

**HED 315**  
**EMERGENCY CARE AND FIRST AID**

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## **INTRODUCTION**

You are welcome to HED 231: Emergency Care and First Aid. This is a two-unit credit course. There are twelve (12) study units in this course. This Course guide is one of the several resource materials available to you, to help you successfully complete this course and ultimately your programme. In this course guide, you will find very useful information about this course such as: course aim and objectives, what the course is all about. It also offers you guidelines on how to plan your time of study; your tutor-marked assignments. I wish you all the best and successful completion of this course.

## **AIM**

The aim of this course HED 315: Emergency Care and First Aid is to help you understand the concept of emergency care, first aid, the first aider, sports injuries, and prevention of sports injuries among others.

## **OBJECTIVES**

On completion of this course, you will be able to:

- explain the aim and objectives of this course
- outline the structure and content of this course
- summarized what this course is all about
- write briefly on what is required of you in relation to the self-assessment exercises and tutor-marked assignment.
- state what is required of you to be eligible to sit for this course examination at the end of the semester.

## **COURSE MATERIALS**

The major components of the course are:

1. Study units
2. Textbooks
3. Assignment File
4. Presentation schedule

## STUDY UNITS

The units contained in this course material are as follows:

- Meaning of Key Words
- Who is a First Aider?
- The Contents of a First Aid Box
- Principles of First Aid
- Causes of Injuries in the Sporting Arena
- Types of Sports Injuries
- Prevention of Sports Injuries in the Sporting Arena
- Sports Emergencies and Their Care
- Artificial Respiration
- First Aid Care for Bleeding
- First Aid Care for other Sports Injuries
- Bandaging and Moving casualty
- Concept of Accident and Types of Accident
- Theories of Accident Prevention
- Safety Education

## WORKING THROUGH THE COURSE MANUAL

To complete this course, you are advised to read the study units and other related materials for in-depth knowledge. It is also proper for you to consult at the reference sections of the course. Each unit contains self-assessment exercises, and at specific points in the course, you will be required to submit assignments for assessment purposes. At the end of the course (semester), there is a final examination. You will find all the components of the course listed below. You have to allocate your time to each unit in order to complete the course successfully and on time.

For you to understand this course material, you are expected to study all the units diligently and successfully. Do not hesitate to consult your facilitator where need be. Each study unit introduces you to a different aspect of the course. In order to complete your training in this course successfully, you should:

- i. Not disregard any aspect of this manual or see it as being simple, difficult or complicated. Just read on and you will always see the connections.
  - ii. Do all the self-assessment exercises, either alone or in a discussion group with your coursemates.
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- iii. Do not neglect any of the tutor-marked assignments, answer and submit to your facilitator on demand.

## **HOW TO GET THE MOST OUT OF THIS COURSE**

This course material provides you with the advantage of reading and learning at your pace, time, and place. Each study unit provides you with the introduction, objectives and exercise to help understand the course better. Please try and do each Self-Assessment Exercise as you read along. Draw up a personal timetable for yourself and make use of the left and right margins of your course book to take notes of main and key points.

## **FACILITATION**

The language of instruction for this course material shall be English. The medium is the print material. Facilitation should take place at any NOUN Study Centre nearest to you. The time of facilitation is flexibly arranged between you (the learner) and your facilitator.

## **TUTORIAL SESSIONS**

Tutorials are supposed to allow you to come face to face with your 'teacher' and with your fellow students. This course material is your 'teacher'. Any questions and clarifications arising from studying this material will be handled during tutorial sessions. Your tutorial facilitator will help facilitate learning.

You are encouraged to participate in these tutorial sessions although it is optional. Every other question about the tutorials should be directed to your study manager, your facilitator or your study centre counsellor. Remember that tutorial sessions are flexibly arranged between you and your tutorial facilitator.

## **COUNSELLING**

Counselling at NOUN is provided for you at two levels, academic and personal levels. For academic counselling (on facilitation and course materials) you should go to your study centre manager for enquiries. For enquiries on tutorial facilitation and assignments, meet your tutorial facilitator. For personal counselling, students' counsellors are available in your study centre to attend to your personal issues. The study centre counsellor will give you guidance on personal issues as this will help to make your learning experience worthwhile, easier and smooth.

## **ASSESSMENT**

There are three components of assessment for this course: self-assessment exercises and assignments at the end of each study unit, the tutor-marked assignments; and a written examination. In doing these assignments, you are expected to use the information gathered during your study of the course. Below are detailed explanations on how to do each assignment.

### **SELF-ASSESSMENT EXERCISE**

You will see self-assessment exercises spread out in your course material. You should attempt each exercise immediately after reading the section that precedes it. The exercises are for you to evaluate your reading and learning; they are not to be submitted. There are also questions spread through each study unit. You are required to attempt these questions after you have read a study unit. Again, the questions are to help you assess your knowledge of the contents of the unit. You are not required to submit the answers.

### **TUTOR-MARKED ASSIGNMENTS**

There are three tutor-marked assignments for this course. The assignments are designed to cover all areas treated in the course. You will be given your assignments and the dates for submission at your study centre. You are required to attempt all four tutor-marked assignments. You will be assessed on all four and the best three will be recorded.

### **FINAL EXAMINATION AND GRADING**

The work that you submit to your tutorial facilitator for assessment will count for 30% of your total course score, while the final examination will be 70% giving a total of 100% for this course.

The final examination for HED 315: Emergency care and first aid will be a two-hour duration. Before examination you should have:

1. Submitted all four tutor-marked assignments for the course.
2. You should have registered to sit for the examination.

### **SUMMARY**

HED 315: Emergency care and first aid provides you with a pedestal upon which you will learn, understand, examine and review how you can manage emergencies without panicking. Upon completion

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of this course, you should be able to explain ways to prevent sports injuries in the sporting arena.

I wish you the best and success in this course and hope that it will enlighten you the more.



**MAIN  
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**MODULE 1          DEFINITION OF TERMS**

Unit 1	Meaning of Keywords
Unit 2	The First Aider
Unit 3	The Contents of A First Aid Box/Kit
Unit 4	Principles of First Aid

**UNIT 1          MEANING OF KEYWORDS****CONTENTS**

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2.0	Objectives
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3.1	What is First Aid?
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**1.0          INTRODUCTION**

Accidents are daily occurrences and can happen anywhere. The consequences of an unplanned accident can in most cases be life-threatening. Immediate and appropriate life-saving care should be taken before the affected person gets the major attention from an expert. First aid or lifesaving care is an intervention that can be carried out by anybody nearby immediately after an accident occurs with little or without medical gadgets.

The ultimate goal of first aid is to stop or reverse the possible harm at a given time before the arrival of an expert. This makes it very important for every person to have basic knowledge of first aid. First aid can be given in all areas such as schools, homes, workplaces and recreational areas.

Many deaths and severe impacts of injuries can be prevented with first aid if casualties are treated immediately after an accident happens. When we provide basic medical care or support to a person experiencing an illness or injury, it is known as first aid.

In some instances, first aid consists of the initial care provided to a person in the centre of a medical emergency. This care might in most cases help the casualty survive until professional help comes or the casualty recovers.

## **2.0 OBJECTIVES**

By the end of this unit, you should be able to:

- define first aid
- define emergency
- say what an accident is
- define an injury.

## **3.0 MAIN CONTENT**

### **3.1 What is First Aid?**

First aid is the initial care given to an injured or suddenly ill person before the arrival of an expert. First aid is actually the most important branch of medical science. It is a vital aspect of preventive medicine in which a layperson has a worthwhile and rewarding part to play. First aid is the immediate care given to a victim of an accident, sudden illness, or other medical emergencies. St. John Ambulance regards first aid as the skilled application of accepted principles of treatment on the occurrence of any injury or in the case of illness, using facilities or materials available at the time. It is the approved method of treating a casualty (injured or sick person) until he or she is placed, if necessary, in the care of a doctor or other skilled first aider or before taking the casualty to the hospital, using available materials at the scene. A first-aid programme contemplates the most adequate possible treatment of all the injuries that occur in spite of the efforts to prevent them. The results of an accident may be determined by the effectiveness of the first aid rendered.

First aid is an initial and immediate but temporary and simple medical attention (treatment), given to the injured or one with sudden illness, using the accepted principles before the service of a qualified physician is obtained. First aid simply means a quick but simple medical welfare that is first given to an injured person or to an individual who took ill suddenly before the arrival of a trained medical doctor. It is therefore very important for bystanders to administer basic first aid in cases of accident, injury or sudden illness, because medical help may not be immediately available or accessible. When first aid is judiciously given by bystanders, it can go a long way in saving lives and also serves as a bridge to survival before the arrival of professional paramedics.

First aid is a set of practices that every person should administer in whatever situation regardless of their level of health education. However, bystanders usually need both courage and the necessary knowledge to give basic first aid correctly.

### **SELF-ASSESSMENT EXERCISE**

Briefly state three definitions of first aid.

### **3.2 What is an Emergency?**

An emergency is an accident/incident or a sudden illness requiring urgent medical attention. Emergency refers to an incident where first aid is required. If an emergency is treated with flippancy, the situation degenerates very fast and may lead to more serious events that may even cause death. An emergency can be small or large and can happen in a private or public place.

#### **3.2.1 What to Do in an Emergency**

Any sudden or serious injury does create a first aid emergency and the care to be given depends on the type of injury or illness. There are first aid priorities when the facts are unknown, the extent of injury or illness is not clear or when the injured person is unconscious or unable to explain. These priorities are:

- i. Do not put yourself in danger. Examine the situation carefully and then determine the best and safest way to give help.
- ii. Remain calm.
- iii. Ask for help if you need it.
- iv. Send someone else to get professional help. The person telephoning for help should state the following information: the location of the injured or ill person, the nature of the injury or illness, and the first aid being given. The person should not hang up until the other party has finished asking questions and has obtained all necessary information.
- v. Examine the injured or ill person carefully in a systematic way, from head to toe.
- vi. Deal first with the most life-threatening condition, such as severe bleeding, absence of heartbeat, or breathing failure. If you are trained in CPR, be prepared to administer it.
- vii. Care for shock or act to prevent it.
- viii. Know your first aid limits. Do not attempt any procedure that you cannot do efficiently and confidently.
- ix. Protect the injured or ill person from further harm. Do not move an injured or ill person unless that person is in immediate danger.

- x. Stay with the injured or ill person until professional medical help arrives.

### **3.3 What is an accident?**

Accidents are unplanned events that may lead to bodily injury, death or damage to property(s). It is an unintended act or event in the course of an activity or operation resulting in injury, death or damage of property(s). This goes to show that accidents could cause personal injury or damage to property(s), or interference with performance or execution process, production or other business activity. It can be referred to as any occurrence in a sequence of events which usually produces unintended injury, or death, or damage to property(s). Accidents are unpredictable and they can occur at anytime, anywhere, and to anybody

The underlying fact is that every accident or rather every injury constitutes proof that adequate preventive measure or action was not taken. Therefore, learning where, why, when, how, and to whom accidents are happening means a well-directed preventive effort.

The purpose of an organised accident-prevention programme is to eliminate incidents that cause accidents which may result in injuries by removing the hazards, by protecting the individual and by promoting safe practices. Therefore, most accidents can be prevented by combining proper engineering, enforcement, and education. Safety engineering produces such safety devices as seat belts for automobiles and aeroplanes, and guards and shields that protect persons operating machines. Safety enforcement includes rules in sports, in schools, on transportation, and in the industry that require individuals to take the proper precautions by acting according to stipulated rules, regulations and procedures, such as wearing the proper equipment. Safety education makes people aware of hazardous conditions and teaches them how to perform the most dangerous tasks safely. Safety education refers to a planned programme to provide knowledge, skills and attitudes and to adopt certain practical measures to enable an individual to live and avoid incidents that cause accidents. Safety education applied to the general public is chiefly valuable in promoting interest, understanding, and active participation in specific safety activities. Safety education is an education for safe living. Therefore, to be effective, accident prevention must change one or a combination of the environment in which accidents occur, the personality of the individual involved and the existing social customs or pressures. It is important to note that there are some inevitable accidents which cannot be avoided unless people move away from the causative incidents in those areas. E.g earthquakes, floods, volcanic eruptions, hurricanes or landslides.

### **3.4 What is an Injury?**

Injuries are a major public health problem, closely related to other health problems but long ignored by most public health professionals. It is on this basis that unfortunately, injuries have often been regarded as a behaviour problem rather than a health problem.

Injuries are the unhappy result of accidents. Injuries like diseases involve an unfavourable relationship between etiologic agent and host. Personal injuries result from two major factors which involve people's unsafe acts being performed under unsafe conditions.

An injury, therefore, is damage or harm to the human body or an object (material) resulting from an incident that causes an accident or an exposure to unfavourable conditions. When a human injury is involved, we have an accidental injury. This implies that considering injury in a broad sense will include adverse responses to injuries to the tissues that result from interference with normal energy exchanges.

### **4.0 CONCLUSION**

The result of an unintentional incident, accident or sudden illness can be life-threatening and require immediate and appropriate life-saving care before the casualty get the doctor's help. This life-saving care is known as first aid. The ultimate goal of first aid is to stop or reverse the possible harm at a given time before the arrival of a doctor or before the casualty gets to the hospital. It is therefore very important that you get familiar with some of the terms or keywords you will be using in this course.

### **5.0 SUMMARY**

In this unit, you were taken through some terms you needed to know that will help you in this course.

### **6.0 TUTOR-MARKED ASSIGNMENT**

The following are terms commonly used in emergency care and first aid. What do they mean?

- Injury
- Accident
- Emergency
- First aid

## 7.0 REFERENCES/FURTHER READING

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## UNIT 2 THE FIRST AIDER

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- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
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  - 3.2 Responsibilities of a First Aider in an Emergency
    - 3.2.1 Responsibilities of Employers of in the Workplace
  - 3.3 Qualities of a Good First Aider
  - 3.4 Characteristics of a First Aider
  - 3.5 Some First Aid Activities a Good First Aider Should Carry Out
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor Marked Assignment
- 7.0 References/Further Reading

### 1.0 INTRODUCTION

This unit looked at who a first aider is. Their responsibilities and the qualities of a good first aider. This unit equally looked at some of the things good first aider should do.

### 2.0 OBJECTIVES

By the end of this unit, you should be able to:

- explain who a first aider is to a layman
- list five responsibilities of a first aider
- identify eight qualities of a good first aider
- mention five activities a good first aider should carry out.

### 3.0 MAIN CONTENT

#### 3.1 Who is a First Aider?

First aid is the initial assistance, care or treatment given at the site or place of accident or incident to a person who is injured or suddenly taken ill, before the arrival of a doctor or paramedics. The person who provides this type of help is a **First Aider**. A first aider should be able to assess the situation quickly and calmly and should be able to deal with life-threatening conditions at the site of the accident.



First aid is the action taken in response to a person who is injured or taken ill suddenly. A first aider is someone who takes this action while making sure every person involved is safe. A first aider is a person who has been trained to give immediate medical care during an emergency. He/she must have gone through a training programme appropriate to what is needed in their workplace.

The goals of a first aid provider include preserving lives, alleviating suffering, preventing further illness or injury and promoting recovery. This course will help you provide effective first aid to a casualty in any situation. It is pertinent to note that to become a fully competent first aid provider, you should complete a recognised first aid training programme or a course like this, as it will strengthen your skills and also increase your confidence.

### **SELF-ASSESSMENT EXERCISE**

Briefly explain who a first aider is to a layman.

#### **3.2 What are the Responsibilities of a First Aider in an Emergency?**

First aid is the provision of immediate care given to a casualty with an injury or illness usually provided by a layperson. A first aider gives this immediate help to the casualty at the same time, makes sure that the casualty and everyone around including the first aider are safe.

When injuries are not serious, the first aider can manage them without looking for other help. For instance, minor injuries like cuts, bruises and burns can be taken care of by the first aider. But for serious injuries, the first aider cannot do without further help and the first aider should reassure the casualty while waiting for paramedics to arrive or going to the hospital.

In any emergency, the first aider has the following responsibilities:

1. It is the responsibility of a good first aider to assess casualties and discover the nature and cause of their injuries or illness.
2. It is also the responsibility of the first aider to manage the situation and also to ensure the continuing safety of everyone around (themselves, bystanders and the casualty).
3. It is the responsibility of the first aider to arrange for further medical help or other emergency services to attend to the casualty. The first aider should make an emergency phone call to 112 (worldwide).
4. A trained first aider should prioritise casualty treatment based upon medical needs.

5. The first aider should provide appropriate first aid treatment that is reasonable in the circumstances.
6. It is the responsibility of the first aider to make notes and record observations of casualties, monitoring vital signs and sample information.
7. The first aider should provide a handover when further medical help arrives.
8. Fill out any paperwork as required following the incident.

### 3.2.1 Responsibilities of Employers of Labour in the Workplace

Employers of labour are required by the Health and safety laws and regulations to provide adequate and appropriate first aid equipment, facilities and first aider to enable their employees to be given immediate help if they are injured or taken ill suddenly at work.

The minimum first-aid provision in any workplace is a well-stocked first aid box/kit and an appointed person (first aider) to take charge of first aid management. Being an appointed first aider in the workplace is a responsibility not to be taken for granted.

### SELF-ASSESSMENT EXERCISE

Identify five responsibilities of a first aider.

### 3.3 Qualities of a Good First Aider

A first aider is expected to be effective and efficient must study his casualties from several aspects. Basic to this requirement is the possession of a good knowledge of elementary human anatomy and physiology, this refers to the human structural design and the body's working or functioning mechanisms. He must also acquire a good theoretical and practical knowledge of first aid and be able to translate theory into practice with efficiency and precision. The possession of a certificate of efficiency is considered an essential qualification in this respect. In addition, he should possess the following personal qualities.

1. **Good communication:** A good first aider should be able to communicate very well with other first aiders and paramedical staff. Communication is the sole key. It is very important for emergency management to fully prepare and also respond promptly. A well-conceived and effectively delivered message can actually save lives, ensure public safety and facilitate response efforts during emergencies.
2. **Controlled and calm:** A good first aider should not panic. They should not show any panic and be able to perform in front of

- bystanders and the casualty. The action of the first aider should show confidence that can calm scared people.
3. **Intelligent and decisive:** The first aider should be able to take an appropriate decision. He or she should decide the course of treatment within seconds. If casualties are more than one, then the first aider must be quick to judge and should give first aid care to the casualty who needs attention the most and quickly.
  4. **Skilled:** A good first aider should have basic medical skills because you are trained to perform these skills under pressure. A first aider should have the right skills to apply in any given situation and even make quick calls when necessary. If the first aider requires help, he should be able to get some persons from the bystanders. The trained first aider should take charge and lead others.
  5. **Efficient:** A good first aider should be able to commence first aid care without the casualty feeling too much pain or without further increasing his or her pain. The first aider cannot afford to waste time when there is a medical emergency. The first aider should attend to as many as possible with available resources before the arrival of paramedics' staff.
  6. **Resourceful:** Without fail, and at all times, the first aid box/kit of the first aider should have the required materials. Peradventure, you do not have a first aid box/kit; you should ensure immediate arrangement or improvise for the right alternatives. A good first aider should be able to make use of those around him or her resourcefully by delegating activities to bystanders.
  7. **Quick and smooth:** A good first aider should be very quick in all their actions once there is a medical emergency. The first aider has to be very quick in his or her response and take charge of the situation immediately, without delay. There should be no room for panic or doubts.
  8. **Confidence:** A good first aider should have faith in themselves and each of their actions before embarking on first aid care of the casualty. The confidence you show while giving first aid care will go a long way to reassure the casualty and the bystanders that you are capable.
  9. **Team player:** A good first aider should be a team player. This is because teamwork is an important and integral part of the successful management of a medical emergency. A first aider should be able to work with other first aid providers to minimize injuries impact and death during emergencies.
  10. **Reassuring and sympathetic:** It is the duty of a good first aider to reassure the casualty that they are there to give him or her first aid care and that more help is on its way. The first aider here should be sympathetic, kind and calm to the casualty cry. The casualty

should be told that everything will be okay and that he or she is in safe hands.

### SELF-ASSESSMENT EXERCISE

State eight qualities of a good first aider.

#### 3.4 Characteristics of a First Aider

A first aider who wishes to do his/her work effectively must possess basic characteristics such as the following:

- a. **Trained:** A worthy and would-be first aider must be adequately trained for a first aid job. The individual training acquisition would enable the person to handle new cases of sudden illness and accidents. Only trained first aider would not fret in the face of life-threatening illness or hazards. The major focus should be on how to save lives.
- b. **Skillfulness:** A first aider must be very skilful in the application of acceptable principles of handling victims' treatment of hazards and illness. A skilled first aider must be able to use facilities or materials available to him/her at any given time.
- c. **Calmness:** A good first aider must be very calm and tactful. The first aider should not rush in taking decisions and banish assumptions in the handling of sudden illness and injury. He/she should endeavour not to put up actions that could aggravate the victim's condition. Calmness is important to help to give further assurance to the casualty in the face of a threat of life.
- d. **Coordination:** A first aider must be able to coordinate both human beings and materials simultaneously. The aider should promote recovery and transportation of casualty, connect the relations of the victim as soon as possible while efforts to reach out to the police where necessary must be taken. In cases of road accidents, possession of the casualties should be adequately safeguarded from being lost.
- e. **Empathetic:** The aider should show empathy and not sympathy in the process of carrying out the job. He/she should put self in the position of the casualty and have a feeling for the casualty. Through this, the first aider will be able to understand and act promptly within the ambit of training received without endangering life.
- f. **Confidence:** A good and effective first aider must have confidence in handling the casualty's condition. Confidence gives an underlying hope that life and recovery could be promoted. A first aider must believe in his/her own ability and the procedures to be used to help a victim recover quickly and effectively.

- g. **Safety Orientation:** First aider should not forget to protect his own life and others who are not casualties. Accident sites are not playing areas, therefore, signs and makers, cautions, etc must be put in place immediately an accident occurs. For example, when a road accident occurs, adequate safety measures should be put in place. This will help unsuspected drivers not to ramp into sympathisers.

### 3.5 Some First Aid Activities a Good First Aider Should Carry Out

1. The casualty should be approached in a calm and composed manner. Ensure the safety of the casualty by moving or shifting him or her from oncoming vehicles, broken glass, leaking car fluid or any hazardous material.
2. Inform the nearest medical care or police station. It can be through a phone call.
3. Any casualty that has breathing difficulty, damaged airway or is unconscious should be sent to the nearest medical centre as soon as possible. These types of casualties should be given the utmost care and greater priority over other casualties.
4. Immobilise the cervical spine by using two wooden blocks on both sides of the neck. This is to support the head and the neck from shaking as it may cause major damage and paralyse the casualty completely.
5. Do not remove the casualty helmet, but wait until he or she gets to the hospital.
6. Bleeding can be stopped when pressure is continuously applied to the open wound with a clean piece of cloth tying the cloth gently around the injured part of the body.



**Fig. 1: Applying Pressure to Stop Bleeding**

7. Take a proper look at the limbs of the casualty to see if there are fractures, broken bones or other damage. If there are fractures or broken limbs, ensure they are secure by tying a small stick to either side of the limb with a cloth.
8. Loosen any tight clothing, if the casualty is in shock or is pale. Wrap a blanket or towel around him or her. Rest the legs on a raised platform or even on your knees.
9. Make sure that the casualty has a pulse until he or she gets to the nearest hospital.

It is the moral responsibility of every good citizen to offer help and rescue casualties of any accident or disaster.

#### **4.0 CONCLUSION**

First aid is typically medical attention that is administered to casualty after injury or illness occurs. It usually involves a one time, short-time treatment. It includes cleaning minor cuts, applying bandages, treating minor burns and using over the counter (OTC) drugs where necessary.

#### **5.0 SUMMARY**

In this unit you have learnt the following:

- Meaning of first aid
- Who is a first aider
- Responsibilities of a first aider
- Qualities of a good first aider.

#### **6.0 TUTOR-MARKED ASSIGNMENT**

With a short note explain these terms: first aid and first aider.

#### **7.0 REFERENCES / FURTHER READING**

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## UNIT 3 THE CONTENTS OF A FIRST AID BOX/KIT

### CONTENTS

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
  - 3.1 Items Found in a First Aid Box/ Kit
  - 3.2 Factors that Causes Accident
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

### 1.0 INTRODUCTION

The materials needed for effective first aid treatment are usually kept in a box and it is called “First Aid Box” or “First Aid Kit”. The box should always be kept clean and dry. A first aid box should be available in sports arenas, schools, homes, offices, vehicles etc.

### 2.0 OBJECTIVES

By the end of this unit, you should be to:

- mention at least twenty (20) items found in a first aid box and their uses
- identify three factors that can cause an accident.

### 3.0 MAIN CONTENT

#### 3.1 Items Found in a First Aid Box/Kit

#### Different Items Found in a First Aid Box and Their Uses



**Fig. 2: First Aid Box and its Contents**



Every educational institution, sports centre, industrial establishment or even at home, should have a first aid box of medicines and other emergency care supplies to cope with any emergency. Table 1 reflects some of the important items and a few of their major uses.

In the case of the family medicine cabinet, a childproof lock is the first requirement. Inside it should be kept the name, address and telephone number of the family doctor, a first aid manual and some of the tabulated items in Table 1.

**Table 1: Contents of a First Aid Box**

S/N	MATERIALS /ITEMS	USES
1	Aspirin	<ol style="list-style-type: none"> <li>1. For relieving general pains</li> <li>2. For reducing body temperature in fever</li> <li>3. For headaches</li> </ol>
2	Aromatic Spirit or Ammoniated Camphor Liniment (colourless pungent liquid)	<ol style="list-style-type: none"> <li>1. Used against insect bites</li> <li>2. For cleaning wounds</li> <li>3. Used as a cardiac stimulant</li> <li>4. Used as an expectorant to bring out the sputum in cough</li> </ol>
3	Bandage	<ol style="list-style-type: none"> <li>1. For supporting fractured bone</li> <li>2. To reduce swelling or maintain direct pressure over dressing</li> <li>3. For covering/dressing cuts/ burns, etc.</li> <li>4. For holding in place something like body part or dressing</li> <li>5. To restrict movement</li> </ol>
4	Baking soda or sodium Bicarbonate in dry form	<ol style="list-style-type: none"> <li>1. Used in solution for treating shock victims</li> <li>2. Used for soothing in skin disease</li> <li>3. Used as an alkaloid in acid poisoning</li> <li>4. For treating chemical burns or as an antacid in heat burns</li> </ol>
5	Boric powder	<ol style="list-style-type: none"> <li>1. Cleaning wounds</li> <li>2. Used as an antiseptic powder to prevent infection in the foot, e.g. preventing athletics foot.</li> <li>3. Used against insects bites</li> </ol>
6	Bowls	<ol style="list-style-type: none"> <li>1. Used for the dressing of wounds</li> <li>2. Used for collection of waste fluid</li> <li>3. For putting water used for cleaning wounds</li> </ol>

		4. For preparing solutions
7	Blankets	<ol style="list-style-type: none"> <li>1. To reduce heat loss in a casualty e.g. keeping frostbite patients warm</li> <li>2. For smothering flames in casualty in a fire accident</li> <li>3. Serves as a substitute for stretcher in carrying casualty.</li> <li>4. To provide privacy</li> <li>5. Folded and placed under casualty for support</li> </ol>
8	Crepe Bandage	<ol style="list-style-type: none"> <li>1. Used for supporting sprained limbs</li> <li>2. For immobilising the fractured limb</li> <li>3. Used for supporting dislocated limbs</li> <li>4. For support of varicose veins of lower limbs to prevent rupture</li> </ol>
9	Cotton lint/ gauze	<ol style="list-style-type: none"> <li>1. For dressing wounds</li> <li>2. For controlling bleeding</li> <li>3. For padding</li> </ol>
10	Epson salt or Common Slat	<ol style="list-style-type: none"> <li>1. Used in solution for cleaning of sloughy wounds</li> <li>2. Used in irrigation of body cavities</li> <li>3. Used for burns</li> </ol>
11	Iodine	<ol style="list-style-type: none"> <li>1. For sterilising wounds or for skin disinfectant</li> <li>2. For dressing wounds by acting as Antiseptics</li> </ol>
12	Razor Blade	<ol style="list-style-type: none"> <li>1. For cutting adhesive tapes or plasters</li> <li>2. For shaving hair to expose injured area</li> <li>3. For cutting Elastoplast</li> </ol>
13	Towels	<ol style="list-style-type: none"> <li>1. For Controlling bleeding by acting as a compressing medium</li> <li>2. For cleaning wounds</li> <li>3. For cleaning hands after washing following treatment</li> </ol>
14	Elastoplast	<ol style="list-style-type: none"> <li>1. For dressing cuts/holding dressings in position</li> <li>2. As a fixative for small dressings</li> <li>3. For covering wounds or holding bandaged wound end.</li> </ol>
15	Napkins	<ol style="list-style-type: none"> <li>1. Cleaning hands before/after treatment</li> </ol>

		<ol style="list-style-type: none"> <li>2. For tepid sponging to reduce compression</li> <li>3. To clean wounds</li> <li>4. In controlling bleeding</li> </ol>
16	Scissors	<ol style="list-style-type: none"> <li>1. Trimming/dressing the surface of a wound</li> <li>2. Cutting bandages and Elastoplast</li> </ol>
17	Embrocation Liniment	<ol style="list-style-type: none"> <li>1. To relieve pains in strains and Rheumatism</li> <li>2. To reduce swelling in a sprain</li> <li>3. For cold and frostbites</li> </ol>
18	Antiseptics	<ol style="list-style-type: none"> <li>1. For dressing wound</li> <li>2. For sterilising first aid equipment</li> <li>3. For cleaning wounds to prevent infection</li> </ol>
19	Sterilized cotton wool	<ol style="list-style-type: none"> <li>1. For cleaning wounds</li> <li>2. For dressing injuries</li> <li>3. For padding splints</li> <li>4. For mopping up clot blood</li> </ol>
20	Tourniquet	<ol style="list-style-type: none"> <li>1. Used to prevent or cut off the spread of poisonous toxins, e.g. venom in the case of snakebite or after scorpion sting</li> <li>2. For supporting fractured limbs</li> <li>3. For controlling bleeding or haemorrhage</li> <li>4. To identify veins for intravenous infusion</li> </ol>
21	Mild soap	<ol style="list-style-type: none"> <li>1. Used for washing hands before and after treatment</li> <li>2. Cleaning or washing away any visible dirt around wounds</li> <li>3. To bathe or clean up victim</li> </ol>
22	Vaseline Ointment	<ol style="list-style-type: none"> <li>1. For dressing burns</li> <li>2. Used as a lubricant to moisturize the skin</li> <li>3. For treatment blister and fire burns</li> </ol>
23	Triangular Bandages	<ol style="list-style-type: none"> <li>1. For covering injuries and head wounds</li> <li>2. For suspending injured arm</li> <li>3. Used for support or immobilization of an injured limb</li> </ol>
24	Safety Pins and Clips	<ol style="list-style-type: none"> <li>1. For holding bandages or dressing in a position</li> <li>2. For perforating boils</li> </ol>

25	Nivaquine (Syrup) or tablets	<ol style="list-style-type: none"> <li>1. For inducing vomiting in case of poisoning</li> <li>2. For preventing malaria as prophylaxis</li> <li>3. For treatment of malaria fever as a curative measure</li> </ol>
26	Spoons	<ol style="list-style-type: none"> <li>1. For mixing solution</li> <li>2. For giving or administering oral food, drinks or drugs</li> <li>3. Used for preventing the tongue from falling back and blocking the airway in an unconscious casualty (the spoon must be padded)</li> </ol>
27	Per-magnate crystals	<ol style="list-style-type: none"> <li>1. Used against insect bites</li> <li>2. Added to water to ally itching and has a soothing effect on the skin in the case of rashes</li> </ol>
28	Adhesive Tapes	<ol style="list-style-type: none"> <li>1. Used to tighten bandages in a place</li> <li>2. For knotting bandage end in dressings</li> <li>3. For holding dressing in place</li> </ol>
29	Splinter Forceps	<ol style="list-style-type: none"> <li>1. For picking foreign bodies from the body</li> <li>2. For applying splints</li> <li>3. For holding splints in position</li> <li>4. For immobilisation of fracture</li> </ol>
30	Wire or Thin board splints	<ol style="list-style-type: none"> <li>1. For immobilisation of dislocation</li> <li>2. Used for support</li> <li>3. For immobilisation of fracture</li> </ol>
31	Sterile castor oil or mineral oil in tubes	<ol style="list-style-type: none"> <li>1. Used externally to protect and soothe the eyes when the irritant enters them</li> <li>2. Used as purgative or laxative</li> <li>3. To stimulate vomiting when poison is suspected</li> <li>4. To dress an abrasion or superficial wound</li> </ol>
32	Thermometer (clinical)	<ol style="list-style-type: none"> <li>1. Used for the measurement of the temperature of patient or victim/casualty</li> <li>2. For detecting fever or patency of the anus in a newborn baby</li> </ol>
33	Splints	<ol style="list-style-type: none"> <li>1. Used for immobilising fracture</li> <li>2. Used to treat fractures</li> </ol>

34	First-aid Record Book/Notepad, pencil or biro pen	<ol style="list-style-type: none"> <li>1. Used for keeping stock of first aid materials</li> <li>2. For recording injuries or documentation of casualty cases</li> <li>3. For recording the history of injuries or accidents</li> </ol>
35	Torch	<ol style="list-style-type: none"> <li>1. Used to see properly, particularly at night</li> <li>2. For inspecting deep wounds</li> </ol>
36	Whistle	<ol style="list-style-type: none"> <li>1. For locating casualty by rescuers.</li> </ol>
37	Tags	<ol style="list-style-type: none"> <li>1. To table casualties in multiple casualties of major accidents</li> </ol>
38	Disposable gloves	<ol style="list-style-type: none"> <li>1. Worn to protect the first aider against infection e.g against direct contact to avoid contracting HIV.</li> <li>2. Worn when disposing of any waste materials</li> </ol>

The list of items found in a first aid box as shown in table 1, is not in any way exhaustive. Moreover, the quantity of each item to be provided in the box is guided by the type of material, the use and the utility value. Some items require one or more as the case may be. Obviously, the first aider can't carry a first box containing all the items stipulated on the table into the accident scene. Therefore, there is a need for discernment of articles or items to be put in a smaller portable kit that will be readily available to render first aid or to treat minor injuries. This kit may even be a special container, such as a small bag. It is therefore advisable that physical education specialists, trainers, coaches or and games masters/mistresses should as a matter of fact always provide this type of kit during physical education practicum, an athletic meeting (inter-house sports competitions) or intramural games If such a kit is not provided, the officer may not legally survive the charge of negligence, in case of sports injury management report, or prosecution.

### 3.2 Factors that Causes Accident

Accidents do not just happen, they are caused, and the causative factors need to be looked into. It is pertinent to note that there is a human factor in every accident. Human beings are the operators, Performers, implementers, supervisors or managers in facilities or of equipment and materials. If unsafe acts are exhibited without due regard for personal safety, that of teammates, co-workers or other people around, a hazardous situation is created which leads to accident and the consequent injury or damage to property. Unsafe acts are actions contrary to stipulated and accepted standard practices, rules and regulations. Examples of unsafe acts include, among others:

- Improper posture in operations
- Wearing unsafe attire/clothing and footwear.
- By-passing safety devices
- Horse play involving such acts as wrong throwing of materials and equipment, distracting, teasing and practical jokes.
- Using defective or unsafe equipment.
- Failure to put on personal protective equipment
- Failure to properly warm-up
- Failure to provide warning signs, signals and tags on faulty equipment.
- Unsafe speed
- Rough tackling in sports
- Receiving or having phone calls while driving
- Failure to put on seat belt by drivers and passengers
- Driving vehicle with mechanical or electrical faults.

In the same vein, unsafe conditions capable of causing accidents are created by human beings. This situation provides conducive environments for human beings to operate thereby creating incidents that cause accidents.

Examples of unsafe conditions include:

- Rough or slippery playgrounds or floors.
- Defective equipment or tools
- Tight or oversized attire/clothing and footwear
- Incorrect or improper processes/procedures and arrangements.
- Poor ergonomics design and applications.
- Natural environmental hazards such as excessively high or low temperature, weather, and unguarded animals.
- Unconducive workplaces exhibiting such situations as poor illumination and ventilation, absence of exit device, and poor housekeeping.
- Ignoring vehicular mechanical or electrical faults.

Clearly, any person who participates in strenuous or competitive sport is likely to sustain injuries at some point or the other. Some of these injuries are acute while others progressively manifest themselves and through neglect or poor treatment, the condition may rapidly worsen (degenerate) Approaches to the injury problem are not limited to primary prevention of the initial event but may also involve any stage of the injury-producing process that could be easily and effectively changed. Accidents (and hence injuries) have three main causative factors namely, the Host (human), the Environment, and the Agent

(equipment/materials/vehicles). This conceptual model applies to accidents from all human endeavours such as road, home, sports, and industrial or individual engagements.

Haddon also developed an analytic framework that divides the sequence of events leading to an accident and the resultant injury into three phases, namely:

- i. Precrash (pre-accident),
- ii. Crash (Accident),
- iii. Postcrash (post-accident)

Factors that determine the outcome in terms of human, agent, and environment operate in each of these phases or periods.

It should be noted that each of these phases can often be manipulated in such a way that human injury is avoided, minimised, or successfully treated. This implies that each of the phases has countermeasures, but the precrash conspicuously emerges as being synonymous with accident prevention. The countermeasures associated with the other two phases seem to be geared towards ameliorating crash or accident forces and deteriorating situations respectively. It is the third phase that emphasises the *importance of first aid or emergency medical care, extrication, and emergency systems*. It refers to maximizing salvage once the damage has been done, keeping death and disability to the barest minimum. **Host:** In all the many factors involved in the countermeasures of the injury-producing process, none is more important than that of physical fitness status of the host (human being) involved in the various acts (operations). Physical fitness is often developed through training which in turn, develops the strength, speed of movement, agility, skill, endurance, flexibility, balance, reaction time and coordination. These are elements that aid performance or skill-related physical fitness.

Promoting organic functional efficiency and thus effective performance of exercises or any other human activities requires the development of muscular efficiency, circulatory efficiency and respiratory efficiency, flexibility and maintenance of good body weight. These are the elements related to healthy living and fitness enhancement.

**Agent:** The various activities of the host directly or indirectly affect or control the contributions of the agent as injury causative factor, for example, a hard inflated basketball infringes injury to the player's fingers such as sprain or fracture. The ball under such a state is an agent-factor, but it is the host that puts it in such a condition, Footballers during their training periods rarely use actual football boots, carrying out their preparatory work in rubber shoes, thereby exposing themselves to common injury to the foot and ankle by kicking hard footballs with great

vigour, forgetting that their feet and ankles lack the support given by boots. Undersized boots or spiked shoes will inevitably cause blisters on the athlete's feet. Such undersized sport wears not only cause painful foot conditions but the standard of the athlete's performance will suffer greatly.

Oversized stockings or unclean ones are sources of injury. If the stockings, are too large they will cause blisters, if too small, they can lead to foot deformities over a period of use, and if dirty, they lead to a foot skin infection (e.g. athletic foot). If gymnasiums are used for training, then it is important periodically to check the equipment (human factor), as serious accidents can be caused by faulty equipment such as faulty ropes horses or bars. Poorly manufactured equipment (human factor) is equally an injury source. Any equipment under bad condition is injury-prone. Therefore, the equipment used in sport has a big part to play in the prevention of injuries and the care and attention (a human factor) paid to such equipment will help to reduce or increase injury occurrence.

**Environment:** Environment here refers to the athletics or sports facilities in terms of the playing grounds/fields, courts, gymnasium, recreation centres, swimming pool and all fixed structures, as well as the temperature, light and ventilation associated with them. When these facilities are improperly guarded, defective, improperly illuminated, ventilated or hazardously loaded or arranged, the risks of causing accidents become increased since the host's adaptation mechanisms are adversely affected.

There are always interactions between man and the physical, biological and chemical hazards of his environment. Nevertheless, the degree of the host's interaction with his agents and environment as human behaviour modifiers and injury causative factors such as his age, sex and drug or alcohol influence act as accident psychological factors. It is worthy to note that there is difficulty in separating these factors from cultural and social components of behaviour.

It has been revealed that gymnasia and athletic fields are where more than half of all school accidents occur. In that regard, some injuries can be expected during vigorous physical activity, but many of them could be avoided by the use of proper equipment and operating under good physical fitness status. However, where or when these requirements are abused, accidents occur.

#### **4.0 CONCLUSION**

It is very good for you to have a well-stocked first aid box handy, as it will make a lot of difference, in the sense that, it will help you to take care



of injuries and sudden illness at school, home and community as the case may be.

## 5.0 SUMMARY

This unit took you through items found in a first aid box and their uses. I hope you will find them useful during an emergency. I wish you success in the rest of the units.

## 6.0 TUTOR–MARKING ASSIGNMENT

1. Identify twenty (20) items found in a first aid box and their uses
2. Itemise five factors that can causes accident.

## 7.0 REFERENCES/FURTHER READING

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## **UNIT 4 PRINCIPLES OF FIRST AID**

### **CONTENTS**

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
  - 3.1 General Principles of First Aid
    - 3.1.1 Assessment of the Situations
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  - 3.2 Objectives of First Aid
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  - 3.4 Importance of First Aid
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
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### **1.0 INTRODUCTION**

The first basic step in any emergency situation is the recognition of the problem and thereafter providing the necessary help. With training, a good first aider can perform a lot of activities in order to save lives or in some other emergency deliver basic first aid before the arrival of paramedics.

### **2.0 OBJECTIVES**

By the end of this unit, you should be able to:

- write extensively on the principles of first aid
- mention five objectives of first aid
- itemise seven rules of first aid
- state the importance of first aid.

### **3.0 MAIN CONTENT**

#### **3.1 General Principle of First Aid**

There is no rule of thumb procedure in first aid, just certain basic principles which must be learnt and adapted with compassion and understanding to each occasion.

This include the following:

1. Assessment of the situation
2. Provision of urgent care
3. Examination of the casualty for injuries.
4. Treatment of the casualty's injuries
5. Call of a physician for assistance

### **3.1.1 Assessment of the Situations**

On hearing about an accident or noticing an accident, the first aider should make his way to the patient, avoiding panic and nervous actions. On arrival, he should be calm and take charge as well as ensure the safety of the casualty and himself. He should guard against any further casualties arising and give the casualty confidence: talk to him, listen to him, reassure him and seek permission to attend to him. The permission may be gotten directly from the casualty, his relatives or his friends but there are occasions when such formality is not necessary, in which case, justify the swift action. In diagnosing the situation the first aider should be guided by:

- a. History, which is a report given by the conscious casualty, or by persons present, as to how the accident happened or illness began
- b. Symptoms, which are the details given by a conscious Casualty of his sensations
- c. Signs which are obtained by a complete examination of the Casualty by the first aider using all his \ her sense to obtain maximum information.

The first aider may require the assistance of others consequently, bystanders should be fully utilised in such tasks as:

- (a) assisting to control traffic,
- (b) keeping back the crowd
- (c) assisting with the actual treatment, if necessary and
- (d) make calls to the ambulance, police and other emergency services (e.g. fire/ rescue service),

The first aider should make sure that the bystander understands the message he is being sent and demand feedback from him.

### **3.1.2 Provision of Urgent Care**

Certain medical emergencies require immediate care to save the victim's life. Such life-threatening emergencies to be given priority attention are:

If the casualty

- a. has stopped breathing
- b. is bleeding profusely.

A delay of a few minutes can be fatal in these cases. In their order of needs, the first aider can save lives by implementing the 'ABC' rule. The ABC of first aid are the basic things that the first aider need to check when he/she come to a casualty. These are:

A = **A**irway opening  
B = **B**reathing restoration,  
C = **C**irculation enhancement.

Before anything, ensure that the airway is clear, check to see if the casualty is still breathing and also check for circulation (i.e pulse or observation of colour and temperature of hands/fingers). The airway consists of the nose, mouth, and upper throat. These passages must remain open in order for the casualty to breathe. The body's failure to circulate blood properly may lead to shock. The first aider should swift into restoring breathing (artificial ventilation) controlling bleeding, treating shock, and treatment for poison.

### **3.1.3 Examination of the Casualty for Injuries**

The first aider should quickly:

- a. Analyse the situation,
- b. Diagnose what is wrong with the casualty, and
- c. Decide whether or not to treat the victim.

He should examine the casualty for injuries only after treating him for any life-threatening emergencies then the individual injuries or illness should be treated.

### **3.1.4 Treatment of the Casualty**

If the first aider is confused or not sure of himself, he should not attempt to give treatment. In many cases, the wrong treatment causes more harm than no treatment at all. If he decides to treat the victim, he should swing into action immediately.

The treatment should continue until the casualty is handed over to the care of:

- a. A doctor,
- b. A nurse, or
- c. An appropriate person, who provides professional medical help.

Part of the first aid involves reassuring a victim, relieving his pain, and moving him, if necessary, to a clinic, or home, or the casualty returns to work depending on the seriousness of the condition. Therefore, action must be modified according to the circumstances surrounding the incident, recognizing that every accident is different and every injured human being responds differently to injury or illness.

In some circumstances, it becomes necessary to remove the clothing of the casualty in order to expose injuries, make an accurate diagnosis and render proper treatment. In carrying out such a procedure, clothing should not be damaged unnecessarily and the removal should be effected with minimum disturbance to the casualty or hurting the injured parts. Clothing should be removed in the following manner.

- a. Coat: The casualty should be raised and the coat slipped over his shoulders, and then the sound side not injured should be removed first, if necessary, the seam of the sleeve on the injured side should be slit up (cut open).
- b. Shirt and Vest: Removal should follow the procedure for a coat. If necessary, the vest should be slit down.
- c. Trousers: Trousers should be pulled down from the waist or the trousers' leg should be raised as required. If necessary, the seam should be slit up. The first aider should avoid pulling on the victim's belt to avoid pressure that could further damage an injured spine
- d. Boot or shoe: The ankle should be supported while unlacing or the lace should be cut and removed
- e. Socks: If it is difficult to remove, two fingers should be inserted between sock and leg, and the edge of the sock raised and cut between the fingers.

In order to prevent the condition from deteriorating:

- a. Wounds should be dressed and cleaned.



**Fig. 3. A Dressed and Clean Wound**

- b. Large wounds and fractures should be immobilised.
- c. Casualty should be placed in the correct, and most comfortable position consistent with the requirements of treatment.
- d. Attempt must never be made to move a casualty who may have a broken bone, internal injuries, or damage to the neck or spine, unless absolutely necessary.
- e. Never pour a liquid into the mouth of an unconscious victim.
- f. Never give food or liquid to a victim who may require surgery,
- g. If a casualty is lying down, he should be kept in that position and not be allowed to get up and walk about.
- h. If the casualty is unconscious, his/her head should be turned to one side to help prevent him/her from choking on blood, saliva, or vomit.



**Fig. 4: A Casualty Turned to One Side and the Head Being Supported**

In order to promote recovery:

- a. The casualty should be relieved of anxiety and his confidence built
- b. His pain and discomfort should also be relieved
- c. He should be protected from cold.

However, the amount of treatment which can be undertaken at the scene of the accident depends largely on circumstances and the facilities and supplies available. Every case, however, must be considered on its own merits.

In case of multiple casualties and injuries, the first aider must make a quick survey of all the casualties and injuries and decide on the order of treatment of the “ABC” rule mostly applies. It should be noted that the loudest casualty is rarely the most severely injured. In case of being confronted by a sudden illness, the first aider should be able to recognise the illness and rapidly decide whether it is beyond the scope of the first aider. In all such cases, and if in any doubt, the casualty should be referred to a medical professional for expert aid.

### **Call for Experts Assistance**

After treatment has been given, the casualty may be:

- a. Taken into a nearby shelter to wait for the arrival of an ambulance





**Fig. 5: An Ambulance**

- b. Sent to hospital or clinic by ambulance, car, stretchers, hand Seats and the like
- c. Handed over to the care of a doctor, nurse or other responsible person.



**Fig. 6: Calling for Help**

Someone else should phone or be sent to call such an officer, an ambulance, or other help while the first aider continues to attend to the casualty.

If the first aider is alone with the victim, he must decide the appropriate time to safely leave the victim to call for assistance. This must be after treating all life-threatening conditions.

The message is often dictated to a bystander who may convey it in person or through the phone. When calling for help, a proper description of the nature of the casualty illness or injury, the first aid measures that have been taken, and the exact location of the casualty must be given. The first aider should be prepared to take down any instruction given by the physician and such instructions must be well understood, other clarifications must be sought. If the victim is to be taken to a hospital emergency room, the hospital staff must be pre-informed through phone so that they could prepare grounds to receive the victim.

If the injury or illness is minor, the casualty may be allowed to return to work or go home and should be instructed to seek medical advice, if necessary.

It should be stressed that:

- a. A casualty must not be sent home if he has been unconscious, even if only for a short period, or if he is badly shocked.
- b. A message explaining the circumstances and treatment given should accompany the casualty when he is sent to the hospital. If necessary the first aider should accompany the casualty and make a personal report.
- c. The first aider should make sure that the casualty's supervisor, nearest relative and any other appropriate person or organisation is informed.
- d. In serious outdoor accidents, the police should always be sent for or notified. In this circumstance, one should endeavour not to remove any evidence that might help to throw light on the cause and extent of the accident.

### **3.2 Objectives of First Aid**

The following are objectives of first aid:

- (a) Save or preserve a victim's life; especially if the casualty is bleeding profusely, has stopped breathing, or has been poisoned
- (b) Prevent his/her condition from deteriorating,
- (c) Prevent the development of additional medical problems that might result from an injury or illness and
- (d) Provide reassurance and comfort to the injured or sick person.
- (e) Promote recovery.

A first aider should endeavour to cover the following activities in the course of rendering first aid to a casualty:

- (a) Quickly assess the scene

- (b) Quickly survey the casualty.
- (c) Identify the problem
- (d) Carry out a diagnosis of the problem by considering the history of the incident, signs and symptoms being presented by the victim, such as signs of unconsciousness.
- (e) Render first aid by treating the victim without drugs. Rather, the first aider should use all the measures to preserve the victim's life, relieve pain and prevent the condition from degenerating or deteriorating.
- (f) Evacuate the victim as quickly as possible by observing the laid down procedures by the organisation and finally make appropriate arrangements to transport the victim to the hospital, in order to properly hand him/her over to medical personnel.

### **SELF-ASSESSMENT EXERCISE**

List five objectives first aid.

#### **3.3 Golden Rules of First Aid**

The following are the golden rules of first aid.

1. Reach the site of emergency as early as possible
2. Do not waste time asking irrelevant and unnecessary questions
3. Find out the cause of the accident
4. Commence first aid care immediately, quickly and without panic or fuss.
5. Give artificial respiration if breathing has stopped. Here every second counts.
6. Stop any bleeding
7. Try to guard against shock or treat for shock by moving the casualty as little as possible and handle him with great care. Be very careful with him or her.
8. Do not attempt too much. please do the little that is essential to save lives and prevent the condition from worsening
9. The casualty and the bystanders should be reassured from time to time. This will help to lessen anxiety. Bystanders should not be allowed to crowd around the casualty because air is very important at this stage.
10. Do not remove clothes unnecessarily.
11. As soon as possible, make arrangements for the casualty to be moved to the hospital for proper care.

### 3.4 Importance of First Aid

Accidents are a major public health problem globally leading to injuries, lifelong suffering, death and major economic loss. Emergencies occur every now and then, thereby exposing individuals to potentially dangerous situations that may threaten or cause injury to people as well as to have a considerable economic impact on society.

The importance of first aid to the community cannot be overemphasised, as basic first aid care can make a lot of difference between life and death. A lot of death from injuries could be prevented if initial basic first aid is given before the emergency services arrive.

The following are some of the importance of first aid:

1. It helps to save lives: first aid if properly administered saves lives. A trained first aider in most cases are more confident, reliable and in control of themselves during any emergency. These first aiders are more likely to take action immediately an emergency arises/occurs.
2. It allows the first aider to provide the casualty comfort: having a first aider in an emergency situation could bring immediate relief to the casualty. Therefore, when a good first aider is called upon to take care of the casualty, he/she must think of his/her safety first before assessing the situation. By being calm while assessing the emergency situation would help the casualty relax while they are being treated and stabilised until emergency services arrive.
3. It helps to prevent the emergency situation from becoming worse: first aid care helps to ensure that the right methods of giving medical assistance are provided. Knowing what to do and how to help a casualty is very important in an emergency situation. In some cases, if a casualty does not receive basic first aid care immediately, their conditions will deteriorate, often very fast.
4. First aid relieves pain: typically, acute pain starts suddenly as a result of an injury, a cut, burn, broken bone, bruise or even a pulled muscle. For example, a sports injury that is not properly managed could lead to long term pain, certain injuries could cause damage that leads to ongoing pains. A casualty that received a basic first aid treatment is likely to get his or her pain alleviated.
5. It encourages healthy and safe living: presently in Nigeria, many multi-national companies are beginning to realise the importance of first aid training as their obligation to the employees. For example, if there is a medical emergency that happens at their workplace, employees may be able to prevent any further injury to the casualty.

6. First aid training in the workplace can actually promote a safer practice among employees. Knowledge of first aid promotes a sense of safety and well-being among persons.

### **SELF-ASSESSMENT EXERCISE**

Outline four importance first aid.

### **4.0 CONCLUSION**

Basic Principles of First aid is the safe response to emergencies for the benefit of casualties, bystanders and other first aiders. It is also very important to secure the emergency site in order to reduce further harm to the casualty.

### **5.0 SUMMARY**

This unit took you through the principles of first aid, objectives of first aid and the importance of first aid.

### **6.0 TUTOR-MARKED ASSIGNMENT**

With a short note explaining the principle of first aid.

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## **MODULE 2      ATHLETES / SPORT INJURIES**

Unit 1	Injuries in the Sporting Arena
Unit 2	Types of Sports Injuries
Unit 3	Prevention of Sports Injuries in the Sporting Arena

### **UNIT 1      INJURIES IN THE SPORTING ARENA**

#### **CONTENTS**

1.0	Introduction
2.0	Objectives
3.0	Main Content
3.1	What is Sports Injuries?
3.2	Causes of Sports Injuries
3.2.1	Human Error
3.2.2	Overtraining
3.2.3	Faulty Equipment and Facilities
3.2.4	An Act of God
4.0	Conclusion
5.0	Summary
6.0	Tutor-Marked Assignment
7.0	References/Further Reading

#### **1.0      INTRODUCTION**

Generally, participation in sporting activities is associated with a relatively low frequency of injury. However, the more sports activities you engaged in, the greater the chances you have for accidental injury. The type of sports activities you are involved in determine to a large extent your injury risk.

#### **2.0      OBJECTIVES**

By the end of this unit, you should be able to:

- explain what sports injuries is.
- mention causes of sports injuries.

#### **3.0      MAIN CONTENT**

##### **3.1      What is Sports Injury?**

Sports injury is an injury that occurs during sporting activities or exercises. This includes injuries affecting participation in sports and

exercise and affecting athletes of all ages and all levels of performance. Most sports injuries are specific to the sports and the level of participation. For example, soccer players have a high risk of ankle or knee injuries resulting from tackle, while runners will be lower limb injuries usually resulting from overuse.

Sports injuries have rendered many athletes unfit to participate in future sports activities. Sports injuries simply mean any damage done to any body part while engaging in sports activities. This damage could be minor or major. Major injuries such as dislocations or fractures, and could render an athlete temporary or permanently unfit for future sports competitions. Minor injuries like abrasions or minor cuts should be taken care of on the spot and the casualty goes back to the field of play.

### **SELF-ASSESSMENT EXERCISE**

Define sports injury.

### **3.2 Causes of Sports Injuries**

Injuries are more likely to occur where competitions are keenly contested and if the sport is rough. However, sports injuries could occur as a result of any of the following factors:

- Human error
- Overtraining
- Faulty equipment and facilities
- Act of God

#### **3.2.1 Human Error**

It could be a result of a lack of perfection in a skill before participating in that particular sport. It could also result from a lack of attention while the game is being played.

#### **3.2.2 Overtraining**

Overtraining is the most frequent cause of injuries associated with physical or fitness activities and it affects a lot of athletes. Enthusiastic but fat or obese beginners often injure themselves by doing too much and too soon exercises. Experienced athletes also develop overtraining syndrome by engaging in systematic and progressive increases in training without getting enough rest and recovery time. This will definitely affect performance and training sessions will become increasingly difficult. It is pertinent to note that adequate rest, good food and rehydration are very



important to sustain or improve fitness levels. It is good to always pay attention to your body's warning signs.

To avoid injury to a particular muscle group or body part, varying your fitness activities will give muscles and joints the needed rest. Setting realistic but challenging fitness goals can help you stay motivated without overdoing it. Overtraining injuries occur most often in repetitive activities like running, bicycling and step aerobics. It is advisable that common sense should be applied for you to remain injury-free.

### **SELF-ASSESSMENT EXERCISE**

What is an overtraining syndrome?

#### **3.2.3 Faulty Equipment and Facilities**

These include using unsafe materials for any sport such as faulty vaulting boxes, beams, sticks and bars. Poor facilities include undulating (uneven) playfields, slippery or wet surfaces or rough grounds.

#### **3.2.4 An act of God**

This may include any accident that occurs irrespective of all the precautionary measures taken by the coach and athletes to prevent injuries.

### **4.0 CONCLUSION**

In general, popular recreational sports activities such as walking, jogging, tennis, swimming and bicycling have a much lower injury rate than do intercollegiate sports such as gymnastics and football or intramural sports such as basketball, volleyball and soccer. In choosing your sports activities and developing a workout schedule, a lifetime of injuries-free, enjoyable sports activity should be foremost in your mind.

### **5.0 SUMMARY**

Having gone through this unit you have learnt what sports injuries is, you have also learnt the causes of sports injuries such as human error, overtraining among others.

### **6.0 TUTOR-MARKED ASSIGNMENT**

1. Define sports injury.
2. Identify four causes of sports injuries. Write briefly on any two.

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## UNIT 2            TYPES OF SPORTS INJURIES

### CONTENTS

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
  - 3.1 Classifications of Common Sports Injuries
  - 3.2 Types of Sports Injuries
    - 3.2.1 Overuse Injuries
      - 3.2.1.2 Shin Splints
      - 3.2.1.3 Runner's Knee
    - 3.2.2 Traumatic Injuries
  - 3.3 Fractures Injuries
    - 3.3.1 Causes of Fracture Injuries
    - 3.3.2 Types of Fracture Injuries
  - 3.4 Abrasion
  - 3.5 Incisions
  - 3.6 Lacerations
  - 3.7 Contusions (Bruises)
  - 3.8 Puncture wounds
  - 3.9 Stiffness of Muscles
  - 3.10 Strains
  - 3.11 Sprains
  - 3.12 Dislocations
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

### 1.0 INTRODUCTION

Sports injury is damage or harm done to the body as a result of engaging in sports activities or related activities. It could lead to disability or even death if proper treatment is not given. It has rendered many sportsmen and women unfit because of the disability sustain from injuries.

### 2.0 OBJECTIVES

By the end of this unit, you should be able to:

- discuss the classification of common sports injuries
- differentiate between injuries caused by overuse and those caused by accidents.

- describe the most common types of sports-related injuries.

### 3.0 MAIN CONTENT

#### 3.1 Classification of Common Sports Injuries

Common sports injuries that belong to each of these classifications are tabulated below. See table 2.

**Table 2: Classification Sports Injuries**

Injuries of the skin and muscles	Injuries to the joints ligaments & tendons	Injuries to the bone
Abrasions	Sprains	Fractures
Lacerations	Dislocations	a) Simple (closed)
Contusions (bruises)		b) Compound/Complex (open)
Punctured wounds		
Stiffness of the muscles		
Strains		

#### 3.2 Types of Sport Injuries

There are basically two types of injuries, these are overuse and traumatic injuries.

##### 3.2.1 Overuse Injuries

These are injuries that occur as a result of cumulative day-after-day stress placed on tendons, bones and ligaments during sporting activities. The forces that occur normally during physical activities are not enough to cause ligament sprains or muscles strains. However, when these forces are applied daily for some time, they can result in an injury. Common sites of overuse injuries are the leg, knees, shoulder and elbow joints.

## **Some Common Overuse Injuries**

Body movement in exercises such as running and bicycling are highly repetitive as a result participants are susceptible to overuse injuries. In physical activities, the joint of the lower extremities that is the foot, the ankle, the knee and hip guide, knee and hip, in most cases tend to be injured more frequently than the upper extremity joints like the shoulder, elbow, wrist and hand. Three of the most common overuse injuries are:

- Plantar fasciitis
- Shin, splints
- Runner's knee

### **3.2.1.1 Plantar Fasciitis**

It is an inflammation of the plantar fascia, a broad band of dense inelastic tissue (fascia) that runs from the heel to the toe on the bottom of the foot. It is the main function of the plantar fascia to protect the nerves, blood vessels and muscles of the foot from injury, repetitive weight-bearing movements such as walking and running can inflame the plantar fascia. Very common symptoms of the plantar fascia are pain and tenderness under the ball of the foot, at the heel or at both locations. The pain of plantar fascia is particularly noticeable during the first steps out of bed in the morning, if the plantar fascia is not properly treated this injury may progress to the point that the weight-bearing physical activities are too painful to endure. Please note that uphill running is not advised because each uphill stride will severely stretch and thereby irritates the already inflamed plantar fascia. This type of injury can easily be prevented by regularly stretching the plantar fascia prior to engaging in physical activities and also by wearing athletic shoes with good arch support and shock absorbency.

### **3.2.1.2 Shin Splints**

Shin splint is a term used for any pain that occurs below the knee and above the ankle. This problem ranges from stress fractures of the tibia (shin bone) to severe inflammation in the muscle of the lower leg which can interrupt the flow of blood and nerve supply to the foot. The most common type of shin splints occurs along the inner side of the tibia and is usually a combination of muscle irritation and irritation of the tissues that attach the muscles to the bone in that region. Usually, there is pain and swelling along the middle third of the posteromedial tibia in the soft tissues and not the bone. Running is the most frequent cause of shin splints. To help prevent shin splints wear athletic shoes with good arch support and shock absorbency.

### 3.2.1.3 Runner's Knee

This describes a series of problems involving the muscles, tendons and ligaments of the knee. The most common problem identified as a runner's knee is the abnormal movement of the knee cap, which irritates the cartilage on the backside of the kneecap as well as nearby tendons and ligaments. Symptoms of this running's knee is the pain experienced when downward pressure is applied to the kneecap after the knee is straightened fully. Other symptoms may include swelling, redness, tenderness around the kneecap and dull aching pain in the centre of the knee.

### SELF-ASSESSMENT EXERCISE

Identify the three common types of overuse injuries you know.

### 3.2.2 Traumatic Injuries

These types of injuries occur suddenly and violently typically by accident. Examples are broken bones, torn ligaments and muscles, contusions and lacerations. At times traumatic injuries occur quickly and are difficult to avoid. E.g spraining your ankle by landing on another person's foot after jumping up for a rebound in basketball. If your traumatic injury causes a noticeable loss of function and immediate pain or pain that does not go away after 30 minutes you should see a doctor.

The following are other types of sports injuries:

### 3.3 Fractures (Injuries to the Bone)

A fracture is a break/bend or cracks in a bone. A fracture means a broken bone or any break in a bone. A considerable force is needed to break a bone unless it is diseased or very old. The bones that are still growing are supple and may split, bend or even crack.

#### 3.3.1 Causes of Fractures

Fractures may happen when direct (blow) or indirect force ( a twist, a wrench) is inflicted on a bone.

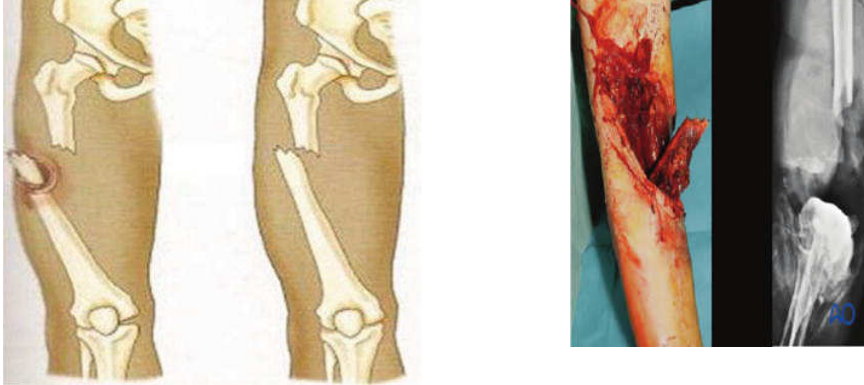
**Direct force:** The bone breaks at the spot of application of the force.

**Indirect force:** The bone breaks at the spot away from the spot of application of force e. g. collar-bone-fracture when the fall is on an outstretched hand.

### 3.3.2 Types of Fracture

**Closed fractures:** The skin above the fracture is intact, although the bone ends may have damaged nearby tissues and blood vessels.

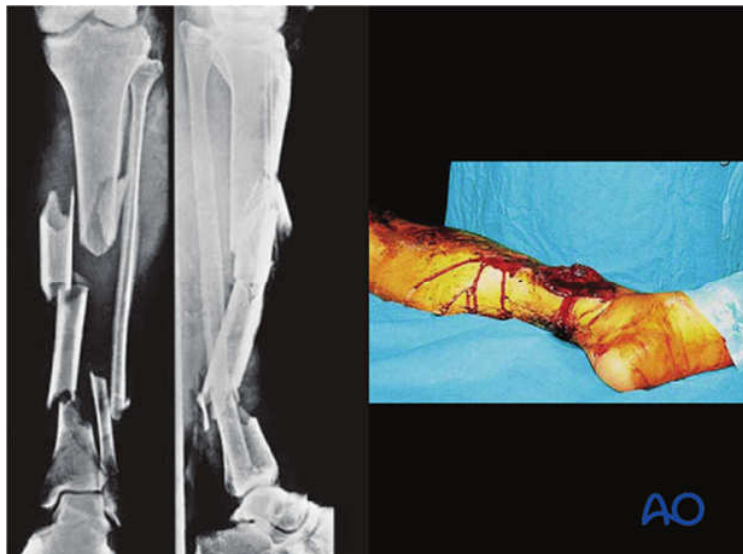
**Open fractures (Compound Fractures):** In this type of fracture, the skin above the fracture is not intact and there is bleeding. In an open fracture, the bone is exposed to the outside air at the surface, dirt, dust and germs can easily get into the wound. There is a high risk of infection in this type of fracture.



**Fig. 6a and 6b: Open and closed fractures Fig. 7: Open fracture**

#### Simple and complex fractures

- In complex fractures, the bones are broken into many parts.
- The soft tissues and vital organs are severely damaged.
- There are multiple fractures at several levels in a single bone.
- There is an associated joint dislocation or joint injury.
- In simple fractures, the bone is broken only in one place and the skin above the broken bone is intact.



**Fig. 8: Compound/Complex Fracture**



## SELF ASSESSMENT EXERCISE

- What are fractures?
- Write on the causes of fracture
- Describe the different types of fractures

### 3.4 Abrasion

This type of wound is a superficial wound in which the topmost layers of the skin are scraped off, thereby leaving a raw tender area. Abrasion generally involves the outer layer of skin with minor bleeding. These appear often when experiencing a sliding fall. The wounds often contain embedded germs, a foreign particle which may result in infection. This type of wound does not bleed much but they are usually very painful.

### 3.5 Incisions

Incised wounds are often caused by sharp instruments such as razor blades, knife etc. the blood vessels show a straight cut and bleeding may be profuse. It may sometimes, affect the tendons and nerves.



**Fig. 9: Incised wound**

### 3.6 Lacerations

These are open wounds resulting from the tearing of the tissue, leaving a jagged-edged injury. They usually bleed freely but sometimes the bleeding is scanty. They are wounds you sustain when you come in contact with broken bottles or glass, protruding metal or materials. This type of wound is usually very painful.

### 3.7 Contusions (Bruises)

Contused wounds are caused by blows, by blunt instrument or by punching. It is a close wound affecting both the skin and muscles. In this type of wound, there is no external bleeding rather the injured portion is

swollen and the colour of the skin changes to red and becomes tender. It is caused by a blow from opponents or hit from an implement such as shot put, discus, hockey ball or stick, cricket ball or any other blunt object.



**Fig. 10: A Contused wound**

### 3.10 Puncture Wound

Puncture wounds are caused by stabs or sharp objects like javelin, spikes, knives, daggers or nails that pass straight through the skin to any depth. These wounds typically have a smaller opening, but may go deep into the tissue.



**Fig. 11: A Punctured Wound**

### 3.9 Stiffness of Muscles

It is the tightening of muscles experienced when participating in sporting activities especially when the athlete did not warm up properly or has not engaged in physical activities for a long period of time. In most cases the site of the stiffness becomes fatigued. Stiffness is a result of the accumulation or piling up of metabolic waste materials in the body such as lactic acid and the inability of the circulation to remove them as fast as they are produced.

### 3.10 Strains

They are what most people often refer to as “muscle pull”. They are pulled muscles which partially or completely get torn causing severe pain and limitation in movement. Strains do not affect the bony structure of the body but rather involve the muscles which allow for body movements. They are caused by lack of coordination between the opposing muscles overstretching or severe contraction, fatigue, lack of adequate warm-up, lack of skills, or improper condition. In most cases, they usually occur as a result of sudden violent movement most often when exercising unused muscles



**Fig. 12: Stiffed Muscles**

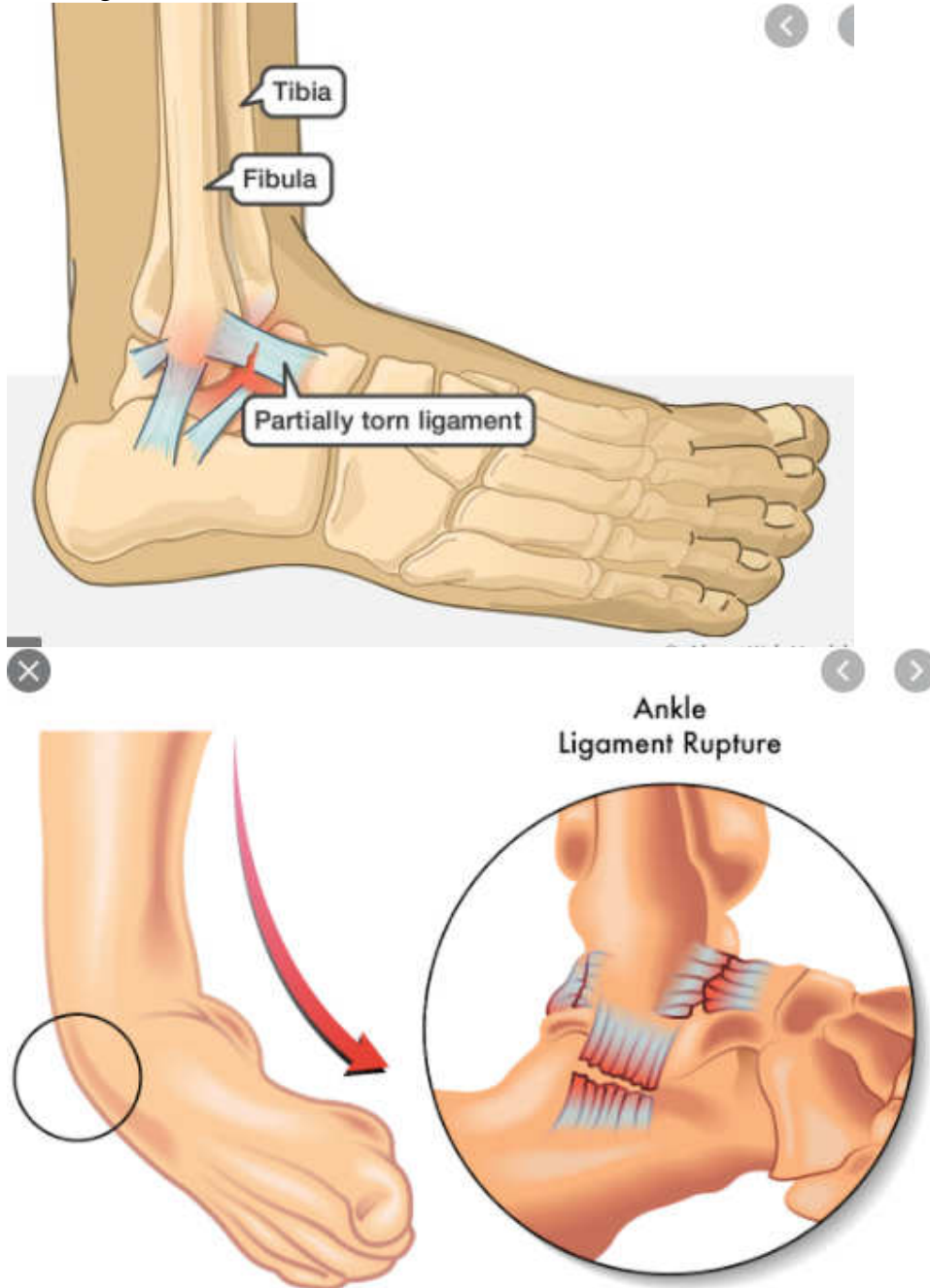


**Fig. 13: Muscle Pull**

### 3.11 Sprains

This is an injury of the ligament, joint, capsules, muscles, tendons or nerve. It is the partial or complete tearing of one or more ligaments that

surround the joint. Sprains may be associated with fractures, swelling, displacement of tendons or injury to nerves. Sprains are caused by abnormal movements of a joint mainly by twisting. Sprains occur when the force to which the joint has been exposed is not sufficient to produce a dislocation but is severe enough to tear the ligaments holding the bone ends together.



365 x 1773

**Fig. 14: Sprained Legs**

### 3.12 Dislocations

This occurs when a bone or more have been partially or completely separated at a joint from the normal or original position. Pain, tenderness, swelling and lack of movement of the limb will be felt when the joint is dislocated. In a dislocation, the ends of two or more bones meeting to form a joint are forced apart, out of their normal relationship. Dislocation can be noticed by a change in the shape of the joint or a change in the length of the limb. Dislocations are caused by a forced movement or a counter joint motion.



**Fig. 15a and Fig. 15b: Dislocated legs**

### SELF-ASSESSMENT EXERCISE

Write on any four types of sports injuries you know.

### 4.0 CONCLUSION

From what you have in this unit, about the classifications of common sports injuries and the different types of sports injuries, sports injuries are further grouped into two major types. These are overuse and traumatic injuries

### 5.0 SUMMARY

In this unit, you have learnt about the classification of common sports injuries and the different types of sports injuries. You have also learnt about the two basic types of injuries which are overuse injuries and traumatic injuries. You equally learnt about the different types of fractures.

### 6.0 TUTOR-MARKED ASSIGNMENT (TMA)

1. Itemise the three classifications of injuries.

2. Identify six types of sports injuries. Briefly write on any four.
3. What is a fracture? List the different types of fracture.

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## **UNIT 3                    PREVENTION OF SPORTS INJURIES IN THE SPORTING ARENA**

### **CONTENTS**

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
  - 3.1 Prevention of Sports Injuries
  - 3.2 Choice of Exercise Clothes
  - 3.3 Use of Appropriate Footwear
  - 3.4 Use of Appropriate Physical Activity Equipment
  - 3.5 Water Safety Rules
  - 3.6 Preventing Cramps
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

### **1.0 INTRODUCTION**

In all forms of sports, be it individual, dual or team, the likelihood of injuries while engaging in sports activities cannot be rule out. Since injuries are likely to occur in any sport, it is, therefore, necessary to have knowledge of the prevention of sports injuries. It is important to note that the sole aim of a good sportsman or woman should not be to injure or be injured in sports activities.

### **2.0 OBJECTIVES**

By the end of the unit, you should be able to:

- explain how sports injuries can be prevented
- state how using appropriate sporting clothes, footwear and equipment could help to prevent injuries
- state the likely causes of cramps.

### **3.0 MAIN CONTENT**

#### **3.1 Prevention of Sports Injuries**

Sports injuries can be prevented or avoided if the following precautions are taking in the field of play.



### 3.2 Choice of Exercise Clothes

Your exercise clothing is more than a fashion statement, a smart choice of clothes can actually help you to prevent injuries. For some types of sporting activities, you need clothing that allows body heat to dissipate, e.g. light coloured nylon shorts and a mesh tank top while running in hot weather. For other types of sporting activities, you need clothing that retains body heat without getting you sweat-soaked e.g. layers of polypropylene and/or wool clothing while cross country skiing.

#### SELF-ASSESSMENT EXERCISE

Briefly describe the type of clothes a sportsman or woman should wear in the field of play.

### 3.3 Appropriate Foot Wear

It is very important to look for several key components when you buy running sports shoes. Biomechanics research has revealed that running is a collision sport. That is, with each stride, the runner's foot collides with the ground with a force three to five times the runner's body weight. The force not absorbed by the running shoe is transmitted upward into the foot, leg, thigh and back. Our bodies can absorb forces such as these but may be injured by the cumulative effects of repetitive impacts. Therefore, the ability of running shoes to absorb shock is very critical.

The midsole of any running shoe must absorb impact forces, but at the time must also be flexible. To check the flexibility of the midsole, hold the shoe between the index fingers of your right and left hand. When you push on both ends of the shoe with your fingers, the shoe should bend easily at the midsole. But, if the force exerted by your index fingers cannot bend the shoes, it means that the midsole is probably too rigid and this may irritate your Achilles tendon among other problems.

The following are other basic characteristics of running shoes:

1. A rigid plastic insert within the heel of the shoe, known as a heel counter to control the movement of your heel
2. A cushioned foam pad surrounding the heel of the shoe to prevent Achilles tendon irritation
3. A removable thermoplastic inner sole that customises the fit of the sole by using your body heat to mould it to the shape of your foot. Shoes are the runner's most essential piece of equipment, so it is good you carefully select appropriate footwear before you start a running programme.

Shoemaking companies also sell cross-training shoes to help combat the high cost of having to buy separate pairs of running shoes, tennis shoes, weight training shoes etc. Although the cross-training shoe can serve several different fitness activities by the novice or recreational athlete, a distance runner who runs 25 or more miles per week needs a pair of speciality running shoes.

### **SELF-ASSESSMENT EXERCISE**

State things to consider when shopping for sports footwear.

### **3.4 Appropriate Physical Activity Equipment**

Some physical activities require special protective equipment in order to reduce the chances of injury. Injuries can occur in virtually all fitness related physical activities. However, some activities are riskier than others.

Head injuries used to account for 85% of all deaths from bicycle accidents, however, bike helmets have greatly reduced the number of skull fractures and facial injuries.

The following are other ways of preventing athletes' injuries:

- Warm-up periods should precede physical activity engagement.
- The coach should plan physical activities and progress from simple to complex.
- Sports facilities and equipment should be in good order.
- Competent sports management principles recognized by sports administrators and organisers are ways of minimizing injuries in sports.
- Rules which help in the prevention of injuries should be enforced
- Coach or trainer should ensure homogenous grouping of athletes in sports competitions.
- Athletes must be injury conscious and the trainer or coach should be able to make a safe, spot diagnosis so as to know whether to withdraw an injured athlete from the game or allow him or her to continue playing.
- A balanced diet (quality and quantity) should be regularly consumed.
- Where athletes lack nourishment from food as a result of preparation which may destroy necessary nutrients, supplementation of vitamins and minerals is necessary.
- Where the body cannot be given enough water to perform its various processes, fresh fruits and vegetables should be supplied.

- Footballers should avoid using canvas or rubber shoes during training as this exposes them to injuries of the foot and ankle while kicking hard football.
- Undersized boots or spiked shoes should not be worn by athletes/players as they subject athletes to injuries and blisters.
- Also, incorrect sized stockings or unclean ones are potential sources of foot deformities and could lead to foot skin infections (e.g athlete's foot).
- If gymnasias and pitches are used for training it is important to check them for dangerous objects such as nails, bottles, decay tree stumps, etc
- Sports equipment should be checked periodically (human factor), as a serious accident can be caused by faulty ropes, horse, vaulting boxes and damaged tars.
- Poorly manufactured equipment should not be accepted by sports equipment dealers and so care and attention should be paid to the selection of durable and superior equipment by coaches and sports administrators.
- Playing grounds/fields, courts, gymnasias and recreation centres, swimming pools and other fixed (as well temperature and light facilities associated with them) should not only be properly guarded but also effectively and well lit, ventilated and hazards free to reduce accidents.
- Other extraneous factors which tend to influence the host's interactions with his agent and environment such as age, sex, drug and alcohol consumption should be taken into consideration in sports organisations to prevent accidents.
- In the same vein, other strategies for avoiding injuries in gymnasias and athletic pitches and swimming pools are documented here.

Some other ways to avoid injuries in gymnasias and athletic field are:

1. Pillars and walls and other obstacles close to playing areas should be covered with padding materials.
2. Fields should be kept clear of broken glass, bits of metal sticks and trash of all kinds.
3. Gymnasium floors and playing fields should be kept smooth and in good repair.
4. Athletics/sports grounds and other facilities should be regularly inspected and kept in good condition.
5. All dangerous conditions should be promptly reported.
6. Spectators should be kept clear of the playing area.
7. Extreme care should be taken in locker rooms and showers for accidents in these areas can be more serious than those that occur on the playing fields

8. Schools should endeavour to institute safety education/instruction. With safety engineering and safety enforcement, safety education is one of the three essential factors in maintaining and improving safety conditions.
9. All skills should be progressively learnt. That is from simple skills to more complex/difficult ones in order not to overstrain.
10. Coaches should consider the age of athletes and they should be allowed to play with others of the same age. Also, equipment should match the age group.
11. The playground or play arena should be cleared of anything that could cause injury. The playing field should be levelled. It should not be slippery. If the play arena is of a hard court or carpet grass, it is very important to take precautionary measures not to play on them when they are wet. Sticks, stones, empty drink cans, pure water sachets should not be left on the playground as they may cause injuries. All potholes should be properly covered.
12. All sports equipment meant to be used for sports must be in a good and safe condition. Poor care and use of bad equipment could cause injuries to the user of such equipment.
13. Medical fitness examination or medical screening should be carried out before participating in certain sports. This is to determine their health and fitness level. For instance, those with a heart condition should be discouraged from participating in strenuous physical activities. Also, those persons with poor sight should not be allowed to play sports that involve catching small balls e. g. cricket.
14. During sports activities, do not put on wristwatches, earrings, rings, bangles, necklaces etc.
15. Before participating in sports activities, make sure you cut your finger and toenails short.
16. A casualty who has recovered fully should not be allowed to go into the field of play.
17. Sportsmen and women should be discouraged from engaging in sporting activities immediately after a full meal.

### **SELF ASSESSMENT EXERCISE**

List at least 20 ways of preventing sports injuries.

### **3.5 Water Safety Rules**

Water sports are enjoyable but they are associated with many risks. People swim at public and private pools and at recreation centres and accidents occur in them, most drowning victims could have saved themselves if they had known how to swim. A few basic water safety rules are:

1. One should always swim with a companion.
2. It is advisable to wait at least one hour after eating before going into the water.
3. Those that don't know how to swim well should stay in shallow water.
4. It is advisable that at least one member of a swimming party should have training in life-saving, resuscitation, and first aid if no lifeguard is on duty.
5. When swimming for a distance, it is advisable to swim parallel to the shore or have someone accompany the swimmer in a boat.
6. Before diving, it is advisable to make sure the water is deep enough and free of obstructions.
7. Small children in, or near a body of water should be watched closely.
8. Engaging in horseplay in the water should be avoided.
9. Swimming during storms should be avoided,
10. Swimming near diving boards or in areas where people are, diving should be avoided.
11. Only expert swimmers should water ski or skin dive, and only after receiving adequate instructions.
12. Only skilled and experienced sailors should venture out alone.
13. A life jacket should always be worn in a boat if one cannot swim
14. Only those that know water traffic regulations should venture sailing a boat.
15. One should not pilot any boat without mastering the skills required to operate it safely.

### **SELF-ASSESSMENT EXERCISE**

Identify 10 water safety rules.

### **Preventing Cramps**

Although most of us have experienced the quick, intense pain of muscle cramps, they are poorly understood. According to the overexertion theory of muscle cramps, when a muscle gets tired, the numerous muscle fibres that compose the muscle fail to contract in a synchronized rhythm, probably due to overstimulation from the nerves that trigger the muscles to contract. Those who exercise and perspire (sweat) heavily suffer cramps always. However drinking enough fluids before, during and after such activity is very important. Regularly, drink enough water/fluids so that you have to urinate every two to four hours.

During external exercise, it is recommended that you drink as much water as you can tolerate. It is interesting to note that calcium plays a role in muscle contraction and people with a tendency to have cramps are often

calcium deficient, calcium has many health benefits experts continue to recommend it for everyone.

Lack of sodium is another possible factor that can cause cramps. If you exercise a lot and sweat a lot, you will lose sodium through sweat, may develop a sodium imbalance and experience cramps. Many health-conscious athletes restrict their salt intake on a regular basis in an attempt to keep blood pressure under control but clearly, there is a risk in doing so. Paying attention to the above nutrients is very important in order to avoid cramping. It is probably more important to make sure that muscles are warmed up and that muscles are not strained beyond their limit. When you suffer from cramps, massage, stretch, putting pressure on the muscle that is cramping and deep breathing are very useful remedies.

### **SELF-ASSESSMENT EXERCISE**

Describe how cramps can be prevented.

### **4.0 CONCLUSION**

In conclusion, you will agree with me that prevention is the key. Sportsmen and women should be injury conscious at all times as it will them to avoid, avoidable accidents that will result in injuries in the field of play.

### **5.0 SUMMARY**

In this unit, we learnt about how using appropriate clothing, footwear and equipment can actually help in preventing sports injuries. We also learnt safety rules to take in water sports and also how to prevent cramps.

### **6.0 TUTOR-MARKED ASSIGNMENT**

With short notes briefly explain how appropriate clothing, footwear and equipment can help to prevent injuries in the sporting arena.

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## **MODULE 3            MANAGEMENT OF SELECTED SPORTS EMERGENCY SITUATIONS**

Unit 1	Sports Emergencies and Their Care
Unit 2	Artificial Respiration
Unit 3	First Aid Care for Bleeding
Unit 4	First Aid Care for Sports Injuries Continues
Unit 5	Bandaging and Moving Casualty

### **UNIT 1            SPORTS EMERGENCIES AND THEIR CARE**

#### **CONTENTS**

1.0	Introduction
2.0	Objectives
3.0	Main Content
3.1	First Aid Care for Life-Threatening Emergencies
3.2	How to Clear an Obstructed Airway
3.3	How to Restore Breathing
4.0	Conclusion
5.0	Summary
6.0	Tutor-Marked Assignment
7.0	References/Further Reading

#### **1.0    INTRODUCTION**

In this unit, you will be exposed to, how first aid care should be rendered in a life-threatening situations. You will be taught how to clear an obstructed airway and restore breathing if possible. Above all, you should be able to practicalise first aid care on all these life-threatening situations.

#### **2.0    OBJECTIVES**

By the end of the unit, you should be able to:

- mention life-threatening conditions which may require emergency treatment
- explain how an obstructed airway should be cleared
- describe how breathing can be restored in a casualty that is not breathing.

### 3.0 MAIN CONTENT

#### 3.1 First Aid Care for Life-Threatening Emergencies

Life-threatening conditions which require emergency treatment are experienced when:

1. There is an obstruction in the airway or air passages.
2. Breathing has stopped.
3. There is severe bleeding.
4. There is a case of poisoning.

Each of these conditions may lead to serious damage to the vital organs (e.g. brain, heart) or death within a few minutes if proper first aid care is not given immediately. Therefore, each requires the provision of urgent care. Since hardly anyone is prepared for them, the best thing to do is to familiarise oneself with the measures to take when confronted with any of them.

#### 3.2 Clearing Obstructed Airway

Blocked or obstructed airway leads to respiratory failure (Asphyxia). In an unconscious casualty, the epiglottis which acts as the protective mechanism by preventing any foreign matter such as food or fluid from entering the windpipe (trachea) fails to function. This provides a dangerous opportunity for saliva, blood, or regurgitated stomach contents (vomit) to be entering the windpipe thereby blocking the airway. Besides, there is the possibility of constriction around the neck or the tongue falling to the back of the throat to block the airway if the victim is left lying on his or her back. When any of these obstructions take place, noisy breathing is experienced, if breathing has not stopped entirely. In order to open the airway, the casualty's chin is lifted forwards with the index and middle fingers of one hand while pressing, the forehead backwards with the heel of the other hand. In this open airway position, the airway should be cleared by turning the victims head to one side, keeping it well back. Then if the foreign body is visible in the mouth or throat the first two fingers are used to remove or hook out the obstruction.

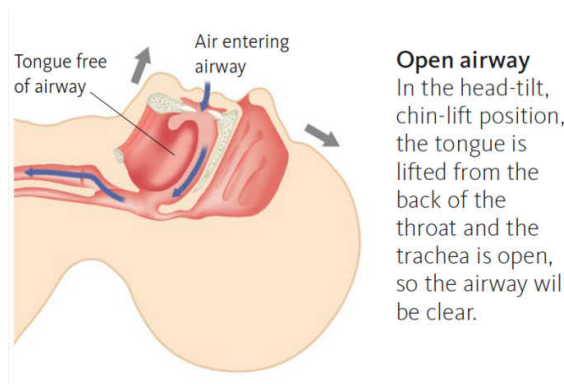
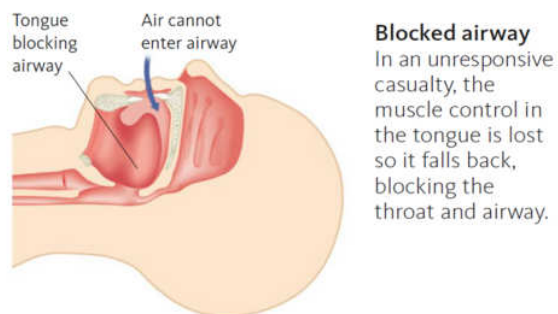
#### HOW TO OPEN THE AIRWAY

**1** Place one hand on his forehead. Gently tilt his head back. As you do this, the mouth will fall open slightly.



**2** Place the fingertips of your other hand on the point of the casualty's chin and lift the chin. Check the casualty's breathing. Go to *How to check breathing*, below.



**Fig. 16: Trying to open Casualty Airway****Fig. 17: Open Airway****Fig.18: Blocked Airway**

Moreover, fingers can be used to sweep around inside the mouth to remove obstructions without wasting time searching for hidden ones. This may cause vomiting with the removal of the foreign body. Trained ambulance personnel may provide mechanical suckers or suction tubes for this purpose. Where the above methods fail to remove the obstruction from the throat the casualty should lean forward and be struck firmly on

the back between the shoulders. If all these methods fail, the only hope is a tracheostomy performed by a doctor or in desperate circumstances by a highly-skilled first aider or trained nurse. Tracheostomy involves cutting into the middle of the trachea or windpipe below the larynx (Adam's apple) and inserting a small tube.

### SELF-ASSESSMENT EXERCISE

With a good label diagram describe the following:

- Open airway
- Blocked airway

### 3.3 Restoring Breathing

In order to determine whether or not a casualty is breathing, the first aider should place his ear above the casualty's mouth and look along the chest and abdomen. If the casualty is breathing, the breaths will be heard and felt and the movement along the chest and abdomen will be observed.



**Fig.19: Determining Casualty's Breathing and Observing Chest Movement**

In order to discover whether or not the heart has stopped beating, the pulse should be checked at the neck by placing the fingertips gently on the voice box and sliding them down into the hollow between the adjoining muscle. This is referred to as carotid pulse. A situation where pulse is present and another situation where there is no pulse will require different approaches. In the first case, breathing is restored by giving the victim immediate Artificial Respiration. In the case where the heart has stopped beating, i.e.

no pulse, a combination of artificial ventilation (respiration) and chest compression is carried out. This combined approach is known as Cardiopulmonary Resuscitation (CPR).



**Fig. 20:**



### **Performing Cardiopulmonary Resuscitation (CPR) on a Victim**

However, certain swift preliminary investigations or activities must be completed before artificial respiration is administered. The first major requirement is that the cause of the respiratory failure should be determined and removed or rectified. Breathing failure may result from such conditions as:

- a. Blocked airway.
- b. Electric shock.
- c. Breathing air that lacks sufficient oxygen.
- d. Inhalation of large quantities of carbon monoxide.

Specifically, these conditions should be rectified by one or a combination of: opening airway, supplying adequate air (or oxygen), or removing the casualty from the cause, or the cause from the casualty.

### **SELF-ASSESSMENT EXERCISE**

Briefly explain how to carry out Cardiopulmonary Resuscitation (CPR).

#### 4.0 CONCLUSION

Having gone through this unit on sports emergencies and how to carry out first aid treatment on these emergencies you should be able to clear an obstructed airway and also help to restore breathing in such emergencies.

#### 5.0 SUMMARY

In this unit, you have been exposed to how life-threatening emergencies can be handled. You also learnt how blocked airways can be cleared and restoring breathing to the casualty where necessary.

#### 6.0 TUTOR-MARKED ASSIGNMENT

Briefly explain how blocked airways can be cleared and breathing restored.

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**UNIT 2      ARTIFICIAL RESPIRATION****CONTENTS**

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
  - 3.1 Methods of Artificial Respiration, if there is Pulse
    - 3.1.1 Mouth-to-Mouth Ventilation
    - 3.1.2 Mouth-to-Nose Ventilation
    - 3.1.3 Mask-to-Mouth Ventilation
    - 3.1.4 Mechanical Devices
  - 3.2 Artificial Respiration, if there is no Pulse
  - 3.3 Ways of Turning Casualty into Recovery Position
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

**1.0 INTRODUCTION**

Artificial ventilation which is also known as artificial respiration is a means of assisting or stimulating respiration. This unit, dealt with methods and ways of carrying out artificial ventilation if there is pulse and if there is no pulse.

**2.0 OBJECTIVES**

By the end of this unit, you should be able to:

- explain what artificial respiration is
- describe the different methods of artificial respiration
- state the ways of turning a casualty into recovery position.

**3.0 MAIN CONTENT****3.1 Methods of Artificial Respiration if there is Pulse**

In a situation when the casualty is not breathing but has pulse, respiration should be restored by either:

- a. Mouth-to-mouth ventilation
- b. Mouth-to-nose ventilations
- c. Mask-to-mouth/nose ventilation
- d. Mechanical aids/ devices.



### 3.1.1 Mouth-to-Mouth Ventilation

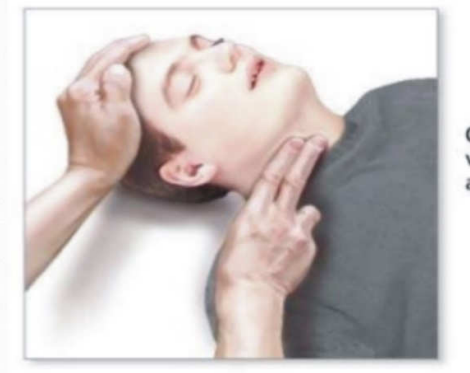
Mouth-to-mouth ventilation is easiest when the victim is lying on his back, but the first aider should start immediately whatever positions the victim happens to assume. Moreover, no time should be spent looking for hidden obstructions before starting.

The following steps should be followed (Fig.)

- a. The first aider should hold the victim's jaw forward with one hand with his (victim's) mouth open.
- b. The thumb and forefinger of the other hand should be used to keep the victim's nostrils closed.
- c. The first aider should open his mouth wide and take a deep breath.
- d. The open mouth (lips) should be placed around the victim's mouth to seal it.
- e. The first aider should steadily blow into the victim's mouth (or lungs through the mouth) looking along the chest until the chest is seen rising.



**Fig. 21: Opening the airway and checking breathing**



**Fig. 22: Assessing circulation**



**Fig 23: Closing victim's nostrils with thumb and forefinger**



**Fig. 24: Breathing for the victim (Mouth-to-mouth ventilation)**

1. The first aider's mouth is removed well away and any excess air is exhaled while observing the chest fall. This completes one ventilation.
2. The whole process (3-6) should be repeated.
3. This is continued at a rate of about 10 per minute until natural breathing is restored. Young children require 20 breaths per minute.
4. The victim is placed in the recovery position after restoring natural respiration (Fig. ).
5. It should be emphasized that the victim's pulse should be checked every 10 ventilations.
6. A helper (bystander) if available should be sent to the phone for an ambulance. If no one is available, the first aider should give 10 ventilations before leaving the victim to quickly go and send for an ambulance and then return quickly to continue ventilations.

### 3.1.2 Mouth-to-Nose Ventilation



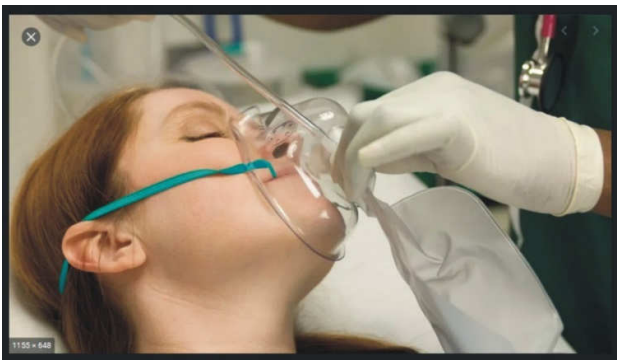
**Fig. 25: Performing mouth to nose ventilation**

Mouth-to-nose ventilation is used if the victim has sustained mouth injury, or has traces of poison taken, through his mouth; otherwise, the mouth-to-mouth method is more effective.

Nevertheless, a dogmatic preference for one or the other should be avoided, a manual method should be used in advanced first-aid for limited occasions such as when there is gross facial injury or poisonous material on the casualty's face, and it, therefore, becomes the only safe or possible method.

The technique is essentially the same as mouth-to-mouth. In this method, the first aider's mouth is placed over the victim's nostrils while his mouth is sealed by either the hand or the cheek. Ventilation is therefore through the nose.

### 3.1.2 Mask-to-Mouth/Nose Ventilation



**Fig. 26: Performing mask to nose ventilation**

This method involves the first aider wearing a face mask having a breathing device or mouthpiece which is placed over or inserted into the victim's mouth/nose. The first aider supplies ventilation through the device.

The Mask-to-mouth method is used in a situation where the first-aider may become a victim of the same condition that affected the casualty, such as operating in an atmosphere containing poisonous gas or lacking oxygen.

### 3.1.4 Mechanical Devices



**Fig. 27: Performing mask to nose ventilation**

Many automatic mechanical devices are available for positive pressure resuscitation. They may deliver air or oxygen to the victim.

Mechanical devices such as the Ambu Resuscitator, Portion Bellows, or Brooke tube are occasionally used as an alternative by experts who are trained in specialist treatments. Such devices are, however, not readily available to bystanders or emergency first aiders at the scene of the incident so that their application will be possible if an ambulance carrying trained ambulance personnel brings any of them along.

### SELF-ASSESSMENT EXERCISE

With short notes on four identified methods of artificial respiration.

### 3.2 Artificial Respiration, if there is no Pulse

When there is cardiac arrest (failure of the heartbeat), cardiopulmonary resuscitation is instituted. It should be noted that once a heart has stopped beating only minutes are available before death occurs, therefore, no time should be wasted before starting cardiopulmonary resuscitation which involves both closed-chest cardiac massage (compressions) and exhaled air resuscitation. It is therefore necessary to sweep into action of "ABC" of resuscitation (Fig. ).

For one person to carry out these two actions is a difficult process. Nevertheless, if no assistance is available, the first aider must carry out the two alone. If two persons are operating, one gives six to eight compressions, pauses to allow the second person to inflate the chest (using such method as mouth-to-mouth ventilation). The combined process is repeated several times until natural respiration is restored. The following are the steps to be followed:

1. The first aider places the casualty on his back (supine position) on a hard surface, such as a floor or a wooden board.
2. The casualty's airway should be opened quickly by the first aider (or the assistant) (Fig. ).
3. The first aider should kneel at the side of the casualty from where it will be possible for him to be able to lean over the casualty so that the shoulders with outstretched arms are vertically over the middle of the chest,
4. The first aider should give two ventilations (inflations) (Fig.).
5. The first aider should locate the junction of the rib margins near the bottom of the breastbone.
6. He should place the heel of one of his hands two fingers above the junction.
7. The second hand should be placed over the first, interlocking the fingers (fig).
8. The first aider should press down vertically on the victim's breastbone so that the sternum depresses 4-5 centimetres (1 1/2 - 2 inches) for the average adult.
9. Pressure should be released thereafter. Compressions should be regular and smooth and not jabbing and jerking.
10. Compressions should be repeated at the rate of 80 per minute, i.e. fifteen heart compressions to two ventilations (inflations) or five compressions for one inflation per cycle.
11. With children, the depression of the sternum should be correspondingly less and one hand only may be used, or two or three fingers may be necessary for babies, in each case, the rate is 100 compressions per minute.
12. If an improvement in the casualty's condition is observed, the casualty's pulse should be checked again.
13. If the pulse returns naturally, chest compression should be stopped but the mouth-to-mouth ventilation should be continued until natural respiration is restored.
14. The casualty is then placed in the recovery position (Fig.) while breathing and pulse are checked frequently
15. Arrangements should be made to send for an ambulance.

**SELF-ASSESSMENT EXERCISE**

Outline the different steps to follow, when carrying out artificial respiration.

**10 Ways of Turning a Casualty into Recovery Position**

- 1** Kneel beside the casualty. Remove his spectacles and any bulky objects, such as mobile phones or large bunches of keys, from his pockets. Do not search his pockets for small items.
- 2** Make sure that both of the casualty's legs are straight. Place the arm that is nearest to you at right angles to the casualty's body, with the elbow bent and the palm facing upwards.



- 3** Bring the arm that is farthest from you across the casualty's chest, and hold the back of his hand against the cheek nearest to you. With your other hand, grasp the far leg just above the knee and pull it up, keeping the foot flat on the ground.



- 4** Keeping the casualty's hand pressed against his cheek, pull on the far leg and roll the casualty towards you and on to his side.





**Fig. 28: Steps to turn a casualty into the recovery position**

In order to turn a casualty from his back lying position into the recovery position;

1. The first aider should kneel beside the casualty
2. Any spectacles being worn by the casualty should be removed
3. The victim's legs should be straightened.
4. His near arm should be placed out at right angles to his body, elbow bent, and palm facing up.
5. His far arm should be brought across the chest, the hand and palm held outwards against the cheek.
6. The first aider's other hand should grasp the victim's far thigh, pulling his knee up and keeping his foot flat on the ground.
7. The first aider should keep the victim's hand pressed against the cheek, he pulls at the victim's thigh to roll him towards himself onto his (victim's) side.
8. The casualty's head should be tilted back to keep the airway open. The hand under the cheek should be adjusted, if necessary to maintain position.
9. The victim's upper leg should be adjusted, if necessary so that hip and knee are bent at right angles.

There are minor modifications of this method which may be more applicable if the casualty is in an awkward position due to the circumstances of the accident or there are fractures to the upper or lower body. In such cases, the recovery position can be maintained by laying a blanket down the front of the body. This method can also be used to transport a victim on a stretcher in the recovery position.

## SELF-ASSESSMENT EXERCISE

List the different ways of turning a casualty into a recovery position.

### 4.0 CONCLUSION

The importance of artificial respiration in a life-threatening emergency especially if breathing has stopped cannot be over emphasized. You also learnt the different methods of artificial respiration and ways of turning casualty into the recovery position.

### 5.0 SUMMARY

In this unit, you have learnt how to carry out artificial respiration in life-threatening emergencies. You now know the different methods of carrying out artificial respiration.

### 6.0 TUTOR-MARKED ASSIGNMENT (TMA)

Briefly explain mouth-to-mouth and mouth-to-nose ventilation.

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## **UNIT 3 FIRST AID CARE FOR BLEEDING**

### **CONTENTS**

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
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  - 3.3 How to Manage Bleeding Nose
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- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

### **1.0 INTRODUCTION**

Bleeding from any part of the body is called haemorrhage. Haemorrhage is the flow of blood from an artery, vein or capillary. It is usually caused by injury, or occasionally by an illness which affects blood vessels, such as cancerous growth. In this unit, you will be exposed to different methods of arresting bleeding. You will also be exposed to how you can manage nose bleeding, shock and poisoning.

### **2.0 OBJECTIVES**

By the end of the unit, you should be able to:

- describe the different methods of arresting bleeding
- explain how to manage nose bleeding, shock and poisoning
- describe how to apply pressure to wound
- state how to use tourniquet to stop bleeding.

### 3.0 MAIN CONTENT

#### 3.1 First Aid Actions When there is Bleeding (Haemorrhage)

When a person has a cut in an accident, bleeding results due to pressure inside the blood vessels. There are three different types of bleeding: (i) Arterial (ii) Venous (iii) Capillary.



**Fig. 29: Bleeding hands**

**Arterial Bleeding:** Blood in the arteries is normal fully oxygenated and bright red. It has just come from the heart, so it is under severe pressure and spurts from a wound in time due to force heartbeats that accompany the flow of blood.

**Venous bleeding:** It is normally darker red because it contains less oxygen; venous blood flows at a lower pressure than arterial blood and will not spurt. It could gush out if a major vein ruptures. This bleeding is not severe as arterial type.

**Capillary bleeding:** It has both arterial and venous bleeding types. Capillary is most common, present in any wound and maybe the only type in the minor wound where blood oozes from the wound.

#### SELF-ASSESSMENT EXERCISE

Identify the three types of bleeding.

#### Controlling Blood Loss

The ways to prevent blood loss are: (i) Direct pressure and (ii) Indirect pressure.

**Direct pressure:** It entails exerting pressure on the wound with the thumb and/or fingers. If the wound is big, squeeze the sides of the wounds together gently but firmly and maintain pressure. This method flattens the blood vessels in the area affected. It also helps to slow down the flow of

blood to enhance clothing. Pressure should be exerted for 5-15 minutes. This is because it takes time to halt the flow of blood.



**Fig. 30: Exerting pressure on the wound to stop blood loss**

**Indirect pressure:** This control measure is good for arterial bleeding. The pressure point is the place to apply pressure. This method prevents the flow of blood beyond the point of the wound.

### Method of Control Bleeding

- i. Apply direct pressure on the wound with the thumb and or fingers.
- ii. Lay the casualty down in a suitable and comfortable position.
- iii. Raise the injured part as far as possible and lend support on the site of the wound.
- iv. Place a sterile medicated dressing over the wound making sure it extends well beyond the edges of the wound.
- v. Press the dressing down firmly and secure with bondage tied firmly enough to control bleeding but not so tight as to stop circulation.
- vi. If bleeding persists, apply more pads and bandages firmly.

### **3.2 Methods to Arrest Bleeding**

Haemorrhage may be of primary or secondary type. Primary haemorrhage refers to any bleeding which occurs as the immediate result of an accident or begins suddenly during the course of an illness. On the other hand, secondary haemorrhage sets in some time after the original accident and may indicate the onset of complications. Any of the two can kill within a few minutes, particularly if the bleeding is profuse. It is important to note that bleeding may be either external or internal.

Bleeding can be arrested in four ways, namely

1. Natural arrest of bleeding
2. Direct Pressure
3. Pressure on Arteries, and
4. Applying a Tourniquet.

It should be emphasized that the immediate effects of bleeding are those of shock due to brain anaemia. How to treat shock should therefore be known too.

#### **3.1.1 Natural Ways to Arrest Bleeding**

Nature adopts three ways of attempting to arrest bleeding whenever blood vessels are injured. Such natural processes include clotting, contraction of the damaged blood vessels, and reduced circulation due to weakened heartbeat and reduced blood flow. Sometimes nature succeeds in effecting a fairly quick arrest of bleeding which may later lead to perfect natural repair. The severity of the injury, the health and fitness status of the victim; are the major influencing factors in the repair process.

#### **3.1.2 Stopping Bleeding Through Direct Pressure**

To apply pressure to arrest bleeding in an area or a single point; the first aider should:

- a. Press where there is bleeding (i.e. directly on wound)
- b. Press hard enough to stop the bleeding. In severe haemorrhage, pressure must be applied by whatever material available (e.g., finger, clenched fist, handkerchief or pad), clean or otherwise, to save life first. The arguments that such measures will cause infection and that direct pressure on a wound is painful are Secondary.
- c. Do not remove the material, as it may disrupt the clotting process rather more materials should be added to the wound

- d. Elevate the bleeding part above the level of the victim's heart, if there are no signs of fracture. The wound should be kept stationary if a fracture is present.
- e. In non-severe bleeding or if the bleeding begins to decrease, the injured part (wound) should be washed with water and soap and a clean pad should be applied and a sterile bandage used to dress (bandage) the wound. A blood clot formed on a wound should never be disturbed.
- f. A physician should be contacted, in severe bleeding. Direct pressure is always the best.

### **3.1.3 Arresting Bleeding through Pressure on Arteries**

If bright red blood spurts from a wound it means an artery is damaged. Slow darker red blood means a vein is affected and the loss of blood will be slower. Both need to be dealt with rapidly. In excess bleedings, the first aider should:

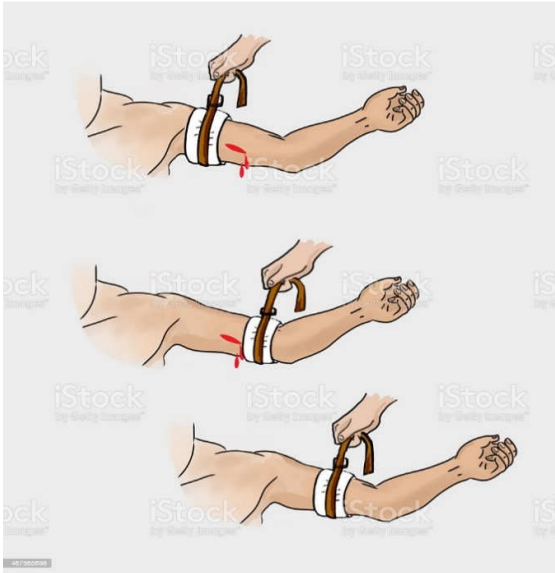
- a. Locate the pressure point which links up the wounded area,
- b. Press firmly at the pressure point to cut-off blood flow to the wounded area
- c. Elevate the bleeding part above the level of the casualty's heart, if a fracture is not suspected,
- d. Contact a physician or send for an ambulance.

### **SELF-ASSESSMENT EXERCISE**

Mention the four(4) methods of arresting bleeding.

### **3.1.4 Applying a Tourniquet to Arrest Bleeding**

A tourniquet should be used only to control bleeding from serious injuries, such as the accidental amputation of a hand or foot. In other cases, the use of a tourniquet should be avoided because it can cause infection (tissue death). It may also damage uninjured nerves and blood vessels. Therefore, tourniquets should be applied when all other means of controlling Haemorrhage have failed, and it becomes apparent that (the victim will die unless the bleeding is stopped).



**Fig. 31: Applying Tourniquet to stop blood loss**

A first aider should use tourniquets as follows:

1. A cloth, handkerchief or similar material should be folded and tied loosely above the wound.
2. The ends of the material should be knotted together
3. A stick may be used to twist the material tightly
4. A small round stone or a cork placed in the folds of the material just above the wound will be more effective in stopping the bleeding than if the material alone is used.
5. The tightly twisted material should be loosened on a physician's advice.
6. The affected injured part should be elevated above the victim's heart level, if possible.
7. When bleeding has stopped, a tincture of iodine, Dettol or other disinfectants should be applied by soaking sterile cotton and padding it on the wound.
8. A few layers of sterile gauze should be placed and bandage up.

### **SELF-ASSESSMENT EXERCISE**

Identify eight ways of using tourniquets.



### 3.3 How to Manage Nose Bleeding



**Fig. 32: A Bleeding Nose**

Nose bleeding (Epistaxis) is a common periodic episode that is experienced by children and some adolescents in excessive heat or cold weather, or during engagement in sporting activities. Adults who experience high blood pressure may have an attack which must be regarded as one of the warning signs of heart attack (apoplexy).

Nose bleeding is usually venous in origin and may occur as part of an infection, especially when the child has a cold or any other upper respiratory tract infection, the causes of nose bleeding under injury (blows), growth, high blood pressure, varicose veins, altitude, and foreign bodies. Some individuals experience the recurrence frequently than others.

The treatment of bleeding from the nose is as follows:

1. The victim should be reassured that nose bleeding is not dangerous and that the bleeding will be controlled soon.
2. The victim should be made to sit down with the head well forward.
3. The victim should be directed to breathe through the mouth and avoid blowing his nose or swallowing blood.
4. The first aider should pinch the soft part of the victim's nose firmly with the thumb and forefinger for about 10 minutes. It should be released and reapplied every 10 minutes.
5. The first aider should loosen tight clothing about the neck, chest and waist of the victim to permit the return of venous blood towards the heart
6. If bleeding fails to stop, the first aider should pack the nose with a piece of cotton and saturate it with ice packs.
7. If the above measures fail to control the bleedings medical attention should be obtained.

## **SELF-ASSESSMENT EXERCISE**

Itemise ways of managing nose bleeding.

### **3.4 How to Manage Shock**

Shock is a condition arising from stress or injury that leads to an insufficient supply of blood to the brain and other vital organs. It may accompany injuries, bleedings severe pain, or sudden illness. Shock victims will show such symptoms and signs as:

- (a) Body becoming extremely pale or grey.
- (b) The skin becomes cold and clammy with profuse sweating
- (c) Feels weak and giddy.
- (d) The pulse rate becomes quick and feeble.
- (e) May feel sick, anxious and may vomit.
- (f) May complain of thirst' (avoid giving' 'the victim anything to swallow).
- (g) Breathing is shallow and rapid.
- (h) Extreme restlessness may set in and the victim may collapse and become unconscious.

To treat shock, the first aider should:

1. Deal with injury or underlying cause of shock.
2. Keep the victim in a horizontal position,,
3. Keep clothing around the neck, chest and waist loose
4. If there are any signs of head or chest injury, the head and shoulder should be kept elevated. Otherwise, the head should be kept low and turned to one side, with lower limbs raised when possible.
5. Keep the casualty warm by preventing loss of heat by wrapping him in a blanket or any other available material,
6. Call a physician immediately
7. If medical assistance is delayed for more than two hours, administer the following fluids - 4 oz warm water (2 oz to children), - tablespoonful of salt, a pinch of baking soda - every 15 to 20minutes. However, it should be warned that a victim who is vomiting, unconscious, has head injuries, or is complaining of abdominal injuries should not be given fluid.

## **SELF-ASSESSMENT EXERCISE**

Write on the different steps to follow in managing shock.

### **3.4 How to Manage Poisoning**

A poison is any substance in either solid, liquid, or gaseous state that tends to temporarily or -permanently damage tissue or adversely alters organ function or cause death when introduced into the body. Poisoning may be accidental or intentional (self -administered) and can constitute a serious threat to life. Poisoning in children is the result of lack of supervision negligence in storage or disposal of poisonous substances and curiosity combined with children's inability to read. The routes of administration of poisons include:

1. Ingestion (swallowing) through the mouth
2. Inhalation through the lungs
3. Injection through the skin
4. Direct body contact or absorption through the skin.

The symptoms of poisoning will depend on the type and amount of the agent introduced into the body. It is difficult to present specific symptoms because of the wide variety of physiological effects of different agents. However, the typical indicators that can serve as clues when poisons are ingested, inhaled or absorbed include:

1. When ingested, may cause itching, retching vomiting, pain and often diarrhoea. Strong acids and alkalis will burn the lips, mouth, gullet and stomach, causing intense pain. Barbiturates and aspirin produce depressions drowsiness and unconsciousness. Aspirin may cause vomiting.
2. When inhaled, some industrial gases are rapidly fatal, some produce breathing difficulties later.
3. When absorbed, certain pesticides cause convulsions.

The Treatment for Poisoning should adopt the following general procedure, bearing in mind that first aid aims to sustain life and moving the victim urgently to the hospital.

If the victim is conscious, the first aider should:

- a. Quickly ask what happened, bearing in mind that the victim may lose consciousness at any time.
- b. Determine what and how much was taken.
- c. Determine specific first aid procedures.
- d. Administer specific first aid. Example of specific first aid includes:
  - Acids (toilet bowl cleaners, phenol. Do not induce vomiting. Give a mixture of 30 millilitres of milk of magnesia, baking soda solution) or antacid in a large glass of water, Then give 50 milliliters of olive oil or vegetable oil, or the white of two raw eggs.

If the casualty's lips and mouth show signs of burns, give a glass of water or milk to dilute the poison

- Alcohol Induce vomiting
- Amphetamines ("pep" pills). Give one glass of milk, then induce vomiting.
- Aspirin Induce vomiting
- Petroleum Products (gasoline, kerosene, furniture polish). Do not induce vomiting. Give one or two glasses of water or milk,
- Gas - Inhaled cooking gas, carbon monoxide. Move victim to fresh air. Give artificial respiration, if necessary.
- Barbiturates (sedatives). Induce vomiting, if the victim is conscious, then have the victim drink large quantities of hot coffee or tea. Give artificial respiration if the casualty has stopped breathing.
- Arsenic (ant poisons). Induce vomiting, then give the whites of two raw eggs and several glasses of milk. Vomiting is induced by the first aider pressing his finger or the blunt end of a spoon at the back of the victim's throat,
- Give the casualty a mixture of 2 tablespoons (30 millilitres) of salt in a glass of warm water.

The foregoing indicates that first aid for poisoning consists of two major kinds of treatments :

- a. Neutralizing the poison through administering the proper antidote, and
- b. Removing the poison from the body through such means as vomiting.

Place the victim in recovery position If the victim is unconscious, the first aider should follow the ABC of resuscitation Place the victim in the recovery position.

In both conscious and unconscious cases, the first aider, after the above actions, should quickly dial a physician for medical advice for further action or poison control centre, supplying the following information:

- Type and amount of poison or drug taken, if known, otherwise, the general nature of the poison
- Age of the victim
- Care or first aid given so far, condition of the victim (conscious, blue, convulsive)
- Whether vomiting occurred

- Location (distance from the medical centre)

The label or container of the poison should be saved for identification and clue to the estimated amount taken,

- Alternatively, arrange to take the casualty by car or ambulance quickly to the hospital. The casualty should be transported in a recovery position.

### **SELF-ASSESSMENT EXERCISE**

Write extensively on the different steps to take in managing poison.

### **4.0 CONCLUSION**

In conclusion, you will agree with me that different methods can be used to arrest bleeding. In this unit, you equally learnt how to manage bleeding nose, shock, and poisoning. I do not think you will find it difficult to manage these emergencies.

### **5.0 SUMMARY**

In this unit, we learnt the different methods of arresting bleeding, and also how to manage nose bleeding, shock and poisoning. You equally learnt how to apply pressure to wound and how to use a tourniquet to stop bleeding

### **6.0 TUTOR-MARKED ASSIGNMENT**

Write a term paper (10 pages) on first aid care for bleeding.

### **7.0 REFERENCES/ FURTHER READING**

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## **UNIT 4      FIRST AID CARE FOR SPORTS INJURIES CONTINUES**

### **CONTENTS**

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
  - 3.1 How to Manage Fainting
  - 3.2 How to Manage Drowning
  - 3.3 How to Manage Other Sports Injuries.
    - 3.3.1 Fracture
    - 3.3.2 Dislocation
    - 3.3.3 Strain
    - 3.3.4 Sprain
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

### **1.0 INTRODUCTION**

Injuries are everyday occurrences in sports. Most of these injuries are minor and can be treated with simple first aid. While at other times it could be serious injuries that could result in death. Sports competitions often result in injury to muscles, tendons or ligaments. In this unit, you will learn how to manage some of these injuries.

### **2.0 OBJECTIVES**

By the end of the unit, you should be able to:

- describe how to manage fainting and drowning
- explain how to render first aid in cases of fractures, dislocation, strains and sprain emergencies
- state the meaning of this acronym RICEM

### **3.0 MAIN CONTENT**

#### **3.1 How to Manage Fainting**

Fainting is a brief, sudden period of unconsciousness occurring when blood pressure falls to the point where the brain does not receive enough oxygen. In most cases, fainting occurs when a person is standing. The person falls to the ground with or without warning as he/she loses consciousness. It is usually preceded or accompanied by extreme

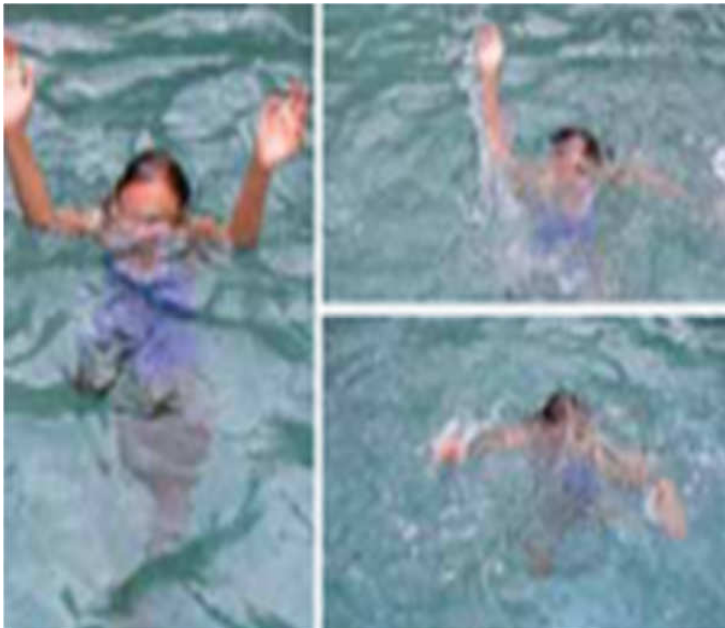


paleness, sweating, coldness of the skin, dizziness, numbness and tingling of the hands and feet, nausea, and sometimes disturbance or distortion of vision.

To prevent a fainting attack, a person who feels weak and dizzy should lie down, sit or bend over with his head between his knees. After a fainting attack has occurred:

1. Keep the victim lying down.
2. Loosen any tight clothing and keep crowds away.
3. Raise his feet slightly to allow blood to flow back to his head (fig. 8a).
4. If the victim vomits, roll him onto his side or turn his head to the side and, if necessary, clean his mouth with your fingers, preferably wrapped in cloth.
5. Hold his chin up to keep his tongue from obstructing his airway.
6. Water should not be poured over the victim's face to avoid aspiration, rather, bathe his face gently with cold water.
7. No liquid should be given to the victim until he has recovered.
8. Examine the victim to determine whether he has suffered injury from falling.
9. Unless recovery is prompt, consult a physician.

### 3.2 Managing Drowning or Near-Drowning





**Fig. 33: Rescuing a drowning person**

Drowning or near-drowning is experienced in aquatic sports, such as swimming, water polo, diving, etc. Drowning or near-drowning requires prompt attention to restore adequate breathing and keep the victim warm after getting him/her onto dry land.

- It is advisable to apply the fastest way to rescue the victim of near drowning or drowning. It is safer to Reach and Throw and not to go into the water by oneself to avoid double casualty.
- For a safer rescue, one should stay on land and reach out with one's hand after firmly supporting oneself; a stick or branch, or a rope or float should be thrown to the casualty.
- A trained life-saver can get into the water for rescue operations. If the casualty is unconscious, a good swimmer/lifesaver may have to swim to the casualty and tow him/her to dry land.
- Rescue from drowning or near-drowning will also require placing the casualty on land in a recovery position and allow water to drain out of him/her without force.
- Treat the casualty for drowning by applying the "ABC" of emergency treatment (fig.) and preventing the person from wind-chill or losing more body heat.
- Give a conscious casualty warm drinks, if available.
- Never leave the casualty alone by ensuring that someone remains with him or her all the time.
- Send for help and arrange to take or send the casualty to hospital, even if he or she seems to have recovered well or, if necessary.

### **SELF-ASSESSMENT EXERCISE**

Mention five ways to helping a casualty that is drowning.

### **3.3 Managing of Sports Injuries that are not Grouped under Life-Threatening**

The following are sports injuries that are not categorised as "under life-threatening". Such injuries include:

1. Fractures
2. Dislocation
3. Strains
4. Sprains

#### **3.3.1 First Aid Care for Fractures**

A fracture is a break or cracks in the continuity of a bone. Fractures result from either direct force causing a break or crack at the site of the force, indirect force leading to bone damage at a distance from the site at which the force was applied, or muscular contraction when there is a sudden violent muscular action.

The first aid objectives in fractures are to provide all necessary first aid care to keep the broken bone ends and adjacent joints from moving, and to give care for shock. The general principles include:

1. Asphyxia, unconsciousness and severe bleeding must be taken proper care of first.
2. The Victim should be warned to lie still and should be treated on the site of the accident and not moved until the injured part has been immobilised (unless there is immediate danger to life such as fire, the victim can be skillfully moved away from the site). The injured limb should be steadied and supported by holding it with one hand above and the other hand holding below the site of fracture.
3. Splints should be applied if modern ambulance service is not available, there is a delay in transportation, or in less serious injuries before seeking medical assistance for diagnosis and treatment.
4. If an ambulance is expected to arrive within 10 - 15 minutes, it is preferable to support the injured part in the most comfortable position by use of rolled-up blankets or other materials. In managing an open fracture the following additional aid should apply:
  - a. The limb should be steadied, elevated and supported by making use of bystanders.
  - b. Dressing of wound should be done.
  - c. Direct pressure should be applied to control bleeding

- d. If a foreign body is present, sufficiently pad the wound and squeeze the edges of the wound together alongside the foreign body.
- e. The dressing and pads should be secured to avoid the danger of pressure over protruding bone.
- f. Immobilise fracture and elevate injured limb, if possible.

Arrange removal of the victim to the hospital. It should be remembered that different parts of the body (e.g. spine, lower jaw, and skull) require peculiar diagnosis and treatment procedures.

### **3.3.2 The Management of Dislocation**

A dislocation is the displacement or separation of one or more bones at a joint. It may result from a blow, fall, or violent muscular contraction. Depending on the degree of severity, a dislocation may be simple, involve a fracture, or become a compound and complicated type.

Signs and symptoms that show the presence of dislocation include:

- a. Pain, severe sickening in characters at or near joint.
- b. Immobility of joint.
- c. Deformity and abnormal appearance of joint.
- d. Swelling, tenderness and bruising are usually present.

The body parts (joints) mostly dislocated include shoulder, elbow, thumb, fingers and toes and lower jaw. Hip and patella (kneecap) sometimes dislocate as well.

#### **First aid for dislocation includes:**

1. Immobilise the joint by splinting or applying a sling if appropriate, using pillows, cushions or bandages so that further movement does not contribute to pain.
2. Apply ice or cold packs to assist in controlling internal bleeding.
3. Care for shock, since pain is usually severe and shock will frequently occur.
4. Refer to medical aid quickly.
5. If in doubt as to whether the dislocation involves fracture first aider should rather treat the fracture.
6. The first aider **MUST NOT** attempt to replace the displaced bone(s).

### 3.3.3 Management of Strains

A strain is one of the sports injuries affecting muscles. It is a stretching and/or tearing of muscle and tendon fibres. It often results from overexertion, such as lifting an object too heavy or working a muscle beyond the point of fatigue. An uncoordinated movement produced by a sudden uneven contraction of muscle and lack of balance of the group of muscles concerned in a specific movement may also cause a strain. It is muscle strain that most laymen call "Muscle pull". A "pulled" muscle is in reality a strained muscle that constitutes a painful condition at the site of an injury. Localised tenderness and swelling are invariably present. A strain goes with an immediate and almost complete loss of function of the muscle involved. As a result of the rupture there is an injury to the minute blood vessels (capillaries) in the area, resulting in a haemorrhage within the substance of the muscle, leading to the formation of a blood clot (hematoma) the larger the hematoma the greater the period of disability.

The muscle group most commonly strained are as follows:

- a. The sacrospinalis (erector spinae), at the back which extends the vertebral column.
- b. The hamstrings, at the back of the thigh, which flex the knee.
- c. The quadriceps, on the front of the thigh, which extend the knee.
- d. The posterior tibia group or calf muscles, which pull the heel upwards.
- e. The biceps muscle of the upper arm, which flexes the elbow and the shoulder joint.
- f. The supraspinatus muscle on the top of the shoulder, which aids in lifting the arm from the side of the body, conditioning which helps to put a muscle group through its fullest range of movement during training and warm up are key processes of preventing muscle strain.

The first aider should follow **RICEM** steps for the first aid for strains:

- R:** Rest- injured part in a most comfortable position.
- I:** Ice - apply ice (ice pack) or cold water compress for about 30 minutes if the strain is of recent origin. In the case of stale strain, hot compresses, hot bottles or electric heating pads can be applied over the affected muscle to help for the dispersal of hematoma.
- C:** Compress - injured part by surrounding it with thick padding and securing it with a firm bandage.
- E:** Elevate - the injured part (particularly limb). First aid for a strained back will in addition involve bed rest -and use of a board under the mattress for firm support. The victim should be moved to the hospital for further medical care.
- M:** Medical attention.

## SELF-ASSESSMENT EXERCISE

When is a first aider expected to use RICEM?

### 3.3.4 The Management of Sprains

A sprain is an injury to a joint ligament or a muscle-tendon in the region of a joint; it involves the partial tearing or stretching of these structures, injuries to blood vessels, and contusions of the surrounding soft tissue without dislocation or fracture. It usually results from indirect violent or sudden twisting or wrenching of bones forming the joint or from motion forced beyond the normal range at a joint. Depending on the severity of the sprain, the ligaments, tendons, and blood vessels or any other soft tissue surrounding the joint are stretched and occasionally torn or partially torn which normally limit movement. Insufficient treatment or neglect may lead to permanent disability.

The symptoms and signs, indicating that a sprain has occurred include;

- a. Pain at the joint
- b. Swelling and later bruising and discolouration, depending on how recent the injury has occurred
- c. Inability to use joint without increasing pain. The ankle and the wrist are the two joints that are commonly sprained. Treatment of a sprain involves a RICEM procedure.

R	-	Rest
I	-	Ice
C	-	Compression
E	-	Elevation
M	-	Medical attention

## 4.0 CONCLUSION

Sporting activities present occasions where emergencies are unavoidable. It is pertinent to note that these emergencies present themselves in the form of injuries. In this unit, you have learnt how to manage these emergencies.

## 5.0 SUMMARY

In this unit, you have learnt how to manage fainting and drowning. How to render first aid in cases of fractures, dislocation, strains and sprain emergencies, and the meaning of this acronym RICEM.

## 6.0 TUTOR-MARKED ASSIGNMENT

With short notes briefly explain how fainting and drowning can be managed.

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## **UNIT 5 BANDAGING AND MOVING CASUALTY**

### **CONTENTS**

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
  - 3.1 How to Use Bandages
  - 3.2 Types of Bandages and Their Uses
  - 3.3 How to Transport or Extrication Techniques (Moving a Casualty)
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

### **1.0 INTRODUCTION**

Bandages are pieces of materials used either to cover wounds, to keep dressing in place, to applying pressure to control bleeding, to support a medical device such as a splint, or on its own to provide support to the body. Bandages also can be used to constrain body parts.

### **2.0 OBJECTIVES**

By the end of the unit, you should be able to:

- explain how the different types of bandages are used
- state how a casualty can be transported to a health facility
- identify different extrication techniques.

### **3.0 MAIN CONTENT**

#### **3.1 How to Use Bandages**

It is necessary to use bandages in connection with almost every injury, therefore everyone should know how to put bandages on the different parts of the body. Bandages should be made of clean cloth. Bandages for the arms or legs should be about 6cm wide. Those for the fingers should be a little less than 2cm wide.

## Types of Bandaging and the Different Body Parts



**Kneel Bandage**



**Leg bandage**



**Ankle Bandage**

**Fig. 34: Different types of Bandages**

### 1. Head Bandaging



**Fig. 35: Head bandaging**



**Fig. 36: Securing dressing with bandage**

### 2. Elevated arm triangular bandaging



(i): Initial area positioning



(ii): Applying triangular bandage

PRACTICAL ORIENTATION



(iii): Elevating the arm



(iv): Tying the triangular bandage at the back of the shoulder



(v): Completed elevated arm sling

**Fig. 37a, 37b, 37c, 37d and 37e: Applying an elevated arm sling**

**3. Arm Sling**



(i) Supporting the injured arm at the elbow



(ii) Tying the triangular bandage



(iii) Tying a reef knot



(iv) Completed arm sling

**Fig. 38: Applying an arm sling****3.3 Transportation and Extrication Techniques (Practical Work)**

Transportation, in the broadest term, involves all actions taken to move victims from the site of an accident or illness to the appropriate medical facility to obtain treatment and follow-up care. On the part of a first aider, he should:

1. Make arrangements for a professional ambulance or recruit personnel to transport the victim.
2. Assist professional personnel with transportation procedures.
3. Carry out transportation procedures when professional services cannot be obtained and it is necessary to move victims to protect them from immediate danger to their lives. Transportation techniques to be demonstrated include:
  - a. Human crutch method
  - b. Piggyback method
  - c. Cradle method
  - d. Arms across the chest carry
  - e. Drag method
  - f. Two-handed seat carry
  - g. Alternative hand-formation for two-hand seat carry
  - h. Under the knee carry
  - i. Two-man carry



***Fig.39: Human crutch method***

***Fig. 40: Piggyback method***



***Fig.41: Cradle method***



**Fig.42: Arms across chest carry**



**Fig43: Two-man carry**

### **Practical Orientation**

Saddleback carry

Blanket drag

Two-man carry

Use of lifters

- Stretcher (Backboard or Orthopedic)
- Pole-and-blanket stretcher
- Backboard and neck board
- Stokes basket

**Extrication** refers to the removal of an injured person from a confined environment using specialised equipment and skill. Extrication involves:

1. Gaining safe entry to the person(s)
2. Giving life-Saving emergency care
3. Disentanglement
4. Preparation for removal

5. Actual removal

#### 4.0 CONCLUSION

In conclusion, you have learned in this unit the different types and ways to use bandages. Almost all bandaging techniques start and end with a few circular bandaging turns. You also learnt the different extrication techniques.

#### 5.0 SUMMARY

In this unit, we learnt how to use bandages, the different types of bandages. You also learned the different extrication techniques.

#### 6.0 TUTOR-MARKED ASSIGNMENT

Demonstrate the following bandaging types:

- Sprained ankle bandage
- Wrist bandage
- Knee bandage
- Arm bandage
- Finger bandage
- Head bandage
- Eye bandage

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## **MODULE 4 ACCIDENTS GENERALLY AND SAFETY EDUCATION**

- Unit 1 Concept of Accident and Types of Accident
- Unit 2 Theories of Accident Prevention
- Unit 3 Safety Education

### **UNIT 1 CONCEPT OF ACCIDENT AND TYPES OF ACCIDENT**

#### **CONTENTS**

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
  - 3.1 Concept of Accident
  - 3.2 Home/Domestic Accident
    - 3.2.1 Causes of Home/Domestic Accident
    - 3.2.2 Prevention of Home/Domestic Accident
  - 3.3 Traffic/Auto-Mobile/ Vehicle Accident
    - 3.3.1 Causes of Traffic/Auto-Mobile/Vehicle Accident
    - 3.3.2 Prevention of Traffic/Auto-Mobile/Vehicle Accident
  - 3.4 Workplace/Industrial/Workshop Accident
    - 3.4.1 Causes of Workplace/Industrial/Workshop Accident
    - 3.4.2 Prevention of Workplace/Industrial/Workshop Accident
  - 3.5 Recreational/Leisure Accident
    - 3.5.1 Prevention of Recreational/Leisure Accident
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

#### **1.0 INTRODUCTION**

One of the most outstanding health problems in Nigeria society today is accidents of different types. Every year, thousands of persons are killed in one form of accident or the other, several hundred are maimed and countless others are injured with no one coming out to provide an unquestionable solution to the problem. In this unit, you will be exposed to, the different types of accidents, their causes and how they can be prevented.

## 2.0 OBJECTIVES

By the end of the unit, you should be able to:

- review the patterns of accidents in the community
- explain what home/domestic accident is, its causes and how it can be prevented
- explain what traffic/auto-mobile/ vehicle accident is, its causes and how it can be prevented
- explain what workshop/industrial/workplace accident is, its causes and how it can be prevented
- explain what a recreational/leisure accident is, its causes and how it can be prevented.

## 3.0 MAIN CONTENT

### 3.1 Concept of Accident

Accidents have been described as unintended happenings or occurrences. The truth of the matter is that accidents, while indeed unplanned or unintended, accidents are in most cases also caused events. Accidents are undesirable, unplanned, uncontrolled and unexpected events that can cause damage to property(s), injury(s), and death. Accidents are unpremeditated events resulting in recognisable damage. Accidents are events that could have been prevented if the circumstances leading to it had been recognized, and acted upon before its occurrence. That is, accidents are caused as a result of actions or inactions of humans. Their causes can often be predicted and controlled. The fact that most accidents are from predictable and controllable causes and that they are unplanned does not imply that they have to occur in an unexpected and unprovided-for manner. Safety education/Accident Prevention Education should in fact consist of:

- Expecting accident
- Reducing their probability
- Providing means to reduce their consequences.

Accidents throughout the world have reached an epidemic proportion, they are a major cause of death and disability in Nigeria. Therefore, the discussion of accidents in whatever setting is important because of the following reasons:

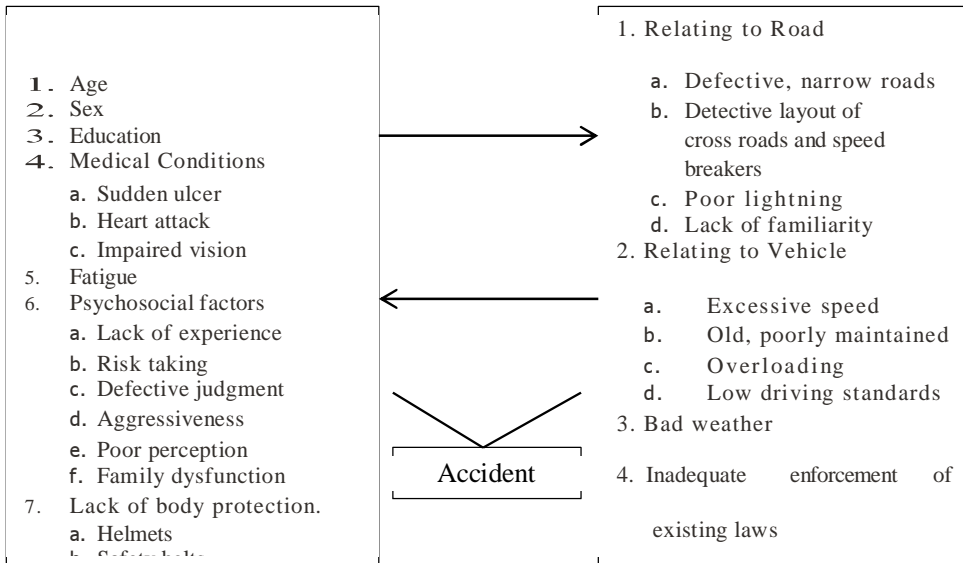
- a. Accidents can be evaluated appropriately from an environmental health perspective for the purpose of prevention.
- b. Most accidents are avoidable by appropriate action on the part of the informed individuals and groups.

- c. Accidents are among the foremost causes of death of persons and damage or loss of properties in the globe.
- d. Our social environment can become the most dangerous of the accident causation components if we fail to correct the existing hazards in it.
- e. Everyone should accept responsibility for his/her own safety and for the safety of others by his/her own actions at all times.
- f. Safety rules must be stringently adhered to in order to prevent man-made accidents.
- g. Accidents occur more often in certain age groups, at certain times of the day and week, at certain localities.
- h. Some persons are more prone to accidents than others and susceptibility is increased by the effect of alcohol and other drugs as well as a physiological state such as fatigue.

**Causes of Accidents**

Accidents are complex phenomena of multiple causations. The factors responsible for accidents can be classified into two broad categories i.e. the human and environmental factors.

*Human and environmental factors causing accidents*



Classification of accidents could either be according to the location of occurrence or according to the immediate activity that caused them. In this particular write-up, different types of accidents would be looked into.

**SELF-ASSESSMENT EXERCISE**

Briefly describe what an accident is to a layman

**3.2 Home/Domestic Accident.**

Home accidents which are also known as Domestic accidents mean accidents which take place in the home or its immediate surroundings and/or all accidents not associated with traffic, vehicle or sports accidents. Home accidents have continued to increase due to the diverse nature of our dwelling places and the types of equipment put in place for use. The increasing use of different household materials carelessly has led to corresponding accidents resulting in injuries, disabilities and even death. Hence, the home is not entirely safe from accidents after all.



**Fig. 44: Some Domestic accidents**

### 3.2.1 Causes of Home/ Domestic Accidents

The most frequent causes of home accidents include but are not limited to the following:

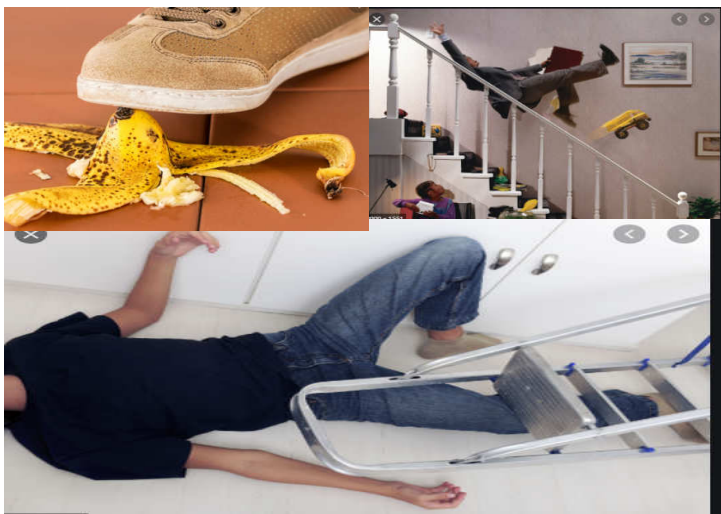
1. Falls (uneven floor, faulty staircase, slippery or wet grounds).

2. Fire (candles, naked light, electricity, gas appliances that are poorly handled).
3. Burns (by a flame, hot liquid, electricity, crackers or fireworks, chemicals).
4. Poisoning and gassing (drugs, insecticides, rat poisons, gas, kerosene, smoke poisoning from smoke emitting gadgets like generators, etc.).
5. Injuries from sharp or pointed objects and firearms.
6. Bites and other injuries from animals.
7. Drowning in homes with swimming pools, baths, ponds, wells, water tanks.

Other causes of home accidents are:

- Lack of value for health and human life
- Ignorance about safety practices.
- Physical disability or defect.
- Poor mental judgment.
- Fatigue or tiredness.
- Haste.
- Carelessness.

- (i) **Falls:** This set of accidents constitutes the majority of all home accidents. Fall is when a person is displaced from his current position by a given force acting on it. Among the aged due to poor gait, vision and reflexes accidents may occur and may be fatal especially in the bathroom or kitchen. Bars, where one can grip in the bathroom, may be necessary especially for the aged. Persons may fall because of the following reasons:



**Fig. 45: Some causes of domestic accidents**

- Polished floors.



- Poorly organized home setting
- Slippery, wet floors or polished floors.
- Poor illumination round the house.
- Weak staircase.
- Poor gripping rugs.
- Chairs or ladder climbing.
- Poorly organized toys.

It is very important to note that, the kitchen, stairways, toilets and bathrooms are the most common places of falls in the home. While the injuries associated with falls are bruises, sprains, fractures, contusion among others. These injuries could be devastating enough to result in death in some cases.

- (ii) **Poisoning:** This danger is seen more frequently with kids. The casualties of poisoning are often not mature enough to foretell the possible risk of their actions. The accidents associated with poisons are drinking of kerosene, medicine, bleach, liquid soap, rat poison, insect spray, cream, gases, insecticide, drugs like aspirin, analgesics and other drugs should be removed from the reach of children. Similarly, poorly cooked and poorly stored foods can constitute poisoning of the consumers. Children should be taught early to avoid using medicine or drink/eat anything without permission from adults. Unused or old medicines or consumables packages or tinned food should be disposed of promptly.
- (ii) **Fires, Burns and Scald:** These types of accidents are very common and could be very serious. Naked flames, scalds from hot cooking oil, hot water, electric shock, gas burn constitute a major home hazard. Fire and burn accidents represent a source of potential cause of permanent disabilities or disfiguring or even death.



**Fig 46: Fire accident in the home**  
**Causes of Fire and Burns**

- Careless disposal of lighted cigarette stubs, and matches.
  - Negligence in the use of electric iron, heaters, boiling rings.
  - Defective electrical and electronic gadgets.
  - Poor handling of inflammable, e.g. petrol.
  - Adulterate kerosene for household chores.
  - Poor handling of overheated gas, water, soup, etc.
  - Liquid oxygen and nitrogen.
- (iv) **Cuts and Punctures:** These types of injuries are also very common in the home. The use of a sharp knife or razor blades can inflict cuts on the user. It could also cause injuries if not kept away from children who may handle them haphazardly. Some other cooking or eating materials like breakable cups, plates, pots can also inflict cuts on the users. Cutlery like forks can puncture the lips, tongue if used carelessly; pointed knives, nails, pins, broken bottles, etc. can cause puncture wounds easily and if used sloppily

### 3.2.2 Prevention of Home/Domestic Accidents

To reduce the occurrence of home/domestic accidents, the following should be considered:

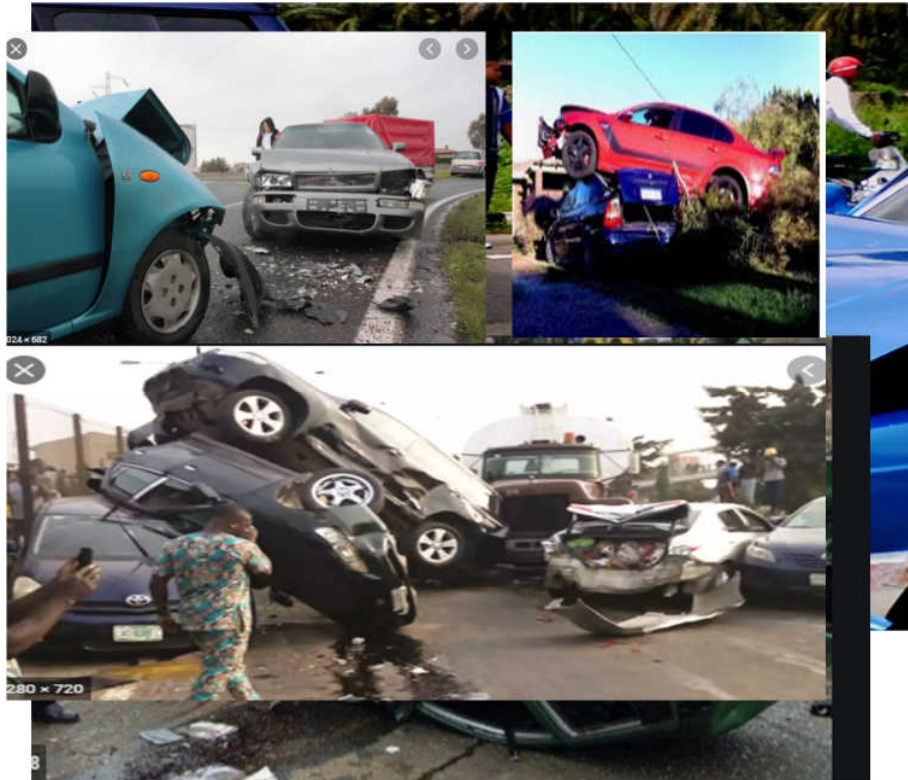
- a. Adequate supervision of children.
- b. Construction of safer house building structures.
- c. Health Education is an important factor in the prevention of domestic accidents.
- d. Use of mass media to encourage public awareness of domestic hazards. The more informed parents are about accident prevention, the better instruction they make for their children.
- e. Fit smoke detectors on buildings.
- f. Standardization of household equipment.
- g. Avoid making the floor to be slippery.
- h. Consumer Protection Council (CPC) should protect the public from unreasonable risks of injury or death associated with the use of thousands of types of consumer products.

### 3.3 Traffic/Auto-Mobile/Vehicle Accidents

The invention of auto-Mobile/Motor Vehicle like many other technological inventions of man has been both a blessing and a curse. It has increased man mobility on land a thousandfold just as it takes a thousandfold of lives every year through accidents. Traffic/Auto-Mobile/Vehicle accidents are accidents that occur on the road, seas, or in the air but, the most common are road accidents. Road traffic injuries are among the leading causes of death in the world. Traffic accidents are accidents that involve vehicles with human beings on the road. These

types of accidents occur quite often on our major roads leaving behind great fatalities like permanent disabilities, amputation and death. The implication of this is that vehicle or motorcycle accidents have caused misery and untimely death to its victims. Most traffic accidents may not occur if due diligence is paid to vehicle maintenance, avoid the use of alcohol or other drugs while driving, not driving during bad weather, obeying driving rules and regulations and being a defensive driver (i.e. driving well and be proactive in keeping the margin of safety away from other drivers or always think ahead and responding appropriately to the bad driving behaviour of others drivers.

**Fig. 47: Some Road Accidents**



**Fig. 48: Some Road Accidents**

### 3.3.1 Causes of Traffic/Auto-Mobile/Vehicle Accidents

The causes of traffic accidents are very many some of them are:

- a. Collision with pedestrians and other vehicle(s).
- b. Collision with railway train at a railway crossing.
- c. Collision with objects, trees, buildings or animals.
- d. Self or lone accidents caused by mechanical failures.
- e. Poor judgement and reaction time.

*Human factors causes are:*

- i. Over speeding above speed regulations.
- ii. Fatigue or tiredness.
- iii. Drunkenness.
- iv. Ignorance of traffic laws.
- v. Neglect of road signs, symbols and warnings.
- vi. Emotional disturbance or instability.
- vii. Wrong or bad parking.

*Mechanical/Structural factors causes are:*

- i. Punctured tyres at high speed.
- ii. Break failures.
- iii. Poor state or condition of the vehicles involved.
- iv. Non-functioning wipers during the rainy season.
- v. Poor rear lights for adequate caution.
- vi. Faulty engine, among others.

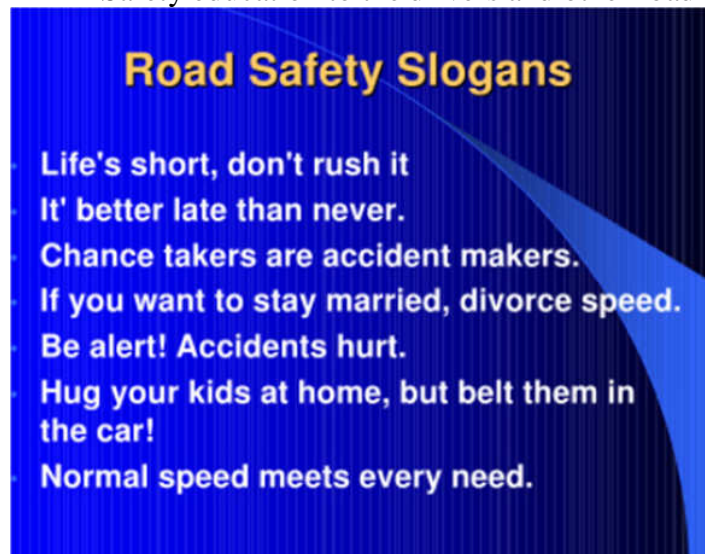
Other causes of traffic accidents are:

- a. Bad roads and poor maintenance of existing ones.
- b. Issuing of driver's license to unqualified people.
- c. Using a hand-held or hands-free devices while driving.
- d. Poor enforcement of speed limits.
- e. Poor education on safe driving practices e.g. wearing of safety belts by both the driver and the passengers, wearing of crash helmets and proper apparel when riding on a motorcycle.
- f. Drinking of alcohol and/or use of drugs when driving especially the commercial drivers.
- g. Age (either too young or too old).

### 3.3.2 Prevention of Traffic/Auto-Mobile/Vehicle Accidents

To prevent traffic/Auto-mobile/vehicle accidents, the following measures are essential:

- Safety education to the drivers and other road users.



**Fig. 49: Road Safety slogans**

- Prevent sleepiness while driving by taking regular rest (break for at least 15 minutes every two hours).
- If you need to drive, do not drink alcohol.



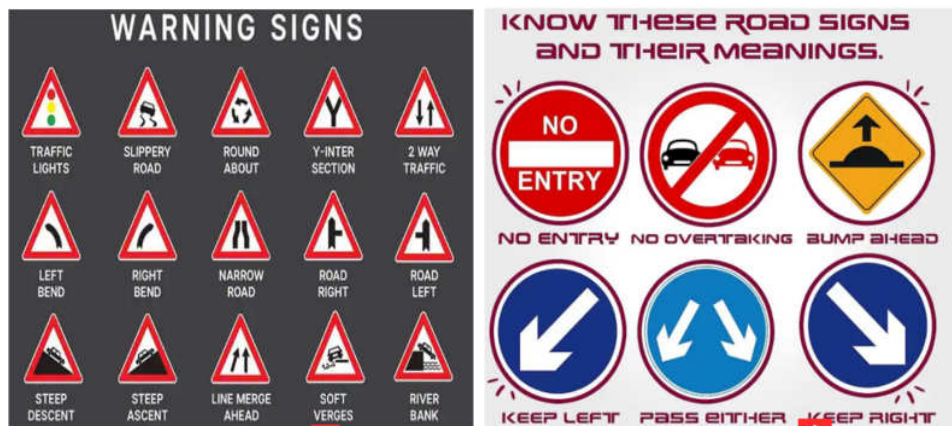
**Fig. 50: Drinking and driving**



**Fig. 51: Driving and drinking caution**

- Avoid driving when under the influence of medicines.
- Do not drive under the influence of drugs.
- Both the driver and all the passengers should use appropriate seat belts or child restraints.
- Watch speed/speedometer when driving.
- Ensure road worthiness of vehicle all the time.

- Road signs should be well made with reflective materials and be



well located.

**Fig 52: Some Road Signs**

- Good road maintenance culture should be maintained.
- Keep a safe distance behind the vehicle in front of you.
- Avoid arguments, conversations or distractions while driving.
- Do not use hands-free or hand-held mobile phones while driving.



**Fig. 53: Using Mobile Phones**

### While Driving

- Broken-down vehicles should be moved off the road if possible.
- Speed limiter should be installed in all vehicles.

### 3.4 Workplace/Industrial/Workshop Accident

Accidents that occur in offices, farms, industries or schools are classified as workplace, industrial and workshop accidents. Accidents in this group usually occur once in a while, not frequently as other accidents. But workplace accidents could prove very fatal ranging from bruises, disabilities and even death. Accidents in this group include electrical shock, chemical burns, fire and burns, gas poisoning, collapsed building, etc. The reasons for the low incidence of accidents in the workplace are due to safety measures put in place, organized workshops and clinics for the employees reduce accidents to the barest minimal and poor reporting system. Workplace accidents affect both employers and employees. However, among all workplaces, accidents occur more in industrial settings. It is on record that most of these accidents do not get into the news because the management of such a workplace suppresses such information probably for economic interests. Workers too fail to report such incidents for fear of losing their jobs. The truth of the matter is that reliable data are not available in developing countries.



**Fig 54: Accidents in the Workplace**



### 3.4.1 Causes of Workplace/Industrial/Workshop Accident

Causes of workplace/Industrial/Workshop Accident may include but are not limited to the following factors:

- a. Inadequate instruction to employees.
- b. Non-removal of hazards related objects.
- c. Poor use of mechanical and laboratory safeguards.
- d. Poor use of fitted equipment to prevent hazards.
- e. Improper handling of materials, tools, etc.
- f. Careless with machinery.
- g. Fatigue, tiredness, illness, etc.
- h. Improper handling of objects, carelessness with a piece of machinery or hand tools, falling from heights or on slippery surfaces.
- i. Personal factors like emotional upset, disobedience of safety rules and physical disability.
- j. Poor motivation of workers.
- k. Unsupervised or poorly supervised subordinates.
- l. Unsafe act and unsafe condition.
- m. Poor supervision.
- n. Ignorance.

### 3.4.2 Prevention of Workplace/Industrial/Workshop Accident

In workplaces, accidents could be prevented in the following ways:

- i. Management must:
  - a. Be willing to accept the responsibility of occupational safety and health as an integral part of their jobs.
  - b. Establish safety policies.
  - c. Stimulate awareness of safety in others.
- ii. Front line supervisors must:
  - a. Bear the greatest responsibility for implementing safety and health programmes.
  - b. Be given appropriate training, support, assistance and authority.
  - c. Regularly and adequately ensure the supervision of subordinates.
- iii. Employees must imbibe safe work practices.
- iv. Provision and use of safety devices.
- v. Proper ventilation of workplaces.

### 3.5 Recreational/Leisure Accident

People engage in various games, sports and other forms of recreational activities during their leisure time. With the development of Information and Communication Technology (ICT), many young persons now visit some viewing centres to watch films and movies as a form of recreation. Various forms of accidents are associated with games and sports and in the viewing centres especially after taking some quantity of alcohol before or during the recreation period. Recreational accidents may lead to falls, fractures, tendon injuries and dislocations, fire outbreaks, heart attacks and violence.



**Fig 55: Accident in the Recreation Centre**

#### 3.5.1 Prevention of Recreation/Leisure Accidents

Accidents in recreation/leisure activities can be prevented or minimized if the following measures are put in place:

- i. Always check blood pressure and weight before embarking on any recreational activities.
- ii. Use appropriate dress, outfit, equipment or facility.
- iii. The playground/surface should be safely designed.
- iv. The play surface should be properly maintained.
- v. Adequate supervision should be ensured by the concerned officer(s).
- vi. Avoid dehydration during the exercises/activities

## **SELF ASSESSMENT EXERCISE**

Briefly explain how recreational accidents can be prevented.

### **4.0 CONCLUSION**

Regardless of modernization, accidents generally do not just happen. They are caused by men and women, young and old, literate and illiterate drivers. The causes of accidents can be categorized into human errors and mechanical faults. Having gone through this unit on types of accidents, their causes and prevention, you would be able to play safe at any time.

### **5.0 SUMMARY**

In this unit, you have learnt the following:

- Home/Domestic accidents, their causes and their prevention
- Traffic/Auto-Mobile/Vehicle accident, their causes and their prevention
- Workplace/industrial/workshop accident, their causes and their prevention
- Recreational/ Leisure accident their causes and their prevention

### **6.0 TUTOR MARKED ASSIGNMENT (TMA)**

Briefly explain the following:

- Concept of accident
- Types of accidents
- Human errors that may cause an accident
- Mechanical faults that may cause an accident
- Ways of preventing accidents

### **7.0 REFERENCES/ FURTHER READING**

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## **UNIT 2 THEORIES OF ACCIDENT PREVENTION**

### **CONTENTS**

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
  - 3.1 Concept of Theory
  - 3.2 Theories of Accident Prevention
  - 3.3 Types of Accident Prevention
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

### **1.0 INTRODUCTION**

Following the increasing outcry against the increasing incidence of accidents in Nigeria, culminating in unnecessary loss of life, everybody must be actively involved in all walks of life in the crusade for Accident Prevention. Behavioural change theories are used to explain why behaviours change. Theories help us to learn or understand and predict health behaviour and the mechanism for producing a behaviour change. Based on the above reasons accident prevention deserves a unit in this course. Therefore, let us explore accident prevention using theories. Please enjoy your reading.

### **2.0 OBJECTIVES**

By the end of the unit, you should be able to:

- discuss the concept of theory
- itemise the different theories of accident prevention
- mention the different types of accident prevention.

### **3.0 MAIN CONTENT**

#### **3.1 Concept of Theory**

A theory presents a systematic way of understanding events, behaviour and/or situations. A theory is a set of interrelated concepts, definitions and propositions that explains or predicts events or situations by specifying relations among variables.

Theories are used to describe the interrelationships between variables or concepts. Human behaviour is difficult to change especially when it

relates to health behaviour. Our health is determined to a large extent by what we do or do not.

Theories can guide the search to:

- Understand why people do or do not practice health-promoting behaviour,
- Help identify what information is needed to design an effective intervention strategy,
- Provide insight into how to design a programme so that it is successful.

Theories help to explain behaviour, as well as suggest how to develop more effective ways to influence and change behaviour

### **3.2 Theories of Accident Prevention**

Theories are like road maps to guide researchers in the study of accident causation and prevention. Some of these common theories among others include the following:

- Heinrich's Domino Theory
- Human Theory
- Accident/ Incident Theory
- System theory
- Firenzie's System Theory
- Combination Theory

#### **Heinrich's Domino Theory**

Heinrich's Domino theory, also known as Sequential Event-Based Models was developed by H.W. Heinrich in 1931. He was a pioneer in safety philosophy. Many of his principles and basic philosophy of accident causation and prevention are confirmed by time and application. His philosophy was based on 10 axioms (Self-evident- truths) as follows:

- i. Injuries result from a completed series of factors, one of which is the accident itself.
- ii. An accident can occur only as the result of an unsafe act by a person and/or a physical or mechanical hazard.
- iii. Most accidents are the result of unsafe behaviour by people.
- iv. An unsafe act by a person or an unsafe condition does not always immediately result in an accident/injury.
- v. The reasons why people commit unsafe acts can serve as a helpful guide in selecting corrective actions.



- vi. The severity of an accident is largely fortuitous and the accident that caused it is largely preventable.
- vii. The best accident techniques are analogous to the best quality and productivity techniques.
- viii. Management should assume responsibility for safety since it is in the best position to get results.
- ix. The supervisor is the key person in the prevention of industrial accidents.
- x. In addition to the direct cost of an accident (i.e. compensation, liability claims, medical costs, and hospitals expenses) there are also hidden or indirect costs.

According to this theory, there are five factors in accident causation:

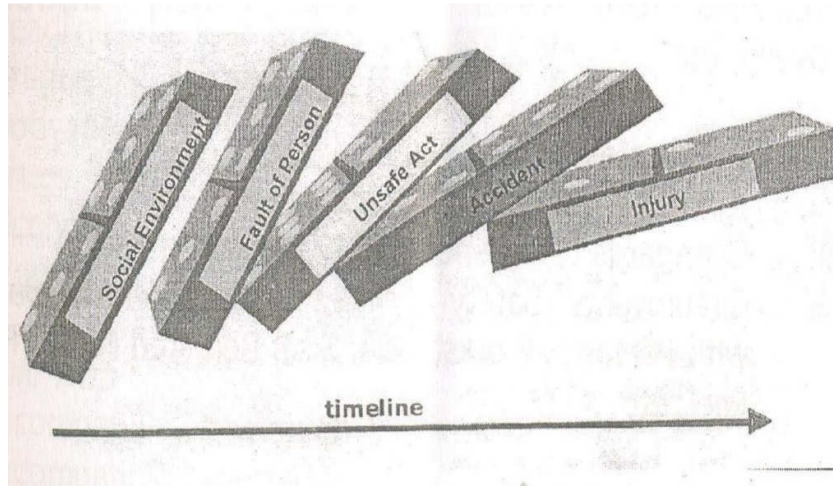
- i. Social Environment (those conditions which make us take or accept risks).
- ii. Fault of the person/rider (excessive speed, impatience and errors).
- iii. Unsafe acts or conditions (poor road design, poor • planning, unsafe equipment, hazardous environment).
- iv. Accident.
- v. Injury.

Major unsafe acts and conditions include:

- 1. Under influence of alcohol and other drugs.
- 2. Improper position for task.
- 3. Incorrect use of tools and equipment, hand tools, power tools.
- 4. Incorrect use of machinery
- 5. Failure to wear protective equipment.
- 6. Using defective equipment and tools.
- 7. Removing safety guards.
- 8. Making safety devices inoperable.
- 9. Non-servicing of motorcycle.
- 10. Hazardous weather conditions.
- 11. Bad road design.
- 12. Inadequate illumination.

Two Central Points of this theory:

- a. Injuries are caused by the action of preceding factors.
- b. Removal of the central factor (unsafe act/unsafe condition) negates the action of the preceding factor and, in so doing, prevents accidents and injuries



**Figure: Heinrich's Domino Theory of Accident Causation**  
**Source: (NCFSA, 2005)**

These five factors are arranged in a domino fashion such that the fall of the first domino results in the fall of the entire row i.e. an undesirable or expected event (root cause) initiates a sequence of subsequent events leading to an accident. This implies that the accident is the result of a single cause and if that cause can be identified and removed the accident will not be repeated, the reality of this model is that accidents always have more than one contributing factor and the occurrence of an injury invariably results from a completed sequence of factors, and the last one of these being the accident itself which are caused by unsafe acts

### **Human Factor Theory**

Attributes accidents to a chain of events that were ultimately the result of human error. Three broad factors leading to human error are:

- i. Overload.
- ii. Inappropriate responses.
- iii. Inappropriate activities.

#### **Worker's Capacity**

- Natural Ability, Training, State of Mind, Fatigue, Stress, Physical Condition.
- Environmental Factors
- Noise, Climatic, Lighting, Distractions, etc.
- Internal Factors
- Personal Problems, Emotional Stress, Worry
- Situational Factors  
Level of Risk, Unclear Instructions, Novelty, etc

*Inappropriate Responses*

- i. Ignores a Suspected Hazard
- ii. Disregards Established Safety Procedures
- iii. Circumvents Safety Devices Includes Incompatibility with Person's, Workstation, Size, Required Force, Reach, Feel, etc

*Inappropriate Activities*

- i. Performing tasks without requisite training.
- ii. Misjudging the degree of risk.

**Accident/Incident Theory**

Petersen's Extension to the human factors theory adds these new elements

- i. Ergonomic Traps.
- ii. Decision to Err.
- iii. System Failures.

*Overload*

- i. Pressures
- ii. Deadlines, budget factors, peer pressure
- iii. Fatigue
- iv. Motivation
- v. Drugs
- vi. Alcohol
- vii. Worry

*Ergonomic Trap*

- i. Incompatible workstation
- ii. Incompatible expectations

*Decision to Err*

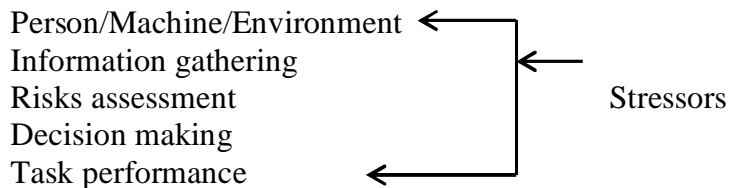
- i. Misjudgment of Risks
- ii. Unconscious Desire to Err
- iii. Logical Decision Based on Situation / Circumstances
- iv. Superman Syndrome (It won't happen to me) Bulletproof, Invincible, Immortal, Lucky system failures
- v. Potential for a causal relationship between managerial decisions/behaviours regarding safety
- vi. Policies
- vii. Responsibilities

- viii. Training
- ix. Inspections
- x. Corrective actions
- xi. Standards

### Systems Theory of Causation

A system is a group of interacting and interrelated components that form a unified whole. The Host (People), the Agent (Machinery) and the Environment. The likelihood of an accident occurring is determined by how these components interact. Changes in the patterns of interaction can increase or decrease the probability of an accident occurring.

### Firenzie's Systems Theory



Stressors can cloud judgment during information gathering, risk weighing, and decision making processes.

#### *Firenzie's Recommendations*

You must consider these five factors - before beginning the process of information gathering, risk weighing, decision making.

- i. Job requirements.
- ii. Worker's abilities and limitations.
- iii. Gain from successful task completion.
- iv. Loss if task attempted but results in failure.
- v. Loss if the task is not attempted.

### Combination Theory of Causation

It is very important to note that theories and models are not necessarily reality. A single theory may not suit all circumstances. Some theories address particular problems better than other theories. A combination of theories and models may be the optimal approach toward problem solutions. In this case accident prevention.

### SELF-ASSESSMENT EXERCISE

Briefly explain what you understand by theories.

### 3.3 Types of Accident Prevention

It is well-known fact that prevention is far, far cheaper and better than cure. It is a well-known fact that accidents do not just happen; they are caused by human action or inaction. The prevention of accidents lies in improving attitudes and behaviours related to safety and in reducing dangers in the environment.

The approach for the prevention of accidents are grouped into the three types of accident prevention as follows:

- Primary Prevention
- Secondary Prevention
- Tertiary Prevention

#### ***Primary Prevention:***

The following are primary preventive measures:

- a. *Alcohol and other drugs use:* Alcohol and other drugs can impair one's reasoning that may affect driving ability and operation of the machine thereby increasing the risk of accident as well as the severity of its consequences. The sale of alcohol in motor parks and other workplaces or its immediate environment should be prohibited. Road users should practice the saying that "if you drink alcohol, don't drive and if you must drive, don't drink". Drivers should avoid the use of stimulants or sedative drugs (barbiturates, amphetamines, cannabis).



**Fig. 56: Don't Drink and Drive or Die**

- b. *Data Collection:* The future of accident prevention is in research. Such research will be concerned with gathering precise information about the extent, type and other characteristics of

accidents, correlating accidents experience with personal attributes and the environments in which accidents occur. Investigating into new and better methods of altering human behaviour, seeking ways to make the environment safe. Without adequate data collection, analysis and interpretation, there could be no effective countermeasures, evaluations and strategies for prevention.

Therefore, there should be a basic reporting system for all accidents. There should be a national data centre to collate all the reported data and also encourage survey studies on accidents. Detailed environmental data relating to the road, vehicle, weather, workplace, etc. must be collected. The police and other safety enforcement officers must objectively investigate accidents for legal as well as preventive purposes.

- c. *Promotion of safety measures:* There is a need to enforce speed limiters into all vehicles be it private vehicles or commercial vehicles.
- *The use of seat belts:* The use of seatbelts reduces the number of fatalities and nonfatal injuries by more than 50%. They should be made compulsory for all commuters or cars, trucks and other vehicles. There should be heavy sanctions for offenders
  - *The use of safety helmets* should be made compulsory for this category of users or heavy sanctions that will encourage usage to be meted for the defaulters. The use of safety helmets prevents laceration of the scalp to a great extent.
  - *Leather Clothing and boots:* Leather clothing reduces the risk of extensive superficial soft-tissue injury. Leather boots can to some extent protect the lower legs and feet and their use should be encouraged.
  - *Children car seats:* Another safety measure is to ensure that children remain seated when they are in a vehicle. They should not be taken to the front seat of cars.
- d. *Elimination of causative factors:* The factors which tend to cause accidents must be sought out and eliminated. Examples include improvement of roads, imposition of speed limits, marking of danger points, reduction of electric voltage, provision of fire guards, safe storage of drugs, etc.
- e. *The law enforcement agents should perform their duties efficiently:* These include; conducting driving tests, medical fitness to drive, enforcement of speed limits, compulsory wearing of seat belts and crash helmets, checking of blood alcohol concentration, road-side breath testing for alcohol, regular inspection of vehicles, a periodic re-examination of drivers over the age of 55. In addition, they should ensure that the factory and industrial laws for safety are enforced.

- f. Safety Education: "If accident is a disease, education shall be its vaccine". Safety education must begin with school children. The drivers need to be trained in proper maintenance of vehicles and safe driving. Young people need to be educated regarding risk factors, traffic rules and safety precautions and first aid.

### **SELF-ASSESSMENT EXERCISE**

List five types of primary prevention.

#### ***Secondary Prevention:***

There should be provision for planning, organisation and management of trauma treatment and emergency care services by the health and safety officers in both the government and private health facilities. Emergency care should begin at the accident site, continue during transportation and conclude in the hospital. At any of these stages, life may be saved or lost.

#### ***Tertiary Prevention:***

This has to do with optional treatment and rehabilitation of the accident victims. The goal of rehabilitation is to prevent, reduce or compensate for disability.

### **SELF-ASSESSMENT EXERCISE**

- Briefly explain what theories are.
- Identify three theories of accident prevention.

## **4.0 CONCLUSION**

An effective accident prevention programme is an important need. However, before a suitable solution can be prescribed, the cause of the problem must be identified. It can be broadly stated that all accidents are the result of environmental hazards and/or unsafe behaviour. But the task of changing behaviour is not an easy one. Theories help to understand the nature of targeted behaviour.

## 5.0 SUMMARY

In this unit, you have learned the following:

- What is the theory of accident prevention
- Different theories of accident prevention.
- The different types of accident prevention.

## 6.0 TUTOR-MARKED ASSIGNMENT

- Briefly explain the concept of theory.
- Itemise the different theories of accident prevention.
- Mention the different types of accident prevention.

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## **UNIT 3 SAFETY EDUCATION**

### **CONTENTS**

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
  - 3.1 Concept of Safety Education
  - 3.2 Goals of Safety Education
  - 3.3 Importance of Safety Education
  - 3.4 Principles of Safety Education
  - 3.5 What Safety Education Entails
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
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### **1.0 INTRODUCTION**

Some degree of hazard is associated with every form of activity, therefore, the highest degree of injury prevention can be achieved only by careful, painstaking attention to safety in every form of activity carried on in an environment. Being safe and healthy should actually be the business of everybody. We all want to stay safe where we live, work, learn and play. Injury prevention values should be taught at any given time. In this unit, you will be exposed to, what safety education is, its goals, importance and principles.

### **2.0 OBJECTIVES**

By the end of the unit, you should be able to:

- say what safety education is
- mention the goals of safety education
- state the importance of safety education
- itemise the principles of safety education
- explain what safety education entails.

### **3.0 MAIN CONTENT**

#### **3.1 Concept of Safety Education**

Safety education implies education for safe living. Safe living in this age of ICT has become very complex. The complexity of modern living

demands that man be more conscious of the environment so as to tame it safe for living. Life is the most important game that is ever played. There are rules for playing it safely and well. If you follow the rules, you have a higher chance of reaching your goal. A risky shortcut may cut a life short. Each time you fail to follow the rule of safety, you may be taking a big risk with your life.

Before discussing safety education, attention will be given to safety. Safety is the state of being 'safe'. The condition of being protected from harm or other non-desirable outcomes. Safety is the control of recognized hazards in order to achieve an acceptable level of risk. Safety education could mean the education of individuals on various safety practices at work, school and on the road and in daily life. It is also seen as the recognition and avoidance of hazards causing illness, injury, disability or death in the workplace.

Safety education could be referred to as a planned programme to provide knowledge, skills and attitude and to adopt certain practical measures to enable an individual to live safely and avoid accidents. In fact, it is the means and process of taking precautions to avoid an accident. It is the rules, means and methods adopted and followed for safe living.

### **3.2 Goals of Safety Education**

The main goals of safety education are:

- i. The development of positive safety habits.
- ii. The prevention of accidents.
- iii. The eradication of hazards in the environment.
- iv. The development of appropriate attitudes and awareness of situations that have the potentials for an accident.
- v. The acquisition of knowledge and skills for dealing with accident outcomes.
- vi. The recognition of the relationship between safety on one hand, and success and happiness on the other.

### **SELF-ASSESSMENT EXERCISE**

Identify four goals of safety education.

### **3.3 Importance of Safety Education**

The following are the importance of safety education.

- i. It helps to provide a safe and healthy living.
- ii. It protects people from premature and unexpected death.

- iii. It helps in promoting longevity.
- iv. It helps to create a civilised and progressive society.
- v. It helps to build a healthy and successive personality.
- vi. It helps to protect people from unnecessary expenses.

### **SELF-ASSESSMENT EXERCISE**

Mention three importance of safety education.

### **3.4 Principles of Safety Education**

The following are the principles of safety education:

- i. Safety education should be taught in schools and community settings. Everybody in the school and community should have good knowledge of safety education.
- ii. Active approaches (interactive, experimental, focus group discussions, etc.) should be used to teach and learn safety education in school and community settings. Learners should be engaged in problem-solving independently or in a group.
- iii. Young people should be involved in the real decision on safety in order to help them stay safe. Young people may be involved in designing or participating in surveys, choosing which activities that they want to take part in. They can be involved in peer education projects, identification of hazards, participating in risk assessment and being part of actions to control or manage risk to themselves and others.
- iv. Teaching and learning strategies to address learner's needs should reflect the age and developmental stage of the learner, take account of social and cultural needs and the effects of gender on safety-related behaviour and learning. Strategies to assess learning needs can involve an open ended form of questioning, informal discussion, mind mapping, brain-showers and circle time. They may also include more structured formats such as surveys, focus group discussion, interviews or draw and write up activities.
- v. Teach safety as part of a comprehensive personal social and health curriculum. A comprehensive personal social and health curriculum helps children and young people learn specific and transferable skills and knowledge in a wide range of circumstances, but with attention to feelings, skills, attitudes, values and attributes.  
A comprehensive personal social and health curriculum will offer pupils a specific time and place to learn about being healthy and staying safe.

- vi. Use realistic and relevant settings and resources. Real-life data and examples help to engage the young and to challenge misconceptions.
- vii. Work in partnership. Develop links with supporting agencies such as police, fire and rescue local authorities and educational charities. Work with parents/carers and members of the wider community by seeking their views, providing information and guidance, and involving them in developing and implementing solutions.
- viii. Address known risk and protective factors. Risk and protective factors can be anything that is associated with a greater or lesser probability of a child or young person experiencing harm. Risk factors are not static and can be divided into several domains: individual (e.g. knowledge or skill) school (e.g. policy) peer group (e.g. attitudes) family (e.g. parental rules) and community (e.g. crime).  
An understanding of risk and protective factors can help those designing and delivering safety education resources to focus on wider aspects of injury prevention and personal safety.
- ix. Address psychosocial aspects of safety e.g. confidence, resilience, self-esteem, and self-efficacy. Psychosocial risk and protective factors are individual characteristics that may predispose children to injury or to being a victim of bullying, violence or abuse. Psychosocial aspects of behaviour operate dynamically with environmental factors, reinforcing the importance of incorporating individual protective factors (like confidence, resilience, self-esteem, and self-efficacy) within a whole school and whole community approach.
- x. Adopt positive approaches which model and reward safe behaviour within a safe, supportive environment. It is helpful to identify the short and long term benefits of maintaining safe and healthy behaviour, and of modifying behaviour that is harmful to health.

### **3.5 What Safety Education Entails**

Safety education or measures put in place to avoid needless accidents at home, school, workplaces and road:

- a. Adequate and proper protection to prevent and avoid accidents at home, school, workplaces and road.
- b. All and sundry especially the children should be cautioned against the use of inflammable like matches, kerosene, petrol, etc. and if any of the materials will be used, it must be supervised by an experienced adult.

- c. Extinguishers should be put in the appropriate places at home, school, workplace and in vehicles for arresting sudden emergencies of fire outbreaks.
- d. Make an all-out effort to see that ladders, staircases, buildings are fit enough for use and where repairs are desirable, this should be done without further delay.
- e. Keep all drugs out of the reach of children as a tendency in undermining their ability to use them could be devastating.
- f. Make regular inspecting of the home, school, workplace and vehicles, premises structures, state of vehicles and roads to ensure their fitness for uses.
- g. Safety equipment should be worn especially in industries and roads while appropriate warning signs should be placed around sports grounds especially swimming pools. When lifeguards are not available, pupils should not be allowed to enter the pool, seat belts, helmets, shoes, pads, warning signs, etc. should be used on various occasions when undertaking relevant sports activities.
- h. All stakeholders in the promotion of safety should mutually respect the right of others in the use of the roads highways, equipment, etc.
- i. Avoid driving or working when physically and mentally fatigued or feeling sleepy, regardless of pressure or demand, for life is vital than material acquisition.
- j. For long-distance drivers, stop at designated spots at intervals for refreshments and relaxation before embarking on the journey again. No one can successfully cheat nature, prevention is better than cure.
- k. All students, housewives, workers and drivers should be physically fit, mentally and emotionally healthy and socially adjusted when performing their works.
- l. Adequate sanction or reprimand should be spelt out for erring individuals who violate regulations of safety. This measure will checkmate prospective violators of basic and standard rules and regulations on safety.

### **SELF-ASSESSMENT EXERCISE**

Briefly explain what safety education entails.

### **4.0 CONCLUSION**

Regardless of modernisation, accidents generally do not just happen. They are caused by men and women, young and old, literate and illiterate drivers. The causes of accidents can be categorised into human errors and mechanical faults. Having gone through this unit on types of accidents, their causes and prevention, you would be able to play safely at any time.

## 5.0 SUMMARY

This unit presented safety education. You have learnt the following:  
The goals, importance, principles and what safety education entails. In this regard, we should remember that Education is the best and most enduring preventive measure and strategy.

## 6.0 TUTOR-MARKED ASSIGNMENT

Write a short term paper (15 pages typed double line spacing) on accidents generally.

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