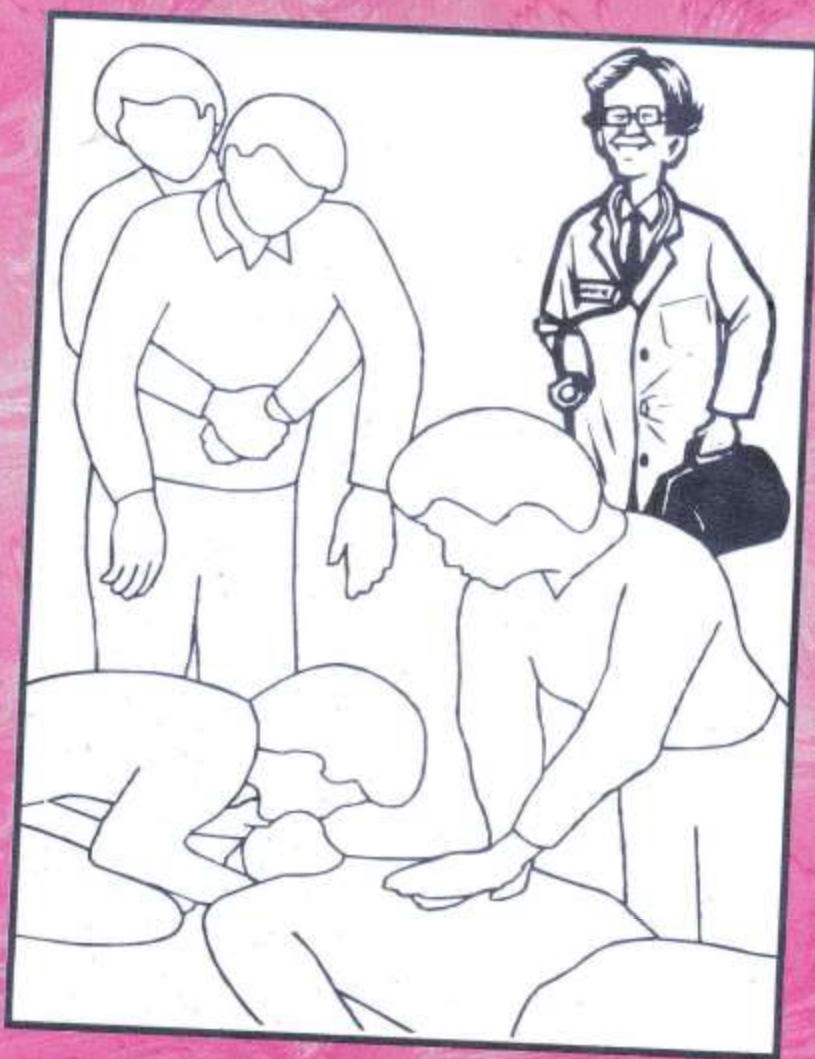


Science in Daily Life Series

First-aid in Accidents & Emergencies



Dr. D. P. Singh
Vd. (Late) Sultan Ali Khan

Science in Daily Life Series

Series Editors

Dr. Narendra Nath Mehrotra and Pt. Madhvacharya

Hindi Titles	Author(s)
1. Our Houses	Vinoo Kale & Mohan Thapaliyal
2. Dental Care	Dr. C.S. Saimbi & Pt. K.G. Gore
3. Autobiography of Holy Basil (Tulsi)	Pt. Madhavacharya
4. Ayurveda : Yesterday, Today and Tomorrow	Pt. K.G. Gore
5. Proper Digestion for Good Health	Dr. Puneet Mehrotra & Vd. Sultan Ali Khan
6. Alphabets of Animal Diseases	Dr. M.P. Shukla & Dr. P.K. Tripathi
7. First-Aid in Accidents	Dr. D.P. Singh & Vd. Sultan Ali Khan
8. Body Constitution & Health in Ayurveda	Vd. Sultan Ali Khan



Publishers : Jeevaniya Society, Lucknow

Science in Daily Life Series

First-aid in Accidents & Emergencies

Dr. D. P. Singh

Vd. (Late) Sultan Ali Khan

Series Editors

Dr. Narendra Nath Mehrotra

Pt. Madhavacharya

Publishers : Jeevaniya Society, Lucknow

First-aid in Accidents

© All Rights reserved with Jeevaniya Society, 2009



Authors

Dr. D. P. Singh
Vaidya Sultan Ali Khan



Translation & Series Editors

Dr. Narendra Nath Mehrotra
Pt. Madhavacharya



Publishers & Distributors

Jeevaniya Society
474A/60 (30 New) Brahm Nagar, Sitapur Road,
Lucknow - 226020

It is necessary to take prior written permission of the Publishers before using any information from this book, as such or after modifications.

Price : Rs. 40

Printers:

DREAM SKETCH
36-A, Brahm Nagar, Sitapur Road, Lucknow - 226020



He h
pract
Surg
Palm
diffic
the D



kno
use
the
offic
put
der
Jee

First-aid in Accidents

Happy and sad moments do come in human life. A member of any household or family may fall prey to an accident any time. A sudden attack of an illness or its serious nature is also like an accident. Other accidents include a fall or hit from a vehicle while traveling on road, or being caught by fire, electric shock, leakage from a gas cylinder or drowning in water. One may endanger his life by eating a poisoned dish or one may die due to snake bite or succumb to a mad dog's bite.

If the victim does not get proper help and first-aid in such sudden dangers, then it becomes very difficult to save his life, while proper first-aid saves the life of victim of even the most serious accident. Therefore, every member of the family should know the type of first-aid to be given to the patient in various cases of accidents. The non-availability of proper help may worsen the case and the victim may die if he is not provided help in time.

The treatment given at the site of accidents to the victims of sudden accidents is called first-aid and it is given only till the victim is being taken to a hospital or a physician. The performer of the first-aid must know what first-aid must be given in various disease conditions and accidents. In such

a situation, if possible, an expert physician should be consulted on phone or through a messenger and the patient should be carried to him as per his instructions, because, only a physician or a trained person knows the type of help required in various diseases, accidents or injuries. Moreover, it is not necessary that a trained person is available at the site of accidents. Therefore, one should try to provide succor to the victim with the help of persons available at the site. Thus, every person needs to acquire the knowledge of first-aid.

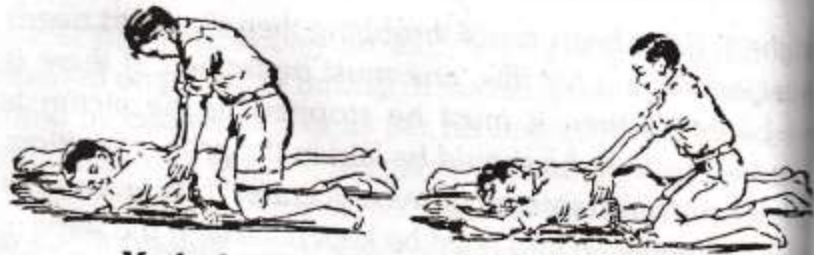
One of the most critical decisions is, sometimes, to determine if the victim is alive or dead. Sometimes a faint person may be mistaken as dead. A layman sometimes leaves an unconscious person for dead. A living person breathes, his heart throbs and his pulse is felt. In situations of doubt, always treat the person as fainted and provide all possible help including efforts to resuscitate, in case of lack of breathing/active pulse. If you are unable to feel the pulse on the wrist or at the chest/breast, feel the nostrils. Any sensation of warm air from nostrils is an indication of life. In the absence of warm air, press the chest of the victim and feel the breath. Even if the breath appears cold, rush the victim to an expert physician, while keep trying to resuscitate the victim by pressing the chest or through oral pumping of breath.

The performer of first-aid should first of all see whether breathing is taking place or not. If the breathing is not normal, then artificial respiration is provided. If even after this, breathing is not taking place then his heart throb must be

watched. If the heart is not throbbing then the heart needs resuscitation, but for this, one must be trained. If there is any bleeding then it must be stopped. If the victim is unconscious then he should be laid in the proper position. If the victim has sustained burns or fractures then he must be properly managed and must be kept awake. If the steps of first-aid are carried out properly, then better results are ensured.

Providing Artificial Breathing

In the event that a person is unable to breathe, artificial respiration and resuscitation should be tried by gently, yet adequately pressing the ribs of the victim to ensure that the air from lungs is forced out and then releasing it after a second or two so that the chest expands, allowing fresh air to come inside, as shown in the picture on the next page. Sit by bending on one side of the victim, grab his ribs with both hands and extend your full weight on the ribs, for a few seconds in a downward direction. Thus the chest is compressed and reduces in size and the air in the lungs is expelled. After a couple of seconds, remove your body's weight to let the chest expand. Now the external air will rush in. This action should be repeated 15 to 20 times per minute, till the patient starts breathing on his own. The pressure on the ribs must depend on the age and strength of the victim. The pressure should be moderate such that it does not break the ribs.



Method of providing Artificial Respiration

Oral breathing may be provided to children and victims who are breathing very slowly. Lay the victim on his back on a hard surface and clean his mouth. Place your one hand below the neck and the other on the forehead of the victim. Now exert mild pressure downwards on the forehead and raise his head from below as shown in the pictures below.



Closed Airway



Open Airway



Mouth to Mouth



Mouth to Nose

Artificial Breathing

F
F
S
F
C
T

k
u
th
o
p
d
J

Now having breathed deeply, blow into the mouth of the victim four to five times. At the same time close the nose of the victim with the thumb and finger of your hand which is on the forehead. In the same manner, blow 10-12 times per minute. Take your ear near the mouth of the victim to see whether breathing has started. Now feel the pulse in the wrist or neck. If the pulse is not felt, keep on providing artificial breathing. Continue the action till automatic breathing takes place or a physician arrives.

Stopping the Blood Flow

Blood is an essential constituent of our body. Blood can quickly flow out through a wound, injured vein or artery. Excess of bleeding can cause unconsciousness and even death. Our body contains about five liters of blood. If about 1.5 liter of blood flows out of our body then we may die. For children, loss of its half, i.e. about 750 ml is enough for causing death. So it is absolutely necessary to stop bleeding of the accident victims. Bleeding may occur through the victim's capillaries, veins or arteries. Blood vessels contract naturally when cut, so that the flow of blood may stop. Simultaneously, the process of clotting of blood also starts. This process stops the bleeding in minor injuries but in case of major injuries, the flow of blood being very fast, clotting does not happen. While bleeding from veins is comparatively easier to control, blood speedily gushing out of an artery is difficult to stop, requiring urgent special

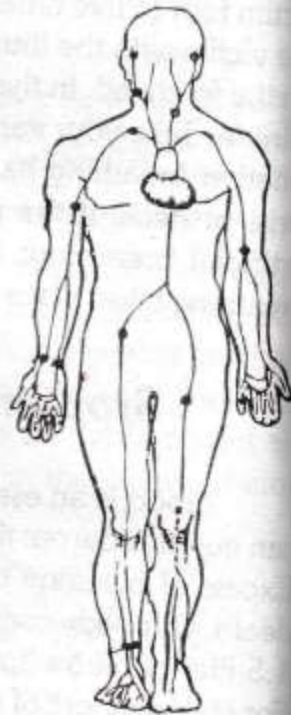
attention. Therefore, special efforts are needed to stop the fast flow of blood.

The colour of blood emanating from an artery is bright red and it emerges in the form of a stream. To stop the flow of blood from an artery, pinch the exit point of the blood with your thumb.

If the flow does not stop, then press the point a little away from the injury, i.e. the part above the artery called, 'pressure point' below which there is bone. For example, if blood is coming from palm, then press hard the wrist. Place a pad of clean gauze (or clean cloth, if the gauge is not available) at the site of bleeding and, if needed, also at the 'pressure point', bandage tightly and take the patient to the doctor.

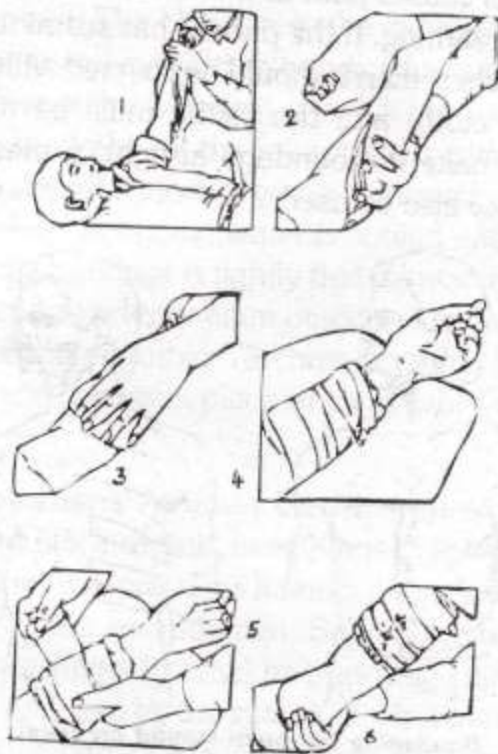
To stop the flow of blood, pressure must be exerted upon the vein away from the injury or the point of bleeding or by placing a pad of gauze (or clean cloth) over the injury and applying a tight bandage.

In case of continued bleeding, the bandaging with additional piece of cloth/gauze should be continued without removing the earlier cloth, soaked in blood. Before bandaging, check that there is no foreign body enmeshed



*Salient Pressure Points
of the body*

in the wound and if there is any, please remove it. If the bleeding is observed even now, then without removing the bandage, tie another over the first bandage. In older books of first-aid, binding of tourniquet was directed, but that process has been given up now, because binding of a tight tourniquet can cause complications, instead of giving some advantage.

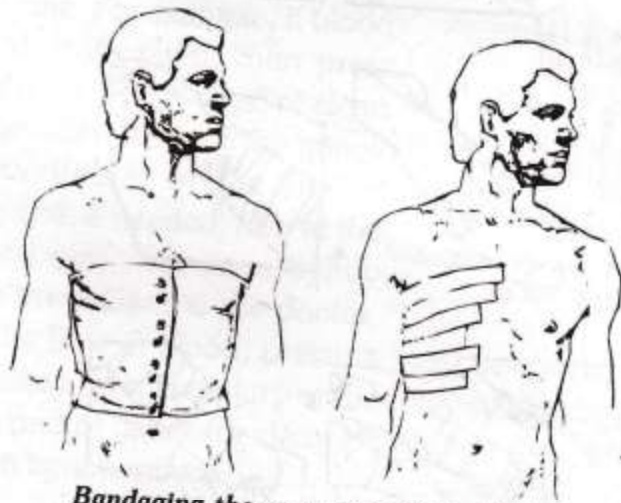


Method of Bandging a wound

In case of knifing of stomach or in case of something sticking in the stomach, great caution is required to take out the sticking object. One should not attempt to remove the

sticking object casually. It should, instead be encircled with a coil of cloth and covered with a bandage.

A serious injury to the chest may cause the air to enter the thoracic cavity, which causes the lungs to shrink. This may also occur due to leakage of air from the lungs into the thoracic cavity. It is called pneumo-thorax in medical parlance. This causes pain in the chest and the victim has difficulty in breathing. If the patient has sustained an open injury on the chest then it should be covered with an airtight bandage (or cloth) and the victim must be rushed to a hospital. To make the bandage airtight, a piece of clear polythene may also be used.



Bandaging the open wound on chest

If the bleeding is profuse, a doctor must be called in or the victim must be taken to a physician/nearby hospital after taking necessary steps described above. Till the stoppage of bleeding, the patient should not be given any hot drink

like tea or coffee. If the patient feels thirsty then he may be given a little cold water from time to time. He may be given powdered alum or turmeric to eat and then warm milk to drink, which may be useful.

In bleeding from veins, the blood happens to be black, red or coffee-coloured. This flow happens to be slow but even to stop it, the affected limb has to be raised above the plane of the heart. The blood from the capillaries happens to be very bright and red. This blood slowly percolates from the injury. To stop this bleeding, place a piece of sterilized gauze (or clean cloth) on the injury and bandage tightly. Bleeding also stops if a piece of gauze immersed in a solution of alum dissolved in boiling water is cooled and kept over the injury and a bandage is tightly tied. Flowing blood also stops if turmeric powder or alum powder is sprinkled, or by applying Calendula Mother Tincture over the injury or at the bleeding site, before a piece of clean cloth or gauze is tied over it.

Internal Bleeding : At times bleeding may occur from internal organs like intestine, liver, lungs or spleen etc. due to injury or other reasons. This haemorrhage takes place in the cavities of chest or abdomen. Such bleeding is called internal haemorrhage. Internal haemorrhage is not visible and has to be assessed by the symptoms. In case of internal haemorrhage the patient's face becomes pale and his pulse may be quicker or slower. He may also sweat profusely.

In case of apprehension of internal haemorrhage, the patient is to be rushed to the nearest hospital. He should be

made to lie with his head at lower plane and allowed to rest. He must be kept in fresh air. All his tight clothes should be loosened at chest, stomach, neck and around waist so that his breathing is as easy as possible. Powdered alum or turmeric to eat and lukewarm milk to drink is helpful.

In the case of a head injury, the danger of internal bleeding is greater. Therefore, all head injuries must be shown to the physician, even if the injury seems to be minor. Internal bleedings of head and brain may sometimes be very serious. If the patient becomes unconscious after being injured and vomiting or giddiness occurs after some time, then he must be considered serious and taken at once to the hospital or a physician and, if necessary, admitted to the hospital.

Removing the Faintness

Sometimes a person becomes unconscious due to excess of heat, too much of worry, cramped living, too tightly fitted garments, excess bleeding from some part of the body, internal bleeding etc. The face of the unconscious man wilts, he sweats, his pulse becomes slow and his skin becomes cold. Before falling unconscious, he feels thirsty and lazy and slowly he becomes unconscious.

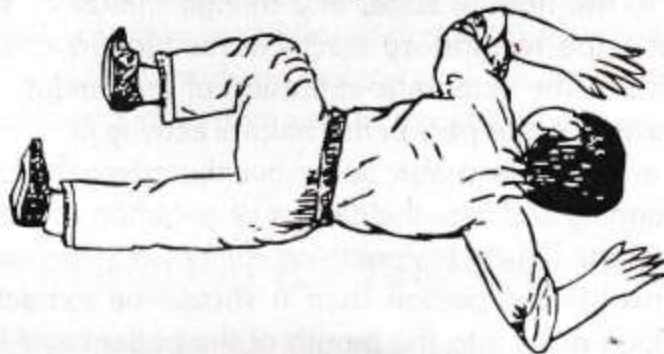
If one feels that unconsciousness is approaching, then he should lie down on his back keeping his legs at one foot above the level of his head, so that the blood from legs reaches upper part of the body. An unconscious person

should immediately be provided first aid and taken to the physician, to find out the cause of unconsciousness and if there is a specific disease, it should be treated. In unconsciousness, the normal reflex actions become scarce and muscles of the body loose their natural efficiency.

During unconsciousness, any obstruction in breathing can cause danger to the victim's life. The cause of obstruction in breathing tract may be due to spiral twisting of the lower jaw or tongue or accumulation of sputum in the respiratory tract. In the normal state, any foreign matter or sputum entering the respiratory tract causes violent coughing, resulting in the automatic expulsion of the foreign matter. In an unconscious person this natural activity does not take place and so he is unable to remove the external substance by coughing and thus the danger of cessation of breathing is imminent. If there is something entangled in the mouth of the unconscious person then it should be extracted by inserting fingers into the mouth of the patient and in case of absence of respiration, artificial respiration should be given. Once the breathing is resumed, he should be made to lie down as described below. If an injury is suspected in the vertebral column or spine of the patient then do not lay him as described below.

The posture of laying an unconscious person: Sit on your knees on one side of the patient. Now straighten his hand nearer to you and lay it behind his head. Now bend his farther hand and lay it on his chest and bend his farther leg at the knee and keep it on the nearer leg. Now hold the

cloth of the patient at his waist with one hand and turn the face of the patient towards yourself with another hand. Now, as shown in the figure, place hands and thighs of the victim such that they make an angle of 90° with the body. Now slightly lift the head of the patient so that his chin comes slightly forward. Having performed all the acts of first-aid, lay the patient as described above and arrange for Doctor's help. In this state the body weight is evenly distributed over the body, moreover saliva comes out from his mouth easily and he can breathe freely.



Laying of an unconscious person

Clothes of an unconscious person, particularly the buttons of neck and chest should be opened quickly and his clothes loosened at the waist. No crowding should be allowed near the victim to ensure enough fresh air. Cold water should be sprinkled over the face of the patient. Keep wiping his face with a wet handkerchief. In cold environment the victim may be wrapped in a coat or blanket, so that his body heat is not wasted away. Avoid giving any food to the victim without medical advice. Some Oral Rehydration Solution (ORS) containing sugar, salt and table soda may

be given once the victim regains consciousness and asks for some intake.

Make the patient inhale the vapours of crushed onion or ammonium chloride mixed with edible slaked lime. Arrange a Doctor for an unconscious victim or take him carefully to a Doctor. Don't give him anything to eat without Doctor's consent. If the medical help is likely to take several hours then he may be given a dilute solution of water, common salt and edible soda. Remember that you are not to keep ammonia or inhalable salt (slaked lime mixed with Ammonium chloride) near victim's nose for long. Until the victim is able to swallow anything don't give him anything to eat. If unconsciousness persists for long then the victim should be taken to a Doctor forthwith.

Fits

Fits or seizures occur due to disturbance in the cells of brain and their occurrence is more among children than in adults, because the probability of their occurrence is more amongst the growing minds. Sometimes fits may be hereditary. Such violent fits may occur due to high fever, epilepsy or any disturbance in the mind. In such situations during fits and epileptic seizures, keep the affected person in open air, do not allow the people to collect around the patient and loosen the clothes at the neck. Insert a thick cloth between the teeth, so that he may not cut his tongue. Keep sprinkling cold water on the face of the patient and fan him incessantly. Do not give him anything to eat or drink till he becomes conscious. Do clean his throat with a swab of cotton or clean cloth so that breathing is easier and the

throat is not obstructed. If the child has fits off and on then have him examined in a hospital. An adult, having fits off and on, may need electroencephalogram, C.T. Scan, special X-rays like MRI or cerebral angiography. One who is prone to fits should not be allowed to swim, climb trees and use machines.

Drowning

A person may drown suddenly in a river, pond or well. Such accidents do happen often while bathing, swimming or deluge. Filling of water/fluid in the lungs and consequent difficulty in breathing are the causes of death due to drowning. Therefore, remove as much water from the lungs as possible by gently pressing the lungs and ensure artificial breathing as described earlier. If a person is lying in shallow waters, he should be given artificial respiration there itself, so much so that while taking him out of water and carrying him to the Doctor, he should be given artificial respiration all along. Take care that there is no delay in providing artificial breathing. The victim may take considerable time to start breathing on his own, therefore, continue to give him artificial respiration without any break. The effort must be non stop till the victim starts breathing on his own.

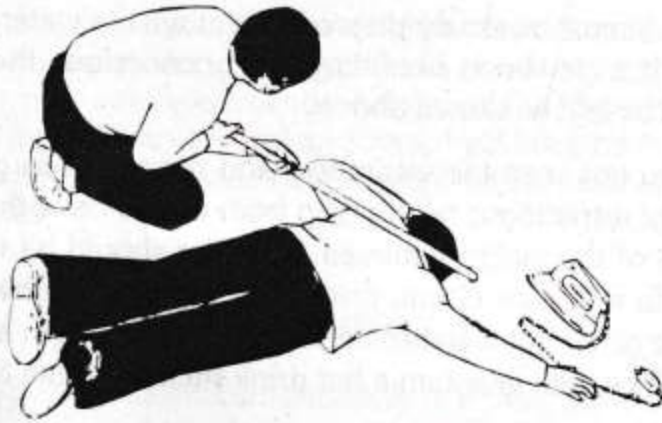
Thus, the first thing is to make the person lie down in the posture given in the picture given earlier. After taking the drowned man out of water he should be laid face down. If mud etc. has entered his mouth then the same must be removed and mouth cleaned with a piece of cloth/gauge.

His back must be slowly pressed to remove the water from lungs. If a person is breathing but unconscious then he should be laid as shown above.

Do not keep the victim wet and naked, while giving artificial respiration, taking help from others have the wet clothes of the victim removed. Then he should be wiped dry with a dry towel and drape him in warm clothes. He may be given hot water fomentation. When he is in a state to swallow then give him a hot drink such as coffee or tea.

Electric Shock

Use a wooden stick to unstuck a man stuck with an electric wire/appliance. Electric shock can make a man unconscious and his respiration and palpitation of the heart may stop. After the shock there may just be a small sign or spot, but this itself may destroy several internal organs. First of all switch off the current and remove the victim from electric wire, using a wood or rubber. This should be done even if switching off the current is taking time. Take sufficient care while doing this, otherwise the provider of succour may himself be shocked. Examine the palpitation of the heart and respiration. If the palpitation of heart is not felt, then resuscitate his heart, if you are a trained person. If the patient is unconscious and breathing then lay him as shown in the picture given above. Provide the victim with medical help as far as possible.



Removing a person with stick/rubber

Heart Attack

Previously, the diseases of heart and heart attack were considered diseases of the rich and developed countries, but now they are growing in our country too, due to changing life-style, malnutrition and other causes. One who is aware of his heart disease naturally stays alert, but at times one remains unawares and suddenly the heart attack overtakes him and he becomes worried and if he is not treated properly then he may die. Diabetics must be particularly careful as they often get 'Silent Attack'.

A heart patient complains of pain in the chest which aggravates as upon climbing stairs, running or hard physical work. Hard work entails more work for the heart and if there is any obstruction in the carotid artery, which supplies blood to the heart, then the heart is not able to function properly resulting in the pain. A pain in the chest may not always be

a symptom of heart attack but there is a possibility of weakness of the heart and the patient must be examined by a heart specialist. In this pain the patient feels that his chest is being fastened. The pain shoots from mid-chest and travels towards left hand, back and fingers. Normally the heartache lasts for a few minutes and improves with rest. If the pain lasts for more than 15 minutes and does not improve by rest, then the pain may not be in the heart, but in the muscles also. But it should be examined by a specialist. If someone is suffering from pain from time to time since long and has a heart attack then neither rest or nitroglycerine tablet gives him succour. A bout of heart attack engenders excruciating pain, loss of complexion and cold sweating. Sometimes the patient complains of twisting pain in the stomach, gas formation or vomiting. He may also feel like passing the stools. Avoid the patient from going to the toilet for passing the stools. In any case he should refrain from exerting pressure to pass the stools. At least ensure a regular watch on the patient in the toilet.

If you have chest pain, then get examined by a specialist and take the prescribed medicines, salutary diet and life-style advised by him. If you feel, that you have had a heart attack then lay down motionless peacefully and ask for Doctor's help. Known cases of Angina/heart pain must keep tablets of 'Sorbitrate' always readily available with them and put below their tongue whenever they feel cardiac pain or as advised by their doctor. If a helper is available, then he should take you to the cardiac care unit in the emergency of the nearest hospital by ambulance. Heart attack can cause

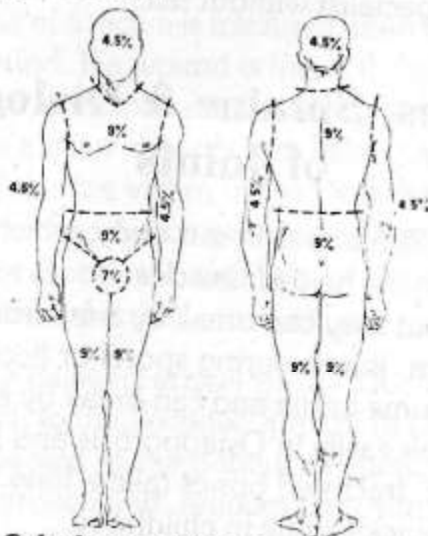
immediate death but it does not happen so in all cases. If timely help of the specialist is available, then in most of the cases, lives are saved. In order to avoid and properly manage heart diseases it is essential to adopt proper diet and appropriate life-style.

Burns

Burns can result due to accidental exposure to fire, acids or electric shock. Usually ladies get their hands burnt by hot vessels, open flame or vapours. Squirting of boiling water or boiling oil can also cause burn injuries. Innocent children effortlessly get burnt by hot objects or flame. Burning can also occur by electricity or corrosive substances like acids. The severity of injuries due to burning depends upon the affected area and depth of the injury.

Injuries of burning are classified as First, Second and Third degree (Primary, Secondary, Tertiary). In the first degree burns only the external layer of the skin is affected. The skin gets scarlet coloured and painful upon touching. There may be slight inflammation in the skin. In the second degree burns the interior layers of the skin are also affected resulting into blisters. The skin may become wet and droplets of water appear. The skin gets inflamed and too painful. In the third degree burns, apart from the external and internal skin, muscles beneath them are also affected. Colour of the skin becomes white or scorched black. In this stage, possibly due to the destruction of nerves, the pain may be excessive.

The intensity of burning has also to be assessed by the area of the burnt surface. Roughly, the seriousness of burning can be calculated based on the figure given below. In a major accident of burning, such as a person's catching fire through his clothes, throw a thick cloth or blanket upon him and douse the flames by patting. Quickly remove shoes, rings, ornaments etc. of the victim. Don't douse the fire with water because water will produce steam, which is likely to aggravate the damage. Remove burnt clothes of the victim, using a scissor. Do not try to remove the stuck clothes in the injury using force. Do not burst the blisters as it may cause infection. While cold water may be poured on 1st degree burns (keep the affected part dip in cold water for up to an hour or till the burning sensation subsides), fresh gel of *Aloe vera* or a paste of raw potato with turmeric powder helps even in 2nd degree burns.



Calculation of the Burnt up area

In cases of tertiary burning, consider the victim in a state of emergency and he must be admitted in the hospital at once. In burning of the 3rd stage there is an excessive danger of bacterial infection and the victim needs operation and intravenous infections. After controlling the fire and taking the victim to a secure place, he should be taken to the hospital as quickly as possible. If the face of the victim is burnt, then his respiratory limbs may be affected. If the burnt victim feels difficulty in speaking, swallowing or breathing then admit him into a hospital without delay.

In the case of chemical burning, remove clothes of the victim forthwith and clean him thoroughly with water. If the box of the chemical carries first-aid instructions then carry them out. While the first-aid is provided, a Doctor must be contacted. If a chemical has fallen into the eye then show him to an eye-specialist without fail.

Fractures, Sprains & Dislocation of Joints

There are 206 bones in our body, which give motion to our body with the help of muscles. Bones are very strong in themselves but they can break by a fall from height, slip in the bathroom, injury during sports or accidents. In old age, bones become brittle and can break by a mild impact. Bones can break easily in Osteoporosis and Bone Cancer. During old age, fractured bones take a long time to unite, whereas they quickly unite in childhood.

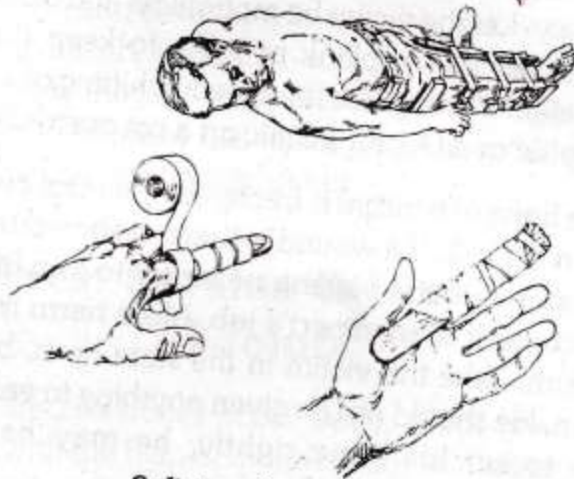
When a bone is fractured, then there happens to be acute pain and inflammation at the site of injury. The affected parts even look crooked. The affected part, on moving, feels acute pain. The organ whose bone is broken is unable to function and there is intense pain. By X-Ray only we know about the fracture with certainty. Therefore, if fracture is doubtful, then first-aid should be provided, presuming that fracture has happened.

If there is acute pain in the neck or spine, tingling, difficulty in moving hand or leg, loss of control over passing urine or faeces, then it should be inferred that this is a case of emergency. Let the victim be motionless and do not bend his body at all. Use a plank or table to keep the victim ramrod straight. Arrange for the speedy shifting of the victim to the hospital or a Doctor's clinic on a cot or stretcher only.

If the bone of a victim is fractured, then first of all check if there is a wound. If a wound is there, it should be treated first. Do not move the patient, neither try to join his broken bone, because it is an expert's job. More harm is likely by moving him. Take the victim in the state he is, by tying a cane strap. He should not be given anything to eat or drink, because to set his bone rightly, he may have to be anaesthetized and operated.

In case of delayed arrival of the Doctor or delay in taking the victim to the hospital, a splint (a thin, flat wood) may have to be tied to the patient. A splint precludes the shaking of the broken part, reduces pain and the possibility of worsening of injury is minimised. If the bone of the hand

or feet is broken then it should be bandaged with the help of a splint. In case of emergency a tome or pillow may also be used. Inside the splint some cotton or a piece of cloth should be inserted so that the bandage remains soft and pressure on the broken part is kept at a minimum. In case of a hurt wrist, it should be kept at 90° from the arm with palm downwards and making a garland with a piece of cloth or bandage to give support to the hand. Straighten the fractured leg slowly, make a splint and tie the fractured leg with the healthy one at several places. The splint should be made as long as the broken hand or the broken leg.



Splint on finger or leg

In simple fractures the bone is fractured, but its ends do not come out of the skin to show up and there is no harm to the adjacent muscles. Whereas, in a compound fracture, the nearby muscles are also affected. In a fracture, the affected part is tied fast with splint or plaster so that the

broken bones unite, naturally, on their own. In case of a thigh-bone fracture their ends overlay each other and in order to set them right a weight has to be hung by the leg so that the bone remains in the correct state. This act is known as traction. In some cases of bone fracture, in order to keep the ends together, operation is performed for providing metallic screws, rods or plates. In bone fracture, sometimes bone-grafting also needs to be done.

Sprains: In several cases of injury or impact the bone does not get broken but muscles and the tendons which join them to the bones are ruptured. This condition is called sprain. These happen mostly on joints and fingers, wrist, arms, knees, foot and heels are usually affected. In sprain, the affected part is swollen and it becomes soft and their movement is painful. If any blood vessel is also ruptured in the injury then the skin of the affected part may also become colourless. If the sprain is severe, fracture like symptoms are produced which may be examined by X-ray. In the first 24 hours of sprain, fomentation with cold water or ice subsides the pain. Gentle application of some anti-inflammatory cream or oil may also help. After a day or two fomentation with hot water and exercise of the affected part is advised along with the application of an anti-inflammatory cream or oil. If there is no relief in the pain and swelling, then Doctor's help is sought.

Dislocation: Sometimes a joint gets uprooted or hangs down due to fall, sudden jolt or twist. In such conditions the bone ends are displaced from their normal state. Sinews

and ligaments are also slightly injured. Normally, fingers, thumbs, wrists or shoulders get affected. In cases of dislocation of the shoulder or a fracture in the arm, it is better to apply a sling as shown below.



Shoulder & Arm Sling

Dislocation creates inflammation, pain, the change of shape of the affected part, loss of colour of skin etc. It may also pressurize the nerves near the affected part inducing paralysis of hand or legs. Setting of bone is the job of an expert bone-setter or Doctor, therefore, in the case of dislocation, make fast the joint only by tying a splint and take the patient to a Doctor.

Accidentally amputated parts: When a body part like a limb (hand or leg), finger or tongue etc. gets amputated

during an accident, special urgency and care has to be taken to save the part as well as ensure its proper and timely reunion by an expert surgeon. It is important to preserve the amputated part (after cleaning) in a plastic bag filled with ice. The lower temperature reduces the demand of oxygen (and energy) by the cells of the organ and allows it to remain alive for 2-6 hours. It should be ensured that the amputated part must accompany the victim to the hospital to allow its early surgery. In fact even a tooth knocked down during an accident must be kept in water or a wetted cloth and if the roots are intact, it can be reimplanted within the next couple of hours.

Poisonous Bites

Bites by poisonous snakes, scorpions, lizards or other animals (dogs, cats, monkeys etc.) can cause morbidity as well as mortality. Biting from dog or snake or stinging of scorpion etc may be very painful and even killing. There are different dangerous animals in every country and geographical area. In spite of every effort to avoid these dangerous animals, accidents do occur due to these.

Snakes are found everywhere. Although there are 2500 species of snakes, only one-third of them are poisonous. Even then about 1,00,000 people die of snake bite every year. In our country, about 216 types of snakes are found, and only 62 of them are poisonous. In our country snakes bite about 2,00,000 people and 15,000 of them die. Snake venom acts threefold. The Cobra poison affects the nervous

system, The Viper venom affects the blood and blood vessels and marine snake's poison causes death by affecting the muscular system. Cobra and Krait are the most poisonous snakes in our country which cause death within two to 24 hours of biting.



First aid in snake bites

The bites of poisonous snakes usually create two holes on the skin, about 2.5 cm apart. A red secretion seeps through the holes. The site of wound is tender, painful and swollen. Colour at the site is changed. Take a tough rope and tie fast the site a little above the bite but below the heart. While tying, care must be taken not to tie too hard otherwise the blood circulation may stop altogether. It should be tied only such that a finger may be inserted. The site of the cut should be washed with soap water. Thereafter, with

a new blade make an incision one cm deep at the site of the cut. Any secretion coming out of wound must be sucked and spat at once. This sucking action must be repeated four-five times as shown in the picture on the last page. Beware that you should not suck the poison, if there is even a minor cut in the mouth, because then it may become dangerous for you. Thereafter, gargle thoroughly. Keep the cut part in cold water. Then pack antiseptic potash in the wound and bandage, while simultaneously make arrangements to send the patient to an expert or hospital. In the meantime do not allow the patient to sleep. In order to keep him wakeful he may be given hot milk, tea or coffee. Many people resort to abracadabra or indigenous treatments in snake bite. These treatments may prove very dangerous. The only confirmed treatment of snake poison is its anti-toxin which is available in Primary Health Centres.

In the case of dog bite, let the blood flow, freely, for some time. Thereafter, wash the wound thoroughly with soap and water. Take the victim to a doctor or hospital for anti-rabies injection. Keep a close watch for 11 days on the dog that has bitten. If the dog remains normal and does not die, even then inoculation is a must. If the dog has rabies then it will do abnormal activities, such as running hither and lither, becomes languid, gives up eating and runs after everybody to bite them.

If anti-rabies injection is not administered in time to a person bitten by a mad dog, then he is likely to contract Hydrophobia or fear from water, which is a fatal disease. It has no treatment. It may occur any moment. Therefore, there

should be no carelessness in giving anti-rabbies injection to the needy. Even pet animals should be given anti-rabbies injections. Apart from dog bite rabies can happen by being bitten by rats, cats, bats, monkeys, horses or any wild animal.

Sting of insects may be painful too. If the sting remains in the skin then it should be extracted by scratching with a nail or knife. Normally no treatment is needed and within three to four hours the pain or burn subsides, and within 24 hours even the mark of the sting disappears. But some people may have allergy from a specific insect, in which case they should be taken to a doctor immediately. Some slaked lime from a nearby paan (Beetle) shop may be applied for immediate relief. If available, Apis of homoeopathy also helps. Among the symptoms of Allergy, apart from the site, swelling in eyes, tongue and lips, nausea, vomiting, restlessness and difficulty in breathing may be mentioned.

Choked Throat

Sometimes, due to hurried eating or some other reason some foreign matter enters the respiratory tract causing choked throat. If the entangled substance is obstructing partly, then violent coughing starts and the foreign matter is expelled automatically. In case of total obstruction of the respiratory tract, one is not able to cough, speak or breathe, he turns blue all over, grabs his throat and faints.

Heimlich Maneuver: Such victims need first-aid treatment at once. Such accidents happen often during eating or

children while they are swallowing something. For providing first-aid treatment in choked throat, clench your fist keeping the thumb open. Keep the victim standing and stand behind him and enclose patient's abdomen with your hands, keep your fist on the victim's abdomen, slightly above the navel and below the ribs. Place the other hand on this hand and push the stomach with a jerk as shown in the picture below.



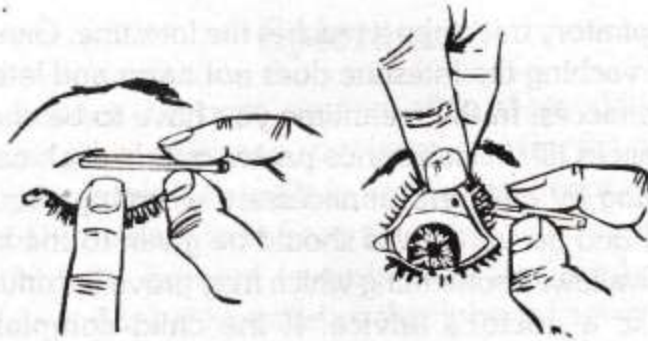
Picture of Heimlich Maneuver

If needful, do this action many times. This action is known as Heimlich Maneuver. If the victim is sitting, then this action could be done by sitting on your knees at his back. If the patient is lying then lay him face up, sit straddling him at waist with your legs. Now keep one of your hands over the other hand as flat and push from the back of the

palm. If the patient is fat, older than you or a kid then this act should be done keeping the patient lying. If your throat is choked and there is none around to help you, then you can act upon yourself. In case of a kid, you can place him lying or sitting on your lap. In order to apply pressure on his stomach then instead of hand, use your middle and forefinger. Very small kids can be made to lay or hang on your legs and then tap with your hand at his back.

Foreign Body in the Eye, Ear or Nose

Sometimes a particle of dust or sand or a small insect or fly enters your eye making your cry. In such a case, wash your eye with plenty of water. Lightly close your eyelids and let the tears collect for some time and then open your eye, the mote will come out with tears. Alternatively, take a wide-mouthed vessel, fill it to the brim with water and then dip your eye in the vessel and then open and shut your eye in that vessel. Make the victim sit in bright light and draw his lower eyelid a little down with your finger. If a mote is visible then remove it slowly with a cotton swab or with the point of a delicate twisted cloth. Similarly, keep a matchstick over the upper lid and turn up the eyelid. If a mote is seen, then remove it as shown in the picture on the next page. But if something is sticking to the eyeball, then do not try to remove it. Put a drop of castor oil and loosely bandage with a clean cloth and take the patient to the doctor without delay. In all cases of a mote in the eye, do not rub the eye because it may cause a wound.



Removing a Mote from the Eye

Sometimes a foreign body or an insect enters the ear. In such cases put mildly warm oil in the ear. The insect dies due to drowning in the warm oil. Then reverse the head to the other side to let the oil come out. The insect will also come out with the oil. If it does not come out then take the patient to the Doctor. The ear may get injured if force is applied to take the insect out. You can flush the ear with clean warm water or luke warm Neem leaf boiled water. After the insect is removed, use a cotton swab to thoroughly dry up the ear.

To remove an external substance from nose, close the other nose and ask the patient to briskly breathe with the nose. Then keep the mouth shut and ask the person to breathe with the obstructed nose or put some cigarette tobacco or edible tobacco in his nostrils to make him sneeze. Thus the entered mote will come out. If it does not come out on trying then take the patient to a Doctor.

Sometimes kids swallow something. If the substance does not get stuck in the throat and does not get entangled

with respiratory tract then it reaches the intestine. Generally, a thing reaching the intestine does not harm and later gets out with faeces. In the meantime you have to be watchful of the faeces till the substance passes out. In such cases of swallowing by children, unnecessary worrying should be avoided and no purgatives should be given to the kids. If he has swallowed something which may prove harmful later, then take a doctor's advice. If the child complains of stomachache then he should be taken to a hospital forthwith.

Sunstroke

Instance of sunstroke are plenty in the warm parts of our country due to high temperatures during the summer season. Our body tries to keep our body temperature stable, by sweating and other methods, so that some relief is provided from atmospheric heat to our body. Temperature control centre situated in the brain keeps the body temperature uniform. But sometimes this centre fails to function properly and the body temperature goes up to 104° Fahrenheit. Along with rise of temperature, sweating stops, pulse is faster and the patient may faint. This is called sunstroke. Take the patient to a cold spot, uncloth him, wipe his body with cold water, cover him with a cold-water-drenched bed sheet and fan him. If his temperature does not come down or some problem comes up, take him to a Doctor or Vaidya. Give him lot of liquids to drink.

Epistaxis

Injury to the nose, accumulation of blood in the nose or some other cause can start bleeding from the nostrils. In many cases this is hereditary. In such situations the patient should be made to lie in any place or near an open window so that he is exposed to gusts of natural air. Loosen his clothes and lower his head so that it hangs down i.e. don't raise his head by keeping a pillow beneath it. Ask the patient to keep his mouth open and not to try breathing from nose. The patient should not try to scratch his nose clean.

Now keep an ice bag or pad of cold water on the nose, forehead and behind the back of neck. You can keep a wet pad or oil pad on the head. If the bleeding does not cease even then take the patient to a doctor or vaidya. Instill a few drops of fresh, clean juice of creeping cynodon (Doob grass) into the nostrils and give him five or six spoons of its juice with honey to drink. A decoction of liquorice and *Hygrophilia auriculate* (talmakhana) is given to drink or 5-6 spoon of fresh juice of Banyan down shoots with honey also provide advantage.

Wounds, Scratches or Blue

In case of minor injuries or cut and tear, if the injury is fresh and free from dust, soil etc. Then apply iodine or spirit with a cotton swab and then bandage with a clean cloth or gauze. You may also spread cotton over the injury and apply Tincture Benzoin and bandage the wound. Red medicine

(Potassium permanganate) is available in the market to wash the wound. You may boil and cool fresh and clean water and wash the wound with it after cooling.

In case the wound or injury is deep then after bandaging it take the patient to a Doctor or Hospital. Always remember that the wound or injury must be tied up with a sterilized band or cloth only. Sterilized band and gauze is available in medical shops. If gauze is not available you can put a clean cloth in boiling water for three to four minutes and then take out the cloth with clean hands and squeeze, cool it and bandage the wound with it. If the wound is very deep, dirty or bleeding profusely then take the patient to a hospital or Doctor. Keep a thick gauze or soft cotton on the bleeding wound and tie fast the bandage to stop the bleeding. Filling the wound with turmeric powder or alum powder also arrests bleeding.

Sometimes due to a finger getting pinched in the jamb of a window, someone stepping on your toes or having your eye hit by blows the skin around the limb hurt becomes blue. This happens due to the freezing of the blood. On getting blue the affected part must be washed with cold water.

If the pain is severe, show it to a Doctor. You can foment it with saline water using clean cotton. After fomenting three or four times the blue will disappear. If tincture iodine is applied the swelling will disappear quickly, the wound would not get worse and even the pain will lessen.

Sometimes, while working, some pointed object such as a nail, thorn or broken glass enters the finger. Such an object requires a great deal of caution to extract. At first wash the external skin with soap and water. Then take a sharp needle. Make it red hot. After it cools down, slowly scratch the skin and remove the foreign matter. To do this you may take a small scissor or use your fingers. Be careful not to break the foreign matter. After removing the object, bandage the scratched part or apply Tincture Benzoin or Tincture Iodine to it.

Sometimes the hurt person feels weak or tired. In such contingency give him something to drink such as fruit juice, milk or squash. In case of severe hurt or internal injury the patient should be given alum or turmeric with milk. This will preclude clothing of blood in the limbs and reduce the swelling.

Proper Method of Bandaging a Wound

Always clean the wound with fresh, clean water with the help of a piece of clean cloth/gauge. Use of soap or potash in water is also helpful for cleaning the wound and your hand.

- * Remove all the dirt and shave off any hair around the wound.
- * Iodine or some antiseptic lotion/cream should be applied before covering the wound with a gauge dipped in

- mercurochrome. Cover it with dry gauge and bandage/ apply adhesive tape.
- * In case no antiseptic is available, add some turmeric powder in 'Desi Ghee', warm it, cool and soak in a gauge/ cotton for bandaging.
 - * Keep changing the bandage every 3rd day after cleaning the wound with boiled and cooled water or solution of potash.
 - * Always clean your hands with soap before and after cleaning a wound and bandaging it. Dip the hands in potash solution or rub a little sprit on your hands.
 - * Bandaging can also be done after application of juice of the leaves of Kukrondha (*Blumea lacera*), or marigold on a fresh wound to stop bleeding. For regular bandaging of wounds, use of neem leaf decoction or Jatyadi Taila is also useful.

First Aid Kit

A First aid kit should be kept readily available at home or in your vehicle for any kind of emergencies. This box should be so labeled with a Red Cross and kept away from the reach of children. Keep the following things in this box labeled as '**First Aid Kit**':

- * Clean cotton and Clean Gauge & Bandages (Medical, if possible)

- * Adhesive Plaster, safety pins and Cleaning/Bathing soap**
- * Tincture Benzoin, Sprit, Table Soda, Antiseptic cream (Dettol/Savlon etc.), Table salt, Ticture Iodine, Potassium Permanganate (Potash), Mercurochrome.**
- * Jatyadi Taila, Mother Tinctures of Calendula and Canthris**
- * A torch, pair of Scissors & Forcep**

Preface

During a Training Program organised by Jeevaniya Society on Science Journalism in Nineties, it was suggested by several people to develop a series of booklets on Science in Daily Life. It was proposed that such booklets should incorporate different aspects of both traditional as well as modern Science, of use to people of all ages and in all walks of life. These booklets were initially prepared in Hindi, with presentations in different writing styles and formats, so that all sections of society, the children & adults, students & teachers and housewives, all find it useful and enjoy reading these.

The initial series in Hindi was prepared and published with partial financial support from Rashtriya Vigyan Evam Proudhyogiki Sanchar Parishad (RVPSP). We gratefully acknowledge the same. We also acknowledge suggestions of RVPSP staff on those booklets.

Accidents demand immediate attention to the victim which can save their life. If proper help is not available in time, accidents can also result in debilities and even death. Some diseases/conditions are such which may happen due to accidents or may create situations requiring immediate attention. Therefore, first aid from a trained person before the availability of an expert physician is necessary to save life. We hope that the information provided in the booklet 'First Aid in Accidents and Emergencies' shall be useful to all.

The material provided in this booklet is based on the contributions by physicians, scientists and writers associated with Jeevaniya Society, who have been responsible for the publication of Jeevaniya Magazine for about 10 years. Information provided in this booklet has also been collated from other sources of medical sciences, which are gratefully acknowledged. All the associates of Jeevaniya Society, particularly Sri K. B. Singh, Ms Veena Tandon, Ms. Nidhi Khattri & Mr. K Saji had actively helped in the Hindi Edition, while Mr. A. K. Varma has also helped in the English Edition. We also acknowledge the prompt printing of the booklet by M/s Dreamsketch Printers.

Editors

Jeevaniya Society

Jeevaniya Society is working in the field of Health Care, Education and Popularisation of Science for welfare since about two decades. Even before the establishment of the said Society, all the colleagues associated with it were active partners of various movements linked with Social Development. The objects of the Jeevaniya Society are-

- 1 Development of self-reliant models of Primary Health Care.
- 2 Promoting and Undertaking Education, Research and Spread of Indian Health Systems.
- 3 Promoting and undertaking cultivation of medicinal plants and simple methods of their use.
- 4 Initiating and undertaking programs of Science Popularization to inculcate scientific temper in the Society.

The Society has been ceaselessly toiling to enhance awareness among the masses by doing intense work on all topics mentioned above, particularly regarding locally available medicinal herbs.

The Society has been publishing a bi-monthly and bi-lingual magazine for 10 years which has been equally popular among masses and the elite. The Society has also published three monographs in Hindi. The Union Health Ministry, Govt. of India, in the year 1995-96, awarded its monograph titled Ayurvedic Principles of Food and Nutrition. The Society has published a series of booklets on Science in Daily Life, besides providing a series to a commercial publisher for promoting Adult Education. It also published a series of wall papers on medicinal plants and treatment of common diseases itself as well as in collaboration with Academy of Young Scientists, which are being widely used in the field of community education. This series has been published in collaboration with National Council of Science and Technology Communication of GOI.

The Society conducted two sciences Journalism Courses for the promotion of Science Communication which were recognized by the Lucknow Univeristy. The colleagues of the Society have actively participated in science movements, such as Jan-Jnan-Vijnan Jattha 92, Children Science Congress, Awareness about Total Solar Eclipse and Pulse Polio Campaign etc. While the Hindi version of this Book was published with partial financial support of NCSTC, the English version has been published by the Society also for the 'Safety Brigade and sunosuno.net' to help the farmers.

ABOUT THE AUTHORS



Dr. D.P. Singh

Dr. Devendra Pratap Singh was born in 1960 at Sultanpur where he completed primary education and later obtained the M.B.B.S. degree from G.S.V.M. Medical College. Thereafter, he obtained M.S. degree from Orthopaedics Department of the same college.

He has also obtained the degree of M.N.A.M.S. (Ortho). He is practicing in Lucknow since then as a specialist Orthopaedic Surgeon. He is currently investigating the minute nesses of Palm. He enjoys serving the society. People face immense difficulties in accidents. In such cases what to do while reaching the Doctor has been succinctly described herein by him.



(Late)Vaidya Sultan Ali Khan

Born in a little hamlet of Lakhimpur Kheri, Sultan Ali Khan quit studies of Agricultural Engineering and took up Ayurvedic studies. He was the second Muslim student in UP, opting for Ayurvedic Studies. He had a through knowledge of Sanskrit as well. He was adept at curing by the use of easily available plants, based on Tridosha principle and the temperament/constitution of the patient. He was a Medical officer of U.P. Govt. and devoted his spare time in the service of public through Jeevaniya Society. In the sudden untimely demise of Khan Sahib in October 2002, the nation and Jeevaniya family was bereaved of a Veteran herb specialist.

