

Health and Physical Education

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Unit-I, II & V

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UNIT-1

CONCEPT OF HEALTH

There is no agreed definition of health. Many people define health in different ways. For a lay man, health is nothing but a sound mind in a sound body, in a sound family, in a sound environment. The World health Organization (WHO) (1948) has defined "Health is a state of complete physical, mental and social well-being, and not merely in absence of disease or infirmity". In this definition WHO has projected three different dimensions of health-physical, social and mental - which are closely associated.. Beside this, health may be defined as the State of an Organism in which all its functions and manifestations of Vital activity are in harmonious and dynamic interaction with the environment.

The health Status of man is the outcome of the interplay between and the integration of two ecological universes, the internal environment of man and the external environment in which he exists. "The internal environment pertains to "each and every component parts, every tissues, organs and Organ systems and their harmonious functioning within the: body system while the external environment comprises of three closely related components - physical, biological and social.

According to WHO concept, the health has three different dimension,' viz, physical, mental and social. So, the health can also be explained in all these ways.

Physical Health : - The physical health of a person can be determined by "a good complexion, a clean skin, bright eyes, lustrous hair with a body well clothed with firm flesh, not too fat, a sweet breath, a good appetite, sound sleep, regular activity of bowels and bladder and smooth easy Co-ordinate bodily movements. All the Organs of the body are of unexceptional size and function 'normally'; all the special senses are intact; the resting pulse rate, blood pressure and excercise tolerance, are all within the range of 'normality' for the individuals' age and Sex".

Mental Health :- The mental health of a person can be determined by "self satisfaction, self confidence, no conflict within himself, happy, calm and cheerful personality, well

adjustment with others, understanding, self control and not dominated by fear, anger, love, jealousy, guilt or worries.

Social Health :- There is no agreed concept of social health. It is difficult to describe the meaning of 'Social Well-being'. In general, the concept of social health connotes such abilities as those of making friendship that are satisfying and lasting, of assuming responsibilities in accordance with one's capacities, of finding satisfaction, success and happiness in accomplishments of everyday tasks, of living effectively with others and showing socially considerate behaviour .

The WHO definition of health is considered by many to be an idealistic goal rather than a realistic definition. As stated in definition the 'State' according to some people the health can not be defined as a state at all. It must be seen as a process - a process of continuous adjustment to the changing demands of living and of the changing meanings. We give to life itself. Also there is no satisfactory definition of "Well-being". So to say, the WHO definition of health is also a controversial definition.

DETERMINANTS OF HEALTH

According to the ecological approach, health is a state of dynamic equilibrium or adjustment between man and his-environment. One can think of this graphically as a balanced scale with the pass representing the agent and human host and the fulcrum, the environment and health as a state of equilibrium between the- disease agent and the human host. When this balance is disturbed for any reason, ill health results.

Individual and group health is determined by (a) human biology (b) environment (c) ways of living (d) economic status, and (e) health services.

(a) Human Biology :- The mental and physical traits of every individual depends upon the nature of its genes at the moment of conception. Many diseases have direct relation with the heredity. The State of health, therefore depends partly on the genetic constitution of man. Thus from the genetic stand point, health may be defined as that "State of the individual which is based upon the absence from the genetic constitution of such genes as correspond to character

that take the form of serious defect and derangement and to the absence of any aberration in respect of the total amount of chromosome material in the Cerotype or, stated in positive terms. From the presence in the genetic constitution of the genes that correspond to the normal characterization and to the presence of a normal Cerotype.

(b) Environment :- The health status of the individual depends upon the internal environment of the man himself as well as the external environment. When the internal environment refers to each and every component part of the body system, the external environment is the aggregation of all external conditions and circumstances which affect the development and life of an individual. The external environment includes physical, Biological and Social components as a whole.

(c) Ways of living: - The health of the individual depends upon the life style of the person. It comprises all the day to day activities of the individual. Personal hygiene includes all those personal factors which influence:, the health and Well-being of an individual.

(d) Economic Status :- Economic status is another important factor on which the health status depends. In countries with the lowest income level one finds higher mortality rates in comparison to the countries with the higher income level.

(e) Health Services :- This is the sum total of services available for the better health. It meant all those personal and community services, including medical care, directed towards the protection and promotion of the health of the community. So the health status is not only influenced by the physical and social environment, but also by the quality and availability of health services.

Definition of Health

- Health is a state of complete physical, mental and social well-being and not merely an absence of disease or infirmity. W.H.O. (1948)
- Health education as the sum of experiences, which favorably influence habits attitudes and knowledge relating o the individual community and social health. -Thomas wood

Dimensions of Health

1. Physical dimension 2. Mental dimension 3. Social dimension 4. Spiritual dimension 5. Emotional dimension 6. Vocational dimension 7. Others – Philosophical, cultural, socio-economic, environmental, educational, nutritional, curative, preventive dimension.

Importance of Health Education

“This atma is not attainable by a week man.” –Swami Vivekananda

“The first wealth is health.” – Emerson

If health is so precious asset then education of health is indeed, more important. Health education helps us in following ways:

1. Health education provides information to the students and the teachers about the function of the body the rule of health and hygiene and precautionary measures for keeping of diseases.
2. Health education helps in discovering physical defects of children and discovering various types of abnormalities of children
3. Health education develops health habits like need of fresh air, hygienic feeding and various class room habits
4. Health education provided knowledge regarding good health habits
5. Health education develops better human relations between school home community
6. Health education provides knowledge regarding prevention and control of various diseases
7. Health education proving first aid training essential for everyone a emergency may come to any one and at anytime.

MEANING OF PHYSICAL EDUCATION

The word physical education comprises of two words Physical and Education. The plain Dictionary meaning of word physical as relating to body characteristics of a person such as Physical strength, physical endurance, physical fitness physical appearance or physical health. The word education may mean the systematic instructions or training or preparation for some particular task. The two words combined together stands for the systematic instructions or training related to physical activities or programme of activities necessary for development and maintenance of human body or the development of physical powers or activities for cultivating physical skills.

Definition of Education and Physical Education

➤ ‘Physical Education is education through physical activities to the development of total personality of the child and its fulfilment and perfection in body mind and spirit.’-

J.P.Thomas

➤ ‘Physical education is the sum of the changes in the individual caused by experiences centering motor activity’ –**Cassidy**

Aims of Physical Education

The aim of Physical Education is the same as that of general education, because physical education is a part of general education. The primary aim of physical education is not to develop star athletes winning teams or expert performance but a national vitality with character values and physical fitness. Ministry of Education National plan of physical education and recreation expressed that the aim of physical education must be to make every child physically, mentally and emotionally fit and also to develop in him such personal and social qualities as will help him to live happily with others and build him up as a good citizen.

Butcher listed the aims of physical education as follows:

(i) Physical development

- (ii) Mental balance
- (iii) Emotional adjustment
- (iv) Manual training
- (v) Social adaptability

Objective of Physical Education

The objectives of physical education are stated differently by many of Physical Educationists. The following are main objectives of physical education.

- I. Development of Organic Fitness
- II. Development of Mental health
- III. Social Development
- IV. Development of Neuro muscular co-ordination
- V. Development of Desirable habits
- VI. Development of Personality
- VII. Providing for Mental Hygiene
- VIII. Development of Functional Knowledge
- IX. Development of qualities of a good citizenship

Importance of Physical Education

- Physical education develops the alertness of mind
- Physical education provides knowledge about health and its hazards and communicable and non communicable diseases
- Through physical activities leisure time can be utilized properly
- Through physical education human body can be developed in good proportion.
- A good sports man is a good citizens He knows how to adjust with others
- Physical education helps in developing and maintaining of good relations among humans beings. It develops social traits, like cooperation, sympathy, loyalty, fraternity, courtesy and other traits of leadership.
- Aggressiveness can be eliminated through physical activities. By participating physical activities we can overcome stress tension and sensitiveness
- Physical education helps in creating discipline through games and sports
- Physical education provides a numbers of opportunities to enhance the power of tolerance

- Physical education enhances all the essential traits required for development of the personality
- Physical education leads to happiness efficiency and character building
- Physical education helps the people to become fit to develop their spiritual and more forces. It increases the scope of human abilities and enriches the life of the individual and that of the society as a whole.

Meaning of Physical Fitness

Physical fitness is one of the core preconditions of health. We cannot imagine a person to be healthy without being physically fit. Physical fitness, therefore needs to be appreciated in full measure. The common perception of physical fitness is the absence of ailment. If individual is not suffering from any perceptible disease, then he is considered physically fit. Is it true? Another significant issue is whether there is a universal condition of physical fitness which is uniformly applicable to all. It is not so. Physical fitness of young people is different from that of the aged. The physical fitness of a sports person is different from that of the persons working in army factory or a layman. In fact, physical fitness means different things to different people. In this lesson, let us discuss various aspects of physical fitness.

Definitions

Physical fitness refers to the organic capacity of the individual to perform normal task of daily living without undue tiredness or fatigue having reserves of strength and energy available to meet satisfactory and emergency demands suddenly placed upon him”.- *Nixon*

Physically fitness is the quality of the whole body in terms of its state of adaptation of physical activity.

Importance of Physical fitness

- improves the functioning of heart and lungs by increasing the availability of oxygen to all tissues and organs in the body system;
- improves muscle tone;

- promotes the development of good posture, proportionate figure, and thereby positive body image and physical appearance;
- ensures quick recovery after injury and illness;
- decreases the risk of cardio-vascular disease; (like Heart attack, Asthma etc.)
- reduces and controls undesirable body fat. When the individual does exercise, takes proper diet that also fulfils nutritional requirement, it helps maintain ideal body weight;
- increases energy level of a person;
- improves the mood by reducing depression and anxiety;
- postpones fatigue and reduces recovery time after vigorous activity;
- helps people to meet challenges of life, makes them selfconfident and delays the ageing process.

Being physically fit is important for all the age groups. To live better life to the fullest and enjoy all the opportunities, one try to be physically fit. Physical fitness is essential for each and every individual at all stages of life. To achieve fitness, various modes and methods are available. Before adopting such methods, warming up before activities and cooling down after activities are essential to minimise any risk of injuries of an every individual.

Components of Physical fitness

Physical fitness can be classified into health related fitness and skill-related fitness. The health-related components are:

- (i) Cardiovascular Fitness, (ii) Muscular Strength, (iii) Muscular Endurance, (iv) Body Composition and (v) Flexibility.

The skill-related components are:

- (i) Agility, (ii) Balance, (iii) Power, (iv) Speed, (v) Coordination, and (vi) Reaction Time.

Components of Health Related Fitness

Cardio-respiratory Endurance: cardio-respiratory endurance reflects the ability of the body's circulatory and respiratory systems to supply fuel during sustained physical activity. To improve

your cardio-respiratory endurance, try activities that keep your heart rate elevated at a safe level for a sustained length of time such as walking, running, jogging, swimming, bicycling etc. The activity you choose need not be strenuous enough to improve your cardio-respiratory endurance. Start slowly with an activity you enjoy, and gradually work up increase to a more intense pace.

Muscular Strength is the amount of force applied on muscle or muscle groups, is able to exert for one maximal effort (contraction).The key to making your muscles stronger is working them against resistance, whether that be from weights or gravity. If you want to gain muscle strength, try excercises such as lifting weights (under proper supervision).

Muscular Endurance is the ability of a muscle or muscle group to exert force against a submaximal load for a given length of time (or number of repetition) before fatiguing to the point of failure.

Body Composition refers to the proportion of team body mass to body fat, it includes amount of muscle, fat, bone, and other vital parts of the body. Body composition is important to be considered for health and managing the body fat.

Flexibility is the range of motion around a joint. Good flexibility in the joints can help prevent injuries through all stages of life. If you want to improve your flexibility, try yoga, gymnastics and basic stretching exercise programme.

Components of Skill Related Fitness

Agility is the ability to change and control the direction and position of the body while maintaining a constant, rapid motion. For example changing directions to hit a tennis ball.

Balance is the ability to control or stabilise the body when a person is standing still or moving. For example, handstand in gymnastics.

Coordination is the ability to use the senses together with body parts during movement. For example, dribbling a basketball. Using hands and eyes together is called hand-eye coordination.

Speed is the ability to move your body or parts of your body swiftly. Many sports rely on speed to gain advantage over opponents. For example, a Basketball player making a fast break to perform a lay-up, a tennis player moving forward to get to a drop shot, a football player running the defense to receive a pass.

Power is the ability to move the body parts swiftly while applying the maximum force of the muscles. Power is a combination of both speed and muscular strength. For example, volleyball players lifting up to the net and lifting their bodies high into the air.

Reaction Time is the ability to reach or respond quickly to what you hear, see or feel. For example, an athlete quickly coming off the blocks early in a swimming or track event, or stealing a base in baseball.

HEALTH AND HYGIENE

What is good health? Different people may consider good health differently. But to define it formally, health is a state of complete physical, mental and social well-being. We take health as being free from diseases but it is much more than just the absence of a disease. Good health may enable us to do well at work and in life. Good health involves proper functioning of all body organs. It also involves feeling well both in body and in mind. People enjoying good health are cheerful, free from stress, and enjoy life to the fullest. Only if you are in good health you can be of help to others and the community.

To keep ourselves free from diseases and to have good health, we should be careful about hygiene. The various practices that help in maintaining good health are called hygiene. The word hygiene comes from a Greek word *hygiea* that means ‘Goddess for health’ and deals with personal and community health. Thus, health and hygiene go hand in hand or they are interrelated. Proper nutrition, physical exercise, rest and sleep, cleanliness, and medical care are essential parts of maintaining good health. Health includes both personal and community health.

PERSONAL HEALTH

Taking care of oneself to remain healthy and free from diseases is personal health. Some important aspects of good personal health are as follows:

1. Balanced diet: Obtaining a balanced diet depends on one's choice and what one can usually afford. It also includes the correct proportion of carbohydrates, proteins, vitamins, minerals and roughage in your diet.

2. Personal hygiene: There are some activities you perform everyday in order to keep yourself clean. These activities are:

- **Regular toilet habits:** Regular bowel movements keep us free of body wastes generated inside the body.
- **Washing hands before eating:** Having food with dirty hands may make us sick because the dirt in our hand might carry certain disease causing germs. We should wash our hands after going to the toilet. Washing hands with soap make them germ free.
- **Bathing regularly and wearing clean clothes:** Dirt is a place for germs to grow. Bathing regularly keeps your body free of dirt, body lice and germs.
- **Cleaning the teeth:** After eating food, some food particles may remain sticking to your teeth. These food particles form a medium for the germs to grow, harm your gums and teeth, and cause bad breath. Brushing of teeth every day do not let the germs grow. Brushing of teeth before going to bed is a very good habit.
- **Washing hair, cleaning eyes, ears and nails:** Regular washing and combing of hair helps in preventing dirt accumulation to keep the germs away. Nails should be clipped regularly; nail biting is unhygienic and must be avoided.

3. Domestic hygiene :

- House should be kept clean and free from dirt, flies and germs.
- Cooking utensils, plates, cups and other utensils should be kept clean.

4. Clean food and water

- Fruits and vegetables should be washed in clean water to make them free from germs and pesticides (chemicals sprayed on plants to keep them insect free) before consumption and cooking.
- Water used for drinking, cooking, bathing and washing utensils should be from a clean source.

5. Cooking with care: Food should be prepared in a clean kitchen and in a clean manner:

- While cooking food, it is important to heat it to high temperature to kill any germs present in it.
- Cooked food should be eaten fresh or stored in cool, fly-proof place.
- Milk stored in the refrigerator or outside should be boiled again to make it germ free.

6. Abstaining from habit-forming substances: To keep healthy, one should avoid smoking, chewing of betel nut, gutka and tobacco, and drinking alcohol. Intake of such habit-forming substances may lead to health problems such as liver damage, kidney failure and heart failure.

7. Exercise: Regular walking and physical exercises have a good effect on health. Outdoor games and sport maintain the heart and circulatory system in good condition. Walking keeps the joints of bones healthy.

8. Regular sleep and relaxation: These also play an important part in maintaining sound mental health. They also help in the repair of body tissues.

COMMUNITY HEALTH

We often read in the newspaper or see on television about the fast spread of certain diseases in a particular area. Many people seem to get affected. This may not be an individual problem, but the problem of community and requires immediate attention. Local or government organisations may take steps to control spreading of a disease, by creating awareness and ensuring adequate supplies of medicines. You must have seen notices and banners put up by the government agencies stating the date and time of immunization programmes and the precautions to be taken against different diseases. Such awareness is regularly created through

nationwide campaigns against the spread of diseases such as malaria, dengue, AIDS, polio, leprosy, and Hepatitis B.

There are several organisations working towards good community health. Some of these are listed below.

1. Government hospitals, and dispensaries
2. The National Malaria Eradication (removal) Programme
3. The Tuberculosis (T. B.) Eradication Programme
4. National Immunization Programme
5. National Pulse Polio Programme

Some of the important tasks, which the community health centres undertake are:

- To maintain proper cleanliness by disposing off the sewage from colonies.
- To provide safe and germ free drinking water.
- To run various immunization (vaccination against various diseases) programs and other health awareness programmes wherever there is danger of spreading of a disease.
- To provide health education.
- To spray insecticides to kill harmful insects.
- To maintain food standards, regular inspection at food stores, meat and milk outlets.
- To prevent mosquito breeding, cover open drains and pour kerosene oil on the surface of stagnant water.

ENVIRONMENTAL HYGIENE:

You can keep your body clean but what will happen if you live in dirty surroundings? If so, you are sure to fall sick. Thus, to have a healthy living one must live in clean surroundings. Unclean surroundings may become breeding ground for flies and germs, thus, leading to spread of diseases.

To keep the environment healthy, we should be careful about the disposal of the garbage. Some of the practices for disposing the garbage are:

- **Keeping the house clean:** The house must be cleaned every day. We must sweep and mop the house to remove dirt from every nook and corner of the house. The furniture must also be wiped clean. The cobwebs from the walls and roof should be cleared at least once a week.

- **Throwing garbage in dustbins:** Do not throw your household garbage on the roadside. This makes street dirty and allows flies, mosquitoes and other animals to breed. This garbage not only gives a dirty look but also produces foul smell. Garbage should be thrown inside the dustbins. The bins should also be cleaned after emptying the garbage.
- **Keeping dustbins covered:** To prevent entry of insects and other animals inside the house dustbins should be kept covered.

DISEASE AND DISPENSARY

Disease may be the sickness of the body or the mind. A disease can be as mild as a sore throat, common cold, and stomach upset or as serious as cancer. Disease can strike almost any part of the body and anybody at some stage or the other. They can also affect a person's mental and emotional health.

A dispensary is an office in a school, hospital, industrial plant, or other organization that dispenses medications, medical supplies, and in some cases even medical and dental treatment. In a traditional dispensary set-up, a pharmacist dispenses medication as per prescription or order form.

Methods of imparting health instructions

There is nothing very special about the methods of imparting health Education. Health Education forma an essential part of total education. As such all aspects of health education should be carried on at all stages of the educational process according to the age and maturity. The following are some of the important ways and means through which health education and its instruction can be imparted effectively in institutions.

1. Healthful Environment of the institution

Environment is the most important of all educational media. Any scheme of health education must receive top priority to the improvement of physical and human environment. Neat clean attractive and well maintained institutional building, classrooms, equipments and plays fields, sympathetic and affectionate teachers contribute greatly to inculcate healthful living, health habits and conditions of work and health notions about work and life. As is the

environment. So is the individual therefore healthful environment of the institution plays key role in achieving success.

2. Systematic Health Instructions

Direct health instruction should be provided through subjects like hygiene, physiology, general science physical education home science social studies etc. This will enable students to understand the structures and function of human body realize the need for keeping physically fit and take precautionary and remedial measures in case of illness and diseases. Such instruction will also lay emphasis on physical exercises, sports, games and nutritional value of different kinds of food and diet.

3. Incidental Teaching

At the school stage the teacher can give health instruction in the class room situation when there is any incident of communicable disease in the school. In this way such incidental teaching may benefit the individual or the entire class. Similarly teachers have opportunities to give instruction off and on, on personal hygiene in a simple language which is benefit at for the school and community as a whole.

4. Lectures on health by experts

The school authorities should make arrangement on certain occasions to request medical officer or physical instructor and other experts on health to visits the school and to deliver a lecture on various items o health and hygiene. However emphasis should be laid on the fact that talks should be supplemented by illustrative aids and material. At the end of the talk the pupils must be given opportunities to ask any questions concerning the topic to get their doubts cleared.

5. Printed Material

The school can accumulate printed material on health and hygiene such as short leaflets, pamphlets posters and standard books. Even the school authority can have the material from the local health department to highlight certain diseases, their causes and cures.

6. Films and Film Strips

The school can arrange documentary film from various sources which generally displayed the various diseases and how to prevent ourselves from these. They also stress the importance of personal habits like cleanliness. Similarly film strips accompanied by talks or commentary by experts can be displayed and may be retained on the screen as long as wishes.

7. School broadcast and radio talks

Radio talks are a powerful medium for giving health instruction to the young pupil and reaching a wide public at the same time. Radio talks can be delivered on problem of health and hygiene by way of songs or play. In this way the children not only get entertainment but useful instruction also similarly the school broadcast programme does include items of health and hygiene.

8. Educational field trips

Actual field trips provide learning situation for the children and they can get firsthand experience. Such trips include visit to red cross hospitals. Clinics, fairs exhibitions, yogic centre public health centre and water supply centres etc. however each visits needs proper planning and advance class room discussion to motivate young children. At the end of visit if the teacher clarifies the doubts of the students it will be more beneficial for the children.

SAFETY EDUCATION

Meaning of Safety Education

Safety education is an important device to control and prevent accidents. It has been shown repeatedly that there is a need for cooperative action in safety education whether it be in school playfield road and home.

Importance of Safety Education

Safety education forms an integral part of health education. In the modern civilized world through man is able to conquered space and time, he has not yet conquered risks and dangerous to life. Man's utmost desire is to live comfortably. Every day the loss of life is untold due to carelessness in every walk of life. Artificial life is closely associated with risks and dangers and at every moment he has to be alerts to maintain safety. Thus safety education forms an integral

part of health education. Safety education has to be taught to children. They should be trained to avert and avoid risks and dangers instead of inviting them through carelessness.

At school

Students spend most of their time in schools. During leisure hours they get opportunities to get them involved in such activities which may lead to accidents. To make the school life safe safety education should be included in the curriculum.

Classroom

- Congestion of benches and tables in the class room should be avoided. There must be sufficient elbow space for the student to move about in the classroom. Broken furniture must be removed.
- Classroom should prove to be the safety place for every pupil to sit at ease and listen to lectures. Any inconvenience in enjoying the comforts of sitting at ease is likely to disturb his concentration
- All the walls should be white washed and there should be proper ventilation in the classrooms
- Glass fitted to the windows should be highly fixed and there should be no broken places hanging over anywhere.
- Sharp edges of the walls pillars and door are always dangerous out children when they take sharp turns may dash against them.

Laboratories

- The laboratory rooms must be comparatively big In addition to the big room where experiments are performed a lecture theater one attached's store room and one preparation room should also be provided.
- There should be proper arrangement for ventilation and light in the laboratories and the lecture hall.
- Wall almirahs and cupboards for keeping apparatus and chemicals safely.
- Proper arrangement of gas burners spirit lamps.
- Proper arrangements of water sink and tap.
- Care in the use of equipment of chemicals.

- Aquarium for keeping fish and water plants and a germination bed.
- In home science lab, separate rooms for kitchen, laundry sewing and first aid are provided.
- Students should water proper glass during the operation of computer.
- Switch boxes under the computer table.
- The laboratories where breakages of glass vessels are common: the floor and the works table should be kept with perfect cleanliness. All bottles with poisonous chemicals should be labeled in bold letters.

Play Ground

1. Play areas should be fenced properly avoiding barbed wires.
2. During Physical activity classes students should wear suitable dress.
3. Warming up exercise is essential before indulging in any vigorous activity.
4. Playing equipments should be checked.
5. Students will be divided in the groups then only play the activities.

Student's role

- Areas outside the class room building and inside the classroom should be kept clean.
- Avoid pushing shouting and running in the school building.
- Go through doors carefully.
- Know the location of exits and fire escape.
- Don't play inside the class room.

Teacher's role

- To approach psychological problems among the students regularly.
- To explain how to follow the rules and regulations in the classroom laboratory and play ground.
- To provide knowledge related to medical inspection rules and regulation of sports and games.
- To maintain proper disciplines in the class.

Swimming Pool

- Children should be allowed in such swimming pools where the water level is not so deep.
- At the time of swimming certain principles must be followed by the swimmers.
- They should wear minimum clothes so as to save themselves from accidents.
- Children suffering from skin diseases should not be allowed to use the swimming pool.
- Provision must be made recruit supervisors to look to the safety of the individuals who use the swimming pool.
- There should be provision for first aid box to provide immediate help to those who met with accidents.

Gymnasium

- The participants should strictly obey the rules and regulations for different gymnastic activities.
- All gymnastic activities should be conducted under the strict supervision of a trained physical education instructor.
- Learning of exercises should progress from simple exercises to difficult exercises.
- The students should be advised to wear gymnastic shoes. It will help the students to escape from serious accidents in the gymnastic programmes.
- Exercises must be conducted according to fixed time.
- A large mat should also be placed under the flying rings.

Kitchen

- It is essential to know the techniques of operating the stove safely where the fuel used is wood, coal, kerosene, gas or electricity.
- When gas is used the valve on the cylinder should be closed when not in use.
- The kitchen floor should be dry free from grease, skins of fruits and vegetables otherwise there is a chance of slipping the cause a fall.
- When cooking it is dangerous to wear synthetic dress.

- All sharp instruments such as can openers can knives should be stored in a drawer and immediately of the clearing they must be put away safely.
- Pressure cookers should be used as per the manufactures direction.
- During operating the oven should not stand in front of the oven.

Bathroom & Bed Room

- Electric switches and plug points should be fixed on the walls at a height above the reach of children.
- Minimum mats bulbs should be used.
- Mosquito mats should not be kept in near beds.
- Bath room should be kept clean.

Safety on the road

Accidents on the roads have become very common in the modern society. Due to speed and increase in the number of automobiles, road accident occurs almost every day. School children who are not aware of the traffic rules meet with accidents. Safety their measures can be successful if we taken in to consideration either problem of the road. The following safety measures are taken into consideration to avoid accidents.

Road cleanliness

- Keep the road clean, do not throw garbage on the road
- Do not cause any breakage on the road
- Do not use crackers on the road

Rules & Regulations

- The instructed boards which gives message giveaway to entry one way et should be placed wherever it is needed
- To avoid accidents pupils should follow the rules and regulations of road
- Children do not play on the road playing cricket ball or playing kite on the road

- The students should learn how to obey the traffic light signals and the instruction of the traffic police
- While crossing the busy road they should be very careful when they feel that the road is free from danger only then they should cross it.

Safe Dividing of vehicles

- While driving automobiles the driver should be very careful and should follow traffic rules.
- Accident can also be avoided if the driver and vehicle operator keep off highway
- Driver should avoid alcohol.
- The driver should be aware of the safety driving rules.
- The driver should see that the vehicle is well equipped with indicators break light, horn and other important materials.
- The number plate of vehicle the mirror etc should be visible to the people.
- The automobile driver should be aware of the all India road signs and drive carefully according to the sign.
- He must know the mandatory sign of schedule of the motor vehicle act.
- The women should wear proper dress during riding.

Pedestrian

- Look at the signals at every crossing.
- Pedestrian should be aware that they must take on path way while walking keeping an eye on the road.
- While crossing the road they should move straight looking to the both sides of the road and avoid reading and thinking.
- They should be aware of drainage system

Role of government

- Rules and regulation awareness camp should be organized by the government.
- To celebrate road week day celebration.

- Govt. should conducted drug addiction awareness camp among the drivers.

HEALTH PROFILE OF INDIA

India has achieved considerable improvements in human development factors. According to Human Development Report 2011 of UNDP, the HDI for India is 0.547 in 2011 with an overall global ranking of 134 out of the 187 countries. Life expectancy at birth in India was 65.4 years in 2011 as against 55.1 in 1980. Infant Mortality Rate has declined considerably, 71 per 1000 live births in 1997 and reached 47 per 1000 live births in 2010. But the rural (77 in 1997 and 51 in 2010) & urban (45 in 1997 and 31 in 2010) differentials are still high. However, there should be no room for complacency as India is still in the medium human development category with countries like China, Sri Lanka, Thailand, Philippines, Egypt, and Indonesia. The existing gap in health indicators as compared to developed countries and also many of the developing countries indicate a need for much faster and wider spread of basic health.

When it comes to healthcare, there are Two Indias –

(1) India, which provides high-quality medical care to middle-class Indians and medical tourists, and (2) India, in which the majority of the population lives—a country whose residents have limited or no access to quality care.

India lives in its almost 6.5 Lakhs villages and if basic health care is not to reach the rural areas, then no matter how much progress achieved in the urban and semi-urban areas, as overall growth as a nation will be retarded. India has made significant progress in improving healthcare, but improving access to basic healthcare services to the rural population is perhaps one of the most pressing—from a straightforward human development perspective as well as to ensure a solid foundation for future economic growth. Despite India's dazzling recent economic performance, persistent widespread poverty means that malnourishment and communicable diseases remain serious problems. Healthcare indicators vary widely across states, partly reflecting the differing levels of resources available to state governments, but one trend that is totally consistent is that indicators are much worse in rural areas than in urban ones. The problem is, first and foremost, one of access.

India's healthcare system rests on a primary healthcare system that is grossly inadequate and falls woefully short of what it should be to ensure that our people have access to at least

basic healthcare. According to the Economic Survey 2009-10, only 13 per cent of the rural population has access to a primary healthcare centre with 33 per cent having access to a subcentre, 9.6 per cent to a hospital and 28.3 per cent to a dispensary or clinic. India has a rudimentary network of public hospitals – there is a shortage of 4,504 primary health centers and 2,135 community health centers in 2009. According to a study conducted by the Confederation of Indian Industry, the formal healthcare system reaches only about 50% of the total population. India is also desperately short of doctors, with only 1 doctor per 1,700 people in 2006.

Anemia, infant and child malnutrition, malaria, tuberculosis and diarrhea remain widely prevalent, despite being preventable and curable. Huge population has led to unhygienic surroundings which, in turn, have given rise to vector-borne and water-borne diseases. Many of these can be easily prevented by providing access to clean drinking water and improving sanitation facilities. The World Health Organisation estimates that overall disease burden would fall by 15 per cent with improved access to clean water and sanitation facilities, while the World Bank estimates that 21 per cent of communicable diseases in India are waterrelated. India needs to focus on preventable rather than curative measures where the costs are higher.

Majority of country's population lives in rural areas and does not have awareness about the diseases generated by water and bad sanitation. Further, some of the myths, old beliefs and practices are detrimental to the development of the society, especially in child birth and maternal care. Situation calls for the creation of mass awareness among the rural masses to minimize the magnitude of the problem and bring in social change. The application of social marketing principles could be made use of to improve health status of the rural community. This is especially true for rural areas with regard to women's and children's health, as maternal, infant and child morbidity and mortality rates are intolerably high in India.

UNIT-2

CAUSES AND PREVENTION OF DISEASES

1. Life style disorders:

Meaning:

A particular lifestyle of person is a cumulative product of his/her physical capacity coordinate with psychological functioning, displayed in the form of habits, behavior, dietary and living pattern based on his own training sought from childhood, and mimics he gained from his immediate companions including parents, siblings, peers, etc. Thus, it involves a pure psychological and innate control over the physical and sensory activities. When this initiation, control, and co-ordination are disturbed, it leads to the derangement of lifestyle and results in any lifestyle disorder. Improper removal of the waste products formed during metabolism leading to accumulation of toxins is the basic cause of a disease. Therefore, the habit of suppression of urge in improper lifestyle can be considered as one of the root causes of lifestyle diseases. These preventable chronic diseases are the outcome of our unhealthy choices. Identifying the causes of lifestyle diseases is critical, because the elimination of the causes is the obvious and only way to achieve healing and enhanced health. Physical activity improves cardiovascular fitness, strength and flexibility, and burns up calories to keep fit and trim. This improves the individual's looking, feeling and thinking better.

Causes:

- **Dehydration:** Dehydration of the muscles and tendons is a primary cause of muscle fatigue, strain, tendonitis, and other disorders of the musculoskeletal system.
- **Malnutrition:** The lack of living foods in our diet along with the overconsumption of dead foods causes chronic diseases.
- **Inflammation:** Inflammation is a primary cause of most lifestyle related disorders, including heart disease and musculoskeletal disorders.
- **Fatigue:** Lack of sleep is associated with numerous, serious medical illnesses including: high blood pressure, heart disease, stroke, obesity, and mental impairment.
- **Poor physical fitness:** It's widely recognized that there's a direct correlation between poor levels of physical fitness and increased risk of chronic diseases.

Prevention:

- Regular health screening.
- Right choice of food
- Cutting down your sugar intake to avoid unnecessary calorie intake that could lead to weight gain.
- Using less salt in your meals; instead, spice up your food with herbs and spices.
- Limiting intake of high fat foods to maintain a healthy body weight and heart.
- Proper rest and relaxation.
- Avoid alcohol intake

What Are Diseases?

Let's say you're sitting at a gate in a major American airport, waiting to board a flight. At a neighboring gate, a flight arrives and several people exit the plane wearing surgical masks. You assume that you should probably avoid these people. They must have some illness and are trying not spread it to a planeload of people. Then, your plane starts loading. You strike up a conversation with someone who's describing their difficulty getting through security with insulin and syringes. They're diabetic, yet not wearing a surgical mask. You aren't worried about catching diabetes, but why? Diabetes is a life-threatening disease after all. To answer this question, we need to examine the main difference between common illnesses.

A **disease** is any abnormal condition that causes a disruption in the functions of a body tissue, organ, or entire organism. Diseases are recognized by a specific set of symptoms. Think about the diseases you know: a cold, the flu, measles, cancer, stroke, or diabetes, just to name a few. These diseases all disrupt the body in very characteristic ways. Now think about what **causes** these conditions: viruses, bacteria, fungi, smoking, genetic defects, etc. There are countless diseases, each with its own unique and characteristic cause. But why can you 'catch' some diseases but not others? This is due to the two different types of disease: communicable and noncommunicable.

What Are Communicable Diseases?

Communicable diseases are spread from person to person or from animal to person. The spread or transfer can happen through the air, through contact with contaminated surfaces, or through direct contact with blood, feces, or other bodily fluids. A **cold** is an example of a communicable disease (a cold is the general term given to a viral infection of the upper respiratory tract).

This is probably why those airline passengers mentioned at the start of this lesson were wearing masks. Viruses in the respiratory passageways can easily be coughed or even just breathed out. So, if the inconsiderate cold-carrier sitting next to you on the plane coughs, viruses are spewed into your vicinity. You breathe, and suddenly those viruses have found a new respiratory tract to call home (yours!). That cold has now been passed from one infected person to another uninfected person, spreading the communicable disease.

The time period required for the transmission of infectious agent from a reservoir to a susceptible host is to, because the disease is known as communicable period or incubation period. The infectious agents may be virus, bacteria, protozoa, fungi, ricketts etc. this disease may be directly or indirectly transmitted from man to man, animal to animal, from the environment like through air, dust, soil water, food, insects etc to man and to animal.

1. Air borne Diseases-Tuberculosis, **whooping cough, small pox.**
2. Water & food borne diseases-**Typhoid, Cholera, Dysentery, diarrhea.**
3. Through Direct contact-sexual disease **AIDS.**
4. Through insects- **Malaria.**

A **non-communicable disease (NCD)** is a disease that is not transmissible directly from one person to another. NCDs include **Parkinson's disease, autoimmune diseases, strokes, most heart diseases, most cancers, diabetes, chronic kidney disease, osteoarthritis, osteoporosis, Alzheimer's disease, cataracts,** and others. NCDs may be chronic or acute. Most are non-infectious, although there are some non-communicable infectious diseases, such as parasitic diseases in which the parasite's life cycle does not include direct host-to-host transmission.

A. AIR BORNE DISEASES

1. Whooping Cough-

Whooping cough (Pertussis) is highly infectious disease of young children which causes inflammation of the respiratory tract with severe attacks of cough. It is airborne in nature.

Symptoms

1. Onset is sudden cold and in the beginning simple mild cough with fever.
2. Severe running of nose and sneezing
3. Later severe bouts of coughing and that will become more severe at late night ending in deep inspiration during which the characteristic whoop occurs.
4. Face turns red and eyes bulges with tears and ends with vomiting.
5. Lungs severely affected.

Treatment and Prevention

1. Keep the child in a warm and ventilated room?
2. Keep the infected child in a separate room
3. Discharges from nose and throat should be disposed immediately and disinfection should be done.
4. Give light food to the infected.
5. In early stage itself the child need to be immunized against whooping cough with DPT vaccine at 2nd, 3rd, 4th months, 11/2 and 5years.
6. As a treatment, erythromycin may be injected in consultation with a physician to reduce the severity of the infection

2. Small-Pox-

It is known as a serious infectious disease. Even the grown up people also come under the grip of this infection. This infection is caused by **Typical Viruses**. However, the spread of infection is also caused by droplets and scabs floating in the air.

Symptoms

- ❖ There is chill and headache in the beginning
- ❖ Severe pain in the back and limbs of the body
- ❖ Sometimes face becomes red.
- ❖ After three or four days eruptions appear on the forehead. Then they spread throughout the body and become watery blisters, diminishing, eruption becomes dry and at last crust starts falling.
- ❖ Itching feeling is also there is a eruption.
- ❖ Fever remains high for eight to nine days.

Precautions and Treatment

- ❖ A child suffering from this disease should be segregated from others.
- ❖ Child should be got vaccinated against small pox
- ❖ Patient should be kept in a clean place.
- ❖ No medicine should be given except proper nursing.
- ❖ Patient should not be given salt.

Treatment

- ❖ The stomach should be clean. Use soap water enemas as a purgative
- ❖ When temperature goes above 103.0 F, place cold compress or ice bad over the head.
- ❖ Give light easily digestible food
- ❖ Use boric lotion for reducing pain in the eyes.
- ❖ Used greasy substance for removing scabs.

B. WATER & FOOD Borne DISEASES

A. TYPHOID

Typhoid is an acute infectious disease that affects the gastrointestinal tract. In countries where sanitation is poor and sub-standard, typhoid and paratyphoid may occur. The term enteric fever includes both typhoid and paratyphoid. It caused by **Salmonella typhi**. Incubation period is 10-15 days. It spreads through faecal-oral route. Contamination of drinking water by way of

sewage and food by way of flies are the main reasons for the spread of this disease. It affects almost all age category.

Signs and Symptoms

1. Onset of sudden fever of moderate to high degree with rigors and chills.
2. Fever rises in step ladder fashion.
3. Malaise with headache and pain in the limbs
4. Tongue will be centrally coated
5. Low pulse
6. Diarrhea occurs
7. Constipation and retention of urine will occur because the germs attack intestine and cause ulcers.
8. Small rose coloured spots will be seen in the middle part of the body and these spots fade away later.
9. If the patient has a relapse of typhoid, the same symptoms reappear.

Prevention and Treatment

1. Early detection and notification, to health authority
2. Active immunization by vaccines and inject other children with anti-typhoid injections.
3. Isolation of the infected
4. Proper disinfection of urine and stools is necessary and even burning after disinfection all excreta will be the right choice.
5. Boiled water and ensures safe water for drinking and administer light liquid food.
6. If fever rises beyond 1030 F, apply cold compression to the head.
7. Complete bed rest is recommended for the infected persons.
8. Specific drugs on consultation with physician such as ciprofloxacin, chloromycetin should be administered.

B. CHOLERA

It is an acute gastro-intestinal infection. It is epidemic as well endemic disease. The disease is caused by a germ called '**Vibrio cholera**'. It spreads through contaminated drinking water, by flies, insects and improper storage. It also spreads from infected patients to others. It affects all age group. Incubation period is generally ranging from few hours to 5 days.

Signs and Symptoms

1. It starts with diarrhea and the watery stools and vomiting leading to dehydration
2. Pain in the muscles of hands and feet is observed and it causes muscle cramps.
3. Too much thirst is felt
4. Urine output is suppressed
5. Fluid and electrolyte imbalance may occur
6. Fatal death occurs, if left uncared.

Prevention and Treatment

1. Strict personal hygiene.
2. Boil water and safe water for drinking.
3. Early detection may be made by testing stools and immediately it should be reported to health authority.
4. Disinfection of clothing is recommended.
5. Disinfect surroundings with DDT and make it flies free.
6. Cholera vaccination
7. Adequate compensation of electrolytes and water by intravenous fluids and CRS solutions should be undertaken.
8. Provide antibiotics such as **Tetracycline**, and **Fuazolidone** in consultation with physician.

C. DIARRHOEA

People suffer from this disease mostly in summer and rainy season. It is spread by flies. If it is allowed to continue it may take the shape of dysentery.

Causes:

- ❖ It is caused due to the spread of bacteria by flies.

- ❖ It is caused by the presence of bacteria in unripe food.
- ❖ It may be caused due to taking of infected food, water and other drinks.

Symptoms

There is frequent movement of bowels

Remedies

- Food should be protected from flies.
- Water should be disinfected before it is used.
- A person suffering from disease should take only very light food. During rainy or summer season.
- During rainy or summer season light diet should be taken.

C. THROUGH INSECT VECTORS

A. MALARIA

Malaria is a common disease found in most of the tropical regions of the world. It is a protozoan disease transmitted by the bite of anopheles mosquitoes. It is the most important parasitic disease of the human beings. Mode of transmission is by two means.

1. Mosquito transmission (Asexual) - An infected female anopheles mosquito may infect several persons. The mosquito is not infective unless the sporozoites are present in its salivary.
2. Human transmission (Asexual) – may be transmitted directly by injections of infected blood or plasma.-Eg. Blood transfusion, drug addicts using same syringe.

Symptoms

There are three stages in the infection process:

1. **Cold stage-** A sudden onset of fever with rigors and chills and sensation of extreme cold & shivering which lasts about 15 minutes to one hour.
2. **Hot stage-** Temperature rises up to 1000 F with intense head ache and the patient feels burning hot and casts of his clothes. This stage lasts for 2-6 hours.
3. **Sweating stage-** Fever decreases with profuse sweating. This is stage lasts for 2-4 hours.
4. In some cases, nausea, vomiting and delirium are common.

5. Mild anemia and a palpable spleen are also observed.

Prevention and Treatment

1. Protection against mosquito by using repellants, protective clothing, bed nets and screening.
2. Control of adult infected mosquito/larvae-intermittent drying water containers and using larvicides to kill the mosquito larva sides. Spraying of insecticides will control also the mosquito.
3. To control human reservoir, mass drug administration should be undertaken in highly endemic areas.
4. Management of environmental sanitation, water and drainage will reduce the source of infection.

Keep the patient warm during the shivering stage

1. Rub him down with a towel, sponge with weak vinegar and change his clothes when he has perspired.
2. Even after perspiration, if he temperature stays high, sponge the patient with cold water or apply cold packs.
3. If he feels headache, keep a cold wet cloth on the forehead.
4. Give enough water to drink.
5. Give a very light diet and during the attacks only provide liquids dirts.
6. Treat with quinine or other drug on doctor's advice.

Precautions to be taken School

1. Malaria spreads during the spring and autumn hence see that no water collects in the school premises, or gardens, or about the compounds, which are breeding places for mosquitoes.
2. Destroy the mosquito by sprinkling kerosene on stagnant drains.
3. Advice parents not to have cesspits or cesspools near their houses.
4. Sprinkle DDT, or BHC to control mosquitoes which may breed in the walls and the corners.

2. Heart Diseases:

Cardiovascular disease (CVD) is a class of diseases that involve the heart or blood vessels. Cardiovascular disease includes coronary artery diseases (CAD) such as Angina and Myocardial (commonly known as a heart attack). Other CVDs are stroke, hypertensive heart disease, rheumatic heart disease, cardiomyopathy, atrial fibrillation, congenital heart disease, endocarditic, aortic aneurysms, peripheral artery disease and venous thrombosis.

Causes:

There are several risk factors for heart diseases. They are age, gender, tobacco use, physical inactivity, excessive alcohol consumption, unhealthy diet, obesity, family history of cardiovascular disease, raised blood pressure (hypertension), raised blood sugar (diabetes mellitus), raised blood cholesterol, psychosocial factors, poverty and low educational status, and air pollution. While the individual contribution of each risk factor varies between different communities or ethnic groups the overall contribution of these risk factors is very consistent. Some of these risk factors, such as age, gender or family history, are immutable; however, many important cardiovascular risk factors are modifiable by lifestyle change, social change, drug treatment and prevention of hypertension, hyperlipidemia, and diabetes. Age is very much related to serum cholesterol level. The serum total cholesterol level increases as age increases. In men, this increase levels off around age 45 to 50 years. In women, the increase continues sharply until age 60 to 65 years. The risk of stroke doubles every decade after age 55. Men are at greater risk of heart disease than pre-menopausal women. Once past menopause, it has been argued that a woman's risk is similar to men. If a female has diabetes, she is more likely to develop heart disease than a male with diabetes. It is also found that gender differences explain nearly half the risk associated with cardiovascular diseases. One of the proposed explanations for gender differences in cardiovascular diseases is hormonal difference. Among women, estrogen is the predominant sex hormone. Estrogen may have protective effects through glucose metabolism and hemostatic system, and may have direct effect in improving endothelial cell function. The production of estrogen decreases after menopause and this may change the female lipid metabolism. Another main cause is physical inactivity. Insufficient physical activity is currently the leading risk factor for mortality worldwide. In addition, physical activity assists weight loss and improves blood glucose control, blood pressure, lipid profile and insulin sensitivity. These effects may, at least in part, explain its cardiovascular benefits. High dietary intakes of saturated

fat, trans-fats and salt and low intake of fruits, vegetables and fish are linked to cardiovascular risk. The amount of dietary salt consumed is also an important determinant of blood pressure levels and overall cardiovascular risk. Frequent consumption of high-energy foods, such as processed foods that are high in fats and sugars, promotes obesity and may increase cardiovascular risk.

Prevention:

- Low-fat, high-fiber diet including whole grains and fruit and vegetables. Five portions a day reduce risk by about 25%.
- Tobacco cessation and avoidance of second-hand smoke
- Avoid alcohol consumption.
- Lower blood pressures, if elevated
- Decrease non-HDL cholesterol.
- Decrease body fat if overweight or obese
- Increase daily activity to 30 minutes of vigorous exercise per day at least five times per week
- Reduce sugar consumptions
- Decrease psychosocial stress.

3.CANCER:

Meaning:

Cancer is also known as a malignant tumor or malignant neoplasm, is a group of diseases involving abnormal cell growth with the potential to invade or spread to other parts of the body. Not all tumors are cancerous. Possible signs and symptoms include a new lump, abnormal bleeding, a prolonged cough, unexplained weight loss, and a change in bowel movements among others. While these symptoms may indicate cancer, they may also occur due to other issues. There are over 100 different known cancers that affect humans.

The characteristics of cancer cells are:

- Cell growth and division without the proper signals to do so

- Continuous growth and division even when there are signals telling them to stop
- Avoidance of programmed cell death
- Limitless number of cell divisions
- Promoting blood vessel construction
- Invasion of tissue and formation of metastases

Causes:

Most cancers are related to environmental, lifestyle, or behavioral exposures. The term "environmental", as used by cancer researchers, refers to everything outside the body that interacts with humans. In this sense, the environment is not limited to the biophysical environment (e.g. exposure to factors such as air pollution or sunlight, encountered outdoors or indoors, at home or in the workplace), but also includes lifestyle, economic and behavioral factors. Common environmental factors that contribute to cancer death include tobacco. It is nearly impossible to prove what caused a cancer in any individual, because most cancers have multiple possible causes. For example, if a person who uses tobacco heavily develops lung cancer, then it was probably caused by the tobacco use, but since everyone has a small chance of developing lung cancer as a result of air pollution or radiation, then there is a small chance that the cancer developed because of air pollution or radiation. Cancer is generally not contagious in humans, though it can be caused by oncoviruses and bacteria. It should be noted that aging has been repeatedly and consistently regarded as an important aspect to consider when evaluating the risk factors for the development of particular cancers; aging is considered a risk factor and this is explained by the observation that many molecular and cellular changes are involved in the development of cancer, so it is very likely that these changes accumulate during the aging process. Cancers are potentially avoidable by reducing key risk factors, of which much the significant is tobacco use, which is the cause for more cancer deaths. Another important reason is obesity, a poor diet, lack of physical activity, and drinking alcohol. Other factors are infections, exposure to ionizing radiation, and environmental pollutants. In the developing world nearly 20% of cancers are due to infections such as hepatitis B, hepatitis C, and human papilloma virus. These factors act, at least partly, by changing the genes of a cell. Typically many such genetic changes are required before cancer develops. Approximately 5–10% of cancers are due to genetic defects inherited from a person's parents.

Types of Cancer

There are more than 100 types of cancer. Types of cancer are usually named for the organs or tissues where the cancers form. For example, lung cancer starts in cells of the lung, and brain cancer starts in cells of the brain. Cancers also may be described by the type of cell that formed them, such as an epithelial cell or a squamous cell.

- **Carcinoma:** Carcinomas are the most common type of cancer. They are formed by epithelial cells, which are the cells that cover the inside and outside surfaces of the body.

- **Sarcoma:** Sarcomas are cancers that form in bone and soft tissues, including muscle, fat, blood vessels, lymph vessels, and fibrous tissue.

- **Leukemia:** Cancers that begin in the blood-forming tissue of the bone marrow are called leukemia. These cancers do not form solid tumors. Instead, large numbers of abnormal white blood cells (leukemia cells and leukemic blast cells) build up in the blood and bone marrow, crowding out normal blood cells. The low level of normal blood cells can make it harder for the body to get oxygen to its tissues, control bleeding, or fight infections.

- **Lymphoma:** Lymphoma is cancer that begins in lymphocytes (T cells or B cells). These are disease-fighting white blood cells that are part of the immune system. In lymphoma, abnormal lymphocytes build up in lymph nodes and lymph vessels, as well as in other organs of the body.

- **Brain and Spinal Cord Tumors:** There are different types of brain and spinal cord tumors. These tumors are named based on the type of cell in which they formed and where the tumor first formed in the central nervous system. For example, an astrocytic tumor begins in starshaped brain cells called astrocytes, which help keep nerve cells healthy. Brain tumors can be benign (not cancer) or malignant (cancer).

Preventive measures:

- Avoid tobacco

- Healthy diet- **Plenty of fruits and vegetables** and other foods from plant sources ,whole grains and beans.
- Avoid obesity- Eating lighter and leaner by choosing fewer high-calorie foods, including refined sugars and fat from animal sources.
- Limit processed meats- A report from the International Agency for Research on Cancer, the cancer agency of the World Health Organization, concluded that eating large amounts of processed meat can slightly increase the risk of certain types of cancer.
- Maintain a healthy weight and be physically active lower the risk of various types of cancer, including cancer of the breast, prostate, lung, colon and kidney.

4. HIV/AIDS

HIV/AIDS the Acquired Immuno-Deficiency Syndrome (some times called “slim disease”) is a newly described, usually fatal illness caused by a retrovirus of the **lent virus** group known as the **Human Immuno Deficiency Virus (HIV)** which breaks down the body’s immune system, leaving the victim vulnerable to subsequent development of persistent constitutional symptoms or diseases such as secondary infections, neoplasm and, neurological disorders. AIDS can be called our modern pandemic, affecting both industrialized and developing countries.

AIDS stands **Acquired Immuno Deficiency Syndrome.**

A-Means acquired from outside

I- Refers to body immune system (defense mechanism of the human body)

D- Indicates the weakening of the immune system

S- Refers to the presence of signs and symptoms

AIDS is a serious disorder of the immune system. AIDS was first recognized in USA in 1981. First confirmed evidence of AIDS infection in India came in April 1986. Sexual contact is the major mode of transmission of HIV worldwide. The virus can be transmitted by infected blood or blood products, both in individuals who share contaminated needles and those who receive transfusions of blood or blood products. Infected mother transmit the virus to the infants. The incubation period for adults is approximately 8-10 years, whereas children under 5 years of age generally develop symptoms within 2 years.

Signs and Symptoms

1. Majority experience no recognizable signs or symptoms, but some develop acute illness

showing-fevers, rigors, arthragis, abdominal cramps, diarrhoea, aseptic meningitis etc.

2. Fever persisting for more than one month.
3. Weight loss of greater than 10% of baseline.
4. Diarrhea persisting for more than one month.
5. Persistent cough for a period longer than one month.
6. General itching dermatitis.
7. Recurrent Herpes Zoster
8. Oropharyngeal candidiasis-fungal infection in mouth and throat.
9. Swelling in lymph glands-Lymphaenopathy

Prevention and Treatment

1. Prevention of sexual transmission is an immediate priority education, counseling and behavior modification in sexual contacts and –safe sex assume importance.
2. Screening of blood and blood products for HIV antibodies by through testing of blood samples sometimes blood screening will be a failure during window period of an infected HIV patient and universal precautions while handling blood and body fluids.
3. Prevent blood borne transmission of HIV by using disposable syringe, properly boiled needles. Avoid sharing of injection, equipments and follow reduction in drug usage.
4. To avoid transplacental or prenatal transmission of HIV, HIV infected women should avoid pregnancy
5. Counseling and contraceptive service should be made available to HIV infected persons

.5. Reproductive helpless health

Reproductive health is defined as” A state of complete physical, mental, and social well being and not merely the absence of disease or infirmity, in all matters related to the reproductive system and to its functions and process”. Reproductive health is defined as a state of physical, mental, and social well-being in all matters relating to the reproductive system, at all stages of life. Good reproductive health implies that people are able to have a satisfying and safe sex life, the capability to reproduce and the freedom to decide if, when, and how often to do so. Men and women should be informed about and have access to safe, effective, affordable, and acceptable methods of family planning of their choice, and the right to appropriate health-care services that enable women to safely go through pregnancy and childbirth.

6. Osteoporosis & Depression

Causes:

Loss of bone mass is the leading cause of osteoporosis and bone fractures among the aged in general and among post-menopausal women in particular. People with major depression generally have a lower bone mass density. Depression may increase the risk of the bone disorder osteoporosis in premenopausal women. Depressed women have overactive immune systems that make too many inflammatory chemicals, one of which actually promotes bone loss. Depression is a common chronic condition and that thinning of bones (osteopenia) is often “clinically silent” (without signs or symptoms). Osteoporosis is a chronic illness with potentially life-altering consequences when not managed properly. Osteoporosis is a disease characterized by low bone mass and the deterioration of bone tissue. The bones weaken, putting those affected at greater risk of suffering a broken bone or fragility fracture. Fragility fractures are those that occur following a minor trauma, such as a fall from standing height, a sitting position or having missed 1-3 steps in a staircase.

Symptoms of Osteoporosis

There typically are no symptoms in the early stages of bone loss. But once your bones have been weakened by osteoporosis, you may have signs and symptoms that include:

- Back pain, caused by a fractured or collapsed vertebra
- Loss of height over time
- A stooped posture
- A bone fracture that occurs much more easily than expected.

Prevention of Osteoporosis

Good nutrition and regular exercise are essential for keeping your bones healthy throughout your life.

Protein

Protein is one of the building blocks of bone. And while most people get plenty of protein in their diets, some do not. Vegetarians and vegans can get enough protein in the diet if they intentionally seek suitable sources, such as soy, nuts, legumes, and dairy and eggs if allowed. Older adults may also eat less protein for various reasons. Protein supplementation is an option.

Body weight

Being underweight increases the chance of bone loss and fractures. Excess weight is now known to increase the risk of fractures in your arm and wrist. As such, maintaining an appropriate body weight is good for bones just as it is for health in general.

Calcium

Men and women between the ages of 18 and 50 need 1,000 milligrams of calcium a day. This daily amount increases to 1,200 milligrams when women turn 50 and men turn 70. Good sources of calcium include:

- Low-fat dairy products
- Dark green leafy vegetables
- Canned salmon or sardines with bones
- Soy products, such as tofu
- Calcium-fortified cereals and orange juice

If you find it difficult to get enough calcium from your diet, consider taking calcium supplements. However, too much calcium has been linked to kidney stones. Although yet unclear, some experts suggest that too much calcium especially in supplements can increase the risk of heart disease. The Institute of Medicine recommends that total calcium intake, from supplements and diet combined, should be no more than 2,000 milligrams daily for people older than 50.

Vitamin D

Vitamin D improves your body's ability to absorb calcium and improves bone health in other ways. People can get adequate amounts of vitamin D from sunlight, but this may not be a good source if you live in a high latitude, if you're housebound, or if you regularly use sunscreen or avoid the sun entirely because of the risk of skin cancer.

Scientists don't yet know the optimal daily dose of vitamin D for each person. A good starting point for adults is 600 to 800 international units (IU) a day, through food or supplements. For people without other sources of vitamin D and especially with limited sun exposure, a supplement may be needed. Most multivitamin products contain between 600 and 800 IU of vitamin D. Up to 4,000 IU of vitamin D a day is safe for most people.

Exercise

Exercise can help you build strong bones and slow bone loss. Exercise will benefit your bones no matter when you start, but you'll gain the most benefits if you start exercising regularly when you're young and continue to exercise throughout your life.

Combine strength training exercises with weight-bearing and balance exercises. Strength training helps strengthen muscles and bones in your arms and upper spine, and weight-bearing exercises — such as walking, jogging, running, stair climbing, skipping rope, skiing and impact-producing sports — affect mainly the bones in your legs, hips and lower spine. Balance exercises such as tai chi can reduce your risk of falling especially as you get older.

Swimming, cycling and exercising on machines such as elliptical trainers can provide a good cardiovascular workout, but they're not as helpful for improving bone health

Signs of depression:

- Depressed mood.
- Marked loss of interest or pleasure in activities which used to give you pleasure
- Significant weight loss or gain.
- Insomnia or difficulty sleeping (usually waking up in the early morning rather than

having difficulty falling asleep) or sleeping too much.

- Lack of interest or concern about what's going on around you.
- Feelings of agitation.
- Lack of energy.
- Feelings of worthlessness and/or guilt.
- Inability to concentrate or make decisions.

Prevention:

- Built a strong social support network
- Cultivate the habit of meditation
- Have a deep sleep for 6 to 8 hours.
- Make yourself physically fit
- Nurture your body, mind and spirit in a positive and enjoyable way.

7. Intentional and unintentional injuries

Unintentional injuries are harmful acts that occurred without any intention of causing damage to oneself or others. A large proportion of unintentional injuries occur in or around the home and many of these injuries occur as a result of falls, like down the stairs or when someone uses a ladder to fix something. Motor vehicle crashes, unintentional poisonings, suffocation, drowning, accidental firearm discharges, and burns. For people aged 65 or older, unintentional falls are the number one cause of unintentional injury death. Those in the age group of 25-64 should be wary of unintentional poisonings with substances at home like chemicals, drugs, and so on. Children and young adults aged 5-24 who die as a result of an unintentional injury mainly do so because of problems sustained from motor vehicle related accidents. And children below the age of five are most at risk for unintentional death via suffocation and drowning, hence the need to watch the kiddies near the tub and pool.

Intentional Injuries: In contrast to unintentional injuries are intentional injuries, which are injuries resulting from purposeful harmful actions upon oneself or others. Violence is a term that describes the exercise of force to harm oneself or another person. It's similarly a very unfortunate fact that the majority of these intentional injury deaths occur not by the hands of others, but when a person commits suicide. The three major contributing factors to suicide deaths are firearms,

suffocation, and poisoning. Injuries are responsible for countless lost lives, decreased quality of life, and substantial health care costs. While injuries afflict everyone, people of color and low income populations are particularly vulnerable.

Prevention:

1. Begin a regular exercise program to increase the balance, strength, and flexibility.
2. Consult with a health professional about getting a fall risk assessment.
3. Have all medications, prescription and over-the-counter, reviewed periodically for drug interactions that could lead to falls.
4. Get your vision checked at least annually by an eye doctor.
5. Make your home safer by reducing tripping hazards, installing handrails and grab bars and improving lighting.

8. Diabetes and obesity**What is Diabetics?**

Diabetes is a complex group of diseases with a variety of causes. People with diabetes have high blood glucose, also called high blood sugar or hyperglycemia. Diabetes is a disorder of metabolism- the way the body uses digested food for energy. The digestive tract breaks down carbohydrates, sugars and starches found in many foods into glucose, a form of sugar that enters the bloodstream. With the help of the hormone insulin, cells throughout the body absorb glucose and use it for energy. Diabetes develops when the body doesn't make enough insulin or is not able to use insulin effectively, or both. Insulin is made in the pancreas, an organ located behind the stomach. The pancreas contains clusters of cells called islets. Beta cells within the islets make insulin and release it into the blood. If beta cells don't produce enough insulin, or the body doesn't respond to the insulin that is present, glucose builds up in the blood instead of being absorbed by cells in the body, leading to prediabetes or diabetes. Over time, high blood glucose damages nerves and blood vessels, leading to complications such as heart disease, stroke, kidney disease, blindness, dental disease, and amputations. Other complications of diabetes may include increased susceptibility to other diseases, loss of mobility with aging, depression, and pregnancy problems. No one is certain about the causes for diabetes, but scientists believe genes and environmental factors interact to cause diabetes in most cases. The two main types of diabetes are type 1 diabetes and type 2 diabetes. A third type, gestational diabetes, develops only during pregnancy. Other types of diabetes are caused by defects

in specific genes, diseases of the pancreas, certain drugs or chemicals, infections, and other conditions. Some people show signs of both type 1 and type 2 diabetes.

Causes: Diabetes is caused by a lack of insulin due to the destruction of insulin producing beta cells in the pancreas. In type 1 diabetes the body's immune system attacks and destroys the beta cells. Normally, the immune system protects the body from infection by identifying and destroying bacteria, viruses, and other potentially harmful foreign substances. The immune system attacks the body's own cells. In type 1 diabetes, beta cell destruction may take place over several years, but symptoms of the disease usually develop over a short period of time. Type 1 diabetes typically occurs in children and young adults, though it can appear at any age. In the past, type 1 diabetes was called juvenile diabetes or insulin-dependent diabetes mellitus. Latent autoimmune diabetes in adults (LADA) may be a slowly developing kind of type 1 diabetes. Diagnosis usually occurs after age 30. In LADA, as in type 1 diabetes, the body's immune system destroys the beta cells. At the time of diagnosis, people with LADA may still produce their own insulin, but eventually most will need insulin shots or an insulin pump to control blood glucose levels.

Obesity and Physical Inactivity

Physical inactivity and obesity are strongly associated with the development of type 2 diabetes. People who are genetically susceptible to type 2 diabetes are more vulnerable when these risk factors are present. An imbalance between caloric intake and physical activity can lead to obesity, which causes insulin resistance and is common in people with type 2 diabetes. Central obesity, in which a person has excess abdominal fat, is a major risk factor not only for insulin resistance and type 2 diabetes but also for heart and blood vessel disease, also called cardiovascular disease (CVD). This excess "belly fat" produces hormones and other substances that can cause harmful, chronic effects in the body such as damage to blood vessels.

Prevention:

- Get more physical activity
- Get plenty of fiber
- Choose whole grains and whole grain products over highly processed carbohydrates.
- Skip the sugary drinks, and choose water, coffee, or tea instead.
- Choose good fats instead of bad fats.

- Limit red meat and avoid processed meat; choose nuts, whole grains, poultry, or fish instead.
- Avoid smoking
- Avoid alcohol content

8.SWINE FLUE:-

Swine flu is a disease of pigs that can, in rare cases, be passed to humans. It is a highly contagious respiratory disease caused by one of many Influenza A viruses. The disease is spread among pigs by direct and indirect contact, aerosols, and from pigs that are infected but do not have symptoms. In many parts of the world, pigs are vaccinated against swine flu. Most commonly, swine flu is of the H1N1 influenza subtype. However, swine flu viruses can sometimes come from other subtypes, such as H1N2, H3N1, and H3N2.

Symptoms

The symptoms of swine flu in humans are quite similar to those of regular flu, and include:

- body aches
- chills
- cough
- headache
- sore throat
- fever
- tiredness

Home remedies

As there is no known single cure, steps can be taken at home to prevent swine flu and reduce symptoms if a person does contract the virus.

These include:

- washing hands regularly with soap
- getting plenty of sleep
- exercising often
- managing stress
- drinking liquids
- eating a balanced diet
- refraining from touching surfaces that may have the virus

Autism spectrum disorder:-

Diagnosis:

Your child's doctor will look for signs of developmental delays at regular checkups. If your child shows any symptoms of autism spectrum disorder, you'll likely be referred to a specialist who treats children with autism spectrum disorder, such as a child psychiatrist or psychologist, pediatric neurologist, or developmental pediatrician, for an evaluation.

Because autism spectrum disorder varies widely in symptoms and severity, making a diagnosis may be difficult. There isn't a specific medical test to determine the disorder. Instead, a specialist may:

- Observe your child and ask how your child's social interactions, communication skills and behavior have developed and changed over time
- Give your child tests covering hearing, speech, language, developmental level, and social and behavioral issues
- Present structured social and communication interactions to your child and score the performance
- Use the criteria in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), published by the American Psychiatric Association
- Include other specialists in determining a diagnosis
- Recommend genetic testing to identify whether your child has a genetic disorder such as Rett syndrome or fragile X syndrome

Treatment:

No cure exists for autism spectrum disorder, and there is no one-size-fits-all treatment. The goal of treatment is to maximize your child's ability to function by reducing autism spectrum disorder symptoms and supporting development and learning. Early intervention during the preschool years can help your child learn critical social, communication, functional and behavioral skills.

The range of home-based and school-based treatments and interventions for autism spectrum disorder can be overwhelming, and your child's needs may change over time. Your health care provider can recommend options and help identify resources in your area.

If your child is diagnosed with autism spectrum disorder, talk to experts about creating a treatment strategy and build a team of professionals to meet your child's needs.

Treatment options may include:

- **Behavior and communication therapies.** Many programs address the range of social, language and behavioral difficulties associated with autism spectrum disorder. Some programs focus on reducing problem behaviors and teaching new skills. Other programs focus on teaching children how to act in social situations or communicate better with others. Applied behavior analysis (ABA) can help children learn new skills and generalize these skills to multiple situations through a reward-based motivation system.

- **Educational therapies.** Children with autism spectrum disorder often respond well to highly structured educational programs. Successful programs typically include a team of specialists and a variety of activities to improve social skills, communication and behavior. Preschool children who receive intensive, individualized behavioral interventions often show good progress.
- **Family therapies.** Parents and other family members can learn how to play and interact with their children in ways that promote social interaction skills, manage problem behaviors, and teach daily living skills and communication.
- **Other therapies.** Depending on your child's needs, speech therapy to improve communication skills, occupational therapy to teach activities of daily living, and physical therapy to improve movement and balance may be beneficial. A psychologist can recommend ways to address problem behavior.
- **Medications.** No medication can improve the core signs of autism spectrum disorder, but specific medications can help control symptoms. For example, certain medications may be prescribed if your child is hyperactive; antipsychotic drugs are sometimes used to treat severe behavioral problems; and antidepressants may be prescribed for anxiety. Keep all health care providers updated on any medications or supplements your child is taking. Some medications and supplements can interact, causing dangerous side effects.

What is cerebral palsy?

Cerebral palsy (CP) refers to a group of disorders that affect muscle movement and coordination. In many cases, vision, hearing, and sensation are also affected.

The word “cerebral” means having to do with the brain. The word “palsy” means weakness or problems with body movement.

CP is the most common cause of motor disabilities in childhood. According to the Centers for Disease Control and Prevention (CDC) Trusted Source, it affects at least 1.5 to 4 out of every 1,000 children worldwide.

What are the symptoms of cerebral palsy?

The symptoms of CP vary from person-to-person and range from mild to severe. Some people with CP may have difficulty walking and sitting. Other people with CP can have trouble grasping objects.

The symptoms can become more severe or less severe over time. They also vary depending on the part of the brain that was affected.

Some of the more common signs include:

- delays in reaching motor skill milestones, such as rolling over, sitting up alone, or crawling
- variations in muscle tone, such as being too floppy or too stiff
- delays in speech development and difficulty speaking
- spasticity, or stiff muscles and exaggerated reflexes
- ataxia, or a lack of muscle coordination
- tremors or involuntary movements
- excessive drooling and problems with swallowing
- difficulty walking
- favoring one side of the body, such as reaching with one hand
- neurological problems, such as seizures, intellectual disabilities, and blindness

Most children are born with CP, but they may not show signs of a disorder until months or years later. Symptoms usually appear before a child reaches age 3 or 4.

Call your doctor if you suspect your child has CP. Early diagnosis and treatment are very important.

What causes cerebral palsy?

Abnormal brain development or injury to the developing brain can cause CP. The damage affects the part of the brain that controls body movement, coordination, and posture.

The brain damage usually occurs before birth, but it can also happen during birth or the first years of life. In most cases, the exact cause of CP isn't known. Some of the possible causes include:

- asphyxia neonatorum, or a lack of oxygen to the brain during labor and delivery
- gene mutations that result in abnormal brain development
- severe jaundice in the infant
- maternal infections, such as German measles and herpes simplex
- brain infections, such as encephalitis and meningitis
- intracranial hemorrhage, or bleeding into the brain
- head injuries as a result of a car accident, a fall, or child abuse

How is cerebral palsy treated?

The goal of treatment is to improve limitations and prevent complications. Treatment may include assistive aids, medications, and surgery.

Assistive aids:

Assistive aids include:

- eyeglasses
- hearing aids
- walking aids
- body braces
- wheelchairs

Medications:

Oral anticonvulsants and muscle relaxants are commonly used as first-line treatments for CP.

Your doctor might prescribe:

- diazepam (Valium)
- dantrolene (Dantrium)
- baclofen
- tizanidine (Zanaflex)

Your doctor might also suggest local injections of botulinum toxin type A (Botox) or intrathecal baclofen therapy, where the drug is delivered by an implantable pump.

Surgery:

Orthopedic surgery may be used to relieve pain and improve mobility. It may also be needed to release tight muscles or to correct bone abnormalities caused by spasticity.

Selective dorsal rhizotomy (SDR) might be recommended as a last resort to reduce chronic pain or spasticity. It involves cutting nerves near the base of the spinal column.

Other treatment:

Other types of treatment for CP include:

- speech therapy
- physical therapy
- occupational therapy
- recreational therapy
- counseling or psychotherapy

- social services consultations

Although stem cell therapy is being explored as a potential treatment for CP, research is still in the early stages.

Blood Borne Diseases:-

A **blood-borne disease** is a disease that can be spread through contamination by blood and other body fluids. Blood can contain pathogens of various types, chief among which are microorganisms, like bacteria and parasites, and non-living infectious agents such as viruses. Three bloodborne pathogens in particular, all viruses, are cited as of primary concern to health workers by the CDC-NIOSH: HIV, hepatitis B (HVB), & hepatitis C (HVC).

Diseases that are not usually transmitted directly by blood contact, but rather by insect or other vector, are more usefully classified as vector-borne disease, even though the causative agent can be found in blood. Vector-borne diseases include West Nile virus, zika fever and malaria.

Many blood-borne diseases can also be contracted by other means, including high-risk sexual behavior or intravenous drug use. These diseases have also been identified in sports medicine.

Since it is difficult to determine what pathogens any given sample of blood contains, and some blood-borne diseases are lethal, standard medical practice regards all blood (and any body fluid) as potentially infectious. *Blood and Body Fluid precautions* are a type of infection control practice that seeks to minimize this sort of disease transmission.

Prevention:

Follow standard precautions to help prevent the spread of blood-borne pathogens and other diseases whenever there is a risk of exposure to blood or other bodily fluids. Standard precautions include maintaining personal hygiene and using personal protective equipment (PPE), engineering controls, and work practice controls among others. Always avoid contact with blood and other bodily fluids. Wear disposable gloves when providing care, particularly if you may come into contact with blood or bodily fluids. Dispose properly of gloves and change gloves when providing care to a new patient. Use needles with safety devices to help prevent needlestick injury and exposure to blood-borne pathogens.

A hierarchy of controls can help to prevent environmental and occupational exposures and subsequent diseases. These include:

Elimination: Physically remove hazards, including needles that lack a safety device. Additionally, eliminate the use of needle devices whenever safe and effective alternatives are available.

Substitution: Replace needles without safety devices with ones that have a safety feature built in. This has been shown to reduce bloodborne diseases transmitted via needlestick injuries.

Engineering controls: Isolate people from the hazard by providing sharps containers for workers to immediately place needles in after use.

Administrative controls: Change the way people work by creating a culture of safety such as avoiding recapping or bending needles that may be contaminated and promptly disposing of used needle devices and other sharps.

Personal protective equipment: Protect workers with PPE such as gloves and masks to avoid transmission of blood and other bodily fluids.

UNIT-5

First Aid

First aid is the first and immediate assistance given to any person suffering from a serious illness or injury, with care provided to preserve life, prevent the condition from worsening, or to promote recovery. It includes initial intervention in a serious condition prior to professional medical help being available, such as performing cardiopulmonary resuscitation (CPR) while awaiting for an ambulance, as well as the complete treatment of minor conditions, such as applying a plaster to a cut. First aid is generally performed by someone with basic medical training. Mental health first aid is an extension of the concept of first aid to cover mental health.

Principles of First aid:-

The following are the importance principles of first aid.

1. Remove the cause of injury or the patient from the cause as early as possible. He should then render such help that may prevent further injury.
2. The bleeding should be stopped immediately irrespective of other injuries.
3. Keep the patient warm by wrapping him in clothes rugs or blankets and sheets as the cause may be.

4. Remove the clothes of the patient only when essential such removal of clothes must not cause pain or discomfort to the patient. He should very softly study the ankle and then undo the laces of shoes and cut off the socks if needed.
5. The wound should be covered at once with a clean dressing In case of a fracture the injured limb should be supported and placed in natural position as far as possible with splints and bandages.
6. Make immediate proper arrangements to transport the patient to a hospital or to a qualified doctor are the vicinity It should however be remembered that the first aider need not to be a doctor. So he should never take upon himself the duties and responsibilities of a doctor. His responsibilities are over as soon as proper medical aid is available.
7. The injured should be given as much rest as possible and his body should be kept in a restful position.
8. In case to take out poison first.
9. In case of fracture the broken part should be saved from movement till proper medical aid is available.
10. Offer warm milk or tea if the patient is in senses he may be given a cup of a warm milk or tea.
11. Full knowledge of anatomy is essential for giving first aid. The first aider must have complete knowledge of anatomy and physiology. It will enable him to render proper first aid to the injured.

Duties of first aiders:-

- Ensure your current first aid certificate Information is posted at your department's first aid station (include your room location, phone extension and expiry date).
- As a first aider you are expected to respond to first aid emergencies within the limits of your training.
- Arrange without delay medical assistance unless injury is so minor it can be handled without professional attention.
- Render appropriate first aid and CPR until transportation of casualty to further medical care, if necessary.

- If the injury or illness is related to the workplace or a study/lab assignment then send completed investigation report to the Safety Office.
- Report any first aid supplies needed to the person in charge of the first aid station.

What is the difference between a sprain and a strain?

Sprains and strains both refer to damage to the soft tissues in the body, including ligaments, tendons, and muscles. They are common injuries that share some symptoms but affect different body parts. People can often treat sprains and strains at home.

A sprain is an overstretched, torn, or twisted ligament. A ligament is a tough band of fibrous tissue that connects bones to other bones or cartilage. Ligaments are usually located around joints. Commonly sprained areas include the wrists, ankles, thumbs, and knees.

A strain is an overstretched, torn, or twisted tendon or muscle. A tendon is a tough cord of fibrous tissue that connects muscles to bones. Commonly strained areas include the legs, knees, feet, and back.

What causes a sprain or strain?

Sprains and strains occur when the body is put under physical stress. In these situations, muscles and joints are forced to perform movements for which they are not prepared or designed. An injury can occur from a single stressful incident, contact sports, or it may gradually arise after many repetitions of a motion. Usually, the mechanism of injury involves placing the muscle tendon unit or the ligament under excessive stretching, causing damage to the muscle, tendon, or ligament fibers.

What are sprain symptoms and signs?

The first symptom of a sprain or strain injury is usually pain, though there may be a delay in onset of the symptom until there is some onset of muscle spasm. The person who is injured may not recall the specific event that caused the injury of the affected area. For example, a person

who paints a room may develop shoulder pain the day after the repetitive effort of brushing overhead. This is because inflammation, swelling, and spasm can take time (from minutes to hours) to develop.

Pain is always a symptom that indicates that there is something wrong with the body. It is the message to the brain that warns that a muscle or joint should be protected from further harm. In work, exercise, or sport, the pain may develop after a specific incident, or it may gradually progress after many repetitions of a motion.

Swelling almost always occurs with injury, but it may take from minutes to hours to be noticed. Anytime fibers of a ligament, muscle, or tendon are damaged, some inflammation and bleeding occurs. The bleeding (such as bruising on the surface of the skin) may take time to be noticed.

Because of pain and swelling, the body starts to favor the injured part. This may cause the muscles that surround the injured area to go into spasm or cramp. Hard knots of muscle might be felt near the site of the injury.

The combination of pain, swelling, and spasm causes the body to further protect the injured part, which results in difficulty with use. Limping is an example of the body trying to protect an injured leg from weight-bearing.

What is the treatment for sprains and strains?

When muscle, tendon, or ligament fibers are damaged, the body will heal that area by producing scar tissue. The area that is injured needs to be kept relatively rested while healing.

First aid continues afterward with rest, ice, compression, and elevation (RICE). These are the keys elements in the treatment of both sprains and strains. More intense treatment may be required depending upon the location and severity of injury and the patient's level of function. For example, an athlete who sprains the ACL of their knee may need to have surgery to reconstruct the ligament, but an elderly patient who is less active may not need such an aggressive approach and physical therapy may be all that is needed to return to their previous level of activity.

Depending upon the extent and location of the injury, it may take many weeks to return to normal function. That does not mean that all activity must stop; instead there needs to be a gradual return to function that is guided by the body's response to activity. Most often, the patient can "listen" to their body's response to activity and increase or decrease the amount and intensity of activity. There is a balance between resting a part of the body enough to help with healing and resting it too much so that strength and range of motion are lost. For example, when the rotator cuff is strained, it may take a significant amount of time for the shoulder to return to full function. Resting the arm for a prolonged period of time in a sling to rest the muscle group may lead to stiffness in the shoulder joint and loss of range of motion. The health care professional and patient must appreciate that balance and minimize the loss of function while maximizing the rate of healing.

Muscle, tendon, and ligaments heal themselves naturally by repairing the fibers or filling in the damaged area with scar tissue. Full muscle and joint mobility may take time to return, and gradual stretching may be required to return the injured area to normal. Additionally, depending upon the area of the body that is injured, the damage sustained, and the amount of loss of function, physical therapy may be suggested. A variety of treatment modalities may be considered, including ultrasound and massage, to encourage healing and preserve range of motion and function.

If the muscle or tendon is ruptured or severely torn (grade 3 strain), surgery may be required to repair the damage. Some common sites of this injury include the

- quadriceps (front of the thigh) muscle or its tendon, either the quadriceps or patellar, that allows the knee to extend or straighten tendon;
- hamstring muscle located in the back of the thigh and flexes the knee;
- Achilles tendon which attached the calf muscle to the calcaneus (heel) and allows the ankle to flex;
- biceps muscle or tendon, which flexes the elbow.

Physical therapists may be an important part of the treatment team to help with recovery. Their skills in teaching and monitoring range of motion and strengthening exercises allow recovery from their injury in a controlled way. It may be only one visit for an ankle sprain, or there may need to be multiple visits to help with post operative care. Physical therapy can also involve other treatment options like ultrasound, electrical stimulation, and muscle massage.

Certified athletic trainers work with athletes, especially in organized sports, and are involved in the treatment of acute and chronic sprains and strains. They are skilled in taping and using compression bandages (ace wraps) to support and protect injured muscles and joint, as well as implementing treatment plans as part of the sports medicine team.

Surgery is a consideration for certain sprains and strains. The decision to offer surgical operations to repair muscle, tendons, or ligaments depends upon the patient's underlying function before the injury and their expectations for activity after recovery. Not all structures need repair, even if completely torn. For example, a professional athlete may continue to perform at a high level even with a torn posterior cruciate ligament in the knee but cannot easily return to the field of play with a torn anterior cruciate ligament.

Anti-inflammatory medications like ibuprofen (Advil, Motrin) and naproxen (Aleve) are often suggested to help decrease inflammation and relieve pain. Before taking any over-the-counter medication, it is important to appreciate that side effects and medication interactions exist and it is wise to ask a health care professional or pharmacist for advice and direction for their use.

New treatments are being developed to help with recovery. For example, platelet rich plasma (PRP) injections may help in speeding recovery and may be useful in some patient treatment plans.

For more significant pain, prescription pain medications, muscle relaxants, and/or anti-inflammatory medications may be prescribed for a short period of time.

Treatment of Unconsciousness:-

Unconsciousness is an abnormal state in which a person is not alert and not fully responsive to his/her surroundings. Levels of unconsciousness range from drowsiness to collapse and may range in severity from fainting to coma.

Unlike when a person is asleep, someone who is unconscious cannot cough, clear his/her throat, or turn his/her head if in distress. When unconscious, a person is in danger of choking, making it very important to keep the airway clear while awaiting medical care.

Signs and Symptoms:

A person who is unconscious may be:

- Drowsy and/or disoriented; he/she may come in and out of consciousness.
- Confused and incoherent.
- In a coma; he/she may be completely motionless.

First Aid Guide:

If you find an unconscious person, try to determine what caused the loss of consciousness. Check to see if he/she is wearing a medical alert tag.

If you can determine what caused the loss of consciousness, call emergency medical services and give first aid for that illness or injury until they arrive. If you cannot determine what caused the loss of consciousness, give first aid for general unconsciousness and call emergency medical services if the person does not revive promptly (ie, within a couple minutes).

1. Check the person's airway, breathing, and circulation.
2. If you do not think there is a spinal injury, put the person in the recovery position:
 1. Position the person lying face up.
 2. Turn the person's face toward you.
 3. Take the person's arm that is closest to you, and place it to his/her side, tucking it under the buttock.
 4. Take the person's other arm, and place it across his/her chest.
 5. Cross the person's ankles by placing his/her far leg over the near leg.
 6. Supporting the person's head with one hand, pull his/her clothing at the hip, rolling toward you. The person will be on his/her stomach, facing you.
 7. Bend one arm up and one arm down, to support the upper and lower body.
 8. Tilt the person's head back to allow air to move freely in and out of the mouth.

If you do think there is a possible spinal injury, leave the person as you found him/her (as long as breathing continues). If the person vomits or bleeds out of his/her mouth, roll his/her entire body at one time to the side. Be sure to support the person's neck and back to keep the head and body in the same position while you roll him/her.

3. Keep the person warm until emergency medical help arrives.

Note: If the person awakens during the above self-care measures and he/she becomes restless or agitated, attempt to gently restrain him/her.

The following should be avoided in the case of loss of consciousness:

- Do not give an unconscious person anything by mouth; even if he/she regains consciousness, do not give anything until consulting a physician.
- Do not attempt to wake an unconscious person by slapping or shaking him/her or by putting cold water on the person.
- Do not put a pillow under the head of an unconscious person, as this could block his/her airway.

How Does a Stroke Occur?

There are two types of stroke.

- **Ischemic stroke** is similar to a heart attack, except it occurs in the blood vessels of the brain. Clots can form in the brain's blood vessels, in blood vessels leading to the brain, or even in blood vessels elsewhere in the body and then travel to the brain. These clots block blood flow to the brain's cells. Ischemic stroke can also occur when too much plaque (fatty deposits and cholesterol) clogs the brain's blood vessels. About 80% of all strokes are ischemic.
- **Hemorrhagic (heh-more-raj-ik) strokes** occur when a blood vessel in the brain breaks or ruptures. The result is blood seeping into the brain tissue, causing damage to brain cells. The most common causes of hemorrhagic stroke are high blood pressure and brain aneurysms. An aneurysm is a weakness or thinness in the blood vessel wall.

What Are the Symptoms of Stroke?

The most common symptoms of a stroke are:

- Weakness or numbness of the face, arm, or leg on one side of the body
- Loss of vision or dimming (like a curtain falling) in one or both eyes

- Loss of speech, difficulty talking, or understanding what others are saying
- Sudden, severe headache with no known cause
- Loss of balance or unstable walking, usually combined with another symptom

How can I reduce my risk of a stroke?

- Visit your doctor regularly for blood pressure checks and appropriate medication.
- Have your cholesterol checked – your doctor may recommend lifestyle changes or medicines to lower your cholesterol.
- Control your diabetes, if you have it.

Lifestyle changes that can help reduce your risk of stroke include:

- stopping smoking;
- eating a healthy diet (a diet that is high in vegetables and fruit, and low in salt and saturated and trans fats is recommended);
- losing weight if you are overweight;
- reducing alcohol intake (limit alcohol to no more than 2 standard drinks per day); and
- getting enough physical activity (at least 30 minutes on most days of the week).

Your doctor will talk to you about how to achieve these goals and where to start.

Hemorrhage:-

Bleeding, also called hemorrhage, is the name used to describe blood loss. It can refer to blood loss inside the body, called internal bleeding, or to blood loss outside of the body, called external bleeding.

Blood loss can occur in almost any area of the body. Internal bleeding occurs when blood leaks out through a damaged blood vessel or organ. External bleeding happens when blood exits through a break in the skin.

Blood loss from bleeding tissue can also be apparent when blood exits through a natural opening in the body, such as the:

- mouth
- vagina
- rectum
- nose

What are the common causes of bleeding?

Bleeding is a common symptom. A variety of incidents or conditions can cause bleeding. Possible causes include:

Traumatic bleeding:

An injury can cause traumatic bleeding. Traumatic injuries vary in their severity.

Common types of traumatic injury include:

- abrasions (scrapes) that don't penetrate too far below the skin
- hematoma or bruises
- lacerations (cuts)
- puncture wounds from items like needles, nails, or knives
- crushing injuries
- gunshot wounds

First aid for traumatic bleeding:

It's possible to treat external traumatic bleeding. Seek emergency help if the person is having any of the emergency signs listed above and if you need help to stop the bleeding.

The person who's bleeding should try to remain calm to keep their heart rate and blood pressure controlled. Either heart rate or blood pressure being too high will increase the speed of bleeding.

Lay the person down as soon as possible to reduce the risk of fainting, and try to elevate the area that's bleeding.

Remove loose debris and foreign particles from the wound. Leave large items such as knives, arrows, or weapons where they are. Removing these objects can cause further harm and will likely increase the bleeding. In this case, use bandages and pads to keep the object in place and absorb the bleeding.

Use the following to put pressure onto the wound:

- a clean cloth
- bandages
- clothing
- your hands (after applying protective gloves)

Maintain medium pressure until the bleeding has slowed and stops.

Do not:

- remove the cloth when bleeding stops. Use an adhesive tape or clothing to wrap around the dressing and hold it in place. Then place a cold pack over the wound.
- look at the wound to see if bleeding has stopped. This can disturb the wound and cause it to begin bleeding again.
- remove the cloth from the wound, even if blood seeps through the material. Add more material on top, and continue the pressure.
- move anyone with an injury to the head, neck, back, or leg
- apply pressure to an eye injury

Use tourniquets only as a last resort. An experienced person should apply the tourniquet. To apply a tourniquet, follow these steps:

1. Identify where to place the tourniquet. Apply it to a limb between the heart and the bleeding.
2. Make the tourniquet using bandages, if possible. Wrap them around the limb and tie a half knot. Ensure there is enough room to tie another knot with the loose ends.
3. Place a stick or rod between the two knots.
4. Twist the stick to tighten the bandage.
5. Secure the tourniquet in place with tape or cloth.

6. Check the tourniquet at least every 10 minutes. If the bleeding slows enough to be controlled with pressure, release the tourniquet and apply direct pressure instead.

Firs Aid for Respiratory discomfort:-

The following are the signs and symptoms of a breathing problem:

- pale and/or blue face, lips or nail beds
- noisy breathing, wheezing
- cough
- inability to catch breath or shortness of breath
- rapid breathing, greater than 20 breaths per minute
- pain while taking a breath

The following are first aid treatment guidelines for breathing problems:

- Sit the victim upright with support.
- Loosen clothing.
- If on medication for breathing problems, help with medications.
- If a known history of over-breathing from anxiety exists, speak calmly and attempt stress reduction by identifying the fear. Direct victim to a quiet place.
- Reassure and remain with victim until improved.
- If breathing does not return to normal shortly get medical help.
- **Do not** ignore someone over-breathing.
- **Do not** force victim into an uncomfortable position.

What is a bone fracture?

The word "break" is commonly used by lay (non-professional) people. Among doctors, especially bone specialists, such as orthopedic surgeons, "break" is a much less common term when talking about bones. A crack (not only a break) in the bone is also known as a fracture. Fractures can occur in any bone in the body. There are several different ways in which a bone can fracture; for example, a break to the bone that does not damage surrounding tissue or tear through the skin is known as a closed fracture. On the other hand, one that damages surrounding skin and penetrates the skin is known as a compound fracture or an open fracture. Compound fractures are generally more serious than simple fractures, because, by definition, they are infected. Most human bones are surprisingly strong and can generally stand up to fairly strong impacts or forces. However, if that force is too powerful, or there is something wrong with the bone, it can fracture. The older we get, the less force our bones can withstand. Because children's bones are more elastic, when they do have fractures they tend to be different. Children also have growth plates at the end of their bones - areas of growing bone - which may sometimes be damaged.

Types:-

There is a range of fracture types, including:

- **Avulsion fracture** - a muscle or ligament pulls on the bone, fracturing it.
- **Comminuted fracture** - the bone is shattered into many pieces.
- **Compression (crush) fracture** - generally occurs in the spongy bone in the spine. For example, the front portion of a vertebra in the spine may collapse due to osteoporosis.
- **Fracture dislocation** - a joint becomes dislocated, and one of the bones of the joint has a fracture.

- **Greenstick fracture** - the bone partly fractures on one side, but does not break completely because the rest of the bone can bend. This is more common among children, whose bones are softer and more elastic.
- **Hairline fracture** - a partial fracture of the bone. Sometimes this type of fracture is harder to detect with routine xrays.
- **Impacted fracture** - when the bone is fractured, one fragment of bone goes into another.
- **Intraarticular fracture** - where the break extends into the surface of a joint
- **Longitudinal fracture** - the break is along the length of the bone.
- **Oblique fracture** - a fracture that is diagonal to a bone's long axis.
- **Pathological fracture** - when an underlying disease or condition has already weakened the bone, resulting in a fracture (bone fracture caused by an underlying disease/condition that weakened the bone).
- **Spiral fracture** - a fracture where at least one part of the bone has been twisted.
- **Stress fracture** - more common among athletes. A bone breaks because of repeated stresses and strains.
- **Torus (buckle) fracture** - bone deforms but does not crack. More common in children. It is painful but stable.
- **Transverse fracture** - a straight break right across a bone.

Symptoms of Fractures:-

1. Pain at or near the seat of fracture
2. Swelling around the seat of fracture
3. Limitation of normal movement
4. Deformity of the limb
5. Irregularity of the bone

6. Crepitus (body grating) may be heard or felt
7. Unnatural movement at the seat of the fracture

Treatment of fractures:-

1. Immobilize the injured part to prevent further damage
2. Use the uninjured part of the patient's body as splint
3. Place thick padding using sterile cotton, folded towels, scarves socks and to fill spaces between two parts of the paddy.
4. Avoid having a bandage directly over a fractured part
5. Bandages and signs should not be tight that they cut off the blood circulation
6. Hospitalize the injured individual