

### 3.

## Survival Skills



*Search and Rescue being carried out by Village Volunteers in Gujarat*

*The Orissa super cyclone of 1999 offers several lessons in disaster management. When the cyclone struck, western Orissa was already in the grip of a drought. It hit the landfall point near Paradip coast on October 29 with a wind velocity of 270 to 300 km per hour. That cyclone and the one that preceded it on October 17-18 together affected over 19 million people, including 3.5 million children. They affected 128 blocks in 14 districts. Search and Rescue measures were carried out on a massive scale. To cater to the requirement of huge human resource, volunteers were roped in from various walks of life. NCC and Civil Defence played a vital role in burning carcasses, distribution of relief and carrying out search and rescue operations.*

Looking at the need for large-scale volunteers in an emergency situation, this chapter aims at understanding the survival skills for various natural and man made hazards. It also discusses various Search and Rescue skills and First Aid measures that can be carried out by "**you**" and "**me**" which would save many precious lives. Mankind has been coping with disasters since time immemorial. This chapter also gives an in-sight into the indigenous ways to cope up with disasters.



***Victims being evacuated by the Air Force in the Tsunami hit area in Tamil Nadu***

## Search and Rescue Skills

Whenever and where ever disasters strike the first responder for search and rescue always begins at the local levels: individual and neighborhood. It is a daunting task for the locals to rescue the victims due to lack of skilled human resources. Disasters or emergencies disrupt normal life. We cannot stop hazards from happening but preparedness can make all the difference between life and death. People habitating in highly vulnerable pockets cope up with frequent disasters on the basis of their acumen, accumulated knowledge, accumulated skills and resources of the community and they have managed to survive the fury of the nature through centuries.

In a post disaster scenario Search and Rescue has always played a major role in disaster management. It is on the strength, capability and effectiveness of the search and rescue team that more of human lives could be saved.

## Defining Search and Rescue

Search and rescue is a technical activity rendered by an individual or a group of specially trained personnel, who rescue and attend to the casualties under adverse conditions, where life is at threat.

Search and rescue is organized in close cooperation with the community and in a team approach. The search and rescue activities are undertaken in two manners:

- **Community as Local Rescuers:** With adequate safety measures, rescue activities are taken up immediately by the community after any disaster.
- **Outside Community Resources:** Circumstances where the situation is grave and the local rescuers do not have required skills and equipments then specialist assistance from outside the community is required.

The main **Objectives** of a Search and Rescue Team are to:

- ★ Rescue the survivors trapped under the debris, from the damaged buildings or from a cyclonic storm surge.
- ★ Provide First Aid services to the trapped survivors and to dispatch them for medical care.
- ★ Take immediate necessary actions, as for temporary support and protection to endangered collapsed buildings to structures.
- ★ Hand-over, recover and dispose-off the bodies of the deceased.
- ★ Train, demonstrate and raise awareness on how to use the local materials for rescuing the community people.

## 1.1 Team Composition

Honest, emotionally sound, professionally decisive, volunteers male and female, having good physical condition, with demonstrated capacity and willingness to work in an emergency, could constitute a rescue team.

Volunteers, of both sex, above the age of 18 years with a minimum education level (reading and writing the local language) can be a part of the search and rescue team.

Preference would be given to ex-military or army personnels.

Maggie an 18 year old young girl from Pilloba - one among several small islands in Nicobar, belongs to the fishing community and is an only daughter. On Sunday morning she was woken up by the roar of the sea. She felt her home giving way. She quickly clutched on to a large bamboo raft, and shoved her ailing parents onto it. She held on to it tight. "So did several others", says Maggie. She did scream at everyone to hold as tight as she was doing. That was the only way to escape the fury of the giant waves. The Coast Guard commander confirms: "The waves were well above 10 meters high. They sucked in anything in their path." He says 44 persons from Pilloba were found hanging on the rafts on the violent sea when Coast Guard vessels stopped them. Maggie says "I did what I could do for my dear villagers. I knew I would survive this way, and if I could, the others would too."

## 1.2 What are the duties of a Rescuer?

The first job of a rescuer is to assess the area so as to save time, which would help in effective response. It is very important for a rescuer to collect information on the extent of damage, approach to the damage area, particulars of the damage and understand if any further damage is likely to occur. The local leaders or the people residing in that particular locality provide all this information. Follow three key principles during the survey:

- (a) Look: See physically the incidents and make a thorough visual inspection.
- (b) Listen: Listen to all the sources of information - from the community, Government records and media reports.
- (c) Feel: Feel convinced regarding the fact, the gravity of the dangers and our own capacity to respond.



*School students being trained by Fire Services on Search and Rescue*



### 1.3 Plan

Rescue is a team effort that needs coordination and planning amongst the members for an optimum response operation. After the assessment, the Rescue Team would be in a position to adequately plan the Rescue Operation based on the following specifications:

(a) Manpower                      (b) Equipment                      (c) Method

(a) Manpower—The Rescuers can use the skilled manpower if available and also take the help of the local community if required.

(b) Equipment: Ropes, ladders, bamboos or stick, stretchers, boats etc are essential to rescue the affected victims. Sometimes these rescue materials are not available to the rescue team at the site of emergency. Therefore the rescuers use locally available resources like barrels, tinned cans, tubes etc.

(c) Method: There are various other methods, which would be useful for rescuing the victims. The adequate method of rescue is to be determined depending upon the nature of the casualty, the nature of the injuries and the position in which the casualty is found.

- ★ Infra red cameras help in locating people under the rubble by detecting the body heat of the victim.
- ★ Acoustic devices can detect faint noises from the rubble.
- ★ Bio radars are equipments used for the location of marooned victims in flood-affected areas.

*Do you know some of the indigenous methods of rescue? When you visit different states do understand the hazard that they are prone to and the indigenous ways to cope up with them.*

**Be 'BRAVE' and 'STAY CALM' if you have to rescue people**



## PRECAUTIONS

*Some precautions need to be taken while rescuing a person from a building in the following situations.*

### *Before entering a building*

- ★ Observe the construction of the building and collapsed portions
- ★ Check whether the walls need any support
- ★ Be careful for possible hazards, which may occur from weak structures

### *When entering the damaged building*

- ★ Use a helmet
- ★ Work in pairs - do not move alone
- ★ Listen for possible sounds
- ★ Keep calling
- ★ Do not touch or disturb any damaged walls or blocked doors which are broken and/or projected.
- ★ Treat all naked wires as live wires.

### *While moving inside the damaged building*

- ★ Do not ignite fire.
- ★ Keep close to the walls
- ★ Be careful in all of your movements.
- ★ Do not pull anything projecting out from the collapsed portions.



### ***Do's for Search and Rescue Operations***

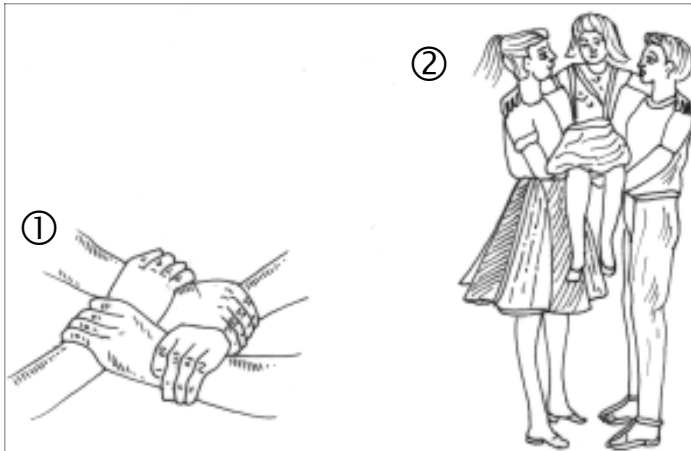
- ☐ Keep calm
- ☐ Make a thorough assessment prior to rescue
- ☐ Keep as near to the wall on damaged stairs as possible.
- ☐ Take maximum safety while removing debris from the vicinity of the casualty.
- ☐ Proper examination of the casualty is a must.
- ☐ Provide First Aid, check and facilitate proper breathing
- ☐ Cover the patient with a blanket or tarpaulin etc. and protect the casualty from further injury
- ☐ Use sharpened tools carefully when moving the casualties.
- ☐ Loosen the clothing and keep the patient lying down and warm.
- ☐ Give artificial respiration, if required, and control bleeding

### ***Don'ts***

- ☐ Do not panic
- ☐ Do not start rescue work until you are equipped with adequate information
- ☐ Do not pull timber out of the wreckage indiscriminately. You may cause further collapse.
- ☐ Do not carelessly move an injured casualty unless the person is in immediate danger.
- ☐ Do not expose to further possible injury or adverse conditions.
- ☐ Unless absolutely necessary do not crawl over the debris or on the damaged structure.
- ☐ Do not touch live electric wiring
- ☐ Do not violate safety measures

After rescuing, the victim has to be provided First Aid and every attempt has to be made to see to it that the condition of the victim doesn't deteriorate.

**You can have hand made stretchers also!**



#### (a) Upper Garment as stretchers:

The upper garment can be used as stretcher with the help of rods. Close the front openings (buttons/zips) and pull the sleeves inwards. Insert rods through the sleeves in succession for three or four garments.

#### (b) Ladder/rope as stretcher:

Ladders/ropes are very commonly available. These can be used as stretchers and if you have accessibility to rope and two rods or only rope this can also be used as stretchers.

**Try it along with your friends.**

Temporary arrangements need to be made for seating the injured and this can be done with the help of two persons using their hands to form a seat. With this the patient can be shifted to a short distance.



*Making stretchers out of ropes*

#### **Personal Equipments for Rescuer:**

Helmet  
Torch  
Gum- boots  
Life Jackets  
Whistle



#### **Team Equipments for Rescuer:**

Rope  
Ladder  
Pulley  
Small Cutting tools  
First Aid Box  
Crow Bar  
Hammer  
Stretcher

#### **ACTIVITY**

*The class can be divided into five groups and each group need to spell out the equipments that they would require if they had to be a part of the Search and Rescue Team.*

*Group A: - Cyclone*

*Group C: - Floods*

*Group E: - Landslides*

*Group B: - Earthquake*

*Group D: - Fire*



## First Aid

The *Encyclopedia Britannica* states First Aid as "measures to be taken immediately after an accident not with an idea to cure but in order to prevent further harm being done". It uses the available human and material resources at the site of accident to provide initial care to the victim of injury or sudden illness until more advance care is provided.

First Aid has the following main objectives:

- (i) To preserve life
- (ii) To prevent the victim's condition from worsening
- (iii) To promote recovery

**Golden Rule of First Aid.....**

**BE CALM - DO NOT PANIC**

Take a moment to think clearly as to what "YOU" should do. If you think you can take appropriate action during the emergency then do so, but if you are in any doubt then don't act as a "HERO". Do not hesitate to ask others to assist you or to raise the alert.

The Goals of First Aid are:

1. To restore and maintain vital functions. **The ABC of basic life support (Airway, Breathing, and Circulation)** are always the first priority.
  - **Airway** must be open so that air containing oxygen enters the body
  - **Breathing** must take place so that oxygen passes through the lungs into the blood stream
  - The heart must **circulate** the oxygen carrying blood
2. To prevent further injury or deterioration
3. To reassure the victim and make him or her as comfortable as possible

### Action Plan

This Action Plan is a vital aid to the first aider in assessing whether the victim has any life-threatening conditions and if any immediate first aid is necessary. They are '**DRABC**'

#### D - Check for **DANGER**

- To you
- To others
- To victim

#### R - Check **RESPONSE**

- Is victim conscious?
- Is victim unconscious?

#### A - Check **AIRWAY**

- Is airway clear of objects?
- Is airway open?

#### **Make your own First Aid Kit:**

- Cotton wool
- Adhesive tape
- Crepe bandage
- Sterile Dressing
- Triangular Bandage
- Thermometer
- Scissors
- Glove
- Soap
- Pain reliever
- Antacid
- ORS Packets

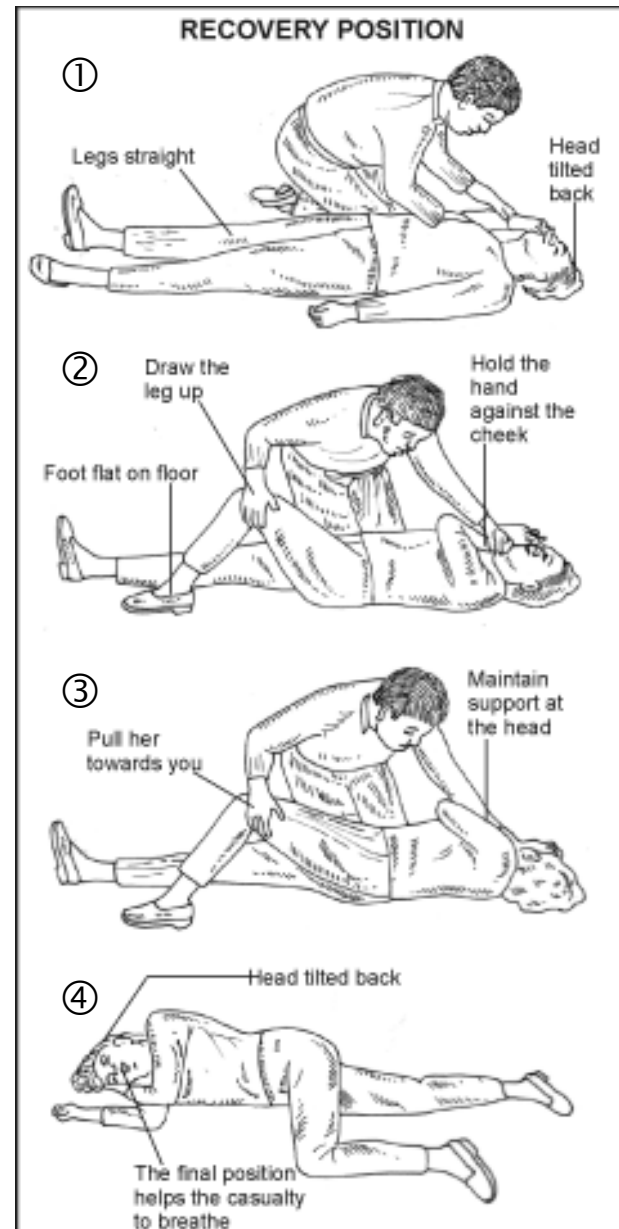
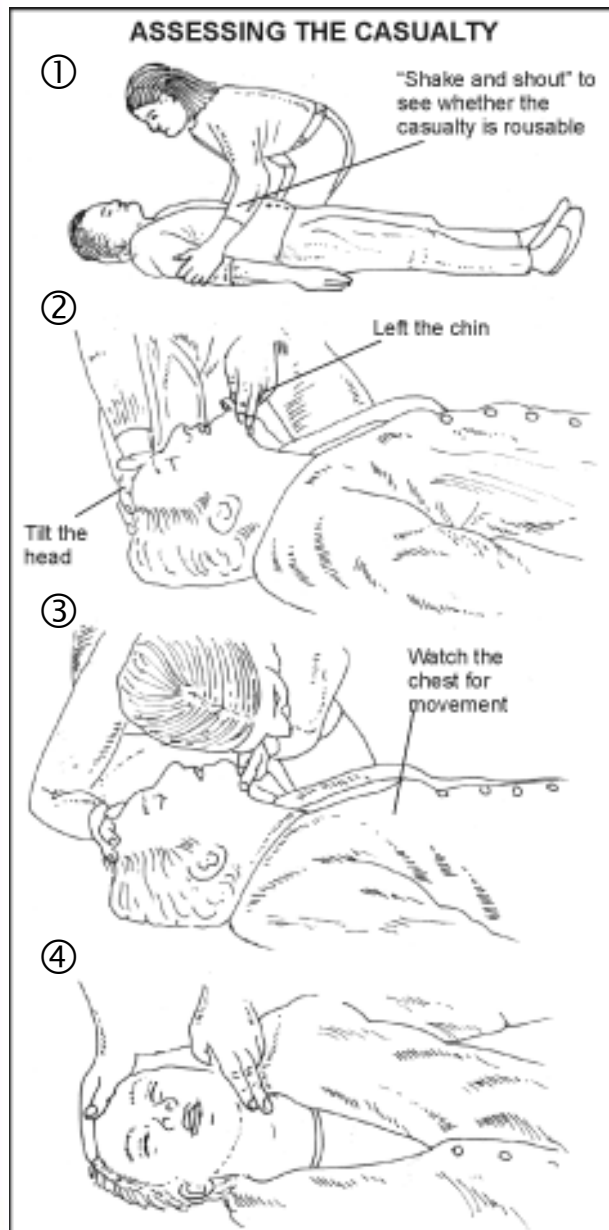


**B - Check for BREATHING**

- Is chest rising and falling?
- Can you hear victim's breathing?
- Can you feel the breath on your cheek?

**C - Check for CIRCULATION**

- Can you feel a pulse?
- Can you see any obvious signs of life?



**FIG 1: Assessing the casualty / Recovery position**



## Fainting or losing consciousness

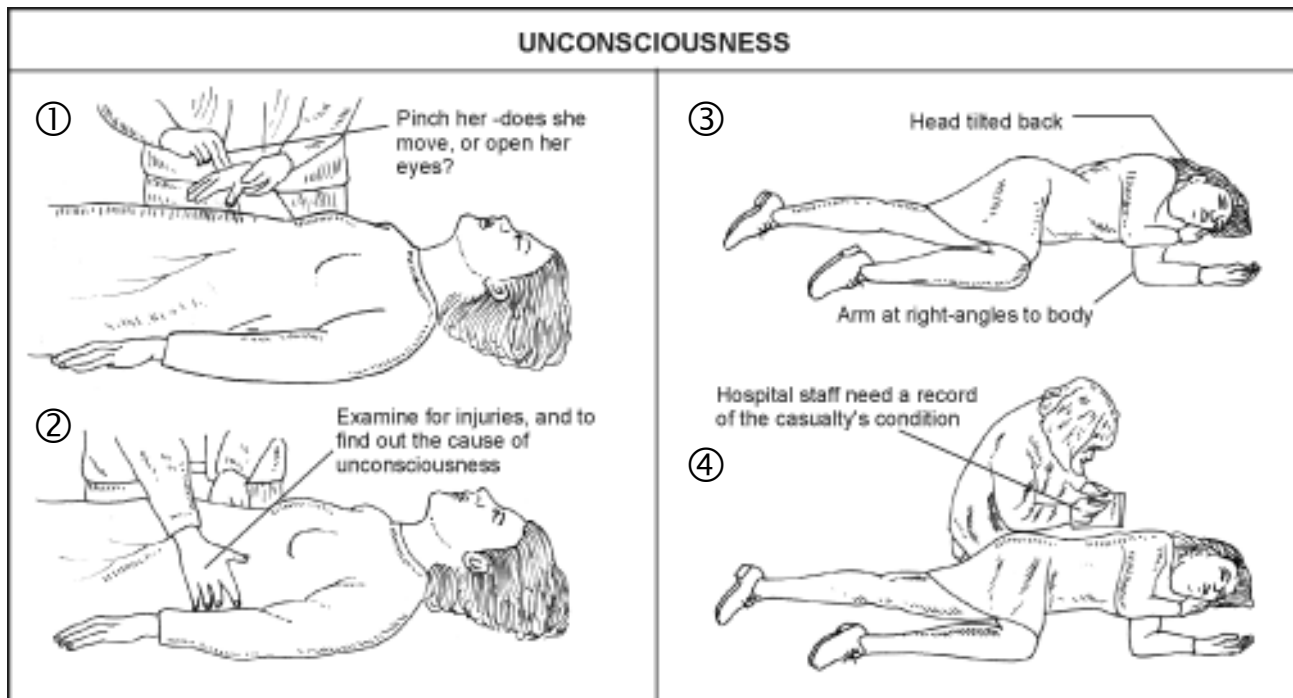
Fainting is a brief loss of consciousness and is the result of an interference with the function of the brain. There are many causes of unconsciousness, the most common of which are: fainting, head injury, epilepsy, stroke, poisoning, diabetes and conditions associated with lack of oxygen. If you have seen a person fainting then:

### Do's

- ☐ Catch the person before he/she falls
- ☐ Pinch the person and see if she moves or opens her eyes
- ☐ Examine the injuries and causes of unconsciousness
- ☐ Tilt head back and keep arms at right angle to body
- ☐ Raise the legs 8 – 12 inches. This promotes blood flow to the brain.
- ☐ Loosen any tight clothing
- ☐ Keep the victim warm if it is cold outside
- ☐ Keep a record of the casualty's condition

### Don'ts

- ☐ Don't give the patient anything to eat or drink
- ☐ Don't allow the person who has just fainted to get up until the victim is fully conscious
- ☐ If the area is warm, don't crowd around the victim

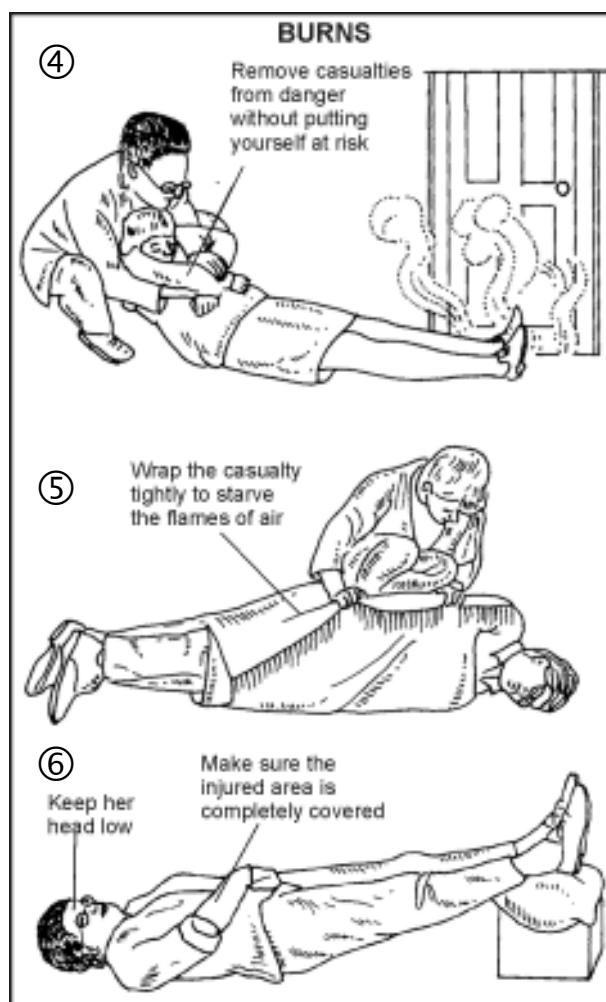
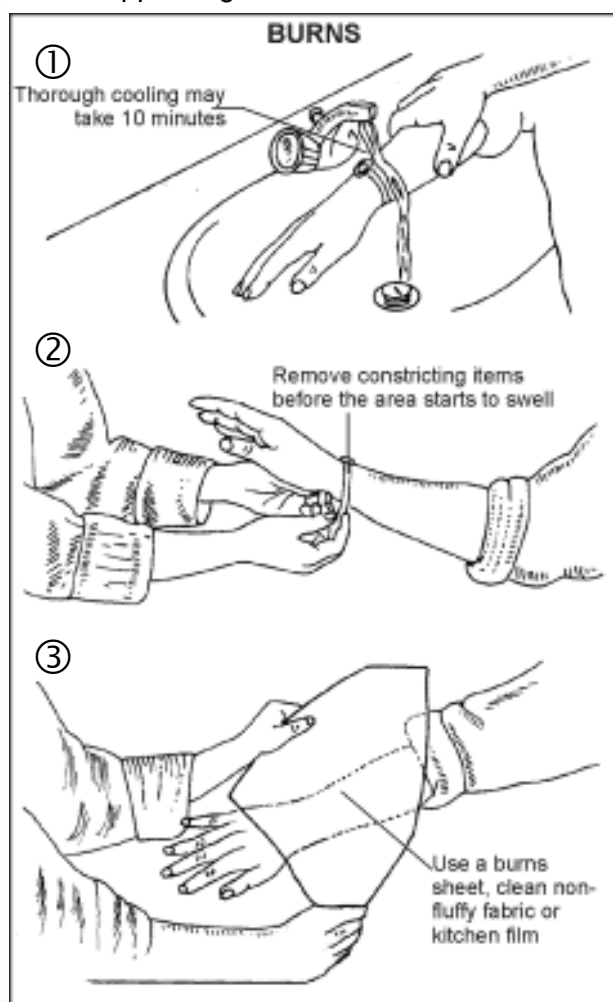


## Burns

A burn is damage to the skin caused by contact with dry heat. It may be caused by fire, flames, steam, hot liquids, hot metal, sunlight, electricity or chemicals.

The degree of burn varies:

- (i) First Degree (Superficial) - Involves only top layer of the skin and is red and dry and the burn is generally painful. The area may swell. Most burns are first degree burns.
- (ii) Second degree (Partial - Thickness) - Involves both the epidermis and dermis. The area is red and blisters may open and weep fluid, making the skin appear wet. These types of burns are usually painful and the area often swells.
- (iii) Third Degree (Full Thickness) - Destroys both the layers of the skin with muscles, bones, blood vessels and nerves. These burns may look brown or charred with tissues underneath sometimes appearing white.



### Do's

- ☐ *Immediately immerse the burnt area in cool water or by applying clothes soaked in cool water.*
- ☐ *Remove jewellery and constrictive clothing before swelling or blisters occurs.*
- ☐ *Cover the area with a dry, sterile dressing and not cotton or other fluffy material.*
- ☐ *Drop, Cover and Roll if caught fire or cover the person with a blanket immediately*

### Don'ts

- ☐ *Don't place a burn under extreme water pressure*
- ☐ *Don't remove the cloth that is stuck to the burnt area.*
- ☐ *Don't apply butter ointment, oil, ice in the area affected*

## Frost-bite

Frost-bite occurs when body tissues freeze after exposure to below zero temperatures. The signs and symptoms include white, waxy looking skin that is firm to the touch but the tissue underneath feels soft and pain followed by numbness.

### Do's

- ☐ *Cover frostbitten toes, ears with warm hands.*
- ☐ *The area affected can be warmed by breathing on them or placing them in a warm area of the body or by dipping the affected area in warm water (40 degree centigrade).*
- ☐ *Cover the area affected.*

### Don'ts

- ☐ *Do not rub as tiny ice crystals in the tissues may cause more damage.*
- ☐ *Never rub snow on the area as this may cause further freezing and do not apply direct heat as this may re-warm the area too quickly.*
- ☐ *Do not let the patient walk.*
- ☐ *Do not break blisters if any.*

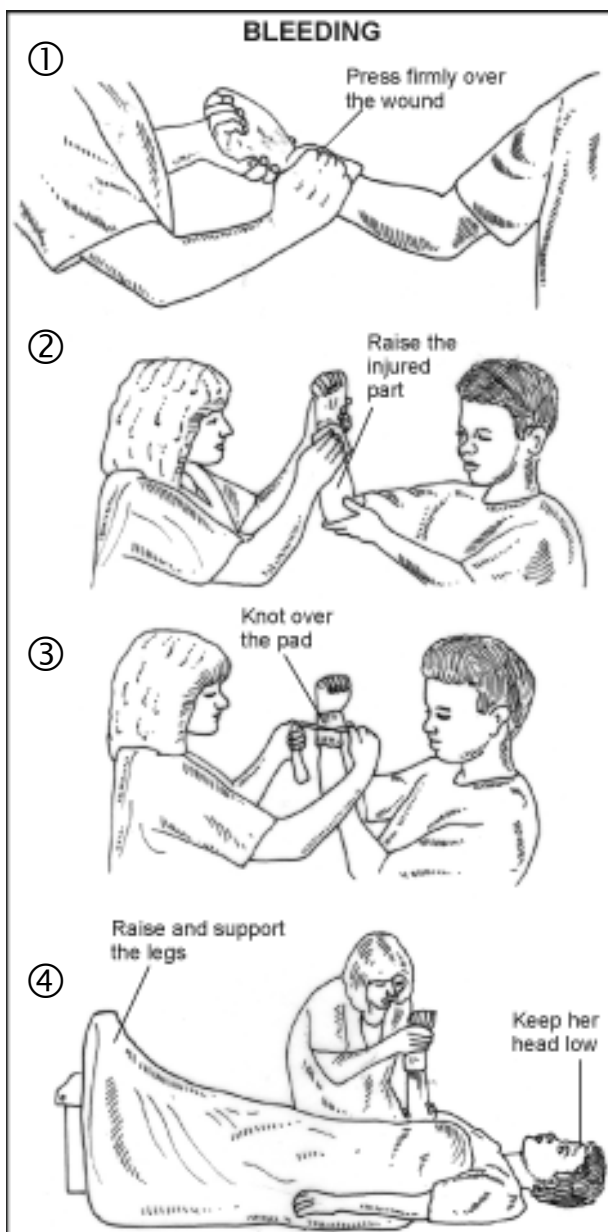
## Bleeding

Cuts, scrapes and puncture can result in bleeding. Severe bleeding can be life threatening. To stop bleeding restore to:

- ☐ Direct pressure
- ☐ Elevation - Lie victim down and raise the injured part above the heart and handle gently if you suspect a fracture.

The blood gets thicker after bleeding for a few minutes. This is called clotting. Clotting slows down bleeding. Bandaging is done to stop bleeding and to stop dirt infecting the wound. Change the bandage at least once a day and tetanus injection needs to be taken if required.





### Warning

- ❑ If bleeding from a limb doesn't stop, apply pressure with hand to pressure point.
- ❑ If embedded object in wound, apply pressure either side of wound and place pad around it before bandaging.
- ❑ Wear gloves, if possible to guard against infection
- ❑ If the victim becomes unconscious, follow DRABC

### Electrocution

Electricity can be very dangerous unless used with care. When an accident occurs with electricity, the First Aider must remember that it is not safe to touch the casualty until the power has been turned off. The signs and symptoms include surface and internal burns and breathing and heart beat stopped.

The best way to treat the person electrocuted is to cut off the power supply and remove the victim from the source with non-conductive material. Carry out the DRABC exercise and cover the area affected with clean dressing and send him/her to the hospital immediately if necessary.

**REMEMBER...Never approach the casualty in a high-voltage zone, as the first aider might endanger his own life**

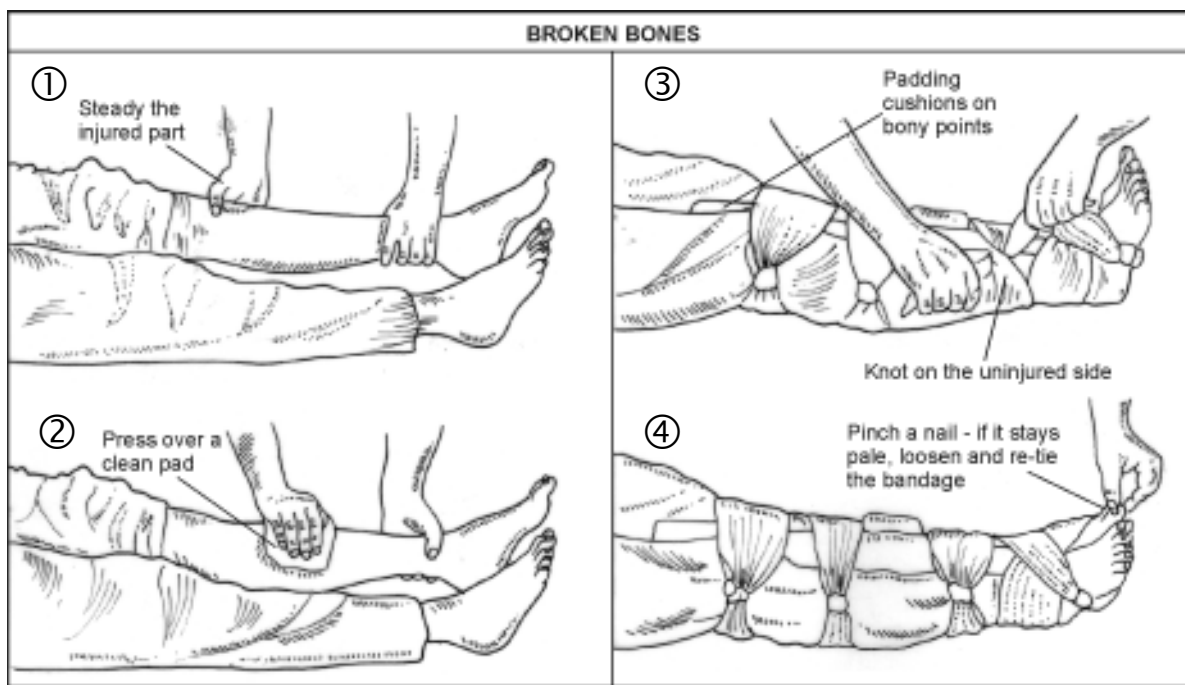
### Snake Bite

Most of the snakes are harmless. It is because of our fear that snakes generally attack us. Snakebites generally occur on the limbs and most often on the legs. Always assume the bite to be from a venomous snake. Suspected snakebite must be treated with a pressure immobilization bandage.

### Do's

- ❑ *Keep the bitten limb below the level of the heart*
- ❑ *Allow the affected area to bleed freely for 15 – 30 seconds*
- ❑ *If the bite is on the limb, apply a firm roller bandage two inches away from the wound.*
- ❑ *Wash the affected area with soap and disinfect the area*
- ❑ *The bandage should be loose enough for a finger to slip through*
- ❑ *Constantly check airway, breathing and blood circulation*
- ❑ *Start resuscitation if needed but see to it that there are no wounds in the mouth. Suck it out but do not swallow – spit the venom out. Rinse your mouth afterwards.*
- ❑ *Shift the patient immediately to the hospital and see to it that the person is at rest during transport.*
- ❑ *Stay calm.*
- ❑ *Instruct the person to avoid all movement on the area affected.*

### Fractures and Sprains



Fracture refers to an injury affecting the skeleton and can be caused by the application of direct and indirect force. The general signs and symptoms are:

- ★ Pain at or near the site of injury increased by movement.
- ★ Movement may be difficult or impossible
- ★ Swelling and later bruising of the injured part
- ★ Deformity at the site of the fracture
- ★ Shock may occur

General First aid that could be given to a person is

- ★ Check the danger, response, airway, breathing and the blood circulation of the victim (DRABC)
- ★ Always control severe bleeding before immobilizing any fractures
- ★ Place sufficient padding to support fracture site
- ★ Immobilize fracture sites
- ★ Do not force bones back into the wound
- ★ Give proper padding before the patient is shifted to the hospital
- ★ Apply ice pack on the affected area to reduce pain and control swelling
- ★ Treat to prevent shock

## Poisoning

Poisoning is any substance that causes injury, illness or death when introduced into the body.

*Ingested poisons* are introduced through the mouth by eating or drinking poisonous substances.

*Inhaled poisons* are introduced through the lungs by inhaling industrial gases, fumes from fire, chemical vapors and petrol and engine exhaust. *Absorbed poisons* are absorbed through the skin via contact with poisonous sprays such as pesticides and insecticides.

### Do's

- ☐ Check the danger, response, airway, breathing and the blood circulation of the victim
- ☐ Give milk or water to dilute down the poison
- ☐ Monitor vital signs and prevent shock
- ☐ Observe the amount and colour of vomitus
- ☐ Check for foreign matter in his or her mouth and remove it so that he/she can breath freely
- ☐ Place the patient in the recovery position and wait for medical assistance.
- ☐ Send to hospital

### Don'ts

- ☐ Don't induce vomiting

## Heat Stroke

It strikes suddenly with very little warning. When the body's cooling system fails, the body temperature rises fast. This creates an emergency condition.

The signs are: the temperature of the body is very high, hot and dry. The skin is red with no sweating and fast pulse rate, dilated pupils, confusion and sometimes there might be loss of consciousness.

### Do's

- ☐ Lower the body temperature by removing/loosing the clothing or fanning the person.
- ☐ Put ice pack or cold compresses to the neck, under the armpits and to the groin area.
- ☐ Drink lots of fluid and those who perspire more should drink as much fluid as possible.
- ☐ Stay away from places that are hot.



### Oral Rehydration Solution (ORS)

ORS has been a lifesaver in case of dehydration (loss of salt and water in the body). The ORS is prepared by dissolving a pinch of salt in a glass of water (the amount of salt added should just be enough for the water to taste like tear drops) and one tablespoon of sugar to it. ORS helps in restoring back the electrolyte balance of our body and re-hydrate it.

*You too can now make it at home when you feel you are de-hydrated*

### Dog Bite

The aim of First Aid in case of dog bite is to prevent rabies, to reduce the risk of infection and to get medical aid as soon as possible.

- ★ Wipe the saliva away from the wound using a clean cloth or handkerchief.
- ★ Do not come in contact with the saliva that gets wiped away.
- ★ Wash the wound thoroughly with plenty of soap and water.
- ★ Cover the wound with a dry, sterile dressing.
- ★ Get medical aid or send the patient to the hospital as soon as possible.

### Reference for further reading:

- ★ Report on 'Training Programme on Search and Rescue for the members of the Village Disaster Management Teams, by Disaster Mitigation and Management Centers, Government of Uttaranchal.
- ★ Training manual of Indian Red Cross.
- ★ <http://www.frontlineonnet.com/fl1805/18050350.htm>



1. What is the main objective of Search and Rescue team? Define the team composition.
2. Identify two indigenous ways to rescue people in case of Floods.
3. Name three different ways to make a stretcher with the locally available resources.
4. Explain the goals of First Aid.
5. What are the causes of fainting and what are the measures that need to be taken up if you see someone who has fainted?
6. Identify two signs and symptoms of sprain and fracture.