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# First Aid Methods

*What to Do in Case  
of Injury.*



*Published by*  
H. M. TIBBALS,  
WINNIPEG, CANADA

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# First Aid Methods

## *What to Do in Case of Injury.*

These Explanations and  
Illustrations have been  
specially prepared for use  
in giving information as  
to the best course to  
pursue in giving First  
Aid to the Injured



The First Aid Instructions in this  
Booklet approved by  
Leading Medical Authorities



PUBLISHED BY  
**H. M. TIBBALS,**  
WINNIPEG, MANITOBA

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*This Booklet is respectfully dedicated to those who may be so unfortunate as to meet with injury, and with the hope that a practical guide for the application of First Aid may save life or limb and alleviate and minimize the pain and suffering.*

EDITOR

## What is First Aid?



*F*RST aid is what to do before the doctor arrives. It is not intended to take the place of the doctor. It has been well described as a bridge between the accident and medical or surgical assistance, over which the patient may be safely and securely carried from the scene of accident or sudden illness to the doctor or hospital. Once that bridge is crossed first aid has performed its mission.

*F*irst aid stops when the injured person is placed in the hands of the surgeon. The permanent treatment and care of injuries, the administration of medicine, the diagnosis and treatment of disease are not part of first aid.

*T*he best first aid worker is the one who knows when to stop. Some first aid workers have been known to almost spoil their good work by trying to carry it too far. Your work is finished when the surgeon arrives.

*F*irst aid goes beyond the handling of accidents. It includes the prevention of the spread of contagion, relief in sudden sickness and other emergencies. The prevention of disease today is considered a greater work than the curing of disease, and the first aid movement is popular in its appeal to the public to remove the cause of disease.



# FIRST AID METHODS

## *What to do until the Surgeon Arrives*

### **Acid Burns:**

In the event of burning by acids, the surface of the burned part should be carefully washed with water, holding under the water tap is best. If a mixture of baking soda and water, lime water or soap suds are at hand, one of these may be poured over the burned area to neutralize the acid. Cover the burned surface well with carbolated petrolatum and wrap with a fresh piece of gauze. If the burn is from carbolic acid, dress with the gauze and thoroughly saturate this with an antiseptic solution. In ordinary industrial plants the most common acids in use are nitric, carbolic, sulphuric, prussic, oxalic and muriatic, and the above treatment applies to all of these with equal force.

### **Acid in Eye**

For treatment, see—Eye.

### **Alkali Burns:**

If the burn is caused by an alkali wash as in burns from acids and give same treatment as in acid burns. If lemon juice or vinegar are at hand these may be poured over the burned area before applying the petrolatum in order to neutralize the alkalies.

### **Alkalies in Eye:**

For treatment, see —Eye.

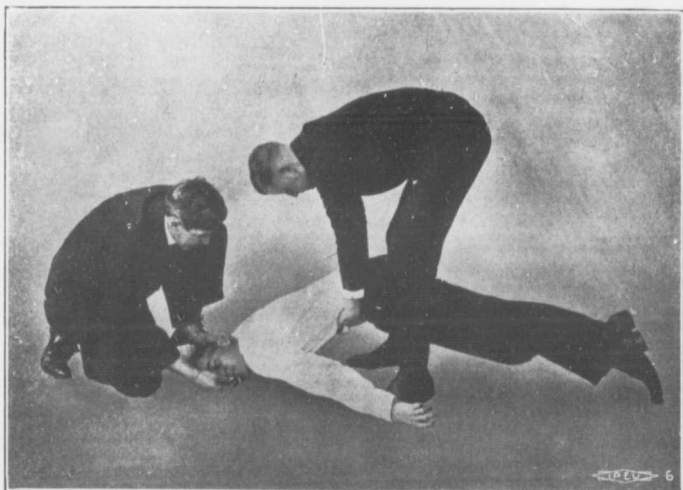
### **Antiseptics:**

It is quite proper to use any standard antiseptic solution according to directions, but none others should be applied except by the surgeon. Strong antiseptics, unless properly used, do more harm than good; they destroy tissue, delay healing and tend rather to favor blood poisoning than to prevent it. Blood is a very good antiseptic. The wound should be covered with gauze or the contents of a first aid package and a small portion of antiseptic solution may be used. Securely bandage with gauze or other uninfected covering.

### **Apoplexy (or Stroke)**

Apoplexy occurs generally to people past middle age. The symptoms are insensibility, snoring breathing, the face is flushed and congested, the pupils of the eyes may be of unequal size, eye-balls insensitive to touch and the pupils insensitive to light. One

side of the body may be paralyzed. People found unconscious, motionless and speechless, with snoring breathing, may be suffering from narcotic poisoning or brain injury. Send for the doctor immediately, and in the meantime undo all tight clothing and allow plenty of fresh air. Lay patient flat with head slightly raised. Keep the body warm and apply hot-water bottle to soles of feet. Apply cold-water cloths to head but on no occasion give stimulants. Never attempt to give an unconscious person anything to drink; it may go the wrong way and choke him.



*This illustration shows the first movement in artificial respiration as in drowning. — The rescued person is turned on his stomach, and one man places his hands across under the stomach and elevates the body in manner shown in order to force the water out of the lungs. The other man opens the mouth and pulls forward the tongue.*

#### **Arm:**

Bleeding from injuries of arm. See—Hemorrhage.  
Dislocation of bones of arm. See—Dislocations  
Fractures of bones of arm. See—Fractures.

#### **Artificial Respiration:**

See illustrations.

Artificial respiration is one of the most important subjects to understand in First Aid work as many people, seemingly dead, are restored to life by prompt efforts in artificial respiration. In cases of drowning, poisoning by gas inhalation, strangling, hanging, choking, following an electric shock, burying in grain, snow or

landslide, etc., in fact, in any case where the supply of air to the lungs has been cut off, or where the patient is unable to expand the chest and breathe, artificial respiration is of untold value

Remove the cause before doing anything else. Get the patient away from the gas; if he is hanging, cut the rope; if choking is caused by some foreign substance in the throat, get it out the first thing.

There are two methods of restoring consciousness by artificial respiration. Use the one which best meets the situation.

Before starting either method, it should be seen to that the mouth, nose and throat are clear, and that nothing is there to pre-



*This illustration shows the second movement in artificial respiration as 'in drowning.— The patient is turned on his back and a pad placed beneath his shoulders and back in order to throw his chest upward. The men at each side grasp the arm nearest them at the wrist and elbow and bring the patient's forearms across the lower ribs and press them firmly against the chest. The third man pulls forward and outward on the jaw, and if the tongue falls back he opens the mouth, grasps the tongue and holds the tongue out.*

vent breathing. Mucous, blood, froth, chewing gum, tobacco, false teeth or anything else should be carefully removed.

Clothing around neck, chest and waist should be loosened. Place the patient on his stomach, full length extended on the floor, and then clasping him around the abdomen, lift up the body. To do this properly requires two men. Water or other foreign substances can often thus be removed from the lungs quite easily.

Put the patient on his back, with a pad under the shoulders so as to raise the chest slightly. Then begin the movements to imitate natural breathing. These movements are designed to make the

chest expand and contract. In short, it is simply the pumping of air in and out of the lungs to restore normal breathing.

It is advisable for one assistant to pull the patient's tongue out, wrapping a cloth about the member to keep the thumb and finger from slipping. The object of this is to keep the tongue from falling back into the throat and possible choking of the unconscious subject. The man who is thus holding the tongue should next place his other hand back of the angle of the jaw, forcing the latter forward and holding it in this position.



*This illustration shows the third movement in artificial respiration as in drowning.—From across the lower ribs the arms are drawn well up and beyond his head until they are in a straight line with the patients body as shown in the illustration. The third man continues to hold up and out on the jaw, and if necessary holds the tongue out to keep from falling back into the throat.*

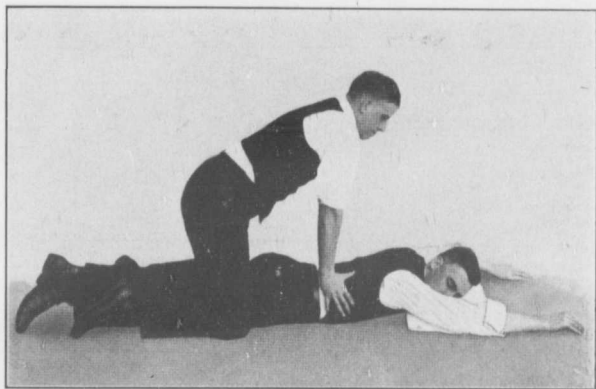
The arm movements to induce respiration are best carried out by having one man on each side of the patient, and each facing him. Let each one grasp the wrist nearest to him and the elbow, bringing the patient's forearms across the lower ribs and pressing firmly against the chest. This has a tendency to expel air out of the lungs.

Then the patient's arms are drawn up beyond the head, in a straight line with the body. This motion expands the chest and draws air into the lungs. With a little practice it will be easy for those giving this first aid treatment to get the hang of the motions, and these movements should be at the rate of about eighteen per minute. Keep both arms moving in the same direction and at the same time.

## ONE-MAN METHOD.

If there is only one person present to assist in restoring respiration, this one-man method is often successful, and can be kept up for a long time without exhausting the operator.

First lay the patient on his stomach, with face turned to one side. Raise the head of the patient just a trifle by means of a coat if nothing else is available. Draw his arms away from the body, or extend them above the head. This position of the body also has a tendency to permit the passage of liquors from the mouth and nose by the aid of gravity.



*The One Man Method of Artificial Respiration.  
First Position — Pressure On.*

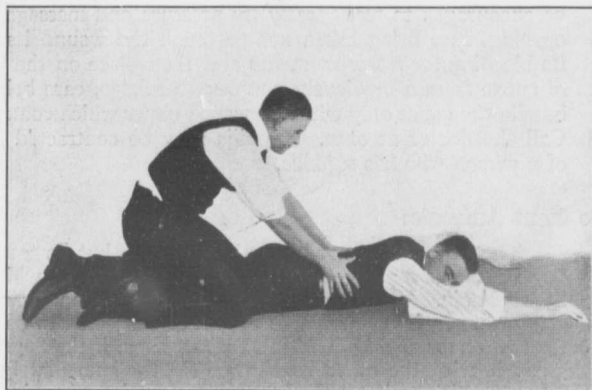
The one giving the first aid treatment now straddles the patient's thighs and faces the patient's head. He puts his hands on the outer ends of the patient's lower ribs. Don't, however, put any pressure on the spine or hips.

The operator then brings his body forward slowly without bending his arms, and in such a manner as to throw his weight on the patient's sides.

This movement has a tendency to force the air out of the lungs. In applying the weight, it should be done gradually, and then quickly removed. The latter part of the movement thus allows the lungs to fill naturally with air. As in the other method just described, these movements should also be at the rate of eighteen per minute.

But don't get discouraged if there is no immediate return of consciousness on the part of the patient. It generally takes about thirty-five or forty minutes to bring the victim back to a normal state, and there are numerous cases on record where the patients have been worked with as long as four hours, and life eventually been restored. Send for a doctor or a surgeon as soon as you can. Also get a pulmotor if there is one to be had.

While working over the patient, stop now and then and notice if he is making attempts to breathe. But above all, don't give up. Keep up the movements until you know the patient is dead, beyond all possible doubt.



*The One Man Method of Artificial Respiration.  
Second Position — Pressure Off.*

Hot and cold towels may be applied alternately, slapping the chest with the same. Ammonia or snuff may also be held to the nostrils. Don't put these on the nostrils, however. Take off the wet clothing, if possible, and cover the lower limbs and abdomen with dry and warm coverings.

The first sign of life will generally be shown by flushed cheeks and a sigh. Just the minute the patient starts to breathe, the rescuer should adapt his movements to the patient's breathing, moving the arms above his head as he takes in air and across the chest as he expels the air. As soon as the patient is able to swallow he may be given a stimulant—a hot drink, such as broth, tea, or coffee. Brandy or whiskey containing about 50 per cent. alcohol may also be used. Give only one large drink. Too much alcohol will have a bad effect. Alcohol should never be given when the head is badly

hurt or where the injured person has bled freely. Aromatic spirits of ammonia is a safe and reliable stimulant and may be given in the proportion of a teaspoonful to a half glass of warm water.

**Asphyxia:**

See—Gas Poison.

**Bites:**

Such wounds are given the same treatment as other wounds except in special cases. They are always to be considered serious and should be promptly and thoroughly treated. The wound should be encouraged to bleed freely by pressure and massage toward the opening, care being taken not to touch the wound itself. Permit its bleeding for a few moments and then place on the bite a piece of gauze from a previously unopened package, care being taken to handle the gauze only with the waxed paper which comes around it. Call the doctor at once. Syphilis may be contracted by the bite of a person who has syphilis.

**Bites from Animals:**

The animal may not be mad, i.e., rabid, but its teeth may convey poisonous matter to the blood other than that which produces hydrophobia. Therefore always wash the wound carefully with clean water. If the animal is known or suspected to be rabid, send for the doctor at once, and in the meantime, if the finger be bitten, grasp it with the other hand very tightly immediately above the wound, which prevents the blood carrying the poison into the body. If other parts of the hand or several fingers have been bitten seize the wrist and retain your grasp. If the wrist or forearm be bitten, seize the elbow and retard the circulation of blood. Ask someone to tie a piece of string, handkerchief or necktie immediately below where you grasp the finger, wrist or elbow. Wash the wound well with warm water or hold under the water tap for a few minutes. A teaspoonful of carbolic acid added to a pint of water and well stirred makes a good lotion for washing a bite wound. If the bite is on the body or face the wound may be safely sucked if the person doing so has no fresh cracks on his lips or tongue. Wash the mouth afterwards with a strong antiseptic. Hydrophobia has often been prevented by prompt and efficient treatment.

**Bites from Snakes:**

When a person is bitten by a poisonous snake prompt action is necessary to save the life. Do not delay. If the wound is in the arm or leg grasp immediately above the wound as in animal bites, apply tourniquet or bandage around the limb just above the bite. Suck the wound until all the poison has been sucked out. The

poison will not hurt the person doing the sucking. Take pocket knife and enlarge and deepen the openings made by the snake's teeth. Burn out the wound with a lighted match, hot coal or by rubbing in gun-powder and igniting it. Give stimulants, but not to the point of intoxication.

**Bleeding:**

See—Hemorrhage.

**Bleeding from Nose:**

See—Hemorrhage from Nose.

**Blood Poisoning:**

See—Infection.

**Bones Broken:**

See—Fracture.

**Broken Nose:**

See—Nose.

**Bruise:**

Bruises when slight require no treatment. For bruises of moderate degree apply hot or cold water or some good antiseptic solution. One should remember when a bruise is severe that it may be the least important part of the injury. Be sure there are no fractures. Severe bruises of the chest or abdomen may result in injuries to internal organs and may require the prompt attention of the surgeon to save life.

**Bullet Wounds:**

If the wound be of an arm or leg, and no bones have been fractured nor severe bleeding taken place, treat as a punctured wound. (See Punctured Wounds), and send for a surgeon. If the wound is severe or bullet has entered the head, chest or abdomen, place a piece of sterile gauze over the point of entry of the bullet, call an ambulance, and hurry to the nearest first-class hospital. Don't worry about the bullet, leave that to the surgeon.

**Burns and Scalds:**

Cut pieces of clean linen and soak them in oil or a mixture of equal parts of olive oil or linseed oil and lime water, and apply the strips to the burn or scald. Cover this dressing with cotton wool or flannel and retain all with a bandage firmly but not tightly applied. Do not break or cut the blisters. The severity of the injury may cause the clothing or underclothing to stick to the skin. Never



drag these off but soak with oil, any vegetable oil, such as salad, sweet or linseed oil. Never expose a burn to the air. Get your dressings ready before you uncover the burn. If the hand be burned, put it into a basin of lukewarm water while the dressings are being prepared: a little soda may be applied to the water.

For burns caused by acids. See—Acid Burns.

For burns caused by alkalies. See—Alkali Burns.

For burns of the eye. See—Eye.

### **Burning Garments:**

If your clothes catch fire, don't run. Lie down on the floor or ground and roll up in a carpet, rug, overcoat, blanket, table cloth or anything handy. If there is nothing to wrap yourself in, lie down and roll over slowly, using the hands to beat out the fire. If some other person's clothing takes fire, throw him on the floor and smother flames with overcoat, rug or blanket.

### **Carbolic Acid:**

Be careful of carbolic acid, for it is a dangerous drug even when used in the weak solutions. Numerous cases are known where fingers have required amputation following the wrapping of the injured fingers in a 5-per-cent solution of carbolic acid on gauze, and patients have been known to die from this cause.

### **Choking:**

When anything has lodged in a person's throat, causing him to choke, give him an opportunity to cough it up himself to relieve the choking. If this does not work, have him lean well forward until the head hangs down low and then strike him a smart blow between the shoulders. This will often dislodge the substance. If it fails, call the surgeon advising him the nature of the trouble so he will come prepared with the proper instruments to give quick relief.

### **Colic:**

A sudden severe pain in the abdomen should always receive serious consideration. It may be caused by a rupture, appendicitis, a constriction of a piece of intestine in a previously existing rupture, perforation of an ulcer in stomach, etc. The surgeon should be called at once. The pain may be caused from indigestion or errors of diet.

### **Collapse or Shock:**

Burns, broken bones, blows on abdomen, loss of blood and all severe injuries produce this condition. The patient shivers, face becomes pale and surface of body cold, the pulse is feeble and irregular and the breathing feeble and shallow. The patient sighs

and is only partially conscious. Do not raise the patient, keep the head low, apply extra clothing or covering and put hot water bottles to the body and rub the arms and legs. If conscious, give warm drinks of hot tea, coffee or hot milk. Stop any bleeding and if breathing has ceased you must resort to artificial respiration.

**Collodion:**

Never apply collodion or so-called "new skin" over fresh cuts or wounds. It keeps the germs within the wound and gives them a favorable chance to multiply and grow.

**Concussion or Stunning:**

Usually is the result of a blow or fall, the patient is insensible a weak, flickering, irregular pulse; face is pale, skin cold and often clammy, breath sounds so quiet that it is sometimes difficult to see that the patient is breathing. It is common for the patient to vomit when recovering. Send for the doctor immediately and in the meantime lay the patient absolutely flat, undo all tight clothing and allow plenty of fresh air. Insist on quiet and do not attempt to rouse. Keep the body warm and if sick, turn the head to one side. Do not give stimulants.

**Convulsion:**

These occur most commonly in attacks of epilepsy. Lay the patient on the floor and hold him still to keep him from injuring himself when he throws himself about. The patient should soon recover from the attack and the blueness and bloody froth from the mouth should not frighten you. See—Epilepsy.

**Convulsions in Children:**

Place the child at once in a warm bath up to the waist. In your haste and excitement beware of the risk of scalding the child. Keep him in the bath from ten to twenty minutes. Apply sponges wet with cold water to the head. Repeat these if necessary.

**Cotton:**

Do not put cotton next to fresh wound. Gauze should be put on first and then the cotton, as the latter is hard to remove from wound. Cotton is valuable in padding splints and in applying over gauze as an extra protection.

**Collar Bone Fracture:**

See—Fracture.

**Cuts:**

Cuts should not be neglected. Blood poisoning frequently comes from them. Don't touch them or let others do so.

If bleeding is not severe, let wound bleed a reasonable amount by pressure and massage toward wound. Apply piece of gauze and bandage firmly. This will stop the bleeding in most cases. Never suck a wound of this kind and never put a chew of tobacco or cobweb or the like on it. Lockjaw and various other infections have followed such treatments.

If the cut bleeds profusely lay the patient with head low and keep him quiet. Aromatic spirits of ammonia may be used if he feels weak. Keep the body warm. Bandage with gauze promptly and call the doctor at once. Do not attempt to remove the dressings yourself but have them removed and the wound re-dressed by surgeon.

### **Death:**

In case of sudden or accidental death, notify the surgeon at once. Cover the body with a sheet. Notify the relatives and in doing so use judgment and tact.

### **Dislocations:**

A dislocation exists when a bone slips or is driven out of its socket or joint. The joint has an unusual appearance, the length of the limbs does not correspond, sometimes the injured one is shorter and sometimes it is longer than the uninjured. Do not pull or permit others to attempt to pull a joint into place as severe and lasting damage to a joint may be done. Send for the surgeon at once and in the meantime make the patient as comfortable as possible by having him lie down and covering the injured joints with cloths wrung out in very hot water. If the patient is very weak or faint, treat for collapse or shock.

### **Dress on Fire:**

It is not generally known that Flannellette is highly inflammable. In England bitter experience has led the authorities to pass a law making it a crime for anyone to clothe their children in flannellette. Where the dress is on fire it is of the utmost importance that you lie down at once, otherwise the face, eyes, etc., will be severely burned. If patient is running about terrified pull her down, and throw rug, blanket, table cover or sheet over the flames, or take off your coat and use it. Rolling on the floor will assist in extinguishing burning clothes. If in a room alone, a woman whose dress is on fire, in order to prevent burning her face and neck, should lie down and crawl to the nearest rug, sheet or cloth with which to smother the flames.

### **Drowning:**

Immediately after removal from the water, lay patient face downwards with arms stretched out in front of the head, and the face turned to the side. Waste no time in removing or loosening

the clothing. The movements of artificial respiration are of the first consequence. See—Artificial Respiration.

### Ear:

When a foreign body gets in a person's ear, try to shake it out. If this is unsuccessful, take the patient to the surgeon. Never try to remove by use of any instrument as it is far less dangerous to leave the substance in the ear than it is for you to attempt to take it out. If a bug or insect gets in the ear, fill the ear with sweet oil or glycerine to kill the bug. Then wash out ear with warm water.

### Electric Burns:

Burns by electricity are treated the same as other burns.

See—Burns and Scalds.

### Electric Shock:

First of all, rescue the patient, but be careful. If possible, shut off the current.

The one doing the rescuing must look out to protect himself from shock. It is a good plan to cover the hands with a rubber sheet, gloves, rubber coat or several thicknesses of silk and stand on a dry spot or dry piece of wood. Use an axe with a dry, wooden handle to cut the wire. If the patient is across two wires make a short circuit by putting an iron bar, wet cloth or poker across the wires between the injured person and the source of the electric current.

Move the patient to some place where there is plenty of fresh air. Loosen clothing; put him on back with rolled up coat under shoulders to throw chest up. Even if he has ceased breathing, life may be saved. Give treatment for Artificial Respiration (see illustrations). Send for surgeon. Get a pulmotor if one is to be had. If patient has not ceased breathing, treat as for shock and give stimulant.

Accidents arising from electricity are common about mines where the current is utilized as an operating force. Ordinary trolley wires carry about 500 volts. Incandescent and arc-light wires carry from 2,500 to 3,000 volts. Contact with a live wire and the passage of the powerful currents through the body cause dangerous shocks, burns and even death. Trolley wires should be protected and other live wires carefully insulated.

The symptoms of electric shock are, a sudden loss of consciousness; absence of respiration, or if present, very light and possibly not observable; very weak pulse; burns at point of contact.

Always rescue a sufferer as quickly as possible, but avoid getting in contact with the live wire. Look for the switch and throw it.

If none is convenient break the circuit with a drill or any piece of wire that will connect the trolley wire and rail at the same time. Such action may cause injury to some other part of the mine, or wiring system, but when human life is being risked the question of life should come first.

### Eye:

If foreign bodies get into the eye and rest on the eye-ball, or inside the eye-lid, the tears will generally wash them out. Don't rub the eye. Pull upper lid down over the lower one and hold in that position for a short time. This helps the flow of tears. Blowing the nose sometimes gives relief. A little clean cotton on a toothpick may be used if the object is located. Look first in the lower lid. Next turn back the upper lid over the end of a match as shown in the illustration. If the substance cannot be easily removed, go to a doctor immediately. Don't let any one use an instrument save the surgeon. Otherwise there may be blindness induced by infection.



*Method of turning up upper lid of eye to search for or to remove particle from inner surface of lid. First grasp eye lashes of upper lid and pull downward and forward. Place handle of pen-holder or similar object across outer surface of lid and turn lid up over pen-holder.*

If the eye - ball is cut, cover both eyes with clean gauze and bandage loosely. Wet bandages with cool water till surgeon comes.

**Acid in Eye:**—For acid in the eye, apply copious quantity of water and see surgeon at once. If near a druggist a few drops of two-per-cent. cocaine may be put into the eye to deaden pain.

**Alkalies in Eye:**—Treat the same as for acid in eye.

### Epilepsy:

The patient falls unconscious and may scream and shout. His legs and arms twitch in violent convulsions, the hands are tightly clenched and face contorted. froth is at the mouth which is sometimes bloodstained. Clear away all furniture to prevent him

from injuring himself, undo his collar and tie and raise his head. Place a leadpencil or something hard between his teeth to prevent him biting his tongue. Do not restrain movements and do not attempt to give anything to drink or stimulants. After a few minutes of violent convulsions patient will fall asleep or will recover consciousness but may be in a dazed condition.

### **Fainting:**

Lay patient down, with head lower than the body, elevate arms and legs to make blood go to the head. Loosen tight clothing around neck, chest and waist. Keep the crowd back and give plenty of fresh air. Dash cold water on the face and bathe face and hands with cold water. Hold smelling salts to nose. If not successful in restoring consciousness, call a doctor. When patient comes to, keep him lying down until he has fully recovered. He may then be given a drink of cool water or a cup of hot tea or coffee.

### **Feet:**

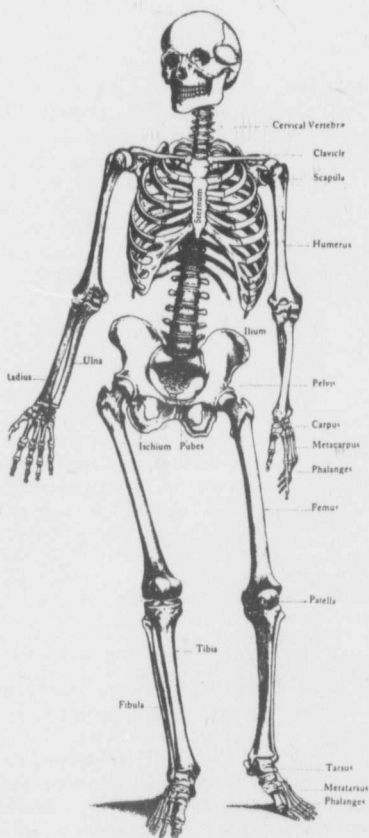
In case of injuries to the feet keep patient off his feet. Trying to walk on injured foot often does serious harm. Dress injuries here same as other parts of the body, using a piece of clean gauze over the wound, bandage and send for the surgeon. If patient has stepped on a nail, remove nail at once. If it is a sliver in the foot, remove it if it can easily be done, otherwise wait for the surgeon. Nails and slivers in feet often prove to be serious through infection. Take no chances, but follow your surgeon's instruction.

### **Fits:**

See—Convulsions.

### **Fracture:**

A fracture is the same as a broken bone, and the treatment, of course, will depend to a large extent upon the location and seriousness of the fracture. Send for the surgeon. If it is a broken leg or thigh, be very careful as the ends of broken bones are usually sharp and if the limb is moved the sharp ends may cut important blood vessels or nerves, or may cut through the skin. Do not attempt to move the patient until temporary supports or splints have been applied. (See—Moving the Injured.) In an emergency the best splint is the one most easily and quickly secured. A piece of a board, umbrella, walking stick, broomstick, lath, billiard cue, or anything of a like nature will do. Tie one of these firmly to each side of the limb, bandaging with handkerchiefs, straps, rope, or heavy string. When the thigh is broken one support must extend as one solid piece from the foot to the armpit and should be bandaged firmly at the chest as well as at the limb. When the leg below the knee is



*Human Skeleton showing Names of Bones*

broken the supports should extend from the heel to the middle of the thigh. Now the patient can be moved lying at full length and if a stretcher is not handy use a flat board or a door, gate, shutter, etc.

In the case of a broken arm apply the best kind of a temporary splint possible, but they must be short so the arm can be bent at the elbow and put in a sling.

In the case of broken ribs it is advisable to bandage firmly around the chest with a towel or a piece of cloth and then fasten a second bandage a little lower, so as to overlap the first. These will limit the breathing, support the chest and diminish the pain. Always place the arm of the injured side in a sling.

In case of broken back or injury to the spine if possible do not attempt to move the patient until the doctor comes. In any case the patient must be kept absolutely flat and never raised for to bend the spine will do irreparable injury.

In the case of a broken collar bone, put one or two small handkerchiefs rolled tightly into a ball into the armpit of the injured shoulder. Apply an arm sling and bandage the elbow of the injured side firmly to the chest, the bandage going entirely around the chest at the level of the elbow.

For applying temporary splints, see illustrations.



*Method of applying splints in case of fracture to upper arm. The splints are padded with cotton, and are then held in place by bandages as shown. A sling is improvised for holding the injured's wrist in comfortable position.*

### **Frost Bite:**

Do not use warm water or heat at once, as this may do harm to the frozen parts. Bathe the part with cold water and rub gently for some time, then gradually add warmer water.

### **Gas Poison:**

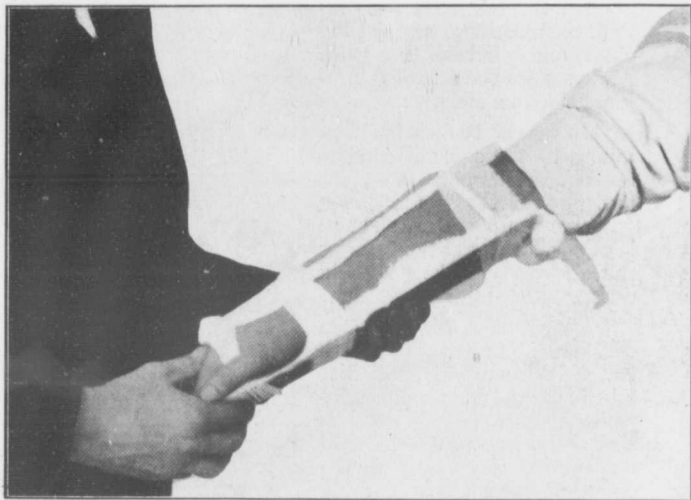
Get patient to a place where there is plenty of fresh air at once. Open all windows. Send for the doctor. If the patient has ceased breathing, begin artificial respiration (See Artificial Respiration) at once. Give stimulants as soon as patient is able. (See Stimulants). Do not permit any gas or oil lights in the room where the patient is.



In cases of gas poison a pulmotor is of great service. Phone for one or when you call the doctor ask him to order one right away.

### **Hanging:**

Act at once, do not wait for help. Catch hold of patient's waist, cut the rope and lower the patient carefully. Begin artificial respiration. (See Artificial Respiration).



*This illustration shows the proper method of applying splints in case of fracture of the wrist or forearm. The splints are padded with cotton and one is applied to the back of the arm and the other to the front of the arm. The splints are then held in position by bandages as shown in the illustration.*

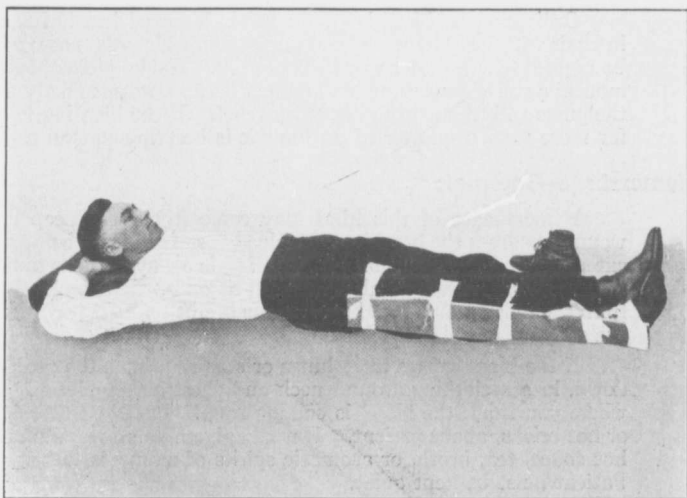
### **Heat Stroke or Heat Apoplexy:**

This is not the same as "Sunstroke" and requires a somewhat different treatment. Heat stroke is a collapse caused by long exposure to a high temperature, but not directly in the rays of the sun. It may even occur at night in engine rooms or other places where the heat is excessive. The sufferer is greatly depressed, but not unconscious, face is pale and covered with clammy sweat, breathing is shallow and pulse weak and rapid. Send for the doctor. First remove to a cool place and give cool drinks. Loosen clothing, especially around the neck, and bathe hands, head and chest with cold water. Cloths soaked with cold water or ice may be applied to head and forehead.

## Hemorrhage:

Hemorrhage means bleeding. An ordinary amount of blood flowing from a wound is rather to be desired than prevented. This cleans out the dirt from the wound, and blood itself is of aid in killing some forms of germs. Wounds that bleed only slightly are called punctured wounds. They are more dangerous than where blood flows freely.

Bleeding comes from the veins or arteries. In arterial hemorrhages the blood squirts out just like coming from a fountain, and comes faster and with more force than from the veins. It is bright red in color. If the bleeding is severe, send for the doctor at once. Put a fresh piece of gauze over the wound and bind firm y. If this



*This illustration shows the method of applying a splint in case of fracture of the lower leg or ankle, or injuries to the knee. A board is placed on the outer side of the leg and is held in place by roller bandages. In fractures of the leg it is best to place a splint on each side of the leg and bandage together.*

does not stop it place a tourniquet between the point of bleeding and the heart and twist tightly so as to stop the bleeding. (See Tourniquet. Keep on turning it tighter until the blood stops. Don't tighten after that. It is best to apply the tourniquet over the clothing. Don't leave the tourniquet on for more than one hour without loosening and then tightening again.

Punctured wounds are made by such things as nails, broken glass, slivers, knives, toy pistols, etc. After the removal of the cause the

skin generally closes up the opening, keeps in the germs, and infection frequently follows. Don't ever put a probe in such an injury. Send for a surgeon and let him remove the small particles of foreign matter, or do the probing if necessary. If possible, encourage the wound to bleed by massaging or pressure toward the wound. After bleeding, cover with a first aid package, and bid securely with a fresh, clean gauze.

Don't neglect having such injuries treated by a surgeon. They are apt to bring on lockjaw. If the surgeon wants to open a wound let him do so. If he thinks it best to give anti-tetanic serum by all means take it.

### **Hemorrhage from Nose:**

Ordinary nose bleed is not harmful. Keep patient quiet, sitting in chair with head hanging backwards; don't blow the nose; ice may be applied to side of nose, or back of neck. Hold a piece of ice in the mouth; a roll of paper under the upper lip and pressed firmly against the gums will frequently give quick relief. If the bleeding keeps on for more than a quarter of an hour it is best to summon a doctor.

### **Hemorrhage—Internal:**

Hemorrhages of this kind may come from very deep cuts or wounds, or from the breaking of a blood vessel following some violent external blow or fall. Internal bleeding is always serious and must be promptly treated. Call a surgeon at once. If the blood comes from the lungs and is coughed up, it is bright red. If it comes from the stomach it will be dark colored.

If the blood comes from lungs or stomach, have the patient lay down, loosen clothing around neck and chest and apply cold cloths where you think the blood is coming from. Put hot water bottles, or hot bricks, about patient. If weak, give mild stimulants, such as hot coffee, tea, broth, or aromatic spirits of ammonia in hot water. Patient must be kept quiet.

If bleeding is in the brain, have patient lay down. Elevate head and shoulders on pillow. Put cloths wrung out of ice water on head; but don't give any stimulant.

### **Hernia:**

Generally called rupture. It is an opening in the abdominal wall through which the intestine or other organ may escape just beneath the skin. Commonly appears in groin, but sometimes at the navel. Should be cured by operation. When hernia occurs, a soft, round swelling appears. That is the intestine pressing against the skin. This can generally be pushed back into the abdominal cavity. Have patient lie down on back and bend up knees and thighs. Lay a hot cloth wrung out of hot water on the swelling and by gentle pressure work intestine back into opening in abdominal

wall. Be easy. Don't use force. If you can't accomplish it, send for a surgeon. Never permit hernia to continue without medical attention for the strangulated intestine may die from pressure and finally cause the death of the patient.

#### "DON'TS" TO PREVENT HERNIA, OR RUPTURE

Don't try muscular feats beyond your strength.

Don't try to move objects too heavy for you. Get help.

Don't lift when standing in awkward positions.

Don't strain your back when lifting—use your legs.

Don't squeeze your waist with a tight trouser belt. Wear your belt low so that any pressure from it will come on hip bones.

Keep your bowels open so as to avoid straining at stool.

Hold your shoulders square and your back flat. Don't slump.

Strong belly muscles and a good posture of the body are best material safeguards against hernia.

If you have hernia wear a belt to hold it up and prevent strangulation. Strangulation sometimes results in death.

**Hydrophobia:**—See Rabies.

#### **Hysteria:**

Generally known as Hysterical Fits and most common in nervous girls and women. The patient falls generally carelessly; never loses consciousness, faints, nor hurts herself. She will have sudden violent irregular attacks of screaming, howling and kicking. She may laugh and cry by turns, the hands are clenched and she grinds her teeth. She does not always entirely close her eyes, but prefers to watch the effect of her conduct. An hysterical attack is not a feigned illness, but a diseased condition where nerve control is for the time diminished. On no account are you to hold or rub patient's hands, restrain her movements or sympathise with her in any way. Flick the face with a wet towel or a dash of cold water on the face will help. It is usually best to leave patient absolutely alone from the first, send all friends away, and when she finds herself alone and no fuss being made over her she soon recovers her will power. Hysteria is a disease, often associated with poor health, and a doctor should be consulted.

#### **Infection:**

Often called Blood Poisoning. It is caused by pus germs getting into cuts and wounds. These germs are present on skin, clothing, etc., which is the reason you should never touch a wound with the fingers. Cuts from razors or sharp instruments are less apt to become infected than jagged or torn wounds. Punctured

wounds such as are caused by stepping on a nail are most dangerous, as the germs are forced in at the time of injury and have little chance to escape. The wound closes up when the nail is removed, so the germs remain in and grow and cause a bad infection. Wounds of this kind no matter how trivial, should receive prompt medical attention. Have your doctor dress it. Even the slightest infections very often prove fatal. We often hear where a man of prominence has neglected a slight cut or scratch, blood poisoning follows, and he dies in a few days from general blood poisoning.

To avoid infection and blood poisoning keep the following "Don'ts" in mind and observe them:

Don't neglect a wound where skin is broken.

Don't touch or put finger on or in wound.

Don't let clothing touch wound.

Don't use strong antiseptics.

Don't use court plaster, cob-webs, tobacco, axle grease, engine waste, etc., over any kind of wound or scratch.

Don't fail to call surgeon if injury is serious.

#### **Jaw:**

Broken Jaw. See—Fractures.

Dislocated Jaw. See—Dislocations.

#### **Leg:**

Bleeding from Leg. See—Hemorrhage.

Dislocation of Leg. See—Dislocations.

Fractures of Leg. See—Fractures.

#### **Lockjaw:**

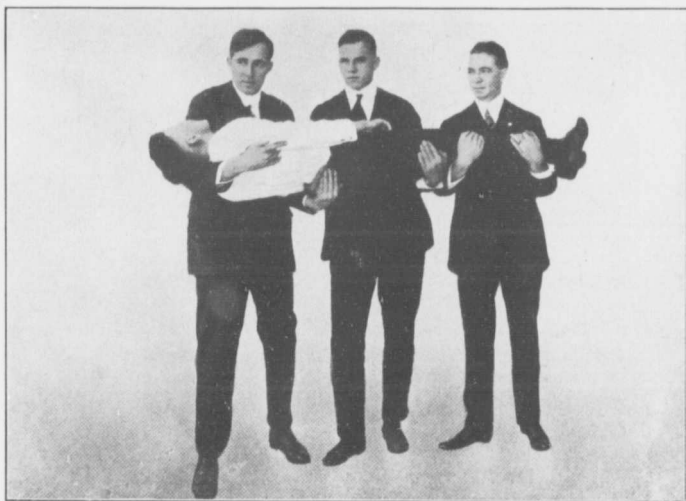
Is caused by the tetanus bacillus getting into wounds at time of accident. Lockjaw is more often caused from punctured wounds than from cuts. Wounds caused from rusty nails or from accidents received around dusty factories, barns, gardens, manure piles, etc., are most apt to cause lockjaw. It is also often caused from wounds from guns or blank cartridges where the wad is blown into the tissue and remains there. Treat same as punctured wounds. (See—Punctured Wounds.

#### **Mad Dog Bites.**

See—Rabies.

## Moving the Injured:

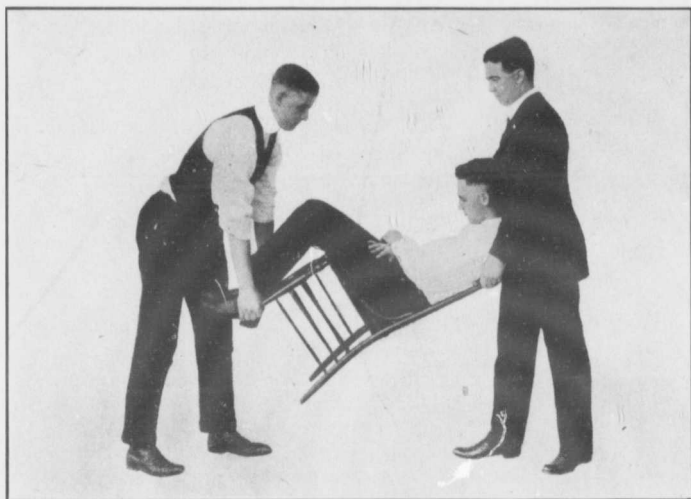
Care and judgment should be used in moving an injured person. If the surroundings are at all favorable it is always advisable to apply first aid before the patient is moved any great distance. In cases of fracture it is far better to apply a temporary splint to the injured extremity before moving the patient. Great injury may result from the careless handling of patients who have sustained a fracture. The best splint or support in emergencies are those most easily got, such as umbrellas, walking sticks, a broom-stick, lath, piece of wooden box, billiard cue or a policeman's club. Tie one firmly to each side of the limb with handkerchiefs or bandages of any kind. If possible, move the patient lying at full length, using a stretcher, door, shutter, gate or anything that is handy. When moving the patient



*The above illustration shows the proper way of carrying an injured or unconscious person. The arms are passed well in beneath the body so that the person being carried is held close up against those who are carrying.*

without litter, two or three men, all on the same side of the patient, kneel on one knee, the other foot being kept on the ground. Passing their arms well under the patient, they carefully lift him onto the upright knee, all lifting together. Here they pause for a moment, pass their arms further under patient and then rise. See above illustration. By keeping the patient close up to their chest, he is easily carried. In lowering patient, the carriers first kneel on one knee and rest the patient on the upright knee, then adjusting their

arms they lower patient to the ground. If patient is not unconscious, he may be carried by two men forming a seat with their hands and then having him sit on the seat and hold to the carriers by putting an arm around each. Injured persons can be very easily carried in a chair, even if in an unconscious condition. See illustration below.



*A person who has been injured or who is in an unconscious condition can be carried in a chair as shown in this illustration.*

### Nails:

Injury by nails is very common and sometimes very dangerous. Treat as punctured wounds. (See—Punctured Wounds). An injury from a rusty nail should always be treated by your doctor, otherwise infection and later lockjaw may be the result.

### Nose:

Broken Nose. Always go to a doctor. Permanent deformity and interference with breathing may follow if neglected.

Bleeding from Nose—See—Hemorrhage.

Foreign Bodies in Nose. Do not attempt to remove, as this is the work of a doctor. To attempt to remove by a hairpin or tweezers may cause serious inflammation and injury.

**Poisoning:**

There are so many different kinds of poison and poisoning that it is impossible to give a uniform treatment that will cover all cases. First of all send for the doctor, and if possible, advise him of the kind of poison taken so he can bring the proper antidote. While waiting for the arrival of the doctor the following rules should be pursued and life may often be saved.

If lips and mouth are burned (as a general rule), give no emetic; that is, cause no vomiting.

If a mineral acid has been swallowed, give alkalis such as magnesiz, baking soda, powdered white crayon or soap suds; or give raw eggs, milk or oil. Don't give emetic.

If carbolic acid has been swallowed, give brandy, whisky, or dilute alcohol freely and follow this with an emetic.

If a strong alkali or caustic has been swallowed give milk or oil, or some hard cider, vinegar or lemon juice. Do not give emetic.

If antiseptic tablets have been swallowed give the whites of several eggs and then an emetic.

Good Emetics. Have patient drink a large quantity of mustard water (two tablespoonfuls to quart) or salt water (one tablespoonful to quart), and stick finger down throat to start vomiting. Repeat soon if not sick. In the interval sip lukewarm water.

**Punctured Wounds:**

These are small, deep wounds usually caused by a nail, pieces of glass, punch, sliver, knife, toy pistol, etc., and the skin usually falls back into place, and in this way any germs that may have been forced into the wound are held in there and have every opportunity to grow and multiply, thereby causing infection. Never put a probe into a wound of this kind. Small particles are liable to remain in punctured wounds, but leave their removal to the surgeon.

Always have these wounds treated by a surgeon. They are dangerous and many people have died following the neglect of proper treatment. If possible encourage the wound to bleed freely by massage and pressure toward the wound. Afterwards cover it with a piece of gauze. Lockjaw is usually caused from punctured wounds, especially those received around barns or gardens, so if your surgeon decides to cut open and enlarge the wound, permit him to do so.

**Rabies:**

Rabies or Hydrophobia is a disease caused by the bite of a mad dog or of another animal which has been bitten by a mad dog. A dog bite should alwayesb considered serious and a doctor consulted.



If the dog is not mad, or becoming mad, rabies will not develop in the person bitten. Never kill the dog until you are sure he is mad. Catch him and turn him over to a veterinary for observation. If the dog does not become mad within a week, then he has not given you the rabies and you are in no great danger, but your wound should receive the same treatment as other bites. See—Bites.

If the bite is from a mad dog or from one that becomes mad within a week, the person bitten should be given the Pasteur treatment at once. If given in time this treatment will save the person's life.

**Rupture:**

See—Hernia.

**Shocks by Electricity:**

See—Electric Shock.

**Sliver:**

See—Punctured Wounds.

**Snake Bite:**

See—Bites by Snake.

**Sprains:**

The joint must be kept at perfect rest. If pain is severe pour cold water on it or apply a towel or handkerchief dipped in cold water. Call a surgeon as the sprain may be serious and must not be neglected. If the ankle is sprained the patient should not walk a step. Elevate the limb. This sends the blood away from the injury and relieves much of the pain. It may be a fracture or dislocation. See—Fractures and Dislocations.

**Stab Wounds:**

See—Punctured Wounds.

**Stimulants:**

Aromatic spirits of ammonia is one of the best and safest stimulants. It is usually given one teaspoonful in one-half glass of warm water.

Hot drinks such as coffee, tea or broths.

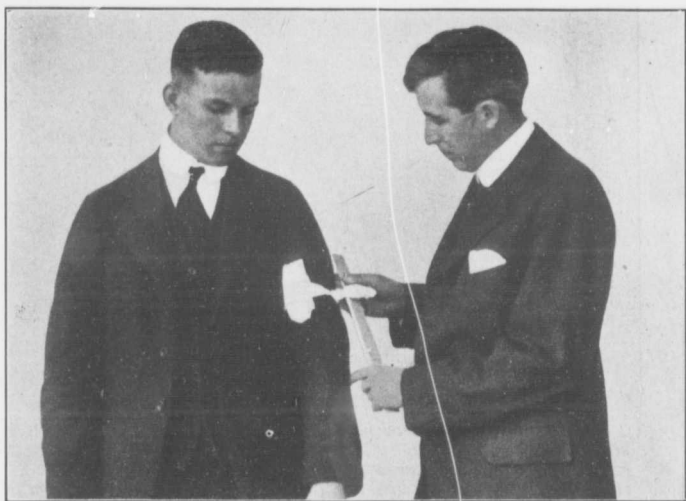
Brandy or whisky. If given do not give too much. Give one drink and do not repeat. Too much alcohol is depressing. Do not give when head is severely injured or where hemorrhage occurs.

### Stings of Insects:

These are really very slight wounds, into which poison has been introduced, with the production of a considerable amount of irritation. For mosquito bites, ammonia is the best remedy, as the poison is an acid. The same remedy is also good for other insect bites, including spider's stings. The sting should be pulled out if it sticks in the wound. Afterwards cloths moistened in cold water, wet salt or wet clay will relieve the burning.

### Suffocation:

See—Artificial Respiration.



*Method of applying a tourniquet to the arm to stop bleeding from any portion of the arm below where the tourniquet is applied. The pad is placed over the main artery supplying the arm and hand. Twist tourniquet until bleeding stops. Do not tighten beyond this point. Do not leave tourniquet on for more than one hour without loosening and again tightening if necessary. The tourniquet is best if applied over the clothing.*

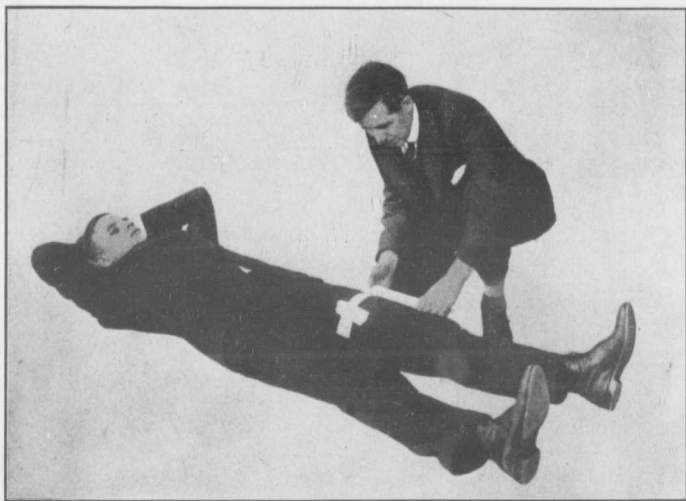
### Sunstroke:

This comes from being exposed to the hot sun on a very hot day. Send for a doctor the first thing. Place patient in a cool place. Remove clothing as much as possible. Put ice on head and chest or wrap in sheets wrung out of ice water and kept cold by frequent wetting with ice water. Care must be exercised by constant rubbing to avoid shock. Cease the cloth applications as soon as the patient becomes conscious.

If one feels symptoms of sunstroke coming on he can often prevent it by stopping work, going to a cool place, lying down, bathing head, chest and arms in cold water and drinking freely of cold water.

### **Tetanus:**

See— Lockjaw.



*Method of applying tourniquet to leg to stop bleeding from any portion of the leg below where the tourniquet is applied. Pad is placed over the main artery supplying leg and foot. Twist tourniquet until bleeding stops. Do not tighten beyond this point. Do not leave tourniquet on for more than one hour without loosening and again tighten if necessary. The tourniquet is best if applied over the clothing.*

### **Tourniquet:**

Where an artery has been cut or severed and the bleeding is severe a tourniquet should be used. Bleeding from an artery is indicated by the strong spurt of blood and the bright red color. When an arm or leg is badly cut or severed, a tourniquet should be immediately used and applied sufficiently tight to stop all bleeding. Unless pressure is sufficiently great to stop the bleeding, more damage may be done than if no tourniquet is used at all.

In applying the tourniquet, care should be taken to apply the pressure directly on the artery between the wound where the bleeding occurs and the heart. This can be done by inserting a tightly-wound piece of roller bandage or any other material under the tape

of the tourniquet in order to place the pressure upon the artery. Use your thumb or fingers first and locate the exact spot where the pressure must be made to stop the flow of blood, then apply the tourniquet and draw it sufficiently tight to stop the bleeding. See the illustrations for the manner of applying the tourniquet over the clothing. In the absence of a tourniquet, which is nothing more than a piece of tape, a strong bandage or piece of cloth may be used with equally good results.

To stop bleeding from Scalp—Apply the tourniquet around the head just above the eyes and ears and well down on the back of the head. Apply pressure on arteries just in front of each ear.

To stop bleeding from Hand and Arm—Apply tourniquet to the upper arm, placing the pressure over the artery as shown in the illustration.

To stop bleeding from Leg or Foot—Apply tourniquet just below the groin at the pressure point, and in the manner shown in the illustration.

### Unconsciousness or Insensibility:

In case you find a person unconscious you should call the doctor at once. In the mean time examine for injuries and treat accordingly.

If any excessive bleeding, treat for hemorrhage. See—Hemorrhage.

After an accident, especially where the head has been injured, and the patient is unconscious, with weak, flickering pulse and shallow breathing, suspect concussion or stunning. See—Concussion or Stunning.

When a patient becomes suddenly unconscious, with cold, clammy sweats and a feeble pulse, he has probably fainted. See—Fainting.

When a patient is unconscious, and the whole body convulsed, suspect epilepsy. See—Epilepsy.

After sudden unconsciousness, where only one side of the body is limp, and where there is loud snoring breathing, suspect apoplexy. See—Apoplexy.

It may be from poisoning. If so, see—Poisoning.

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## Prevention of Contagion

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First aid teaches that utmost care should be exercised to prevent the spread of communicable diseases, also called contagious or infectious diseases. Microscopic bodies, called germs, so small that millions of them unperceived may gain entrance to the body through the throat, nose and skin, passing from person to person, are one cause of the spreading of disease. In vigorous health their presence does no harm, as they do not find a soil suitable to their growth, but in failing health, in weakness, in a slight cold, inflammation of depressed vitality, a place is found where they can lodge, grow and multiply. Secreted upon or excreted from the diseased body they are carried with infected material from person to person.

These germs cling to clothing, bedding, carpets, and to the hair and skin of animals. They cling to walls, find their way into food, milk, meats, fruits, decomposing matter and drains. Damp, mouldy places are rich soil for their propagation. They may be carried through the air on the bodies of insects. All persons and all things may become carriers of the seeds of disease.

The attending physician will give specific instructions in all cases of communicable disease. First aid teaches what should be done while awaiting these instructions, and then only instructs upon measures tending to prevent the spread of disease, not the treatment of the disease, which should always be looked after by the physician.

The most effective means for the control, prevention and ultimate eradication of communicable diseases are isolation—the separation of the sick from the well; disinfection—destruction of infection, and in the case of smallpox, vaccination.

Here are a few suggestions on how to avoid contagious diseases, condensed from Johnson's First Aid Manual:

- Avoid sitting down in the sick room, especially upon the bed.
- Wash the hands with antiseptic soap after each contact with the sick.
- Exercise regularly, in the open air if possible.
- Avoid the breath of a sick person.
- Eat or drink nothing that has been in the sick room.
- Do not go into the sick room with an empty stomach.
- Do not wear a patient's clothing.
- Kill or drive out of the sick room all flies or other insects and destroy all mosquitoes.
- Do not sweep the sick room—scrub it.

