Foreword

The National Teachers' Institute, Kaduna, was established in 1976 to provide in-service education for teachers through the open and distance learning system (DLS). As stipulated in Decree No. 7 (now Act No. 7) of the then Federal Military Government of Nigeria (1978), the Institute is **"charged with the duty of providing courses of instruction leading to the development, upgrading, and certification of teachers as specified in the relevant syllabus, using Distance Education techniques"**.

After several years of running the Nigeria Certificate in Education (NCE) programmes, the Institute deems it appropriate to upgrade the academic and professional qualifications of teachers to the degree level, in order to greatly raise the quality of teaching and learning in schools. Consequently, the Institute has embarked on offering degree programmes, in affiliation with the National Open University of Nigeria (NOUN), initially in the following areas:

(i) B.A. Ed. (English)
(ii) B.A. Ed. (Social Studies)
(iii) B.A. Ed. (Primary)
(iv) B.Sc. Ed. (Mathematics)
(v) B.Sc. Ed. (Integrated Science)
(vi) B.Sc. Ed. (Physical & Health Education)

In order to ensure the highest quality degree, existing course materials initially developed by NOUN in four (4) programmes of English, Mathematics, Integrated Science, and Primary Education were critically and expertly reviewed, updated, and upgraded by a team of seasoned academics from various universities across the country and the NTI. For programmes not available in NOUN, fresh course materials were expertly designed, developed, and produced by a core of experts in the areas of Social Studies and Physical and Health Education (PHE) ab initio. Furthermore, in order to ensure quality delivery of the degree programmes, course facilitators with the highest academic qualifications (Ph.D, M.Ed.) in the degree course programmes have been screened and employed to deliver the programmes to mature students along open and distance education lines, using best practice methods and techniques (learner-centred, participatory, and interactive approaches). The innovative techniques involve various media, which include ICT, audio-video, CD ROMs, and the net.

In order to further enhance quality, various facilities, such as science and PHE labs/workshops, library, etc are provided at the study centres.

For you to gain maximum benefits from the course materials, you are expected to study them very carefully/critically as well as acquaint yourself with their accompanying Study Guides. Furthermore, you are expected to work through the assignments in every unit/module in order to ensure full mastery of the contents and

concepts presented in the course materials. This will help you in assessing your learning achievement as you progress towards your degree. I wish you the best.

Dr. Aminu Ladan Sharehu, OON, NPON, FNIM, FICEN
National Teachers' Institute,
Kaduna.

PED 271 PRIMARY SCHOOL PHE AND CURRICULUM METHODS

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Course Guide

Introduction

This course PED271: Primary School Physical and Health Education and Curriculum Methods is designed to equip you with the knowledge and skills relating to efficient implementation of the physical and health education curriculum in the school system.

What You Will Learn in This Course

You will learn the meaning, structure and methods applicable to the Physical Health Education Curriculum.

Course Aims

This course aims at producing competent Physical and Health Education organisers and teachers. To enable you meet the above aims, the course has been designed in modules each of which has a number of units intended to facilitate your logical and easy assimilation of the contents of the course. Again, each course unit consists of learning objectives to enable you assess how well you have achieved the set objectives.

Course Objectives

At the end of this course, you should be able to:

- develop understanding of the concept inherent in physical and health education curriculum.
- acquire knowledge and skills for teaching the subject in the school.
- explain the procedures for the effective implementation of the physical and health education curriculum.
- list the importance of the several components of the physical and health education curriculum.

Working through This Course

You are required to work through all the units thoroughly. The course has three modules and 12 units in all. Each module contains tutor- mark assignments and self-assessment exercises. At points in the course, you are required to submit assignment for evaluation purposes.

Course Materials

The major components of course are:

- Course Guide
- Study Units
- Tutor and Tutorials
- Assignment file
- Presentation Schedule.

Study Units

The breakdowns of the three modules with 12 study units are as follows:

Module 1 Nature and Scope of Physical and Health Education

Unit 1	Nature and Scope of Physical Education
Unit 2	Nature and Scope of Health Education
Unit 3	Factors Responsible for Poor Academic Achievement in Physical and Health Education
Unit 4	Study Habits and Academic Achievement in Physical and Health Education

Module 2 Fundamental Skills in Physical and Health Education

Unit 1	Fundamental Skills in Relation to Movement Education
Unit 2	Organisation of Sports and Games in Primary Schools
Unit 3	Meaning of Safety and Maintenance
Unit 4	Essentials of Safety Education

Module 3 Features of Physical and Health Education Curriculum

Unit 1	Features of School Health and Physical Education Curriculum
Unit 2	Physical Fitness
Unit 3	Drugs, Sports and Importance of Recreation and Leisure Activities
Unit 4	Bones, Muscles and Muscle Injury and Disorders

Textbooks and References

Every unit contains a list of references and further reading. Try as much as you can to get the listed books and further reading materials. You are also expected to approach the internet for further related reading materials. This is to widen as well as deepen the depth of understanding of this course.

Assignment File

You will find in this file all the details of the assignments you must attempt and submit to your tutor for marking. The marks you will obtain from these assignments will count towards your final course grade. You will find further information on the assignments in the assignment file which you will find later in the section on assignment in this Course Guide.

Presentation Schedule

The presentation schedule which is included in your course materials gives you the important dates for the completion of tutor-marked assignments and for attendance of tutorials. Remember you are required to submit all your assignments on due dates. You should guard against falling behind in your work.

Assessment

Your assessment will be based on tutor-marked assignments (TMAs) and final examination which you will write at the end of the course.

Tutor-Marked Assignments (TMAs)

Every unit contains at least one or two assignments. You are advised to work through all the assignments and submit them for assessment. Your tutor will assess the assignments and select four, which will be marked and the best three will be selected which will constitute 30% of your final grade. The tutor-marked assignments may be presented to you in a separate file. Just know that for every unit there are some tutor-marked assignments for you. It is important you do them and submit for assessment.

Final Examination and Grading

At the end of the course, you will write a final examination which will constitute 70% of your final grade. In the examination which shall last for two hours, you will be requested to answer three questions out of at least five questions that may be given to you.

Course Marking Scheme

This table shows how the actual course marking is broken down.

Assessment	**Marks**
Assignments	Four assignments. Best three marks of the four count as 30% of course marks.
Final Examination	70% of overall course marks
Total	100% of course marks

How to Get the Most from This Course

In distance learning, the study units replace the university lecture. This is one of the great advantages of distance learning; you can read and work through specially designed study materials at your own pace, and at a time and place that suits you best. Think of it as reading the lecture instead of listening to the lecture. In the same way a lecturer might give you some reading to do, the study units tell you when to read, and which are your text materials or set books. You are provided exercise to do at appropriate points, just as a lecturer might give you in-class an exercise. Each of the study units follows a common format. The first item is an introduction to the subject matter of the unit, and how a particular unit is integrated with the other units and the course as a whole. Next to this is a set of learning objectives. These objectives let you know what you should be able to do by the time you have completed the unit. These learning objectives are meant to guide your study. The moment a unit is finished, you must go back and check whether you have achieved the objectives. If this is made a habit, then you will significantly improve your chances of passing the course. The main body of the unit guides you through the required reading from other sources. This will usually be either from your set books or from a reading section. The following is a practical strategy for working through the course. If you run into any trouble, telephone your tutor. Remember that your tutor's job is to help you. When you need assistance, do not hesitate to call and ask your tutor to provide it.

In addition:

1. Read this course Guide thoroughly, it is your first assignment.
2. Organise a study schedule. Design a 'Course Overview' to guide you through the Course. Note the time you are expected to spend on each unit and how the assignments relate to the units. Important information, e.g. details of your tutorials, and the date of the first day of the semester is available from the study centre. You need to gather all the information into one place, such as your diary or a wall calendar. Whatever method you choose to use, you should decide on and write in your own dates and schedule of work for each unit.
3. Once you have created your own study schedule, do everything to stay faithful to it. The major reason that students fails is that they get behind with their course work. If you get into difficulties with your schedule, please, let your tutor know before it is too late for help.
4. Turn to unit 1, and read the introduction and the objectives for the unit.
5. Work through the unit. As you work through the unit, you will know what sources to consult for further information.
6. Keep in touch with your study centre. Up-to-date c o u r s e information will be continuously available there.
7. Assemble the materials. You will need your set books and the unit you are studying at any point in time.
8. Well before the relevant due dates (about 4 week before due dates); keep in mind that you will learn a lot by doing the assignment carefully. They have been designed to help you meet the objectives of the course and, therefore, will help you pass the examination. Submit all assignments not later than the due date.
9. Review the objectives for each study unit to confirm that you have achieved them. If you feel that you are not sure about any of the objectives, review the study materials or consult your tutor.
10. When you are confident that you have achieved a unit's objectives, you can start on the next unit. Proceed unit by unit through the course and try to pace your study so that you keep yourself on schedule.
11. When you have submitted an assignment to your tutor for marking, do not wait for its return before starting on the next unit. Keep to your schedule. When the Assignment is returned, pay particular attention to your tutor's comments, both on the tutor- marked assignment form and also the written comments on the ordinary assignments.
12. After completing the last unit, review the course and prepare yourself for the final examination. Check that you have achieved the unit objectives (Listed in the Course Guide).

Facilitators/Tutors and Tutorials

The dates, time and locations of these tutorials will be made available to you, together with the name, telephone number and the address of your tutor. Each assignment will be marked by your tutor. Pay close attention to the comments your tutor might make on your assignments as these will help in your progress. Make sure that assignments reach your tutor on or before the due date.

Your tutorials are important, therefore, try not to skip any. It is an opportunity to meet your tutor and your fellow students. It is also an opportunity to get the help of your tutor and discuss any difficulties you might have encountered during the course of your reading.

Summary

The course guide has introduced you to nature and scope of physical and health education and curriculum methods. It examines the nature and scope of physical and health education, approaches to the study and organisation of physical and health education in primary schools. Upon completion of this course you should be equipped with knowledge of teaching physical and health education in primary schools. We wish you success with course and hope you will find it engaging and interesting

MODULE 1 NATURE AND SCOPE OF PHYSICAL AND HEALTH EDUCATION

UNIT 1 NATURE AND SCOPE OF PHYSICAL EDUCATION

CONTENTS

1.0 INTRODUCTION

Running, walking and jogging are examples of physical activities that we are very familiar with and they are part of the Physical Education Programme.

In this unit, we shall explain the meaning of physical education and the unit will enable you to understand the nature and scope of physical education. Emphasis will be on physical education, instructional activity, adapted activity and recreational based activity. Also, we shall discuss in details the basic components of physical education programme in the school.

2.0 OBJECTIVES

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

- explain physical education
- discuss the scope of physical education
- explain different types of activities in relation to movement.

3.0 MAIN CONTENT

3.1 Nature of Physical Education

Physical education is one of the several components of the general school curriculum. The importance of physical education in the school system cannot be underestimated. For example, physical education can contribute to the mental, physical and emotional well-being of the individual. Indeed the concept of 'a sound mind in a sound body' is derived from the foundations of physical education.

However, Physical Education has undergone developmental changes both in concept and practice over the ages. During the colonial era, physical education was regarded as physical training and it was regimental in nature. Historically, physical education was initially perceived as *education for the physical* and it later graduated to become *education.* At that italics time physical was education concerned with exercises for the body in the school while education through the physical sees served as a means to the total education of the individual.

From the above perspective, we can correctly claim that physical education is education based on a common core of learning experiences planned on a sequential arrangement appropriate to the individual's stage of social, emotional, intellectual, and psychomotor development. On the other hand, physical education is that phase of education concerned with the teaching of skills, acquisition of knowledge, and development of attitudes through human movement. In short, physical education is the process of education that concerns activities which develop and maintain the human body.

Self Assessment Exercise 1
List the importance of Physical Education
Describe the developmental changes of Physical Education

3.2 Scope of Physical Education

Scope of physical education simply means what the subject covers or its components. To a layman, physical education does not go beyond running and jumping but that physical education is far more than that. Physical education is a discipline that involves the use of the cognitive and psychomotor domains. It involves movement opportunities on land (terrestrial movement), in water

(aquatic movement) and air (aerial movement). The movement opportunities on land are in sports such as football, handball, athletics, tennis, gymnastics, wrestling, etc. While the those in water are swimming, water pole, canoeing, diving, etc, Aerial movements are jumps, half turn in trampoline, tumbling and angular twist in diving, etc.

These movement opportunities are realised through the following methods: instructional, intramural, extramural, adaptive and recreational activities.

Self Assessment Exercise 2
Outline the nature and scope of Physical Education

3.3 Instructional Activity

This is the medium through which individuals acquire formal knowledge in physical education. Through this method the pupils are able to acquire knowledge, skills and attitudes thereby promoting their interests and values in the theory and practice of physical education.

3.4 Intramural Activity

Intramural sports or intramurals are recreational sports organized within a particular institution, usually an educational institution, or a set geographic area. Today, "intramural" tournaments are still organized within a specific community or municipal area, between teams of equivalent age or athletic ability. For example, intramural sports programs are often organized on college campuses to promote competition and fun among the students. For most schools and campuses, intramural sports are used to promote wellness and allow students who do not compete on a national (NCAA) level an opportunity to be active.

This is an aspect of physical education that deals with physical activities engaged in outside the classroom but within the school facility. The intramural period provides, opportunities for pupils to have more practice and improve on the skills learnt in the class. It allows pupils from the same class and also those from different classes to participate in any of the physical activities or sports together. It provides avenues such as inter-class and inter-house in games, athletics, gymnastics and sports for individual pupils to engage in. It provides firm and positive social interactions among pupils. Intramural activities promote friendship and self-esteem.

3.5 Extramural Activity

Extra – murals are a part of the total physical education programme that represents an increase in the intensity of competition above that of intramurals.
Whereas intramurals are conducted within a school, college, or other organization, extra – murals represent informal competition with other schools, colleges, and

organizations. Extra – murals usually involve participants regardless of their skills and abilities. Also, they are less highly organized than varsity athletic programs. Furthermore, the emphasis is more on social outcomes than on winning. Three types of extra-murals are discussed here: sports days, play days, and invitation days. Extramural activities are those aspects of physical education that entails organized physical activities such as sports, games and athletics that pupils engaged in out of the four walls of the school. The extramural activities provide the pupils with good or excellent skills in the various sports to compete for laurels or excellence in such sports with other pupils from other schools. It encourages sports competition among schools, colleges and universities for those students anxious to train and compete on a collegiate level in such sports as volleyball, athletics, football, badminton, handball, weightlifting, etc. It is through the well planned extramural sports that the pupils/athletes are exposed to such sports where they now exhibit their skillful talents to the outside world.

Extramural sports are those contested between different educational institutions, contrasted with intramural sports which are contested internally by the members of the same institution. Extramural learning may not always be under aegis of a university or an institution; the learning one picks up as one goes along in life, from people, from society, from the environment, from one's own experience of people, places, and things, may too constitute what we call extramural acquisition of knowledge, learning, and education.

Extramural may be confused with Extracurricular; the former generally refers to experiences related to the student's individual development, whereas the latter may be more applicable to their academic area.

Self Assessment Exercise 3

By what methods are movement opportunities realized?

Explain any three of the methods you've just listed.

3.6 Adapted Activity

Adapted physical activities are those physical activities for the physically challenged/handicapped set of people/pupils, the physically handicapped are a set of pupils that have one or more health problems that prevent such pupils from participating or taking part in the normal or regular physical education class. The physical activities for this set of pupils with physical disabilities are usually planned programme to meet their needs according to their disabilities. Since we normally find some physically disabled pupils in the regular school, it is necessary for the physical education teacher to always make provision for them so as not to make them feel alienated from the class. This means that the physical education teachers have to understand the special requirements of handicapped pupils and be able to make both theory practical related in such a way that allow easy participation by the pupils.

3.7 Recreation Activity

Recreation activities are those activities performed by an individual during hours when he/she is not at work. It involves socially acceptable and worth-while activities in which person voluntarily participates during leisure/free hours and through which he or she has opportunities to develop physically, mentally, emotionally and socially (Bucher, 1979). Recreation education helps to teach people on how to utilize leisure hours in a useful or constructive way through careful selection of such activities in order to achieve self satisfaction.

Recreation is an activity of **leisure**, leisure being discretionary time.[1] The "need to do something for recreation" is an essential element of human biology and psychology. Recreational activities are often done for enjoyment, amusement, or pleasure and are considered to be "fun"

Recreation is an essential part of human life and finds many different forms which are shaped naturally by individual interests but also by the surrounding social construction.[2] Recreational activities can be communal or solitary, active or passive, outdoors or indoors, healthy or harmful, and useful for society or detrimental. A list of typical activities could be almost endless including most human activities, a few examples being reading, playing or listening to music, watching movies or TV, gardening, hunting, hobbies, sports, studies, and travel. Not all recreational activities can be considered wise, healthy, or socially acceptable or useful—examples are gambling, drinking, or delinquent activities.

Self Assessment Exercise 4
In what ways will the physical education benefit the students?

4.0 CONCLUSION

This unit addressed the nature and scope of physical education. The unit was able to explain the meaning of physical education and the means through which the movement opportunities are achieved.

5.0 SUMMARY

This unit discussed the nature of physical education and scope of physical education. It went further to highlight the movement opportunities through which the objective of physical education could be achieved i.e.

- Instructional activity
- Intramural activity
- Extramural activity
- Adapted activity
- Recreation activity

SELF-ASSESSMENT EXERCISE 5

1. List the means through which the objectives of physical education could be achieved.
2. Explain the scope of physical education.

6.0 TUTOR-MARKED ASSIGNMENT

1. Write a brief note on the nature of physical education.
2. Explain the following terms:

(a) Intramural
(b) Extramural
(c) Recreation.

7.0 REFERENCES/FURTHER READING

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UNIT 2 NATURE AND SCOPE OF HEALTH EDUCATION

CONTENTS

1.0 INTRODUCTION

This unit will discuss the meaning of health and health education. In this unit you will also learn the components of health and the scope of health education and the relevance of health education in our school system in particular and in the society in general.

2.0 OBJECTIVES

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

- define health and explain health education
- list the components of health education
- explain the meaning and scope of health education.

3.0 MAIN CONTENT

3.1 Meaning of Health

The term health has being variously defined by authorities or people. According to Udoh (1993) health is a means to an end and not an end in itself. He also sees health as a condition or quality of life which enables one to meet his/her responsibilities effectively. Health varies from one person to another on daily basis in the same person or individual. The meaning that people ascribe to health could be as a result of past experiences.

However, out of the many different interpretations given as meaning of health by different authorities, the most widely accepted one is that of the World Health Organisation as explained in 1945 that "health is a state of complete physical, mental and social well-being, not merely the absence of disease or infirmity. Thus one could see WHO definition of health with far reaching implications. For example, health is addressed in the physical, social, emotional and spiritual dimensions. Furthermore, the definition also impresses on us that health is not just limited to

when we are not sick alone that it is not the mere absence of disease or infirmity. It affects our physical, mental and social well- being. It is when we are physically, mentally and socially fit that we are able to cope with our daily tasks. Again, we must be fit physically to withstand the rigours of life in our daily activities. We should be mentally and emotionally, stable before we can effectively cope with our daily work, the people around us and our environment while our social interaction with friends, neighbours, classmates and visitors must be cordial and ideal and at all times promote positive relationships. Also, we should encourage living in a clean environment that promotes positive health attitudes and habits. Our life style should promote a good healthy living by staying away from risky behaviours that could endanger our life for example, smoking, alcohol and drug abuse. We can gather from the explanations on what health is that health is dynamic and not static in nature.

It is evident that for one to live a healthy life, some factors do play some dominant roles. Such factors are heredity, environment, life style, available health care services and health education. The individual's health status or well-being largely depends on how well he is able to interact with these factors which are over 50% based on his habits.

Self Assessment Exercise 1
In what ways have the definition of WHO more enlightened than that of Udoh (1993)? On Health Education.

3.2 Nature and Scope of Health Education

Health education constitutes those activities you take part in or actions you take based on your health knowledge that has a direct bearing or influence on your health. In other words, health education is about the scientific and practical application of the health knowledge acquired or health information received. This knowledge or information is then used for day to day living. Such health knowledge is supposed to have direct positive influence on our life or habits.

Health education is broad in scope and could be seen from the following perspectives –

- Personal hygiene
- Food and nutrition
- Exercise, rest and sleep
- Safety and first aid
- Prevention and control of diseases
- Home, school and community health
- Mental health
- Body anatomy and physiology
- Consumer health
- A good knowledge of these areas in health education will encourage and promote positive health habits.

Personal hygiene

Personal hygiene refers to practices that lead to cleanliness and health preservation. Examples of personal hygiene practices include hair cutting, shaving, brushing teeth, bathing daily, nail clipping, etc. personal hygiene also refer to good personal appearance. Hygiene encourages personal health. Everyone automatically has personal hygiene. Some people do it better than others. The idea is to keep your body hair and teeth clean, and use things like deodorants scents and mouthwash appropriately so that you do not stand out because of bad odors coming from your body or clothing. Keep your clothing clean and maintained appropriately. All of the above should be in accordance with your cultural, social and familial norms. The idea is to NOT stand out because of a lack of care for your body, clothing or other items that are typically close to you. While personal hygiene is very important, it is also important that you do not engage in these behaviors excessively; that can be as much of a problem as a lack of hygiene. Following are some points which should be inculcated in day-to-day life. The best way to keep the body clean and free of infection is to wash on a daily basis.

Food and nutrition

The **Food and Nutrition Service** (**FNS**), an agency of the United States Department of Agriculture (USDA), was established on August 8, 1969. FNS is the federal agency responsible for administering the nation's domestic nutrition assistance programs. The service helps to address the issue of Hunger in the United States. It administers the programs through its headquarters (HQ) in Alexandria, VA; regional offices (ROs) in San Francisco, Denver, Dallas, Chicago, Atlanta, Boston, and Robbinsville (NJ); and field offices throughout the US. While its staff number among the USDA's fewest, its budget is by far the largest.

Exercise

Physical exercise is any bodily activity that enhances or maintains physical fitness and overall health and wellness. It is performed for various reasons including strengthening muscles and the cardiovascular system, honing athletic skills, weight loss or maintenance, as well as for the purpose of enjoyment. Frequent and regular physical exercise boosts the immune system, and helps prevent the "diseases of affluence" such as heart disease, cardiovascular disease, Type 2 diabetes and obesity.[1][2] It also improves mental health, helps prevent depression, helps to promote or maintain positive self-esteem, and can even augment an individual's sex appeal or body image, which is also found to be linked with higher levels of self-esteem. Childhood obesity is a growing global concern and physical exercise may help decrease some of the effects of childhood and adult obesity. Health care providers often call exercise the "miracle" or "wonder" drug—alluding to the wide variety of proven benefits that it provides.

Sleep

Sleep can follow a physiological or behavioral definition. In the physiological sense, sleep is a state characterized by reversible unconsciousness, special brainwave patterns, sporadic eye movement, loss of muscle tone (possibly with some exceptions; see below regarding the sleep of birds and of aquatic mammals), and a compensatory increase following deprivation of the state.

In the behavioral sense, sleep is characterized by non-responsiveness to external stimuli, the adoption of a typical posture, and the occupation of a sheltered site, all of which is usually repeated on a 24-hour basis. The physiological definition applies well to birds and mammals, but in other animals (whose brain is not as complex), the behavioral definition is more often used. In very simple animals, behavioral definitions of sleep are the only ones possible, and even then the behavioral repertoire of the animal may not be extensive enough to allow distinction between sleep and wakefulness.

Rest, in physics, refers to an object being stationary relative to a particular frame of reference or another object. When the position of a body with respect to its surroundings does not change with time it is said to be "at rest". According to the theory of relativity, it is said that an object is "at rest relative to" another. For example, a train decelerates approaching a station and eventually comes to rest alongside the platform. The train can be said to be "at rest with respect to the station", or, as the correct frame of reference is usually implicit and/or provided by context, simply "at rest".

Safety is the state of being "safe" (from French *sauf*), the condition of being protected against physical, social, spiritual, financial, political, emotional, occupational, psychological, educational or other types or consequences of failure, damage, error, accidents, harm or any other event which could be considered non-desirable. Safety can also be defined to be the control of recognized hazards to achieve an acceptable level of risk. This can take the form of being protected from the event or from exposure to something that causes health or economical losses. It can include protection of people or of possessions.

First Aid

First aid is the provision of initial care for an illness or injury. It is usually performed by non-experts (or sometimes by an expert in case of an emergency), but trained personnel to a sick or injured person until definitive medical treatment can be accessed. Certain self-limiting illnesses or minor injuries may not require further medical care past the first aid intervention. It generally consists of a series of simple and in some cases, potentially life-saving techniques that an individual can be trained to perform with minimal equipment.

Home and community care

Many types of health care interventions are delivered outside of health facilities. They include many interventions of public health interest, such as food safety surveillance, distribution of condoms and needle-exchange programmes for the prevention of transmissible diseases.

They also include the services of professionals in residential and community settings in support of self care, home care, long-term care, assisted living, treatment for substance use disorders and other types of health and social care services.

Community rehabilitation services can assist with mobility and independence after loss of limbs or loss of function. This can include prosthesis, orthotics or wheelchairs.

Many countries, especially in the west are dealing with aging populations, and one of the priorities of the health care system is to help seniors live full, independent lives in the comfort of their own homes. There is an entire section of health care geared to providing seniors with help in day-to-day activities at home, transporting them to doctor's appointments, and many other activities that are so essential for their health and well-being. Although they provide home care for older adults in cooperation, family members and care workers may harbor diverging attitudes and values towards their joint efforts. This state of affairs presents a challenge for the design of ICT for home care.

With obesity in children rapidly becoming a major concern, health services often set up programs in schools aimed at educating children in good eating habits; making physical education compulsory in school; and teaching young adolescents to have positive self-image.

School health services are services from medical, teaching and other professionals applied in or out of school to improve the health and well-being of children and in some cases whole families. These services have been developed in different ways around the globe but the fundamentals are constant: the early detection, correction, prevention or amelioration of disease, disability and abuse from which school aged children can suffer.

Prevention of disease

Many diseases and disorders can be prevented through a variety of means. These include sanitation, proper nutrition, adequate exercise, vaccinations, circumcision of male infants, and other self-care and public health measures.

School health services are services from medical, teaching and other professionals applied in or out of school to improve the health and well-being of children and in some cases whole families. These services have been developed in different ways around the globe but the fundamentals are constant: the early detection, correction, prevention or amelioration of disease, disability and abuse from which school aged children can suffer.

Mental health is a level of psychological well-being, or an absence of a mental disorder; it is the "psychological state of someone who is functioning at a satisfactory level of emotional and behavioural adjustment". From the perspective of positive psychology or holism, mental health may include an individual's ability to enjoy life, and create a balance between life activities and efforts to achieve psychological resilience.[1] According to World Health Organization (WHO) mental health includes "subjective well-being, perceived self-efficacy, autonomy, competence, intergenerational dependence, and self-actualization of one's intellectual and emotional potential, among others." WHO further states that the well-being of an individual is encompassed in the realization of their abilities, coping with normal stresses of life, productive work and contribution to their community. However, cultural differences, subjective assessments, and competing professional theories all

affect how "mental health" is defined. A person struggling with his or her behavioral health may face stress, depression, anxiety, relationship problems, grief, addiction, ADHD or learning disabilities, mood disorders, or other psychological concerns. Counselors, therapists, life coaches, psychologists, nurse practitioners or physicians can help manage behavioral health concerns with treatments such as therapy, counseling, or medication. The new field of global mental health is "the area of study, research and practice that places a priority on improving mental health and achieving equity in mental health for all people worldwide".

Human anatomy (gr. ἀνατομία, "dissection", from ἀνά, "up", and τέμνειν, "cut") is primarily the scientific study of the morphology of the human body. Anatomy is subdivided into gross anatomy and microscopic anatomy (histology) Gross anatomy (also called topographical anatomy, regional anatomy, or anthropotomy) is the study of anatomical structures that can be seen by the naked eye. Microscopic anatomy involves the use of microscopes to study minute anatomical structures, and is the field of histology which studies the organization of tissues at all levels, from cell biology (previously called cytology), to organs. Anatomy, human physiology (the study of function), and biochemistry (the study of the chemistry of living structures) are complementary basic medical sciences that are generally taught together (or in tandem) to students studying medicine

In some of its facets human anatomy is closely related to embryology, comparative anatomy and comparative embryology, through common roots in evolution; for example, much of the human body maintains the ancient segmental pattern that is present in all vertebrates with basic units being repeated, which is particularly obvious in the vertebral column and in the ribcage, and which can be traced from the somitogenesis stage in very early embryos.

Physiology

Human physiology seeks to understand the mechanisms that work to keep the human body alive and functioning,[3] through scientific enquiry into the nature of mechanical, physical, and biochemical functions of humans, their organs, and the cells of which they are composed. The principal level of focus of physiology is at the level of organs and systems within systems. The endocrine and nervous systems play major roles in the reception and transmission of signals that integrate function in animals. Homeostasis is a major aspect with regard to such interactions within plants as well as animals. The biological basis of the study of physiology, integration refers to the overlap of many functions of the systems of the human body, as well as its accompanied form. It is achieved through communication that occurs in a variety of ways, both electrical and chemical.

Consumer Health Care

Consumer health encourages all aspects of the market place related to the purchase of health products.

A health literate consumer keeps on top of health news, studies and discoveries.

Consumers health education is the process of educating the consumers about the safety of the products they consume. It is meant to protect them from injuries and inform them about their rights as the backbone of producers and manufacturers.

Health means someone's overall well being, physically and mentally. Someone who exercises, maintains a healthy weight and lives a non-stressful lifestyle in said to be healthy.

Self Assessment Exercise 2

List at least 6 of the scopes of health education

How would you inculcate personal hygiene in your students?

Self Assessment Exercise 3

What do you understand by mental health and consumer health?

4.0 CONCLUSION

To live a worthwhile life, knowledge of one's health is a major determinant. Also important is one's life style. This health knowledge influences our relationships, attitudes and habits. Many people take wrong health decisions because of lack of adequate knowledge, hence the importance of health education which is awareness oriented.

5.0 SUMMARY

In this unit, you have learnt about the meaning of health and its components. You also learnt about the meaning of health education and its scope. The unit also talked about the effect/impact of health education on the life of the individual.

6.0 TUTOR-MARKED ASSIGNMENT

1. Discuss the nature and scope of health education.
2. List and explain five identifiable areas of health education.
3. Explain the Term "health"

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UNIT 3 FACTORS RESPONSIBLE FOR POOR ACADEMIC ACHIEVEMENTS IN PHYSICAL AND HEALTH EDUCATION

CONTENTS

1.0 INTRODUCTION

In the previous units, you were introduced to the nature and scope of physical and health education. This unit will discuss those factors or elements that either directly or indirectly are responsible for pupils' poor academic achievements in the subject, (Physical and Health Education). Such factors could be categorised into three broad areas such as the individual, learner, the learner's environment and the materials to be learned. Note that, poor academic achievement in physical and health education is not limited to these factors that we shall examine in this unit. These factors have been identified as major causes of poor academic achievement in physical and health education and also in education generally.

2.0 OBJECTIVES

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

- explain the meaning of poor academic achievements in physical and health education
- list the factors that are responsible for poor academic achievements of pupils in physical and health education in primary schools
- suggest solutions to promote academic achievements in physical and health education in primary schools.

3.0 MAIN CONTENT

3.1 Factors Responsible for Poor Academic Achievements in Physical and Health Education

- The individual learner
- The learner's environment
- The material to be learned.

3.2 The Individual Learner

You will learn in this unit that learner's readiness to learn is a major factor in academic achievement in physical and health education and it has a lot to do with maturation. The learner has to grow and mature intellectually, physically and physiologically for every stage of learning before such a pupil/learner is exposed to the experience of learning. Also, if the learning materials or the content or skill/topic to be taught is above the pupils intellectually, physical and physiological levels, he may find it difficult to cope or understand and it will impede his learning thereby leading to poor academic achievement. When pupils are taught skills or concepts in physical and health education that are above their level or ability, the result is that they lose interest in taking part in such activity or topic thereby leading to poor achievement of such pupils/learners in such topic/skills.

When pupils are exposed to learning through such learning style that emphasises teaching such (topics) academic achievement on the part of the pupils. At the primary schools level pupils most of the learning should be by seeing and not by hearing if achievement is to be high among the pupils.

As a teacher and in order to let the pupils learn maximally in the class, you must ensure that the pupils you are teaching must be ready and mature physically and intellectually for every stage of the learning process in physical and health education while the learning or teaching style must encourage effective learning in order for the pupils to improve on their academic achievement in Physical and Health Education.

3.3 The Learner's Environment

The home and the school form learner's environment. The home forms the foundation where learning is laid since it is usually the child's first school.

You need to let the pupils know through your explanation that if the home environment is not conducive to growth, development and learning, it will definitely have a negative effect on the academic achievement of the pupils. What I am say is that if the pupils does children need parental supports in terms of provision of food especially breakfast, required textbooks, payment of fees, basic school needs, supervision of child home work and interaction as these provisions will make children do well in school especially in a physical and health education subject.

When the school environment does not have structures, materials and personnel that can provide or offer very rich and stimulating experiences and learning opportunities the result is poor academic achievement on the part of the pupils. Other factors within the school environment that have direct bearing on pupils poor academic performance are non qualified teaching staff, inadequate professional physical education teachers, inadequate learning materials/teaching materials, nonpayment of school fees by pupils, non provision of in-service training for teachers and shortage of infrastructure-classrooms, library and laboratory for the pupils to do well in their study. The learning environment which is made up of the home and the school must make meaningful positive contribution toward the learning of the child so as to enhance better/good academic achievement on the part the pupils.

Self Assessment Exercise 1

List the three factors that are responsible for poor Academic Achievements in Physical and Health Education.

Explain briefly each of the three factors you have listed.

3.4 The Materials to be Studied

The content to be taught by the teacher must be in consonance with the maturity level of the learners; otherwise teaching and learning may not be meaningful. If materials to be learnt are not related to pupils' intellectual and physiological capacities, these will hinder the pupils from learning which will definitely frustrate the pupils attempts to learn thereby leading to their poor academic achievement in physical and health education Etsey, Amedahe and Edjah (2004) pointed out that the following factors also do contribute to poor academic achievement of pupils in physical and health education:

- class sizes
- lack of home work
- teacher's lateness and absenteeism
- inability to complete syllabi
- availability of teaching and learning materials and
- use of teaching and learning materials.

Class sizes

Student–teacher ratio is the number of students who attend a school or university divided by the number of teachers in the institution. For example, a student–teacher ratio of 10:1 indicates that there are 10 students for every one teacher. The term can also be reversed to create a teacher–student ratio.

Smaller classes are widely believed in the West to benefit all pupils because of individual attention from teachers, and low-attaining pupils are seen to benefit more at the secondary school level, where the content level is more challenging. Pupils in large classes drift off task because of too much instruction from the teacher to the whole class instead of individual attention, and low-attaining

students are most affected.[1] Students benefit in later grades from being in small classes during early grades. Longer periods in small classes resulted in more increases in achievement in later grades for all students. In reading and science, low achievers benefit more from being in small classes. The benefits of small class sizes reduce the student achievement gap in reading and science in later grades.[2] In contrast, in East Asian countries like Japan, larger class sizes are valued for the opportunities they give children to rub shoulders and socialize in the group, especially at the lower levels, and particularly preschool.

Teachers Lateness

The significance of teachers as instruments of advancement of learning is not in doubt. The incessant complain of indiscipline among our school children and the dissatisfaction expressed by stakeholders as to the level of commitment and efficiency of teachers necessitate the need to study lateness among primary school teachers. A sample size of one hundred and eighty-six (186) primary school teachers were randomly selected for the study. A questionnaire of 20 items was constructed by the researchers, validated by three experts and obtained a reliability coefficient of 0.82. Conclusions based on analysis were that teachers go late to school and that bad roads, distance from schools as well as teachers dissatisfaction with working conditions contribute to late coming among primary school teachers. Recommendations were made to government and school proprietors and the teacher's council to address these problems.

Self Assessment Exercise 2

Describe Etsey, Amedahe and Edhah (2004) factors that contribute to poor performance in academic achievement.

Other factors are poor salary and poor supervision on the part of government agencies. Both professional and academic qualifications of teachers are also responsible for poor achievement in subjects on the part of the pupils.

Use of Teaching and Learning Materials

In the field of Education, TLM is a commonly used acronym that stands for "teaching/learning materials". Broadly, the term refers to a spectrum of educational materials that teachers use in the classroom to support specific learning objectives as set out in lesson plans example;

i. Story books
ii. Manipulative
iii. Blocks
iv. Samples of student writing
v. videos
vi. Games
vii. Flash card
viii. Model clay
ix. Over head projector transparencies

4.0 CONCLUSION

The learner's environment such as home and school; and the materials to be learned are major contributory factors to pupils' poor academic achievements in physical and health education. Once the task/skill/topic to be learnt appears difficult and is above the learner's ability, a hostile environment at home and in the school, and inadequate learning materials, the effect is poor academic achievement on the part of the pupils.

5.0 SUMMARY

You have learnt in this unit about the factors responsible for poor academic achievements of pupils in physical and health education. You learnt about how the learner's readiness, his home and school environments and the materials to be learnt affect the academic achievement of the pupils in a negative way.

SELF-ASSESSMENT EXERCISE

1. Explain the role of motivation in academic achievement.
2. Explain the relevance of the instructional materials to pupils' academic achievements in PHE.

6.0 TUTOR-MARKED ASSIGNMENT

1. List and explain five factors that hinder learning of physical health education in the primary schools.
2. How can pupils attain academic and professional achievement in physical and health education?

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UNIT 4 STUDY HABITS AND ACADEMIC ACHIEVEMENTS IN PHYSICAL AND HEALTH EDUCATION

CONTENTS

1.0 INTRODUCTION

In this unit, you will learn how to achieve success in PHE through the development of good study habits. This unit will introduce you to the approaches that you will take that will promote good study habits and the relationship between good study habits and better academic achievement in physical and health education subject.

2.0 OBJECTIVES

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

- identify the various study habits applicable to Physical and Health Education
- state the effects of study habits on pupils academic achievement in physical and health education.

3.0 MAIN CONTENT

3.1 Study Habits and Academic Achievements in Physical and Health Education

There is a strong relationship between good study habits and academic achievement in physical and health education. Therefore, what constitute good study habits in this unit can be categorised as:

- how much time pupils spent on homework
- the frequency involved in both study and discussion of the subject
- the number of exercises carryout each day at school and for home work.

Many experts in education are of the view that pupils that learn good study habits tend to perform better than the struggling pupils. For pupils to achieve highly in their study they must learn how to study more effectively since good study habits lead to better grades.

The following are pertinent to good study habits:

- time management, use your time well and find time to study
- completing task, i.e. ensure that you have a definite task to perform and see that it is accomplished
- practicalise your plan, make sure that you have a specific place for reading and ensure that the place is conducive for reading
- make sure that you have the capabilities to cope with your study timetable so as not to run into not being able to meet the demands arising from such study timetable
- develop an approach about how the task/skill/topic can be accomplished to promote excellent grade
- be prudent when it comes to time allocation to study
- regular class attendance-helps you as a pupil to have first hand information on the topic been taught and assignments given by the teacher
- formation of study group(s)
- revision of topics taught at the end of each day
- lastly, you need to understand yourself as a learner and also the process involved in study.

The impact of study habit is too numerous to the benefit of student in general. A good study habit help the student to be academically oriented, and her academic achievement is very sure study habit makes student who had positive concept of themselves tended to have higher academic achievement. But student with good study habit, and are with negative self conception of their ability seldom succeed in school with regard to their colour or race will not have a better academic achievement.

Developing study habit is as much as about developing something enjoyable, but the simplest is actually to just get into the habit of doing it. There are so many ways of making a studying more enjoyable, it is just by getting on with important work. Once a student start doing a good study habit, the student will automatically begin to associate it with the reward it brings. Another impact study habit on student is that it gives cue, to what to do at a certain point in time. Because a child should not be reading when he ought to be playing and vise verse when a student have a good habit cue, he will do the right thing at the right time a good study habit build up the skill and personally in the student.

In the quest of building, many researches have shown that, for a student to read and comprehend is very simple. They need to drink plenty of water, sit where there is good light, sit up straight and take enough breaks when necessary. Once a student

can do the following act mentioned above, they will study contently and will become an habit on the part of the student.

LOCUS OF CONTROL AND ACADEMIC ACHIEVEMENT

Empirically, many psychologists, professional education researchers and educationists have discussed the study habit, locus of control and academic achievement, among various countries and race. A large numbers of variables so far identified are inherent in the student learner some are embedded in schools, homes and home environment respectively. These psychologists and professional educators and or researche have individually or in group conducted researches on this issue and they have come out with some findings which help to determine the impact of study habit, locus of control and academic achievement.

Nevertheless, Fitt (1956), further confirmed that there is significant relationship between attitude towards education and academic performance. He used a thousand, two hundred and forty four (1,244) students of primary and junior secondary school age 7-15 years; he reported that the brighter children tended to like school more than the dull one. Another study was pioneered by Anastasi (1954), who found that children of high esteem levels have the tendency to perform better in verbal aptitudes than low esteem child.

R.A Olatoye and B.J. Ogunkola (2008) in the college teaching methods and styles journal, show the parental involvement, interest in schooling and science etc are crucial in students achievement. They concluded that parents are in the position to put their children on the right course, especially at the early stage of development. And also impact on children's lifestyle, and perhaps throughout life. Parents should make sure they complement teachers efforts in school by monitoring and supervising their children's academic activities in order to enhance academic achievement.

Fagbemi (2001) and Olatoye (2001) also say that interest in school is also a significant predictor of academic achievement. They emphases more that, low performance in schools is a direct influence of students unwillingness to learn. And the act will lead to examination malpractices. Banghman (2000), in his resources guide says that examination malpractices have consistently remained a bane in Nigeria educational system. Most stakeholder and employers believe that the academic certificate being issue to graduate in Nigeria are no more valuable than the pieces of paper of which they are printed. He also reveals that examination malpractices are cause by the laziness on the part of the student. A student who did not cultivate a good study habit and have a good locus of control, will have academic achievement, and this will lead them to examination malpractice in order not to show their parents and teacher that they are lazy

For student to be motivated for academic performance in their studies, they need to know that what they are studying is indeed of real significance. In other words, they had to know that they are not being feed by some new springs innovation that will simply go the way of the faddish educational chaff that, once having gleaned its, gains, goes a long way to the winds never to be seen or thought of again parent and

teachers should help or make the student to know that they are been feed with the best that our civilization has to offer, that they are studying something that in much larger than selves. Following the assertions stated above share the view that student need to be motivated to have a positive result at the end of term. Motivation in academics can cone in any form. We have parental, peer teacher, psychological and so many ways a child can be motivated academically, to have an improved academic performance.

Study habit and academic achievement are also affected by many factors, some of which are;

i. Motivating academic achievement.
ii. The influence of locus of control and academic achievement
iii. Impact of study habit on students academic achievement
iv. Challenges did prospects of universal basic education in Nigeria.

4.0 CONCLUSION

Meaningful learning in physical and health education can be achieved when **good study**/habits are developed. Good study habits are determinants of whether one can succeed well in a unique subject such as physical & health education.

5.0 SUMMARY

In this unit, you have learnt about good study habits and its relationship with academic achievements in physical and health education. The unit highlighted some study habits time management, completion of task, techniques used in accomplishing each task among other that promote excellent academic achievements in PHE.

SELF-ASSESSMENT EXERCISE

Identify causes of poor academic achievement among physical and health education pupils and steps to take in correcting them.

6.0 TUTOR-MARKED ASSIGNMENT

1. List ten study habits that can be effectively used for effective learning by pupils in physical and health education.
2. Write short notes on any five ways or methods that PHE pupils can employ in doing excellently well in PHE.

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MODULE 2 FUNDAMENTAL SKILLS IN RELATION TO MOVEMENT EDUCATION

UNIT 1 FUNDAMENTAL SKILLS IN RELATION TO MOVEMENT EDUCATION

CONTENTS

1.0 INTRODUCTION

Under this unit we are going to focus our attention on the meaning of fundamental movements and what constitute fundamental movements; that is, the basic fundamental skills. The unit will also introduce you to the relevance or values of these basic fundamental skills to man.

2.0 OBJECTIVES

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

- explain the meaning of fundamental movements/skill in your own words
- differentiate between locomotor and non-locomotor movements
- explain the meaning of rhythmic movements/activities
- state the values/importance of basic/fundamental rhythmic movements.

3.0 MAIN CONTENT

3.1 Meaning of Fundamental Movements

The fundamental movements are basic involvement skills required for the achievement or attainment of other major skills in physical education. They are required or needed as we grow or develop. Such fundamental basic skills are sitting, standing walking turning, running, etc these basic skills can be categorised into two main groups namely locomotor and non-locomotor movements. For easy and proper understanding of the fundamental skills, they shall be treated under these two categories in this unit.

3.1.1 Locomotor Movement/Skills

Locomotor skills are movements in which the body is moved completely from one position or point to another e.g. skipping, stepping, walking, running, hopping, jumping, leaping, galloping, sliding, rolling, etc.

(i) **Stepping**: This is to raise the foot up and put it down in front, behind or beside the other one at a time. In stepping as a basic skill you can either step forward, backward or step aside, for you to do it properly and correctly there must be proper coordination of the arms that is the alternate arm must move forward with alternate leg when you are stepping forward and also in reverse order when you are stepping backward. This type of movement is used in jumps e.g. triple jump.

(ii) **Walking**: This is a skill in which one foot is put/move forward in front or behind the other foot continuously from a standing position. Walking is a progression of steps so taken that the walker makes contact with the ground, so that no visible (to human eye) loss of contact occurs. The advancing leg shall be straightened (i.e. not bent at the knee) from the moment of first contact with the ground until the vertical upright position is attained. In walking, the movement of the Government shall be heel toe action in moving the body forward and the each arm must move with alternate foot. Majority of the physical activities begin or star with walking.

(iii) **Running**: This is the shift/quick movement of the legs in upward and downward in front in quick succession with the arms forward and backward alternately in quick succession. Running is done on the balls of the feet with the body learn forward and moment when both feet are temporarily off the ground while there is high knee raising during the running process e.g. races, jumps, etc.

(iv) **Hopping**: It is a forceful lifting of the body upward on one foot and landing on the ball of the same foot e.g. triple jump.

(v) **Jumping**: It is the forceful lifting of the body upward and forward on one foot and lending on both feet. This is useful in vertical or horizontal jumps e.g. high, long and triple jumps

(vi) **Leaping**: This is when you spring up high in the air with one foot and lend on the other. This skill is mostly used in hurdles, steeplechase and triple jump, etc.

(vii) **Skipping**: It is a quick but light stepping and jumping movements done on the balls of the feet. It is sometimes done on with roe or hoop e.g. boxing.

(viii) **Galloping**: It is a skill or movement that allows both feet to leave the ground with one leading the other and land one after the other. It can be done sideways or forward as it is in high, long and triple jumps

(ix) **Sliding**: It is a continuous smooth movement along the surface of the floor/ground in which the feet are continually in touch or contact with the surface of the ground e.g. tacking in football

(x) **Rolling**: It is the turning of the body continuously over and over along a surface either from lying or squatting position e.g. tumbling in gymnastics.

Self assessment Exercise 1

Explain briefly at least 7 locomtor skills/movements

3.1.2 Non-Locomotor (axial) Movements

They are basic movement patterns or activities that do not involve the individual moving from one place to another. The movements involved are usually carried out on one spot or position e.g. standing, lying, sitting, lifting, pushing, pulling, bending stretching, twisting, turning, swaying, swinging, etc

(i) **Standing**: It is an upright position in which the body is supported on both feet e.g. in dart, archery, shooting etc.

(ii) **Sitting**: It is a position where the trunk is upright and while the buttocks is on the floor or chair supporting the weight of the trunk e.g. in gymnastics.

(iii) **Lying**: It is a position or condition where the body is laid flat and straight on the floor or ground this type of movement is common in gymnastic.

(iv) **Lifting**: It is when an object is raised to a higher level while at the same time the body is in a still position e.g. weight lifting

(v) **Pushing**: This is done from a forward walk or astride standing by putting pressure on an object to move it forward against resistance with the palms, hands arms and shoulders e.g. wrestling, boxing.

(vi) **Pulling**: This is executed from a forward walk or astride standing position with the hands, arms and shoulders causing the object to move towards the person e.g. turn-of war, judo and wrestling

(vii) **Bending**: This is when the trunk from erect position is bent forward and downward e.g. weight lifting, gymnastics, etc.

(viii) **Stretching**: This is when a person is in a standing position with the body erect and the arms in an upward and backward position e.g. weight lifting, etc.

(ix) **Twisting**: It is the turning of a part of the body around while the legs firmly planted on the ground without changing direction, dance, discus etc.

(x) **Turning**: This is when the body is moved towards another direction when standing on a spot/athletics e.g. hammer, discus, dance, etc.

(xi) **Swinging**: This is when the body is in a standing position and the arms and the body are involved in a forceful circular motion to the left or right e.g. hammer throw in athletics.

Self Assessment Exercise 2

Explain briefly any 8 non locomotor (axial) movements.

3.1.3 The Importance/values of Fundamental Movement/Skills

- they provide basic guides for the learning of other major skills in games and sports
- it helps to improve/enhance performance
- the acquisition of the skills reduces fatigue and injury in sports and games
- they could be used to create fun and enjoyment.

3.1.4 Rhythmic Movement Activities

They are basic movement activities that are carried out in rhythm line with regular beats coming from singing, clapping or sounds from music or tinning of movements. Some of such rhythmic activities are:

- fundamental rhythmic activities
- creative rhythmic activities
- marching
- singing
- folk dance
- social dance.

Fundamental Rhythmic Activities

They are basic movement activities using rhythm-songs or beats to express action; they are activities that make use of locomotor and non- locomotor movements. They are performed rhythmically using related singing songs e.g. such activities as running activities and singing, pulling activities and singing, sitting and clapping, skipping and singing, etc.

3.1.5 The Importance/Values of Fundamental Rhythmic Activities

They are as follows:

- help to develop good and proper coordination
- help to develop beauty in performance
- create joy and happiness
- make room for agility and flexibility
- encourage/promote creativity
- help/assist the body and the mind to relax.

4.0 CONCLUSION

Class, we can conclude from what we have learnt in this unit that fundamental skills are very important and prerequisite to learning skills in major games and sports. The inadequacy or lack of skills in the basic skills by a pupil could lead to poor performance in any of the major games or sports thereby resulting in poor academic achievement in physical and health education. Good performance in the fundamental skills by pupils will definitely enhance better academic achievement in the major games and sports.

5.0 SUMMARY

You have learnt about fundamental skills in relation to movement education. In this unit you learned the meaning of fundamental movements, the different categories locomotor and non-locomotor types and their importance in movement education Detailed explanations were made on each category of the fundamental basic skills so as to enable pupils appreciate their importance to successful execution of any skills in any major games and sports.

Self-Assessment Exercise 3

1. Explain the meaning of fundamental movements with concrete examples
2. Mention two major groups of fundamental movements
3. Mention six examples of rhythmic activities.

6.0 TUTOR-MARKED ASSIGNMENT

1. What is/are difference(s) between locomotor and axial movements?
2. List and explain any six in each of the groups.
3. Explain the values of fundamental movements.
4. Explain what rhythmic activities are.
5. What are the values of rhythmic activities?

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UNIT 2 ORGANISATION OF SPORTS AND GAMES IN PRIMARY SCHOOLS

CONTENTS

1.0 INTRODUCTION

In this unit we are focusing on organisation of sports and games in primary schools. We shall look at sports organisation through intramural and extramural competitions. We shall x-ray or examine how sports and games are effectively managed or administered through intramural and extramural competition at the primary school level. This unit shall also focus on the various approaches involved in the organisation of sports and games at the primary schools level.

2.0 OBJECTIVES

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

- explain organisation of sports and games
- identify of using the intramural and extramural competitions to achieve proper and effective organisation of sports and games at the primary school level.

3.0 MAIN CONTENT

3.1 Administration and Organisation of Sports and Games

Sports and games are generally organised in schools and outside the school. The types of sports and games organised within the school are known as intramural competitions while those organised outside the school are known as extramural sports competitions. The effective administration of the organisation of sports and games in the primary schools rest squarely on the physical education of teacher and other members of his/her team. Their responsibilities are to guide, direct, coordinate and encourage the efforts of the individual members towards achieving the goals of the schools in sports.

The organisation of sports in schools can be seen as the development of formal structures whereby the various or different sections or divisions work together with clear defined lines of authority for effective development of sports in the school

environment.

In this unit, we shall identify and discuss the various approaches of organising sports and the importance of intramural sports at the primary schools.

Self Assessment Exercise 1
How would you organize and administer sports and games in your school?

1. Intramural sports programmes/competitions

At the primary school level, intramural sports programmes are managed or directed by the games master/mistress. At this level the programme must cater for all the pupils that is, it must provide for a wide range of abilities and interests. In doing so, the physical education teacher must have a well planned programme that would meet the desired goals e.g. organisation of inter-house sports competition. For the games master/mistress to have a fruitful and rewarding intramural sport programmes he must consider and work in the following steps in order to achieve a better result:

- planning
- activities
- safety precautions
- rules and regulations
- records
- evaluation.

Self Assessment 2
In order to achieve a very good result you have to follow some steps as you work along.

(a) Planning

As a games master, you need to plan on the sporting activities you want the pupils to take part in during the period. This can be taken care of through inter-house sports competition. The planning should contain all the sports events that the pupils are going to take part in, their houses and/or classes. The planning should also include the listing of the order of sport events, officials, members of staff, etc. you must get the permission of the head teacher right from the onset and get his/her approval on what it would cost the school to organise such competition.

The needs and interests of the pupils (male and female) must be considered when planning along with the interest of the school. Facilities to be used for the competition should be considered and their conditions ascertained in readiness for the pupils to use for both practice and competition proper. In places or cases where the facilities are inadequate, you as the games master/mistress can organise alternative arrangement for such facilities with nearby/ neighbouring schools or sports council.

Finally, you have to ensure that you take care of all problems that may arise from logistics e.g. registration and identification of athletes, recording sheets and provision for emergency cases.

(b) Sporting activities/events

The types of sports events for the intramural should be those that would elicit the interest of the pupils. You should ensure that the right type of sport activities are selected for the pupils to participate in and included in inter-house sports and that they should have positive educational value on or contribution to the pupils e.g. 'catching the train', improves pupil's speed and punctuality and 'egg and spoon race' helps to improve hand-eye coordination. The activities to be included in sports programme should be those that a greater percentage of pupils should be able to take part in and should not be too difficult (hammer throw) for the pupils. The activities selected must give/consider the ability of the child at this level so as to prevent or reduce injuries and liability.

There should be adequate provision for wards and technical officials instructors, chaperons, etc that would provide adequate supervision for the various sporting activities so as to guide against sport injuries inherent in sporting activities.

Ensure that adequate facilities and equipment are available for the sporting events for the inter-house sports i.e. you include only activities you have facilities and equipment for. As the games master, ensure that fund is provided for the programme to avoid failure well in advance before the competition and also provide ample time for pupils to practice before the competition day bearing in mind the school calendar. This will also enable you to give notice to the officials to officiate on the day of competition well in advance.

(c) Publicity

You have to device ways/means by which your intramural sporting activities would attract public attention. In doing this you have to find a way of selling your programme to the public. You can achieve this through the P.T.A., invitation letters to guardians, parents, members Board of Governors, Alumni Association, education of the pupils on the importance of the competition, posters, jingles on radio and television and newspaper advertisement.

(d) Security

There should be adequate security to ensure the safety of teachers, pupils, athletes and invited guests. Letters should be sent to security agents a month before the competition so that they will help to maintain law and order during the competition. Two weeks to the competition the security agents should be reminded. The school can decide to invite members of police, army, vigilante group or the civil defence to help maintain law and order.

(e) Awards Systems

The emphasis of an intramural programme should be on participation and fun. Winning and losing are part of the process but should not be a primary focus. If award must be given they should be for recognition of achievement. If possible

some recognition should be available for participation regardless of win/loss. In your planning as the games master/mistress, you should make provisions for award of prizes to the best three competitors and each of the events as a sort of recognition of their achievements and also as incentive to encourage them to do better in future competitions. It is also to encourage other pupils that did not take part to participate in such competition in future.

(f) Safety precautions

An intramural sports programme seeks to enhance the health of its participants therefore, the following guidelines are critical to the success of the programme:

- all activities should be structured to ensure that safety requirements are met including consideration of each pupil readiness for the activity based on age, skill and physical condition
- all participants should have medical clearance to participate
- clothing should be appropriate to the activity
- all activities should be supervised to ensure safety and orderly progression of each event
- recognise that because of the nature of physical activity, injuries will occur immediate first aid must be available from trained providers any time the programme is in progress
- attention must be given to communication with emergency services in the event of serious injury.

(g) Rules and Regulations

Games master sit with the housemaster, head teacher and games prefect to make the rules that will govern the competition. Some of the rules to be considered are as follows:

- no athlete will participate in more than three events.
- An athlete can only take part in one field event and two track events or two field event and one track event
- no athlete in primary4, 5 and 6 can run in primary 2 and 3 events
- fill in the bottle and backing the baby are for primary 1 only
- filling the basket with balls is for nursery classes only
- no house member is allowed to run through while an event is going on, if it happens the athlete of that house will be disqualified
- athletes are to maintain their lanes when running 100m, 200m and 100m x 4 relay, any athlete that crosses from his/her lane is automatically disqualified
- there must be decision on how many points each event should be given, for example 1st position 10 points, 2nd position 8points and so on.

Self Assessment Exercise 2
What are the rules and regulations to be considered in a games completion?

(h) Records

For future purposes there should be proper keeping of records concerning all inter house competition that take place in the school.
Such as keeping records or positions of the match past, the field events, the track events, especially the time the athletes finish running. Keeping records enable the game master or whoever might take over from him to know whether the school is improving from the various events or not.
All record of finished events must be kept in a file which is subtitled "sports file" and the file should be kept either with game master or the head teacher of the school.

(i) Evaluation

Intramural programming just as with other curricula must be subjected to continuous evaluation. Areas to be reviewed include:

- objectives
- programming
- facilities/equipment
- safety.

Organization/Administration

Information gleaned from the evaluation process allows for modification of objectives, planning and implementation of programme needs, justification for budgets and programme changes.

4.0 CONCLUSION

This unit addressed the administration and organisation of sports and games in primary schools. The unit was able to explain the Intramural sports programmes/competitions and the steps to be considered in order to achieve a better result.

5.0 SUMMARY

In this unit, you have learnt about how to organize and administer intramural games in primary schools. The unit highlighted some steps like planning, activities, safety precautions, rules and regulations, record keeping, award system and evaluation to be considered when organising sports in schools in order to achieve better results.

6.0 TUTOR-MARKED ASSIGNMENT

1. List and explain the steps to be considered when organising sports in the school.
2. As a games master, list the group of people to work with when organising sports in school, and why do you need them?

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UNIT 3 MEANING OF SAFETY AND MAINTENANCE

CONTENTS

1.0 INTRODUCTION

One of the basic needs of man is safety. Man's other needs include food, shelter, clothing, love or affection. However, safety remains on top of the list of priorities of people because without safety living and all that one has laboured for may become wasted. Indeed safety makes life interesting and to a remarkable expects, effective living is hinge on safety. A well designed lifestyle is incomplete without safety concept being built into it. Some of the benefits of safety in both personal and corporate senses include the facts that tasks performance are carried out with little or no stress, injuries are avoided and a lot of manpower is saved, individuals and organisations relate well. Thus the importance of safety in any setting (e.g. in the school) cannot be over emphasized. Before examining the nature of safety, there is need for some understanding of the meaning of safety and what it represents.

2.0 OBJECTIVES

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

- define safety
- state the different types of safety
- identify some common safety problems in the school
- examine the features of a safe school facility.

3.0 MAIN CONTENT

3.1 Concept of Safety

In the primitive era, people lived together in peace and happiness, they had things in common and there was no need to build fences around homes. We may think that there was no need to be afraid of anything as men followed nature. However, time progresses, the primitive nature of society changed and men became enslaved to technology and civilisation. The safety problems that we contend with today can be traced to the absence of a good safety culture or the absence of knowledge concerning safety.

3.1.1 Definition of Safety

Safety can be defined as follows:

- freedom from danger
- ability to detect hazards
- safe practices that enhance growth and development
- a state of feeding unthreatened by life threatening factors
- removal of obstacles and impediments that may be life threatening
- personal health promotion
- risk management.

SELF-ASSESSMENT EXERCISE I

1. Examine the historical antecedent of safety.
2. Discuss the various definition of safety.
3. Distinguish between a habit and safety practice.

3.2 Nature and Scope of Safety

We probably have come across phrases such as “safety first” “play safe” and “be safe”. These expressions have far reaching implications on the nature and scope of safety. In everything that we do even as school teachers, we need to consider safety as extremely important. Safety is expansive in nature and scope. For example, safety in the school environment is meant to ensure the safety of teachers, students, school personnel and school facilities. We shall discuss more on this when we examine safety education in the preceding paragraphs.

Nonetheless, the nature and scope of safety consist of the following:

- safety is a matter of habit
- it involves training i.e. it is a skill acquisition process

- safety involves discipline
- safety is individual and community- based
- it is the responsibility of everybody to be safety conscious
- safety is a pre-condition for safe living.

Self Assessment Exercise 1

Describe briefly the nature and scope of safety

3.3 Safety Problems in the School Environment

The school environment is a haven for many safety problems. The incidence and prevalence rates of drowning, falls, burns and scalds, fractures, bruises are on a consistent increase in the school facilities. These safety problems contribute to the cases of absenteeism and poor academic achievement in the school. It is imperative to mention that safety problems in the school are avoidable if necessary lines of action are taken by school teachers, the learners and school management. One of the major responsibilities of school management is to ensure the safety of teachers, students and other school personnel. This implies that the classroom have to be properly ventilated and lighted, the stair case is of good design and safety-compliant. The provision of fire extinguishers and other safety accessories must be the joint responsibility of the school and the various agencies responsible for school administration including the host community where the school is situated.

Self Assessment Exercise 2

Explain safety problems in the school environment and suggest how such problems would be overcome.

3.4 Safety Education Concepts

What is safety education? Safety education is a form of education given to learners/people in order for them to live an accident-free life. Accidents are unplanned events or occurrences which can be controlled through balanced safety practices.

Also, safety education is a process or an act that affects the orientation of an individual and he becomes knowledgeable in the things of safety. Safety education i.e. a training process and it is one of the several components of the comprehensive school health programs.

Safety education has the capacity to solve many safety problems both in the micro and macro senses. It is only when people have knowledge of toxins that they avoid being poisoned. Characteristically, safety education can transform the individual and his society.

The following should constitute the block of learning units in safety education programme in the school:

- how to cross the road and using the zebra crossing signs
- using the swimming pool.
- avoiding sharp and pointed objects
- drug/medicament education
- safety in the play field
- safety gadgets and materials
- reporting accidents
- accident prevention.

Health/safety education is best taught as a separate course of study at every grade, with reinforcement across the curriculum and in the school environment. When schools rely on integration into other academic areas as the sole means of providing health and safety education, they provide less instructional time for health and safety and cover fewer topics than when health is a separate course. In integrated teaching, skill-development is rarely addressed. Without skills development, education in health and safety has limited effectiveness. Effective health/safety education involves repeated exposure to key topics as appropriate for students' developmental stages.

Reinforcing health and safety concepts in other subjects helps make those academic areas more relevant to students' everyday life and enhances students' learning of health and safety concepts and skills. Many elementary school teachers realize that education in health and safety issues is central to what they already do on a daily basis. Math, science, social studies, art, and English/language arts teachers can teach about specific health and safety issues from a variety of perspectives.

Safe Learning Environments Are Needed

The National Center for Education Statistics (NCES) gathered statistics for the 1999-2000 school year and reported:

- approximately 5,000 instances of rape or other types of sexual battery;
- about 12,000 incidents of physical attacks or fights involving weapons;
- around 23,000 robberies;
- approximately 806,000 fights or physical attacks not involving weapons;
- about 218,000 thefts; and
- around 211, 000 acts of vandalism (National Center for Education Statistics, 2003).

It is important that social and behavior problems be identified in the lower elementary grades. Antisocial and aggressive behaviors are strong predictors for dropping out of school. Early intervention is important to head of future problems (Duttweiler and Smink, 1997). It's obvious that violence prevention and conflict resolution are important for all students, not just those at-risk of dropping out. A comprehensive safe school plan is vital to the well-being of the students. Approximately 30 states have passed legislation recommending that every school develop a safe school plan. The No Child Left Behind Act provides for identifying

and labeling "persistently dangerous" schools. Students in these schools have the option of transferring to a safe school within their district.

What Is A Safe Learning Environment?

It is difficult to create a balance between a safe school and a welcoming, caring environment. It is important to create a school climate that does not tolerate bullying, intimidation, and terrorism. Students who are afraid often stay away from school. A safe learning environment is focused on academic achievement, maintaining high standards, fostering positive relationships between staff and students, and encouraging parental and community involvement.

Resolving conflict and preventing violence are important factors in creating a safe learning environment. Students respond to conflict by confronting it, usually in a violent manner, or avoiding it. Neither of these responses helps them to learn how to deal with conflict in an appropriate way. Students need to learn effective interpersonal skills to cope in group situations (Hamby, 1999). It is important for students to know how to deescalate conflict, manage it, and resolve it (Schargel & Smink, 2001).

Safe school planning is an ongoing, comprehensive process which should involve the entire community. The plan should cover behavioral and property aspects of crime prevention. There are seven basic steps in the planning process:

1. Identify your safe school planning committee members;
2. Assess data on school crime;
3. Identify school safety strategies and programs;
4. Ensure that school procedures comply with existing laws related to schools;
5. Hold a public meeting before your school adopts the plan;
6. Make the plan available for public review; and
7. Amend the plan once a year, as needed (Stephens, 2004, p. 80).

8. Expected Benefits

9. For students to learn, they must attend school. A welcoming and accepting environment motivates students to attend school. Research has shown that school violence also has an impact on the community. Forty percent of boys identified as bullies had three or more convictions by age 24 (Fight Crime, 2003, p. 5).

10. Impact of Safe Learning Environments

11. Anti-bullying and anti-aggression programs have proven to be effective in reducing misbehavior, vandalism and general delinquency (Fight Crime, 2003). Students dropout of school for many reasons, but violence and conflict are contributing factors to placing students at-risk.

SELF-ASSESSMENT EXERCISE 2

Highlight the learning units in safety education programme in the school.

3.5 Maintenance Culture

One of the banes of the Nigerian society is the absence of a good maintenance culture. Dilapidated school structures, obsolete machinery, poorly kept laboratories just to mention but a few are common sights in our school environment. What is however important is the fact that poor maintenance culture continue to contribute to safety problems in the school. As earlier discussed, safety is a matter for all education stakeholders; I wish to add that the school, the community and government should be held accountable for accidents that happen in the school premises because of the absence of good maintenance culture. Maintenance culture must be highly emphasised in the general school curriculum and made part of the conditions for promotion of school principals and teachers.

Maintenance culture is an attitude which is sadly lacking in Nigeria, whether in the home, office, school or factory. Mbamali (2003) added that poor maintenance culture has become a widely recognised problem in Nigeria. Maintenance culture in Nigeria is the lowest around the World, especially, in our principal towns and cities. In the rural areas, the story is different and pleasant to hear. The traditional practice of communal clearing of community owned places such as market; playground is in almost every village. In private homes it is customary to refurbish building interiors with mixtures of cow dung or natural red clay. The end result is attractive and totally indigenous. According to Wahab (1995) the nation accords low priority to property management. Faworaja (1996) In Mbamali (2003) asserted that we have no maintenance policy and therefore no such culture exists. Neglect of maintenance has accumulated consequences in rapid increase in the deterioration of the fabric and finishes of a building, accompanied by a harmful effect on the contents occupants (Seeley, 1987). Inadequate maintenance culture is a peculiar feature of almost every building in Nigeria. According to Rotimi and Mtallib (1995) is partly due to poor maintenance culture on one hand and partly due to the absence of an appropriate benchmark. Gurjit (1990) asserted thatlack of proper maintenance culture bring the life of a building last before reaching the total obsolescence state. The declining maintenance culture in Nigeria and its effect on buildings has become a major problem to both the public and private sectors

CONCEPT OF BUILDING MAINTENANCE

According to Sidney (1991) permanent structure requires less attention than temporary ones, any house owner will confirm that even the best constructed building needs constant attention. If the attention is delayed, what started as being something very minor is liable to turn quickly into an expensive operation? Similarly, Seeley (1987) asserted that no building can exist throughout its span without one form of maintenance or the other; it is to say that much can be done at the design stage in order to reduce the amount of subsequent maintenance work.

According to Seeley (1997) maintenance work on a building should commence from the day the contractor leaves the site.

The necessity for maintenance work on buildings is noted in the fact that all buildings, as well as the materials and components therein, deteriorate or suffer loss in aesthetic, strength and or functional value, with exposure to the elements of weather over time. The appearance and life span of a building and also the quality of the materials would be affected depending on the manner to which maintenance is adhered to, in the building (Seeley, 1987). If the design process is to be enhanced, the building team needs to come together and contribute towards the building's maintainability at the project inception rather than leaving it for the maintenance personnel at the end of construction to battle with the curative measure (Adejimi, 1998). This sometimes according to Seeley (1997) causes frustration and annoyance to maintenance personnel when taking over new buildings and finding themselves faced with bad details, poor choice of finishes, materials and components and lack of basic information about the building and its services. According to Cornick (1996) "the root cause of the problems that the construction industry and its clients experience lie in the division of the responsibilities between the design aspects and the construction aspect" Alexander (1996) was direct in his criticism of the organization of the construction industry noted that the industry is unique in that the design process is separated from production. The successful completion of any building depends on many things, few of which are as important as the designer-contractor relationship. The two parties must be willing to work together so that the clients get maximum benefit from their joint expertise. The contract should feel able to contribute to the design process in matters relating to construction practice and the designer should be willing to receive, analyse and subsequently act on such recommendations.

CAUSES OF MAINTENANCE PROBLEMS

According to Stephen (2002) building services rarely perform as well as desired. The causes emanate from deficiencies in design, construction, commissioning, tenancy work and maintenance; many researchers have also observed that the generators of maintenance problems could be looked at under three main divisions.

1. Causes initiated during the design stage.
2. Causes initiated during the construction stage
3. Causes initiated during the usage stage or the user's carefree attitudes (Bad maintenance culture).

He further said that all these could be planned for during the design stage.

3.6 Safe School Environment

A safe school environment is one that is devoid of accidents. It is an environment that is teacher and learner friendly.

Furthermore, a safe school environment is health enhancing in all its ramifications.

One example of a safe school environment is an ideal purpose built school where the classrooms are adequately ventilated; the seats well arranged and does not constitute obstruction. There is free flow of movement in and out of the classroom.

In a save school environment the lawns are well moored, chemicals in the laboratory are kept in a safe place and containers properly labeled. Finally, a safe school environment is driven on the principles of safety.

4.0 CONCLUSION

Safety constitutes part of the basic needs of man. Safety concept consists of freedom from danger. Since everyday life induces stress and hazards, it is expedient that safety be emphasised. It is incumbent upon the school, teacher and learners to learn safety precautions and the importance of safety education. It is the joint responsibilities of the school and the host community where the school is situated to ensure the safety of school facilities.

5.0 SUMMARY

The meaning of safety includes freedom from danger while accidents are unplanned events. The bases of safety can be connected to man psychological and physiological needs. Every man wants to be safe and over time the hustle and bustle of everyday life continue to make man vulnerable to risks of diverse kinds. Safety education is highly imperative in our school system because of its importance.

6.0 TUTOR-MARKED ASSIGNMENT

1. Why is safety an imperative component of human needs?
2. Discuss the features of safety education in Nigerian school curriculum.

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UNIT 4 ESSENTIALS OF SAFETY EDUCATION

CONTENTS

1.0 INTRODUCTION

In unit one, we studied the nature and concept of safety education, This unit will examine the importance of safety education, aspects of safety education, safety regulations and safety programmes in our school system. Indeed, safety education cannot be separated from the school curricula because of its unique nature in the school system. It is envisaged that you will critically internalise the various concepts concerning safety and also teach safety concepts in the most appropriate manner to your students.

2.0 OBJECTIVES

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

- examine the importance of safety education to the society.
- discuss the various aspects of safety education.
- review and apply safety regulations appropriately.
- implement safety programmes accordingly.

3.0 MAIN CONTENT

Safety education constitutes one of the teaching/learning units of the National Health Education Curriculum which came into existence in 1985. This curriculum was approved for our nation's school in 1985 by the then Military Administration. One of the principal objectives of the Health Education Curriculum is to address the many health problems of school children. Safety education is part and parcel of this document and it defines the imperativeness of safety education both in the individual and collective dimensions.

3.1 Importance of Safety Education

Many accidents that happen in the school and outside the school environment could be prevented if only people have the knowledge and information regarding such accidents. In other words, ignorance is a major factor in accident causation and safety education has the ability to negate wrong perceptions about accidents.

Wrong attitudes, beliefs and habits can induce accidents and experts in the field of safety education strongly hold the view that safety education can help correct negative attitudes towards accidents in our society. The authenticity of this view has been tested and it is correct to say that no matter the policy or funds applied to address safety problems in our society it will not yield ideal results if safety education principles are not engaged. The importance of safety education can therefore not be relegated to the background.

Furthermore, through safety education individuals are sensitised on the factors that cause accidents. Again, safety education is a capacity building avenue for people to know what to do to avoid accidents.

When we go by newspaper reports that accidents of diverse kinds happen in our society especially road-traffic accidents we cannot but discuss the importance of safety education. Safety precautions are good leverage for accidents prevention. Safety education is a means to an end because prevention and minimizing costs of accidents rest on it.

Safety education helps to correct wrong notions about accidents. Sometimes people believe that accidents are caused by supernatural forces. Carelessness and risky behaviours such as drinking and driving can cause accident. It is the information provided by teachers and those knowledgeable in the skills of accident prevention that can provide information and awareness about what intricate factors that causes accidents.

Self Assessment Exercise

Explain the importance of safety education in your school.

3.2 Safety Problems

The following are major aspects of safety education programme in the school:

- fire accidents
- road accidents
- industrial accidents
- air disasters
- natural disasters such as volcanoes, tornadoes, flood
- risks management
- injuries and labour relations.

Fire Accidents

Fire accident is a common phenomenon in our society and in the school. Causes of fire outbreak are mere carelessness on the part of people to faulty equipment in the

house. Ignorance is also a major cause of fire accidents.

Fire safety refers to precautions that are taken to prevent or reduce the likelihood of a fire that may result in death, injury, or property damage, alert those in a structure to the presence of an uncontrolled fire in the event one occurs, better enable those threatened by fire to survive in and evacuate from affected areas, or to reduce the damage caused by a fire. Fire safety measures include those that are planned during the construction of a building or implemented in structures that are already standing, and those that are taught to occupants of the building.

Threats to fire safety are referred to as *fire hazards*. A fire hazard may include a situation that increases the likelihood a fire may start or may impede escape in the event a fire occurs.

Fire safety is often a component of building safety. Those who inspect buildings for violations of the Fire Code and go into schools to educate children on Fire Safety topics are fire department members known as *fire prevention officers*. The Chief Fire Prevention Officer or Chief of Fire Prevention will normally train newcomers to the Fire Prevention Division and may also conduct inspections or make presentations.

Road Accidents

Road traffic accidents are due to many factors such as poor driver education, drunkenness, faulty vehicle, bad roads, and poor road traffic regulation. The multiplicity of the causes of road tarmac accidents demands that safety education culture be imbibed.

A Road Accident occurs as a result of the unlawful, unsafe, and unapproved operation of a motor vehicle; this can include the unlawful use of a cell phone while driving, reckless driving, or driving while under the influence of illegal drugs, alcohol, or controlled-substances. A Road Accident existing in conjunction with a charge of recklessness, the expressed risk of that behavior is presumed to be in the mind of the individual partaking in the reckless behavior in question; such is the case with regard not only to lawful operation of a motor vehicle, but also the consensual undertaking of its implicit risks.

Industrial Accidents

Industrial accident ranks top on the list of safety problems in our society. Thus, many workers have been injured while trying to operate one machine or the other while many lost their lives in the course of earning some wages. Industrial accidents can be addressed through safety education approach.

Air accidents

An Air incident is defined as an occurrence, other than an accident, associated with the operation of an aircraft that affects or could affect the safety of operations.

An accident in which the damage to the aircraft is such that it must be written off, or in which the plane is destroyed is a hull loss accident.

Risk Management

Risk management is the identification, assessment, and prioritization of risks followed by coordinated and economical application of resources to minimize, monitor, and control the probability and/or impact of unfortunate events[1] or to maximize the realization of opportunities. Risks can come from uncertainty in financial markets, threats from project failures (at any phase in design, development, production, or sustainment life-cycles), legal liabilities, credit risk, accidents, natural causes and disasters as well as deliberate attack from an adversary, or events of uncertain or unpredictable root-cause. Several risk management standards have been developed including the Project Management Institute, the National Institute of Standards and Technology, actuarial societies, and ISO standards.[2][3] Methods, definitions and goals vary widely according to whether the risk management method is in the context of project management, security, engineering, industrial processes, financial portfolios, actuarial assessments, or public health and safety.

Self Assessment Exercise 2
Briefly discuss, fire, road, air and industrial disaster you have witnessed in the past.

Natural Disasters

Natural disasters such as volcanoes, for needed, flood, erosion, etc. have destroyed many ecosystems which are beneficial to man. Through a well articulated safety education programme this huge problem can be addressed.

An **Earthquake** is the result of a sudden release of energy in the Earth's crust that creates seismic waves. At the Earth's surface, earthquakes manifest themselves by vibration, shaking and sometimes displacement of the ground. The vibrations may vary in magnitude. Earthquakes are caused mostly by slippage within geological faults, but also by other events such as volcanic activity, landslides, mine blasts, and nuclear tests. The underground point of origin of the earthquake is called the *focus*. The point directly above the focus on the surface is called the *epicenter*. Earthquakes by themselves rarely kill people or wildlife. It is usually the secondary events that they trigger, such as building collapse, fires, tsunamis (seismic sea waves) and volcanoes that are actually the human disaster. Many of these could possibly be avoided by better construction, safety systems, early warning and planning. Some of the most significant earthquakes in recent times include:

The 2004 Indian Ocean earthquake, the third largest earthquake recorded in history, registering a moment magnitude of 9.1-9.3. The huge tsunamis triggered by this earthquake killed at least 229,000 people. The 2011 Tōhoku earthquake and tsunami registered a moment magnitude of 9.0. The death toll from the earthquake and tsunami is over 13,000, and over

12,000 people are still missing. The 8.8 magnitude February 27, 2010 Chile earthquake and tsunami cost 525 lives.

Volcanoes can cause widespread destruction and consequent disaster in several ways. The effects include the volcanic eruption itself that may cause harm following the explosion of the volcano or the fall of rock. Second, lava may be produced during the eruption of a volcano. As it leaves the volcano, the lava destroys many buildings and plants it encounters. Third, volcanic ash generally meaning the cooled ash - may form a cloud, and settle thickly in nearby locations. When mixed with water this forms a concrete-like material. In sufficient quantity ash may cause roofs to collapse under its weight but even small quantities will harm humans if inhaled. Since the ash has the consistency of ground glass it causes abrasion damage to moving parts such as engines. The main killer of humans in the immediate surroundings of a volcanic eruption is the pyroclastic flows, which consist of a cloud of hot volcanic ash which builds up in the air above the volcano and rushes down the slopes when the eruption no longer supports the lifting of the gases. It is believed that Pompeii was destroyed by a pyroclastic flow. A lahar is a volcanic mudflow or landslide. The 1953 Tangiwai disaster was caused by a lahar, as was the 1985 Armero tragedy in which the town of Armero was buried and an estimated 23,000 people were killed .

A specific type of volcano is the supervolcano. According to the Toba catastrophe theory 75,000 to 80,000 years ago a super volcanic event at Lake Toba reduced the human population to 10,000 or even 1,000 breeding pairs creating a bottleneck in human evolution. It also killed three quarters of all plant life in the northern hemisphere. The main danger from a supervolcano is the immense cloud of ash which has a disastrous global effect on climate and temperature for many years.

Flood is an overflow of an expanse of water that submerges land. The EU Floods directive defines a flood as a temporary covering by water of land not normally covered by water.[10] In the sense of "flowing water", the word may also be applied to the inflow of the tide. Flooding may result from the volume of water within a body of water, such as a river or lake, which overflows or breaks levees, with the result that some of the water escapes its usual boundaries. While the size of a lake or other body of water will vary with seasonal changes in precipitation and snow melt, it is not a significant flood unless the water covers land used by man like a village, city or other inhabited area, roads, expanses of farmland, etc.

The 2005 Mumbai floods which killed 1094 people.
The 2010 Pakistan floods directly affected about 20 million people, mostly by dispolacement, destruction of crops, infrastructure, property and livelihood, with a death toll of close to 2,000.

Hurricane Katrina, which struck New Orleans, Louisiana in 2005, and Cyclone Yasi, which struck Australia in 2011 A limnic eruption occurs when a gas, usually CO_2, suddenly erupts from deep lake water, posing the threat of suffocating wildlife, livestock and humans. Such an eruption

may also cause tsunamis in the lake as the rising gas displaces water. Scientists believe landslides, volcanic activity, or explosions can trigger such an eruption. To date, only two limnic eruptions have been observed and recorded:

Tsunamis can be caused by undersea earthquakes as the one caused by the 2004 Indian Ocean Earthquake, or by landslides such as the one which occurred at Lituya Bay, Alaska.

The 2004 Indian Ocean Earthquake created the Boxing Day Tsunami. On March 11, 2011, a tsunami occurred near Fukushima, Japan and spread through the Pacific.

Injuries

An injury is the damage to a biological organism caused by physical harm. Major trauma is injury that can potentially lead to serious outcomes.

Labor Relation

Labor relations is the study and practice of managing unionized employment situations. In academia, labor relations is frequently a subarea within industrial relations, though scholars from many disciplines--including economics, sociology, history, law, and political science-also study labor unions and labor movements. In practice, labor relations are frequently a subarea within human resource management. Courses in labor relations typically cover labor history, labor law, union organizing, bargaining, contract administration, and important contemporary topics.

In the United States, labor relations in the private sector are regulated by the National Labor Relations Act. A public sector labor relation is regulated by the Civil Service Reform Act of 1978 and various pieces of state legislation. In other countries, labor relations might be regulated by law or tradition.
An important professional association for U.S. labor relations scholars and practitioners is the Labor and Employment Relations Association

Self Assessment Exercise 3

Explain what you understand by natural disaster and also explain the one that is common in your locality.

3.3 Safety Regulations

It is evident that the absence of a balanced safety practice in Nigeria has impeded the process of curtailing the problem of safety. Indeed, safety regulations such as code of conduct on the roads will go a long way to nib the problem of safety on board, safety regulations can solve many problems.

4.0 CONCLUSION

This unit has revealed the basic concepts of safety education. The importance of safety education was highlighted in terms of the theoretical and practical applications. Some safety problems in our society were discussed and the needs for effective safety regulating system were prosecuted.

5.0 SUMMARY

This unit has revealed the following facts:

- importance of safety education
- safety problems in our society
- safety regulations and the prevention of accidents in the society.

Safety education can contribute to nation –building; hence, the need to emphasise it in our school system.

6.0 TUTOR-MARKED ASSIGNMENT

1. Examine the basic issues affecting safety education in our society.
2. Discuss safety problems in our society today.

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MODULE 3 FEATURES OF PHYSICAL AND HEALTH EDUCATION CURRICULUM

UNIT 1 FEATURES OF THE SCHOOL PHYSICAL AND HEALTH EDUCATION CURRICULUM

CONTENTS

1.0 INTRODUCTION

The school health education programme is central to the essence health instruction in the school system. In this unit, we shall examine the various features of the school health programme. These features include health education, school health services, safe and healthful school environment, physical education, nutrition services and counselling, psychological and social services .As you read on, you will find that health education curriculum has inherent benefits.

2.0 OBJECTIVES

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

- explain the basis of the health education curriculum
- list the features of the school health education programme.

3.0 MAIN CONTENT

3.1 Health Education

Health education in the school context refers to a planned and well organised curriculum that addresses the many dimensions of health. Such dimensions include the physical, mental, emotional and social aspects of the individual or student life. The health education curriculum is systematic in its approach and it is basically to motivate and encourage students to better or improve their health, prevent disease and reduce health related risk behaviours. Health instruction is an activity based exercise and it is only a qualified teacher with knowledge of health education that should impact health knowledge to students.

3.2 School Health Services

School health services are expected to appraise, protect and promote the health of students. Highlights of school health services include:

1. access to referral primary health care services
2. ensuring adequate use of primary health care services
3. prevention and control of communicable diseases and other health conditions
4. management of chronic infections/diseases
5. provision of emergency care to the injured
6. optimum sanitary conditions for a safe school facility and school environment
7. counselling opportunities for the promotion and maintenance of individual, family and community health.

Referral Primary Health Care Services

Primary health care, often abbreviated as "PHC", has been defined as "essential health care based on practical, scientifically sound and socially acceptable methods and technology, made universally accessible to individuals and families in the community. It is through their full participation and at a cost that the community and the country can afford to maintain at every state of their development in the spirit of self reliance and self determination". In other words, PHC is an approach to health beyond the traditional health care system that focuses on health equity – producing social policy. PHC includes all areas that play a role in health, such as access to health services, environment and lifestyle.

Goals and Principles

The ultimate goal of primary health care is better health for all. The World Health Organization (WHO) has identified five key elements to achieving that goal.

- Reducing exclusion and social disparities in health
- Organizing health services around people's needs and expectations.
- Integrating health into all sectors
- Pursuing collaborative models of policy dialogue and
- Increasing stakeholder participation.

Behind these elements lies a services of basic principles identified in the Alma Ata Declaration that should be formulated in national policies in order to launch and sustain PHC as part of a comprehensive health system and in coordination with other sectors.

- Equitable distribution of health care – according to this principle, primary care and other services to meet the main health problems in a community must be provided equally to all individuals irrespective of their gender, age, caste, color, urban/rural location and social class.

- Community participation – in order to make the fullest use of local, national and other available resources. Community participation was considered sustainable due to its grass roots nature and emphasis on self sufficient, as a opposed to targeted approaches, dependent on international development assistance.
- Health workforce development – comprehensive health care relies on adequate number and distribution of trained physicians, nurses, allied health professions, community health workers and others working as a health team and supported at the local and referred levels.
- Use of appropriate technology – medical technology should be provided that is accessible, affordable, feasible and culturally acceptable to the community. Examples of appropriate technology include refrigerators for vaccine cold storage.
- Multi-sectional approach – recognition that health cannot be improved by intervention within just the formal health sector; other sectors are equally important in promoting the health and self – reliance of communities.

In sum Primary Health Care (PHC) recognizes that health care is not a short-lived intervention, but an ongoing process of improving people's lives and alleviation, but underlying socio-economic conditions that contribute to poor health. The principles link health and development, advocating political interventions, rather than passive acceptance of economic conditions.

Approaches

The primary health care approach has seen significant gains in health were applied even when adverse economic and political conditions prevail.

Although the declaration made at the Alma – Ata conference deemed to be convincing and plausible in specifying goals to PHC and achieving more effective strategies, it generated numerous criticisms and reactions worldwide. As a result, PHC approaches have evolved in different contexts to account for disparities in resources and local priority health problems; this is alternatively called the Selective Primary Health Care (SPHC) approach.

Selective PHC

It was based on a paper by Julia Walsh and Kenneths, Warren entitled "Selective Primary Health Care, an interim strategy for Disease control in Developing countries". This new frame work advocated a more economical feasible approach to PHC by only targeting specific areas of health, and choosing the most effective treatment plan in terms of cost and effectiveness. One of the foremost examples of SPHC is "GOBI" Growth Monitoring, Oral Rehydration, Breastfeeding, and Immunization , focusing on combating the main diseases in development nations.

GOBI – FFF (Female Education, Family Spacing and Food Supplement). Selective PHC approach consists of techniques known collectively under the acronym "GOBI-FFF". It focuses on severe population health problems in certain developing countries, where a few diseases are responsible for high rates of infant and child mortality. The approach aims to prevent most health and nutrition problems before they begin.

- Growth Monitoring: The monitoring of how much infants grow within a period, with the goal to understand needs for better early nutrition.
- Oral rehydration therapy to combat dehydration associated with diarrhea
- Breast feeding
- Immunization
- Family planning (birth spacing)
- Female education

- Food supplementation e.g. iron and folic acid.

Primary Health Care (PHC) and population aging

Given global demographic trends, with the numbers of people age 60 and over expected to double by 2025, in the future the majority of older people will be living in developing countries that are often the least prepared to confront the challenges of rapidly ageing societies, including high risk of having at least one chronic non-communicable disease, such as diabetes and osteoporosis. According to WHO, dealing with this increasing burden requires health promotion as well as disease management strategies within health care system.

Primary Health Care (PHC)

Some jurisdictions apply PHC principles in planning and managing their health services for the detection diagnosis and treatment of common mental health conditions at local clinics, and organizing the referral of more complicated mental health problems to more appropriate levels of mental health care.

Provision of Emergency Care to the Injured

Emergency medical services (abbreviated to the initialism EMS in some countries) are a type of emergency services dedicated to providing out – of hospital acute medical care, transport to definitive care, and other medical transport patients with illness and injuries which prevent the patient from transporting themselves. Emergency medical services may also be locally known as a paramedic service, a first aid squad, emergency squad, rescue squad, ambulance, squad ambulance service, ambulance corps, or life squad.

The goal of most emergency medical services is to either provide treatment to those in need of urgent medical care, with the goal of satisfactorily treating this presenting conditions, or arranging for timely removal of the patient to the next point of definitive care. This is most likely an emergency department at a hospital. The term emergency medical service evolved to reflect a change from a simple system of ambulances providing only transportation, to a system in which actual medical care is given on scene and during transport. In some developing regions, the term is not used, or may be used in accurately, since the service in question does not provide treatment to the patients, but only the provision of transport to the point of care.

In most places in the world, the EMS is summoned by members of the public (or other emergency services, businesses, or authorities) via an emergency telephone number which puts them in contact with a control facility, which will then dispatch a suitable resource to deal with the situation. In some parts of the world, the emergency medical service also encompasses the role of moving patients from one medical facility to an alternative one; usually to facilitate the provision of a higher level or more specialized field of care but also to transfer patients from a specialized facility to a local hospital or nursing home when they no longer require the services of that specialized hospital, such as following successful cardiac catheterization due to a heart attack. In such services, the EMS is not summoned by members of the public but by clinical professionals (e.g. physicians or nurses) in the referring facility specialized hospitals that provide higher levels of care may include services such as neonatal intensive care (NICU), pediatric intensive care (PICU), state regional burn centres, specialized care for spinal injury and /or neurosurgery, regional stroke centers, specialized cardinal care cardiac catheterization, specialized/regional trauma care.

In some jurisdictions, EMS units may handle technical rescue operations such as extrication, water rescue, and search and rescue. Training and qualification levels for members and employees of emergency medical services vary widely throughout the world. In some systems, members may be present who are qualified only to drive the ambulance, with no medical

training in contrast, most systems have personnel who retain at least basic first aid certifications such as Basic Life Support (BLS). Additionally many EMS systems are staffed with Advanced Life Support (ALS) personnel including paramedics, nurses, or less commonly, physicians.

Service Providers Includes:

- Government Ambulance Service
- Fire or Police Linked Service
- Volunteer Ambulance Service
- Private Ambulance Service
- Combined Emergency Service
- Hospital Based Service
- Charity Ambulance
- Company Ambulance

Purposes

Emergency medical services exist to fulfill the basic principles of first aid, which are to preserve life, prevent further injury, and promote Recovery. This common theme in medicine is demonstrated by the "star of life".

Management of Chronic Infection/Disease

Chronic disease is a long-lasting condition that can be controlled but not cured. Chronic illness affects the population worldwide. As described by the centers for disease control, chronic disease is the leading cause of death and disability in the United States. It accounts for 70% of all deaths in US, which is 1.7 million each year. Data from the world health organization show that chronic disease is also the major cause of premature death around the world even in places where infection diseases are rampant. Although chronic diseases are among the most common and costly health problems, they are also among the most preventable and most can be effectively controlled.

The center for managing chronic disease aim to help people control the effects of their chronic illness by putting them at the center of disease control solutions. When designs for patient education, service delivery, and payment systems all focus on supporting patients' efforts and building the capacity of individuals and families to manage disease effectively, disease control increases, health care costs go down, and family well – being improves.

Examples of chronic diseases that comprise the center's research and demonstration agenda are;

- Allergy
- Alzheimer's disease care givers
- Asthma
- Breast cancer
- Diabetes
- Epilepsy
- Glaucoma
- Heart Disease
- Obesity and over weight
- The food and fitness environment

3.2.1 Safe and Healthful School Environment

A safe and healthful school environment refers to an environment which attends to the physical, aesthetic surrounding. It also refers to the psychological climate and culture

that ensures the health and safety of students and staff. The physical environment includes the school building and the areas surrounding it, biological or chemical pollutants that might induce harm are some examples of factors that influence the physical environment.

However, the psychological environment constitutes the interrelatedness of physical, emotional and social conditions that affects the well-being and productivity of students and staff.

3.3 Physical Education

Physical education is a carefully designed curriculum that provides cognitive, affective and psychomotor related activities. In physical education curriculum, teachers and learners are provided with learning experiences in a variety of activity. These include basic movement skills, physical fitness, rhythms and dance, games, teams, dual and individual sport tumbling and gymnastics and aquatics. Quality physical education should promote in a systematic manner, a variety of planned physical activities, and the physical, mental, emotional and social development of students. These activities should be promoted in such a way that all students enjoy and can pursue the activities throughout their lives.

3.4 Nutrition Services

Nutrition services are those services that provide individual students with nutritional information/knowledge, and balance. Nutrition services take into consideration the health and nutritional needs of all students. The school nutrition programmes offer opportunities for students to experience learning in a standard classroom. Nutrition and health education can be combined in such a way as to serve as resource linkages with nutrition – related community services. Nutrition services can be provided by qualified child nutrition experts.

3.5 Counseling, Psychological and Social Services

Counseling, psychological and social services are services that provide wide range of individual and group assessments, interventions and referrals. These services attend to the mental, emotional and social health of students. Organisational, assessment and consultation skills of counselors, psychologist and social workers are needed in order to contribute to the overall health of students and to the maintenance of a safe and healthful school living.

4.0 CONCLUSION

This unit addresses the features of the school health education curriculum. The features include health education, school health services, safe and healthful school environment, physical education, nutrition services and counseling, psychological and social services. These programmes have far reaching implications on the all round growth and development of students.

5.0 SUMMARY

The unit discussed in details the several features of the school health education

curriculum. It went further to give a detailed analysis of each of these features and what they represent in the school health education curriculum circle of learning. The primary aim of the health education curriculum is to ensure that learners and school personnel are positively affected in behaviour, attitude, habits, life styles, etc.

6.0 TUTOR-MARKED ASSIGNMENT

1. Explain the concept of physical education.
2. Discuss how a safe and healthful school environment contributes to effective learning among learners.

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UNIT 2 PHYSICAL FITNESS IN THE PRIMARY SCHOOL

CONTENTS

1.0 INTRODUCTION

In this unit, you will learn about the meaning of physical fitness, cardio-respiratory endurance, muscular strength, flexibility, body composition.

2.0 OBJECTIVES

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

- discuss the importance of physical fitness
- examine the meaning of flexibility
- list the different types of fitness.

3.0 MAIN CONTENT

3.1 Physical Fitness

Physical fitness is a set of physical activities that allows the body to respond or adapt to the needs and stress of physical effort. Physical fitness allows the individual to perform some moderate-to-vigorous levels of physical activity without being tired. The benefits inherent in physical activity are extensive. For example, physical activity enhances physical and mental wellness with far reaching implications. When one is physically fit, everyday chores or tasks such as lifting things becomes easy, in addition, physical fitness helps people to reduce cases of heart disease, cancer, high blood pressure, diabetes and other degenerative diseases.

In **physical fitness**, body composition is used to describe the percentages of fat, bone, water and muscle in human bodies. Because muscular tissue takes up less space in our body than fat tissue, our body composition, as well as our weight, determines leanness. Two people of equal height and body weight may look completely different from each other because they have a different body composition.

The five major components of fitness are:
i. cardio-respiratory endurance
ii. muscular strength
iii. muscular endurance
iv. flexibility
v. body composition.

3.2 Cardio-respiratory Endurance

The ability to perform or sustain a prolonged, large-muscle and variety of exercises at moderate to high levels of intensity is referred to as cardio-respiratory endurance. Measuring cardio-respiratory endurance depends on factors such as the health state of the lungs and their ability to deliver oxygen to the blood stream, the hearts capacity to pump blood, the nervous system and blood vessels ability to regulate blood circulation, the muscle's ability to generate power and the capacity of the body's chemistry to use oxygen to the fullest.

Cardio-respiratory endurance is a critical component of health – related fitness because the functioning of the heart and lungs is essential to overall wellness. However, cardio-respiratory endurance is developed by rhythmic movements such as walking, jogging cycling and aerobic dance. When the cardio-respiratory levels are low, the heart would have to work very hard during normal daily activities and may not be able to work hard adequately to sustain high intensity of physical activity in an emergency. Also, as the cardio-respiratory fitness improves, the heart starts to function adequately. The heart does not have to work as hard at rest or during period of low levels of exercise.

Cardio-respiratory endurance refers to the ability of the body to perform prolonged, large-muscle, dynamic exercise at moderate-to-high levels of intensity. Cardio-respiratory endurance is an important part of overall physical fitness.

Cardio-respiratory fitness refers to the ability of the circulatory and respiratory systems to supply oxygen to skeletal muscles during sustained physical activity. Regular exercise makes these systems more efficient by enlarging the heart muscle, enabling more blood to be pumped with each stroke, and increasing the number of small arteries in trained skeletal muscles, which supply more blood to working muscles. Exercise improves the respiratory system by increasing the amount of oxygen that is inhaled and distributed to body tissue.

There are many benefits of cardio-respiratory fitness. It can reduce the risk

of heart disease, lung cancer, type 2 diabetes, stroke, and other diseases. Cardio-respiratory fitness helps improve lung and heart condition, and increases feelings of wellbeing.

3.3 Muscular Strength

This refers to the amount of force a muscle can produce with a single maximum effort. Muscular strength requires strong, powerful muscles in order to produce smooth and easy performance of everyday activities. Furthermore, healthy muscles help keep the skeleton in proper alignment, preventing back and leg pain and giving the necessary support for good posture. Recreational based activities are facilitated due to muscular strength. Muscle tissue is a critical part of the overall body composition thus greater muscle mass makes it possible for a higher level of metabolism and greater energy use body help to maintain a healthy body weight. Muscular strength can be achieved by regular training with weights or by using the weight of the body for resistance during calisthenics exercises.

Physical or Muscular Strength is the ability of an animal or human to exert force on physical objects using muscles. Increasing physical strength is the goal of strength training. An individual's physical strength is determined by two factors; the cross-sectional area of muscle fibers recruited to generate force and the intensity of the recruitment. Individuals with a high proportion of type I slow twitch muscle fibers will be relatively weaker than a similar individual with a high proportion of type II fast twitch fibers, but would have a greater inherent capacity for physical endurance. The genetic inheritance of muscle fiber type sets the outermost boundaries of physical strength possible (barring the use of enhancing agents such as testosterone), though the unique position within this envelope is determined by training. Individual muscle fiber ratios can be determined through a muscle biopsy. Other considerations are the ability to recruit muscle fibers for a particular activity, joint angles, and the length of each limb. For a given cross-section, shorter limbs are able to lift more weight. The ability to gain muscle also varies person to person, based mainly upon genes dictating the amounts of hormones secreted, but also on sex, age, health of the person, and adequate nutrients in the diet. A one rep maximum is the test to determine maximum muscular strength.

Strength capability there is various ways to measure physical strength of a person or population. Strength capability analysis is usually done in the field of ergonomics where a particular task (e.g. lifting a load, pushing a cart, etc.) and/or a posture is evaluated and compared to the capabilities of the section of the population that the task is intended towards. The external reactive moments and forces on the joints are usually used in such cases. The strength capability of the joint is denoted by the amount of moment that the muscle force can create at the joint to counter the external moment.

Skeletal muscles produce reactive forces and moments at the joints. To avoid injury or fatigue, when person is performing a task, such as pushing or lifting a load, the external moments created at the joints due to the load at the hand and the weight of the body segments must be ideally less than the muscular moment strengths at the joint.

One of the first sagittal-plane models to predict strength was developed by Chaffin in 1969.[1] Based on this model, the external moments at each joint must not exceed the muscle strength moments at that joint. Where, S_j is the muscle strength moment at joint, j, and $M_{j/L}$ is the external moment at the joint, j, due to load, L and the body segments preceding the joint in the top-down analysis.

Top-down analysis is the method of calculating the reactive moments and forces at each joint starting at the hand, all the way till the ankle and foot. In a 6-segment model, the joints considered are elbow, shoulder, L5/S1 disc of the spine, hip, knee and ankle. It is common to ignore the wrist joint in manual calculations. Software intended for such calculation use the wrist joint also, dividing the lower arm into hand and forearm segments.

Prediction of static strength

Static strength prediction is the method of predicting the strength capabilities of a person or a population (based on anthropometry) for a particular task and/or posture (an isometric contraction). Manual calculations are usually performed using the top-down analysis on a six or seven-link model, based on available information about the case and then compared to standard guidelines, such as the one provided by the National Institute for Occupational Safety and Health, to predict capability.

3.4 Muscular Endurance

This refers to the ability of an individual to sustain a given level of muscle tension, that is, to hold a muscle contraction for a long interval of time. The importance of muscular endurance includes food, posture and injury prevention. Muscular endurance can be developed by stressing the muscles with a greatly load than they have being conditioned to. Again, the extent to which strength or endurance develops depends on the type and amount of stress that is involved.

Muscular endurance is the ability of a muscle or muscle group to do repeated contractions against a less-than-maximum resistance for a given period of time. This is in contrast to muscular strength, which is the greatest amount of force that a muscle or muscle group can exert in a single effort.

Many daily activities, including sports and weight training, require muscle endurance. Activities like duration or distance running, biking, skating, swimming and climbing all require muscular endurance, since the muscle is under load or tension for extended periods of time.

3.5 Flexibility

The ability to move the joints through full range of motion is called flexibility. Physical exercises can help ensure of normal range of motion. Inactivity can cause the joints to become stiffer with age and stiffness can make elderly people to assume unnatural body postures, and it can lead to neck, shoulder and back pain.

Flexibility or limberness refers to the absolute range of movement in a joint or series of joints, and length in muscles that cross the joints to induce a

bending movement or motion. Flexibility varies between individuals, particularly in terms of differences in muscle length of multi-joint muscles. Flexibility in some joints can be increased to a certain degree by exercise, with stretching a common exercise component to maintain or improve flexibility.

Quality of life is enhanced by improving and maintaining a good range of motion in the joints. Overall flexibility should be developed with specific joint range of motion needs in mind as the individual joints vary from one to another. Loss of flexibility can be a predisposing factor for physical issues such as pain syndromes or balance disorders.

Gender, age, and genetics are important for range of motion. Exercise including stretching often improves flexibility. Many factors are taken into account when establishing personal flexibility: joint structure, ligaments, tendons, muscles, skin, tissue injury, fat (or adipose) tissue, body temperature, activity level, age and gender all influence an individual's range of motion about a joint.

Individual body flexibility level is measured and calculated by performing a sit and reach test, where the result is defined as personal flexibility score.

3.6 Body Composition

The proportion of fat and fat free mass (i.e. muscle, bone and water) in the body is called body composition. A healthy body composition involves a high density or proportion of fat – free mass and an acceptably low level of body fat. An obsessed person is more vulnerable to health problems such as heart disease, high blood pressure, stroke, joint problems, diabetes, cancer, back pain and gallbladder.

4.0 CONCLUSION

This unit examined physical fitness. Major highlights in this unit include cardiorespiratory endurance, muscular strength, muscular endurance, muscular flexibility and body composition. Physical fitness is central to wellness hence it is importance.

5.0 SUMMARY

This unit discussed the implications of physical fitness. These include; the promotion of physical and mental wellness. When one is physically fit, everyday tasks becomes easy. Physical fitness helps people to prevent heart disease, cancer, high blood pressure, diabetes and other terminal diseases. Therefore five components of fitness, these include; cardiorespiratory endurance, muscular strength, muscular endurance, flexibility and body composition.

6.0 TUTOR-MARKED ASSIGNMENT

1. Discuss the importance of physical fitness.
2. List and explain two components of physical fitness.

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UNIT 3 DRUGS, SPORTS AND IMPORTANCE OF RECREATION AND LEISURE ACTIVITIES

CONTENTS

1.0 INTRODUCTION

In this unit, you will learn about the history of doping, doping substances, the health implications of doping and the risk factors associated with doping. We shall also review the importance of recreation and leisure- based activities, ways through which recreation and leisure activities can be promoted in the society. It is envisaged that knowledge acquired will help to create the needed awareness acquired by the students *vis-à-vis* participation in recreation and leisure -based activities.

2.0 OBJECTIVES

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

- narrate the history of doping in drugs
- list the different types of doping substances.
- review the benefit of recreation activities
- discuss the importance of leisure based activities.

3.0 MAIN CONTENT

3.1 The History of Doping

The history of the use of drugs in sports dates back to the medieval times. It is on good authority that the ancient Greeks used substances that affect their performance in sports. The Gladiators of circus used substances that influenced their overall performance. Similarly, ancient Greek Olympians used herbs and mushroom to enhance performance (Asken, 1988). The first reported case of drugs in sports was the use of anabolic steroids involving a horse named Holloway. In Fair's (1988) account, the horse prior to the infusion of testosterone had diminished in both

capacity and ability. Several efforts to race failed but after the administration of the drug in February 1941 and several months of training, the horse won a number of races and established a speed of 2 minutes 10 seconds at age of 19. Use of drugs in sport is a common phenomenon.

Doping is generally the practice of adding impurities to something.

- Doping in sport, a term for the use of performance-enhancing drugs in sport often to improve athletic performance
- Blood doping, another means of improving athletic performance
- Doping (semiconductor), intentionally introducing impurities into an extremely pure semiconductor to change its **electrical properties**
- Link doping, an internet slang term referring to methods of website linking

The **use of banned performance-enhancing drugs** in sports is commonly referred to as **doping** particularly by the organizations that regulate sporting competitions. The use of drugs to enhance performance is considered unethical by most international sports organizations, including the International Olympic Committee, although ethicists have argued that it is not different from the use of new materials in the construction of suits and sporting equipment, which can also aid performance and give competitors an unfair advantage.

Health Risks and Sick Effects of Doping

Any performance enhancing substance or method included in the prohibited list has its own potential risks and/or adverse side effects. Some of the prohibited substances are intended for therapeutic purposes and should only be prescribed by registered physicians. Those substances that are offered to athletes are often manufactured and sold illegally and are likely to contain impurities. When these substances are used, they can cause severe health problems.

The reasons for the ban are mainly the health risks of performance-enhancing drugs, the equality of opportunity for athletes, and the exemplary effect of drug-free sport for the public. Anti-doping authorities state that using performance-enhancing drugs goes against the "spirit of sport".

The use of performance enhancing substances may lead to serious health risks and even death. This article highlights some of the side effects of performance enhancing substances and methods so as to help readers to make better choices to protect their health and to say ‘no’ to doping.

Any performance enhancing substance or method included in the prohibited list has its own potential risks and/or adverse side effects. Some of the prohibited substances are intended for therapeutic purposes and should only be prescribed by registered physicians. Those substances that are offered to athletes are often manufactured and sold illegally and are likely to contain impurities. When these substances are used, they can cause severe health problems.

As complex interactions can occur among various types of drugs, the side effects of taking a combination of drugs are likely to be much more severe and serious and thus increase the risk of a harmful or fatal outcome.

Will they cause permanent health damage?

Yes, drugs can create both physical and psychological dependence. When the drug is discontinued, withdrawal symptoms may occur as a result of this dependence. Prolonged use of large dosages of performance enhancing substances may also cause permanent and irreversible side effects.

Commonly-abused Performance Enhancing Substances

Anabolic Agents

Anabolic agents (e.g. steroids) are synthetically produced substances which mimic the effects of testosterone, a hormone naturally derived in the body. Anabolic steroids increase protein synthesis and enhance muscle growth. They also have androgenic effects, including the development and maintenance of masculine characteristics such as the growth of the vocal cords and body hair. Anabolic agents are prohibited both in- and out-of-competition.

Side effects

Steroids can cause serious side effects on a person's health. Most of these side effects are dose-dependent. In general, steroids increase the risk of cardiovascular disease, liver disease, and high blood pressure. Common psychological/behavioral changes include mood swings, aggression, mania, depression, and dependence. For male users, steroids can lead to acne, breast tissue development, permanent baldness, and the shrinking of testicles. In females, steroids can cause acne, the growth of facial hair, and the deepening of the voice. In children, administration of steroids can cause the stunting of growth and pre-mature puberty.

In a study on the long-term effects of steroid abuse in a group of 62 elite power lifters in Finland in 2000, it was shown that the premature mortality rate of the power lifters during the 12 years of follow up was 4 times higher than that of the controlled population.

Stimulants

Stimulants, for example amphetamine and cocaine, are substances that act on the central nervous system. Stimulants can increase alertness, reduce tiredness, and increase competitiveness and aggression in athletes. Stimulants are prohibited in-competition.

Side effects

The use of certain stimulants can cause serious cardiovascular and psychological problems, as well as various other side effects, such as dependence and addiction, increased and irregular heart rate, dehydration, overheating of the body, and dry mouth, etc.

A number of fatalities have occurred in sports where the causes of death were associated with the use of stimulants. In the 1960 Olympics and the 1967 Tour de France, two cyclists died of heat-stroke and cardiac arrest respectively. Traces of methamphetamine and amphetamine, stimulants that can increase body temperature and the risk of stroke, were found in their bodies during autopsy.

Cannabinoids (Cannabis)

Cannabinoids are substances that can be found in the dried flowers, leaves or resin of the Cannabis plant. Cannabis is also known as marijuana, pot, hash, ganja, green, or weed. The use of cannabis causes the body to feel euphoria and relaxation.

Cannabis use is most commonly associated with recreational or social settings but regardless of the environment in which it is taken, if it is found in an athlete's body during competition, the concerned athlete will be sanctioned.

Side effects

Long term risks of cannabis use may include mood swings, feelings of anxiety or paranoia, memory impairment, chronic bronchitis, and the increased risk of lung, mouth, tongue, and throat cancer. Other effects on the body include impaired balance, co-ordination, and concentration, slowed reaction time, drowsiness, and dryness of mouth.

Physical Benefits of Recreation

Taking part in recreational activities, particularly outdoors, can improve your physical wellness. In fact, people who frequently take advantage of park activities have fewer doctor visits, lower body mass indexes and lower systolic blood pressures than those who don't, according to Dr. Laura L. Payne of the University of Illinois. A 2005 California State Parks report also highlights that outdoor recreation provides an excellent opportunity to increase exercise. It cites a 2001 study revealing that the availability of recreational facilities in a location impacts the amount of physical activity in which residents participate.

3.2 Doping Substances

Drugs that are commonly used in doping include:

1. Anabolic steroids
2. Beta Blockers
3. Stimulants
4. Narcotics
5. Diuretics
6. Peptide hormones and analogues

Drugs subject to restrictions in sports include:

1. Marijuana
2. Corticosteroids
3. Alcohol
4. Local anaesthetics

3.3 Health Implications of Doping

The use of banned drugs to enhance performance in sports is gaining popularity among sports men and women. It is a dangerous trends no doubt and it poses a lot of threat to the health of those who use these drugs. Observations and autopsies on athletics that died prematurely form doping reveal that drugs use can affect the individual athletic physiologically. For example, the effects of steroids on athletics have shown that the secondary sex characteristics in men are severe. In men, changes include oily skin, changes in hair formation, testicular atrophy, the

development of a high – pitched voice and gynecomastia and in women, these effects include, virilism, hirsutism; the appearance of a male pattern boldness, deepening of the voice, atrophy of the breasts and the enlargement of Adam's apple.

3.4 Risk Factors in Doping

Risk factors in doping can be categorised into, physical, psychological and emotion. Psychoactive drugs have a lot of physical effects even beyond imagination. These effects include: alteration of consciousness, heart failure and risk of potential fatal overdose.

3.5 Importance of Recreation and Leisure -Based Activities

Recreation activities are those activities one performed voluntarily during his/her leisure hour or time, they are not competitive in nature but skills acquired can be used for other sports**.**

Most major health problems in the society today have been attributed to lack of exercise or inactivity (Murray 2002). Diseases common in our society such as hypertension or high blood pressure, stroke, obesity, diabetes, low back pain, cancers, insomma, paralysis, and other diseases have been connected with lack of physical activity and recreation. There is abundant research finding that justified the need for recreation based activities and increasing individual levels of recreation can promote health and well -being.

The general objectives of recreation programme include:

- facilitating healthful relationship
- promoting healthful situation
- enhancement of wellness behaviours
- promoting resiliency.

Recreation activities can be helpful in-terms of providing the potential of adding more years to one's life, longevity depends on recreational interests and factors. Furthermore, recreational activity can bring about self-efficiency, good health, wellness and resiliency, good recreational activities can be leisure based and it can contribute cognitive, emotional, social and socialisation aspects of an individual life. Recreation is good and it can promote life-long fitness and the ideally happy and healthy person is the one who has recreational pursuits. Recreation works with vigour and pleasure with less fatigue.

3.6 Recreational Activities

Recreation can be done based on one's own convenience and it can promote health and wellness. The following physical activities can be engaged in for leisure purposes:

1. walking home after close of work
2. jogging at moderate level
3. swimming but there must be a lifeguard or lifebuoy.

4.0 CONCLUSION

This unit addressed the issue of drugs in sports. It presented on overview of the history of doping substances, health implications of doping and the risk factors in doping drugs in sports is an age-long practice and efforts to discourage it should be sustained by sports men and women. This unit also explained that the major health problems in the society today have been attributed to lack of exercise or inactivity and listed some recreational activities to curb most health problems.

5.0 SUMMARY

In this unit, the phenomenon of doping is a steady increase and it is of a global concerns. The use of natural talents and abilities should be encouraged and the spirit of sportsmanship should be imbibed by all who participated in sporting activities. The rule of fair play should be applied always and sports men and women should ensure that winning alone is not the ultimate but participation and friendship should also be internalised.

6.0 TUTOR-MARKED ASSIGNMENT

1. Review the history of doping.
2. Name five doping substances.
3. List three recreational activities.

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UNIT 4 BONES, MUSCLE INJURIES AND DISORDERS

CONTENTS

1.0 INTRODUCTION

In this unit, you will learn the nature and functions of bone, types of bone and the importance of studying bone. The body is made up of bones. Bones are important structures. This unit will also review the types of muscle. Attached to bones are muscles. There are basically three different types of muscle tissue found in the human body, these include skeletal muscles, smooth muscles and cardiac muscles. The study of bones and muscles is important because they are part of physical exercise and they require lifelong care. An individual is able to walk, run, kick and jump because muscles pull against bones.

Muscles support movement activities in man. Thus walking, lifting, talking and breathing are accomplished by muscles. Muscles have four basic functions namely; maintenance of posture, production of heat and giving the body the required shape.

2.0 OBJECTIVES

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

- describe nature and function of bones
- explain how bones changes with age
- list the types of muscles and their functions
- list the different types of muscle injuries
- examine the remedies for muscle injury and disorder.

3.0 MAIN CONTENT

3.1 Nature and Function of Bone

Bones are living organs. They are made of cells; they grow, repair and replace themselves. In addition, bones also contain minerals which are non-living materials. Bones make up the human skeleton and they are different in size and shape but they serve the same purposes. Bones could be as strong as iron. They alone repair themselves and change in size and weight as the body grows. The major function of bones is to give structure of the body, protect the delicate parts and supply important minerals to the body. In addition, bones can store minerals until other parts of the body need them.

Bones are rigid organs that constitute part of the endoskeleton of vertebrates. They support and protect the various organs of the body, produce red and white blood cells and store minerals. Bone tissue is a type of dense connective tissue. Bones come in a variety of shapes and have a complex internal and external structure, are lightweight yet strong and hard, and serve multiple functions. One of the types of tissue that makes up bone is the mineralized osseous tissue, also called bone tissue, that gives it rigidity and a coral-like three-dimensional internal structure. Other types of tissue found in bones include marrow, endosteum, periosteum, nerves, blood vessels and cartilage. At birth, there are over 270 bones in an infant human's body,[1] but many of these fuse together as the child grows, leaving a total of 206 separate bones in a typical adult, not counting numerous small sesamoid bones and ossicles. The largest bone in the human body is the femur and the smallest bone of the 206 is the stapes.

Functions of Bones

Mechanical

- Protection — bones can serve to protect internal organs, such as the skull protecting the brain or the ribs protecting the heart and lungs.
- Structure — bones provide a frame to keep the body supported.
- Movement — bones provide leverage system for, skeletal muscles, tendons, ligaments and joints function together to generate and transfer forces so that individual body parts or the whole body can be manipulated in three-dimensional space. The interaction between bone and muscle is studied in biomechanics.
- Sound transduction — bones are important in the mechanical aspect of overshadowed hearing.

Synthetic

- Blood production — the marrow, located within the medullary cavity of long bones and interstices of cancellous bone, produces blood cells in a process called hematopoiesis.

Metabolic

- Mineral storage — bones act as reserves of minerals important for the body, most notably calcium and phosphorus.
- Growth factor storage — mineralized bone matrix stores important growth factors such as insulin-like growth factors, transforming growth factor, bone morphogenetic proteins and others.
- Fat storage — the yellow bone marrow acts as a storage reserve of fatty acids.[1]
- Acid-base balance — bone buffers the blood against excessive pH changes by absorbing or releasing alkaline salts.
- Detoxification — bone tissues can also store heavy metals and other foreign elements, removing them from the blood and reducing their effects on other tissues. These can later be gradually released for excretion.
- Endocrine organ — bone controls phosphate metabolism by releasing fibroblast growth factor – 23 (FGF-23), which acts on kidneys to reduce phosphate reabsorption. Bone cells also release a hormone called osteocalcin, which contributes to the regulation of blood sugar (glucose) and fat deposition. Osteocalcin increases both the insulin secretion and sensitivity, in addition to boosting the number of insulin-producing cells and reducing stores of fat.

3.2 Types of Bones and Bone Formation

The types of bones in human body include the following:

1. Long bone: this is a bone with large ends and a narrow middle. The narrow part of the bone between the bone ends is called the shaft.
2. Periosteum: this is what a type of bone covered with a strong membrance
3. Shaft: the narrow portion of the bone between the layers of tissue called the shaft.
4. Compact bone: situated under the periosteum is a layer of tissue called compact bone.
5. Haversian system: this is a network of blood vessels that runs through canals in the layer of compact bone.
6. Collagen: this is a strong flessible material provided by bone cells. Collagen is held together by minerals.

Bones formation can be affected by age. For example, the bones of a baby are mainly affected by cartilage.

3.3 Cramp

Muscles sometimes suffer damages but they have the ability to heal themselves. There are many muscle injuries and the commonest is a CRAMP. A cramp is a prolonged muscle contraction causing pain. Muscle cramp may occur when the muscle is overworked or overstretched. However, gentle stretching and massaging of the muscle may bring about relieve of the cramp.

3.4 Muscle Strain

Muscle strain is also called pulled muscle and it usually occurs due to severe overworking the muscle. Sometimes, strain is confused for sprain but they are not the same. Sprain is an injury of the ligaments and tendons in a joint and no permanent damage result from a sprain but the muscle may continue to be sore. Strain usually occurs to large muscle such as those of the high and calf muscles. Treatment of muscle strain consists of ice packs application and allowing the muscle to rest. After 48 hours heat may be applied.

Muscle strain, muscle pull, or even a muscle tear refers to damage to a muscle or its attaching tendons. You can put undue pressure on muscles during the course of normal daily activities, with sudden heavy lifting, during sports, or while performing work tasks. Muscle damage can be in the form of tearing (part or all) of the muscle fibers and the tendons attached to the muscle. The tearing of the muscle can also damage small blood vessels, causing local bleeding, or bruising, and pain caused by irritation of the nerve endings in the area.

3.5 Torn Muscles

A torn muscle can occur due to heavy lifting or a sudden shock or pull. Rupture tendons can also lead to torn muscle. However, treatment of torn muscle is similar to that of muscle strain, Heat and rest. A torn muscle is a severe injury.

3.6 Tendonitis

Just the way muscles can be damaged by overwork or injury the same way tendons can be damaged. When a tendon becomes irritated and swollen is called tendonitis. Tendonitis can be troublesome because its healing process is slow. Rest is the only cure for tendonitis.

Tendinitis (also **tendonitis**), meaning inflammation of a tendon, is a type of tendinopathy often confused with the more common tendinosis, which has similar symptoms but requires different treatment. (The suffix *-itis* denotes diseases characterized by inflammation.) The term tendinitis should be reserved for tendon injuries that involve larger-scale acute injuries accompanied by inflammation. Generally tendinitis is referred to by the body part involved, such as Achilles tendinitis (affecting the Achilles tendon), or patellar tendinitis (jumper's knee, affecting the patellar tendon).

3.7 Hernia

This occurs when a portion of the intestine pushes itself through the layer of skeletal muscles in the abdomen or groin. Hernia has been traced to the weak spot in the layer of the muscle. Also, hernia can occur when a person lifts heavy weight but can also happen when a person coughs or sneezes violently. Hernia is common to people who have little strength and muscle tone. Surgical correction is often required for cases of hernia.

A **hernia** is the protrusion of an organ or the fascia of an organ through the wall of the cavity that normally contains it from within. There are different kinds of hernias, each requiring a specific management or treatment.

3.8 Muscular Dystrophy

Many diseases affect muscles. One of such disease is muscular dystrophy. It is a hereditary disease that gradually destroys muscle fibers. Victims of muscular dystrophy can occur from paralysis of the muscles that control breathing or failure of the cardiac muscle. Muscular dystrophy has no known cure.

4.0 CONCLUSION

This unit examines nature and functions of bone, types of bone, muscle injuries and disorders. The unit was able to explain that bones make up the human skeleton and they are different in size and shape but they serve the same purposes and some athletic injuries resulting from muscle and tendon problems and the means through which the injuries can be corrected.

5.0 SUMMARY

This unit discussed some common muscle injuries and disorders. It went further to highlight the diseases that affect the tendons. Also, the importance of rest was discussed as one of the ways to prevent muscle injuries and disorders.

6.0 TUTOR-MARKED ASSIGNMENT

1. List three muscles injuries and disorders.
2. Explain how these injuries and disorders can be treated/corrected.

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