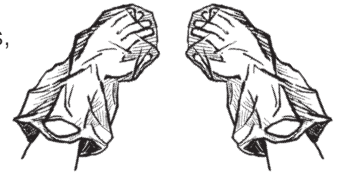


# First Aid

## BASIC CLEANLINESS AND PROTECTION

When a person is hurt, the most important thing is to help. But you also must protect yourself from HIV and other blood-borne diseases. When someone is bleeding:

1. If possible, show the injured person how to stop the bleeding themselves, by applying direct pressure on the wound.
2. If they cannot do this, keep the blood off yourself by wearing gloves or a clean plastic bag on your hands, and placing a clean, thick cloth directly over the wound before applying pressure.



Avoid objects soiled with blood. Be careful not to prick yourself with needles or other sharp objects around the person you are helping. Cover cuts or other wounds with dry, clean bandages to protect them.

Be especially careful when you have to provide first aid where there are many people wounded from an accident or fighting.

If you do get blood or other body fluids on you, wash your hands with soap and water as soon as possible. If other parts of your body were touched by body fluids (especially your eyes), wash them thoroughly with lots of water.

## FEVER

When a person's body temperature is too hot, he has a *fever*. Fever is not a sickness, but a sign of many different sicknesses. A **high fever (over 39°C or over 102°F) can be a sign of a dangerous problem, especially in a small child.**

### When a person has a fever:

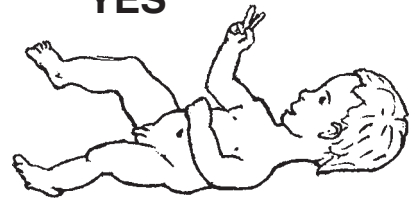
1. Uncover him completely. Small children should be undressed completely and left naked until the fever goes down.

**Never wrap the child in clothing or blankets. To wrap up a child with fever is dangerous.**

Fresh air or a breeze will not harm a person with fever. On the contrary, a fresh breeze helps lower the fever.

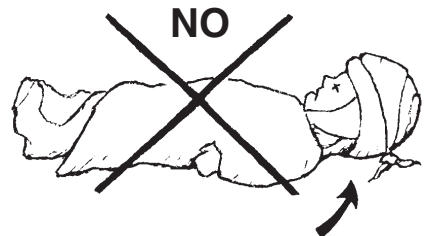
2. Also take aspirin to lower fever (see p. 380). For children, it is safer to give acetaminophen (paracetamol, p. 380). Be careful not to give too much.

**YES**



This helps the fever go down.

**NO**



This makes the fever go up.

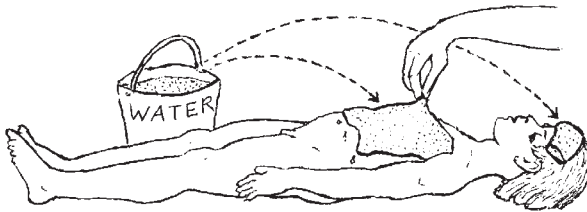
3. Anyone who has a fever should **drink lots of water**, juices, or other liquids. For small children, especially babies, drinking water should be boiled first (and then cooled). Make sure the child passes urine regularly. If she does not pass much urine, or the urine is dark, give a lot more water.
4. When possible, find and treat the cause of the fever.

## Very High Fevers

A very high fever can be a sign of a dangerous illness. Bring the fever down as soon as you can and treat the cause of the fever, if possible. High fever can cause seizures (convulsions) and is most dangerous for small children.

### **When a fever goes very high (over 40°C), it must be lowered at once:**

1. Put the person in a cool place.
2. Remove all clothing.
3. Fan him.
4. Pour water over him, or put cloths soaked in cool water on his chest and forehead. Fan the cloths and change them often to keep them cool. Continue to do this until the fever goes down (below 38°C).



5. Give him plenty of cool (not cold) water to drink.
6. Give a medicine to bring down fever. Aspirin or acetaminophen works well, **but for children under 12 years old it is safer to use acetaminophen.**

*Dosage* for acetaminophen (using 500 mg adult tablets):

Persons over 12 years: 2 tablets every 4 to 6 hours

Children 8 to 12 years: 1 tablet every 4 to 6 hours

Children 3 to 8 years: ½ tablet every 4 to 6 hours

Children 1 to 3 years: ¼ tablet every 4 to 6 hours

Babies under 1 years: ⅛ tablet every 4 to 6 hour

Do not give more than 4 doses in 24 hours.

If a person with fever cannot swallow the tablets, grind them up, mix the powder with some water, and put it up the anus as an *enema* or with a syringe without the needle.

**If a high fever does not go down soon, if the person is unconscious, or if seizures (convulsions) begin, continue cooling with water and seek medical help at once.**

## SHOCK

Shock is a life threatening condition that can result from a large burn, losing a lot of blood, severe illnesses, dehydration, or severe allergic reaction. Heavy bleeding inside the body—although not seen—can also cause shock.

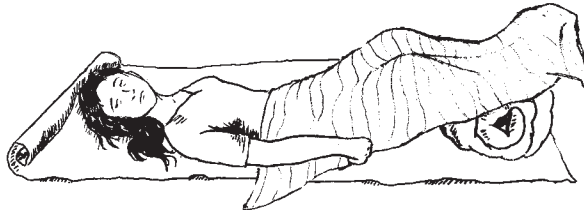
### *Signs of SHOCK:*

- weak, rapid pulse (more than 100 beats per minute for an adult, more than 140 beats per minute for a child over 2 years old, and more than 190 beats per minute for a baby)
- “cold sweat”: pale, cold, damp skin
- blood pressure drops dangerously low
- mental confusion, weakness, or loss of consciousness.

### *What to do to prevent or treat shock:*

At the first sign of shock, or if there is risk of shock . . .

- ◆ Loosen any belts or tight clothing the person may be wearing.
- ◆ Have the person lie down with his feet a little higher than his head. However, if he has a severe head injury, put him in a half sitting position (p. 91).



- ◆ Stop any bleeding. Use gloves or a plastic bag to keep the blood off your hands.
- ◆ If the person feels cold, cover him with a blanket.
- ◆ If he is conscious and able to drink, give him sips of water or other drinks. If he looks dehydrated, give a lot of liquid, and Rehydration Drink (p. 152). If he does not respond quickly, give intravenous fluids if you know how.
- ◆ Treat his wounds, if he has any.
- ◆ If he is in pain, give him aspirin or another pain medicine—but not one with a *sedative* such as codeine.
- ◆ Keep calm, reassure the person, and seek medical help.

If the person is unconscious:

- ◆ Lay him on his side with his head low.
- ◆ If he has vomited, clear his mouth immediately. Be sure his head is low, tilted back, and to one side (see above) so he does not breathe vomit into his lungs. If he has a neck or spine injury, do not tilt his head or move his back.
- ◆ Do not give him anything by mouth until he becomes conscious.
- ◆ If you or someone nearby knows how, give intravenous solution (normal saline) at a fast drip.
- ◆ Seek medical help fast.

## LOSS OF CONSCIOUSNESS

Common causes of loss of consciousness are:

- heavy use of drugs or alcohol
- a hit on the head (getting knocked out)
- shock (p. 77)
- seizures (p. 178)
- poisoning (p. 103)
- fainting (from fright, weakness, low blood sugar, etc.)
- heat stroke (p. 81)
- stroke (p. 327)
- heart attack (p. 325)



If a person is unconscious and you do not know why, **immediately check each of the following:**

1. Is he **breathing** well? If not, tilt his head way back and pull the jaw and tongue forward. If something is stuck in his throat, pull it out. If he is not breathing, use mouth-to-mouth breathing at once (see p. 80).

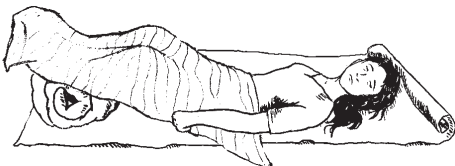
2. Is he **losing a lot of blood?** If so, control the bleeding (see p. 82).

3. Is he in **shock** (moist, pale skin; weak, rapid pulse)? If so, lay him with his head lower than his feet and loosen his clothing (see p. 77).

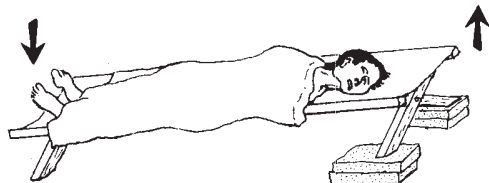
4. Could it be **heat stroke** (no sweat, high fever, hot, red skin)? If so, shade him from the sun, keep his head higher than his feet, and soak him with cold water (ice water if possible) and fan him (see p. 81).

### How to position an unconscious person:

very pale skin:  
(shock, fainting, etc.)



red or normal skin:  
(heat stroke, stroke, heart problems, head injury)



### If there is any chance that the unconscious person is badly injured:

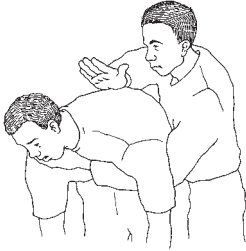
It is best not to move him until he becomes conscious. If you have to move him, do so with great care, because if his neck or back is broken, any change of position may cause greater injury (see p. 100).

Look for wounds or broken bones, but move the person as little as possible. Do not bend his back or neck.

**Never give anything by mouth to a person who is unconscious.**

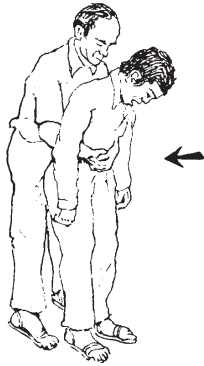
## WHEN SOMETHING GETS STUCK IN THE THROAT

When food or something else sticks in a person's throat and he cannot breathe, **quickly** do this:



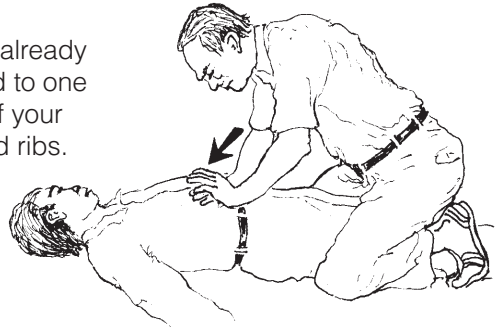
- ◆ Bend him over at the waist.
- ◆ Use the palm of your hand to give 5 firm blows on the middle of the back.

If this does not work:



- ◆ Stand behind him and wrap your arms around his waist.
- ◆ Put your fist against his belly above the navel and below the ribs.
- ◆ Press into his belly with a **sudden** strong upward jerk. This forces the air from his lungs and should free his throat. Repeat several times if necessary.  
(For fat persons, pregnant women, persons in wheelchairs, or small children, place hands on the chest, not the belly.)

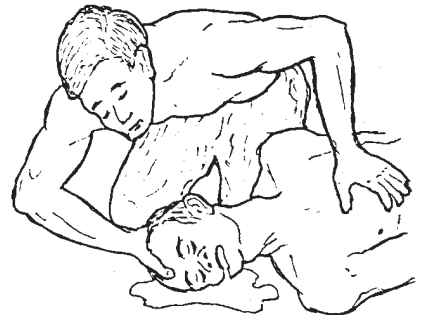
If the person is a lot bigger than you, or is already unconscious, lay him on his back, tilt his head to one side, and sit over him like this, with the heel of your lower hand on his belly between his navel and ribs. Make a quick, strong upward push. Repeat several times if necessary. If he still cannot breathe, try **mouth-to-mouth breathing** (see next page).



## DROWNING

A person who has stopped breathing has only 4 minutes to live! **Act fast!**

**Start mouth-to-mouth breathing at once** (see next page)—if possible, even before the drowning person is out of the water, as soon as it is shallow enough to stand.



**ALWAYS START MOUTH-TO-MOUTH BREATHING AT ONCE.**

## WHAT TO DO WHEN BREATHING STOPS: MOUTH-TO-MOUTH BREATHING

Common causes for breathing to stop are:

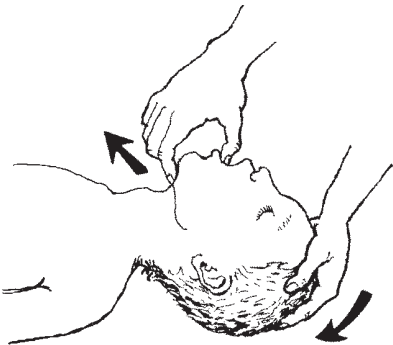
- something stuck in the throat
- the tongue or thick mucus blocking the throat of an unconscious person
- drowning, choking on smoke, or poisoning
- a strong blow to the head or chest
- a heart attack

A person can die within 4 minutes if he does not breathe.

**If a person stops breathing,  
begin mouth-to-mouth breathing IMMEDIATELY.**

Do all of the following as quickly as you can:

**Step 1:** Quickly use a finger to remove anything stuck in the mouth or throat.



**Step 2:** Quickly but gently lay the person face up. Gently tilt his head back, and pull his jaw forward.

**Step 3:** Pinch his nostrils closed with your fingers, open his mouth wide, cover his mouth with yours, and blow strongly into his lungs so that his chest rises. Pause to let the air come back out and blow again. Repeat about once every 5 seconds. With babies and small children, cover the nose and mouth with your mouth and breathe **very gently** about once every 3 seconds.



Continue **mouth-to-mouth breathing** until the person can breathe by himself, or until there is no doubt he is dead. Sometimes you must keep trying for an hour or more.

**Note:** Unless there is an open sore or bleeding in the mouth, it is not possible to give or get hepatitis or HIV from mouth-to-mouth breathing.

## EMERGENCIES CAUSED BY HEAT

### Heat Cramps

In hot weather people who work hard and sweat a lot sometimes get painful cramps in their legs, arms, or stomach. These occur because the body lacks salt.

**Treatment:** Put a teaspoon of salt in a liter of boiled water and drink it or give rehydration drink (p. 152). Repeat once every hour until the cramps are gone. Have the person sit or lie down in a cool place and gently massage the painful areas.



### Heat Exhaustion

**Signs:** A person who works and sweats a lot in hot weather may become very pale, weak, and nauseous, and perhaps feel faint. The skin is cool and moist. The pulse is rapid and weak. The temperature of the body may rise but is usually unchanged (see p. 31).

**Treatment:** Have the person lie down in a cool place, raise his feet, and rub his legs. Give salt water to drink: ½ teaspoon of salt in a liter of water or give rehydration drink. (Give nothing by mouth if a person is unconscious.)

### Heat Stroke

Heat stroke is not common, but is very dangerous. It occurs especially in older people, very fat people, and *alcoholics* during hot weather.

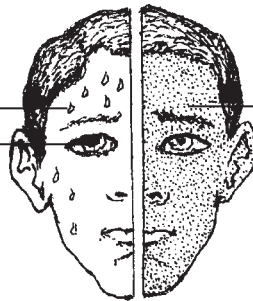
**Signs:** The skin is red, very hot, and dry. Not even the armpits are moist. The person has a very high fever, sometimes more than 42°C, and a rapid heartbeat. Often he is unconscious.

**Treatment:** **The body temperature must be lowered immediately.** Put the person in the shade. Soak him with cold water (ice water if possible) and fan him. Continue until the fever drops. Seek medical help.

#### DIFFERENCES BETWEEN HEAT EXHAUSTION AND HEAT STROKE:

##### HEAT EXHAUSTION

- sweaty, pale, cool skin
- large pupils
- headache
- thirst
- weakness



##### HEAT STROKE

- dry, red, hot skin
- high fever
- fast pulse, fast breathing
- the person is very ill or unconscious

For emergencies caused by cold, see pages 410 and 411.

## HOW TO CONTROL BLEEDING FROM A WOUND

1. Raise the injured part.

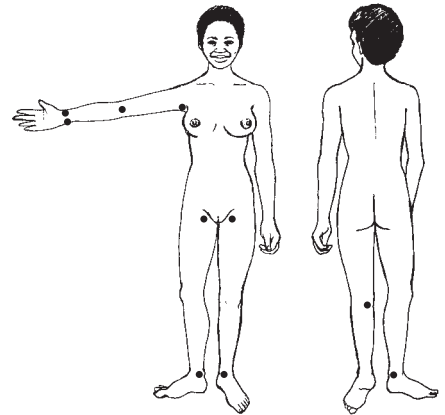


2. With a clean thick cloth (or your hand if there is no cloth) press directly on the wound. Keep pressing until the bleeding stops. This may take 20 minutes or sometimes an hour or more. This type of **direct pressure** will stop the bleeding of nearly all wounds—sometimes even when a part of the body has been cut off.

Occasionally direct pressure will not control bleeding, especially when the wound is very large or an arm or leg has been cut off. If this happens:

- ◆ Keep pressing on the wound.
- ◆ Keep the wounded part as high as possible.
- ◆ You can maintain pressure by binding the wound tightly with a bandage or a piece of clean clothing.
- ◆ Squeeze at pressure points on the artery that brings blood to that part of the body. Pressure points are where, using the flat part of your fingers, you can push the artery against a bone to shut off or slow down the flow of blood.

### PRESSURE POINTS



- ◆ Keep pressing for 20 minutes before looking to see if the bleeding has stopped. Keep pressing with your other hand on the wound itself. Applying pressure is hard work—do not give up!

### PRECAUTIONS:

- Using a tourniquet to stop the bleeding usually results in total loss of the arm or leg. Only use a tourniquet if you have no other option. Never use a string or wire. It can cut right through the skin.
- **Never** use dirt, kerosene, or lime to stop bleeding.
- When bleeding or injury is severe, raise the feet and lower the head to prevent shock (see p. 77).
- Keep blood from getting into any cuts or sores on your skin (see p. 75).



## HOW TO STOP NOSEBLEEDS

1. Sit quietly and upright.
2. Blow the nose gently to remove mucus and blood.
3. Have the person pinch the nose firmly for 10 minutes or until the bleeding has stopped.



If this does not control the bleeding . . .



Pack the nostril with a wad of cotton, leaving part of it outside the nose. If possible, first wet the cotton with *Vaseline* or lidocaine with epinephrine (p. 381).



Then pinch the nose firmly again. Do not let go for 10 minutes or more. Do not tip the head back.

Leave the cotton in place for a few hours after the bleeding stops; then take it out very carefully.

In older persons especially, bleeding may come from the back part of the nose and cannot be stopped by pinching it. In this case, have the person hold a cork, corn cob, or other similar object between his teeth and, leaning forward, sit quietly and try not to swallow until the bleeding stops. (The cork helps keep him from swallowing, and that gives the blood a chance to clot.)



### *Prevention:*

If a person's nose bleeds often, smear a little *Vaseline* inside the nostrils twice a day. Or sniff water with a little salt in it (see p. 164).

Eating oranges, tomatoes, and other fruits may help to strengthen the blood vessels so that the nose bleeds less.

## CUTS, SCRAPES, AND SMALL WOUNDS

**Cleanliness is of first importance in preventing infection and helping wounds to heal.**

### To treat a wound:

First, wash your hands very well with soap and water.

If the wound is bleeding or oozing, wear gloves or plastic bags on your hands. Wash the skin around the wound with soap and cool, boiled water.

Now wash the wound well with cool, boiled water (and soap, if the wound has a lot of dirt in it. Soap helps clean but can damage the flesh).

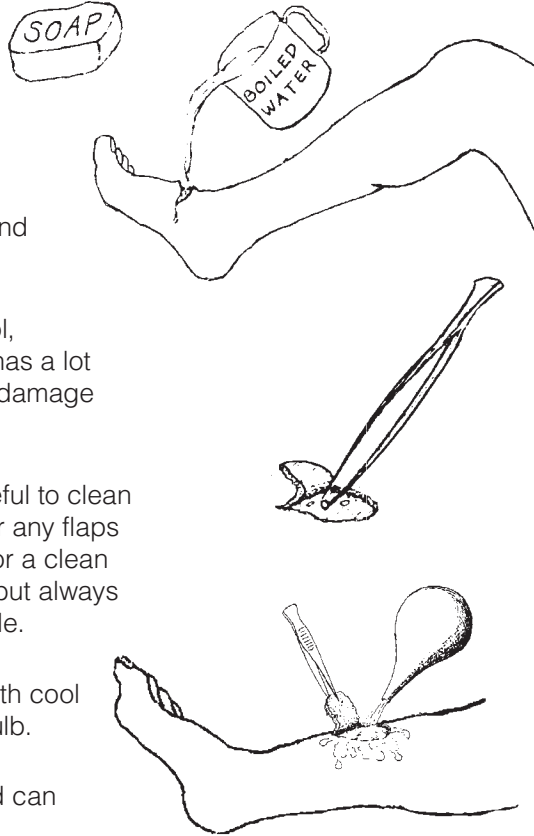
When cleaning the wound, be careful to clean out all the dirt. Lift up and clean under any flaps of skin. You can use clean tweezers, or a clean cloth or gauze, to remove bits of dirt, but always boil them first to be sure they are sterile.

If possible, squirt out the wound with cool boiled water in a syringe or suction bulb.

Any bit of dirt that is left in a wound can cause an infection.

After the wound has been cleaned, apply a thin layer of antibiotic cream like *Neosporin* if you have it. Then place a piece of clean gauze or cloth over the top. It should be light enough so that the air can get to the wound and help it to heal. Change the gauze or cloth every day and look for signs of infection (see p. 88).

If you have a dirty wound or a puncture wound, and have never had a tetanus immunization (see p. 390), get one within 2 days.



**NEVER put animal or human feces or mud on a wound. These can cause dangerous infections, such as tetanus.**

**NEVER put alcohol, tincture of iodine, or Merthiolate directly into a wound; doing so will damage the flesh and make healing slower.**

## LARGE CUTS: HOW TO CLOSE THEM

A recent cut that is very clean will heal faster if you bring the edges together so the cut stays closed.

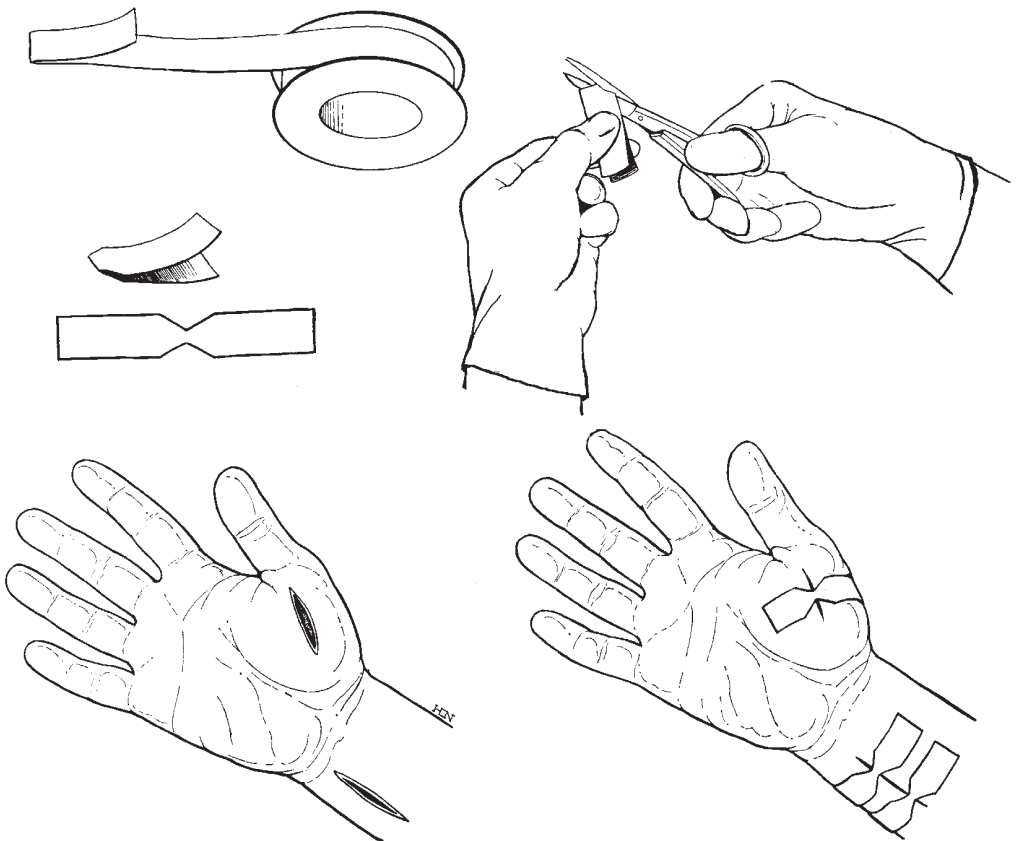
Close a deep cut only if all of the following are true:

- the cut is less than 12 hours old,
- the cut is very clean, and
- it is impossible to get a health worker to close it the same day.

Before closing the cut, wash it very well with cool, boiled water (and soap, if the wound is dirty). If possible, squirt it out with a syringe and water. Be absolutely sure that no dirt or soap is left hidden in the cut.

There are two methods to close a cut:

### BUTTERFLY BANDAGES OF ADHESIVE TAPE

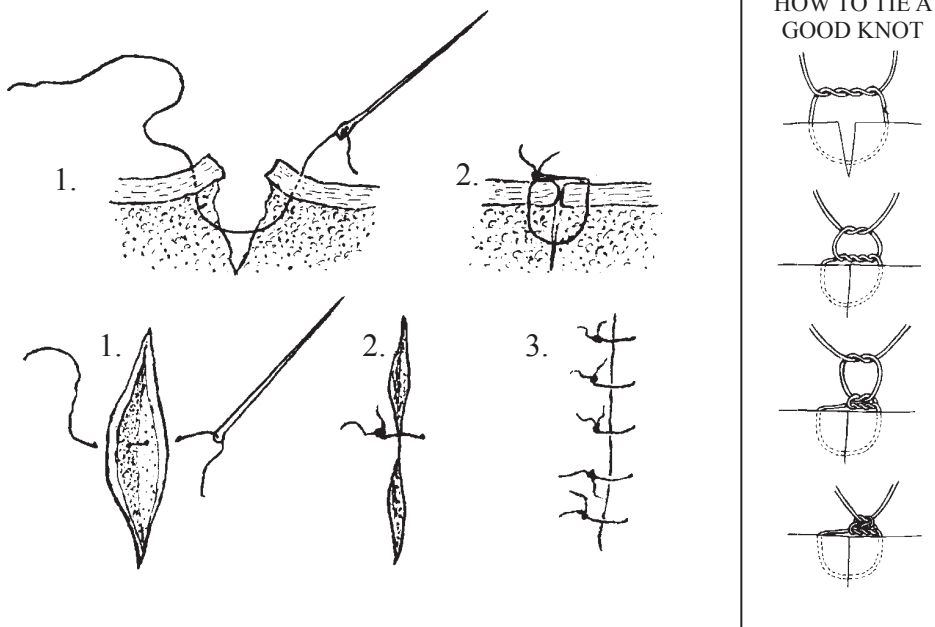


## STITCHES OR SUTURES WITH THREAD

To find out if a cut needs stitches see if the edges of the skin come together by themselves. If they do, usually no stitches are needed.

To stitch a wound:

- ◆ Boil a sewing needle and a thin thread (nylon or silk is best) for 20 minutes.
- ◆ Wash the wound with cool, boiled water, as has been described.
- ◆ Wash your hands very well with boiled water and soap.
- ◆ Sew the wound like this:



Make the first stitch in the middle of the cut, and tie it closed (1. and 2.).

If the skin is tough, hold the needle with a pair of pliers (or needle holder) that has been boiled.

Make enough other stitches to close the whole cut (3.).

Leave the stitches in place for 5 to 14 days (on the face 5 days; the body 10 days; the hand or foot 14 days). Then remove the stitches: cut the thread on one side of the knot and pull the knot until the thread comes out.

**WARNING:** Only close wounds that are very clean and less than 12 hours old. Old, dirty, or infected wounds must be left open. Bites from people, dogs, pigs, or other animals should also be left open. Closing these can cause dangerous infections.

**If the wound that has been closed shows any signs of infection, remove the stitches immediately and leave the wound open (see p. 88).**

## BANDAGES

Bandages are used to help keep wounds clean. For this reason, bandages or pieces of cloth used to cover wounds must always be clean themselves. Cloth used for bandages should be washed and then dried with an iron or in the sun, in a clean, dust free place.

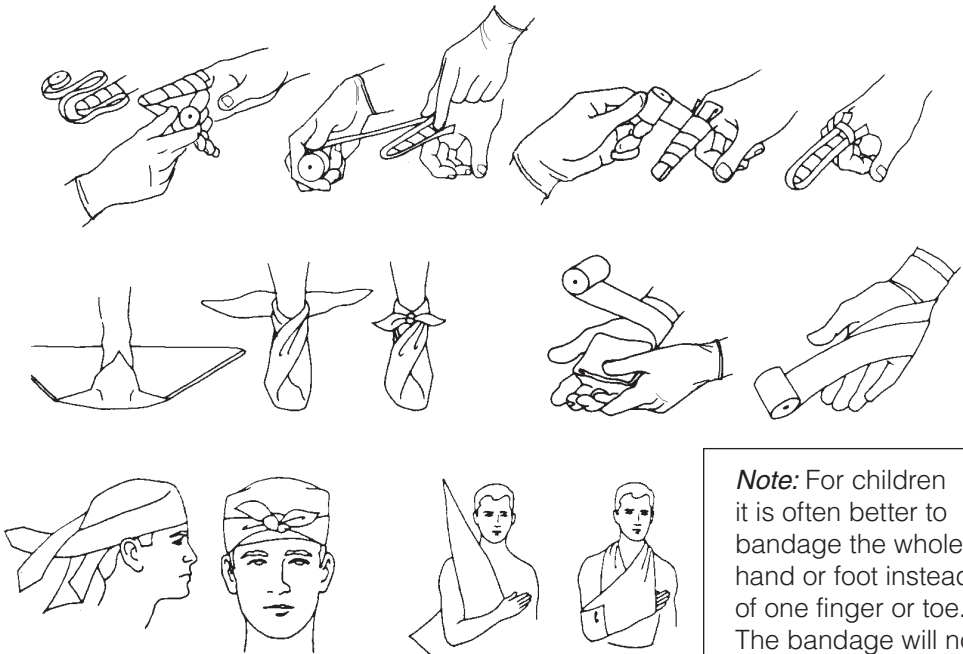
Make sure the wound has first been cleaned, as shown on p. 84. If possible, cover the wound with a sterile gauze pad before bandaging. These pads are often sold in sealed envelopes in pharmacies.

Or prepare your own sterile gauze or cloth. Wrap it in thick paper, seal it with tape, and bake it for 20 minutes in an oven. Putting a pan of water in the oven under the cloth will keep it from charring.

If a bandage gets wet or dirt gets under it, take the bandage off, wash the cut again, and put on a clean bandage. Change the bandage every day.

**It is better to have no bandage at all than one that is dirty or wet.**

### EXAMPLES OF BANDAGES:



**Note:** For children it is often better to bandage the whole hand or foot instead of one finger or toe. The bandage will not come off as easily.

**CAUTION:** Be careful that a bandage that goes around a limb is not so tight it cuts off the flow of blood.

Many small scrapes and cuts do not need bandages. They heal best if washed with soap and water and left open to the air. The most important thing is to **keep them clean.**

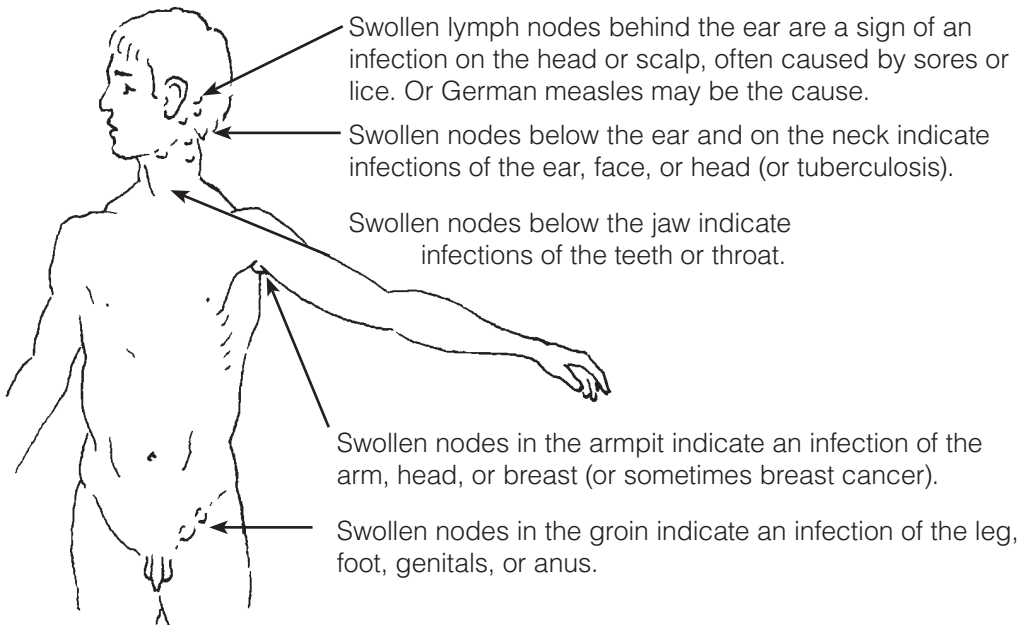
## INFECTED WOUNDS: HOW TO RECOGNIZE AND TREAT THEM

### A wound is infected if:

- it becomes **red, swollen, hot,** and **painful**
- it has **pus**
- or if it begins to **smell bad.**

### The infection is spreading to other parts of the body if:

- it causes **fever**
- there is a **red line above the wound**
- or if the **lymph nodes become swollen and tender.** Lymph nodes are little traps for germs that form small lumps under the skin when they get infected.



### *Treatment of infected wounds:*

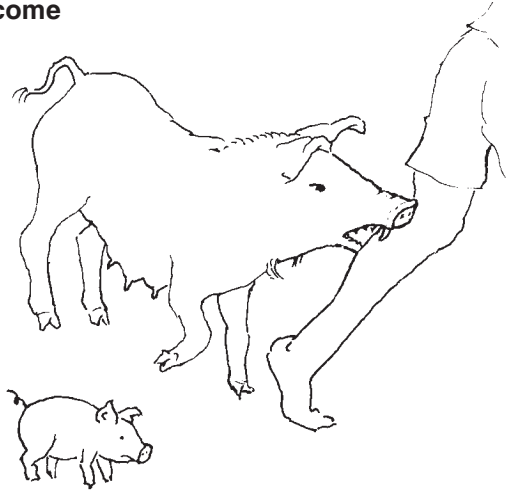
- ◆ Put hot compresses over the wound for 20 minutes 4 times a day. Or hold an infected hand or foot in a bucket of hot water.
- ◆ Keep the infected part at rest and elevated (raised above the level of the heart).
- ◆ If the infection is severe, use an antibiotic like dicloxacillin (p. 350), or clindamycin (p. 358), or an injectable penicillin (see pages 351 to 353), and also give metronidazole (p. 370).

**WARNING:** If the wound has a bad smell, if brown or gray liquid oozes out, or if the skin around it turns black and forms air bubbles or blisters, this may be gangrene. Seek medical help fast. Meanwhile, follow the instructions for gangrene on p. 213.

## WOUNDS THAT ARE LIKELY TO BECOME DANGEROUSLY INFECTED

**These wounds are most likely to become dangerously infected:**

- puncture wounds and other deep wounds that do not bleed much
- wounds made where animals are kept: in corrals, pig pens, etc.
- large wounds with severe mashing or bruising
- bites, especially from pigs, dogs, or people
- bullet wounds



**Special care for this type of “high risk” wound:**

1. Wash the wound well with boiled water and soap. **Remove all pieces of dirt, blood clots, and dead or badly damaged flesh.** Squirt out the dirt using a syringe or suction bulb.
2. If the wound is very deep or if it is from a knife or bullet, give an antibiotic such as cloxacillin (p. 350) or clindamycin (p. 358).
3. If the wound is a bite, give an antibiotic such as amoxicillin with clavulanic acid (p. 353), penicillin (p. 351), doxycycline (p. 355), or cotrimoxazole (p. 357). Also give metronidazole (p. 370).
4. **Never** close this type of wound with stitches or butterfly bandages. **Leave the wound open.** If it is very large, a skilled health worker or a doctor may be able to close it later.

The danger of tetanus is very great in people who have not been vaccinated against this deadly disease. To lower the risk, a person who has not been completely vaccinated against tetanus, or not had a tetanus booster within 5 years, should get a tetanus vaccination (p. 147) and, if possible, an injection of tetanus immune globulin (p. 390). If the wound is from an animal bite and there is a chance of rabies (see p. 181), get injections of rabies vaccine and rabies immunoglobulin right away.

## BULLET, KNIFE, AND OTHER SERIOUS WOUNDS



**Danger of infection:** Any deep bullet or knife wound runs a high risk of dangerous infection. For this reason an antibiotic, such as cloxacillin (p. 350) or clindamycin (p. 358) should be used at once.

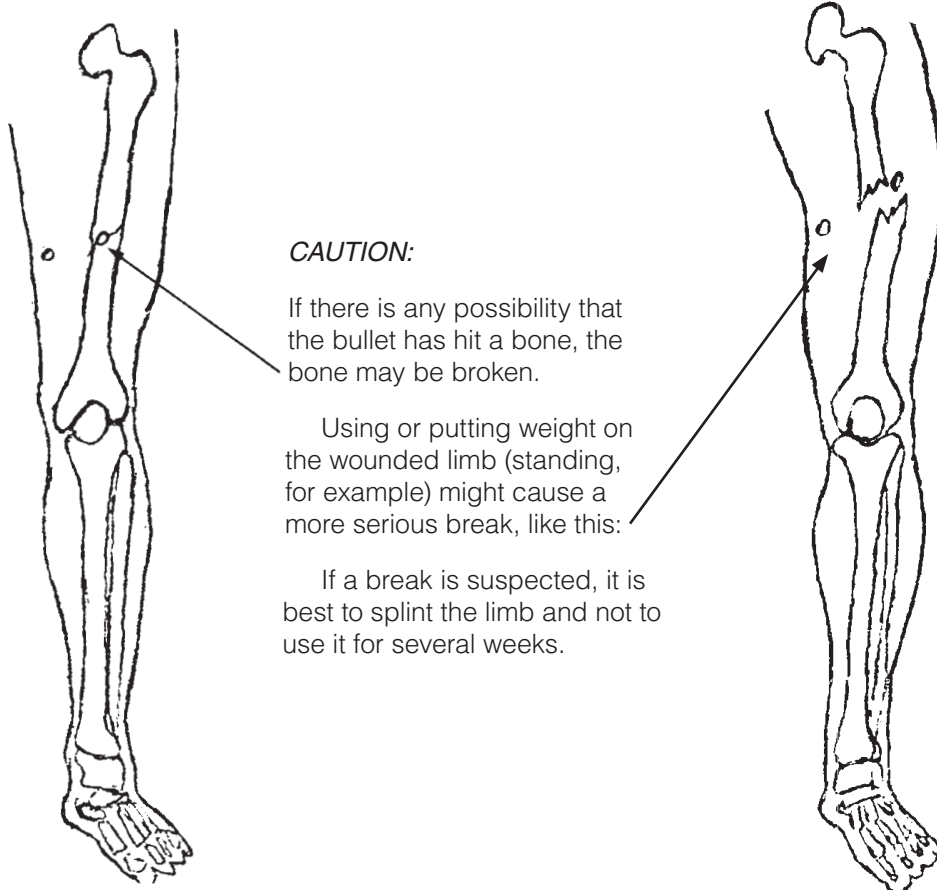
Persons who have not been vaccinated against tetanus should, if possible, be given an injection of antitetanus immunoglobulin (p. 389), and also be vaccinated against tetanus.

If possible, seek medical help.

### Bullet Wounds in the Arms or Legs



- ◆ If the wound is bleeding a lot, control the bleeding as shown on page 82.
- ◆ If the bleeding is not serious, let the wound bleed for a short while. This will help clean it out.
- ◆ Wash the wound with cool, boiled water. In the case of a gunshot wound, wash the surface (outside) only. It is usually better not to poke anything into the hole. After cleaning, apply a clean bandage.
- ◆ Give antibiotics.



**CAUTION:**

If there is any possibility that the bullet has hit a bone, the bone may be broken.

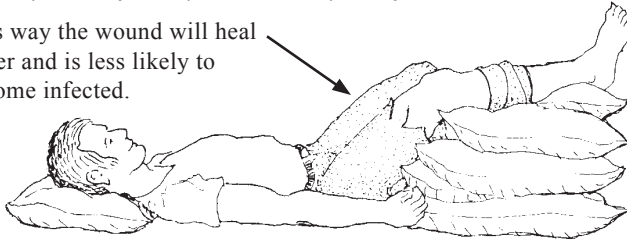
Using or putting weight on the wounded limb (standing, for example) might cause a more serious break, like this:

If a break is suspected, it is best to splint the limb and not to use it for several weeks.



**When the wound is serious,** raise the wounded part a little higher than the heart and keep the injured person completely still.

This way the wound will heal faster and is less likely to become infected.

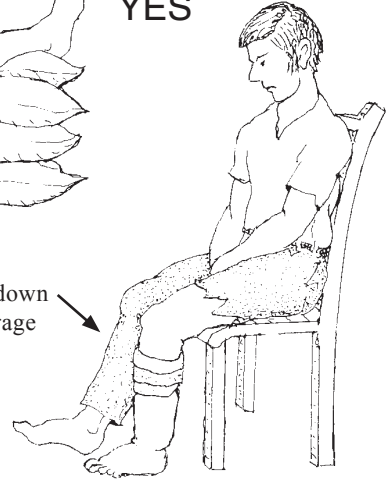


YES

Walking on an injured leg or sitting with the leg hanging down will slow healing and encourage infection.



NO

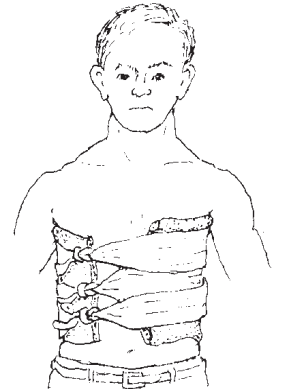


Make a sling like this to support an arm with a gunshot wound or other serious injury.

## Deep Chest Wounds

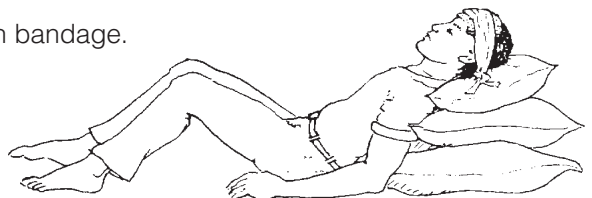
Chest wounds can be very dangerous. Seek medical help at once.

- ◆ If the wound has reached the lungs and air is being sucked through the hole when the person breathes, cover the wound at once so that no more air enters. Spread *Vaseline* or vegetable fat on a gauze pad or clean bandage and wrap it tightly over the hole like this: (**CAUTION:** If this tight bandage makes breathing more difficult, try loosening or removing it.)
- ◆ Put the injured person in the position in which he feels most comfortable.
- ◆ If there are signs of shock, give proper treatment (see p. 77).
- ◆ Give antibiotics and painkillers.



## Bullet Wounds in the Head

- ◆ Place the injured person in a half sitting position.
- ◆ Cover the wound with a clean bandage.
- ◆ Give antibiotics (penicillin).
- ◆ Seek medical help.



## Deep Wounds in the Abdomen

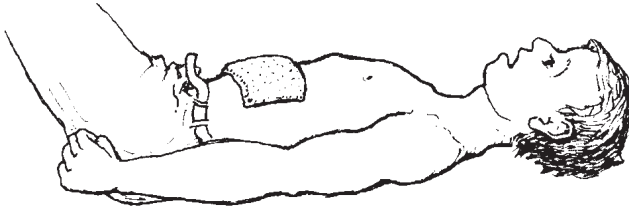
Any wound that goes into the belly or gut is dangerous. **Seek medical help immediately.** But in the meantime:

### Cover the wound with a clean bandage.

If the guts are partly outside the wound, cover them with a clean cloth soaked in lightly salted, cool, boiled water. Do not try to push the guts back in. Make sure the cloth stays wet.

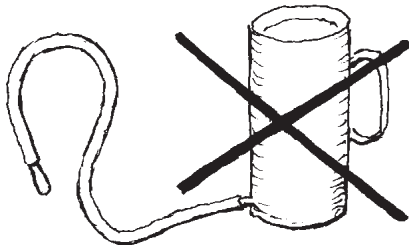


If the wounded person is in shock, raise his feet higher than his head.



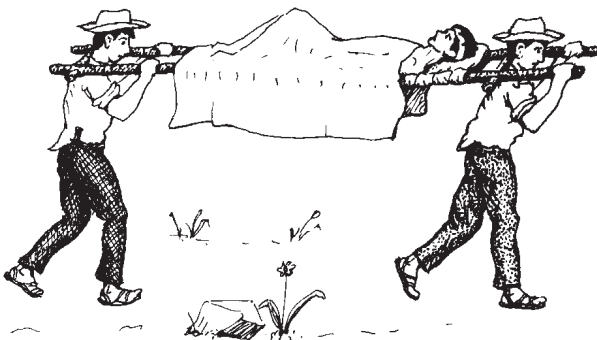
**Give absolutely nothing by mouth:** no food, no drink, not even water—unless it will take more than 2 days to get to a health center. Then give water only, in small sips.

If the wounded person is awake and thirsty, let him suck on a piece of cloth soaked in water.



**Never give an enema,** even if the belly swells up or the injured person does not move his bowels for days. If the gut is torn, an enema or purge can kill him.

Inject antibiotics (see the following page for instructions).



**DO NOT WAIT FOR A HEALTH WORKER.**

**IMMEDIATELY TAKE THE INJURED PERSON TO THE CLOSEST HEALTH CENTER OR HOSPITAL.** He will need an operation.

**MEDICINE FOR A WOUND THAT GOES INTO THE GUT**  
(Also for appendicitis or peritonitis)

**Until you can get medical help, do the following:**

Give metronidazole (p. 370), 500 mg every 6 hours.

**Also give one of these:**

Ciprofloxacin (p. 358) 500 mg every 12 hours  
OR inject ceftriaxone (p. 358), 2 g every 24 hours  
OR inject ampicillin (p. 352), 2 g every 6 hours  
AND gentamicin, 1.5 mg per kg, 3 times a day.

If you do not have these antibiotics in injectable form, give ampicillin or ciprofloxacin by mouth, together with metronidazole and very little water.

## EMERGENCY PROBLEMS OF THE GUT (ACUTE ABDOMEN)

*Acute abdomen* is a name given to a number of sudden, severe conditions of the gut for which prompt surgery is often needed to prevent death. Appendicitis, peritonitis, and gut obstruction are examples (see following pages). In women, pelvic inflammatory disease (often with vaginal discharge, see p. 243), or an ectopic pregnancy (p. 280) can also cause an acute abdomen. The exact cause of acute abdomen may be uncertain until a surgeon cuts open the belly and looks inside.

**If a person has continuous severe gut pain with vomiting,  
but does not have diarrhea, suspect an acute abdomen.**

### ACUTE ABDOMEN:

**Take to a hospital—  
surgery may be needed**

- continuous severe pain that keeps getting worse
- constipation and vomiting
- belly swollen, hard, person protects it
- severely ill

### LESS SERIOUS ILLNESS:

**Probably can be treated  
in the home or health center**

- pain that comes and goes (cramps)
- moderate or severe diarrhea
- sometimes signs of an infection, perhaps a cold or sore throat
- he has had pains like this before
- only moderately ill

**If a person shows signs of acute abdomen,  
get him to a hospital as fast as you can.**

## Obstructed Gut

An acute abdomen may be caused by something that blocks or obstructs a part of the gut, so that food and stools cannot pass. More common causes are:

- a ball or knot of roundworms (Ascaris, p. 140)
- a loop of gut that is pinched in a hernia (p. 177)
- a part of the gut that slips inside the part below it (intussusception)

Almost any kind of acute abdomen may show some signs of obstruction. Because it hurts the damaged gut to move, it stops moving.

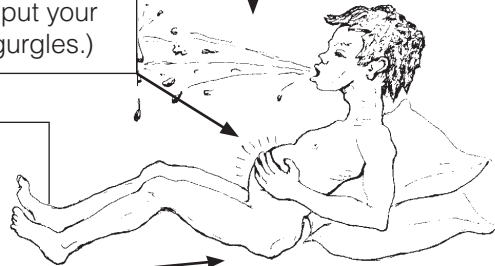
### *Signs of an obstructed gut:*

Steady, severe pain in the belly.

This child's belly is swollen, hard, and very tender. It hurts more when you touch it. He tries to protect his belly and keeps his legs doubled up. His belly is often silent. (When you put your ear to it, you hear no sound of typical gurgles.)

He is usually constipated (little or no bowel movements). If there is diarrhea, it is only a little bit. Sometimes all that comes out is some bloody mucus.

Sudden vomiting with great force! The vomit may shoot out a meter or more. It may have green bile in it or smell and look like feces.



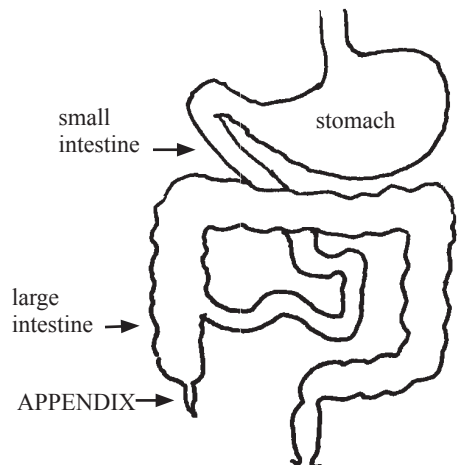
Get this person to a hospital **as fast as possible**. His life is in danger and surgery may be needed.

## Appendicitis, Peritonitis

These dangerous conditions often require surgery. Seek medical help fast.

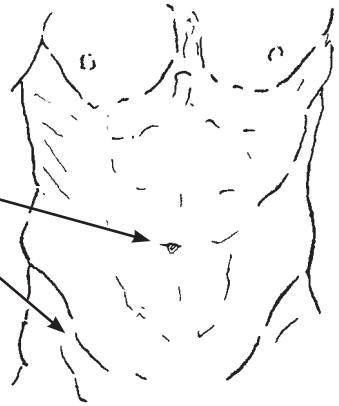
Appendicitis is an infection of the *appendix*, a finger shaped sac attached to the large intestine in the lower right hand part of the belly. An infected appendix sometimes bursts open, causing *peritonitis*.

Peritonitis is an acute, serious infection of the lining of the cavity or bag that holds the gut. It results when the appendix or another part of the gut bursts or is torn.

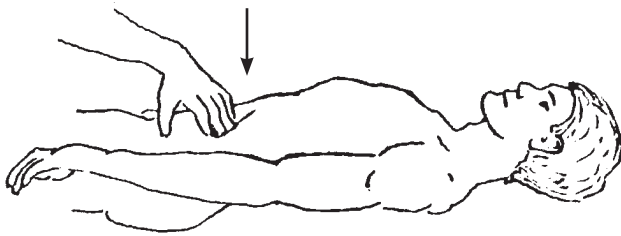


*Signs of appendicitis:*

- The main sign is a steady pain in the belly that gets worse and worse.
- The pain often begins around the navel (belly button) but it soon moves to the lower right side.
- There may be loss of appetite, vomiting, constipation, or a mild fever.



**TESTS FOR APPENDICITIS OR PERITONITIS:**

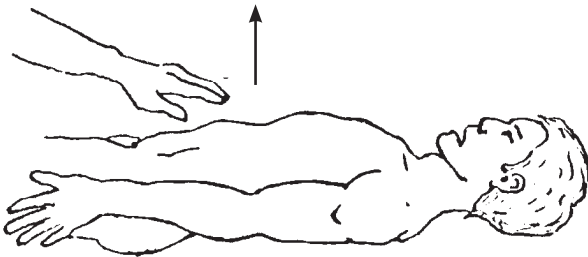


Have the person cough and see if this causes sharp pain in the belly.

Or, slowly but forcefully, press on the abdomen a little above the left groin until it hurts a little.

Then quickly remove the hand.

If a very sharp pain (*rebound pain*) occurs when the hand is removed, appendicitis or peritonitis is likely.

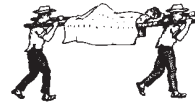


If no rebound pain occurs above the left groin, try the same test above the right groin.

**IF IT SEEMS THAT A PERSON HAS APPENDICITIS OR PERITONITIS:**

- ◆ **Seek medical help immediately.**

If possible, take the person where he can have surgery.



- ◆ **Do not give anything by mouth**

and do not give an enema. Only if the person begins to show signs of dehydration, give sips of water or Rehydration Drink (p. 152) made with sugar and salt—but nothing more.

- ◆ The person should rest very quietly in a half-sitting position.

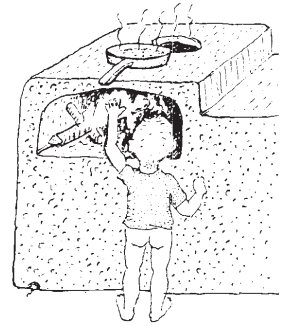
**Note:** When peritonitis is advanced, the belly becomes hard like a board, and the person feels great pain when his belly is touched even lightly. His life is in danger. Take him to a medical center immediately and on the way give him the medicines indicated at the top of page 93.

## BURNS

### Prevention:

Most burns can be prevented. Take special care with children:

- Do not let small babies go near a fire.
- Keep lamps and matches out of reach of children.
- Turn handles of pans on the stove so children cannot reach them.
- Keep chemicals in closed containers and keep them away from children.



## Minor Burns

A minor burn does not form blisters, is not on the face, hands, feet, or genitals, is not across a major joint (like the knee, elbow, hip, or shoulder), and is the only injury a person has sustained in a situation. To lessen the pain and damage caused by a minor burn, put the burned area in clean cool water (not ice or ice water) right away for no longer than 20 minutes. Then keep the burn clean and dry and take aspirin, paracetamol (acetaminophen), or ibuprofen for pain (avoid giving aspirin to children). Minor burns should heal by themselves within about 2 weeks.

## Severe Burns

Severe burns affect large areas or specific parts of the body (face, hands, feet, genitals, major joints), are deep (affect many layers of skin), or are combined with other injuries. When burns happen in children, it is important to treat them seriously.

To prevent infection, wash a severe burn with water that has been boiled and cooled, and add povidone-iodine if you have it (mix 4 parts boiled/cooled water with 1 part povidone-iodine). Scrub gently so the burn does not bleed and rinse with more boiled and cooled water. Then dry the burn by blotting with sterile gauze or sterilized cloth. Wearing sterile gloves, put one of the following directly on the burn to kill germs:

- silver sulfadiazine: Use a thin layer. Do not use for burns on eyelids or lips, or for burns on children younger than 2 months old.
- honey: Use a thin layer.
- sugar: Pour granulated sugar to cover the burn. Throw away any sugar that does not stick to the burn.

Then gently cover the burn with sterile gauze or sterilized cloth and hold in place with tape or bandages. If the burn is on an arm or leg, keep the limb elevated to lessen swelling. Clean the burn, reapply the antimicrobial agent, and change the covering once each day.

Never put ice, grease, fat, hides, coffee, herbs, or feces on a burn. If signs of infection appear—pus, bad smell, fever, or swollen lymph nodes—put an antibiotic ointment such as *Polysporin* (p. 372) on the burn and get medical attention as soon as possible. They will need surgery to clean the wound and intravenous antibiotics to treat the infection.

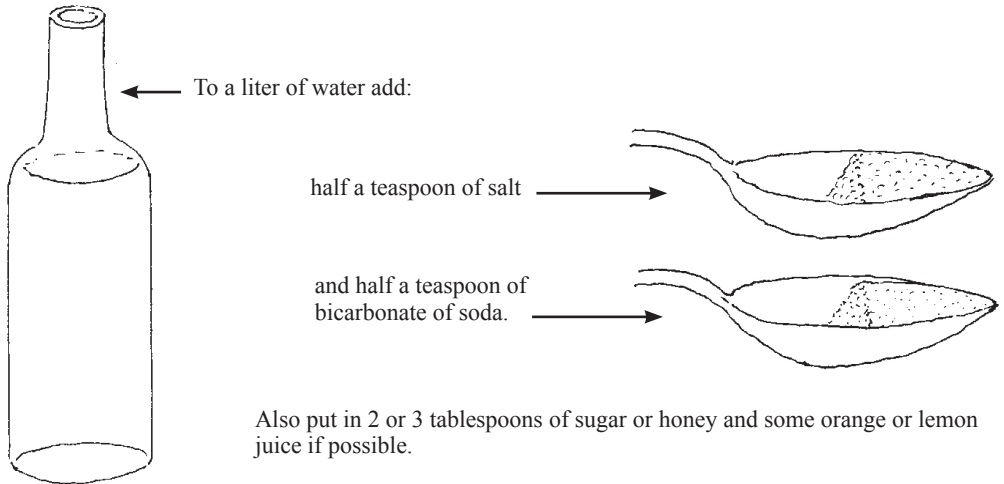
For more information about treating severe burns and preventing contractures during healing, see *Disabled Village Children*, Chapter 28.

## Special Precautions for Very Serious Burns

Any person who has been badly burned can easily go into *shock* (see p. 77) because of combined pain, fear, and the loss of body fluids from the oozing burn.

Comfort and reassure the burned person. Give him aspirin or acetaminophen for the pain and codeine if you can get it. Bathing open wounds in slightly salty water also helps calm pain. Put 1 teaspoon of salt for each liter of cool, boiled water.

Give the burned person plenty of liquid. If the burned area is large (more than twice the size of his hand), make up the following drink:

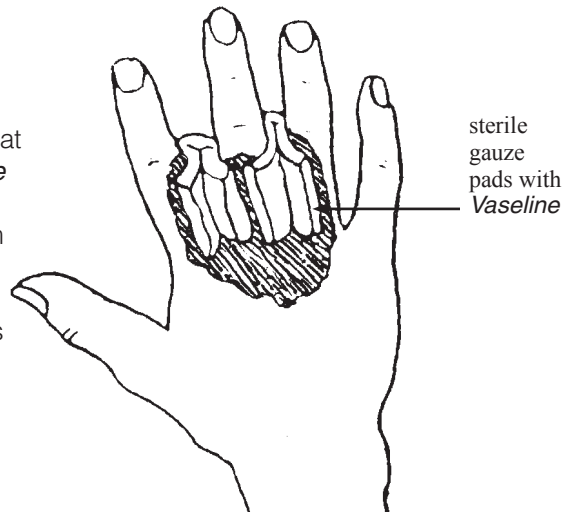


The burned person should drink this as often as possible, especially until he urinates frequently. He should drink 4 liters a day for a large burn, and up to 12 liters a day for a very large burn.

It is important for persons who are badly burned to eat foods rich in protein (see pages 110 and 111). No type of food needs to be avoided.

## Burns around the Joints

When someone is badly burned between the fingers, in the armpit, or at other joints, gauze pads with *Vaseline* on them should be put between the burned surfaces to prevent them from growing together as they heal. Also, fingers, arms, and legs should be straightened completely several times a day while healing. This is painful but helps prevent stiff scars that limit movement. While the burned hand is healing, the fingers should be kept in a slightly bent position.



## BROKEN BONES (FRACTURES)

When a bone is broken, the most important thing to do is **keep the bone in a fixed position**. This prevents further damage and lets it mend.

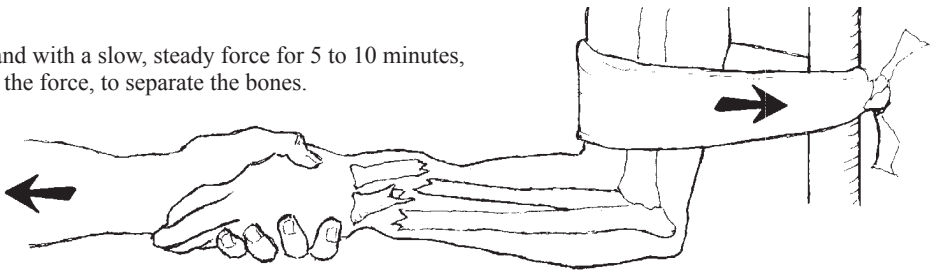
Before trying to move or carry a person with a broken bone, keep the bones from moving with splints, strips of bark, or a sleeve of cardboard. Later a plaster cast can be put on the limb at a health center, or perhaps you can make a cast according to local tradition (see p. 14).

**Setting broken bones:** If the bones seem more or less in the right position, it is better not to move them—this could do more harm than good.

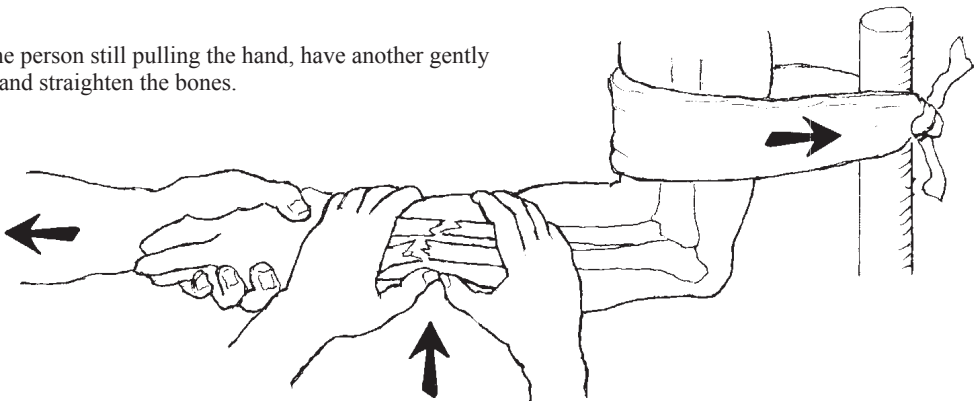
If the bones are far out of position and the break is recent, you can try to set or straighten them before putting on cast. The sooner the bones are set, the easier it will be. Before setting, if possible give diazepam to relax the muscles and calm pain (see p. 391). Or give codeine (p. 385).

### HOW TO SET A BROKEN WRIST

Pull the hand with a slow, steady force for 5 to 10 minutes, increasing the force, to separate the bones.



With one person still pulling the hand, have another gently line up and straighten the bones.



**WARNING:** It is possible to do a lot of damage while trying to set a bone. Ideally, it should be done with the help of someone with experience. Do not jerk or force.

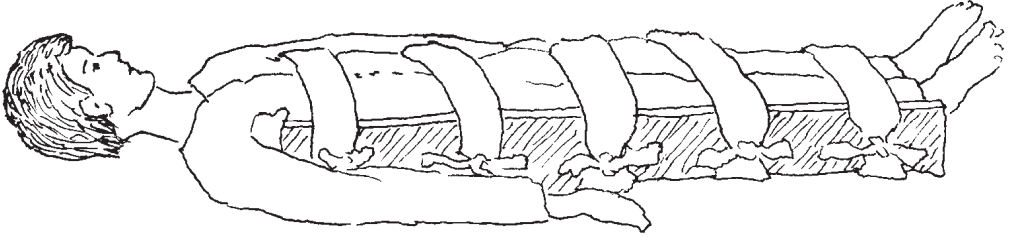
### HOW LONG DOES IT TAKE FOR BROKEN BONES TO HEAL?

The worse the break or the older the person, the longer healing takes. Children's bones mend rapidly. Those of old people sometimes never join. A broken arm should be kept in a cast for about a month, and no force put on it for another month. A broken leg should remain in a cast for about 2 months.



**BROKEN THIGH OR HIP BONE**

A broken upper leg or hip often needs special attention. It is best to splint the whole body like this:



and to take the injured person to a health center at once.

**BROKEN NECKS AND BACKS**

If there is any chance a person's back or neck has been broken, **be very careful when moving him**. Try not to change his position. If possible, bring a health worker before moving him. If you must move him, do so without bending his back or neck. For instructions on how to move the injured person, see the next page.

**BROKEN RIBS**

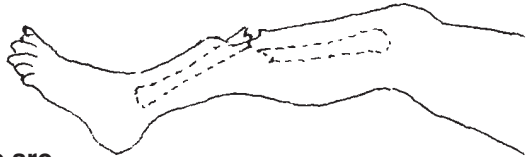
These are very painful, but almost always heal on their own. It is better not to splint or bind the chest. The best treatment is to take aspirin or acetaminophen (avoid giving aspirin to children)—and rest. To keep the lungs healthy, take 4 to 5 deep breaths in a row, every 2 hours. Do this daily until you can breathe as usual. At first, this will be very painful. It may take months before the pain is gone completely.

A broken rib does not often puncture a lung. But if a rib breaks through the skin, or if the person coughs blood or develops breathing difficulties (other than pain), use antibiotics and seek medical help.

**BROKEN BONES THAT BREAK THROUGH THE SKIN (OPEN FRACTURES)**

Since the danger of infection is very great in these cases, it is always better to get help from a health worker or doctor in caring for the injury. Wear gloves or plastic bags on your hands and clean the wound and the exposed bone very gently but thoroughly with cool, boiled water. Cover with a clean cloth.

**Never put the bone back into the wound until the wound and the bone are absolutely clean.**



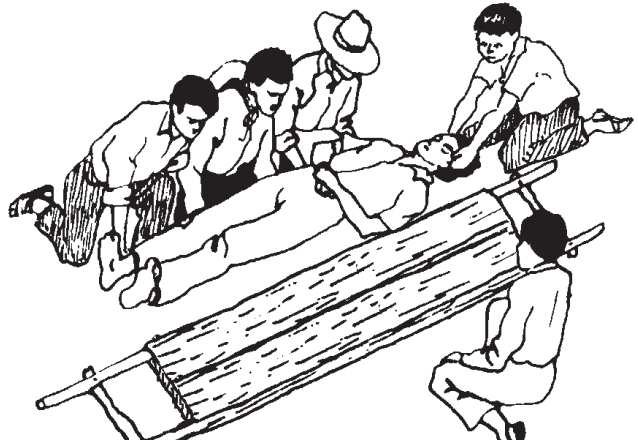
Splint the limb to prevent more injury.

If the bone has broken the skin, use an antibiotic immediately to help prevent infection: dicloxacillin (p. 350), clindamycin (p. 358), or ceftriaxone (p. 358).

**CAUTION: Never rub or massage a broken limb or a limb that may possibly be broken.**

## HOW TO MOVE A BADLY INJURED PERSON

With great care, lift the injured person without bending him anywhere. Take special care that the head and neck do not bend.



Have another person put the stretcher in place.



With the help of everyone, place the injured person carefully on the stretcher.



tightly folded clothing

If the neck is injured or broken, put tightly folded clothing or sandbags on each side of the head to keep it from moving.

When carrying, try to keep the feet up, even on hills.

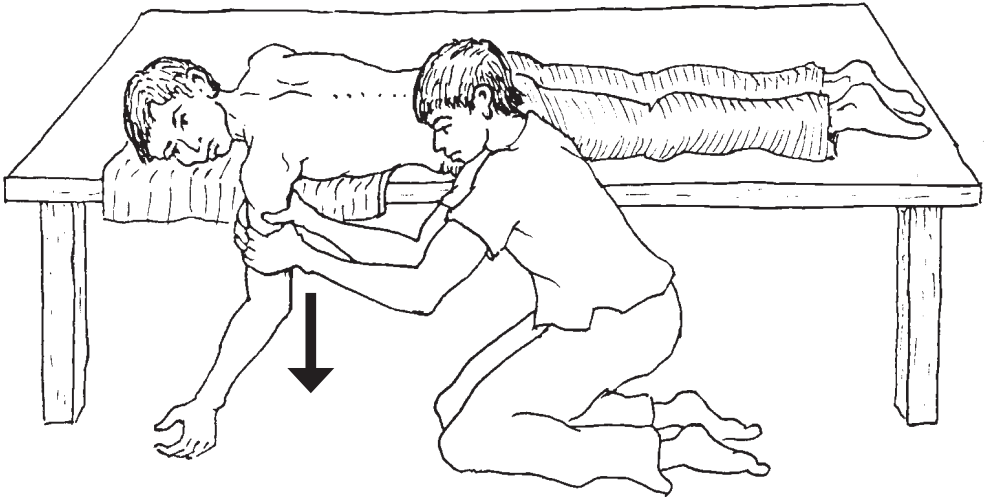
## DISLOCATIONS (BONES THAT HAVE COME OUT OF PLACE AT A JOINT)

*Three important points of treatment:*

- ◆ Try to put the bone back into place. **The sooner the better!**
- ◆ Keep it bandaged firmly in place so it does not slip out again (about a month).
- ◆ Avoid forceful use of the limb long enough for the joint to heal completely (2 or 3 months).

### HOW TO SET A DISLOCATED SHOULDER:

Have the injured person lie face down on a table or other firm surface with his arm hanging over the side. Pull down on the arm toward the floor, using a strong, steady force, for 15 to 20 minutes. Then gently let go. The shoulder should pop back into place.



Or attach something to the arm that weighs 5 to 10 kg (start with 5 kg, but do not go higher than 10 kg) and leave it there for 15 to 20 minutes.



After the shoulder is in place, bandage the arm firmly against the body. Keep it bandaged for a week to a month. To prevent the shoulder from becoming completely stiff, unbandage the arm for a few minutes 3 times a day and, with the arm hanging at the side, move it gently in narrow circles. Do not lift any weight with the arm for a month so the shoulder does not pop out of place again.

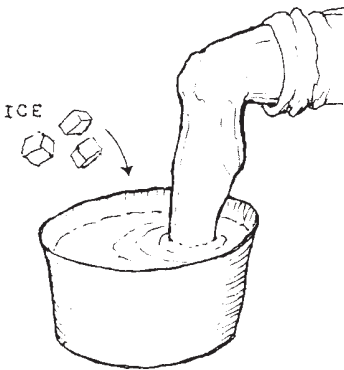
If you cannot put the dislocated limb back in place, look for medical help at once. The longer you wait, the harder it will be to correct.

## STRAINS AND SPRAINS (BRUISING OR TEARING IN A TWISTED JOINT)

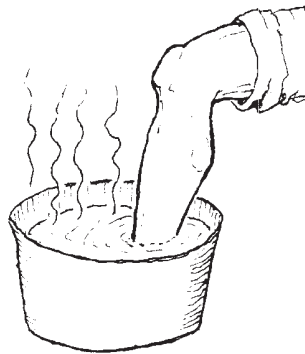
Many times it is impossible to know whether a hand or foot is bruised, sprained, or broken. It helps to have an X-ray taken.

But usually, breaks and sprains are treated more or less the same. Keep the joint motionless. Wrap it with something that gives firm support. Use crutches to give a sprained foot as much rest as possible. Serious sprains need at least 3 or 4 weeks to heal. Broken bones take longer.

To relieve pain and swelling, keep the sprained part raised high. During the first day or two, put ice wrapped in cloth or plastic, or cold, wet cloths over the swollen joint for 20 to 30 minutes once every hour. This helps reduce swelling and pain. After 24 to 48 hours (when the swelling is no longer getting worse), soak the sprain in hot water several times a day.



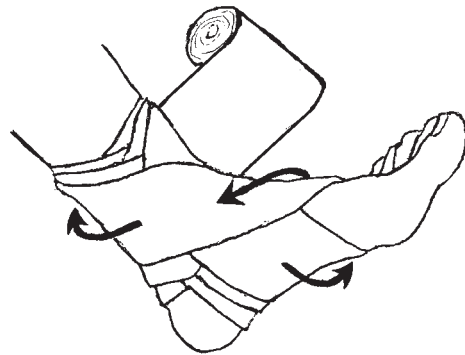
For the first day soak the sprained joint in cold water.



After 1 or 2 days use hot soaks.

You can keep the twisted joint in the correct position for healing by using a homemade cast (see p. 14) or an elastic bandage.

Wrapping the foot and ankle with an elastic bandage will also prevent or reduce swelling. Start from the toes and wrap upward, as shown here. Be careful not to make the bandage too tight, and remove it briefly every hour or two. Also take aspirin or acetaminophen.



If the pain and swelling do not start to go down after 48 hours, seek medical help.

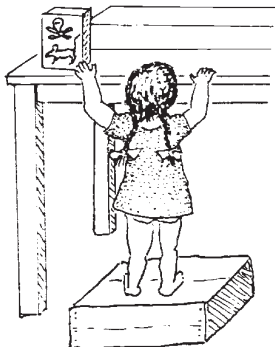
**CAUTION: Never rub or massage a sprain or broken bone.** It does no good and can do more harm.

If the foot seems very loose or floppy, or if the person has trouble moving his toes, look for medical help. Surgery may be needed.

## POISONING

Many children die from swallowing things that are poisonous. To protect your children, take the following precautions:

**Keep all poisons out of reach of children.**



**Never keep kerosene, gasoline, or other poisons in cola or soft drink bottles, because children may try to drink them.**



### SOME COMMON POISONS TO WATCH OUT FOR:

- rat poison
- DDT, lindane, sheep dip, and other insecticides or plant poisons
- medicine (any kind when much is swallowed; take special care with **iron pills**)
- tincture of iodine
- bleach
- cigarettes
- rubbing or wood alcohol
- poisonous leaves, seeds, berries, or mushrooms
- castor beans
- matches
- kerosene, paint thinner, gasoline, petrol, lighter fluid
- lye or caustic soda
- salt—if too much is given to babies and small children
- spoiled food (see p. 135)

### *Treatment:*

If you suspect poisoning, do the following **immediately**:

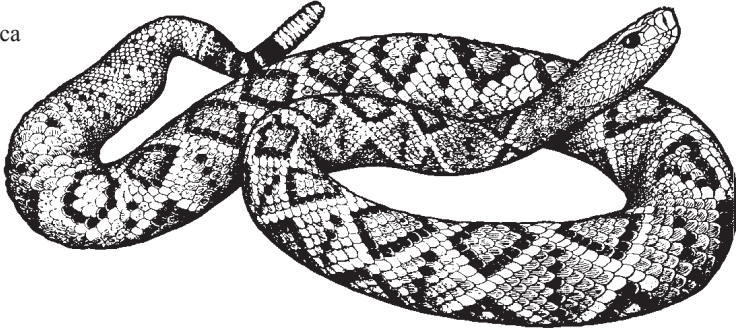
- ◆ If the child is unconscious, lay him on his side. If he stops breathing, give him mouth-to-mouth breathing (p. 80).
- ◆ If the child is awake and alert, give him plenty of water or milk to drink to dilute the poison (about 1 glass of water every 15 minutes).
- ◆ If you have activated charcoal (p. 390), give it right away, mixed into a glass of water.
- ◆ If the child is awake and alert and you are sure vomiting is safe, you can make him vomit. Put your finger in his throat or make him drink very salty water.
- ◆ **CAUTION:** Do not make a person vomit if he has swallowed kerosene, gasoline (petrol), bleach, paint thinner, some pesticides, strong acids or corrosive substances (lye), or if he is unconscious.

Cover the person if he feels cold, but avoid too much heat. **If poisoning is severe, look for medical help.**

# SNAKEBITE

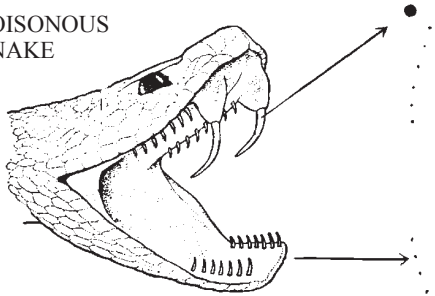
*Note:* Try to get information on the kinds of snakes in your area and put it on this page.

RATTLESNAKE—  
North America,  
Mexico, and  
Central America



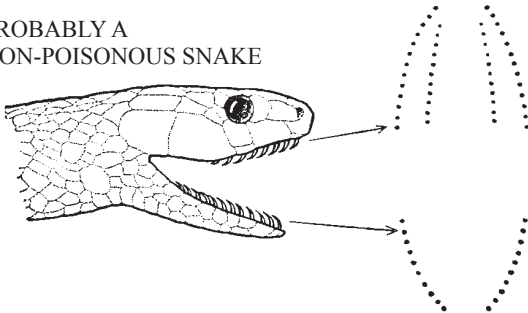
When someone has been bitten by a snake, try to find out if the snake was poisonous or harmless. Their bite marks are usually different:

POISONOUS  
SNAKE



fang marks  
The bite of most poisonous snakes  
leaves marks of the 2 fangs (and sometimes, little  
marks made by the other teeth).

PROBABLY A  
NON-POISONOUS SNAKE



If the bite of a snake leaves only 2  
rows of teeth marks, but no fang marks, it is less  
likely that the snake is poisonous. But it still  
could be.

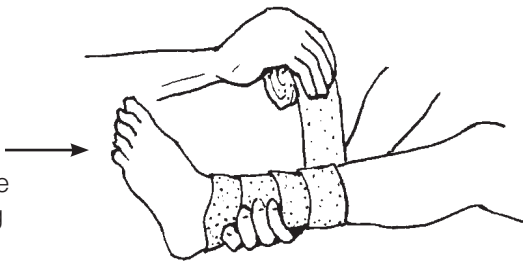
People often believe that certain harmless snakes are poisonous. Try to find out which of the snakes in your area are truly poisonous and which are not. Contrary to popular opinion, boa constrictors and pythons are not poisonous. Please do not kill non-poisonous snakes, because they do no harm. On the contrary, they kill mice and other pests that do lots of damage. Some even kill poisonous snakes.

*Treatment for poisonous snakebite:*

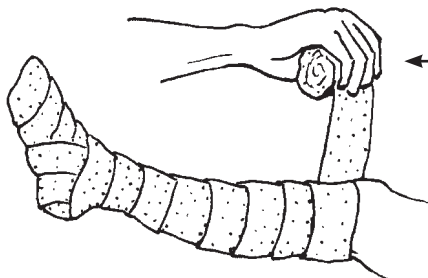
1. **Stay quiet; do not move the bitten part.** The more it is moved, the faster the poison will spread through the body. If the bite is on the foot, the person should not walk at all. **Send for medical help.**

2. Remove jewelry because swelling can spread rapidly.

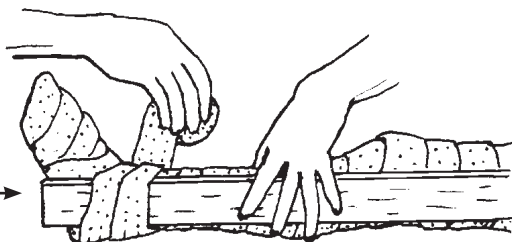
3. Wrap the bitten area with a wide elastic bandage or clean cloth to slow the spread of poison. Keeping the arm or leg very still, wrap it tightly, but not so tight it stops the pulse at the wrist or on top of the foot. If you cannot feel the pulse, loosen the bandage a little.



4. Wind the bandage over the hand or foot, and up the whole arm or leg. Make sure you can still feel the pulse.



5. Then, put on a splint to prevent the limb from moving (see p. 14).



6. Carry the person, on a stretcher if possible, to the nearest health center. If you can, also take the snake, because different snakes may require different antivenoms (antitoxins, see p. 389). If an antivenom is needed, leave the bandage on until the injection is ready, and take all precautions for ALLERGIC SHOCK (see p. 70). Also give tetanus antitoxin (p. 390). If there is no need for antivenom, remove the bandage.

**Have antivenoms for snakes in your area ready and know how to use them—before someone is bitten!**

Poisonous snakebite is dangerous. Send for medical help—but always do the things explained above **at once**.

Most folk remedies for snakebite do little if any good (see p. 3).

Some treatments can cause infection or make the effects of the venom worse.

**Do not:**

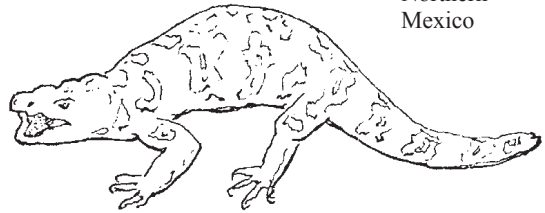
- cut the skin or the flesh around the bite
- tie anything tight around the bite or the person's body
- put ice on or around the bite
- shock the person with electricity
- try to suck the blood or the venom out of the bite

Never drink alcohol after a snakebite. It makes things worse!

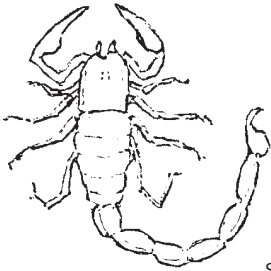
## BITE OF THE BEADED LIZARD (GILA MONSTER)

The bite of the beaded lizard is treated just like a poisonous snakebite, except that there are no good antivenoms for it. The bite can be very dangerous. Wash the bite area well. Avoid movement and keep the bite below the level of the heart.

Southern  
U.S.A. and  
Northern  
Mexico



## SCORPION STING

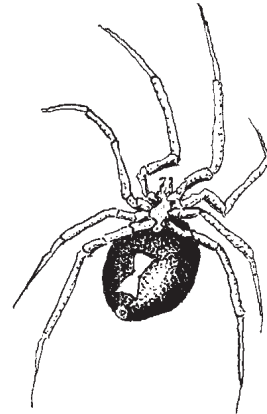


Some scorpions are far more poisonous than others. To adults, scorpion stings are rarely dangerous. Take aspirin or acetaminophen and if possible put ice on the sting to help calm the pain. For the numbness and pain that sometimes last weeks or months, hot compresses may be helpful (see p. 193).

To children under 5 years old, scorpion stings can be dangerous, especially if the sting is on the head or body. In some countries scorpion antitoxin is available (p. 389). To do much good it must be injected within 2 hours after the child has been stung. Give acetaminophen for the pain. If the child stops breathing, use mouth to mouth breathing (see p. 80). Also give tetanus antitoxin (see p. 390). If the child who was stung is very young or has been stung on the main part of the body, or if you know the scorpion was of a deadly type, seek medical help fast.

## BLACK WIDOW AND OTHER SPIDER BITES

The majority of spider bites, including that of the tarantula, are painful but not dangerous. The bite of a few kinds of spiders—such as the black widow and related species—can make an adult quite ill. They can be dangerous for a small child. A black widow bite often causes painful muscle cramps all over the body, and extreme pain in the stomach muscles which become rigid. (Sometimes this is confused with appendicitis!)



Give acetaminophen or aspirin and look for medical help. Most cures sold in stores are a waste of money and do not help. Diazepam (p. 392) may help reduce muscular spasms. If signs of shock develop, treat for allergic shock (p. 70). Injections of cortisone may be needed in children. Also give tetanus antitoxin (see p. 390). A good antivenom exists but is hard to get.