

E-4.1 & 4.2

HEALTH AND PHYSICAL EDUCATION

Total Marks: 50
External Theory: 40
Internal Practical: 10

Objectives:

- To enable the student teachers to develop an understanding about Health-& Physical Education.
- To create awareness and fitness among student- teachers.
- To understand meaning, concept, aims and objectives of Health and Physical Education in school curriculum.
- To understand various Yoga Asanas and techniques.

UNIT-I: Concept, Aims and Objectives

- a) Health Education: Concept, Aims and objectives, importance and principles of Health Education in School Curriculum.
- b) Physical Education: Concept, aims and objectives, need and importance of Physical Education in school curriculum.
- c) School Health Programmes: Health services, Health supervision and Health instruction.

UNIT-II: Nutrition, Health Problems and Diseases

- a) Nutrition: Functions of food and food habits, elements of a balanced diet and malnutrition.
- b) Contemporary health problems and prevention: Drug abuse, Alcoholism, Smoking, Obesity, Stress and Depression.
- c) Communicable diseases: mode of transmission, common symptoms and prevention of spread of Aids, Hepatitis (A, B and C) Chickenpox, Typhoid.

UNIT-III: First Aid, Posture and Yoga

- a) First Aid: Concept, need, importance and principles of first aid, first aid kit.
- b) Posture: meaning and importance of good posture, common postural deformities: causes, preventive measures, remedial exercises.
- c) Yoga: Concept, types, need and importance, benefits of specific yoga asanas with their techniques (Surya Namaskar, Tad Asana, Padma Asana, Chakra Asana, Dhanus Asana)

Unit –IV: Layout of Grounds and Athletic Meet

- a) Recreation: Concept, importance of recreation programme in school curriculum and how to organize a recreation game in school.
- b) Layout of the grounds with rules and regulations of the following games: Badminton, Volleyball and Kho-Kho
- c) Athletic meet – Meaning, Need and Importance, Organization of athletic meet at school level.

Meaning, Aims And Objectives of Health Education

1.01. MEANING AND DEFINITION

Health:

Every individual is concerned with health from the cradle to the grave. The life span can be lengthened if we acquire a little knowledge of how we can maintain it. So it is important to understand the meaning of health. The word 'Health' first appeared in English language approximately the year 1000 A.D. as a means of referring to the quality of soundness and wholeness of body in a very broad sense.

Health is man's natural condition, his birth right. The term 'health' has different meanings with different people. It represents broader and more complex entity. Outside the classroom the question, "What is Health" ? is seldom asked. Most people assume that they know what health is and see no point in discussing the matter. They are far more likely to ask just : What is cancer or heart disease ? Anyone with superficial knowledge of these disease conditions, knows that complete answers to these questions do not yet exist. The implicit assumptions about health are that health is the absence of disease.

The old English term '*Health*' was a condition of being hale, that is safe and sound. A physician defines it as normal functioning of body organs and systems.

According to the *Encyclopaedia of Health*, "It is that state in which the individual is able to mobilize at his resources—intellectual, emotional and physical—for optimum daily living."

In the words of J.F. Williams, 'Health is the quality of life that enables an individual to live most and serve best.'

World Health Organisation. (WHO) has given a more broad and positive definition of Health. It is a twenty-word statement in its constitution which identifies three dimensions of health.

'Health is a state of complete physical mental and social well-being and not merely the absence of disease or infirmity' (WHO-1947)

body's right. But to enjoy this right one has no right to trespass the rights of others. So one must obey the health laws, observe health principles and follow healthy practices.

1.02. HEALTH EDUCATION : MEANING AND DEFINITION

In the words of **Sophe, 1976** 'Health education is concerned with the health-related behaviour of people. Therefore, it must take into account the forces that effect those behaviours, and the role of human behaviour in the promotion of health and the prevention of disease. As a profession it uses educational processes to effect change or to reinforce health practices of individuals, families, groups, organisations, communities and larger social system. Its intent is the generation of health knowledge, the exploration of options for behaviour change, their consequences, the choices of the course of action open and acceptable to those affected.

Health Education definition. To define health education we can say there are as many definitions of health as there are health educators. Finding a comprehensive definition that is satisfactory to all is almost as difficult as defining health. It is likely to suffer from the same myopia as that suffered by the three blind men, who, while walking down the road, came across an elephant blocking the way. Unable to see, they felt their way around the elephant. The first felt the tail and believed that the elephant must be like a rope. The second felt a leg and said that the elephant was like a tree trunk. The third felt the body and was convinced that the elephant was like a wall. Health education is like that elephant which defies definitions by a cursory examination of one or several of its parts.

According to the **report of the Presidents' Committee on Health Education, New York (1973)**, 'Health education is a process that bridges the gap between health information and health practices. Health education motivates the person to take the information and do something with it to keep himself healthier by avoiding actions that are harmful and by forming habits that are beneficial.' This definition provides a good starting point for a discussion of what health education really is. Certainly a lot of health educators see themselves as bridging the gap between information and practice. A strong point in this definition is its emphasis on process.

Dr. Thomas Wood defines health education as, 'The sum of experiences in and school elsewhere that favourably influence habits, attitudes and knowledge related to individual, community and racial health.' In other words anything that educates anyone in matter of health is health education.

Ruth E. Grout defines, 'Health education is the translation of what is known about health into desirable individual and community behaviour patterns by means of the educational process.' This definition explains three things about health :

- (i) What is known about health—the basic health concepts.

(ii) Desirable individual and community behaviour patterns—ultimate health goals, and

(iii) Translation by means of the educational process.

In simple words the basic concept about health should be clear to the child. He should know 'Why to do, what to do and how to do?' For example washing hands before taking meals is necessary. Why? because it reduces the risk of diseases. No false fear should be created in the mind of the child nor any superstition should be attached to it.

Health education, however, is a human creation, and although imperfect in many respects, it is a more manageable concept. It is restricted to the process of presenting information and educational experiences designed to influence behaviour in ways beneficial to health. Health education is distinct and separate from medical treatment and other forms of health services.

1.03. AIMS, OBJECTIVES AND GOALS OF HEALTH EDUCATION

The terms Aims, Objectives and Goals are used interchangeably by many people but they do have specific distinctions.

Aims are the main, big general things towards which all education is directed.

Objectives are more specific and definite things that lead up to the aims and help in achieving them.

Goals are still more explicit and specific things, the accomplishment of which will help in attaining one or more of the objectives and contribute to achieve the aims. We agree with Herbert Spencer that the aim of education is 'complete living'. One of the objectives of education which would help in achieving 'complete living', might be the 'preparation for worthy use of leisure,' and a goal that would contribute towards the accomplishment of this objective, could be to develop, in all persons enough skill to enable them to play any game satisfactorily.'

Aim of Health Education. The aim of health education is to engage people actively in programmes and services which are organised for the solution of health problems, that is to help people learn to do things themselves for their own health improvement.

According to WHO Expert Committee on Health Education, 1954, (P.4). Health education aims at creating 'such a quality of life as may enable an individual to live most and to serve best'. To live healthily is everybody's birth right. But no body has right to live healthily at the cost of others' health. Good health starts from infancy. The phrase to live most warns against an older view which holds one may live a poor, thin, mean life now and sometimes in the future live at his best. The individual must live now, if he has any expectation of living most in the future.

Objectives of Health Education. To achieve this aim of Health Education Ruth E. Grout has laid down certain specific objectives of health education. These *objectives of health education* are related to general objectives of education :

1. Optimum development of the individual with special reference to physical and emotional development.
2. Betterment of human relationships, particularly from the stand point of health.
3. Application of health facts and principles in respect of economic efficiency in the production and consumption of goods and services.
4. Civic responsibility especially in respect to health.

How can these objectives be obtained in life? What goals help to approach? These objectives are discussed as under :—

1. **Physical and Emotional Development.** John Locke, an English philosopher, has written in his book 'Some Thoughts concerning Education,' "A sound mind in a sound body" is a short, but full description of a happy state in this world. He that has these two has little more to wish for, and he that wants either of these, will be, but little the better for anything else. Man's happiness or misery mostly is of his own making. He whose mind directs not wisely will never take the right way, and he, whose body is crazy and feeble, will never be able to advance in it."

Physical and Emotional Health are like two sides of a coin. For a complete healthy man if physical health makes one physically fit, enables him to engage himself in physical activities, resist fatigue, exert strength through the muscles of the body and resist disease, Emotional health enables one to maintain an even temper, and alert intelligence, a socially considerate behaviour and a happy disposition.

Following are the goals to achieve this end :—

- (a) To use wisely the fundamental tools of learning in the field of health. One should speak articulately and intelligently, read selectively and understandingly and write simply and accurately.
- (b) To develop and practise desirable health behaviour.
- (c) To appreciate the aesthetic values of healthful living, including cleanliness and sanitation.
- (d) To make emotional adjustments which enable one to face life realistically and to develop ability for self-direction in one's own health behaviour.

(2) **Betterment of human relationship, particularly from the stand point of Health.** Improvement of relations amongst the members of the family, school, neighbourhood and the community at large in matters of health. To improve healthy relationships there should be co-operation and co-ordination amongst the health services and health

(b) To work for community programmes for health maintenance and improvement.

(c) To keep emotionally balanced when associated with people who hold different opinions.

(d) To have an attitude of respect for health laws, and to seek improvement or change in any laws of which one does not approve.

(e) To be aware of many health problems that have their roots in economic and social ills, and to work actively for conditions that will increase effectiveness of human resources.

(f) To be aware of the independence of nations in respect of matters of health and disease, to recognise the contribution of other countries in this field; and to make one's own contribution in world community.

(g) To have experience in democratic solution of health problems, in school, home and community.

1.04. IMPORTANCE OF HEALTH EDUCATION

The child has more capacity to assimilate education. He is like clay that can be moulded in any shape. Habits and behaviour adopted in childhood remains unchanged even in adulthood. It is health education that helps the child to attain healthy habits and attitudes.

No health programme can be implemented without the help of a school. Hence whatever steps are taken in school regarding health, have a direct bearing on the community. Whatever happens in a community has its effects on the school.

It is expected that the school students, whatever they learn about health in the school do inform or discuss with their parents or other family members. Hence health knowledge multiplies through school and parents also get educated.

At present school is the only agency to impart health education. The headmaster or principal and the teaching staff provide a programme of health education for the students. Thus the students come to know the ways and means of maintaining good health.

Many physical defects develop during childhood such as those involving hearing, sight, posture, nutrition etc., can be prevented at large by intelligent health behaviour, developed through health education.

Health cannot be achieved merely by taking one or two pills everyday not by observing a few restrictions. It can be achieved only by understanding what health is, on what it depends and then applying this knowledge in every-day life. The care of the body regarding food, cleanliness, exercise, rest and protection against disease, are essential for the preservation of sound health. Life is for living. Without health, life is deprived of not only much of its usefulness but also its joys and pleasures. This is possible only through health education which develop a healthy and scientific attitude towards health.

1.05. PRINCIPLES OF HEALTH

Health education brings together the art and science of medicine, and the principles and practice of general education. The teacher cannot teach unless the pupil wants to learn. On the basis of learning principles, we have tried to use them in health education :—

1. Health teaching should be related to the interest of people. Public is not interested in health slogans like 'Be healthy' or "Eat good food". Health educators must find out the real health needs of the people.

Some school teachers never give any importance to health education. May be that these teachers are not acquainted with the subject matter and feel insecure or sometimes the teacher feels that all health problems are the sole concern of a physician. So if teacher is disinterested in health education, he has no opportunity to accomplish its purpose.

2. Health education is concerned with every day living as it affects the individual, his family and the community. Health education deals not only with the health problems of the individual but also with those of the family of the pupil, the school, the community and the nation as well. These problems are of the present and future.

3. Health education deals in specific facts and not in generalities. These facts are based on research, experiments and well founded conclusions of school health education, public health, medicines, nutrition and pharmacy. The purpose of health education is to interpret the conclusion so that the students can easily understand the facts. Ambiguous statements, misleading and meaningless subject matter has no place in it. Health behaviour is acquired through continuous practice. Behaviour is supported by many facts which are scientifically accurate and without any bias.

4. Health education is positive in its approach. For healthful living school students need guidance. It is only health education that can help the students to form positive opinions to guide their action. Valid health information positive in its approach may be able to redirect a developing non-beneficial health behaviour into beneficial one.

5. Health education has a five pronged attack. It attempts to improve mental and physical health of the students, erase pseudo information and misconceptions, promote beneficial health practices and healthy attitudes. Specific and valid health attitudes applied in everyday life can strengthen the individual health practices, attitudes and interests so that health becomes 'a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.'

6. Health education is based on objective information about pupils' health status, physical and mental attitudes, knowledge and interests etc. Health education will be meaningful only if it satisfies the needs and interests of the individual.

Meaning, Importance and Scope of Physical Education

1.01. INTRODUCTION

The human being is an active creature. He possesses capacities for movement. He has all the necessary neuromuscular mechanisms which make movements possible. Without this basic movement there is no life, and physiologically, while man is alive, he must move in some way. The ability to run, walk, throw, bend, manipulate the fingers, swing a stick, swim in a river or climb a mountain—all these movements have played a major role in man's evolutionary experience. This role has been not only physical but intellectual also.

The primitive man taught his young how to ride, how to fall a tree, how to shoot or stalk an animal. These were planned and purposeful movements and the modern programme of Physical education finds its origin.

1.02. MEANING OF PHYSICAL EDUCATION

Physical education refers to an educational process concerned with activities which develop and maintain human body. Physical education is education through physical activities for the development of the total personality of the child to its fulfilment and perfection in body, mind and spirit.

In contemporary usage. Physical implies the medium through which the education takes place. The adjective 'Physical' does not imply that we are educating the Physical, i.e., developing physical prowess or cultivating physical skills for their own sake. It is considered as the part of all education which proceeds by means of, or predominantly through physical activity.

Definitions. The term 'physical education' has been defined by different people in different ways :

Wayman, A.R. has defined physical education as, 'Physical education is that phase of education which has to do with the development and training of the whole individual through physical activities.'

J.F. Williams contends, 'Physical education is the sum of man's physical activities selected, as to the kind and conducted as to outcomes.'

1.05. IMPORTANCE OF PHYSICAL EDUCATION

Our society is very complex. Mentality and intricate skills play a dominant role, and have resulted in frequent questioning of the need for physical education. The physical status of each individual and his daily physical activity affect the physical well being, mental application, emotional stability, psychological adjustment and social efficiency. On the basis of studies conducted at different times and in different countries, it is proved that *physical education plays an important role for the all round development of the child.*

1. Physical well being. Regular exercise plays an important role in developing and maintaining a healthy, well functioning circulatory system and efficient functioning of other organic systems of the body. The sedentary worker is more prone to various diseases than the active one. Low back pain is much more prevalent in the sedentary person than in the physically active.

2. Importance of exercise. Dr. Paul Dudley White, who was President Dwight D. Eisenhower's heart specialist, has written. "*Proper exercise is as essential to good health as eating and sleeping*"

3. Control of obesity. Physical inactivity and overeating are the most important factors for obesity. It is a serious problem. Excess weight and long life are not well associated. Over weight persons are more susceptible to diseases than the thin ones. Physical activity controls obesity and weight. It helps in consuming energy and burns calories.

4. Mental Alertness. Physical fitness is related to mental alertness of the child. Studies have related that physical traits and intelligence.

ence are not only significantly related but, that a person's general potential for a given level of intelligence, is increased or decreased with his degree of physical fitness.

5. **Personal and Social adjustment.** Physical education helps in personal and social adjustment. Studies have related that boys specially high in strength tend to be well adjusted socially and psychologically and boys low in strength show tendencies in social difficulties, maladjustment and inferiority complex.

6. **Healthy instinctive expression.** Physical education offers many opportunities for the wholesome expression of original tendencies. Outdoor and team games are valuable in their recognition of the gregarious interest of children. The basic urge to kick and throw is satisfied in football game and athletics.

7. **Sportsmanship.** Physical education provides ample opportunities for the training in sportsmanship. *Sportsmanship is that quality of honour that desires always to be courteous, fair and respectful.* It is also interpreted in the conduct of players, spectators, coaches and school authorities.

8. **Mental relaxation.** Physical activities provide mental relaxation. It takes the child's mind off his worries and troubles and helps in better concentration.

9. **Work of Adrenalin secretion.** During adolescence stage specially and in youth generally, there are emotional stresses and strains because of contractions in one's own thinking and the thinking of others. As a result the child develops anger or fear in him, causing increased secretion of the adrenalin. It is better to work off these products normally through vigorous activity than it is to force the vital organs to make adjustment.

10. **Development of character.** Physical education is one phase of school work that tends itself particularly to the development of character. Physical education class provides opportunities to discuss character education theory ; it furnishes a laboratory for actual practice.

11. **Citizenship Qualities, Laws, Rules and Penalties of Games.** Physical education helps in developing the qualities of good-citizenship. The laws and rules of games must be obeyed ; the penalties are imposed for any infringement of rule.

12. **Worthy use of leisure.** It contributes to the worthy use of leisure time. Through activities the child can well utilize his surplus energies and make the best of the time available. This keeps the idle man occupied and does not let the unsocial behaviour develop.

13. **Economic value.** Participation in games and activities provides economic value also. To-day many people make their living by teaching, coaching and playing physical activities. It increases one's efficiency in types of work.

The Aims and Objectives of Physical Education

2.01. AIMS, OBJECTIVES AND GOALS

The terms aims, objectives and goals are used interchangeably by many people. But they do not have distinctions and specific purposes.

Aims. Aims are the main big general things toward which all education is directed. It denotes a general purpose, a term used for general category under which general objectives appear.

Objectives. Objectives are more specific and definite things that lead up to the aim and help in achieving them. These are practical, more nearly attainable, major steps or points of significance towards realization of aims.

Goals. Goals are still more explicit and specific things, the accomplishment of which will help in attaining one or more of the objectives and thereby contribute to achieve the aims.

The aim of physical education is the wholesome development of human personality or complete living.

According to J.F. Williams *"Physical education should aim to provide an opportunity for the individual to act in situations that are physically wholesome, mentally stimulating and satisfying and socially sound."*

But the *Physiological aim alone is not enough.* The aim is not only to produce perspiration but to provide inspiration for the youth. *"Physically wholesome."* This term means that the activity given to the children must be good for them. Activity must produce physiological results of exercise, growth and development of human body. *"Mentally stimulating and satisfying"* means that the activity must make the children think and must give satisfaction. By *"Socially Sound"* means physical education should make enough chances for developing moral and social values. Activities must be of service to the present society and to the future generation like truthfulness, honesty, loyalty, obedience etc.

The aim of physical education as given by Jackson R. Sharman is *"To influence the experiences of persons to the extent that each indivi-*

... dual within the limits of his capacity may be helped to adjust successfully to society, to increase and improve his wants, and to develop the ability to satisfy his wants." It is important to emphasize the fact that physical education should seek to increase, develop and satisfy only wants that can be satisfied without annoying or trespassing the rights of others."

The main aim of physical education is almost the same as that of all education namely to give the child full life each day.

2.02. OBJECTIVES OF PHYSICAL EDUCATION

The great value of aims and objectives is not just that they are stated and accepted but that they are pursued and lived out in action. There is a purpose in physical education.

Objectives help the physical educator to understand better what he tries to achieve. If the objectives are clear to him, he can plan activities accordingly. Objectives serves as guidelines for a meaningful, worthwhile programme.

Many objectives have been listed by different physical educators, American Association for Health, Physical Education and Recreation has listed five objectives of Physical education :

1. To help children move in a skilled and effective manner in all selective activities in which they engage in the programme of Physical education.

2. To develop an understanding and appreciation of movements in children and youth, so that their life becomes meaningful.

3. To develop an understanding and appreciation of certain scientific principles concerned with movements.

4. To develop through games and sports better interpersonal relationships.

5. To develop various organic systems of the body, so that they respond in a healthful way to the increased demand placed on them.

J.B. Nash has listed the following four objectives of Physical education. They are :

- (i) Organic development.
- (ii) Neuro-muscular development.
- (iii) Interpretative development.
- (iv) Emotional development.

J. F. Williams, Oberteuffer and Ulrich, Leslie and many others have given their own list of objectives. A detailed study of all these reveals a great deal of similarity. The ultimate aim of education is to enable an individual to live an enriched and abundant life. The objectives of physical education must help in achieving this ultimate aim of education.

Jackson R. Sherman has tried to discuss more comprehensive, meaningful and definite objectives of physical education to achieve his aim :—

1. To provide opportunities for controlled participation in physical activities that will result in educative experiences. The activities should be such as to give opportunities for wholesome expression and understanding the fact that each individual is dependent on other members of the society. For the development of healthy personality emotional stability and wholesome emotional expression is essential. Repression of emotions and instincts may result into unsocial behaviour. Thus physical education provides opportunities for healthy channelisation of these innate tendencies. Opportunities for unhindered self-expression are provided in connection with sports. This enables an individual to assert himself to put forth his best efforts as he chooses and to achieve a kind of success which can be objectively determined. Boys and girls have varied interests at different age levels and they select activities according to their abilities and interests. So the physical education curriculum must meet their interests and needs.

2. To develop the organic system of the body, to enable an individual to live at the highest possible level. The development of the organic systems of the body is accepted as a worthwhile objective because it seems to be true that one can live at a higher level and do better desirable, interesting and valuable things when the body's organic systems work smoothly. The objective of "health for health's sake" and "sound mind in sound body" as ends in themselves are repudiated. The ideal of being healthy in order to be of more service to mankind and get more satisfaction and pleasure out of living is a worthy ideal.

3. To develop skills in activities and favourable attitudes towards play. It is observed that people like to do things which they can do well. They want to play a game in which they have more interest. This attitude is dominant amongst adolescents and adults. It is most worthy objective of physical education to develop enough skill in recreational sports to enable boys and girls, to participate to these activities successfully and satisfactorily.

4. The development of desirable social attitudes and conduct. These help an individual in making personal adjustments and group adjustments. Physical activities provide best opportunities for making such adjustments. Every human being has certain basic needs like recognition, self respect and love, feeling of belongingness and desire to win etc. Fulfilment of these needs make an individual socially well adjusted. A good physical educator will plan such activities that enable an individual to learn social qualities and co-operation, courtesy, sympathy, friendship, honesty and respect for others.

'Social efficiency' embraces moral and spiritual values. These values when applied in human behaviour exalt and refine life and bring into accord with the standard of conduct that are approved in our democratic culture.

Equally important with the moral values are the ethical values. Playing of games and competitions make us learn very important moral lessons. Decisions made at the field during game are helpful in making right decision in actual life. Traits of sportsmanship at the field can be carried and practised with much advantage. Co-operation and submission to the captains, obeying the rules of the games, giving fair chances to opponents and taking victory and defeat with the smiling face are such qualities as are needed in actual life. Physical education must strive to cultivate these traits in individuals. A programme of activities that does not afford opportunities for developing ethical values, in life is not educationally sound and has no reason to exist.

5. **Development of correct health habits.** Leaders in physical education should strive to make people conscious of their health and health problems. Health is many fold viz ; physical, mental, moral and emotional. The importance of all those aspects of health must be explained to the masses and such activities be provided as would make them physically active, mentally alert, morally healthy and emotionally sound. Stress should be laid on ways of hygienic living.

6. **Emotional and intellectual Development.** Pupils get emotional satisfaction and pleasure by overcoming difficult challenges such as learning to swim or creating a new dance pattern, get a thrilling experience out of co-operative success or through team work showing loyalty to the team or developing aesthetic tastes from experiences in dance.

The objectives of physical education depend to a great extent on the political changes that take place in a society. India being secular democratic republic needs such programme of physical education that contributes to the development of such qualities of body, mind and character as will enable our children to shoulder the responsibilities of democratic citizenship.

For intellectual development we encourage students to approach their problems with active imagination, to develop ability to solve problems by thinking analysing, abstracting and coming to conclusions based on sound evidence.

QUESTIONS AND ASSIGNMENTS

1. What is the distinction between Aims, Objectives and Goals ?
2. What are the objectives of physical education ?

School Health Programme

3.01. INTRODUCTION

Importance of good health for children. Good health is of immense importance, for personal happiness, family progress, and for the prosperity of nation. Children are the wealth of a nation. School going children are the only ideal group which can play a dominant role in the building of a strong and prosperous nation. It is therefore the health of school children that has always been, and will continue to be the major concern of the school. It is the responsibility of the school to provide for their welfare and co-operate with the home and the community in organising an effective health education programme.

Role of Schools. Schools are in the best position to promote health, by providing the latest scientific information, forming and motivating health attitudes, habits ; and by providing opportunities for the establishment of desirable patterns of health behaviour.

The idea for teaching children about health has been around for many years, but the idea of assigning this task in a serious and comprehensive manner is a new one, to most schools. In fact majority of schools have never seen a fully certified health education specialist. None has ever bothered to produce such persons. Health has come to be considered one of the most important of the objectives of education.

Importance of health. Health is basic to learning, to happiness, to success, to effective citizenship and to worth while living. So it is a big challenge for teachers and educational administrators to provide pupils with such learning experiences as may enable them to live as healthy, productive individuals as well as make a positive contribution to the welfare of their society.

3.02. WHAT IS SCHOOL HEALTH PROGRAMME ?

The modern school health programme has three phases, namely :

- (i) healthful school living.
- (ii) health education, and
- (iii) health services.

(i) **Healthful School living.** During nineteenth century healthful school living was called 'School Hygiene'. Of course healthful school living is a broader term and implies a greater scope than 'School

'Hygiene' now used to describe this part of the school health programme.

(ii) **Health Education.** The health education phase of the school health programme consists of teaching numerous types of health information including safety education.

(iii) **Health Services.** The third phase of health service programme consists of screening examination, immunisations, health counselling, dental and medical examinations including emergency care and first-aid.

To sum up, in the words of H.F. Kilander. School Health Programme is defined as the composite of procedures, used in school health services, healthful school living and health education, to promote health amongst students and other school personnel. This programme is closely related to physical education and education of the handicapped children.

3.03. OBJECTIVES OF THE SCHOOL HEALTH PROGRAMME

The aim of the school health programme is to develop optimum physical, mental, emotional, and social health of all pupils.

The specific objectives to achieve this aim are outlined by Anderson as below :—

1. A continuing appraisal of each child's health status.
2. An understanding of each child's health.
3. Supervision and guidance of the health of the children.
4. Development of the highest possible level of health for each youngster.
5. Detection, prevention, and correction of defects and disorders amongst children.
6. Special health provisions for the exceptional child.
7. Reduction in the incidence of communicable, and non-communicable diseases.
8. Development of wholesome health attitudes.
9. Acquisition of scientific and functional knowledge of personal and community health.
10. Development of a high level of self-esteem in each youngster and appreciation of aesthetic factors related to health.
11. Development of hygienic school environment, maintenance of sanitary practices, and surroundings.
12. Development of social adjustment.
13. Provision of emergency care.

3.04. IMPORTANCE OF SCHOOL HEALTH PROGRAMME

The points given ahead will justify the need of school health programme :—

1. At school age due to rapid growth, children fall prey to many diseases and a special health care is essential.
2. Children can be approached as a homogeneous group.
3. For good guidance, various techniques are easily assimilated which help in moulding their high character.
4. Health habits can be developed very easily.
5. There is no better place than school where children can acquire educational needs by virtue of their status as developing persons and the challenges they encounter in the school situations.
6. The school also represents first formal encounter with the large society, the family and neighbourhood.

3.05. ORGANISATION OF HEALTH PROGRAMMES

Considering the educational aspects of the school health education programmes, the control should reside in the board of education. There should be co-operation between the school and community.

Health Council and a Health Committee. In each school a health council and a health committee should be organised. This committee will provide leadership and guidance to the health education programme in the school, and will co-operate with the community. The members of this council should include the **Headmaster or Principal**, the **school medical adviser**, **health co-ordinator**, **various teachers**, **students and parents' representatives**. If a school has a nurse, a psychologist, nutritionist or a dentist, they too should be included.

Medical Adviser. Every school must have a full time or a part time medical adviser because students always need medical advice, for many of their health problems.

Within each school there must be some one who has a definite responsibility for the total school health programme. This individual should act as health co-ordinator or health counsellor. He may be a principal, superintendent, or head of any department. The director of physical education is frequently the health co-ordinator. Educators have associated physical education closely with health values, and objectives. Unless the physical educator is specially trained for health education there is no justification for placing him as incharge of the health education programme. If well prepared, he is in a strategic position to perform excellent service. Students usually highly esteem him and grant him great authority. He comes into close informal contact and gains better understanding of their health problems and needs. Innumerable opportunities occur in the physical education classes and intramural and interscholastic sports to protect, promote and teach health. In some schools the physical education department conducts medical examinations of the students. Teacher training institutions are providing much more adequate preparation in health education. Thus physical and health educators prove better

School Health Services

4.01. WHAT ARE SCHOOL HEALTH SERVICES ?

School health services means those activities designed to determine the health status of the child. The service programme embraces the various measures assumed by the school to conserve and improve the health of children. These services vary from institution to institution.

Minimum essentials of good School Health Services

The minimum essentials of good school health services include the following activities :—

1. Health Appraisal
 - (a) The periodic medical examination.
 - (b) The periodic dental examination.
 - (c) Psychological examination.
 - (d) Screening test.
 - (e) Teacher/nurse observation.
2. The follow up programme.
3. Control of communicable diseases.
4. Emergency care procedures.
5. Health supervision of school personnel.
6. Additional Health Services.
7. Students' excuses.

8. A good health service must provide an educational experience for children, leading them to the adoption of desirable health habits in later life.

4.02. IMPORTANCE OF SCHOOL HEALTH SERVICES

School health services lay emphasis on the child, his total personality and not merely on disease or defects. These play an important role in the lives of School children :—

1. School health services are important for the all round development of the child. The ultimate goal of school health service programme is the attainment of physical, mental and emotional health of every student, upto the highest possible level.

2. It indicates the maximum fitness of the child to receive education. If the health of the child is not proper the child will feel weak and may not concentrate on any activity both in school and at home.

3. It informs health personnel, parents, teachers and the child. It informs health personnel, parents, teachers and the child of his health status, suggesting remedial measures including facilities for rehabilitation of handicapped children along with follow up by teachers about specific points.

4. It develops the feeling of security. It develops the feeling of security in the minds of children and they participate in various activities without any fear ; as a result they develop more self confidence.

5. School health services suggest adjustments. School health services suggest adjustments based on child's needs in his school curriculum and activities.

6. It helps in decreasing the number of absentees from the class. The child will get immediate aid and care and that helps in reducing the risk of disease.

7. It helps in the control of communicable disease. It helps in the control of communicable disease by daily health inspection, remedial measures and subsequent immunization.

8. School health service enables the children and the administration to create a healthful environment in the school.

4.03. FUNCTIONS OF SCHOOL HEALTH SERVICES

It is pertinent that teachers, parents and school physicians recognise clearly the functions and limitations of a school health service. Definite service can be rendered by means of the school health examination and other activities of the school health staff by restricting their sphere of activity to the work for which they are best suited.

There are four functions of a school health service *i.e.*

1. to teach children, the fundamentals of healthful living ;
2. to protect each child from acquiring disease from one another ;
3. to provide data concerning the status of each child, so that the school programme may be adapted to individual needs and ;
4. to advise guardians of children concerning defects which should receive the attention of the family physician.

4.04. AGENCIES OF SCHOOL HEALTH SERVICES

School health service is provided by means of :—

1. District school medical officer working as a programme officer under the charge of district chief medical officer.
2. Medical officer of the school.
3. School health educator.
4. School dispensary.

Health Instructions

5.01. MEANING OF HEALTH INSTRUCTIONS

The term health instruction means *instruction in health*. It defines the efforts to promote understanding of health and the observance of desirable health practices. It also defines the effort and time given in class to promote understanding of health and the practice of health habits.

Purposes. The fundamental purposes of health instruction are :

1. To equip the students with sufficient knowledge about their health.

2. To enable to them attain the highest possible level of health, both in attitude and practice.

The most effective way of providing the necessary knowledge, habits and attitude for the entire population is through a programme of health instructions in the schools.

5.02. IMPORTANCE OF HEALTH INSTRUCTIONS

Health instructions play a meaningful role in the lives of all people. Provision of health services and creating a healthful environment is not sufficient without health instructions. Studies have proved that many deaths and much sickness could be avoided if majority of the people knew and applied in their daily living, the available scientific facts of personal and community hygiene. Health instructions are important for the following reasons :—

1. Health Instructions bring about healthful behaviour amongst the students.

2. Owing to illness the number of absentees in the school is decreased.

3. Incidents of communicable diseases can be reduced by providing the people with knowledge of living hygienically.

4. Many physical and postural deformities can be prevented through the knowledge of health instructions.

5. Health instructions develop a scientific attitude towards health misconceptions, superstitions and fads.

6. Health instructions are important for the development of civic sense amongst people. Social crimes like spitting at public places, coughing, sneezing and yawning without using handkerchief, passing urine any where and every where etc. could be avoided by developing intelligent health behaviour and attitudes.

5.03. OBJECTIVES OF HEALTH INSTRUCTIONS

The chief aim of health instructions is to improve and protect the physical, mental and social health of school children.

H. Harison Clarke, in his book, 'Health and Physical Education for the Elementary School Class Room Teacher' has laid down the following objectives :—

1. To provide good health instruction to children so that they may conserve and improve their own health, to the extent that they shall be able to secure the vigour and vitality essential for future happiness and usefulness.
2. To promote satisfactory health understanding attitudes, and behaviour so that pupils of today may become healthy parents and healthy citizens of tomorrow.
3. To develop desirable health habits and attitudes by means of a motivational health instructional programme.
4. To encourage the maintenance of a wholesome and healthful school environment so that it may be a healthy and safe place to live in.

5.04. SCOPE OF HEALTH INSTRUCTIONS

Health Instructions are not limited to the formal health course but also include :

1. Incidental instructions
2. The correlated teaching

1. **Incidental instructions.** By incidental instructions, we mean the instructions students learn naturally through contact with other students. In such situations the instructor gives related health guidance. Reports of medical examinations provide opportunity for incidental health instructions.

2. **Correlated teaching.** In correlation type of instructions health is presented with all other school subjects like science, physical education and social studies etc. The pleaders of health education has pleaded this aspect of health teaching long ago, because it is taught in a natural setting and provides better understanding. Health teaching is not the responsibility of health educator alone but is a joint responsibility of the entire school staff.

5.05. HEALTH COURSES

The following health courses should be included in the health instruction programme :—

1. Diet and Nutrition
2. Body mechanism
3. Personal hygiene

Diet and Nutrition

9.01. INTRODUCTION

What is Diet ? *Diet is the daily intake of food by the human body.* The body is a living organism that grows, functions and acts with the help of food.

What is Food ? *Food in general term is used to describe the nutritive material solid, or liquid taken into the human body.*

Functions of Food

1. It gives energy
2. It keeps up the body temperature.
3. It protects from diseases.
4. It invigorates the mind and helps in the metabolic activities of the body.

What is Metabolism ? The old tissues are broken or consumed in work. Food replaces the same and this combined process is called metabolism.

What is Basal Metabolic rate (BMR) ? The energy output of an individual under standardized resting condition is called Basal Metabolic Rate (BMR).

The taking of food stimulates metabolism. This effect is not equally marked with all classes of food stuffs ; being least with carbohydrates, fats and greatest with proteins.

Specific dynamic action of protein. The more striking effect of protein is termed as "specific dynamic action". Hence the quantity of food needed daily by a child or adult varies as per rate of metabolism.

Both over-eating and under-eating are harmful.

Balanced Diet. A diet containing all the required nutrients to be taken in proper proportions depending upon factors such as age, sex, working conditions etc. to meet the requirements of the body and satisfy its needs is called a 'balanced diet'.

9.02. NUTRITIOUS DIET

Nutrition. Nutrition is the science of nourishing the body. It refers to the various processes concerned with digestion and assimilation of food in the body.

Nutrients. Nutrients are components of food that are needed by the body in adequate amounts in order to grow, reproduce and lead a normal healthy life. Nutrients include water, proteins fats, carbohydrates, minerals and vitamins.

Scope of Nutrition. Nutrition deals with what nutrients we need, how much we need, why we need and from where we can get them. Nutrition is the result of the kinds of food supplied to the body and the way it consumes.

Adequate optimum nutrition. Adequate optimum nutrition is the indication that the supply of essential nutrients is correct. It also implies utilization of these nutrients in body so as to maintain the highest level of physical and mental activity.

9.03. NEED AND IMPORTANCE OF NUTRITIOUS DIET

1. **Required energy.** Nutritive and balanced diet provides the body with required energy for doing work. The food also makes good the energy lost in various activities. Food rich in carbohydrates and fats are called energy giving foods.

2. **Normal temperature.** Nutritive and balanced diet helps in maintaining the normal temperature of the body which is 37°C under basal conditions.

3. **Repairing Tissue.** Nutritious diet helps in rebuilding and repairing the worn-out tissues.

4. **Growth and Development.** Food rich in proteins are known as *body building foods*. Milk, meat, fish, eggs, pulses, oilseeds, nuts and low fat oil seed flours are good examples of such food. Nutritive and balanced diet helps in growth, development and functioning of the body. Without nutritive and balanced diet the human body cannot grow, develop and function efficiently.

9.04. CLASSIFICATION OF FOODS ACCORDING TO FUNCTIONS

Foods may be classified according to their functions under the following heads :

1. **Energy producing foods.** These constitute foods rich in fats and carbohydrates. Next in this list are proteins which also produce energy to some extent as in-take in our food is less. Cereals, roots, dried fruits, sugar and fats belong to this group of energy producing foods. They supply heat and energy to the body.

2. **Body building foods.** These are proteins, milk, meat, fish, eggs, pulses and nuts fall in this category.

3. **Protecting foods.** They include proteins, water, milk, eggs, liver and fruits.

9.05. FUNCTIONS OF FOOD

1. **Building** The food builds our bones, teeth, muscles, soft tissue, the blood and other body fluids.

2. **Repair.** It provides material for repair in the body as wear and tear goes on constantly.

3. **Regulating body processes.** All nutrients with the exception of carbohydrates, play a vital role in the regulation of the body processes. The essential fatty acids present in certain fats, the proteins, the minerals, the vitamin and water, perform certain regulatory functions essential to normal body operations, such as the movement of fluids, control of balance between acids and base, the coagulation of blood, the activation of enzymes and the maintenance of normal body temperature.

4. **Social functions of food.** Food always serves an important function in the social exchange of people. At many social events food indirectly acts as an instrument to develop social rapport. The criterion to plan menu for a social function is not to provide important nutrients, needed for good nutrition but to be popular with the guests.

5. **The psychological functions of food.** Food satisfies certain emotional needs. People who like to travel to new places often face a problem in adjusting to the unfamiliar food customs. With time the strange becomes familiar and new likings are developed.

Food is also used to express feelings. The giving of food is a token of friendship. The serving favourite food is an expression of special attention and recognition and the withholding—a means of punishment.

9.06. CONSTITUENTS OR INGREDIENTS OF FOOD

The following are the Constituents or Ingredients of food :—

1. Proteins
2. Fats
3. Carbohydrates
4. Minerals
5. Vitamins
6. Water

1. PROTEINS

Occurrence. Proteins are present in all living tissues, both plant and animal. They are essential to life because vital parts of the nucleus and protoplasm of every cell are proteins. Protein is the most abundant component of the body. It accounts for about one sixth of the live body weight and one third of it is found in the muscles, one fifth in the bones and cartilages, one tenth in the skin and the remainder is in other tissue and body fluids.

Composition Proteins are very large organic compounds which contain carbon, hydrogen, oxygen and nitrogen. Some also contain sulphur, phosphorus, iron or other minerals. These are the only available source of nitrogen. Proteins are more complex than fats and carbohydrates. Proteins contain usually 16% of nitrogen. Proteins are built from 23 or more simpler compounds called amino acids. The amino acids contain a basic and an acid group in their molecules. The amphoteric nature of protein is very important from the biological point of view as it prevents a sudden change of pH in the body.

Functions. (a) Proteins are the main solid matter in the muscles. They are the major constituents of blood, matrix of bone, teeth, skin, nails and hair. The body consisting of 60% water and 19% fat is held together by only 17% proteins and 4% minerals.

(b) Protein is an essential part of every cell. Proteins are known as tissue builders. Cells in the body continuously consume nitrogen in their metabolic activities and protein is the only food containing nitrogen. We cannot synthesize proteins from simple nitrogen compounds as plants do. Therefore amino acids are needed for the formation of new tissues. Proteins provide amino-acids for the formation of new cells. They also provide the material from which nucleic acids are formed e.g., DNA and RNA (Deoxyribonucleic acid and Ribonucleic acid). The need of proteins to maintain and repair the old tissues continues throughout life. Proteins in the body are not static. They are constantly being broken down and replaced by new proteins, synthesized from amino acids of dietary and tissue source. The amphoteric nature of proteins is useful in maintaining acid base balance of blood or tissue. The blood protein combines with carbon dioxide which is formed in cellular metabolism and the products are excreted in the expired air. A small amount of proteins is needed for synthesizing enzyme hormones and anti-bodies. All enzymes are proteins and are essential catalysts in digestion and metabolic processes in the tissue.

Sources. Plants are the primary source of proteins because they can synthesize proteins by combining nitrogen and water from the soil and carbon dioxide from air.

Animals depend on plants to fulfil their protein requirements. The pulses, whole and split nuts and oilseeds, milk, cheese, curd, eggs, fish, poultry, soyabean, yeast, meat, liver and cereals are good sources of protein diet.

2. FATS

Composition. Fats are the compounds of carbon, hydrogen and oxygen. Mainly three fatty acid molecules are attached to one glycerol molecule. Neutral fats are commonly taken and they are better source of energy. One gram of fat provides around nine calories of energy.

Sources. Fats are found in both animal and plant origin. We get it from oil seeds, coconut, milk products, butter, margarine, fish and lard

Advantages (Functions). Fats are useful to people who have large energy expenditure. It is helpful in cooking, makes food tastier, protects the body from cold and acts as a reserve for energy.

A minimal amount of fat is essential in the diet to provide an adequate supply of certain essential fatty acids and fat soluble vitamins for optimum body functions. An enzyme in pancreatic juice splits the glycerol off the fatty acids of fat molecule in intestine before absorption. This is helped by bile salts present in the bile having detergent properties like washing powder, breaking up fat particle into a very fine suspension, so small that even some fat particles of this size can even be absorbed as such without preliminary splitting.

3. CARBOHYDRATES

Composition. Carbohydrates contain hydrogen and oxygen. The suffix hydrate indicates the hydrogen and oxygen in same proportion as in water. Carbohydrates contain all types of sugar and starches.

Function. The main function of carbohydrates in the body is to provide energy. It is known as the fuel food of the body. Each gram of sugar or starch gives four calories of energy to the body. A small amount of carbohydrate is stored in the form of glycogen mainly in the muscles and liver. The supply of glycogen is available whenever we need energy in vigorous exercise. During the process of combustion with oxygen from lungs, heat and muscular energy is liberated; carbon dioxide and water produced.

Starch is partly hydrolysed by ptylin in the mouth to glucose and maltose. Starch and dextrin are hydrolysed to maltose by amylase in the small intestine. The glycogen is broken into glucose, oxidised and the energy produced is used by the body. If carbohydrate foods are consumed in excess of the body's needs, the excess is converted into fat and is stored as reserve. If proteins supply 10% of the calories, fats provide 20%, then carbohydrates must supply the remaining 70% calories.

Sources. Carbohydrates include all kinds of sugar and starch. Its main sources are cereals, millets, rice, potatoes, wheat, maize, barley, oat, arrow-root, banana, sweet potatoes, sugarcane etc.

Harms due to deficiency. Deficiency of carbohydrates may result in loss of body weight. Lactose is the kind of sugar in milk, glycogen a form of starch exists in liver.

4. MINERAL SALTS

Composition. The mineral elements constitute a relatively small amount of the total body tissue. They are essential to many vital processes and are known as the protective foods. They are essential for the maintenance of the body. There are as many as 19 minerals needed in the body. These form 1/20th of the body weight.

There are seven principal Mineral salts :

to reduce the incidence of simple goitre. Sea foods are rich in iodine. Salt prepared from sea water contains iodine. It is found in water, yolk of egg, onions, fresh vegetables and sea fish.

5. VITAMINS

History. Vitamins were discovered in the beginning of the 20th century. Its experiments were conducted on mice and it was found that only proteins, fats, carbohydrates and minerals cannot keep the mice alive. In 1912 a new substance was discovered and named vitamin. Vitamins are life-giving substances.

Functions.

1. These help in the proper growth of the body,
2. Resist diseases,
3. Facilitate the digestive system and
4. Tone the nervous system.

They are of vital importance and must be included in food in order to maintain life.

Kinds of Vitamins. Six kinds of vitamins have been discovered so far, namely vitamin A, B, C, D, E and K. In the early years of the vitamin research the chemical nature of vitamins was unknown. So they were designated by letters. Vitamins A, D, E and K are *soluble in fat* and Vitamin B and C are *soluble in water*. Most of the vitamins are destroyed if food is cooked in uncovered utensils. Vitamin B, D, and K are destroyed if baking powder is used in cooking.

VITAMIN A

Occurrence. Vitamin A comes from a substance called carotene, found in certain plants. By eating such plants one gets Vitamin A directly.

Functions. It is fat soluble, growth promoting and for this purpose it must be supplemented by iron and calcium. It keeps the skin and mucous membranes all over the body healthy. It protects the body against infections of cold and respiratory diseases.

Harms due to deficiency. 1. Continuous deficiency of Vitamin A causes Night Blindness. In the retina of the eye, two types of cells called cones and rods function for vision. Cones are concerned with colour and rod cells are coated with a substance called 'Visual Purple' which acts like silver coating on a photographic plate, which gives rise to an impulse to the nerve endings in the rods and enables us to see.

2. Deficiency of Vitamin A prevents the formation of visual purple and lowers the visibility.

3. Tear glands get dry.

4. Vitamin A deficiency also leads to xerophthalmia which is a major cause of blindness.

5. Chronic deficiency of vitamin A causes stone in the kidney, gastric ulcer and catarrah.
6. Respiratory infection like bronchitis, broncho-pneumonia and common cold can also take place.

Destruction. Prolonged cooking and exposure to light destroys this vitamin in food.

Sources. Rich sources of vitamin A are green leafy vegetables, beans, yellow carrots, spinach, peas, potatoes, apricot and mangoes, as provitamin A which are less well absorbed from intestine than vitamin A. The conversion of provitamin A into vitamin A occurs in intestine wall of animals and liver in man. Vitamin A occurs in liver, kidney, lungs, fat depots, milk, milk products, muscle, meat and eggs.

The recommended daily allowance of vitamin A is 5000 IU per day for an adult.

VITAMIN D

It is known as calcifying vitamin. It is fat soluble and exists in the following two forms :—

1. It is produced by ultra violet rays of the sun by the conversion of ergosterol, a substance found in body and the other form is present in only animal oils and fats. Vitamin D formed in the skin and also when taken orally is absorbed in the blood. After absorption the vitamin is stored in the liver, skin, brain, lungs, spleen and bones. The liver is the main storage centre. Cod liver oil is the richest source for vitamin D. Small amount is present in eggs, butter, green leafy vegetables, yellow carrots, tomatoes, mild germinated wheat and maize. It is also produced in the skin by the action of ultra violet rays of the sun.

Deficiency harms. Deficiency of vitamin D causes

1. Rickets.
2. less deposition of calcium at the growing ends of bones. Child is restless, pale with flabby muscles, abdomen is distended, delayed growth, bending of bones with depression on both sides of the chest in its lower aspect.
3. In adult *osteomalacia* occurs due to vitamin D deficiency. There is *muscle pain, backache weakness, and spontaneous fractures may occur.*

VITAMIN E

It is falsely labelled as a source of energy and virility. It is fat soluble.

Occurrence. It is found in fatty fish, wholegrain cereals, vegetable oils, milk, eggs, muscles, meat and leafy vegetables.

Harms of deficiency. Its deficiency causes haemorrhagic disorder with anaemia, certain eye and liver diseases.

Source. Animal proteins are main source in food, like liver, kidney, oysters, poultry meat, salt water fish and milk products.

VITAMIN C

(Ascorbic acid, also called antiscrobutic vitamin)

Occurrence. Vitamin C stands very light cooking. Ordinary cooking, grating and mincing of vegetables destroys it. It is spoiled when exposed to sunlight.

Sources. Vitamin C is present in fresh green vegetables, edible green leaves, amaranth, organs, lemon, cabbage, tomatoes, apple, banana, carrots and Indian gooseberry (Amla), gauva, melons, also in sprouted grams, tomatoes, pine apple, papaya, spinach and potatoes. Fresh vegetables and fruit contain more vitamin than the old stale ones.

Its deficiency causes scurvy. Bluish skin patches arising any where, bleeding soft swollen gums. Teeth may become loose and fall. Child is weak and feeble. There is tenderness of bones and he refuses to walk.

Treatment

1. Vitamin C tablets
2. Fresh fruits, juices and fresh vegetables should be taken.

6. WATER

Man cannot live without water and it is the best fluid to drink in any form. 75% of the body consists of water. The percentage of water in the body tends to decrease with age. Thus infants and children have larger water content than adults. Fatty individuals have less water than lean ones. An average adult needs 4 to 5 pints of water a day because the same amount is eliminated from the body in the form of urine, perspiration and water vapours by the lungs in the process of breathing.

Functions. Water has very important functions in the body e.g.

1. It helps in the elimination of poisonous elements and waste products from the body.
2. - It helps in the digestion of food. All digestive juices are in watery form.
3. It forms basis of the body fluids like plasma of blood, lymph, digestive juices and other secretions.
4. It saves the bones from becoming brittle and dry.
5. It maintains the tissues in a soft and flexible condition.
6. It helps in the circulation of blood.
7. It regulates the body temperature.
8. It supplies mineral salts to the body.

Water is an essential nutrient next only in importance to oxygen. Deprivation of water for a few days will lead to death.

9.14. BALANCED DIET FOR AN ADULT WOMAN

Food s	Vegetarain (gm)	Non-Vegetarain (gm)
Cereals	350 + 50 + 100*	350 + 50 + 100*
Pulses	70 + 10*	70 + 10*
Green leafy vegetables	125 + 25 + 25	125 + 25 + 25*
Other vegetables	75	75
Roots and tubers	75	75
Fruits	30	30
Milk	200 + 125 + 125*	100 + 125 + 125*
Fats and oils	35 + 15*	40 + 15
Sugar and jaggery	30 + 10 + 20	30 + 10 + 20
Meat and fish	—	30
Eggs	—	30

Note. 1. Italicised figures indicate additional allowance during pregnancy.

2. *Additional allowance during lactation.

9.15. BALANCED DIET FOR ADULT MAN

Food item	Sedentary Work (gm)	Moderate Work (gm)	Heavy Work (gm)
Cereals	460	520	670
Pulses	40	50	60
Leafy Vegetables	40	40	40
Other vegetables	60	70	80
Roots and Tubers	50	60	80
Milk	150	200	250
Oil and Fat	40	45	65
Sugar and Jaggery	30	35	55

9.16. IMPORTANCE OF BALANCED DIET

Balanced diet means securing the basic food requirements of the body for good health. Balanced diet supplies energy, furnishes repair and growth material to the body and gives vitamins to regulate health. Some of these requirements are needed more at certain stages of life.

In childhood and adolescence one needs more growth material like protein. In old age also more protein is needed for replacing the body tissues.

Throughout life one needs energy which is supplied by carbohydrates.

A great part of our body is bone ; it needs calcium, phosphorus and other minerals.

Similarly vitamins are needed to make up deficiency in the body.

Balanced diet does not supply all these requirements. Along with it also supplies iron, iodine salt, and zinc which are essential for the normal functioning of the body. Herein lies the importance of balanced diet. A diet well balanced in nutrition and taste promotes healthier living, better personal appearance and an optimistic look in life.

9.17. MALNUTRITION AND ITS CAUSES

What is Malnutrition ?

Weak condition of the body, when it does not get complete and balanced food, at the proper time, is called malnutrition.

Causes of Malnutrition. The main causes of malnutrition are given below :

1. **Poverty.** Owing to poverty, many children remain half-fed or poorly-fed. All constituents of diet are not available to them and there are little chances of change in their diet unless they get good nutritious mid-day meals in school. They suffer from malnutrition.

2. **Lack of knowledge.** Parents, especially those living in the rural areas, are mostly illiterate. They lack knowledge of nutritious and balanced diet for themselves and for their children. They take whatever is available or for which they have developed taste and liking. This leads to malnutrition.

3. **Adulterated food.** Owing to selfish motives of traders and food sellers pure food is generally not available in our country. Poor and harmful substitutes are adulterated in food stuffs for earning more profits. Such food proves very harmful for health.

4. **Religion.** Religious beliefs are also responsible for malnutrition. Certain important food items are dropped from the menu for ever which deprive those persons from various food values. Then the concept of vegetarian and non-vegetarian diet is based on religious beliefs. This deprives the individuals from certain better and richer sources of food ingredients.

5. **Food Fads** In certain cases if one vegetable or any such thing has done any harm to one person in the family, it is dropped from the menu altogether, for the whole family, without realizing its plus points for the other members. Then there may be special liking for a certain type of vegetable or eatable. This may be repeated again and again to the neglect of other nutritious items of food and this ultimately leads to malnutrition.

6. **Costly Food.** Certain items like cheese, almonds and butter etc. are dropped from the list, because of their high cost. Their absence leads to malnutrition.

7. **Taking too much or too less food.** Too much of everything is bad. Similarly taking too much of food is very harmful for the system.

It disturbs the digestive system and sometimes diarrhoea is caused. It may also lead to obesity. Taking less food than required is also injurious and harmful. Undernourishment may be either due to the absence of some requisite element of food or due to less quantity of food than required. If the diet fails to meet all the needs of the body, it results in malnutrition.

9.18. EFFECTS OF MALNUTRITION

The following are the main effects of malnutrition :

1. Decrease in the amount of flesh and loss of weight.
2. Complexion becomes pale and muscles become loose.
3. Physical and mental fatigue.
4. The person falls a quick prey to headache, bad cold, cough and heaviness or lassitude.
5. The person suffers from worry, restlessness, excitement, anaemia, and sleeplessness.
6. Lack of interest in work as no concentration is possible.
7. Eyes and teeth become weak.
8. The person adopts bad sitting and standing postures which in the long run, cause different ailments in the body. His proper development stops.

9.19. REMEDIES FOR MALNUTRITION

The following steps may be taken to prevent malnutrition of school children :

1. **Pleasant home and school environment.** The home and school environment must be as neat and clean as possible. Kitchen, dining room and lavatories should receive special attention. The quite clean and attractive place is a boon to good eating.
2. **Wise choice of food.** It includes knowledge about the functions of food. Food values in terms of calories and man's needs, food's digestibility are important factors in relation to food.
3. **Condition of individual.** One should come to table cheerfully, happy and rested. Anxiety and mental strain delays gastric digestion. If tired take some rest before eating, it will help absorption.
4. **Mid-day meals.** Provision should be made to provide nutritious mid-day meals to students during recess.
5. **Medical examination** Arrangements should be made for the medical examination of each student, at least once in a year. This duty should be entrusted to the school medical officer, school nurse and the school educator. Defective teeth, pyorrhoea and diseases of gastrointestinal tract should be treated immediately.
6. **Observe good values.**
 - (i) *Eat slowly.* It is claimed that each morsel should be chewed at least for thirty times. Enjoy food. Do not rush or hurry while eating.
 - (ii) *Do not drink water while eating.* It food is chewed properly there is no need to wash it down the oesophagus with drink. Avoid

water before meal. Normally while eating blood vessels of the stomach are dilated and the blood supply is abundant. Digestive glands are active in secreting digestive juices. Sudden intake of cold water will constrict the vessels and check secretion.

(iii) *Do not overeat.* One should stop eating before completely satisfied. Overeating causes indigestion. It should be corrected by self discipline.

7. **Imparting knowledge of personal hygiene and health.** During school hours, adequate stress should be given on imparting good knowledge of personal hygiene and health, to students of all grades, by subject teachers in general and the health educator, in particular.

8. **Stress on the importance of balanced, well-cooked and tasty food.** Students should be told that a mixed diet, containing almost all important constituents, should be taken. It should be hygienically cooked and delicious in taste. But anything and everything should not be taken for the sake of taste alone.

9. **Leading regular and balanced life.** Mental work, physical activity, rest, sleep and recreation, all should have their proper places in an individual's daily life. Work alone or rest alone is injurious. Meals should be taken regularly and punctually. As far as possible, alcohol, tobacco and harmful drugs must not be taken. Such useless things have no nutritive value.

10. **Regular evacuation.** The hygiene of nutrition will be incomplete without regular evacuation of the bowels ; the best food correctly eaten will not nourish if waste material is not removed.

QUESTIONS AND ASSIGNMENTS

1. 'Nutrition is the science of nourishing the body.' In the light of this statement, discuss the main components of food and their functions in the growth and maintenance of the body. (K.U. 1980)

2. Write short note on 'Constituents of a balanced diet.'

(K.U. 1981)

3. Briefly describe the ingredients of balanced diet. What are short term and long term effects of malnutrition ? (K.U. 1982)

4. Briefly describe the (i) Causes and (ii) Effects of 'Malnutrition' (not more than 2 lines on each be written). Enumerate the different components of a balanced diet. (No explanation needed)

(K.U. 1983)

5. Mention the short and long run effects of malnutrition and describe each of these in not more than two lines each. Enumerate the basic elements of balanced diet. Also write at least three eatables against each element from which these can be obtained.

(K.U. 1984)

6. What do you mean by balanced diet ? Mention the constituents of balanced diet. How far is milk a source of balanced diet ?

(K.U. 1985)

7. What is "balanced diet" ? Discuss the constituents of balanced diet which can be suggested for school children.

(K.U. 1985)

12.18. STRESS

Definition. The adjustive demand placed by variety of obstacles (both environmental and internal) which interferes with need gratification and complicates the effort of an organism to maintain and actualize itself is known as stress.

It requires extra effort, change in on-going activity if the organism is to cope with and meet its needs.

Types of Stress. Stress may be both

1. biological and
2. psychological.

1. **Biological stress.** Multiple boils over body is a biological stress.

2. **Psychological stress.** Economic crises in a country or guilt are psychological stresses on the society or on the individual respectively.

Classification of stress

The stress can be classified as :—

1. Frustration
2. Conflict
3. Pressure.

Let us describe them one by one.

I. FRUSTRATION

When motives are obstructed by some cause that impedes progress towards a desired goal or there is absence of appropriate goal and may be due to external or internal reasons.

1. External reasons :

(a) **Natural causes :** Natural causes which may be both major or minor.

(i) **Major.** Injuries, accidents, death of loved one, drought, storms, wars, economic depression and excessive competition.

(ii) **Minor.** Late running of train when we are to reach in time.

(b) **Social obstacles.** To meet our needs we direct our energy towards socially approved goals. Deviation results in social disapproval or punishment imposed for breaking rules i.e. stealing, eve-teasing, homosexuality.

(c) **Abiding by social norms.** Delay or concentrating efforts in one direction. (The task may be pleasant or unpleasant) and giving up many things.

2. Internal reasons :

Personal limitations or handicaps results in self devaluation when such failures involve our key motives and purposes.

II. CONFLICT

Conflict means a state of tension caused by a struggle between two opposing impulses. When a conflict arises between wants and some opposing force exerted through an individual or through environment, social or economic condition, an emotional state develops which leads to discomfort or frustration. In this situation the individual attempts at an adjustment in order to achieve a state or satisfaction.

Mental Conflicts.

Mental conflicts are sometimes so painful that the person concerned may prefer death to such a conflict. Hence such conflicts may be avoided as far as possible for maintaining mental equilibrium.

III. PRESSURE

Pressure forces us to intensify our efforts and to speed up our activity—often to an uncomfortable degree and stress. Pressure may be of :

- (a) intrinsic or
- (b) extrinsic origin.

These are described in brief below :—

(a) **Intrinsic pressure.** It may be due to working mercilessly for the attainment of unrealistic goals.

(b) **Extrinsic pressure.** It may be due to marriage, parenthood, occupation or civic responsibilities one is supposed to perform.

Determinants of stress. Stress is determined by :

- (i) Duration
- (ii) Importance of demand
- (iii) Multiple factors acting at one time,
- (iv) Individual evaluation of stress and
- (v) Tolerance of the person to stress.

Stress may be

- (i) Mild or
- (ii) Severe.

Uses of stress :

1. **Mild stress.** It improves performance.
2. **Severe stress.** It leads to adjustment demands, both biological and psychological.

12.19. ALCOHOLISM AND DRUG DEPENDENCE

Drug dependence has gradually changed the term "addiction" as ideas about the nature of problem and methods of dealing are changing. It is now realised by all that drug abuse in this country is at large proportion resulting in suicidal deaths from overdose, private suffering, broken homes, reduced working efficiency and loss to the society. Alcohol, nicotine, LSD, Heroin, Cocaine, Cannabis and morphine now a days are of doubtful medical value, in fact harmful and hence not used as drugs.

Factors of dependence on drug. The risk of becoming dependent is extremely high and is governed by three main factors :

1. The drug itself.
2. The personality of individual who takes it.
3. The circumstances in which it is taken.

12.20. ALCOHOL

Most adults take alcohol at one time or another unless it is against their code to do so ; yet relatively few are dependent. In fact alcohol is most widely used drug in our country. Alcoholism has traditionally been associated with the tribal areas of the country where people brew their own liquor. Then the problem spreads to hill areas, north east, industrial town-ships and coal fields respectively. Now others too have got ensnared, hitting people from all walks of life. Now there are three million Indians, who consume alcohol and have become severely addicted. Alcoholics occupy 20 to 30 percent of the beds in psychiatric wards.

Alcohol is a depressant which attacks and numbs the higher brain centre, incoordinated speech and perception to cold, pain is dulled. Repeated excessive drinking results in psychotic reactions which are associated with delirium tremere, acute alcoholic hallucinations and memory defects of recent events.

The phases in alcohol addiction. The phases in alcohol addiction are :—

1. **The pre-alcoholic symptomatic phase.** The pre-alcoholic symptomatic phase with relief of tension but tolerance for tension is decreased and person drinks daily.

2. **The Prodromal phase.** When he speaks, drinks, preoccupation with drinking and onset of black outs with amnesia.

3. **The Crucial phase.** Drinking sets a chain reaction and person cannot ingest more. There are periods of abstinence and drinking. There is reproof from family, aggression, persistent remorse, loss of friends and job, embarrassment to family, loss of outside interest and neglect of proper nutrition.

4. **The Chronic phase.** True alcoholic psychosis with delirium tremere, indefinable fears and more of alcohol to lessen these complete the vicious cycle and hospitalization.

12.21. OPIUM, MORPHINE, HEROIN

The eating and smoking of opium for its narcotic effects is ancient custom. To this list with the advancement of civilization have been added morphine and heroin which are nothing but derivatives of opium. Initially there is relief of pain, drowsiness, light dreamless sleep. If the person remains awake there is euphoria contentment. Continued use results in abstinence syndrome. The symptoms include restlessness, intestinal cramps, profuse perspiration, hot flushes, chills and impending doom forcing the patient once again to take the drug. Many addicts

cannot be cured and their management is by supplies of the smallest dose of drug.

12.22. COCAINE

Cocaine is taken in the form of snuff, smoke or by intravenous injection. It is a stimulant both to nervous and sexual processes. Its use is mainly found in those who are addicted to heroin and results in disorganised behaviour, loss of friends and mobility to work.

12.23. LYSERGIC ACID DIETHYAMIDE (LSD)

LSD is the recent one to be used orally mostly by young people leading to euphoria dillusions, colour patterns before eyes, phantasy thoughts and flight of ideas leading into a state called 'trip'. The person though not physically but psychologically becomes dependent. Later stages may result in terror, self injury and suicide.

12.24. CANNABIS

The drug is known as *hashish* or *Marijuana*. It produce euphoria, feeling of relaxation, floating sensation, and marked stimulating effect on sexual processes due to lowering of moral inhibitions, increased self confidence and sexual advances and anti social episodes. Like LSD, psychological dependence results.

12.25. BARBITURATES

Barbiturates are commonly taken as sleeping pills. These drugs results in building of tolerance and physiological dependence and tendency to take increased dosage. This causes impairment of reasoning, disorientation and unconsciousness. Addiction leads to brain damage.

Amphetamines are particularly used by adolescents and young adults alone for treatment of obesity or in combination with barbiturates for the feeling of well being, euphoria increases mental physical drive and competence. Continuous use results in tolerance, psychological dependence, restlessness, excitability and acute psychotic reaction.

12.26. PSYCHOSOMATIC DISORDERS

These are found in people who are unable to obtain physical and emotional satisfaction in moral and sexual intercourse, but by socially condemned practices.

Psychosomatic disorders like bronchial asthma, sinusitis, recurring bronchitis, peptic ulcer, skin disease, backache, cramps, rapid heart rate (tachycardia), migraine, menstrual disturbances or colitis results in certain individuals, who have genetic predisposition. In such persons stress patterns are commonly associated with diseases and some are listed below :—

1. Asthma

Children involved have appeal for maternal help and protection. In later life there is over dependency.

11.09. COMMUNICABLE DISEASE

It is a disease which can be transmitted or transferred from one person to another, either directly or indirectly.

11.10. TYPES OF COMMUNICABLE DISEASES

Communicable diseases are of the following types :

(i) **Contagious Diseases.** *In this case the infection is transmitted by direct contact with infected persons or objects.*

(ii) **Infectious Diseases.** *When the infection is transmitted through some media, like food, water or air etc.*

Contagious and infectious diseases have a few things in common.

Both signify the existence of some infective material which is transmitted from one person to another, finds a suitable soil in the latter and starts increasing, to produce a specific disease.

11.11. GENERAL CHARACTERISTICS OF COMMUNICABLE DISEASES

Every infectious disease has different symptoms but some of the characteristics are common. They are given below :—

1. They are communicable and pass from one person to another.
2. There is specific micro-organism for one set of a disease. Measles virus will spread measles, influenza with its own specific virus spread influenza and so on.
3. **Incubation Period.** Every infectious disease has incubation period. This period starts from the time the germs enter the body and lasts with the appearance of symptoms. During this time the germs establish, and multiply in the body and do not show any ill effect. Incubation period varies with different diseases. Some diseases have

only a few hours' time and some may have one month. The patient gets infection during incubation period.

4. **Definite Symptoms.** After the incubation period definite symptoms start appearing like *headache, fever, sometimes skin rashes, sore throat and shivering etc.*

5. **Definite duration.** Every disease has a definite duration.

6. The attack of the same disease is rarely repeated. With the exception of a few diseases the attack for the same disease is rarely repeated.

7. Every disease can be prevented by precautionary measures.

11.12. COMMON SYMPTOMS OF COMMUNICABLE DISEASES

Every communicable disease has some specific symptoms but some of the symptoms are common to all. They are given below :—

1. **Shivering.** Shivering is one symptom. The patient feels cold before and during the rise of temperature.

2. **Rise in temperature.** There is rise in temperature. It is due to the toxin produced by the germs, which upsets the balance between the heat production and heat consumption of the body.

3. **Rashes on the skin.** Rise in temperature is followed by rashes on the skin. It is due to the excretion of waste matter, accumulated in the sweat glands and other body parts.

4. **Headache, nausea or vomiting and sore throat.** Headache, nausea or vomiting and sore throat are also very common symptoms.

11.13. STAGES OF INFECTIOUS DISEASES

When infection occurs in a person, it may spread to other parts of his body, increasing the severity of the disease. It may spread

(i) **Directly through tissues ;** as happens in bad cold.

(ii) **Through the blood stream ;** as happens in blood poisoning.

(iii) **Through lymphatic system or through the nerves ;** as happens in rabies. Although the characteristics of various infectious diseases generally differ from each other, there are certain well-marked stages common to all. After the entry of the germs in human body, there are three distinct stages, as given below :—

1. **Incubation period.** This is the interval from the time, the germs enter the body and the appearance of actual symptoms. The length of this period differs in case of different diseases. Usually the period is from a few hours to several days. During this period the germs settle down, multiply and produce their poison. But in this period, the patient generally does not communicate the disease to others.

2. **Active demonstrable period.** At this stage, characteristics symptoms appear and the patient is definitely sick. Generally the duration of most of the infectious diseases is short but in case of tuberculosis, the symptoms may last for years. During this period, the patient feels

- 11. **Pandemic.** An epidemic which spreads from country to country or over the whole world is known as pandemic.
- 12. **Pathogenic Organism.** Organisms which are capable of causing disease in a susceptible host are called pathogenic organisms.
- 13. **Repellent.** A chemical applied to the skin or clothes so as to prevent arthropods from alighting or biting an individual is known as repellent.
- 14. **Vector.** Usually an arthropod i.e. mosquito, flea, tick etc. which transfers an infectious agent from an infected person to a healthy person is known as vector.
- 15. **Virulence.** The relative infectiousness or ability of an organism to overcome the resistance of the host when introduced into the host in very small number is called virulence.

11.16. SOME COMMON INFECTIOUS DISEASES

1. INFLUENZA

Influenza is an acute illness. It is an *Italian* word meaning influence (referring to the influence of stars).

Causative Factor. Influenza is caused by a group of virus. These are of the following three types :—

- 1. **Type A.** It causes virulent disease which is pandemic in nature and is a major epidemic.
- 2. **Type B.** It causes less virulent disease.
- 3. **Type C.** It occurs rarely.

Immunity. Immunity against influenza caused by the virus is of short duration due to frequent mutation.

Spread. Droplet infection from man to man by coughing, sneezing, fomites etc.

Incubation Period. 1—2 days and duration of disease is one week.

Symptoms and Signs. The illness starts suddenly with patient feeling feverish, headache, bodyache, nausea and vomiting. The temperature rises to 39—40°C, pain in back, shivering in spite of high temperature. The fever remains for two to three days with chills. There is sneezing due to irritation of nose or throat and later running of nose. The face with sneezing is flushed. Conjunctiva is congested. Pulse is rapid and there is harsh cough.

Course and Complications. In many cases recovery occurs in three to five days. However complications occur which are related to Respiratory Tract.

The disease spreads to trachea and lungs giving rise to tracheitis, bronchitis and pneumonia.

Nervous System. Encephalitis (inflammation of brain), post influenza asthenia and depression but these last for 1 to 2 weeks.

Prevention. Vaccines are available in U.S.A. and other advanced countries and given after medical advice only :—

- cases.
1. Do not send the child to school for at least 2—3 weeks in severe cases.
 2. Isolate the patient and keep his utensils separate.
 3. No common tumbler should be used in school.
 4. Keep the child under observation.
 5. School should be closed during epidemics.
 6. Children should be adequately clothed with woollens in winter.

Treatment

1. Keep the patient warm in bed. Avoid chilling patient otherwise he is liable to get bronchitis or pneumonia.
2. If symptoms of bronchopneumonia appear, remove the patient to the hospital or consult a physician.
3. Give liquid diet to the patient.
4. Medicated steam inhalations will relieve blocked nose and help smooth breathing.
5. Keep the room temperature warm. In dry winter and summer hang wet sheet or towel close to the child to increase humidity and making breathing easier.
6. For headache, and fever give 1—2 tablets of crocine to be taking 6 hourly. The children below 12 years should get half of the adult dose and below 6 years 1/4 of the adult dose with the consultation of a doctor only.

2. COMMON COLD

There will not be any individual who has not suffered from common cold. As the name denotes it occurs all the year round and effects every person in every part of the world. Immunity given is short lived and specific for that particular virus. Thus average person gets at least two to three attacks in a year which may vary in severity. Some people don't pay attention to this disease or when it effects their children and the patient may land himself with complications which are common in under-nourished children.

Cause. Virus (Like adeno virus, corona virus, influenza virus etc.)

Incubation Period 1—3 days.

Spread. Droplet and direct contact by shaking hands.

Predisposing Factors.

1. Exposure to cold and damp climate.
2. Over work or exhausting condition.
3. Poorly ventilated rooms.
4. Lowered resistance.

Signs and Symptoms. Mild fever, sore throat with tingling sensation in nose accompanied by sneezing and running of nose. The throat is dry and sore, head is heavy. After 2—3 days there is watery discharge from nose. Nose is congested, and there is difficulty in breathing and mild cough. There may be pain in the ears or between the eyes due

to complication of eustachian catarrh or sinusitis, otherwise in an uncomplicated case a patient is well after a week's time. The treatment only prevents complication and relieves patient from agony of symptom. The disease is infective in the first 2—3 days.

Treatment.

1. Complete bed rest for 2 to 3 days.
2. Light, easily digestible diet preferably enough liquids in the form of fruit juices and water.
3. Nasal decongestants for nose (Nasal drops).
4. Avoid chilling and keep the patient well covered.
5. Give aspirin or paracetamol tablet with antihistamine tablets with the consultation of a doctor.

3. MEASLES

It is caused by a specific virus and spreads from one person to another by contact either with the patient or with the infected articles or by droplets. Its attack is not repeated in the life of the same person. Measles means "a spot" and is better known as "khasra".

Commonly it is a disease of the pre-school children and is not considered to be very serious. Most people consider it a necessary event. But if any case of measles is not nursed properly, it may develop complications and cause death. Adults can also have its attack.

The disease occurs in epidemics.

Incubation Period. 10—14 days.

Mode of Spread. By droplet.

Symptoms. It usually begins with cold and dry cough, fever, running of nose and eyes, sneezing and high temperature upto 104°F. After about three days large pink blotches appear on the skin of the face, first seen on the forehead and then on the temples behind the ears and thence all over the body. The eyes get swollen. In the early stages, these blotches are of dusky red colour and have a velvety feeling. The fever subsides as rashes fade.

Complications.

1. Convulsions in children.
2. Diarrhoea and infection of ears.
3. Malnourished children's health may further deteriorate.
4. Pneumonia.

Treatment.

1. Fever can be reduced by aspirin or paracetamol.
2. Keep the patient in bed in a well ventilated room and protect from chill.
3. Its vaccine should be given to other children in the family to avoid infection.
4. Isolate the child from other children.

5. Protect the child from bright light.
6. Proper care of the child should be taken otherwise it may develop bronchitis or pneumonia.
7. Keep the body of the patient clean by giving bed-bath.
8. If diarrhoea develops give Oral Rehydration Powder (ORP), boiled milk and plenty of fluids.

Precautions.

1. Give measles vaccine injection at 9 months of age and repeat at 15 months of age. Such children are less prone to attacks of diarrhoea.
2. Students suffering from this disease should not be sent to school for three weeks of the appearing of blotches or rashes.
3. Quarantine the child if exposed to infection.
4. Close the school if it is in the form of epidemic.
5. Parents should be instructed or educated in the methods of controlling it.
6. Inform the health officer of the area.

4. CHICKEN POX

Chicken pox is a mild disease which effects almost all children from 3 to 10 years of age. Mostly it occurs in winter season. It is not fatal. *Its rashes resemble those of small pox.* Rash of chicken pox is centripetal in character or is localised in the centre of body and is less on face, arms etc. and vice versa in small pox where child is more toxic.

Causes. It is caused by a specific virus, by direct or close contact or by droplets infection. It becomes infectious from the time the rashes start appearing and lasts till the crusts fall down.

Incubation period. From 10 to 12 days.

Symptoms. It begins with mild fever followed by back and legs pain, cramps, chills and sometimes vomiting. After one or two days of this condition blisters or rashes start appearing first on the face and later on the whole body. Then these macules enlarge and develop into vesicles. After one or two days of this condition some watery fluid starts appearing in these blisters, then it turns yellowish. No true pustules form, hence no scar is left behind. Soon it starts to dry, turns brown and the crusts start falling, after 1—2 weeks. During this stage there is intense itching, compelling the patient to scratch. Spots are maximum on the trunk.

Treatment and Precautions

1. Segregate the child immediately.
2. Keep the patient warm in bed.
3. Do not allow the patient to scratch or peel off the rash otherwise it may leave a permanent mark.
4. Daily application of olive oil will cause the crusts to fall down quickly.

8. Keep the patient in bed even after three days of complete recovery.

8. MUMPS

Mumps is an infectious disease but not of a serious nature. It occurs mostly in children of school going age i.e. 5-15 years. The virus attacks salivary glands and rarely other glands. When the disease occurs in adults it becomes serious with complications. In some children around 5 years of age it may just be of trivial nature. The disease is infective six days before and 12 days after the symptoms appear.

Mostly it occurs in spring season. The parotid gland either of one side or both (which are situated at the angles of jaw and front of ear) are effected. Later on the virus attacks the other two salivary glands i.e. sublingual and submaxillary.

Cause. Virus.

Mode of Spread. Droplet infection.

Incubation period. From 14 to 28 days.

Signs and symptoms. There is fever. Pain in the jaws. Parotid gland swollen and tender. Pain, stiffness on opening mouth which becomes dry. The patient feels difficulty in swallowing in chewing.

The swelling starts subsiding after 5-10 days.

Complications. If disease occurs in adults, the following serious complications may arise :—

1. Encephalitis
2. Orchitis (Swelling of testis) in men
3. Mastitis in girls (Swelling of breast)
4. Pancreatitis.

Treatment

1. Isolate the patient.
2. Keep the patient warm in bed as long as there is fever, and swelling particularly to adult children.
3. Give liquid diet as there is difficulty in opening the mouth.
4. Take care about oral hygiene as the mouth is dry due to lack of saliva. Mouth should be cleaned 3-4 times a day with dilute solution of potassium permanganate or by putting drops of savlon in a half glass of water and rinsing mouth with it to prevent any infection and using it as mouth wash.
5. Give hot fomentation to the swollen area.
6. The children with mumps should be kept at home and out of school until a week after all swelling has disappeared.
7. The infection remains for about a week after recovery.

9. TYPHOID

Typhoid is caused by bacillus typhus. It occurs where sanitation is primitive. Outbreak occur from time to time where infection

is contracted by persons travelling abroad. It has world-wide distribution.

Cause. *Salmonella typhi* and *paratyphi*. Other members of salmonella group many of which cause infection and disease in animals produce disease in man ranging from mild food poisoning to serious infection.

Mode of spread. Contaminated food, milk, milk products and water by faeces and carried through unwashed hands, flies etc.

Incubation Period. 10-14 days.

Symptoms and Signs

1. The onset of Typhoid is slow.
2. The patient feels frontal headache, loss of appetite, cough coated tongue, continued fever, loss of weight, malaise, slow pulse, constipation or diarrhoea.
3. Rash may be seen on abdomen.
4. The untreated case will be severely ill, with rapid pulse and tremors of hands.

Prevention

1. Protect the stored water and purify it by chlorination and boiling.
2. Disinfect the toilet (excreta).
3. Prevent against fly breeding.
4. Boil milk and protect milk products from contamination.
5. Proper supervision of sanitation in the town, particularly near eating places and provision of hand washings.
6. Immunization with typhoid vaccine at regular three yearly intervals to school children, infected persons, travellers and crowds in the fairs.

Note. Most of the Preventive measure are the same as those for cholera.

Treatment

1. Give complete bed rest to the patient.
2. In case of high temperature give cold compresses. Icebag on forehead will relieve headache.
3. In case of pain in the abdomen fomentation with hot water bottle will help.
4. Give aspirin or paracetamol tablet to bring down the temperature.
5. Give liquid and easily digestible diet.
6. Give information to the health authorities.
7. Chloromphenicol capsules can be given with the consultation of the physician.

(ii) Bronchopneumonia.

(iii) Bronchitis.

Prevention

1. Health education to school children to wear shoes while going in the open to stop larvae entering the skin.
2. Effective disposal of stools.
3. Provision of sanitary toilets.

Treatment.

Alcopar (*Bepheniam hydrochloride*) was drug of choice for decades, but it was very bitter though very safe. It has now been replaced by polyanthelmintic drug 'Mebendazole' available in the market under various brands.

25. ATHLETE'S FOOT

Athletes' foot is a disease of foot particularly effecting skin between toes

Cause. A parasitic fungus.

Occurrence

1. Mostly occurs in warm humid climate when feet remain constantly wet.
2. The disease also occurs to those who walk bare-footed in ponds, tanks or in fields.

Signs and Symptoms

1. The skin of foot especially between toes become cracked.
2. Pale white blister which later give rise to ulcers.
3. There is burning, itching and severe pain.

Precautions and Treatment

1. Keep feet clean and dry in warm humid climate, particularly in rainy season.
2. Avoid walking bare-foot.
3. Use cotton socks and change them daily.
4. Before retiring, wash the effected feet with warm water and soap or with potassium permanganate solution. Dab the feet clean dry with towel and apply 1% solution of 'clotrimazole' available as "surfaz cream." On getting up next morning wash and dry the feet again as above. Use surfaz powder especially between the webs. Use clean socks.

26. VIRAL HEPATITIS

An acute, highly infectious disease.

Cause. Caused by enterovirus and virus A or B which has yet to be classified.

Source of Infection. The source of infection in a community is the carrier or person who suffers from this disease. He passes infected faeces which enter the body through milk and water.

In Hepatitis A the source of infection may be :—

- (i) Blood transfusion
- (ii) Contaminated needles and
- (iii) Syringes
- (iv) Drug abuse and
- (v) Homo-sexual activity
- (vi) Tatooing of body and
- (vii) Acupuncture.

Incubation period. 2 to 6 weeks

Signs and Symptoms

1. The symptoms start in a child like that of common cold with chills, headache, malaise, anorexia, nausea and vomiting.
2. The fever is 38—39.5°C and face flushed, pulse rapid.
3. Parents and even a careless doctor may be misled. After 3 or 4 days the liver is enlarged, the patient complains of pain in the right upper abdomen.
4. Fever subsides and soon jaundice appears with the passage of dark coloured urine and pale chalky stools.
5. After 7—10 days jaundice starts receding. Stools and urine regain their original colour and the patient recovers fully in 3—6 weeks though 10% of cases may relapse.
6. Death is uncommon.

In hepatitis B virus the signs and symptoms are the same as those of hepatitis A virus except that they are in severe form.

Precautions and Treatment

1. Improve social condition, over crowding, water supply, drainage and unhygienic situations.
2. Prevent the child from attending school. Give complete rest and high caloric diet (at least 2500), like fruit juices, glucose drinks, toffees, biscuits or whatever a child wants. Even in villages ordinary *mishri*, candies and jaggary (*Gur*) will help.

27. LICE PEDICULOSIS

Occurrence. Lice may be present on head, body or on pubis. *Pediculosis capitis* is most common in girls and those who keep long hair.

Mode of Spread. Infestation from one person to another is :—

1. By personal contact or
2. By wearing infested head gears. A louse can lay as many as 50 eggs in less than a week, called 'Nits' fixed to the hair by a cement like substance, which hatch in from 3 to 5 days and

14.01. INTRODUCTION

First-aid is known the world over, and has been practised ever since the inception of humanity. In India the historical evidence of rendering first-aid to the wounded and sick, is available in our history; quoting a very few, the wars of Mahabharata, the Mughals, the Sikhs and during natural and man-made calamities. Mahatma Gandhi, who was torch bearer of the struggle for freedom to our country from British rule, led a band of dedicated first-aid volunteers in 1906 in the time of Zulu Rebellion. Earlier in 1899, at the time of Boer war in South Africa, he himself carried the wounded General Buller to the base hospital.

Learning first-aid is a civic responsibility of each citizen. An organised world-wide effort to impart first-aid came in 1877 with the formation of St. John Ambulance Association of England, after the apostle of St. John. There is universal understanding on imparting first aid to people suffering from various kinds of injuries or illness. Obviously the implements to give first-aid have to be simple and available almost every where without notice. This also requires the first-aider lot of innovations and versatility to use to resources available to him.

14.02. FIRST-AID—MEANING

It is an immediate aid given to the victim of an accident on sudden illness before medical help is obtained. It is an immediate and temporary care. It is not expected from the first-aider to impart any treatment; but to practise the basic principles of First-aid and render such help as needed by the victims till the medical aid arrives or he is carried to the hospital. It is a help which calms the victim's fears and reduces any chance of further injury. If a victim is bleeding, further loss of blood is immediately stopped. If a bone is broken, the area is to be immobilized and patient put to rest. In suffocation cause is removed, and open air way is ensured to allow air to reach the lungs. In case of convulsion, the patient is protected from injuring himself, and free supply of fresh air is ensured. If poison has been swallowed, it should be removed or neutralized without delay and shift the victim to hospital.

First-aid also requires a lot of innovation and versatility to use the resources available to the first-aider. The first-aider must not overplay

his duty of doing what is not in his domain. He must not consider himself to be a doctor. His job is to save and sustain life and limb till the doctor arrives ; or the patient is transferred to medical care.

14.03. QUALITIES OF A FIRST-AIDER

1. The first-aider should observe carefully and think clearly.
2. The first-aider must act quickly, methodically giving priority to most urgent conditions.
3. He should be calm and cool.
4. He should be confident.
5. He should not get excited.
6. He should be able to use his common sense and use the resources available to him.
7. While waiting for a doctor he should render first-aid methodically.
8. He should be assertive in his limits.
9. The first-aider must not over play his duty of doing what is not in his domain.
10. He should be explicit, so as to give clear instructions to the patient and the by-standers.
11. He should be persevering, that he may continue his efforts, even if he does not see any improvement.

14.04. PRINCIPLES OF FIRST-AID

1. A first-aider should never take the duties, and responsibilities of a doctor.
2. Remove the cause of injury, or the patient from the cause.
3. Keep the body of the patient in a restful position, and support the injured part.
4. Attend to sever haemorrhage immediately irrespective of other injuries.
5. Cover the wound with a clean dressing.
6. Ensure the free air supply to the patient. See that there is no obstruction to the air passages. Start artificial respiration if breathing has ceased.
7. Do not cut the clothes unnecessarily. Slit open the seams.
8. Keep the patient warm by wrapping him in blankets, coat or rug, or by using hot water bottle.
9. In case of fracture, do not move the patient till bone has been made immovable, unless there is danger to life.
10. Poison swallowed should be got rid off or neutralized according to the nature of the poison.
11. Arrange the best means of transport, and make provision for proper care at the place of shelter.

14.19. CONTENTS OF A FIRST-AID BOX

The First-Aid Box should contain the following equipments and medicines to enable the First-Aider to render effective, timely and appropriate aid.

Equipment or apparatus

1. Clean cotton wool.
2. Scissors.
3. Bandages—Triangular bandages.

4. Splints.
5. Tweezers.
6. Tourniquet.
7. Safety pins.
8. Adhesive dressing.
9. Measuring tape.

Medicines

1. Smelling salt.
2. Common salt.
3. Burnol.
4. Dettol.
5. Iodex.
6. Throat paint.
7. Vicks vaporub or balm.
8. A.P.C.
9. Mercurochrome lotion
10. Potassium permanganate.

10. Spoon.
11. Thermometer.
12. Graduated glass.
13. Needle.
14. Camel hair brush.
15. Pads of various sizes.

11. Bicarbonate of soda.
12. Belladonna plaster.
13. Olive oil.
14. Tincture of ioine.
15. Locula.
16. Gentian violet.
17. Gum paint.
18. Glycerine.
19. Dusting powder.
20. Coramin drops or tablets.

QUESTIONS AND ANSWERS

Posture

8.01. WHAT IS POSTURE ?

Posture concerns the way a person carries himself while standing, walking or sitting. It means carriage or the manner of holding one's body.

There is no single good posture, but many and the main beauty in it is alignment of parts in relaxation rather than tension. It does not conform to rigid standards of body positions. It is not necessary that we may always stand in a certain position or sit firmly in a chair or sleep like a log in order to have good posture.

On the other hand, the secret of good posture, is a frequent change of position. Even during sleep, our body continually shifts its positions. Remaining in one position for a long time is fatiguing and tiring. It is, therefore, necessary that we must consciously try to achieve good posture.

8.02. IMPORTANCE OF GOOD POSTURE (CARRIAGE)

No one can deny the importance of good carriage. The first impression of a person includes, how he carries himself. Carriage reflects our alertness, breed and strength of character and good carriage means good posture. Good posture makes it possible for the ligaments and muscles to maintain positions of the body which are conducive to efficient movement. The efficiency and health of our body depends upon a balance of its various opposing forces. When we keep a natural balance in activities like walking, sitting, standing, running, playing or working, we are said to have good posture. When the balance is altered by disease, fatigue, faulty habits or accident, we are said to have bad or poor posture.

Good posture is largely an individual matter of common sense. It is impossible to standardize the human body, because no two persons have the same physique. Certain structures of our body may differ from those of other people because of hereditary factors. We may inherit certain weak muscles, ligaments, crooked spines and defective bones which may make some parts of our body structure more prominent than others. It may mean that each physique has its own posture standard.

No one can achieve perfect posture without a conscious effort to do so. It is a good practice to check the postural habits frequently. It is possible to assume a balanced posture by giving an expression of joy and cheer to replace a depressive mood. It achieves results when efforts are made to walk with elastic steps, to hold the head erect, and abdomen flat. The importance of posture lies in the fact that there is a definite relationship between good health and good body posture. In primary schools, those children, who have been taught to practise good posture have fewer absences from school as compared to other children. In the army, soldiers, who have poor body posture cannot withstand the vigour of military life. There is clinical evidence to prove that good posture is very important, both as a preventive and as a curative to disorders like gout, back-ache, foot trouble and abnormalities of menstruation.

8.03. CHARACTERISTICS OF GOOD POSTURE

(i) Good posture indicates healthy and sound body. A cheerful optimistic temperament is an accompaniment of an erect energetic body. Depression, pessimism and discouragement express themselves in a relaxed sagging body and are incompatible with an erect energised position ready for action.

(ii) Good posture is that in which the body is held, without any sense of effort, with the weight equally distributed over the two legs and feet so as to produce the least fatigue. The axes of trunk, head and neck are parallel to a vertical line and the halves of the body are moved evenly, smoothly and rhythmically without effect of fatigue. The normal curves of the back are not deepened or twisted and the abdomen is held in so that it is not markedly rounded or prominent. The chest is held in a way that the shoulders are in level and erect, but are not pushed forward otherwise the hollow curve at the bottom of the spine gets accentuated.

(iii) All human beings differ from one another. So each person has his own peculiar postural problems. Therefore there is no single best posture for all individuals.

There is no prescribed test or scale to measure the best posture of a person. Our scientific approach to a balanced posture is by carrying each body part in such a position that it balances as securely as possible on the part below, which acts as its base of support. When the centre of each part of the body lies directly over the base which support it, gravity becomes a force which pulls the body together. When any part projects out of line and is totally or partially unsupported at its base, gravity becomes a force to pull the part further out of line and this pull must be resisted by the ligaments and muscles which hold the part of the body. To maintain total body balance with a minimum expenditure of energy it is necessary to co-operate with a pull of gravity and to work with gravity and not against it.

8.04. VALUES OF GOOD POSTURE

The values of good posture may be related to a pupil's appearance, movement, efficiency and physical fitness. These values are described below in detail :—

1. **Appearance.** Every one tries to appear as attractive as possible. Great efforts are made by all men and women to appear attractive in their neighbourhood, in educational institutions, in clubs, in social gatherings and where not. For this purpose large amount of money is spent on clothes of the latest style and on cosmetics etc. No doubt, all these things do play their effective role in making a man or woman attractive. But body itself contributes a great deal to this end. Nobody would judge a person as having an attractive and pleasing appearance if he or she possesses a thrusting out head, round shoulders and sagging abdomen.

2. **Movement efficiency.** In sports, the body posture of a player is vital in the performance of his function. He has to stand, run and bend his body in a particular position while playing a game or participating in athletics, and sports. Therefore, in standing, walking or running, a person will be more effective, graceful and co-ordinated if he or she possesses good posture. The players' good posture will keep the body in equilibrium, each organ in place and each set of muscles doing its own specific job. All this facilitates efficient movements of the body.

3. **Physical fitness.** Posture is also very valuable for physical fitness. The basic components of physical fitness are :

1. Muscular strength.
2. Muscular endurance and
3. Circulatory endurance.

1. **Muscular Strength.** Muscular strength is the maximum strength applied to a single muscular contraction, for example, the grip strength.

2. **Muscular endurance.** It is the ability to continue muscular exertions.

3. **Circulatory endurance.** It involves moderate contraction of large muscles for a long period of time.

Underlying all physical fitness is a body, free from disease and organic exhaustion. Poor posture impairs the proper functioning of internal organs, nerves and blood vessels and thus reduces a pupil's physical fitness. Hence good posture makes great contribution in providing physical fitness to our students.

4. **Hygienic Value.** The erect and straight vibrant body has its organs properly suspended so that bodily functions are more complete and perfect.

5. **Spiritual Values.** With the physical uplift of the body by assuming a correct posture, the spirit is uplifted. One cannot enjoy the beauty of the rising sun with a hunch back and protruding neck.

6. Economic Values. Good posture speaks of the spirit within the body. Seeking a job depends on the way we hold our body. Alertness portrays the way we sit and stand.

Important Postural Positions. Mainly there are four important postural positions. They are :—

1. Sitting posture
2. Standing posture
3. Walking posture
4. Lying posture

Let us describe them briefly.

1. Sitting posture. There are three different sitting positions :—

- (a) Simple sitting
- (b) While reading
- (c) While writing.



(a)



(b)



(c)



(d)

Fig. 8.01.

(a) **Simple Sitting.** Simple good sitting means a body well placed symmetrically on the pelvis, hips as far back in the chair as possible. Head, shoulders and hips in a line with spinal column erect with its natural curves. Legs should rest vertically on the feet, thighs horizontal, both feet flat resting on the ground. Both hands should be comfortably resting on the thighs. The head must be so placed as to give relief to the neck muscle in the front and at the back. Fig. 8.01 (a).

Generally children develop a 45° curve in the vertebral column and put undue pressure upon the internal organs, which is a defective sitting position.

(b) **Reading posture.** For reading purpose the sitting posture should be the same as explained above. In addition to that the child must sit erect and hold the book at an angle of 45° to the horizontal and at a distance of 12 inches from the eyes. Both hands should rest on the table in front and both feet on the foot rest. Fig 8.01 (b).

If the book is held nearer, it will strain the eyes resulting in myopia. Wrong sitting position leads to contracted chest, stretched muscles of the back, shallow respiration, and sometimes the abdominal muscles too get congested. Sometimes children sit using the edge of the chair and by putting body weight on the pelvis at the end of the spine. This posture causes early fatigue, shallow respiration and poor digestion.

(c) **Writing Posture.** For best writing posture the children must use chair and writing table or some improvised material can be converted as table and stool. For writing purpose child should sit squarely in his seat, body erect and balanced, thighs horizontal, legs vertical and feet flat on the floor. The seat drawn under the table, height of the table should be adapted to the height of the child. It will be appreciable if the top surface of the table is with a slight slope. Fig. 8.01 (c).

Some children use the slanting style while writing, they bend their head towards left side and raise the right shoulder, the spine is curved to the left, the writing paper is held towards right side of the body. This posture is very tiring and causes muscular and nervous strain.

2. Standing Posture. There are two standing postures. One is standing for a short time and the other for a long time.

1. Posture for short period standing. For short period standing, the best way is to hold the body in a way with proper alignment of its parts i.e. the head in between the two shoulders, chin drawn in, the chest thrown forward with shoulders in level and back erect with its natural curves and body weight equally distributed over both the legs and feet, slightly apart in a parallel line. This position cannot be maintained for a long period and both the legs get tired simultaneously.

2. Posture for long period standing. For long standing period, the best way is to put one foot ahead of the other, in a balancing position or one leg can be shifted to the left or right side and main body

weight remains on one leg and other acts as a balancing leg. The weight is transferred, giving rest to both the legs alternatively. Standing with most of the body weight on one foot creates greater stretch on the extensor muscles of that limb and consequently greater extensor tone, than in the other limb. If the weight is shifted to the opposite limb the stretch in the first limb decreases while in the second limb it increases, this automatically shifts the greater tone from one limb to the other, depending upon the need for stability of the limb. The equilibrium centre of the brain adjusts the tension of the postural muscles so that these muscles carrying the most of the weight automatically contract and re-adjust the balance of the body.

3. Walking Posture. *Good walking reflects the personality of a person.* Very slow walks with uneven paces and drooped neck indicates some inferiority complex in the person. Similarly walking with stiff neck, looking upward, chest out indicates some superiority complex or dominating personality.

The best walking posture is the foot in action placed on the ground with the line of direction parallel to the line of movement. The toes should point forward. In walking the heel should touch the ground first and then weight of the body be transferred to the toes, along the outer edge of the foot.

Wrong walking can cause early fatigue to the leg and foot muscles or pain in the legs and feet.

4. Lying Posture. Sleep on your back with knees propped up or on your side with one or both knees drawn up. Bed should be firm.

8.05. CAUSES OF POOR POSTURE

The following are the causes of poor posture :—

1. Congenital. Some children have congenital postural deformities. These deformities are present at the time of birth.

2. Acquired. Other types of deformities are acquired due to so many reasons, e.g.

(i) **From Diseases.** Various diseases are responsible for bad posture of the child, as inflammation of the bones (osteomyelitis), Rickett tuberculosis, polio, etc. These diseases may cause knock knee, or develop curvature of spine.

(ii) **From Accident or Injury.** Injury can also cause deformities like shortening of one limb and deformity due to the contraction of scars or burns.

(iii) **Improper diet or Malnourishment.** Improper diet or malnutrition may also cause deformities like rickets, narrowing of the pelvis, the pigeon's chest etc.

(iv) **Weakness of senses.** Weak eye sight, complete or partial deafness also causes physical deformity. A child has to twist his body to adjust to the voice or to see things clearly.

(v) **Fatigue.** Owing to fatigued body the child becomes lethargic and adopts wrong posture in sitting and standing.

(vi) **Physical Weakness.** Physically weak children get tired very quickly. They cannot sit for long hours in school. Under compulsion they sit by adopting wrong postures.

(vii) **Over Work.** Over work, mental or physical, causes fatigue. The body gets tired after a specific time and needs rest but continuous over work leads to wrong postures by adopting different postural positions to lessen tiredness and to finish work.

(viii) **Fashion.** Due to fashion many persons adopt a specific style of holding the body or put on very tight clothes or shoes which hinder the activity of the body, even one cannot breathe properly and twist one's body to feel easy.

(ix) **Delicacy and imitation.** It is very common amongst ladies. To prove their delicacy, they walk, sit and move their body delicately which spoils their figure. Children generally imitate their teachers or best liked persons, may be some film hero or heroine. Without knowing the reason they imitate and adopt their style, which disfigures them.

(x) **Heavy Bags.** Carrying heavy bags on one's shoulders or on the upper back results into round shoulders or one shoulder high and the other low.

(xi) **Unhygienic School condition.** Over crowded classrooms, insufficient air, bad ventilation or bad lighting.

(xii) **Improper Furniture.** Improper Size of the chair and table or insufficient furniture.

(xiii) **Long Sitting.** If the students are compelled to sit for long hours, without any change in body positions, it causes bad posture.

(xiv) **Insufficient Sleep.** Lack of sleep or sleeplessness also causes bad posture. It may develop drooped neck or faulty curvature of the spine.

(xv) **Lack of exercise or Unsupervised wrong exercises.**

(xvi) **Improper time table.** If all strenuous, periods are arranged one after the other, it causes bad posture.

(xvii) **Wrong Punishment.** Long standing, holding ears under the legs or raising arms upwards for a long time.

(xviii) **More mental work.** Continuous work without rest will make the students dull and tiresome. Too much of worries are also responsible for bad posture.

(xix) **Lack of knowledge.** Students do not know what is a good posture? Or how to sit and stand properly?

(xx) **Obesity.** Because of burden of excessive body weight.

(xxi) **Poor muscular development.** It leads to bad posture. Their antigravitational muscles lack muscular endurance.

8.06. PREVENTIVE MEASURES

Childhood is the best time to improve healthy postures. Every attention should be paid on the postural aspect of the child's personality.

The following measures should be adopted to prevent bad posture :—

1. **Providing knowledge of good posture.** It is one of the important functions of the school to provide knowledge of good posture to its pupils. The class room teacher must understand and disseminate it to the pupils. Individual instructions in correct posture may also be given to certain pupils with faulty postural habits, to achieve best results. Instructions before full-length mirror can be most effective because in that case, the pupil can see as well as feel the correct position.
2. **Sending students with congenital deformities to orthopaedic hospitals.** For congenital deformities the students should be directed to go to orthopaedic hospitals only. Teacher himself should never try to correct such cases.
3. **Practice of remedial or corrective exercises.** Practice of remedial or corrective exercises should be given to the students individually, according to their practical needs.
4. **Carrying of heavy loads of bags.** Children should not be allowed to carry heavy loads of bags. Drawers or almirahs can be provided in the school to keep books.
5. **Developing posture sense.** Students should be shown the correct body mechanics. A 'Posture sense' should also be developed in the mind of the students.
6. **Investigate and correct fatigue and strained attention.** Every possible source of fatigue and strained attention must be investigated and corrected e.g. deafness, eye strain etc.
7. **Remove the causes of :—**
 - (a) Faulty occupational practice
 - (b) Faulty sitting accommodation
 - (c) Faulty shoes or clothes
8. **Giving knowledge about nutrition.** Knowledge about nutrition should be given. Cheap nutrients should also be suggested. It is advisable if provision for mid-day meals be provided by the school authorities.
9. **Introducing short periods of activity.** Continuously long sitting and long periods should be avoided. Short intervals of activity be introduced.

10. **Having subject-wise class-rooms.** It is appreciable if the school has subject-wise class-rooms. It helps in the change of posture and long sittings.

11. **Providing front seats.** Front seats be provided to the students who suffer from weakness of senses like short sight or hard of hearing.

12. **Avoid punishment.** Teachers should not give wrong punishment or too much of punishment which is injurious to health.

13. **Addition of co-curricular activities.** Co-curricular activities should be added to school curriculum.

14. **Avoid long sittings.** Avoid long sittings on easy chair to prevent protruded abdomen.

8.07. COMMON POSTURAL DEFORMITIES

It is of utmost importance that various deformities are detected at an early age and proper steps taken at right time to prevent the deformity. Here below the chief and common postural deformities found in children, are dealt with :—

1. **Round Shoulders.** Round shoulders are the result of poor posture at school or at work. Displacement of shoulders is caused by contraction of the front muscles of chest and stretching of back muscles as a result head and neck droops forward. It is due to tight or ill fitted clothes which prevent the child from duly expanding the chest and extending the arms. It is the commonest postural defect found in children which may be a *familial*.

2. **Kyphosis.** There is an abnormal curvature of spine from front to back resulting in hump towards the back. This deviation of anterior posterior posture with an exaggerated curvature is found mostly in thoracic region associated with round shoulders. It may be due to tuberculosis spine or a continued faulty posture especially in a person whose muscles of trunk are weak. Shoulder blades are pushed forward and the person walks with head and neck almost dropping forward.

3. **Lordosis.** This is the condition when there is exaggeration of the normal forward curve in the lumbar region resulting in a hollow back. This is mostly seen in lumbar region resulting in a protruding abdomen. Causes for this postural defect are same as for Kyphosis, and refer to an orthopaedic surgeon.

4. **Scoliosis.** It may be :—

(a) **Structural scoliosis,** lateral spinal deviation due to rickets, osteomalacia and polio is the commonest.

(b) **Functional scoliosis,** which is caused by poor walking, standing or sitting posture. There is C-shaped lateral side curve which is generally common or S-shaped combined curve with right lumbar curvature. In C-shaped left side curve either left shoulder is only high or associated with right hip prominent.

Treatment. Scoliosis is generally a structural deformity and it should be treated only by an orthopaedic surgeon.

Exercises are of no use unless it is a functional and the person tries to correct himself habitually. Teacher should help the children to change their poor habit patterns of posture. Besides corrective exercises, relaxation, development of correct habit pattern, well balanced diet should not be ignored.

Exercises for improving Scoliosis (Curvature of the spine).

(a) Prone lying, right arm upward, left arm at side. Then move right arm in an arc towards the left over head, press down with left hand and slide left hip up.

(b) Prone lying, right arm extended forward, left arm at side, partner holds the feet firmly on the floor. Then extend the trunk, the right arm pushed forward and the left arm pushed backward. Hold upto three counts, relax and repeat

(c) Standing with feet apart by a few inches. Then raise left heel and left hip. Extend right arm in an arc overhead to the left. Press left hand against ribs on left side.

For improving the feet.

Sitting position, with knees fixed, feet together and flat on the floor. Then place hands on floor behind the back. Raise inner border of feet, keeping toes and heels on floor.

5. Knock Knee. In knock knee when the child stands, the knees join together and the feet parallel. There is big gap between the ankles varying directly with the degree of deformity.

Causes. (i) Rickets

(ii) Deficiency of vitamin D and calcium in the diet

(iii) Prolonged standing

(iv) Flat Foot

(v) Obesity

(vi) Heavy body weight

(vii) Chronic illness.

Treatment. (1) Use of shark liver oil in the diet will help in the deficiency of vitamin D.

(2) Treatment for flat foot should be given.

(3) Avoid prolonged standing.

(4) Horse riding is the best exercise.

(5) Wear walking calipers.

(6) Massage by some physiotherapist will also help.

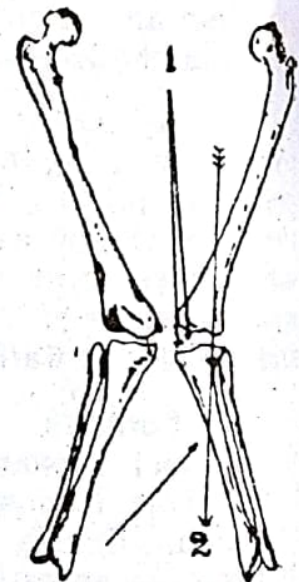


Fig. 8.02

6 **TALIPES.** Talipes is of different types. They are described below briefly.

1. **Talipes equinus.** In this case the person walks on toes (like a horse). Tendon Achilles is short.

2. **Talipes calcaneus.** In this case the person walks on heel as calf muscles are short.

3. **Talipes varus.** In this case the person walks on the outer border of foot.

4. **Talipes valgus.** In this case the person walks on inner border of foot.

7. **TALIPES EQUINOVARUS (CLUB FOOT)** It may be :—

(a) Congenital

(b) Acquired.

(a) **Congenital Type.** It is most common and is present since birth, usually bilateral. Skin, subcutaneous tissue, muscles are normal.

(b) **Acquired Type.** It is also called paralytic talipes as the cause in most cases is poliomyelitis. In neglected cases of poliomyelitis due to wasting of muscles, a rigid and fixed equinovarus deformity develops.

Signs and Symptoms

1. One or both feet may be affected.
2. When the child starts walking the foot is so twisted that sole of foot faces inward.
3. The child walks on the upper surface of foot.
4. Gait is defective and child has difficulty in running and falls quite often.
5. The child develops callosities on the feet which may be painful.

Treatment. It is by surgical operation.

8. **FLAT FOOT OR 'CLAW FOOT'.** In the commonest type the inner bulge of the ankle and the inner curve of the foot in front of this bulge is more pronounced than normal. The sole of the rear part of foot is tipped outward and there is loss of the normal alignment of the heel, the fore-foot swings outwards. In most cases the causes are :

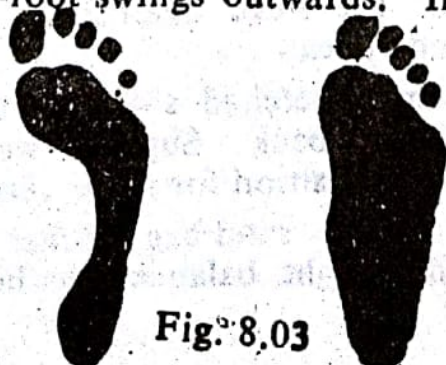


Fig. 8.03

1. Weak muscles.
2. Rapid increase in body weight
3. Carrying of heavy weights
4. Standing for long periods without active use of feet.

Signs and Symptoms.

1. There is sensation of weakness, strain on the inner side of foot and ankle.
2. Dull ache in calf muscles, knee hip or back which may become severe sometimes.
3. Person is unable to walk comfortably.
4. Corns or callosities develop in feet.
5. The feet may feel cold (numb) or there is excessive perspiration.

Treatment. Shoes with properly fitted arch support made in an orthopaedic centre will help.

The patient is instructed to put weight on the outer edges of feet and on all the toes while walking.

Avoid standing for a long time in one position, when sitting cross the legs but not the knees. Massage and exercises prescribed by some physiotherapist are useful.

Avoid wearing heavy shoes.

8.08. EXERCISES FOR IMPROVING POSTURAL DEFECTS

There are numerous exercises for improving postural defects. The problem is that of appropriate selection. At the slightest sign of pain, inflammation, swelling, or unusual fatigue, the exercises should be discontinued until the cause is determined and the remedial measures taken.

The following exercises are suggested by A. S. Daniels and E. A. Davies for improving certain common postural deformities.

1. **For improving the head and neck position.**
 - (a) Sitting with head and neck erect. Then turn head and neck to right and left, alternatively, touching chin to clavicle.
 - (b) Standing with back to wall, touching buttocks, shoulders and back of head. Then raise chest, flatten lower back, pull in the abdomen and press the back of the head against the wall. Hold this position for a few seconds and repeat.
 - (c) Lying on back, arms stretched sideways and palms down. Then raise chest, arching upper back. Support weight on back of head, arms and hips. Hold this position for a few seconds and repeat.
 - (d) Standing position with a sand bag/pitcher balanced on top of head. Then walk with the weight balanced on head in a straight line.

2. For improving round upper back and kyphosis.

(a) Lying on back with knees drawn up and feet flat on the floor and hands on sides. Move arms sideways horizontal at shoulder level palms up. Then move arms along floor to position over head, palms still up. Hold for a few seconds and repeat.

(b) Prone lying, hands on hips. Then raise head and trunk (with chin in) several inches from floor. Down and repeat.

(c) Sitting position, neck firm and fingers placed behind head. Then stretch trunk, neck, head and elbows upward, keeping back straight and trunk erect.

(d) Sitting, with a wand held in horizontal position over head, hands well spread. Then lower and raise wand behind head and shoulders, with head and trunk quite erect.

(e) Swimming is recommended.

(f) **Bridge asana** is the best exercise. Lie supine on the ground placing hands near shoulders. Now lift up your trunk by putting the whole weight on both feet and hands.

(g) Stand with back turned to the wall. Take one step forward and raise both arms upward and then backward arched. Do not move the hips forward.

3. For improving Kypho-scoliosis

(a) Prone lying, hands under abdomen. Then keep hips and shoulders down, press hands up on abdomen and raise lower back.

(b) Lying on back, knees drawn up, arms over head with elbows bent. Then, separate knees, touching soles of feet together. While exhaling, draw knees towards chest, keeping hips on floor. Down and repeat.

(c) Prone lying, hands clasped behind lower back. Then press elbows together, drawing shoulder blades together, pushing hands towards the feet.

4. For improving Lordosis (Hollow Back)

(a) Stride standing position. The trunk flexion, grasping left ankle with both hands and pulling trunk downward for three counts. Repeat in opposite side.

(b) Sitting position, knees extended and feet spread. Bend forward, grasping ankles, pull trunk forward, relax, bounce for three counts. This exercise may also be done with feet together, instead of spreading.

(c) Sitting position, knees extended, feet together and hands at sides. Then bend forward, touching toes, hold up to three counts, relax and repeat.

5. For strengthening the abdominal wall

(a) Lying on back, knees bent and feet flat on floor. Then contract the abdominal muscles and relax. Aim is to push the small of the back downwards until it touches the floor.

(b) Lying on back, with hands placed behind head. Then flex knees along floor until heels touch buttocks. Keep back flat. Return and repeat.

(c) Lying on back, legs extended, feet together and hands at sides. Then raise legs so that heels are just above the floor. Spread feet well apart, bring feet together, lower to floor. Relax and repeat.

(d) Lie supine on the ground. Raise both legs up. Very slowly roll the trunk upward and touch the ground over head with both feet. Bring the legs back to original position slowly. Repeat five times.

(e) Lie down with knees fixed and feet on the ground. Draw the knees upwards to the chest, press and relax.

(f) Sit on the ground. Legs straight, touch toes without bending knees.

6. For Round Shoulders

Exercises that stretch muscles of the chest and contract muscles of back.

(a) Raise arms side ward, bend the elbows and place the finger tips against the back of the neck.

(b) Sit on a chair with the arms hanging at sides rotate the arms outward and adduct scapula together; maintain the position for a few minutes and then relax.

(c) Stretch arms sideways. Bend elbows and bring both the hands in front of chest line, elbows out. Now stretch back elbows with a jerk. Repeat 10-12 times.

7. For improving the feet.

(a) **Sitting position:** with knees fixed, feet together and flat on the floor. Then place hands on floor behind the back. Raise inner border of feet, keeping toes and heels on floor.

(b) **Standing position,** with toes turned in. Then rise on balls of feet, shifting weight to outside of each foot. Hold position and then return heels to floor.

(c) **Walking.** Walk about distances, with heels raised and weight on outer borders of the balls of feet.

(d) **Sitting:** Sit with legs extended. Then cross the left leg over the right one with toes fixed. Foot circling, in and out, up and down. Alternate movements for each foot.

Points to Remember

1. While standing or walking, toes straight ahead and put most of your weight on heels.

Yoga Education

16.01. INTRODUCTION

The yoga system of health is a culture that has been practised by the yogis in India in ancient days. The ignorant and the misinformed have come to believe that it is some form of white or black magic, obscure sorcery (witchcraft), something related to the supernatural power through which miraculous feats are performed. Some associate yoga with acrobats of body and mind, like eating-fire, sitting on nails, lying on broken glass, walking on sharp edged weapons and sometimes linked with hypnotism and fortune telling. Such type of tendencies and wrong notions about yoga created fear in the minds of people and restricted it to a limited number of people known as yogis.

In the present day a large number of people believe—Yoga means Asanas. But it is an erroneous and wrong belief. Asana has been defined as a pose that can be maintained comfortably and effortlessly and that produces stone like stillness to body and mind.

Yoga is a way of life. It is a system of health, a culture that has been practised by yogis in India. The technique of practical training both for the body and mind always remained a secret, guarded by renewable Yogins, (the word Yogin is used for male and Yogini for the female Yogi), who handed over this treasure chest of knowledge only to the most deserving disciples. This tradition of Yoga education served not only the purpose of cultural purity because of its implied secrecy but also resulted in confusion for its rightful place for the progress of society. The layman remained indifferent to it and considered it as anti-social. Such illusions are the outcome of ignorance. There is nothing in Yoga to associate with such beliefs. To understand and appreciate Yoga it is necessary to be rid of these prejudices first.

16.02. MEANING :

योग : चित्त-वृत्ति-निरोधः
(Yoga—Chitta—Vritti—Nirodhah)

Patanjali Sutra 2—1.

Yoga is the inhibition of the modification of the mind. It means it prevents the contents of the mind from taking different forms.

The first word 'Yoga' has been derived from the Sanskrit word 'Yuj' means union or join. It is the Sanskrit ancestor of the English word 'Yoke'. Hence it comes to mean a method of Spiritual Union; to unite a man, the finite, with the infinite, with cosmic consciousness, with the ultimate Reality. This State of Unification is called "Yoga".

The second word "Chitta" (चित्त) comes from 'Cit' meaning "knowledge of the being". It is one of the three aspects of Pramatna or Universal Soul, called Sat-Cit-Ananda. (Pure existence-knowledge-bliss) in the Vedanta. The Chitta is the medium through which the individual soul materializes its existence, lives and attains perfection to unite with the Universal Soul.

The word 'Vritti' is derived from the root 'Vrit' meaning—to exist. Knowledge of perception is a thought-wave (Vritti) in the mind. All knowledge is therefore objective. Mind is not the Seer, but only an instrument of knowledge, an object of perception—like the outside world. The Atma, the real Seer remains unknown. Every perception arouses the ego-sense which says, 'I know this'. This is the ego speaking not the Atma. The ego sense is caused by the identification of the Atma, with the mind, senses etc. When the senses record an event or object in the external world a thought wave is released in the mind. The ego sense identifies this thought wave. If the thought wave is pleasant, the ego sense feels—'I am happy', if it is unpleasant—I am unhappy. This is false identification and causes misery. The real self, the Atma remains above the thought wave. It is the Yoga that breaks contacts with pain and brings the thought-wave under control.

The final word 'Nirodhah' is derived from the Sanskrit term Nirudham that signifies 'restrained', 'controlled', 'inhibited'. These are the three different stages of Yoga. Restraint involves in the initial stage, control in the more advanced inhibition or complete suppression in the last.

It is through Yoga only that one can achieve serenity, calm, mental peace and the finally knowledge of the True Self. To understand it more clearly an example of the lake is best suited here. If the water of the lake is muddy or the surface is continuously covered with ripples, we cannot see the bottom of the lake. It is possible only when its water is clear and calm. The bottom of the lake is like our True-Self, the lake—our Chitta or mind, and the waves the Vrittis. These four words of Yoga cover all these stages in the unfolding of consciousness. One can achieve the control, suppression or inhibition of the activities and modifications of the mind (Chitta—Vrittis) by constant practice of Yoga and non-attachment.

Abhyasa—Vairagyabhyam tan—nirodhah.

16.03. AIM OF YOGA

Patanjali Sutra 12—1.

Yoga aims at the development of a perfect balance between the body and the mind, that permits union with the divine, that is in perfect harmony between the individual and the cosmos. It enables an individual to attain inner calmness by reducing sorrow and suffering.

16.04. ADVANTAGES OF YOGA

Yoga is the science that allows man to arrive at perfect concentration by controlling his mind, and thought-waves. To enable one to advance physically, mentally and spiritually one must avoid constant agitation and prevent the mind from becoming dispersed. After many

years of research and experience the ancient sages and Yogis of India revealed that through concentration and introspection during meditation man can attain the Ultimate Reality—Union with the Divine. It is Yoga that teaches the methods of attaining all this.

Yoga has the following physical, spiritual and cultural benefits :

1. Yoga exercises are done very slowly, without any jerk to the body parts. As a result all body parts are exercised within minimum time and effort without causing strain, fatigue or perspiration.

2. Regular practise of Yoga will result in harmonious development of all body parts and establish a functional balance among various organs.

3. Yoga exercises help stiff muscles to regain their elasticity and tone by their contraction and extension movement and improve joints' mobility even in an advanced age.

4. It improves the cardio-vascular fitness of the heart.

5. Metabolic activities of the body are improved.

6. It improves general health and efficiency of the body.

7. Consistent practice of Yoga asanas improve minor structural and functional defects in the body. Flabby muscles, dropped back, Sagging abdomen or hunch back can be rectified.

8. Yoga asanas help control obesity by removing excess fat.

9. Yoga asanas control body weight. Under or over weight is controlled through it.

10. Blood pressure is normalized.

11. Body posture is improved.

12. Complexion and eyes become brighter, voice sweeter and deeper.

13. It causes sound sleep.

14. Bowel become regular. No drugs are required to eliminate the waste material.

15. Ability to stand heat and cold is increased.

16. It helps in alleviating psychosomatic disorders.

17. Yoga teaches the art of relaxation, nervous and muscular fatigue is removed.

18. It eliminates physical and mental tension and brings harmony in body and mind.

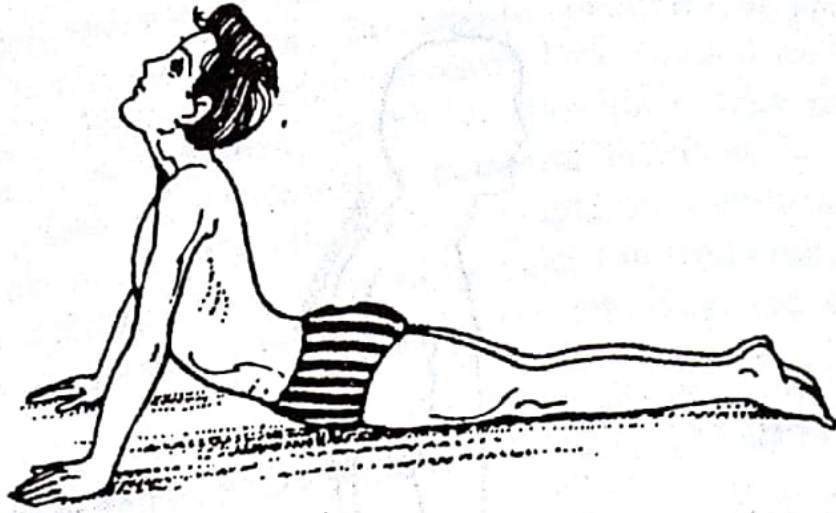


Fig. 4 BHUJANG ASANA

(ii) **Dhanur Asana :-** This asana is in the shape of dhanusha (bow). In this asana a person takes prone lying position. Then while breathe in he bends his legs slightly backward, towards the head, also raise hands and then holds the ankle with hands. Then he lifts chest and head upward together. After a short while, he comes back to a normal position. (see Fig - 5).



Fig. 5 DHANUR ASANA

(iii) **Chakra - Asana :-** In this asana the body looks like a semi circle, that is why it is called Chakra asana. In this asana a person in a spine lying position bends his knee in such a way that the feet should touch hip and put palms below the shoulders. The distance between both the feet is about 5-6 inches and the distance between the hands should be equal

to the shoulder width. Now, he lifts the upper body, keeping his hands and feet straight. After a short while slowly he comes to his starting position. (see Fig - 6.)

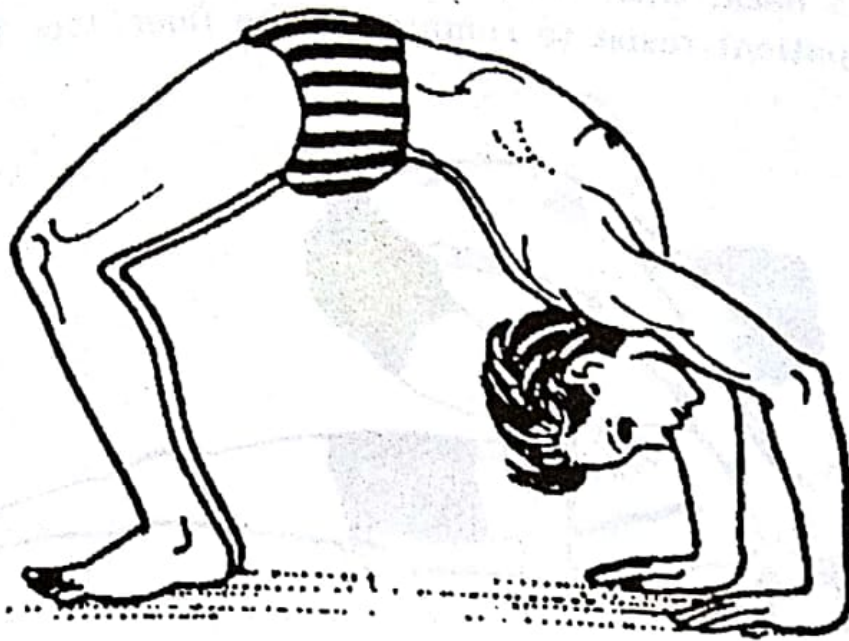


Fig. 6 CHAKRA ASANA

(iv) **Nauka Asana** :- In this shape of the body is like a boat. In this asana person takes prone lying position and raise his arm above the head. Then slowly he raise his head, chest and feet upward with the slow inhalation process. In this position a person statue looks like a boat (see Fig - 7). After remaining in this position for a short while he comes back to normal position.



Fig. 7 NAUKA ASANA

(v) **Exercises done with the assistance of partner :-** In this the patient lays down in a spine lying position on the floor. He makes his body stiff and his partner curls his hands around the neck, then he forcefully lifts his neck upwards, while the patient resist to remain on the floor. (see Fig - 8).

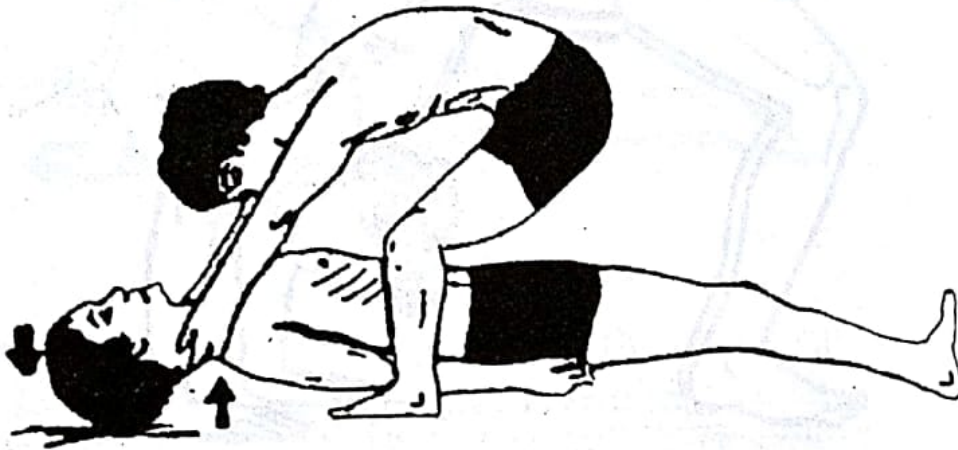


Fig. 8 EXERCISES WITH PARTNER

(vi) **Exercises performed with the help of pillow and sand bag :-** In this a patient lays down in a spine lying position with pillow or sand bag at his back. He tries to push the floor by making his body tight.

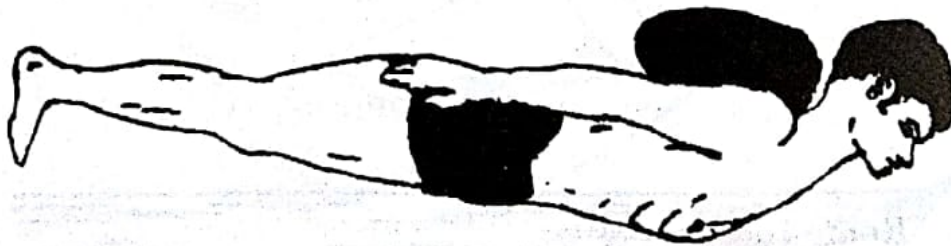


Fig. 9 EXERCISES WITH PILLOW AND SAND BAG

(vii) **Hanging :-** Hanging and Chin-ups are also an effective exercise for the remedy of kyphosis.

2. LORDOSIS :- It is an increase in the extensive curve of the lumbar region and it is inward curvature of the spine with protruding abdomen. (see Fig - 10) In this deformity the



Fig. 11 PACHIMOTAN ASANA

(ii) **Padvrit Asana** :- In this asana, a person takes spine lying position on the floor, then he raises his legs upward at 90° angle. In this position he keeps his one leg in a stationary position and makes cyclic movement with other leg. After performing this exercise for sometime he comes to a resting state. Then, he repeats the same exercise with other leg. (see Fig - 12).

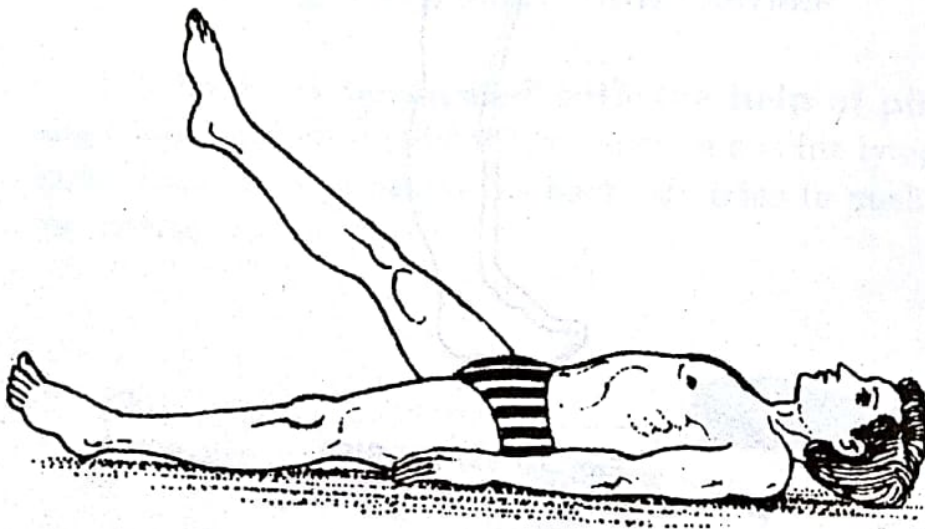


Fig. 12 PADVRIT ASANA

(iii) **Halasana** :- In this asana, body structure looks like plough. Therefore it is known as halasana. In this asana a person takes spine lying position and breathe in slowly and raises his legs upward and by taking support of arms at the back lifts his body upwards. This position is known as semi halasana (Fig - 13 (a)). After this a person bends his legs forward so that it can touch the floor, now he spreads his arms on

the floor. He remains in this position for a short while and then comes back to resting state. (see Fig - 13 (b)).

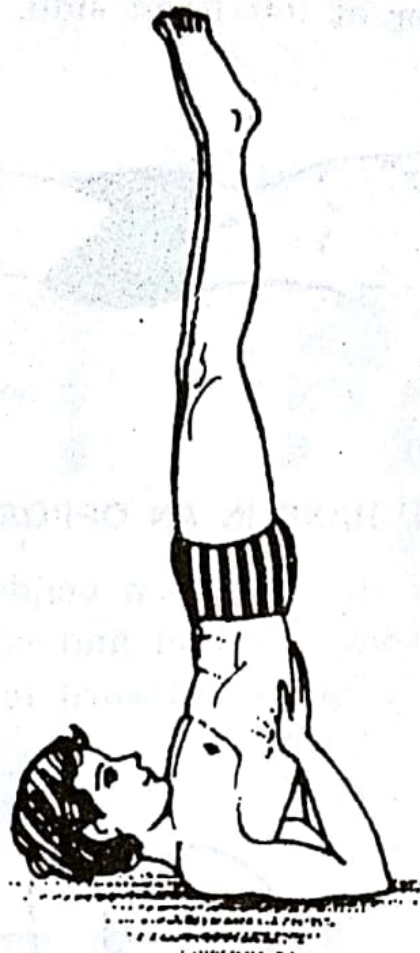


Fig. 13 - (a) & (b) HAL ASANA

(iv) **Urdhva Dhanurasana** :- In this asana, the position of a person looks like a flying bird. In this a person stands erect on his feet with the gap of $1-1\frac{1}{2}$ feet. Then he put his hands or knees and bends forward with bend knees. When the angle becomes 90° at knees then he takes deep breathe. After a short pause between the breathe he comes back to normal position.

...IN TREATMENT

(vii) A person sits comfortably with the legs apart. Then, he bend his legs inward so that to touch the ankles. Then, he keep his head in between the knees and holds the toes with both hands. A person remains in this position for a maximum time and comes back to normal position.

(viii) **Padamasana:-** In this asana a person sits on the ground and place the heel of left foot on the right thigh such that the heel comes near to naval. Then lift the right foot and put it on the left thigh such that both the heels join each other. This asana helps in the quick treatment of the knock knees. (see Fig. 19).



Fig. 19 PADAM ASANA

5. BOW LEGS:- This is also a deformity of legs. In this legs of a person are at a wide gap while sitting, walking, running etc. (Fig. 20). In this deformity a person can not sit and stand properly and even can not walk and run properly. The shape of legs, while walking and running etc. looks ugly and awkward. The patient feels tension on his leg bones, joints and muscles, due to which he gets tired easily.

5. VOLLEY BALL HISTORY

Volley ball was invented by William G. Morgan in 1895. He was the Physical director for Y.M.C.A. in Holyoke, Mass. This game was suitable to elderly persons and was not very strenuous. This can be played both as indoors and outdoors. In 1960, the game was first included in the world Olympics.

Dimensions of playing area : A clear space of 3 M should surround an open air court and 2 M should surround an indoor court.

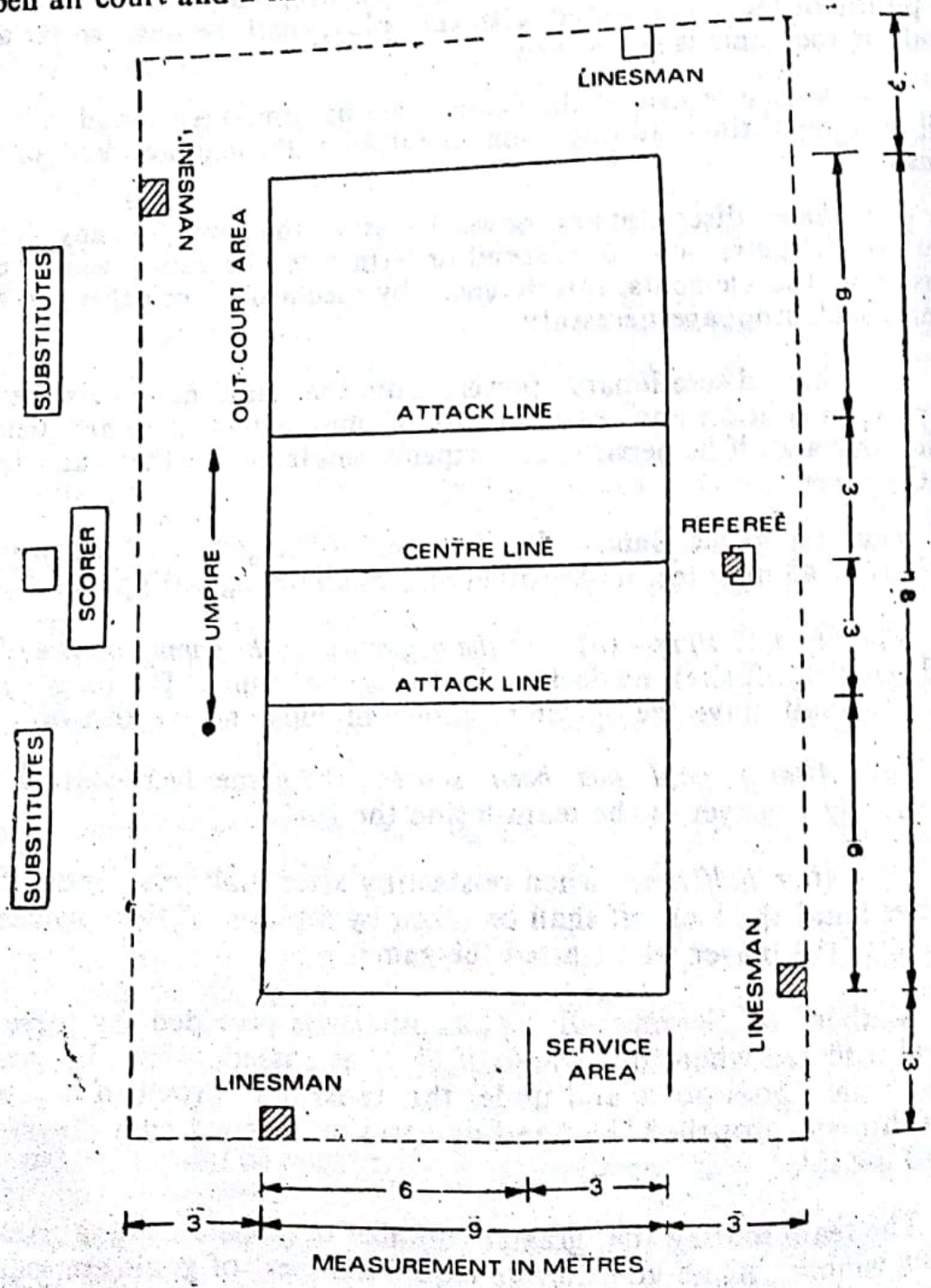


Fig. 7

The court for Volley ball shall be 18 M long and 9 M wide, the plan of which is given in fig. 7.

The attack line shall be 3 M away from the central line. It shall be 9M × 5 cm parallel to the centre line.

Service area lines will be 15 cm × 5 cm drawn 20 cms behind and perpendicular to the end line of each court. One line is along the right hand side line and the other 3M to the left of it. The service area shall have a depth of 2M.

Net. The height of Net measured in the centre from ground shall be 2.43M for men and 2.24M for women. It shall be 1M wide and 9.50M long.

The Ball. The ball shall be round 66 cm ± 1 with a weight of 270 ± 10 gms.

In all matches. team shall be composed of six players. Players should be numbered. There shall be six substitutes.

The officials shall be Referee, Umpire, Scorer and two Linesmen.

Before the game, the Scorer shall secure from each Captain names of players and substitutes and the serving order of the teams, and shall see that the players follow the serving order and rotate in position. Substitutes and coaches must be on the side of the court opposite the referee.

The Linesmen shall station themselves on the opposite corners of the court, so that each has one back and one side line in plain view. Linesmen shall watch every play and be ready to assist the Referee in making a decision, when requested.

The winner of the toss may choose either to take the first service or his choice of courts.

The game starts by service. The ball is hit with the heel of the hand and pushed into the opponent's court. In return it may be smashed, pushed or passed on. As soon as the ball is served players are allowed to move anywhere within the playing area. A game is won when a team has scored fifteen points and has at least a two points lead over the opponents.

A 'service' is the putting of the ball in play by the player in the "Right Back" position, by batting it over the net into the opponent's court in any direction with one hand (open or closed) and while in a position with both feet wholly behind the right, one-third of the back line of the court before and until after the ball is struck.

The order in which the teams are to serve shall be called the "Serving order".

The shifting of the men in position shall be called "rotation".

When is the ball in and when is it out ?

The ball is out of bounds when it touches any surface or object or the ground outside of the court. A ball touching a boundary line

6 BADMINTON

HISTORY

Badminton has got its name from the county residence 'Badminton' of the Duke of Beaufort countryside of Gloucestershire in England. This game is a combination of two games 'Poona' and 'battledore'. In 1860 English army officers serving in India saw this game shuttlecock known as Poona. This game of Poona was far superior than battledore. They enjoyed the game so much that they took it home along with the equipment shuttlecocks. Duke of Beaufort invited his friends to play the game. It was liked by the players and spectators. Thus the game got popularity. These officers back to India played its Match first in Karachi and got its rules printed in 1877. British army officers made this game popular. Many clubs were formed.

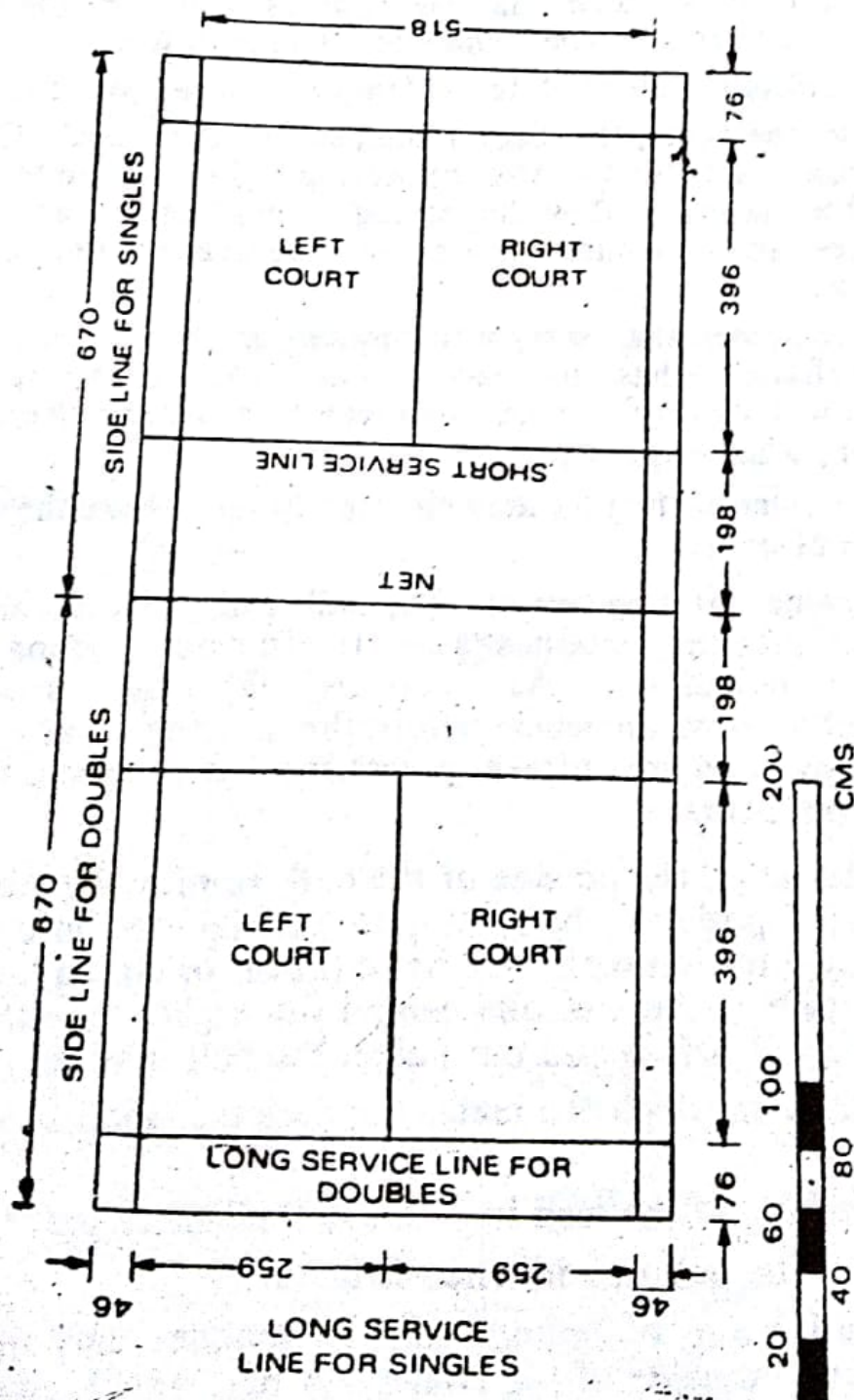


Fig. 8

The touring players took the game throughout the British Commonwealth and then to U.S.A. and Denmark. The International Badminton Federation was formed in 1934.

In the beginning the contestants used to play without net. The shuttlecock that we use to-day was originally a rounded piece of cork with feathers stuck around its flattened up.

RULES

1. Badminton is indoor version of lawn tennis played over in a court as shown in diagram. The net is made of fine tanned cord of 1.9 cm firmly stretched from post to post and is 76 cm in depth. The top of the net is 1.55 metres at the post and 1.524 metres in the centre and is edged with a 7.6 cm white tape doubled to give a border 3.8 cm wide.

2. The court must be located in a place protected from winds always indoor in competitive matches. The weight of Shuttle is 4.75 to 5.50 grams played by two players or one player on either side.

3. The side winning the toss shall have option of serving or ends. The side winning a game always serve first in the next game but in case of four handed games either of winners may serve and either of the loser may receive the service.

4. Points. In the doubles and men's single game it consists of 15 or 21 Points. The ladies singles has 11 Points.

The side having right to serve is called 'IN' and opposing 'OUT' side.

1st Service of a side is made from right hand service court diagonally opposite.

5. In the game of 15 points when score is 13 all the side which reaches 13 has option of setting game to 5 and that when score is 1+ all the side which first reaches 14 has the option of setting the game to 3.

After the game is 'set' the score is called love all and the side which first scores 5 or 3 points as the game is set at 13 or 14 all wins the game.

In the game of 21 points the same method of scoring is adopted substituting 19 and 20 for 13 or 14.

In the game of 11 points when the score is "9-all" the player who 1st reaches 9 has option to set the game to 3 and when score is '10-all' the player who first reaches 10 has the option of setting the game at 2.

The claim to set the game must be made before the next service is delivered after the score has reached, (13 all or 14 all), (19 all or 20 all) (9 all). A side rejecting the option of setting at the first opportunity is not debarred from setting if a 2nd opportunity arises.

6. A rubber is best of three games. The player changes ends at

the commencement of the second game and also of the third game, if a third game is necessary. In the third game the players also change ends, when the lead score reaches 8, in a game of 15 points, at 6, in a game of 11 points, or 11, in a game of 21 points or in handicap games when either side has scored half the total number of points required to win the game. In match decided by a single game the players change ends as provided above for the third game of a rubber.

If inadvertently the players miss to change ends as provided at the score indicated the ends are changed as soon as mistake is discovered, and the existing score stands.

7. **The play.** After the toss and the decision as to which side is to have the first service the player in the right hand half service court of that side commences the game by serving to the player in the diagonally opposite right hand half service court. If the latter player returns the shuttle before it touches the ground to the "in" side it is to be returned by one of "in" side and then to be returned by one of the 'out' side, and so on, till a fault is made or the shuttle ceases to be "in play".

If a fault is made by the "in" side the server's hand is out and the right to continue serving is lost as only one player on the side beginning the game is entitled to do so, the player on the right hand opposite half court now becomes the server; but if the service is not returned or the fault is made by the 'out' side the 'in' side scores a point. The 'in' side players then change from one half court to the other, the service now being from the left hand service court to the player in the service court diagonally opposite. So long as a side remains "in" the service delivered alternately from each half court into the one diagonally opposite, the change being made by the 'in' side only when a point is added to its score. The first service of a side in each game is made from the right hand service court. A "service" is delivered as soon as the shuttle is struck by the server's racket. The shuttle is thereafter "in play" until it touches the ground or a fault or "let" occurs. Except if the shuttle strikes the net and remains suspended there or strikes the net and falls towards the ground on the striker's side of the net, or hits the ground outside the court and an opponent then touches the net or shuttle with his racket or person, there is no penalty as the shuttle is not then in play.

After the service is delivered the server and the receiving player may take up any position they choose on their side of net irrespective of any boundary lines.

8. **Faults.** A fault made by either player of the side which is "in" puts the server out; if made by a player whose side is 'out' it counts a point to the 'in' side.

It is a fault :—

(a) If the service is over head; If in serving the service at the moment of being struck be higher than server's waist, or if any part

of the head of racket, at the time of striking the shuttle, be higher than any part of the server's hand holding the racket.

(b) If in service, the shuttle falls into the wrong service court (i.e., into the one not diagonally opposite to the server), or falls short of the short service-line or beyond the long service line or outside the side boundary lines of the service court.

(c) If the server's feet are not in service court from which service is being done, or if the feet of the player receiving the service are not in the service court diagonally opposite, until the service is delivered (Vide law 15). A service is delivered as soon as the shuttle is struck by the server's racket. A foot on the line is out of line.

(d) If before or during the service any player make preliminary points or otherwise intentionally baulks his opponent.

(e) If either in service or play the shuttle falls outside the boundaries or passes through or under the net, or fails to pass the net or touches the roof or wall or person or dress of any player.

(f) If the shuttle "in play" be struck before it crosses to the striker's side of the net. The striker may, however, follow the shuttle over the net with his racket in course of his stroke.

(g) If the shuttle is 'in play' a player touches the net or its supports with racket, person or dress.

(h) If the shuttle be held on the racket during the execution of a stroke.

(i) If the shuttle be hit twice in succession by the same player or his partner.

(j) If a player obstructs his opponent.

(k) If rule 14 is transgressed.

9. The Single game. In game of one player on each side :—

(a) In ladies single matches the game will be of 11 points and the 'game' is set at 9 all by the player who reaches 9 first. The game will be set to 3 and when the score is '10 all' setting will be of 2 points.

(b) The player shall serve and receive service in the right hand half court, when the score is zero or even numbers like 2, 4, 6 and when the score is odd 1, 3, 5, 7..... etc. the service will be delivered and received from the left half side of the court.

10. General rules. The server and the player served to, must stand within the limits of their respective service courts (as bounded by the short and long service, the centre, and side lines), and some part of both feet of these players must remain in contact with the ground until the service is delivered. A foot on or touching a line in the

4 Recreational Activities

4.01. MEANING

The word 'recreation' has different meanings with different people. It is commonly referred to as a type of experience, a specific form of activity, an attitude, an integral part of life or as a field of work.

Recreation is usually considered as the *antithesis of work*. It is true that relatively few people find recreation in their work, but there are individuals whose vocation is so absorbing and satisfying as to make it a form of recreation.

Recreation is a leisure time activity and for most people the opportunities for it are largely confined to their leisure hours. *The term recreation, is given to those leisure activities, which are chosen by an individual for the purpose of improving his life and living.* These activities are of *constructive nature and time-using* but not time-consuming. It is *less serious and more passive* type of playful activity.

Dr. John H. Finley has pointed out, "*The word 'Recreation' is broad enough to include 'play' in its very expression and also many activities that are usually not thought as play—music, drama, crafts every free activity especially creative activity for the enrichment of life.*"

Vannier defines recreation as "*what a person does in his free time.*" It is recreation through activity that brings immediate satisfaction. It is doing what we want to do when we have time to do. *Work and play are like two sides of a coin: each is a necessary part of the other. Each makes the other complete. We work so that we can play or have fun during our leisure, but we play so that we can work more productively. Work, for the adult, is responsibility which, when fulfilled is rewarded by a wage and if he has chosen his vocation wisely gets deep satisfaction.*

Work may be pleasurable to some but hated drudgery to others. *The difference between work and play is the amount of pleasure one receives from what he does and his attitude towards what he is doing.*

Adults as well as children, youth as well as aged, must play in order to keep well and be happy. *Recreation is a dignified word for play. Everyone regardless of age needs to be recreated and refreshed by pleasurable activity, spontaneous as well as planned. An activity*

which is recreation for one individual may be drudgery for another. For example, building a boat may be an ideal form of recreation to one, whereas to another it would be work. So recreational activities differ according to the age, interest and desires of individuals.

4.02. CHARACTERISTICS OF RECREATION

1. It involves activity.
2. It has no single universal form.
3. It is determined by the motivation of the doer.
4. It is utilized during leisure hours.
5. It is universally practised and sought.
6. It is serious and purposeful.
7. It is flexible.
8. It gives satisfaction.
9. It gives pleasure and happiness.

4.03. VALUES OF RECREATION

Recreation makes life more abundant, richer and happier. It gives zest to living. It is very valuable to human kind. It has educational, economic and social values. They are described below.

(A) Educational Values

1. Recreational activities facilitate the individuals of common educational interest to group together and share their common interest. The sharing of common interest will further result in advancement of knowledge.

2. One can improve one's skills in various activities.

3. Recreational activities provide a chance to the individual to express himself in the form of art, public speaking and acting.

4. By utilizing the leisure hours in a proper manner the personality and character of the individual is improved.

5. Recreational activities encourage sociability to give and take, to share one's thoughts, interests and feelings with others and get a feeling of democratic way of living.

6. Recreational activities are educative to the handicapped children or adults. They begin to realize that life is worth living, it full of zest and joy.

(B) Economic Values

7. Through recreational activities, one can help orphanages, handicapped children, clinics and blind-homes.

8. Under special circumstances articles learnt and prepared during leisure time can be sold out to meet emergency economic problems.

(C) Social Values

9. Recreational activities are essentially social in nature. When students participate in recreational activities sports and youth festival, they actually participate in social experience. In such activities they learn :

- (i) How to work together ?
- (ii) How to deal with others ?
- (iii) How to be loyal to their group ?
- (iv) How to respect the rules and rights of others ?
- (v) How to accept the authority of officials and leaders ?
- (vi) How to think, plan and work with the group and for the group ?
- (vii) How to win and lose gradually ?

All this involves the learning of desirable social skills which is so important in modern democratic living. Thus recreational activities provide numerous opportunities to develop the social skills of co-operation and inter-personal relationships. People do not get together to be idle ; they meet to do something. Thus *social skill is built, to a great extent, upon recreational skill.*

4.05. SCOPE OF RECREATION

Recreation is as important to human beings as food and water for their life. The scope of recreation is very wide and unlimited. Right from children to adults every body needs recreation for their normal physical and mental health. Of course the form of recreation will differ from age to age, person to person and time to time. Children enjoy toy games, youth-competitive games and adults' passive activities.

Since the number of persons for whom this recreational programme organised is very vast. There are many organisations, clubs and committees, who organise variety of programmes for different levels. There are *Bal Bhavans*, Art clubs, Adult clubs, District sports associations, Swimming associations, Drama clubs etc., who organise activities. The government has built stadiums, swimming pools, open air theaters and Drama Halls along with the provision of qualified leaders. There is also provision for public parks ; *Panchayats* provide facilities for Radio, Television set, Religious places etc.

4.06. CLASSIFIED LIST OF RECREATIONAL ACTIVITIES

Recreational activities are broadly classified as under :

- (i) Active games and sports.
- (ii) *Social activities* like drama, religious festivals, variety programmes, National festivals and fairs.
- (iii) Music.

(iv) *Art and Craft* : These include art and painting, clay modelling, Sewing and knitting, doll making, leather work, interior decoration and gardening etc.

(v) *Dancing*.

(vi) *Nature study and excursions*—study of stars, birds, trees etc ; hiking, mountaineering, camping, picnics etc.

(vii) *Hobbies*—Collections like stamps, coins, Photography, cartooning, specimen collections.

(viii) *Service activities*—Social Service, friend in need service, group service, N.S.S., N.C.C. etc.

(ix) *Study Centres*. Study centres for intellectual activities like study circles, discussion groups, recitation, reading and writing etc.

These activities and their classification is not complete. Many more activities can be added. It is very difficult to prepare a more comprehensive list of classified activities as *recreational activities differ for different classes of people according to their age, sex, occupation, physical and social environment, local conditions and economic status.*

QUESTIONS AND ASSIGNMENTS

1. Explain recreation and state its need and importance in a man's life.
2. Mention different types of recreational activities, in vogue in our schools and colleges.
3. What are the important values of recreation ?
4. State clearly the relationship between recreation and health and physical education.
5. Why should recreation be made an integral part of the national plan for social education and reconstruction ?
6. What is recreation ? Discuss its need.

(K.U. 1976)

Organisation of Games and Sports

5.01. ORGANISATION AND ADMINISTRATION

The effectiveness of any instructional programme is influenced by the nature and scope of its organisation and administration. Although these two phases of programme planning are often treated synonymously, yet there are significant differences that must be considered.

Organisation means a structure or frame-work or arrangement. It represents something which exists, through it may be of intangible nature, and needs handling, controlling or conducting so that the frame work or structure may function effectively.

Administration deals with the educational practices. It attempts to implement the instructional programme proposed by the organizational process.

5.02. TOURNAMENTS

Tournaments provide the means for the organisation of a series of games in such a way as to include a large number of pupils and spectators. They develop healthy attitudes and ideals that will result in desirable social and moral conduct and good behavioural habits in game situations. Thus tournaments play an important role in the education of pupils. In a well organised school, these enjoy the largest measure of popularity.

Levels of Organization. These competitions are organised on inter-class, inter-school, inter-district, inter-state and inter-nation levels.

Advantages of Tournaments and competitions. Tournaments have the following advantages :—

(i) **Appeal to the instructive nature of young pupils.** The growing self-assertion and self-reliance of the adolescent, his individuality, resourcefulness and good fellowship, combined with his desire for vigorous physical activity and his reckless courage, find a very healthy outlet.

(ii) **Employ pugnacity for constructive purpose.** The element of contest is age-old in human civilization. It is concomitant to the inborn instinct of pugnacity. Pugnacity in animals is displayed in animal fight. In uncivilized men, it was displayed in almost animal form. In civilized men, now-a-days, it is displayed through wars, resulting in destruction on mass-scale. The tournaments afford an opportunity to the young to employ it for constructive purposes. Healthy contests sublimate this instinct and redirect the energies of youth for purposes of building health and moral courage.

(iii) **Development of total personality.** Competitions and tournaments have the same goal as physical education. These promote the action of bodily functions, quicken the blood circulation, purify the blood stream, promote bodily vigour, and act as powerful physical tonic. These absorb the whole being of the player and develop his full personality.

(iv) **Utilise energy.** Adolescence is a period when there is an abnormally increased fund of physical energy. When unutilised, this energy is directed to indiscipline; hooliganism and rowdyism. The best means of utilising it, is the tournaments and competitions.

(v) **Act as great moral prophylactic.** They develop initiative, courage, alertness, resourcefulness, practical judgement and concentration. A player in the playfield displays his moral integrity when he avoids playing foul. He accepts justice in the form of the verdict of referee.

(vi) **Strengthen esprit de-corps.** Playgrounds are the cradle of democracy. Here the pupils get training in citizenship. They respect the rights of others, acknowledge leadership and obey the will of the majority. When a pupil plays with the opposite team of another school, he calls himself a representative of his school. He is verily a custodian of the honour of his school. This way he strengthens esprit-de-corps.

(vii) **Imbibe sportsmanship.** The idea of sportsmanship is imbibed through tournaments. The player loves the game above the prize. He plays for the sake of play. Even though he is defeated once, he accepts the defeat and without despair strives again. This is sportsmanship. That is why it is said that the battle of Waterloo was won on the play grounds of Eton.

(viii) **Enable the players to exhibit their superior skill.** Competitive games enable the players to note their own weaknesses, if any, and they try to remove them. They also note the good points of those from other schools, who exhibit a better game. Thus they try to raise the standard of their own game and compete with more courage and confidence next time. Competitions also enable good players to exhibit their superior skill in games and win appreciation for their team.

Disadvantages of Competitions. While competitive games and tournaments are of great advantage, they may also have certain disadvantages :

1. They may tend to narrow-mindedness, selfishness and gradually the best points of a child's nature may be blunted as his desire to "be on the top" increases.
2. In competitions only the strongest and most proficient players take part. The majority of students may simply stand around the playground and watch the game.

In the words of Aldous Huxley, "Like every other instrument that man has invented, competitive games can be used either for good or for evil purposes. Used well, they can teach endurance and courage, a sense of fair play and respect for rules, co-ordinated efforts and subordination of personal interests to those of the group. Conversely, they can encourage personal and group vanity, greedy desire for victory hatred for rivals, and intolerant "esprit-de-corps" and contempt for people who are beyond a certain arbitrarily selected pole."

Conclusion. The advantages of competitive games and tournaments out-weigh their disadvantages. Besides all other values, they inculcate responsible co-operation, in all cases. Therefore, these should be organised in the true healthy spirit, for which they have been introduced at all levels.

To suffer defeat cheerfully and not to burst into rowdyism, to do one's best against odds and not to lose heart, to be fair to the opponent and not to take any mean advantage of him, to play on equal and honourable terms for the sake of play and not to try to win by hook or by crook—in short, to love the game above the prize—this is the spirit which should prevail in competitions and tournaments, at all levels.

5.03. ORGANISATION OF TOURNAMENTS

Tournaments provide the means for the organisation of a series of games in such a way as to include a large number of participants. Students should be arranged into homogeneous groups. It will encourage participation and interest in the play.

Committees for the organisation of competitions. For the smooth organisation of the competitions, a number of committees should be formed. The committees, which have been found very necessary are :

- (i) Official committee.
- (ii) Programme committee.
- (iii) Registration committee.
- (iv) Publicity and promotion committee
- (v) Grounds and equipment committee.
- (vi) Hospitality and refreshment committee.