeezing the lens, which crushes

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an inner vial; that allows the chemicals to mix, causing the wand to glow. Dispose of these lights after one use.

CARE AND STOWAGE OF PRESERVERS.—Some of the rules you should follow when taking care of and stowing your preservers are contained in the following section:

Laundering your life preserver. Inherently buoyant life preservers—

- Launder the outer covers after removing the fibrous glass pads. (**NOTE**: Don't launder the pads.)
- Clean the inflatable types with a mild soap solution only.

Stowing your life preserver. The rules for stowing life preservers include—

- Don't stow life preservers in the vicinity of oil, paint, grease, heat, moisture, or dirt. The nylon material will deteriorate.
- Keep preservers clear of sharp edges, which increase wear and tear.
- Keep preservers away from steam lines and radiators.
- Dry preservers thoroughly before stowing them to prevent mildew.
- Don't tamper with your life preserver or handle it roughly.
- Don't sit or lie on it. This compresses and mats the filler pads and reduces the buoyancy of the preserver.

Inspecting your life preserver. The following rules apply when inspecting life preservers:

- Inspect your inflatable life preserver every time you put it on and at least once every month (when in your custody).
- Inflate it by mouth to locate possible leaks in the air chamber or inflation valve.
- Make sure the piercing pin of the CO_2 valve is in good working order and the cylinder itself has not been punctured.
- Weigh the cylinder on a gram scale to make sure it is fully charged.

Other actions. Other actions you should take with regard to your life preserver include—

- Being able to put the life preserver on and adjust it in the dark.
- Treat it like a friend; someday it might turn out to be the best one you have!

Lifeboats

A warship doesn't have room to carry all the powerboats needed to transport the entire crew. At sea, a powerboat is usually difficult and sometimes impossible to launch rapidly. For these reasons, the Navy has spent time and expense developing efficient lifeboats other than powerboats.

The Navy uses several types of inflatable lifeboats. Each boat has sufficient equipment to support the number of survivors for which the boat was designed to carry. Each boat's gear includes the following equipment:

- Canopy
- Sea anchor
- Lifeline
- Boarding line
- Rain-catcher tube
- Air hand pumps
- Paddles
- Sponges
- Boat repair kit for patching leaks
- Floatable knife

The inflatable lifeboat (fig. 15-6) also carries—

- Desalter kits for turning seawater into freshwater.
- Survival kits containing food rations, sea marker dye, a flashlight, batteries, a signal mirror, a

Student Notes:

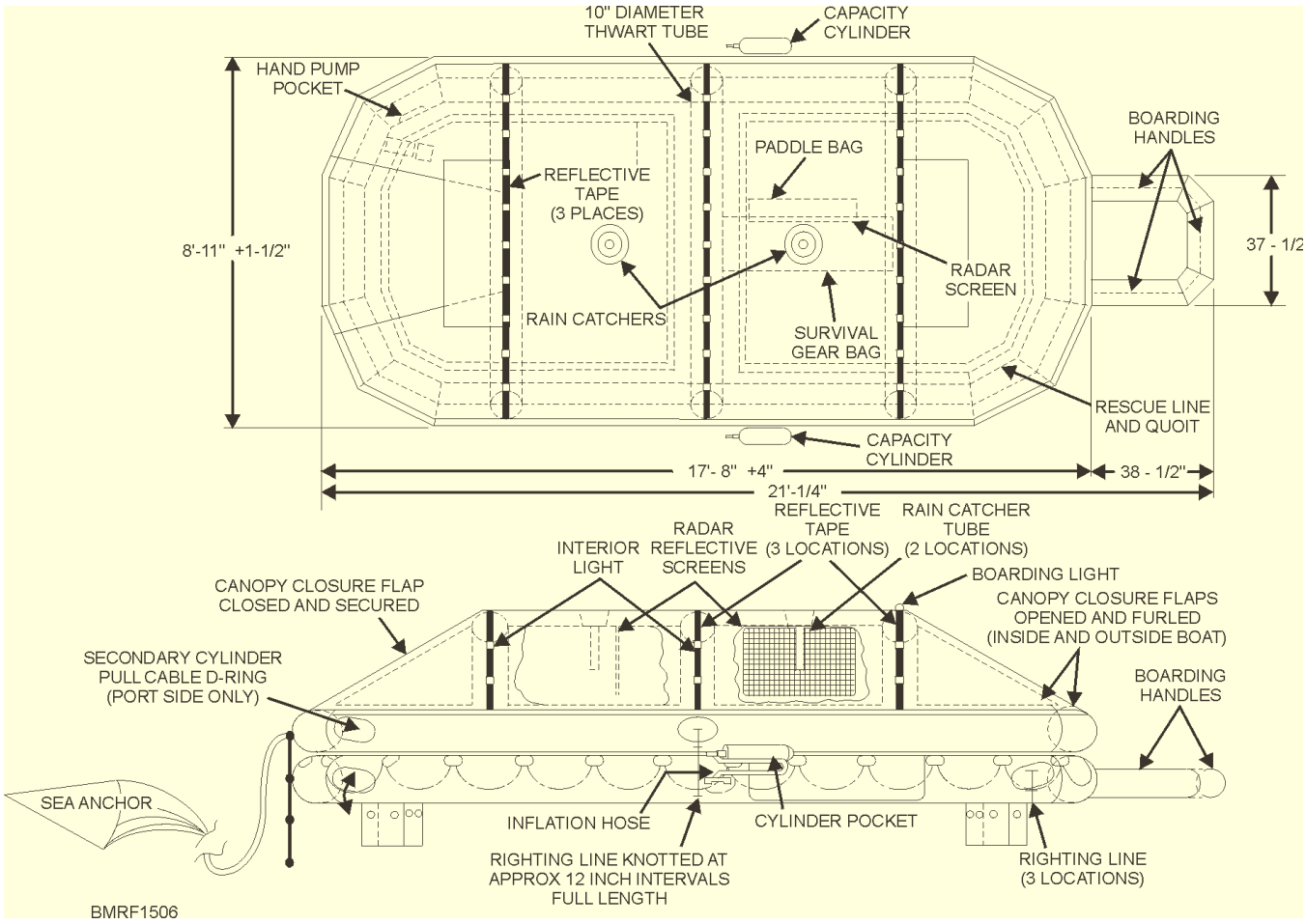

Figure 15-6.—Inflatable lifeboat.

whistle, a first-aid kit, a distress signal kit, and containers of freshwater.

- Survival kits in the large boats are designed to sustain 15 to 20 people for 5 days on regular rations.

SIGNAL EQUIPMENT.—Using signaling equipment in the lifeboat correctly might be the difference between rescue or remaining adrift. The opportunity to attract the attention of friendly aircraft or surface vessels may pass quickly; you must be prepared at all times to use the signaling equipment.

The following chart (next page) describes how to use signaling equipment.

CARE AND USE OF SURVIVAL AND SIGNAL EQUIPMENT.—When using survival and signal equipment, stow it in containers for safekeeping and protection against the elements. Some of the items, such as the mirror and whistle, have a lanyard for wearing around the neck. Keep all items as dry as possible. After using any item, replace it in its container. Protect flashlights and knives from salt spray; otherwise, they will soon become corroded. About the only items that should be left out continuously are the sponges.

EQUIPMENT FOR OBTAINING WATER.—Never discard (throw away) any article that will hold water. When it rains, every container that can possibly hold water is invaluable. A rain-catcher tube attached to the lifeboat canopy will help you fill the containers. Even in a light rain, some water will drain from the canopy down through the tube. After filling all available

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EQUIPMENT	DESCRIPTION	HOW TO USE
Signal mirror	The mirror is an effective device when the sun is shining. Rough water makes focusing the mirror on a rescue ship or aircraft difficult. If the mirror is lost or is unusable, make another one from a piece of shiny metal.	To signal with the mirror— 1. Punch a cross-hole in its center. 2. Hold the mirror about 3 inches in front of your face and sight through the cross at the ship or aircraft. The spot of light shining through the hole onto your face will be seen in the cross-hole. 3. While keeping a sight on the ship or aircraft, adjust the mirror until the spot of light on your face disappears in the hole. The bright spot, seen through the sight, will then be aimed directly at the search ship or aircraft **NOTE** The survival kit contains instructions for using the mirror
Distress signal kit	The signal kit contains 12 (Mk 13 Mod 0) distress signals for day and night use and for providing wind drift information to helicopters rescuing personnel. One end of the signal tube produces an orange smoke for day use; the other end produces a red flare for night use. You can identify the night flare end in the dark by a series of small beadlike projections embossed around it. Each signal will burn for approximately 18 seconds.	To use the signal— 1. Select the proper flare, tear off the sealing tape from around the end of the cylinder, and remove the plastic cap to expose a metal pull ring (fig. 15-7). (Only the night end of the flare has a metal ring; the smoke [day] end does not have the ring.) 2. To ignite the MK 13 signal, grasp the pull ring and flip it over the rim of the signal case, as shown in view A. 3. Press down the overhanging ring with your thumb until the seal snaps, as shown in view B. (If the seal refuses to snap, continue pressing on the ring so that it bends over the rim and against the signal body, as shown in view C). 4. Flip the ring back to the top of the signal and press down, as shown in view D, using the bent pull ring as a lever. 5. After the seal breaks, point the signal away from your face and body and give a sharp yank on the pull ring. 6. Hold the signal at an angle of approximately 45° from the horizontal position with your arm fully extended. The contents are hot, so take care not to drop any of the contents on yourself or the lifeboat. 7. After using one end of the signal, cool it by dipping it in water; then save it until you use the other end. Make sure the distress signal is cool before storing it.
Dye marker	The dye marker shown (fig. 15-8) produces a brilliant yellowish-green fluorescence when it is submerged in water. Under good conditions, the dye will be a good target for only about 1 hour, but it will retain some of its color for up to 4 hours. From an altitude of 3,000 feet, a rescue plane may see the dye marker as far away as 10 miles. The range decreases as the dye spreads or is diluted by the water.	See the front of the dye marker cover.

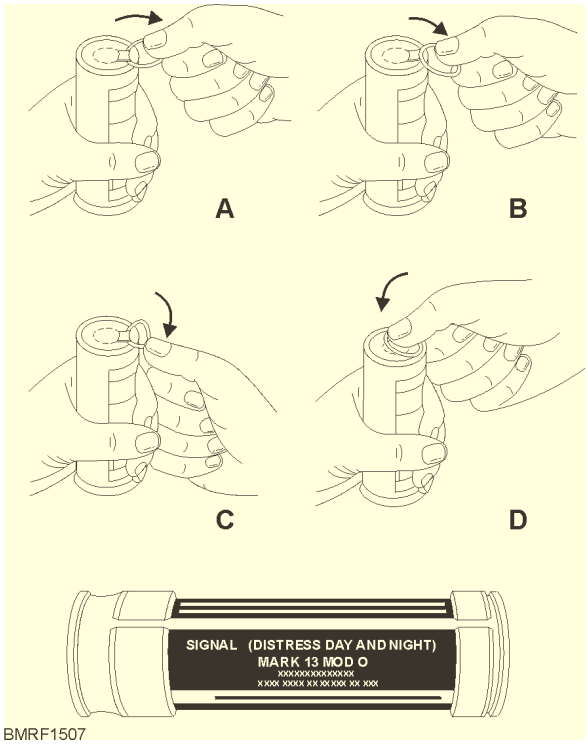

Figure 15-7.—Igniting the MK 13 distress signal.

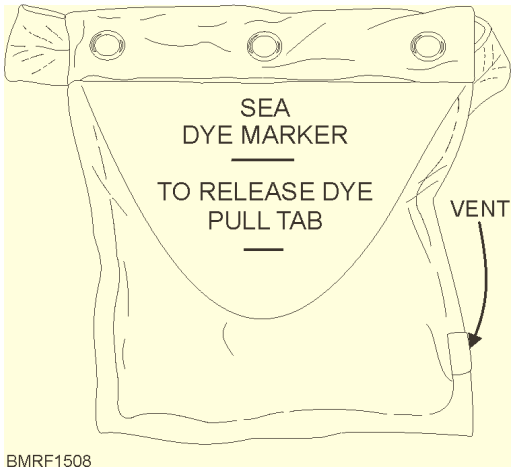

Figure 15-8.—Dye marker.

containers, stow them carefully so that you won't lose any water. Cover all open containers to slow down evaporation; use those you don't have covers for first. During the rain, drink all you can hold.

In polar areas, you can obtain freshwater from old sea ice. Old sea ice is a bluish color, splinters easily, and is nearly free from salt. New ice is milky in color, hard, and salty. You may also obtain freshwater from icebergs, but use caution. As its underwater portion melts, an iceberg gets top heavy and can capsize without warning.

SURVIVAL STEPS

Most of the following survival information applies to persons in lifeboats, but some of this information applies to persons in the water. In trying to survive at sea, you will face thirst, hunger, and exposure whether you are in a lifeboat or in the water. You can endure these conditions, however, if you take the proper steps.

Thirst

The one absolutely essential requirement for survival is drinking water. Without it, death will most likely occur in 8 to 12 days. Normally, you need about 2 quarts of water a day; but because of inactivity and lack of food, you can survive on as little as 6 ounces a day in a lifeboat.

Water is lost from the body by the evaporation of perspiration and through the digestive process. Some actions you can take to reduce water loss include the following:

- Keep your clothes wet during the day (weather permitting, of course), but dry them before sundown.
- Wear the least amount of clothes possible, depending upon your need for protection from the elements.
- If water is scarce, eat sparingly.
- **Never drink seawater or urine.** To do so would only aggravate your thirst and increase body water loss with a subsequent speedup in dehydration.
- Do not drink your entire daily water ration at one time. It is better to drink small amounts three or four times daily.

Hunger

The food rations supplied with each lifeboat are

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specially designed to maintain your physical and mental abilities and aren't thirst-provoking. The ration is based on an allowance of one packet per person per day; but, you should eat only when you feel the greatest need. Don't take any food or water the first 24 hours. Food is much less important for survival than water. With water, a person can survive for 4 weeks or longer without food.

Nearly all forms of sea life are edible. Some fish are poisonous; for example, jellyfish (which you should never eat). Each lifeboat has a fishing kit for catching fish.

All sea birds are edible, and practically the entire bird is useful. In addition to the food and liquid obtained from sea birds, you can fashion fishhooks and lures from the bones and feathers. In cold weather, a bird's skin (with feathers) will protect exposed parts of your body.

Birds sometimes settle on the raft or boat, and survivors have reported instances where birds landed on their shoulders. If birds are shy, try dragging a baited hook through the water or throwing a baited hook into the air.

You can catch gulls, terns, gannets, and albatrosses by dragging a baited hook behind the boat or raft. You can attract them within shooting distance by dragging a bright piece of metal or shell behind the raft. It's possible to catch a bird if it lands within reach. Most birds, however, are shy and will settle on the raft out of reach. In that case, try a bird noose. Make it by tying a loose knot with two pieces of line, as shown in figure 15-9. Bait the center of the loop with fish entrails or similar bait. When the bird settles in the loop to eat the bait, tighten the noose around its feet.

The North Atlantic and the North Pacific have relatively few birds, and these are found mostly along the coasts. You may see many species of birds, often hundreds of miles from land, in southern waters.

Exposure

Exposure presents many dangers. Some dangers include sunburn, hypothermia, frostbite, and immersion foot. Some actions you can take to survive these conditions are as follows:

MAN OVERBOARD

All the information in this section applies mainly to ship disasters when your ship is sunk. Such events normally occur in wartime but rarely in peacetime. However, a mishap that can happen to you at any time, and usually without warning, is to fall overboard. One minute you are walking along the main deck; the next

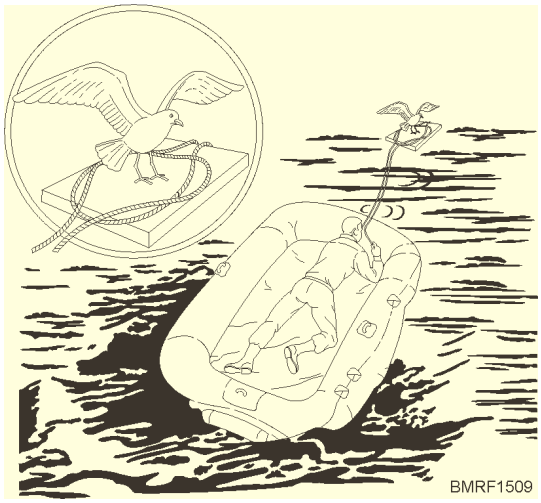

Figure 15-9.—Bird noose.

CONDITION	ACTION
Cold	You can't survive for any great length of time in cold water without a special exposure suit. In water cooler than 75°F, you face a serious condition called *hypothermia*. Hypothermia occurs when your body is exposed to subnormal temperatures. To overcome hypothermia, minimize heat loss from your head, neck, sides, and groin. Raise as much of your body as possible out of the water; wear a hat; and assume the fetal position or huddle in close, side-by-side contact with others. Don't move about. Stay calm and encourage others not to panic.

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CONDITION	ACTION
Cold (Continued)	In cold waters, your greatest danger after abandoning ship is the effects of the cold. Wear as much clothing as you possibly can, especially heavy undergarments. Ordinary clothing gives you no protection against cold if you are immersed in water. You must get out of the water as quickly as possible Huddle together for warmth. A huddled group can survive cold that might be fatal to one person alone. Rig wind and spray shields, but don't block the sun's heat. Exercise mildly, if possible, to increase body heat; but never do so to the point of exhaustion. Lifeboats are uncomfortable and cold. In frigid temperatures, you must keep both ends of the inflatable lifeboat closed to keep the temperature comfortable; but this confinement creates other discomforts. Closing the ends reduces ventilation and raises the humidity. Then you must reopen the ends to let out the impure air and to bring in fresh air, which, of course, is cold.
Sunburn	Shoes and clothing are a real protection against sunburn and exposure. Remove clothing only when it is absolutely necessary. If you must remove your clothes while in the water, take off only the heaviest articles. Because your shirt or jumper offers warmth at night as well as protection from the sun during the day, don't remove it. Sunburn is easier to prevent than to treat. Try to remain out of the direct rays of the sun. If you can't avoid direct exposure, keep your hat on and cool your body by wetting your clothing.
Dampness	Although remaining dry on a lifeboat is always difficult, make every effort to keep your clothing dry. Since continuous condensation of moisture causes it to drop like rain, sponge out the boat whenever possible. Cold weather aggravates these uncomfortable conditions.
Frostbite and immersion foot	Frostbite and immersion foot are serious injuries that can happen even when you're wearing enough clothing to stay fairly comfortable. Frostbite usually affects the hands, face, or feet, and it most often occurs on windy, very cold days. Affected parts of the body turn stiff, pale, and numb. To prevent frostbite, keep exposed parts of the body as warm as possible and maintain circulation. If frostbite occurs, treat the affected part immediately by placing it in contact with a warm part of your body. Cover it with your hand or put frozen fingers inside your clothing. Don't rub the affected parts; that could result in damage to frozen tissue. Immersion foot is the swelling of the foot accompanied by numbness and pallor (lack of color) or discoloration. Immersion foot is caused by poor circulation in the legs, particularly when the foot remains wet for several days. To prevent immersion foot, exercise the ankles and toes for a few minutes several times each day. Keep your feet warm, dry, and elevated as much as possible. Unlace your shoes or take them off. If you have no dry socks or wrappings for your feet, put them under the arms or in the lap of a shipmate. Never treat immersion foot by rubbing. As with frostbite, tissue damage may result. Rewarming is the only proper treatment.

Student Notes:

minute you are in the water, swimming for your life.

If you fall overboard and someone hears or sees you (one of the purposes of the lookout watch), you can count on being rescued within a few minutes. Such rescues are made in nearly every instance. However, if no one sees you fall overboard or hears a cry for help, you'll be missed and rescue procedures will then be put into action.

If you fall overboard, the most important thing to do is stay calm. Panic will cause you more harm than almost anything else. If you see any floating debris nearby, hang on to it. Otherwise, remove and inflate your trousers. Remember, you can stay afloat for a long time, even without help, if you use the floating positions. Don't swim after the ship, because you'll only exhaust yourself needlessly, and the ship may waste valuable time searching for you at the point where you fell overboard.

The method used to rescue a person overboard depends on the circumstances at the time. In daylight, with good weather, a helicopter (if available) is normally used. Otherwise, the ship's motor whaleboat is used, or you may be recovered directly over the side of the ship.

Helicopters use three basic devices for recovering a person in the water—

1. Sling. If the sling is used, adjust it so that it is across your back and under your arms with the hoisting cable in front of you.
2. Net. If the net is used, simply sit in it and hold on.
3. Two- or three-pronged seat. If a two- and three-pronged seat is used, sit on the prongs and wrap your arms around the upright portion.

When a motor whaleboat is used for rescue, the boat crew helps you into the boat. Also, a swimmer provides assistance if you are injured or exhausted. Don't try to enter the boat from astern; you may be injured by the propeller.

If neither a helicopter nor a whaleboat can be used for rescue, the ship will maneuver to a position where a swimmer, towing a line, can reach you. After the line is fastened around your body, personnel on deck will haul you in and hoist you aboard.

While awaiting rescue, remain calm. If sharks are in the area, float on your back, using as little arm and leg movement as possible.

To decrease your chances of having to be rescued at all, observe all safety regulations. Don't lean on lifelines. Don't go on deck in bad weather unless you have to. Always wear a life preserver when working in areas where you are in danger of falling overboard. Aboard aircraft carriers, don't walk behind a jet plane turning up its engines because the blast can blow you overboard.

Ships frequently hold man-overboard drills. In spite of precautions, accidents happen. Therefore, when you are at the beach, don't spend all your time sunbathing. Practice swimming and floating. Someday your life may depend on your ability to swim and float.

REVIEW 1 QUESTIONS

Q1. When aboard ship, you should know escape routes for what reason?

Q2. True or False. You should dive into the water to abandon ship.

Q3. What swimming classification gives you the best chance for survival if you have to abandon ship?

Q4. If you have to jump from a ship into burning water, you should—

Q5. Which of the following items can you use to stay afloat?

a. Trousers

b. Sea bag

c. Pieces of wood

d. All of the above

Student Notes:

Q6. List the two types of life preservers used by the Navy.

a.

b.

Q7. When you have custody of your life preserver, how often should you inspect it?

Q8. List the contents of survival kits carried by inflatable lifeboats.

a.

b.

c.

d.

e.

f.

g.

h.

i.

Q9. What is the one essential requirement for survival?

Q10. The food ration carried by lifeboats is based on how many packets per person per day?

Q11. List some of the dangers you might face by exposure.

a.

b.

c.

d.

SURVIVAL ASHORE

Learning Objectives: When you finish this chapter, you will be able to—

- Recall the methods and procedures for survival ashore to include individual survival, group survival, and methods of evasion and escape.
- Identify the responsibilities and authority of the senior person in a survival situation.

Survival is largely a matter of mental outlook, and the will to survive is the deciding factor. The experiences of hundreds of service personnel isolated during World War II and the Korean conflict and Vietnam police action prove that survival is largely a matter of mental outlook. These experiences also prove that the will to survive is the deciding factor in survival. Whether with a group or alone, you will experience emotional problems resulting from fear, despair, loneliness, and boredom. Your will to live will also be taxed by injury and pain, fatigue, hunger, and thirst. Being prepared mentally to overcome all obstacles and accept the worst greatly increases your chances of coming out alive.

INDIVIDUAL SURVIVAL

The shock of being isolated behind the enemy lines, in a desolate area, or in enemy hands can be reduced or even avoided if you remember what each letter in the key word *S-U-R-V-I-V-A-L* stands for.

S ize up the situation

U ndue haste makes waste

R emember where you are

V anquish fear and panic

I mprovise

Student Notes:

V alue living

A ct like the natives

L earn basic skills

S — Size up the situation by considering yourself, the country, and the enemy.

In considering yourself, hope for the best, but be prepared for the worst. Get to a safe, comfortable place as quickly as possible. Once there, look things over, think, and form a plan. Your fear will lessen and your confidence will increase. **Be calm!** Take it easy until you know where you are and where you are going.

Part of your fear may come from being in a strange country; therefore, try to determine where you are by landmarks, compass directions, or by recalling intelligence information passed on to you by your leaders.

In considering the enemy, put yourself in the enemy's shoes. What would you do? Watch the enemy's habits and routines. Base your plan on your observation. Remember, you know where the enemy is; the enemy does not know where you are.

U — Undue haste makes waste.

Don't be too eager to move. That will make you careless and impatient. If you begin to take unnecessary risks, you have a good chance of being captured. Don't lose your temper; doing so may cause you to stop thinking. When something irritating happens, stop, take a deep breath, relax, and start over.

Face the fact that danger does exist. To try to convince yourself otherwise only adds to the danger.

R — Remember where you are.

You may give yourself away because you're used to acting in a certain way. Doing "what comes naturally" could be the tip off that you don't belong there.

V — Vanquish fear and panic.

To feel fear is normal and necessary. It's nature's way of giving you that extra shot of energy just when you need it. Learn to recognize fear for what it is and control it. Look carefully at a situation and determine if your fear is justified. When you investigate, you will usually find many of your fears unreal.

When injured and in pain, you'll have difficulty controlling fear. Pain sometimes turns fear into panic and causes you to act without thinking. Loneliness can also cause panic. It can lead to hopelessness, thoughts of suicide, carelessness, even capture or surrender. Recognizing these signs helps you overcome panic.

I — Improvise.

You can always do something to improve the situation. Figure out what you need, take stock of what you have, and then improvise. Learn to put up with new and unpleasant conditions. Keeping your mind on SURVIVAL will help. Don't be afraid to try strange foods.

V — Value living.

Conserve your health and strength. Illness or injury will greatly reduce your chances of survival and escape. Hunger, cold, and fatigue lower your efficiency and stamina, make you careless, and increase the possibility of capture. Knowing that will make you especially careful because you'll realize your low spirits are the result of your physical condition and not the danger. Remember your goal of getting out alive. Concentrating on the future—on the time when you will return home—will help you value living during your survival situation.

A — Act like the natives.

"At a railroad station, there were German guards," one World War II male escapee related. "I had an urgent need to go to the rest room. The only rest room was an exposed one in front of the station. I felt too embarrassed to relieve myself in front of all passersby. I walked throughout the entire town, occasionally stopping and inquiring if a rest room were available."

This man was detected and captured because he failed to accept the customs of the natives. When you are in a foreign country, accept and adopt native behavior to avoid attracting attention to yourself.

L — Learn basic skills.

The best life insurance is to make sure you learn the techniques and procedures for survival so thoroughly that they become automatic. That increases the chances that you will do the right thing, even in panic. What you know about survival could save your life. Be inquisitive

Student Notes:

and search for additional survival knowledge.

GROUP SURVIVAL

Just as you must make your reactions to survival situations automatic, so must the entire squad, platoon, or other group that you might be a member of or be leading. The best chance for survival belongs to the group that works **together** and has a leader who accepts responsibility for the group. When you are the senior person, accept responsibility for your group by taking steps to lead members to work together. Some actions you can take include the following:

Organize group survival activities. Group survival depends largely upon the organization of its manpower. Organized action by group members who know what to do and when to do it, during ordinary circumstances and during a crisis, prevents panic. Keeping the group informed, devising a plan, and sticking to the plan helps achieve organization.

Assume command and establish a chain of command that includes all members of the group. Good leadership lessens panic, confusion, and disorganization. Make certain each person knows his or her position in the chain of command and is familiar with the duties of every other person, especially your duties as the senior member. Under no circumstances leave leadership of the group to chance acceptance by some member after a situation arises.

Maintain respect for your leadership by using it wisely; be the leader and set the example. Group survival is a test of effective leadership. Watch out for problems that could turn into serious arguments. Keep troublemakers from attracting undue attention, and keep those who may "crack up" from disrupting the group. Prevent carelessness caused by fatigue, hunger, and cold. Know yourself and the members of your group; take responsibility for each person's welfare.

Develop a feeling of mutual dependence within the group by stressing that each person depends on the others for survival. Emphasize that the group will not leave the wounded or injured behind—that each member's responsibility is to make sure the group returns intact. A feeling of mutual dependence fosters high morale and unity. Each member receives support and strength from the others.

Make the decisions no matter what the situation. However, base your decisions on the information and advice of other members of the group—much as admirals make decisions based on input from their staff. Above all else, never appear indecisive.

If situations require you to act immediately, consider the facts and make decisions rapidly. The ability to think on your feet usually determines successful survival.

STRESS OF SURVIVAL

Survival is a state of mind. Your ability to return to your group or to be rescued depends in a great part on your ability to cope with frustrations. You may become frustrated because you find you are unable to accomplish specific tasks. Perhaps you are hungry, cold, lost, injured, or lack the proper equipment. Being able to improvise equipment, care for your physical needs, and provide first aid for your injuries will help you to control your environment, reactions, and emotions. Don't be afraid to experiment and use your imagination. A logical experimental approach is the best way to solve most problems.

Remember the following rules:

1. Almost everything is useful—don't throw away anything.
2. You can be lazier than you would expect, if you just think. The least effort can be the most efficient.
3. Everything you do should be oriented toward rescue.
4. If your surrounding conditions don't suit your needs, do what you can to change them.

SURVIVAL TECHNIQUES

As a member of the armed forces, you always face the chance of being exposed to conditions that can force you into a life-or-death struggle. However, you can remain alive anywhere in the world when you keep your wits. Remember that nature and the elements are neither your friend nor your enemy. By using your wits, you can make them work for you instead of allowing them to work against you.

Student Notes:

Survival depends on you. You must be physically fit and know how to locate or collect water. You must know what plants and animals are available for food, how to find or catch them, how to prepare them, and how to recognize those which will harm you. The more you know about the conditions peculiar to the region you are in, including the plant and animal life, the better are your chances for survival.

Water

Without water your chances of living are slight, and all the food in the area means little. That is especially true in hot climates where you sweat a lot. Even in cold weather your body needs at least 2 quarts of water each day; a lesser amount reduces your efficiency.

When you can't find surface water, tap through the earth's water table for groundwater (rain or melted snow that has filtered through the ground). Getting to the water table and its supply of generally pure water depends on the contour of the land and the characteristics of the soil.

In the desert or arid regions, watch for water indicators. Some signs of water include—

- Plants covering animal trails and the direction in which certain birds fly. By searching in areas toward which these birds fly, you will probably find water.
- Places that are visibly damp, where animals have scratched, or where flies hover indicates recent surface water. Dig in those spots for water.

Leave your handkerchief out on clear nights to collect dew; then squeeze the water into a container. During a heavy dew, you should be able to collect about a pint an hour.

You may find runoff water above the water table. Runoff water includes streams, stagnant pools, and water in bogs. Consider this water contaminated and dangerous even if it is away from human habitation. Boil or treat this water with water purification tablets before you drink it.

If you are unsuccessful in your search for ground or runoff water or if you don't have time to purify questionable water, a water-yielding plant may be your best bet. You can easily get clear, sweet sap that is pure and chiefly water from many plants. Many plants with fleshy leaves or stems store drinkable water. Try them wherever you find them. Desert plants often have their roots near the surface. Pry these roots out of the ground and cut them into 24- to 36-inch lengths. Remove the bark and suck out the water.

Not all vines yield palatable water, but try any vine you find. Use the following method for tapping a vine. It will work on any species.

1. Cut a deep notch in the vine as high up as you can reach.
2. Then cut the vine off close to the ground and let the water drip into your mouth or a container.
3. When the water ceases to drip, cut another section off the vine.
4. Repeat this procedure until the supply of fluid is exhausted (fig. 15-10).

NOTE

If the liquid is a white sap or very dark in color, it is not drinkable. If the liquid is clear, test it for odor. If it is slightly pink or red in color, that normally indicates the presence of tannic acid, which isn't harmful. If it has no taste, or does not taste bad, it is a good source of water.

Food

It takes little reasoning to recognize that your second requirement is food. That's especially true during a time of survival when you need every ounce of energy and endurance that you can muster.

People have been known to live for more than a month without food; but unless you are in extremely difficult circumstances, you don't need to deprive yourself of something to eat. Used properly, nature can provide you with food. Apply the following rules as soon as you realize you are isolated:

1. Inventory your rations and water. Estimate the length of time you will be on your own.
2. Divide your food—two thirds for the first half of your isolation and one third for the second half.

Student Notes:

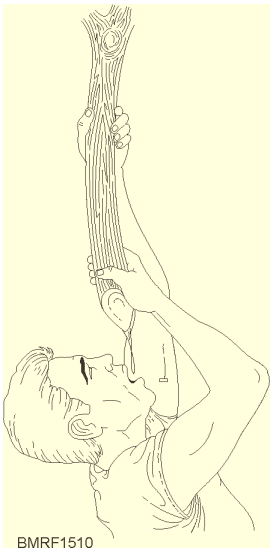

Figure 15-10.—Extracting water from vines.

3. Avoid dry, starchy, and highly flavored foods and meats if you have less than 1 quart of water for each day. Remember eating makes you thirsty. Eat food high in carbohydrates, such as hard candy and fruit bars.
4. Keep strenuous work to a minimum. The less you work, the less food and water you require.
5. Eat regularly if possible—don't nibble. Plan one good meal each day and cook it if you can. Cooking makes food safer, more digestible, and better tasting. Also, the time you spend cooking will give you a rest period in which you can relax.
6. Always be on the lookout for food. With few exceptions, everything you see that walks, crawls, swims, or grows from the soil is edible. Learn to live off the land.

PLANTS.—Experts estimate that about 300,000 classified plants grow on the earth's surface, including many that grow on mountain tops and ocean floors. Of these, 120,000 varieties are edible. Obviously, you won't be able to learn about all of these plants from reading this chapter. But if you know what types of food to look for in the area in which you are stranded, can identify them, and know how to prepare them properly, you should find enough to keep you alive. You may even surprise yourself with a delicious meal.

Eat those plants available in the area to provide you with needed energy while you search for meat. You can depend on them to keep you alive if you're injured, unarmed in enemy territory, or in an area where wildlife is not abundant. Although plant food may not provide a balanced diet, especially in the Arctic where heat-producing qualities of meat are essential, it will sustain you. Many plant foods, like nuts and seeds, will give you enough protein for normal efficiency. In all cases, plants provide energy and calorie-giving carbohydrates.

Most sources of plant foods (fruits, nuts, and berries) have one or more parts that have a lot of food value. For example, certain roots and other underground parts of plants that are rich in starch are excellent sources of food. Some examples are shown on the following page.

ANIMALS.—Foods derived from animals have more food value per pound than those derived from plants. Learning what parts of animals you can eat or use in other ways and learning how to prepare animals for cooking increase your chances of survival.

Methods of Cooking and Preserving Foods

Besides making most foods more tasty and digestible, cooking makes them safer to eat by destroying bacteria, toxins, and harmful elements in the food. Your survival chances increase as your knowledge of field survival skills increases. Survival skills include your ability to improvise and to apply the following principles of cooking and preserving the foods you obtain in the field.

Harmful Plant and Animal Foods

Although you will encounter relatively few poisonous plants and animals, you should learn to recognize and avoid them.

Some places, such as the Arctic and subarctic regions, have less than a dozen plants that are poisonous. These include the water hemlock (fig. 15-16) and the poisonous mushrooms (figs. 15-17 and 15-18).

Student Notes:

FOOD	CHARACTERISTICS
Wild potato	The wild potato is an example of an edible tuber (fig. 15-11). This small plant is found throughout the world, especially in the tropics.
Solomon's seal	Tubers of Solomon's seal (fig. 15-12) grow on small plants found in North America, Europe, Northern Asia, and Jamaica. Boiled or roasted, they taste much like parsnips.
Water chestnut	The water chestnut is a native of Asia, but it has spread to both tropical and temperate areas of the world including North America, Africa, and Australia. It is found as a free-floating plant on rivers, lakes, and ponds in quiet water. The plant covers large areas wherever it grows. It has two kinds of leaves—the submerged leaf, which is long, rootlike, and feathery, and the floating leaf, which forms a rosette on the surface of the water. Beneath the water, the plant bears nuts that are 1 to 2 inches broad with strong spines that give them the appearance of a horned steer (fig. 15-13). You can roast or boil the seed inside the horny structure.
Nut grass	Nut grass is widespread in many parts of the world. Look for it in moist, sandy places along the margins of streams, ponds, and ditches. It occurs in both tropical and temperate climates. The grass differs from true grass because it has a three-angle stem and thick underground tubers that grow ½ to 1 inch in diameter. (See fig. 15-14.) These tubers are sweet and nutty. Boil, peel, and grind them into flour; you can use the flour as a coffee substitute.
Bullrush	Bullrush is a tall plant found in the wet, swampy areas of North America, Africa, Australia, the East Indies, and Malaya. (See fig. 15-15.) You may eat the roots and white stem base cooked or raw.

Figure 15-11.—Wild potato.

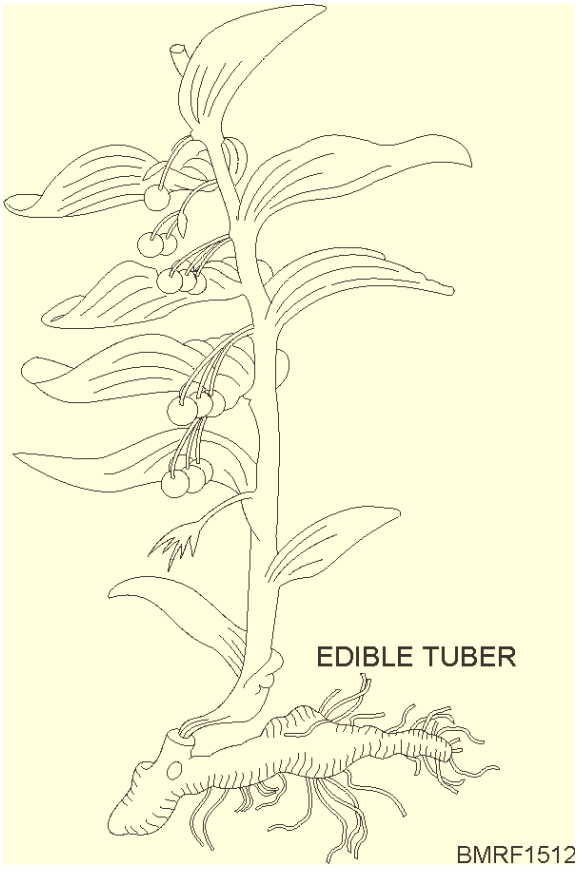

Figure 15-12.—Solomon's seal.

Student Notes:

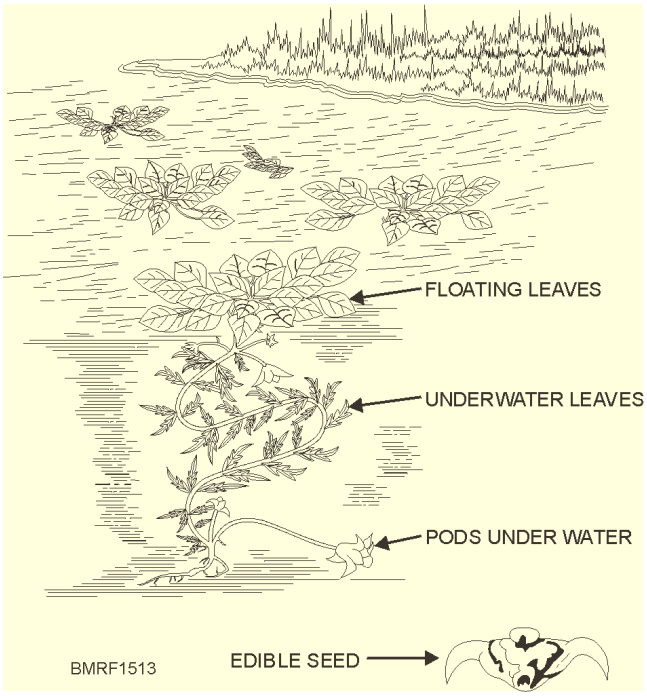

Figure 15-13.—Water chestnut.

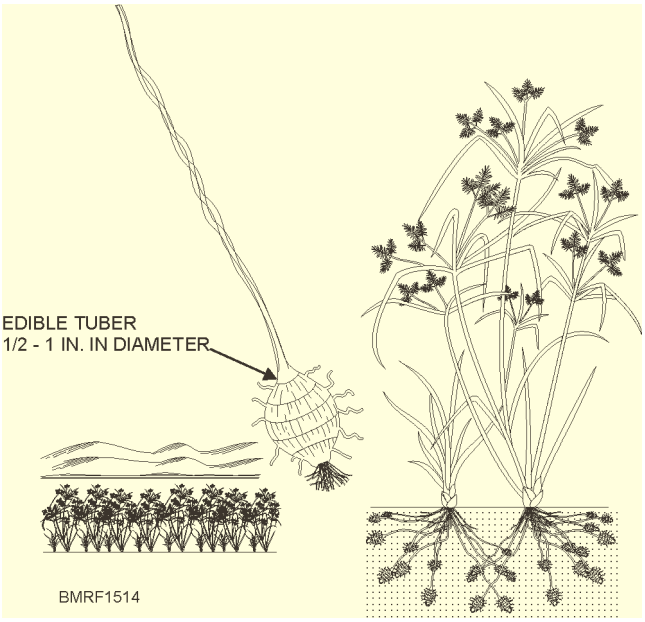

Figure 15-14.—Nut grass.

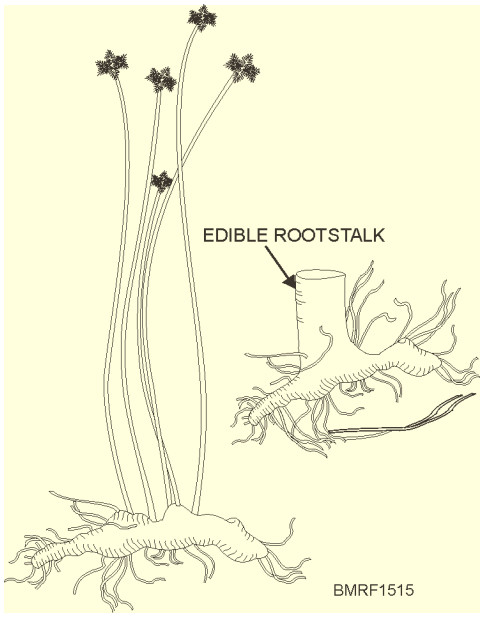

Figure 15-15.—Bullrush.

The tropics have no greater proportion of poisonous plants than the United States. If you're in doubt about whether plants are poisonous or nonpoisonous, observe the habits of vegetable-eating animals, such as birds, rodents, monkeys, baboons, and bears. Usually the foods these animals eat are safe for humans. Cook all plant foods because cooking removes plant poisons (except those in poisonous mushrooms).

NOTE

Avoid eating plants that taste bitter. Also avoid eating untested plants that have milky juices. Don't let the milky juice contact your skin.

You may eat most animals. However, some, like mollusks, may introduce parasites into your body, especially if you eat them uncooked or when they aren't fresh. Crustaceans are almost always edible, but they spoil rapidly and may harbor harmful parasites. Be sure to cook the freshwater variety; eat the saltwater variety raw if you desire.

You have no simple way of telling whether a fish is edible. That depends on the place in which they live, their source of food, or even the season of the year. Often fish that are edible in one area of the world are not in another. At first, eat only small portions of any fish. If you feel no ill effects, you can probably continue to eat the fish safely.

Student Notes:

TYPE OF ANIMAL	PROCEDURE
Birds	Cook most birds with the skin on to retain their food value. After plucking a bird, cut off the neck close to the body and take out the internal organs through the cavity. (**NOTE**: Scalding most birds makes them easier to pluck. Waterfowl are an exception; they are easier to pluck when dry.) Wash out the cavity with fresh, clean water. Save the neck, liver, and heart for stew. Boil scavenger birds, like buzzards and vultures, at least 20 minutes before you cook them to kill parasites. Birds' eggs are among the safest of foods. You can hard boil eggs and carry them for days as reserve food. Save all the feathers you pluck from the birds. You may use them for insulating your shoes or clothing or for bedding.
Fur-bearing animals	Clean and dress the carcass of a fur-bearing animal as soon as possible after death. Any delay will make your job harder. Cut the animal's throat and allow the blood to drain into a container. The boiled blood is a valuable source of food and salt. Save the kidneys, liver, and heart. Use the fat surrounding the intestines. All parts of the animal are edible, including the meaty parts of the skull, such as the brain, eyes, tongue, and flesh.
Shellfish	Crabs, crayfish, shrimp, prawns, and other crustaceans are excellent sources of food. However, crustaceans spoil rapidly so boil them alive immediately after capture. You can steam, boil, or bake shellfish such as clams, oysters, and conchs in the shell. Shellfish make an excellent stew when cooked with greens or tubers.
Other foods	You can easily catch grasshoppers, locusts, large grubs, termites, ants, and other insects to provide nourishment in an emergency.

METHOD	DESCRIPTION
Roasting or broiling	This is a quick way to prepare wild plant foods and tender meats. Roast meat by putting it on a stick and holding it near the embers of your fire. Roasting hardens the outside of the meat and retains the juices.
Baking	Baking is cooking in an oven over steady, moderate heat. The oven maybe a pit under you fire, a closed vessel, or a leaf or clay wrapping. Pit cooking protects food from flies and other pests and reveals no flame at night.
Steaming	You can steam foods that require little cooking, like shellfish. Place your food in a pit filled with heated stones over which leaves are placed. Put more leaves over your food. Then force a stick through the leaves down to the food pocket. Pack a layer of dirt on top of the leaves and around the stick. Remove the stick and pour water to the food through the holes that remains. Steaming is a slow but effective way to cook.
Parching	Parching may be a desirable method of preparing some foods, especially grains and nuts. To parch, place the food in a metal container and heat slowly until it is thoroughly scorched. In the absence of a suitable container, use anything that holds food or water—a heated, flat stone; turtle shells; seashells; leaves; bamboo; or a section of bark.
Drying	Drying preserves food by ridding it of moisture. You can dry plant food and meat by exposing them to wind, sun, air, fire, or any combination of these. To produce jerky, cut meat into 1/4-inch strips and place it across grates; allow it to dry in either the wind or smoke until brittle.

Student Notes:

Figure 15-16.—Water hemlock.

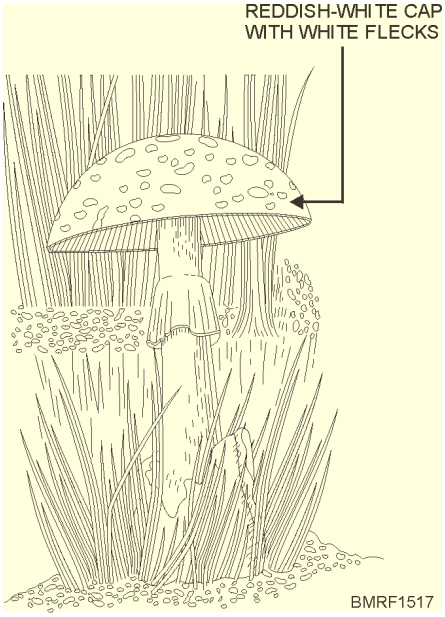

Figure 15-17.—Fly agaric.

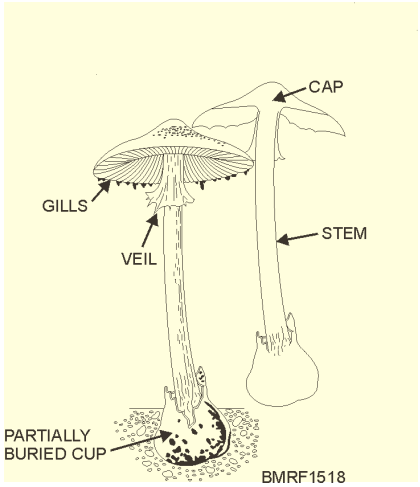

Figure 15-18.—Death angel.

EVASION

According to the Code of Conduct for Members of the Armed Forces of the United States, it is your duty to evade capture by the enemy. Your job is to **get back** to your unit. Your survival will depend on your ability to apply the techniques of evasion. No other reason is more important for making evasion techniques part of your basic combat skills.

Evasion means traveling through enemy-held territory without being captured. Falling into the hands of the enemy is an event that no military person wants to experience. However, at some point in your career you may find yourself in a situation where capture is a possibility. You need to know a few basic evasion principles to decrease your chances of winding up as a guest of the enemy.

During World War II and the succeeding actions in Korea and Vietnam, many of our soldiers, Sailors, and marines were able to avoid the enemy and safely return to friendly forces. They were successful because they applied some or all of the guidelines presented in the following paragraphs. You need to learn this information so that you know how to evade the enemy. It could mean the difference between freedom or capture; interrogation; and possibly, inhumane treatment by enemy forces.

Obviously, the most important consideration in evasion is knowing where the enemy is located. If you don't know the enemy's location, watch for the

Student Notes:

following signs. They can tell you the enemy's location as well as other valuable information.

1. Signs that groups have passed, such as crushed grass, broken branches, footprints, cigarette butts, or other discarded trash, may reveal their identity and size, their direction of travel, and the time they passed through.
2. Workers in fields may indicate absence of the enemy.
3. Apparently normal activities in villages may indicate absence of the enemy.
4. Less obvious conditions may indicate the presence of the enemy, such as the following:
   a. The absence of workers in fields is an indication that the enemy is near.
   b. The absence of children in a village is an indication that the children have been hidden to protect them from action that may take place.
   c. The absence of young people in a village is an indication that the enemy controls the village.

Some evasion techniques you may find useful are cover, concealment, and camouflage. To keep yourself from being seen, you may have to hide in bushes or lie flat in shallow ditches using brush as a cover or camouflage.

When evading the enemy, remember the following points:

1. Conceal yourself from enemy aircraft and nearby enemy troops.
2. Move quietly; noises carry in fog, fallen snow, heavy foliage, and over rock faces.
3. Maintain personal hygiene to prevent body odor; cover body waste and scraps of food; avoid activities, such as cooking and smoking, that produce smells; such smells can reveal your location.
4. Don't make sudden, rapid movements that can reveal your location.
5. Select routes for movement that avoid exposed areas and don't show your silhouette against the skyline. Don't leave obvious tracks.

Crude Direction-Finding Techniques

How do you determine direction without a compass? Nature can help you or nature can fool you. The two best crude sources of direction are the sun and the stars, but you must know how to use them.

Sun	The sun travels from the eastern sky to the western sky. How can you use the sun to determine an east-west direction? You can use shadows (even on a cloudy day) made by the sun to get an accurate east-west line. On a flat surface, drive a stick 3 or 4 feet high in the ground. Then mark the tip of the stick's shadow with a rock. If you wait awhile and then mark the shadow again, you will see that the line connecting the tips of the shadows inscribes an east-west line on the ground.
Stars	To use the stars, you must have a clear night. You may locate north by finding the North Star (Polaris), the outermost star in the handle of the Little Dipper.

These are very crude direction-finding techniques; you may only use them in the Northern Hemisphere. If your ship or aircraft is going to be operating in the Southern Hemisphere, you should learn the techniques for that area of the world.

Evasion Travel

The route that you select to travel while trying to evade the enemy depends on your situation, the weather conditions, and the nature of the terrain. Whether you select a ridge, stream, valley, coastline, dense forest, or mountain range to follow, be sure it is the safest, rather than the easiest, way. Experience has proved that the most difficult route is frequently the safest.

Travel Tips

Some tips you can use when traveling include the following:

Student Notes:

- Be patient, cautious, and avoid overconfidence. An enemy's approach isn't a cause for panic. Normally, you have a good chance of remaining unobserved.

- Conserve your strength by avoiding exhaustion. When you have to remain in one place for an extended period, exercise moderately to keep fit.

- Generally, avoid eating uncooked food or drinking unboiled water. Select a hiding place to cook the food and boil the water you will use en route to the next evasion objective.

- Hold on to items of personal clothing and equipment; they serve a useful purpose during evasion. Keep some items that will identify you as a military person, such as your dog tags. If you can't positively

Along a ridgeline	Using a route along a ridgeline is usually easier to follow than one through a valley. You can frequently use animal trails on top of ridges to guide your travel. When following a ridge-top trail, stay below the trail and move parallel to it. **Never travel along the top of a ridge.** Doing so makes you an easily identifiable silhouette against the skyline.
Use of a stream	Using a stream as a route is of particular advantage in a strange country. It provides a fairly definite course and might lead to populated areas. It's a potential food and water source and may provide you a means of travel by boat or raft.
Following a coastline	Following a coastline leads you on a long, roundabout route. However, a coastline serves as a good starting point. It is an excellent base line from which to get your bearings and a probable source of food.
In a dense forest	When traveling in a dense forest, you probably won't be able to spot distant landmarks. You can stay on course by lining up two trees forward of your position in your direction of travel. As soon as you pass the first one, line up another beyond the second. You might find it helpful to look back occasionally to check the relative positions of landmarks.
Marking your route	You can mark your route with bent bushes, rocks, or notches placed on the backsides of trees at approximately eye level. Make bush marks by cutting vegetation or bending it so that the under, lighter sides of the leaves are facing upward. These signs are especially conspicuous in dense vegetation, but you should be cautious in using them. By plainly marking your route, you risk discovery.
Trails in your general direction	Follow trails that lead in your general direction; when you come to a fork, follow the path that appears most traveled. If you follow the wrong trail and become lost, stop and try to remember the last time you were sure of where you were. Mark your location and start backtracking. Sooner or later you will discover a recognizable feature with which you can pinpoint your position.
Detouring in rough country	You might have to detour frequently in rough country. To do that, try to follow the method shown in figure 15-19 for estimating distance and average angle of departure for short detours. On your return from the detour, estimate the angle and distance to regain your original line of travel. For greater accuracy, count paces and use a compass. Another method (fig. 15-20) lets you select a prominent landmark ahead and behind your line of travel. On returning from your detour, walk until you are again lined up on the two landmarks; then follow your original course.

Student Notes:

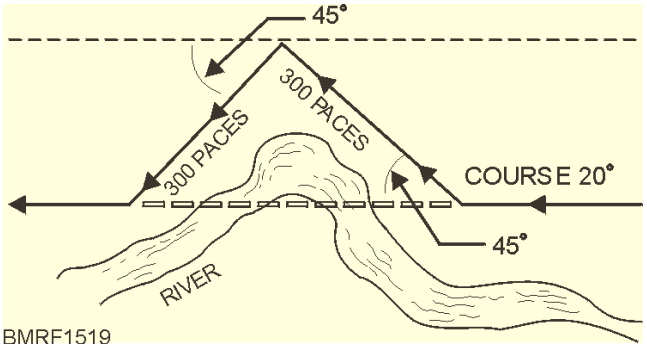

Figure 15-19.—Estimating distance and average angle of departure.

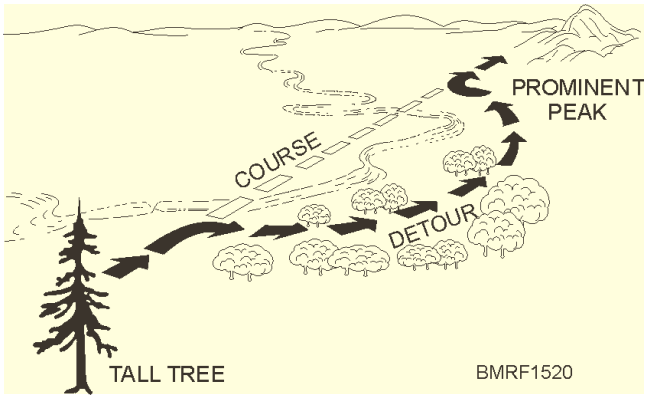

Figure 15-20.—Using prominent landmarks.

identify yourself as a military person, you may be treated as a spy if captured or be refused assistance by escape organizations or friendly natives.

- Don't leave or throw away any articles that, if found, could give the enemy a clear picture of your direction of travel. Bury, or otherwise dispose of, the effects of your campsite.

- Practice supply economy. You may have to use the same jacket or pair of shoes throughout the entire evasion trip, which could cover hundreds of cross-country miles during both winter and summer seasons. Build up your food and water supplies. Carefully ration them so that they will last until you can reach an evasion objective or can replenish them. If you have food but no water, don't eat. Since the digestive processes require water, you will dehydrate faster if you eat.

- Use firearms only in an emergency. Keep them concealed at all times during your evasion unless a situation arises that requires a show of arms.

- Avoid contact with people as long as possible. However, if you can't proceed on your own because of sickness, lack of food, or other reasons, then, and only then, seek out native assistance. Natives who are sympathetic to the allied cause or members of the underground who operate escape lines for the purpose of returning evaders to allied control may offer assistance. Be wary in contacting natives or accepting their help, regardless of what they claim to be.

- If you're fortunate enough to travel through an area where an organized escape line exists, the chances are good that a spotter will seek you out. Spotters for resistance or underground organizations are particularly alert when they have reason to believe allied evaders are in their area but so are enemy police and counterintelligence agents. Persons wearing civilian clothing in enemy-held territory are not necessarily civilians.

Crucial Phase of Evasion

To establish contact with friendly lines or to cross the border to a neutral country is the most crucial point of evasion. All of your patience, planning, and hardships will be in vain if you aren't careful when contacting friendly frontline forces. Many personnel attempting to pass through friendly lines have been killed because they didn't identify themselves properly. Most of these people wouldn't have been shot if they had been cautious and followed proper procedures. The normal tendency is to throw caution to the wind when in sight of friendly forces. You must control this tendency.

Regular patrols or special mission personnel operating behind enemy lines are given the challenge and password of the day as a security measure. Challenges and passwords provide for the identification of the patrol as it approaches a friendly position. In addition, frontline troops are told the time and place where patrols will leave and enter the lines. These conditions exist only if you are able to rejoin your outfit within 24 hours following your separation. After 24 hours, you must follow certain established procedures and hope the frontline troops will also

Student Notes:

follow them. Usually frontline troops, especially those employed several miles forward of the forward edge of the battle area, shoot first and ask questions later. Contacting these troops is, at the very least, sensitive and a calculated risk. However, in the absence of an opportunity to contact a friendly patrol, contact with frontline troops may be your only alternative. Generally, frontline troops are told to honor the display of a white flag or another white object and to advance the unknown person to be recognized.

Once back in friendly hands, you'll naturally want to talk about your exploits and will undoubtedly receive countless questions from frontline troops. However, that is the time you should remain silent. If you talk at this point, you may endanger the lives of those who helped you. In addition, you may compromise methods other service personnel might use to evade the enemy and get out safely. Give only information of immediate tactical importance to frontline units. Advise the first officer or petty officer contacted that you are returning to duty from missing in action, prisoner of war, or internment status. Then request to be taken to someone authorized to receive evasion and escape information.

These survival techniques are but a few of the ways you can stay alive and live to return to friendly forces. You can gain an in-depth knowledge of survival, evasion, and escape techniques through special training. The Navy provides this special training at survival, evasion, resistance, and escape (SERE) schools located at strategic locations throughout the world.

ESCAPE

If I am captured I will continue to resist by all means available. I will make every effort to escape and aid others to escape. I will accept neither parole nor special favors from the enemy.

—Code of Conduct, Art. III

What happens if you become a prisoner of war (POW)? After all, it is possible. Isolation, fear, and injury all work in favor of the enemy to increase your chances of capture in spite of a determined effort on your part to evade. The surrender of your arms, however, does not mean you forfeit your responsibilities as a member of the American armed forces. **The armed forces Code of Conduct directs that you begin planning your escape the minute you are taken prisoner**.

Escape is tough; making it work is even tougher. It demands courage, cunning, and much planning in seeking ways out, determining what routes to follow, and locating friends. Above all, it demands physical stamina under the worst conditions imaginable. Experience has proven that "model" camps with regular rations and considerate treatment are the exception. But no matter what extremes you encounter as a POW, try to keep yourself physically able and sufficiently equipped to escape as soon as possible.

If captured, try to make your escape early. You may never be in any better physical condition to escape than at the moment you are captured. Prison rations are barely enough to keep you alive; they certainly won't supply you with a reserve of energy. The physical treatment, lack of medical care, and insufficient rations of prison life soon have effects such as physical weakness; night blindness; and loss of coordination, reasoning power, and morale.

There are other reasons for making your escape early after your capture. Friendly artillery fire or air strikes occurring during that time may increase your chances of getting away. The first guards you will have are not as well trained in handling prisoners as those farther back from the front lines. Some of the line guards may even be walking wounded who are distracted by their own condition. In addition, you know something about the terrain where you are captured, and you know the approximate location of friendly units. Several days later and many miles away, you may be in strange territory. An escape from a prison camp is much more difficult and requires more detailed planning. It must be organized and supported as any other military operation. The method you should use to escape depends on your particular situation. The only general rules are to make an early escape and to escape when the enemy's attention is distracted.

Save, Add to, Take Care of (S-A-T)

Since the conditions in various POW camps differ, it is impossible to provide a specific escape or survival plan for each situation. What you need is a guide to help

Student Notes:

CODE OF CONDUCT

ARTICLE I

I am an American, fighting in the forces which guard my country and our way of life. I am prepared to give my life in their defense.

ARTICLE II

I will never surrender of my own free will. If in command I will never surrender the members of my command while they still have the means to resist.

ARTICLE III

If I am captured I will continue to resist by all means available. I will make every effort to escape and aid others to escape. I will accept neither parole nor special favors from the enemy.

ARTICLE IV

If I become a prisoner of war, I will keep faith with my fellow prisoners. I will give no information or take part in any action which might be harmful to my comrades. If I am senior, I will take command. If not, I will obey the lawful orders of those appointed over me and will back them up in every way.

ARTICLE V

When questioned, should I become a prisoner of war, I am required to give name, rank, service number and date of birth. I will evade answering further questions to the utmost of my ability. I will make no oral or written statements disloyal to my country and its allies or harmful to their cause.

ARTICLE VI

I will never forget that I am an American, fighting for freedom, responsible for my actions, and dedicated to the principles which made my country free. I will trust in my God and in the United States of America.

you plan to make the best of what you have. One such guide is to remember the word S-A-T–SAVE, ADD TO, TAKE CARE OF

Maintaining Your Health

Good physical health is essential to survival under any circumstances. It is especially important in a POW camp where living conditions are crowded and food and shelter are lacking. That means you must use every device possible to keep yourself well.

Soap and water provide a basic preventive medicine; so keep clean. If water is scarce, collect rainwater, use dew, or simply rub yourself daily with a cloth or your bare hands. Pay attention to areas on your body that are likely to develop rash and fungus infection–your crotch, your scalp, and between your toes.

Student Notes:

Save	**Save** what you can in a POW camp—clothing, pieces of metal, cloth, paper, string anything! A piece of twine may mean success or failure when the time comes for you to break out. Hide these items under the floor or in a hole in the ground. Since they appear harmless, little or nothing will be done to punish you if they are discovered. **Wear** as few clothes as possible during your imprisonment. SAVE your shoes, underwear, shirts, jacket, and any other items of clothing that will protect you from the elements to wear during your escape. **Save** any nonperishable foods you receive from the Red Cross or your captors. Candy, for example, comes in handy as a quick source of energy when you are traveling. If no candy source is available, SAVE each issue of sugar given you by the enemy. When you get enough, boil it down into hard candy. SAVE it until you build up your supply. Store any canned foods you receive. The enemy might puncture the cans to prevent you from saving them. However, you can recook some food into another form that preserves it. Other foods to hoard against the day of your escape include suet (a hard fat), cooked meat, nuts, and bread. **Save** pieces of metal no matter how insignificant they may seem. Nails and pins can serve as buttons or fasteners. You can use old cans to improvise knives, cups, or food containers. If you are fortunate enough to have a razor blade, guard it. Use it for shaving only. Devise ways of sharpening it; rub it on glass or stone or some other hard surface. A clean shave is a good morale booster. **Save** your strength but keep active. A walk around the compound or a few mild calisthenics will keep your muscles toned. Sleep as much as you can. You will not get much rest on your way back.
Add to	**Use your ingenuity**. Select those items that you cannot get along without and supplement them; for example, your rations. There is more to eat in and around your compound than you think. When you are allowed to roam around the prison campgrounds, look for natural foods native to the area, such as roots, grasses, leaves, barks, and insects. If possible, ADD these foods to your escape cache (supplies). They will keep you alive when the going gets tough. **Supplement** your clothing so that the more durable garments are in good repair when you escape. A block of wood and a piece of cloth make good moccasins; that saves wear on your shoes. Substitute rags for gloves; weave straw into hats. Do not forget to salvage clothing from the dead.
Take care of	Probably the most important part of any plan for survival is the **take-care-of** phase. **Maintain** what you have. You won't receive a reissue of shoes or clothes that you wear out or lose. Also, maintain your health; it is not easy to regain once you lose it. **Put** some of your clothing into your escape cache. Watch the rest for early signs of wear, and repair them with improvised material if needed. Use a needle made from a thorn, nail, or splinter and thread from unraveled cloth to mend a torn pair of trousers. Wood, canvas, or cardboard bound to the soles of your shoes will save them from wear. Even paper will suffice as a reinforcing insole if your shoes do wear through.

Student Notes:

Keeping clean also applies to your clothing. Use soap and water when you can spare it. Hang your clothes in the sun to air if soap and water are not available. Examine the seams of your clothing and the hairy portions on your body frequently for lice and their eggs. Disease-infected lice can kill. A possible way to get laundry service, or even a bath, is to tell your guard that you are infested with lice, whether or not your complaint is true. The prison authorities, fearing that lice on prisoners may cause an outbreak of louse-borne disease among the civilian and guard population, might provide this service.

If you become ill, report your condition to the camp authorities. The chance that you will receive aid is worth the try.

After You Escape

Once you escape, you may have trouble contacting friendly units even when you know where they are. Approach the problem as you would if you were a member of a lost patrol. Time your movements so that you pass through the enemy forward areas at night and arrive between the enemy and friendly units at dawn. A good plan is to find a ditch or shell hole where you have cover from both friendly and enemy fire. Attract the attention of the friendly forces by waving a white cloth, shouting, exposing or laying out a panel, or some other method. In doing so, you alert friendly forces who are prepared to accept any small group that appears willing to regain contact. When you alert friendly forces, they are not as likely to shoot you on sight.

REVIEW 2 QUESTIONS

Q1. Give the meaning of the letters in the key word *S-U-R-V-I-V-A-L*.

S

U

R

V

I

V

A

L

Q2. If in a group, what action(s) makes(s) for the best chance of survival?

Q3. List the sources of drinking water.

a.

b.

c.

d.

Student Notes:

Q4. True or False. Food derived from animals has more food value per pound that food from plants.

Q5. List plants that you should not eat.

a.

b.

c.

Q6. List some techniques that are useful to evade the enemy.

a.

b.

c.

Q7. What does the armed forces Code of Conduct direct you to do?

SUMMARY

You will probably spend the majority of your naval career aboard ship. Hopefully you will never fall or be washed overboard or have to abandon ship.

The U.S. Navy operates in all parts of the world from the tropics to polar regions. Each region has its own special survival problems. You may encounter the extreme cold of the polar regions or the heat and humidity of a tropical jungle. Your survival in these places will depend on your ability to take care of yourself. Knowing how to combat hypothermia or heat exhaustion will greatly increase your chances for survival.

Although it could happen, hopefully you will never find yourself stranded in enemy-held territory. To be captured by an enemy force is one of the worst situations you could face. Being properly prepared to make an escape and return to your unit is not only your duty, but it is what every POW thinks about. Knowing how to make that escape work is even more difficult. Knowing what the local environment has to offer in food and water supplies will help you survive during your escape. Maintaining the proper state of mind will greatly increase your chances of making a successful escape.

REVIEW 1 ANSWERS

A1. When aboard ship, you should know escape routes **so you won't be trapped or cut off in case of an emergency or if you must abandon ship**.

A2. **False**. You should **never** dive into the water to abandon ship. Use a ladder, cargo net, line, or fire hose.

A3. The swimming classification that gives you the best chance for survival if you have to abandon ship is the **First Class Swimmer**.

A4. If you have to jump from a ship into burning water, you should **take a deep breath, cover your nose and mouth with one hand and your eyes with the other, and swim under water as far as possible**.

A5. You can use **trousers/slacks, sea bag, and pieces of wood** to stay afloat.

A6. The two types of life preservers used by the Navy are the—

a. **Inherently buoyant type**

b. **Inflatable type**

A7. When you have custody of your life preserver, you should inspect it **once each month**.

A8. The contents of survival kits carried by inflatable lifeboats include—

a. **Food rations**

b. **Sea marker dye**

c. **Flashlight**

d. **Batteries**

e. **Signal mirror**

f. **Whistle**

g. **First-aid kit**

h. **Distress signal kit**

i. **Containers of fresh water**

A9. The one essential requirement for survival is **drinking water**.

A10. The food ration carried by lifeboats is based on **one packet of food per person per day**.

A11. Some of the dangers you might face by exposure include—

a. **Sunburn**

b. **Hypothermia**

c. **Frostbite**

d. **Immersion foot**

REVIEW 2 ANSWERS

A1. The meaning of the letters in the key word *S-U-R-V-I-V-A-L* are—

S ize up the situation

U ndue haste makes waste

R emember where you are

V anquish fear and panic

I mprovise

V alue living

A ct like the natives

L earn basic skills

A2. In a group, **working together** is the best chance of survival.

A3. Some sources of drinking water include—

a. **Dig to the water table**

b. **Collect dew during the night**

c. **Runoff water**

d. **A water-yielding plant**

A4. **True**. Food derived from animals has more food value per pound than food from plants.

A5. Plants that you should not eat include—

A. **Water hemlock**

B. **Fly agaric**

C. Poisonous mushrooms

A6. Some techniques that are useful to evade the enemy include—

a. **Cover**

b. **Concealment**

c. **Camouflage**

A7. The armed forces Code of Conduct directs you to **make every effort to escape**.

ASSIGNMENT 10

Textbook Assignment: Chapter 14 "*First Aid and Health*" and Chapter 15 "*Survival*."

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1. First aid has which of the following objectives?

    1. To save lives
    2. To limit infection
    3. To prevent further injury
    4. Each of the above

2. In administering first aid, you are responsible for performing which of the following tasks?

    1. Stop bleeding
    2. Maintain breathing
    3. Prevent or treat for shock
    4. All of the above

3. Under which, if any, of the following circumstances should you touch an open wound with your fingers?

    1. To replace bulging abdominal organs
    2. To remove a protruding foreign object
    3. Only when absolutely necessary to stop severe bleeding
    4. None of the above

4. A person who has stopped breathing is considered dead.

    1. True
    2. False

5. What is the purpose of artificial ventilation?

    1. To restore the function of the heart
    2. To provide a method of air exchange
    3. To clear an upper air passage obstruction
    4. To clear a lower air passage obstruction

6. When using the mouth-to-mouth technique for administering artificial ventilation, how often should you force air into the victim's lungs?

    1. Once every 3 seconds
    2. Once every 4 seconds
    3. Once every 5 seconds
    4. Once every 6 seconds

7. The mouth-to-nose technique for administering artificial ventilation is effective on which of the following victims?

    1. The victim who is breathing very slowly
    2. The victim who is very young
    3. The victim who has extensive facial injuries
    4. Both 2 and 3 above

8. When using the back pressure/arm lift technique for administering artificial ventilation, you should repeat the cycle how many times per minute?

    1. 10 to 12
    2. 8 to 10
    3. 6 to 8
    4. 4 to 6

9. Cardiopulmonary resuscitation (CPR) should be started within how many minutes of the onset of cardiac arrest?

    1. 6
    2. 5
    3. 3
    4. 4

10. When administering CPR, you should place your hands on what area of the victim's chest?

    1. On the upper part of the sternum
    2. About 1 inch below the sternum
    3. Above the tip of the sternum
    4. On the tip of the sternum

11. When using the one-rescuer CPR technique, you should administer how many compressions per minute?

    1. 60 to 80
    2. 40 to 60
    3. 20 to 40
    4. 10 to 20

12. When using the one-rescuer CPR technique, you should give how many ventilations after each set of compressions?

    1. One
    2. Two
    3. Three
    4. Four

13. When using the two-rescuer CPR technique, you should use what ratio of compressions to ventilations?

    1. 1 to 5
    2. 5 to 1
    3. 10 to 4
    4. 4 to 10

14. Which of the following is one of the most reliable indications of a blocked airway in a conscious person?

    1. Inability to speak
    2. Cherry red skin color
    3. Profuse sweating of the face
    4. Partially digested food in the mouth

15. You are assisting a person who is choking. What is the first action you should take?

    1. Apply the standing chest thrust to the victim
    2. Apply the standing abdominal thrust to the victim
    3. Clear the victim's mouth of any food or foreign objects
    4. Sharply slap the victim on the back between the shoulder blades

16. What minimum amount of blood loss usually causes a person to go into shock?

    1. 1 pint
    2. 2 pints
    3. 3 pints
    4. 4 pints

17. How is arterial bleeding from a cut near the surface of the skin indicated?

    1. Spurting dark red blood
    2. Steady flow of dark red blood
    3. Steady flow of bright red blood
    4. Gushing spurts of bright red blood

18. To control bleeding, which of the following methods should you try first?

    1. Direct pressure
    2. A tourniquet
    3. A battle dressing
    4. Pressure points

19. What is meant by the pressure points in the human body?

    1. A place where the artery is protected on all sides by bone or muscle
    2. A place where the main artery is close to the skin surface and over a bone
    3. A point where an artery crosses between the heart and the wound
    4. A point where an artery crosses a joint

20. If the use of a battle dressing is required, who should loosen/remove it?

    1. The on-scene leader
    2. The repair locker leader
    3. A person qualified in first aid
    4. Medical personnel

21. Shock will never be serious enough to cause death.

    1. True
    2. False

22. At which of the following times should you start treatment for shock?

    1. As soon as possible after an injury occurs
    2. Only when symptoms indicate severe shock
    3. Only after other injuries have been treated
    4. As soon as unconsciousness occurs

23. What is the basic position for treating shock?

    1. Putting the head and feet at the same level
    2. Putting the head lower than the feet
    3. Putting the feet lower than the head

24. Which of the following Navy personnel are the most frequent victims of suicide?

    1. Males between the ages of 25 to 37 in paygrades E-6 and E-8
    2. Males between the ages of 17 to 24 in paygrades E-1 to E-6
    3. Females between the ages of 25 to 37 in paygrades E-6 to E-8
    4. Females between the ages of 17 to 24 in paygrades E-1 to E-6

25. Which of the following are actions to take if you believe someone you know is thinking about suicide?

    1. Take all threats seriously
    2. Don't leave the person alone
    3. Get professional help
    4. All of the above

26. Which of the following burns is considered the most serious?

    1. First degree
    2. Second degree
    3. Third degree

27. A closed fracture is one where the skin is intact and an open fracture is one where the skin is broken.

    1. True
    2. False

28. When choosing a material to use as a splint, you should choose material that has which of the following characteristics?

    1. Light weight
    2. Fairly rigid
    3. Strong
    4. All of the above

29. Which of the following is/are symptoms of a broken bone?

    1. Swelling
    2. Deformity
    3. Inability to use the part
    4. Each of the above

30. Which of the following is/are symptoms of a sprain or a strain?

    1. Swelling
    2. Inability to use the part
    3. Each of the above

31. What is one of the easiest ways to carry an unconscious person?

    1. Arm carry
    2. Fireman's carry
    3. Tied-hands crawl
    4. Lift and drag

32. In compartments with access hatches that are too small to permit the use of regular stretchers, you would remove an injured person using what type of stretcher?

    1. Neil Robertson
    2. Gaylord
    3. Stokes

33. Aboard ship, keeping yourself and your spaces clean and orderly has which of the following advantages?

    1. Improves morale
    2. Contributes to the well-being of the crew
    3. Both 1 and 2 above

34. What common dental condition(s) can be prevented by making sure you develop the habit of good oral hygiene?

    1. Tooth decay
    2. Gum and bone disease
    3. Reddening of the gums
    4. All of the above

35. Sexually transmitted diseases may be spread through the use of inanimate objects, such as toilet seats, bed linens, or drinking glasses.

    1. True
    2. False

36. If left untreated, syphilis may cause which of the following conditions?

    1. Heart disease
    2. Mental illness
    3. Blindness
    4. All of the above

37. Sterility is the result of leaving which of the following sexually transmitted diseases untreated?

    1. Syphilis
    2. Gonorrhea
    3. Acquired Immune Deficiency Syndrome
    4. Herpes

38. Use of condoms offers some protection from Acquired Immune Deficiency Syndrome.

    1. True
    2. False

39. If time permits during abandon-ship preparation, a message announced over the 1MC will give which of the following information?

    1. Water temperature
    2. Sea and wind conditions
    3. Bearing and distance to the nearest land
    4. All of the above

40. If you have to go over the side and the ships' propellers are turning, you should leave from what point on the ship?

    1. The windward side, if possible
    2. The lee side, if possible
    3. From the bow
    4. From the stern

41. Personnel have the greatest chance for survival in the water if they meet which of the following swimmer requirements?

    1. First class
    2. Second class
    3. Third class

42. If you have to swim through flames, which of the following is a procedure to follow?

    1. Use your life preserver as a raft
    2. Keep your face above the surface of the water as much as possible
    3. Both 1 and 2 above
    4. Swim underwater until you are clear of the oil

43. If you must abandon ship into oily water that is not burning, which of the following precautions should you take?

    1. Use your life preserver as a raft
    2. Keep your face above the surface of the water as much as possible
    3. Both 1 and 2 above
    4. Swim underwater until you are clear of the oil

44. You can use which of the following items to help you stay afloat?

    1. Seabags
    2. Pillow cases
    3. Mattress covers
    4. All of the above

45. The Navy uses a maximum of how many types of life preservers?

    1. One
    2. Two
    3. Three
    4. Four

46. Which of the following benefits does the collar on the vest-type life preserver provide?

    1. Additional insulation against chill in cold water
    2. Additional buoyancy to keep the head upright
    3. A place to store survival equipment
    4. A place to attach a retrieving line

47. The wooden toggle and line of an inflatable life preserver are used to

    1. permit easy removal of the preserver
    2. make the preserver fit snugly around your body
    3. attach yourself to a life raft or another person
    4. provide a means for retrieving you out of the water

48. When using a pin-on, battery-operated light on a life preserver, you should replace the battery at what minimum interval?

    1. 18 months
    2. 12 months
    3. 3 months
    4. 6 months

49. You may launder the fibrous glass pads in addition to the outer cover of the inherently buoyant preserver.

    1. True
    2. False

50. In addition to inspecting your inflatable life preserver each time you wear it, you should also inspect it for air leaks at what minimum interval?

    1. Daily
    2. Weekly
    3. Monthly
    4. Quarterly

51. The survival kits in large lifeboats are designed to sustain 15 to 20 people on regular rations for what maximum number of days?

    1. 20
    2. 15
    3. 10
    4. 5

52. You can identify the red flare end of a Mk 13 Mod 0 distress signal kit in the dark by which of the following indicators?

    1. A metal pull ring
    2. Beadlike projections
    3. The absence of beadlike projections
    4. The absence of a metal pull ring

53. Under good weather conditions, the dye marker will retain some color for what maximum length of time?

    1. 1 hour
    2. 2 hours
    3. 3 hours
    4. 4 hours

54. In a lifeboat, what piece of survival equipment is provided to assist you in filling containers with freshwater?

    1. Rain catcher tube
    2. Rain cistern
    3. Rain bucket
    4. Funnel

55. In a lifeboat, continuous exposure to the elements will not harm which of the following pieces of survival or signal equipment?

    1. Sponges
    2. Knives
    3. Flashlights
    4. Signal mirrors

56. In a lifeboat, you may survive on as little as how much water a day?

    1. 10 ounces
    2. 8 ounces
    3. 6 ounces

57 People are known to live for 4 weeks or longer in a survival situation if a sufficient amount of water is available.

    1. True
    2. False

58. Which of the following forms of sea life or birds should NEVER be eaten?

    1. Sharks
    2. Jellyfish
    3. Seabirds
    4. Sea turtles

59. Which of the following sea birds is/are edible?

    1. Albatrosses
    2. Gannets
    3. Terns
    4. All of the above

60. At what minimum water temperature are you at risk for a serious condition called *hypothermia*?

    1. 75°F
    2. 80°F
    3. 85°F
    4. 95°F

61. What means should you use to treat frostbitten hands and fingers?

    1. Rub them
    2. Exercise them
    3. Place them in cold water
    4. Place them in contact with a warm part of your body

62. Assume that you have just fallen overboard. What is the most important survival technique for you to remember?

    1. Remain calm and try to stay afloat
    2. Swim after the ship and call for help
    3. Remove your shoes and other heavy clothing
    4. Keep moving your arms and feet for protection from sharks

63. Helicopters use a maximum of how many basic devices for recovering personnel in the water?

    1. One
    2. Two
    3. Three
    4. Four

64. If you fall overboard and sharks are in the area, you should take which of the following actions?

    1. Swim away from the area
    2. Assume the jellyfish position and try to remain motionless
    3. Float on your back and use as little arm and leg movement as possible
    4. Tread water and make wide sweeping movements with your arms to splash water

65. In a group survival situation, good leadership will lessen the effects of which of the following emotional states?

    1. Panic
    2. Confusion
    3. Disorganization
    4. All of the above

66. At least how many quarts of water are required each day to maintain your efficiency?

    1. 1
    2. 2
    3. 3
    4. 4

67. Liquids obtained from vines are undrinkable if they have which of the following characteristics?

    1. White sap
    2. Very dark in color
    3. Both 1 and 2 above
    4. Slightly pink color

68. In a survival situation with less than 1 quart of water per day, you should avoid eating what type of food?

    1. High-carbohydrate
    2. Highly flavored
    3. Excessively sweetened
    4. High-protein

69. Under survival conditions, you would obtain the most food value from which of the following sources?

    1. Nuts
    2. Tubers
    3. Insects
    4. Animal flesh

70. To kill any parasites scavenger birds such as buzzards and vultures might carry, you should boil the birds for what minimum length of time?

    1. 5 minutes
    2. 10 minutes
    3. 15 minutes
    4. 20 minutes

71. When selecting a route for evasion travel, you should always choose the easiest route.

    1. True
    2. False

72. Which of the following sources is best for determining directions under survival conditions?

    1. The position of the stars and the sun
    2. The growth of moss on trees and rocks
    3. The direction of movement of birds and animals
    4. The direction of water flow in streams and rivers

73. During evasion, if you can no longer proceed on your own because of illness, which of the following actions should you take?

    1. Seek help from friendly natives
    2. Display a white flag or other white object
    3. Surrender to enemy troops by walking toward them with raised arms
    4. Select a hiding place and stay there until you are well enough to travel

74. After evading the enemy and returning to an area with friendly forces, you should take which of the following actions?

    1. Fire your weapon three times and give your name
    2. Arouse their attention by shouting at them
    3. Display a white flag or other white object
    4. Try to get through their lines at night

75. You should give friendly frontline troops which, if any, of the following information about your evasion experiences?

    1. All information they request
    2. Immediate tactical information
    3. A description of the methods you used during evasion
    4. None of the above