First Aid Course Manual

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LEVEL 1 - INTRODUCTION

This book is provided as a reference document and as a means of revising during the currency of the certificate. It is set out by Level and when all sections are put together will provide a reasonably comprehensive first aid manual.

We hope you enjoy the course so sit back and learn.

WHY TRAIN PEOPLE IN FIRST AID?

Many of you will have wanted to learn first aid in order to look after members of your family, friends or people involved in your leisure activities.

The numbers of first aiders and type of training required will vary with the location and the activities undertaken. The degree of risk will be the greatest factor but the following will also need to be considered:

- Hazards and risks
- The size of the organisation
- The organisation's history of accidents
- The remoteness of the site from emergency medical services
- Annual leave and other absences of first aiders and appointed persons

WHAT ARE YOUR OBLIGATIONS?

In Britain there is no legal duty of care, even though you have a first aid certificate the decision to stop and render assistance, or walk by, is between you and your conscience. You do, of course, have an obligation to the young people in your care. If you do decide to render first aid away from your Boys' Brigade activities then no legal action can be taken against you providing you adopt recognised first aid techniques (what you learnt on the course and what it says in a First Aid Manual) and you act in good faith – there is no case to answer. Several people have tried to sue first aiders and failed so the precedent is now your legal protection.

Remember, it may be a member of your family or a friend that needs your help. You can sometimes make the difference between life and death with a bit of simple knowledge.

First Aid is a few percent of knowledge and 90 odd percent common sense. The course is here to give you the confidence to use that common sense.

• AIMS OF FIRST AID

- To Preserve Life including your own.
- Limit the effect of the condition – make sure casualty does not get worse.
- Promote the casualty's recovery.

In order to achieve this we need to follow these simple instructions:

• MANAGEMENT OF THE INCIDENT

1.	Assess the scene of the accident	Ensure rest of group, that are not involved, are safe. Ensure you are safe to enter scene
2.	Make the area safe	Protect yourself and others Move objects or obstructions Switch off electricity Ensure no moving vehicles – stop traffic
3.	Give emergency aid	Make sure you know exactly how many casualties you have Prioritise on treatment – Breathing, Bleeding, Burns, Broken Bones
4.	Get help	Call emergency services if necessary (see "Dialling 999") Call for other agencies – coast guard, mountain rescue, water, gas, etc.
5.	Aftermath	Record the details in the accident book and tell immediate supervisor Replenish first aid box Tell relatives Be aware of the effects on other members of staff, even some time after the event. **DON'T** discuss the accident with the press or name the casualties. **DON'T** discuss legal responsibilities or fault outside your employment.

• DIALLING 999

By dialling 999 you can speak, free of charge, to the Ambulance Service, Police or Fire Service in emergencies. Also coastguard, mountain rescue, cave & mine rescue can be contacted by using the 999 facilities. When asking for help consider whether you also need the assistance of other utilities - electricity, gas, water.

When your 999 call is answered listen carefully to what the operator asks and speak clearly. Try to remain calm. Remember the first person you talk to is a BT Operator so don't describe the incident unless specifically asked. BT Operators have display phones so in most cases the number you are ringing from will be displayed along with its location. You can ask for more than one service at a time: you only need speak to one and they will pass the information on to the others. The service you ask for first is the one you will speak to.

Once you are connected to the controller of the service you require - e.g. Ambulance, the following information will be required:-

- ❖ Location of the incident, it may be necessary to give directions, point of access, meeting point
- ❖ Type of incident - e.g. road accident
- ❖ Number of casualties
- ❖ Some indication of the injuries sustained and their age
- ❖ Any hazards that may be present - gas, chemicals

Do not hang up until you are absolutely sure the controller has ALL the information that they need. On a motorway there are free phones at least every mile. So that you know which direction the nearest one is there are marker posts, usually painted blue, every 100 metres with a phone symbol and an arrow on it. This post also has two sets of numbers on it, by quoting these numbers your location can be pinpointed to within 100mtrs.

If you send someone to phone for help make sure that the person knows exactly what you want them to say and afterwards get them to come back to you to confirm that the services are on the way.

• PRIORITIES OF FIRST AID TREATMENT

A Airway
B Breathing
C Circulation

A casualty is unable to breathe if their airway becomes blocked. This may happen if as a result of the loss of muscle control the tongue falls back into the airway. Also the airway may be blocked by fluids (vomit, blood, saliva), solids (food, broken teeth) or swelling.

We must have an open and clear airway to breath. Air is breathed in, at a rate of 16 breaths a minute in a resting adult, to get oxygen into the lungs. This oxygen is moved to the vital organ and tissue by the blood supply pumped round the body by the heart. The heart beats at the rate of 60 - 100 beats per minute in a resting adult. We check for a pulse at the neck in an unconscious casualty with two fingers and this will be demonstrated on

the course. In a conscious casualty we may take the pulse at the wrist again using two or three fingers on the thumb side of the wrist. DO NOT use your thumb to take a pulse as there is a pulse in it. The brain will be damaged if starved of oxygen for more than about 3 minutes.

- # MANAGING THE CASUALTY

The Initial Assessment

This is carried out first to establish the casualty's vital needs and there are a number of steps to be followed:-

1. **D**anger - is there any danger to myself or the casualty?
2. **R**esponse - does the casualty respond to me - are they conscious or unconscious?
3. **A**irway - Is the casualty's airway open and clear? Open the airway by placing one hand on the forehead, tilt the head back and with the other hand lift the jaw (demonstrated on course). Look inside the mouth to see if there is anything that may block the airway and carefully remove it. DO NOT put your fingers in the casualty's mouth unless it is necessary.
4. **B**reathing - Is the casualty breathing naturally? With the airway open check for up to 10 seconds by placing your face near to the casualty's mouth looking along the chest.

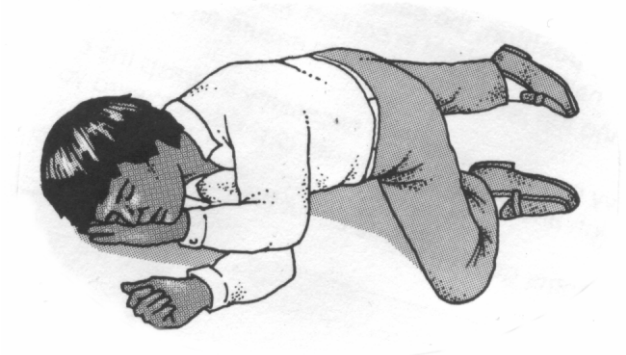
   LOOK - to see if the chest rises and falls
   LISTEN - to see if you can hear them breathing
   FEEL - to see if there is warmth or passage of air on your cheek

5. **C**irculation – are there signs of life, indicated by a change of facial colour, coughing, swallowing or other movement? This check should last no longer than 10 seconds.

   Is the casualty's heart likely to stop because of severe bleeding? Quickly check the whole of the body for obvious signs.

- # THE UNCONSCIOUS CASUALTY

An unconscious casualty who is breathing and has a pulse should be placed in the RECOVERY POSITION.



Make sure the casualty's head points to the ground and that the circulation in the lower arm has not been impaired.

The method of placing someone in this position was discussed, demonstrated and practised in the course including what to do if you suspect that the person has spinal injuries.

The airway is protected in this position as the tongue falls forward by its own weight and any liquids that are in the mouth will drain out and not be inhaled. Part of the chest is off the floor so breathing will not be restricted in that way. The weight of the casualty's leg prevents them from rolling on to their back.

Once you have placed the person in the recovery position you must still continue to monitor their level of response that the airway is still open, they continue to breath and they still have a pulse, at regular intervals (at least every 10mins.). If the casualty is kept in this position for longer than 30mins, and the injuries permit, they should be turned onto the other side.

• DRESSINGS & BANDAGES

A dressing is placed over a wound to keep out germs and absorb discharge (bleeding etc). A bandage however holds dressings in place, secures limbs and can be used to reduce swelling.

• SUGGESTED CONTENTS OF A FIRST AID BOX

There is no statutory list of contents of a first aid box and it is left to each employer to decide what is considered necessary after a risk assessment has been carried out. This assessment should include a review of previous accidents and the treatment that was necessary.

The only mandatory stipulation is that the boxes MUST NOT contain any medication. The only exception to this is where an antidote to a process is needed in the event of misuse and then only in the box alongside the process.

The Approved Code of Practice for First Aid at Work does however contain the following suggestion for a box that services up to 10 people (the number of people on duty at any one time):

1.	A leaflet describing basic first aid treatment	
2.	Eye pads	2
3.	Adhesive Plasters	20
4.	Medium Dressings	6
5.	Large Dressings	2
6.	Triangular Bandages	4
7.	Antiseptic Wipes	6
8.	Scissors	1 pair
9.	Rubber gloves	1 pair
10.	Safety pins	6
11.	Yellow plastic self-seal bag	1

These contents may be varied to suit individual requirements. Where there are more than 10 people on duty then there is more of the same of each item or more boxes placed.

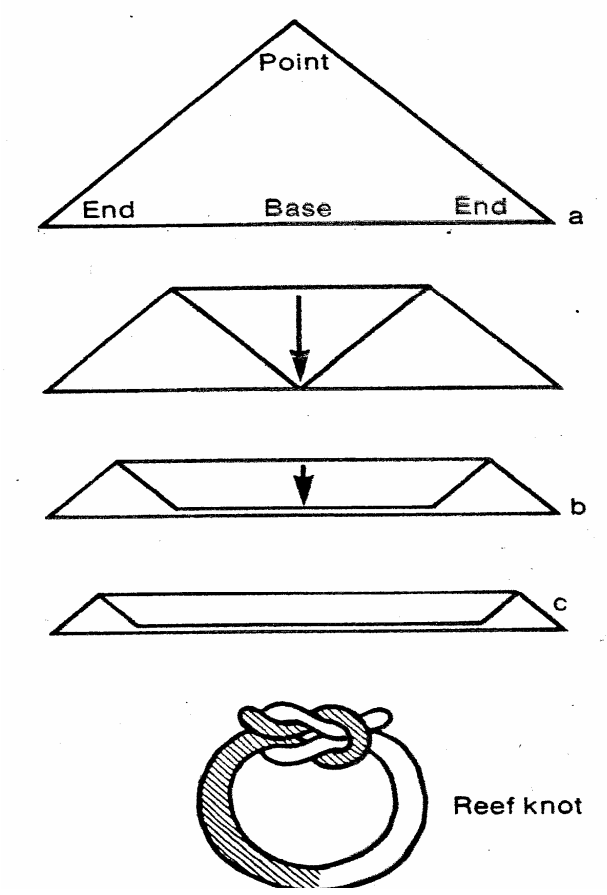
The box itself must be damp proof and dust proof and conform to current signage legislation.

- ## Applying a Dressing in a Sterile Manner

1. Open pack taking care not to let bandages unravel.
2. Unravel short end of bandage until you reach the dressing pad - don't touch pad.
3. Place the pad on the wound (this should cover the wound completely and some of the surrounding skin).
4. Hold in place with the longer end of bandage, seal the ends of the dressing with half the width of bandage. Start at the top of the limb and work down the limb overlapping half the previous width.
5. Tie off over the wound with a reef knot.
6. Check for circulation below the dressing.

- ## Triangular Bandages

A triangular bandage can be used in a number of ways



For explanation of a., b., c. see next page

a. Fully open - sling
b. Broad fold bandage – holding a dressing in place on a large limb
c. Narrow fold bandage – holding a dressing in place on a small limb

The illustration above shows a casualty wearing an elevated sling, used to hold the arm in a raised position when there is a wound on the limb.

1. Place the fingers of the injured arm touching the opposite collar bone and bring down an inch.
2. Place the bandage over the arm with the side parallel to the arm and point to the injured elbow.
3. Tuck the bottom of the bandage under the arm, starting at the hand, until the arm sits in a trough of bandage.
4. Take the bottom end round the casualty's back and tie off on the uninjured shoulder.
5. Make a pouch for the elbow to sit in by folding and pinning or twisting the point and tucking it in.
6. Check that it is comfortable for the casualty.

- # SHOCK

This is a condition that exists whenever a person is injured or ill. It may also be present after a severe fright. The circulatory system breaks down and fails to provide an adequate supply of oxygen to the vital organs and tissue.

Shock may occur through a reduced fluid level – bleeding, loss of serum in burns or loss of body fluid through vomiting or diarrhoea – or that the heart pump is failing or stops pumping oxygenated blood round the body.

Recognition Features:-

1. Cold, pale, clammy skin.
2. Rapid, weak pulse.
3. Rapid, shallow breathing.
4. Blueness around lips, end of nose, earlobes or finger nails (cyanosis – lack of oxygen in the blood.
5. Casualty may feel sick, thirsty, dizzy or weak.

Treatment:-

1. Ensure and monitor ABC throughout.
2. Treat the cause of the shock if possible.
3. Position the casualty to maintain an adequate blood supply to the brain
   - Lay down
   - Raise feet – except if there is a fracture of lower legs or back
   - Cover with a blanket to retain body heat
   - Reassure
4. DO NOT - Move casualty unless in danger
   Externally heat
   Allow to smoke
   Leave casualty unless going for help
   Give anything by the mouth (food or drink)

If the shock was caused by a heart condition or the casualty has breathing difficulties then the position they are placed is modified to the sitting position as shown on the diagram below:-

- # EXTERNAL BLEEDING

There are three types of external bleeding:

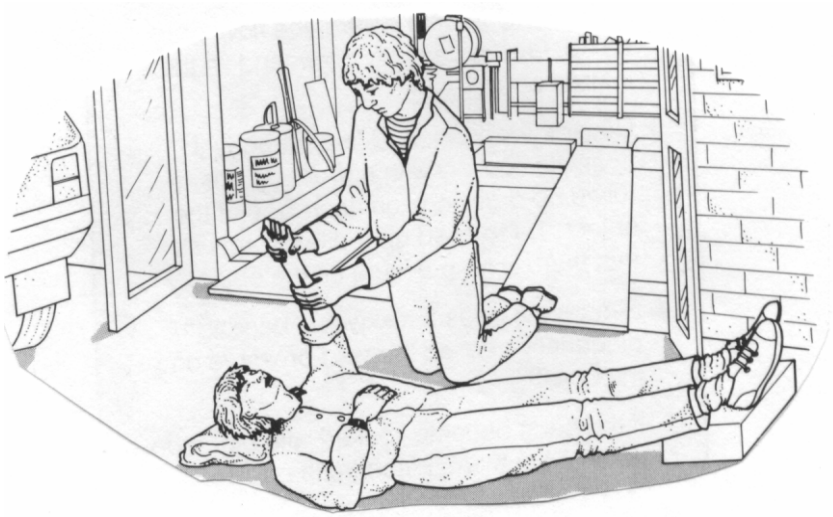
1. Bleeding from a **Capillary** (skin surface) oozes out after the initial flood.
2. Bleeding from an **Artery** (taking blood from the heart) spurts out to the beat of the heart and is bright red in colour (contains oxygen).
3. Bleeding from a **Vein** (taking blood back to the heart) flows or gushes out in a steady flow. The colour is a darker red (oxygen given up into tissue).

<u>Aims of Treatment</u>

Capillary Bleeding – Cleanliness; wash your hands and the wound (water only).
Arterial or Venous Bleeding – stop or reduce the flow.

<u>Treatment</u>:-

1. Wear protective gloves if possible particularly if you have cuts or abrasions on your hands.
2. Expose wound and apply direct pressure. If the wound has a foreign body in it apply pressure alongside the object (leave object in wound).
3. Elevate the injured limb unless there is a fracture also.
4. Lay the casualty down.
5. Treat shock by raising feet and covering with a blanket.
6. Apply a sterile dressing and bandage in position. If blood soaks through then apply another dressing over the first. If it bleeds through the second then remove the two and re-apply a dressing more firmly and check for circulation.



7. If the wound continues to bleed then apply **Indirect Pressure** – pressure to a pressure point. By pressing on a pressure point you press the artery against a bone. As this stops the flow of blood to the entire limb pressure **must not be applied for longer than 10 minutes at a time**. The procedure can be repeated if the wound continues to bleed. This method can also be used if the wound is too large to apply direct pressure.

There are two pressure points on each side of the body:-

The Brachial Pressure Point is found on the inner side of the upper arm. Press fingers beneath the muscle, feel for a pulse and press the artery firmly against the bone.

The Femoral Pressure Point is located in the centre of the groin at the top of the leg. Lay the casualty down and raise the affected leg with the knee bent. Locate the centre of the groin and press firmly with both thumbs or the knuckles of a fist.

- # WOUNDS WITH AN EMBEDDED OBJECT

This could be a nail, piece of glass, wood or metal or even something larger like a fence or scaffolding post.

Don’t Remove the Object (give support to larger objects).

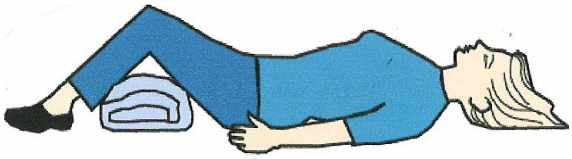
Press along side the object.

Elevate the limb if the object will allow.

- # TREATING A NOSE BLEED.

1. Sit casualty down with head leaning forward.
2. Pinch the nose on the soft part below the bony bridge.
3. Tell casualty to breath through their mouth (some children don't breath if you block their nose).
4. Hold the pressure for 10 minutes, release and see what happens. If it continues to bleed hold for a further 10 minutes. If after 30 minutes the bleeding has not stopped the casualty must be sent to hospital.
5. Clean any blood from around the casualty's mouth.

- # TREATING AN ABDOMINAL WOUND.



The aim is to prevent the wound from gaping.

1. If the wound is across the stomach raise the knees.
2. If the wound is along the stomach the knees need to be flat on the ground.
3. Cover the wound with a dressing and bandage in place (it is recommended that a broad fold bandage is used for this). Support the wound if the casualty coughs or is sick.
4. If the intestines show through the wound then do not try to replace but cover with a plastic bag under the dressing so the intestines do not dry out. Support the wound if the casualty coughs or is sick.

- # BURNS & SCALDS

<u>Cause:-</u>

Scalds - Boiling Water, Steam and Hot oil

Burns - Dry heat (flame or hot surface), Electricity, Friction, Radiation, Chemicals and Cold.

<u>Recognition Features:-</u>

1. Burns cause destruction of the skin tissue and recognition features vary with the degree of damage.
2. Superficial Burns - these involve the outer layer of skin so there is redness and pain. It is serious when it involves 5% or more of the skin surface, or involves the face, hands, feet, genitals or goes all the way round a limb.
3. Partial Thickness Burns - these involve 'partial thickness of the skin' and there is pain, swelling, blistering, and raw skin. This is a serious burn.

4. Full Thickness Burns - all layers of the skin are involved in this burn and may also involve muscles, nerves and fat. Here the skin may be pale, waxy or charred very often with little pain. This is a very serious burn.

Treatment:-

1. Cool the area with cold water for a least 10 minutes or until the pain goes away. If the burn is caused by chemicals then the area should be flooded with water for as long as possible in excess of 20 minutes.
2. Remove anything of a constricting nature - rings, watches. bracelets, etc.
3. Treat for shock - lie down, raise feet and cover.
4. Cover the burnt area to keep clean with either dressing, clean cotton cloth items (tea towel, table cloth, pillow case, sheet) or cling film - discard one or two layers and put onto cooled burn.
5. Constantly check ABC.
6. Arrange removal to hospital.
7. DO NOT
   - Touch the area
   - Remove sticking clothing (unless contaminated with chemicals - protect yourself)
   - Burst blisters.
   - Apply creams or lotions.
   - Use fluffy materials (cotton wool, etc.)
   - Underestimate the seriousness.

• BURNS OF MOUTH AND THROAT

The danger with this type of burn is the swelling of tissue that will eventually cause suffocation. To reduce this swelling it is necessary to:-

- Give sips of a cold liquid or,
- Suck an ice cube or
- Suck ice lolly

Even if the treatment appears to restore breathing to normal the casualty must still go to hospital in case the swelling returns.

• CLOTHING ON FIRE

Be aware that a casualty, with clothing on fire, may run towards you so be prepared to run away so as not to become burnt yourself.

1. Get them to lie down. This stops the face and hair suffering further damage.
2. Roll them in a blanket, coat or similar ensuring that does not melt (made of a man-made fibre).
3. Treat a burn as above.

That completes all the items in Level 1

LEVEL 2 - INTRODUCTION

Welcome back to Level 2 of this course. We are set to teach you more about first aid. It will however be necessary to revise what you did in Level 1 and particularly the aims of first aid.

• ASTHMA

This is when the air passage muscles go into spasm and the airway lining swells. The airway then narrows and breathing becomes difficult. There may be a trigger such as an allergy, cold, smoke or stress.

Many sufferers carry relieving inhalers, most of which have blue caps. Some have white or brown caps to prevent attacks. The drugs in the inhalers dilate the air passages to ease breathing.

Recognition Features: -	Treatment:-
1. Difficulty in breathing	Keep calm and reassure the casualty
2. Distress and anxiety	Sit, leaning slightly forward
3. Difficulty in speaking (only in a whisper)	Assist to take inhaler (blue)
4. Grey-blue skin (cyanosis)	If no inhaler try to get to relax
5. Dry, tickly cough	Consider environment
6. May eventually become exhausted	NEVER lie casualty down

Immediate medical attention is only needed if the attack does not ease after about 5 minutes after taking a second dose, if the casualty gets worse rather than better or if they are becoming exhausted. Other cases should advise their doctor of the circumstances of the attack at their next visit

• HEART CONDITIONS

Under this general title there are three conditions- Angina Pectoris, Heart Attack (Coronary Obstruction) and Cardiac Arrest.

• Angina Pectoris

A condition where the arteries, that supply the muscle walls of the heart, become narrowed so reducing the flow of blood to these muscles damaging them.

Recognition Features: -

1. Severe chest pain, often radiating into the left arm and into the jaw brought on by exertion or excitement.
2. Shortness of breath and increased pulse rate (regular), skin very pale.
3. Weakness and feeling of anxiety.
4. Pain may ease with rest.

Aim: -

- To reduce the strain on the heart by getting the casualty to rest.

Treatment: -

1. Help the casualty to sit down in a comfortable position preferably propped up with knees raised and undue tight clothing. This will ease breathing.
2. If the condition was pre-diagnosed they may have medication with them, such as capsules or a spray. Let them take this medication or assist them.
3. Encourage them to rest and keep bystanders away. This should ease the pain.
4. If the pain persists or returns send for an ambulance to take them to hospital.

- **Heart Attack (Coronary Obstruction)**

Cause when a blood clot suddenly blocks the arteries supplying blood to the muscle walls of the heart. The main risk is that the heart may stop beating.

Recognition: -

1. Early warning may be acute discomfort in the upper abdomen, often mistaken for acute indigestion.
2. Vice like gripping pain in the chest that seems to wrap round chest and again may radiate into the arms and jaw. Unlike angina the pain dose not go away with rest.
3. Breathless, pulse rapid and irregular, skin ashen and grey
4. Faintness, dizziness and/or nausea.
5. Profuse sweating.

Aim: -

1. Encourage casualty to rest.
2. Arrange urgent removal of the casualty to hospital.

Treatment: -

1. Place them in a comfortable position preferably half sitting with head and shoulders supported and knees bent,
2. Dial 999 and request urgent removal to hospital stating you consider the casualty is having a heart attack. If the casualty requests it contact their own doctor as well.
3. **HSE state that in the workplace a first aider MUST NOT give a casualty they suspect of having a heart attack, any aspirin unless directed to by a medical officer or nurse trained in the administration of drugs and that person takes full responsibility for the action.**
4. Nothing at all by the mouth.
5. Constantly monitor the vital signs (level of response, pulse and breathing rate) and record the details until help arrives.

Suggested position for a conscious casualty suffering from an angina or heart attack.

In case of both the above conditions if the casualty goes unconscious place them in the recovery position or resuscitate if they stop breathing and the heart stops.

- **Cardiac Arrest**

  Where the heart suddenly stops either naturally or as a result of an angina attack or heat attack.

  If the heart stops naturally without warning there is only a slim chance of survival (between 3% & 5%). If the arrest is brought by other causes – angina, heart attack, electrocution, drowning, or bang on the head the chance of recovery is a lot greater.

  Treatment: -

  Full CPR in all cases.

- # POISONING

A poison is ANY substance when taken in sufficient quantity causes illness or injury. A poison can enter the body in one of five ways - inhaled, digested, absorbed, injected or instilled into the eyes.

In the BB meeting place the first aider MUST know how to deal with all the hazardous substances that are used. It is not vital that you remember all the details as long as you know where to get the information in a hurry (know where the instructions or containers are). Where these instruction vary from what is stated below follow the specific instructions for the product. The treatment below is where there is an absence of any other instructions:-

Treatment:-

1. **Make sure that you are safe** - do not enter gas or smoke filled rooms, etc.
2. Identify the poison early as your casualty may go unconscious quickly.
3. Get medical aid quickly.
4. Keep the casualty still - movement spreads the poison.
5. Remove any residual poison - wash it off the skin or out of eyes, open windows to gas, etc.
6. **Do not make** the casualty vomit. What burns going down burns coming back.
7. Give nothing by the mouth. (See burns to mouth under burns and scalds).
8. Monitor ABC constantly and be prepared to resuscitate if necessary - remember you **MUST** protect yourself in this case so that you don't become contaminated yourself.
9. Get away to hospital as quickly as possible sending any containers, samples of poison and samples of vomit with them.
10. Place in recovery position until ambulance arrives whether conscious or unconscious. This is the only time when a conscious casualty is placed in recovery position and it is done because they may go unconscious quickly and without warning and any residue in the mouth will drain out.

• HEAD INJURIES

• Concussion

Concussion is brain shaking caused by a blow to the head or jaw.

Recognition Features: -

1. Dazed with partial loss of memory.
2. There may be a brief period of unconsciousness.
3. Headache.
4. Pale clammy skin.
5. Rapid weak pulse.
6. Rapid shallow breathing.

Treatment: -

1. Treat any open wound.
2. Check level of response at frequent intervals.
3. Send to hospital if casualty has been unconscious even for a very short period of time.
4. Recovery position if the casualty is unconscious.

WATCH FOR COMPRESSION

• Compression

Compression is pressure on the brain caused by a build up of blood as a result of a blow to the head.

Recognition Features: -

1. Severe headache.
2. Confusion, sleepy, unsure of what happened.
3. Skin flushed, hot and dry.
4. Pulse strong and slow.
5. Breathing slow and noisy.
6. Response level deteriorates.

Treatment: -

1. AMBULANCE AND HOSPITAL urgently as they may need surgery.
2. Check response levels regularly and note details.
3. Reassure and place in the most comfortable position usually lay down with head and shoulders slightly raised.

• Fractured Skull

Recognition features similar to compression

Treatment: -

1. If conscious help them to lay down taking care not to turn head.
2. Cover with a blanket and treat any obvious wounds.
3. Cover ear if discharging but don't plug.
4. Monitor condition
5. If they go unconscious open airway using jaw thrust method.
6. Hospital.

- **Stroke: -**

  There are two causes of a stroke:

  1. A cerebral thrombosis where a blood clot prevents blood from getting to the brain.
  2. A cerebral haemorrhage. Here bleeding into the brain causes pressure on the brain.

  Both cause a reduction in the blood supply to the brain which results in temporary or permanent brain damage.

  The recognition features and treatment are the same as compression.

- # FRACTURES (General Treatments)

Causes:-

Direct force - part hit breaks.
Indirect force - force transmitted along limb and point of least resistance breaks.
Muscular action.

Recognition Features:-

1. Pain and tenderness.
2. Swelling and bruising.
3. Deformity and irregularity - funny shape.
4. Loss of movement or unnatural movement.
5. Crepitus may be noted (bone ends grind together).
6. Shock.

Treatment:-

1. Keep the limb still and in the most comfortable position.
2. If the casualty is supporting their own limb leave alone.
3. Remove to hospital urgently.

- # MUSCLE & JOINT INJURIES

Injuries to muscles and joints can vary in severity from just being a nuisance to crippling (preventing normal movement).

The Function of Muscles, Joints & Bones

Muscles
We have two types of muscles in our body, voluntary and involuntary. The involuntary ones work without any conscious command. They work our organs, for example, even in our sleep.

Voluntary ones are attached to bones by strong tissues (tendons) to give bodily movements. These muscles work in pairs, whilst one contracts its partner on the other side of the limb relaxes, and causes the limb to move. This is done by conscious decision, i.e. voluntary.

Joints

A joint is where one bone meets another and falls into two main categories, movable and immovable. The movable one simply means that it allows the adjacent bone to move and again they are divided into two main categories, ball and socket (i.e. shoulder) where the limb can move up and down and in a rotating motion and hinge (i.e. knee) where the joint can only bend and straighten.

Immovable joints do not allow movement as in the top of the skull. Bones in the spine are classed as slightly movable.

Bones

The bones of the body have the function of supporting the muscles and offering protection to some of the organs, blood vessels and nerves. This bony structure, or skeleton, gives us structure and allows us to move.

- ## STRAINS

A strain is where the muscle or tendon is damaged by over stretching and in severe cases the muscle can rupture causing complete tearing.

Recognition Features: -

1. History of over-stretching the muscle.
2. Sudden sharp pain.
3. Possible loss of movement, swelling or cramp.
4. Loss of power.

- ## SPRAIN

A sprain is an injury to the ligament, the strong fibrous tissue binding the bones at a joint together, or the surrounding tissue.

Recognition Features: -

1. A history of twisting the joint.
2. Pain at the joint.
3. Swelling and bruising.
4. Possible loss of movement.

Treatment for Sprains and Strains: -

1. Early and correct treatment by both you and the medical team (doctor/physio) can dramatically reduce pain and the overall healing time, particularly when dealing with a sports injury.

2. **R**est injury in the most comfortable position.

3. **I**ce. Apply a cold compress to the injury for about 5-10 minutes at a time.

4. **C**ompress. Bandage firmly, well above and below the injury to give plenty of support and reduce swelling. Take care not to restrict circulation.

5. **E**levate the injure limb and seek medical advice.

[R I C E]

- # EPILEPSY

Epilepsy can occur in us all and it is unusual electrical activity in the brain. There are two extremes of epilepsy, Minor and Major.

Minor Epilepsy

In this condition the casualty suddenly "switches off" without warning, sometimes in mid sentence, and goes into a daydream. Occasionally other signs may be twitching, lip smacking, chewing or fiddling with clothing.

The only treatment is to ensure the casualty's safety then support them through the recovery, if the casualty is dazed or disorientated.

As the casualty usually has no memory of the fit it is important that they see a doctor as soon as possible before a serious incident occurs where someone is injured.

Major Epilepsy

This is when the casualty has more pronounced and violent muscles spasms and can be very frightening when witnessed for the first time.

Recognition Features: -

1. Some casualties get a warning, an aura, of an impending fit, this may be a smell, taste or feeling.
2. The casualty goes rigid and crashes to the ground sometimes crying out.
3. The muscles then relax and convulse (tense and relax in sequence).
4. After a period of time the convulsions reduce and stop.
5. At this time the person may start to slowly recover or may sleep. They are exhausted by the efforts of the fit.

Treatment: -

1. KEEP CLEAR OF THEIR FLAILING LIMBS.
2. Move objects away from the casualty so they do not hurt themselves.
3. Place something soft under their head to prevent them banging it on the ground. (Only do the above two if it can be done without danger to yourself).
4. NEVER restrain the casualty – this may seriously injure them.
5. NEVER place anything in their mouth and prevent others from doing this.

The job of the first aider really starts after the fit is over and involves looking after the casualty during the recovery period.
Remain with the casualty until fully recovered.
The casualty only needs to go to hospital if:

- It is a first fit
- They are injured during the fit
- They have repeated fits or if it lasts longer than about 5 minutes
- They remain unconscious.

That completes all the items in Level 2

LEVEL 3 - INTRODUCTION

Welcome back to Level 3 of this course. We are set to teach you more about first aid.

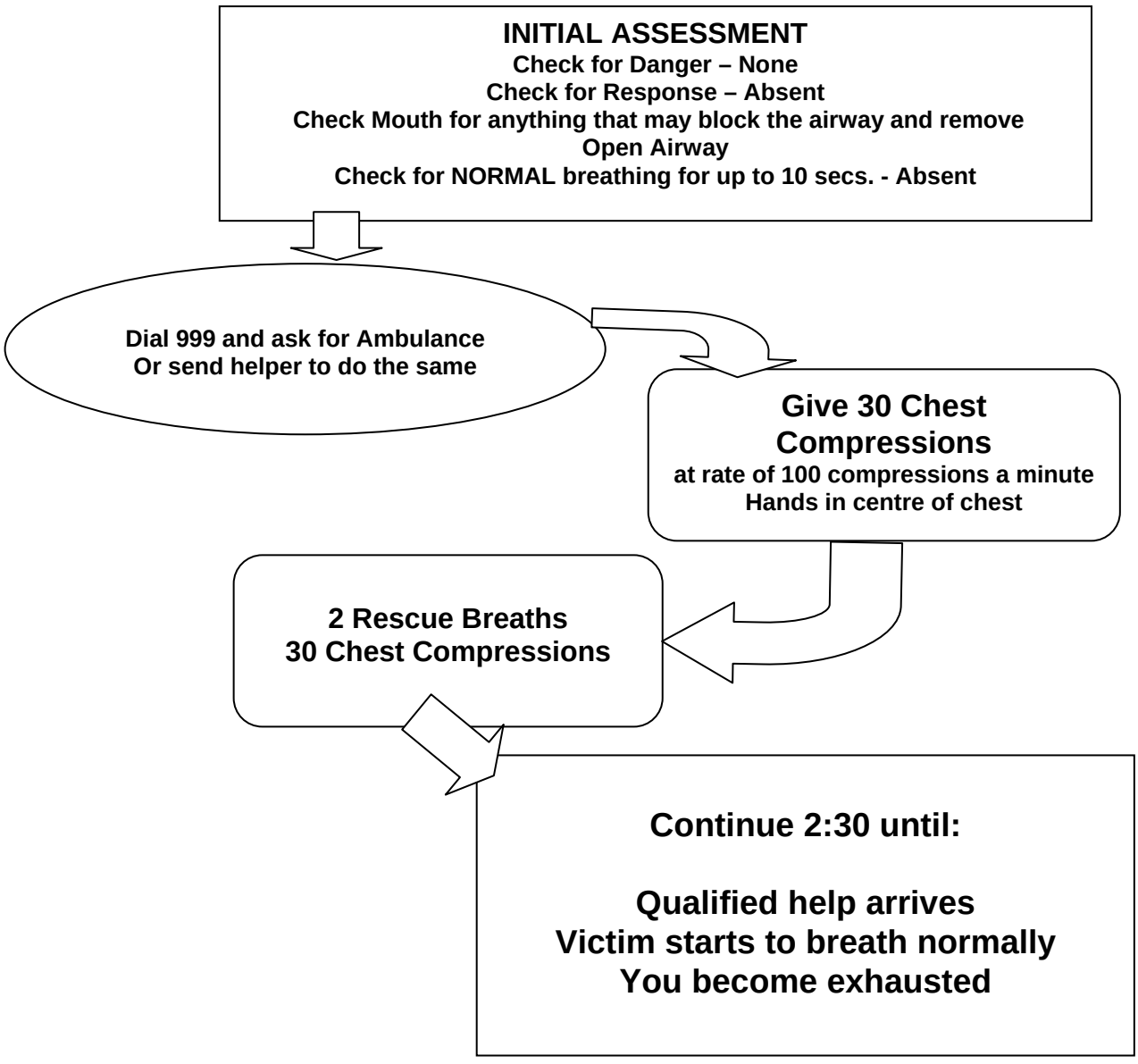
It will however be necessary to revise what you did in both Levels 1 & 2 and particularly the aims of first aid.

• RESUSCITATION

A casualty will need to be resuscitated if they are not breathing normally.

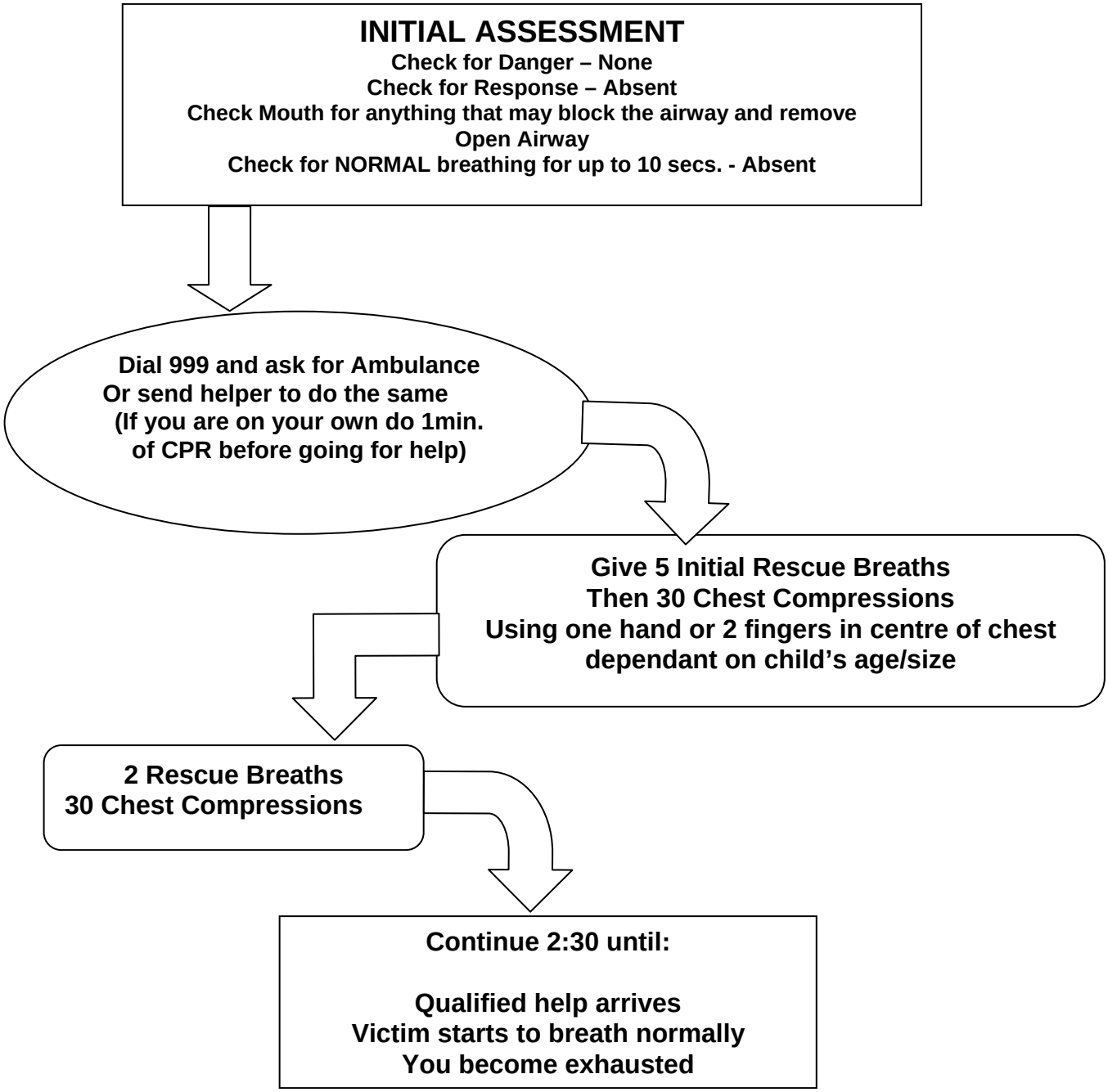
During the course you will be shown how to perform resuscitation and have a chance to practise it. Just remember that if a person needs resuscitating they are, to all intents and purposes, dead so you can't make them worse. In some cases however, but not all, you can restore life.

ADULT BASIC LIFE SUPPORT



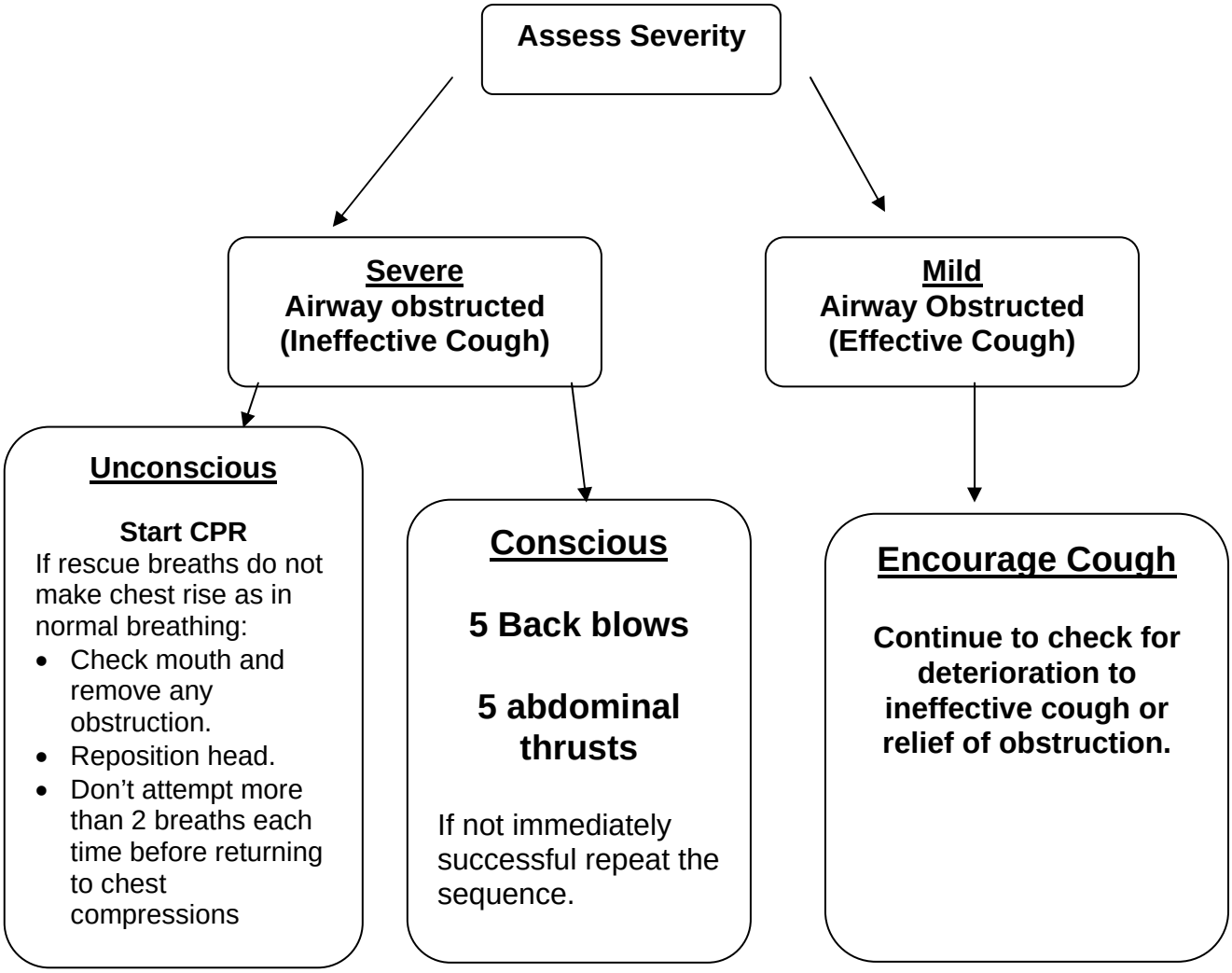
INFANT AND CHILD BASIC LIFE SUPPORT

INFANT – Under the age of 1 year
CHILD – Aged between 1 and 14 years



• CHOKING

Adult Choking Treatment



The above treatment may also be carried out on children above the age of one.

Below the age of one give up to five back slaps followed if necessary by up to 5 chest compressions for the conscious casualty or CPR for the unconscious casualty.

Following treatment for choking, foreign matter may remain in the upper or lower respiratory tract and cause complications later. Victims left with a persistent cough, difficulty swallowing or with the sensation of an object still stuck in the throat should be referred for a medical opinion.

Abdominal thrust can cause serious internal injuries. A doctor should examine all victims receiving abdominal thrust for injury.

• SPINAL INJURIES

When the bones of the spine (vertebra) are fractured then the spinal cord may be damaged.

Recognition Features: -

1. May or may not be pain in back.
2. Irregularity of bones may be felt.
3. Loss of movement and/or sensation bellow site of fracture.

Treatment: -

1. **KEEP THE CASUALTY STILL unless it is absolutely necessary.**
2. If the casualty is unconscious use jaw thrust to keep airway open by kneeling at top of head facing along the body, placing fingers either side of their face, with finger-tips at the angle of the jaw and gently lift the jaw.
3. Care should be taken not to tilt the casualty's neck.
4. If you have to leave the casualty, even for a short time, you must put them in the recovery position as carefully as possible.

• CHEST INJURIES

- **Fractured Ribs**

  Recognition Features: -

  1. Apart from the general recognition features of fractures someone with fractured ribs it will be painful to breathe.
  2. If the casualty coughs the pain will be more intense.

  Treatment: -

  1. Half sit the casualty on the floor.
  2. Get the casualty to hold their arms across the chest to reduce the muscle pull.
  3. If the casualty cannot do this place the injured side arm in a sling.

- **Flail Chest**

  This is where the sternum is broken. Because of this the chest wall looses its rigidity.

  Recognition Features: -

  The most obvious is paradoxical breathing – when they breathe in the chest wall is sucked in and when breathing out the chest blows out (the wrong way round). This results in no, or little, oxygen getting into the body and the casualty suffering cyanosis (blueness around the lips and tips of the nose and ears).

  Treatment: -

  1. The aim is to restore rigidity to the chest.
  2. Get casualty to place both arms diagonally across chest.
  3. If necessary place the arms in two elevated slings
  4. Monitor and send to hospital.

- **Penetrating Stab Wound of the Chest**

  If the chest wall is penetrated then air enters the chest cavity and not the lungs. There is a build up of pressure which causes the lung to collapse. If the situation is allowed to continue then the other lung may also collapse. Any build up of blood, from the wound, can also cause the heart to malfunction. The priority has to be sealing the wound to prevent more air getting into the chest cavity.

  Recognition Features: -

  1. History of a stab by a sharp object.
  2. Difficulty breathing and may be coughing up blood.
  3. Signs of breathing distress – cyanosis.
  4. Shock.
  5. The wound may suck and bubble as the casualty breaths.

  Treatment: -

  1. Get casualty or bystander to seal the wound with their hand – PRIORITY.
  2. Send for an ambulance as a matter of urgency.
  3. Sit casualty in half sitting position if conscious. The best way to do this is to kneel behind the casualty and get them to rest back on your knees.
  4. If the casualty is unconscious place a dressing pad over the wound and turn them into the recovery position, lying on the wound.
  5. Place a dressing pad over the wound.
  6. Cover this with a plastic bag to prevent air being sucked through the dressing.
  7. Bandage firmly in place using a broad fold bandage.
  8. Keep casualty in sitting position as long as they remain conscious.

• EFFECTS OF EXTREMES OF TEMPERATURE ON THE BODY

Our body is designed to operate at a temperature of 37 degrees C (98.4 degrees F) and if we deviate from this our bodies try to address the imbalance; we shiver when cold and sweat when too hot. If this process is not adequate then the body keeps going in one or other direction.

If the body gets too cold then the vital organs slow down to a point where they become ineffective or brain damage takes place if the body gets too hot.

There are three conditions caused by extremes of temperature:

1. Hypothermia
2. Heat exhaustion
3. Heat stroke

• HYPOTHERMIA

Hypothermia is a term given when the core body temperature has cooled down to 35 degrees C/ 95 degrees F or less. Survival from this condition depends on the overall health, fitness and determination of the casualty and how cold they have become. If the core temperature drops below 26C / 79F then the outcome is often, but not always, fatal.

Causes: -

The onset can be quick, falling into a frozen lake, or slow by being in a cold environment without adequate clothing and is made worse by not eating properly. Wind chill also makes it worse particularly when the person is wet.

As well as taking account of the age and fitness of the casualty it is necessary to determine how quickly the person was cooled. If a person has been cooled slowly, then to warm them too quickly can cause them to suffer ‘after drop’ where the cold blood from the outer extremities is circulated to the core causing its temperature to drop further. Conversely a fit person cooled quickly can be warmed quickly.

Recognition Features: -

The signs and symptoms will vary with the severity but you can expect to note the following:

1. Uncontrollable shivering in the early stages but as the body becomes acclimatised to even lower temperatures this will cease.
2. Cold, pale dry skin with slow, shallow breathing.
3. A slow weak pulse.
4. Strange or unusual behaviour – confusion, aggression, lethargy.
5. Unconsciousness and cardiac arrest can occur in severe cases.

If you ever experience uncontrolled shivering then you are getting close to the limits where you are able to take care of yourself.

Treatment (general): -

1. Assess fitness, general health and age of casualty.
2. Warm then according to the speed of the onset of hypothermia.
3. Give a warm drink (soup, hot chocolate) if the casualty is conscious. [NOT ALCOHOL, Tea or Coffee].
4. Refer the casualty to a doctor or call an ambulance, depending on the severity of their condition.

Treatment – A fit person brought in from outdoors: -

This casualty can be re-warmed quickly, as follows:

1. Re-warm the casualty in a warm bath (40C/104F) if they are fit enough to climb into the bath unaided. If not, quickly replace cold wet clothing. Cover clothes with waterproof clothing if dry replacements are not immediately available. Don't forget the head. Do NOT leave them unattended.
2. Assist casualty out of the bath when their skin colour has returned to normal.
3. Give a warm drink (hot chocolate, soup) NOT ALCOHOL, Tea or Coffee.
4. If you are in doubt about their condition, refer them to a doctor.

Treatment – An elderly person: -

An elderly person who has cooled down slowly needs to be re-warmed slowly to reduce the risk of further cooling by circulating cold blood to the vital organs.

1. Transfer casualty into a warmer environment, where the heating has been increased, or put them to bed. Do not put a hot water bottle next to the skin.
2. Give warm drinks (hot chocolate, soup) if able to drink. NOT ALCOHOL, Tea or Coffee.
3. Call the casualty's doctor, or in extreme cases call an ambulance.
4. Monitor the casualty's level of response and be prepared for the casualty to go unconscious. DO NOT RUB THEIR SKIN.

- **HEAT EXHAUSTION**

This is caused when a person loses salt and water through sweating, often when working in a hot, humid atmosphere. It is a form of shock as it is due to fluid loss.

Recognition Features: -

1. History of person working in a hot humid environment.
2. Pale clammy skin with rapid pulse and breathing.
3. Cramps in limbs and possible a headache due to loss of salt.
4. Possibly nausea and faintness depending on the severity.

Treatment: -

Most casualties, who remain conscious, make a rapid recovery when the effects are reversed.

1. Assist them into a cool place.
2. Give them some water to sip slowly containing one level teaspoon of salt to every litre of water.
3. Lay casualty down with legs raised.

4. If recovery is rapid get casualty to see their own doctor.
5. If they become unconscious call an ambulance, place in the recovery position and check vital signs.

NEVER GIVE AN UNCONSCIOUS CASUALTY ANYTHING TO DRINK

REMEMBER:

Only ONE LEVEL teaspoon of salt per litre of water

- **HEATSTROKE**

In our brain we have a control centre or “thermostat” that regulates the body temperature, causing us to sweat when hot and shiver when cold. Heatstroke is when the thermostat fails to work and the body continues to heat up to the limit when brain damage occurs. This heating up can be caused by prolonged exposure to very hot surrounding (sunstroke) particularly when not acclimatised or an illness involving a high fever such as malaria.

Recognition Features: -

1 May occur suddenly and casualty may become unconscious in minutes.
2 Flushed dry skin, strong slow pulse, slow noisy breathing.
3. Possibly have headache and be restless, confused and dizzy.
4. The body temperature will be above 40C/104F.
5. Their level of response will deteriorate.

Treatment: -

The aim is to reduce the body temperature.

1. Get them into a cool place and remove all outer clothing.
2. Telephone their doctor or ambulance if level of response is deteriorating.
3. Wrap them in a cold, wet sheet and keep it wet. Fan them also to create wind chill.
4. Cool them until the under-tongue temperature drops to 38C/100F.
5. When the temperature has fallen replace the wet sheet with a dry one but be prepared for them to go unconscious.