



212en32



HEALTH AND HYGIENE

Good health is an asset for individuals, their communities and the nation at large. A nation cannot progress without a healthy population.

There are large numbers of factors which affect our health. Some of these are balanced food, clean water and clean environment which help to remain healthy while others such as germs and stressful environment cause diseases and disorders.

In this lesson we will learn that good health implies both physical and mental well being. It ,however, requires consistent efforts to maintain good health, at both personal and community levels.

This lesson aims to guide you to live a healthy and positive life so that you can realize your potential.



OBJECTIVES

After completing this lesson, you will be able to:

- *appreciate different dimensions of health and the role of proper nutrition, physical exercise and healthy habits in maintaining health and explain the different positive and negative influences on health;*
- *emphasize the importance of hygiene, personal and community health and recognize their interrelationship;*
- *define disease, classify them and explain the causes, symptoms and prevention of a few communicable and non-communicable diseases;*
- *discuss the role of immunity in preventing diseases;*
- *express awareness about the national immunization programme and how it prevents certain communicable diseases;*

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- highlight the importance of first aid during emergencies and become familiar with a few commonly needed first aid techniques;
- express concern about increasing substance abuse among the youth and become convinced of the need to stay away from habit forming substances;
- recognize the urgency of breaking out of the habit and seek help from appropriate sources, if addicted;
- list modern days techniques used as diagnostic tools for diseases and disorders – x-ray, MRI and ultrasound.

32.1 WHAT IS HEALTH AND HYGIENE

You must be familiar with the famous saying “health is wealth”. When we are healthy, we enjoy our work and live our life to the fullest. To attain good health we need to develop certain habits. Hygiene is an integral part of healthy living and deals with cleanliness of our body and our surroundings.

32.1.1 Health

What is your idea of health? Is it mere physical fitness or just absence of disease? Before proceeding further, we would like to know **your** definition of health. Write it down.

Health is _____

Definition of health: According to the World Health Organization (WHO), health is a “**State of complete physical, mental and social well being and not merely the absence of disease**”. It means proper functioning of the body and the mind.

People enjoying good health are more cheerful, energetic, full of life, more efficient at work and therefore more productive.

Let us do: List any two points of similarities or differences between your definition of health and that given by WHO

Two points that are similar	a) _____
	b) _____
Two points that are different	a) _____
	b) _____

Try to recollect when you were sick or suffered from a major illness. Were you not irritable, lost your temper for no reason and did not feel like working because your body became weak and would not permit you to do things that you wanted to? In contrast, when you are healthy, you feel happy and enthusiastic and are likely to enjoy doing the work assigned to you. How do you feel during exams? Very stressful. Stress causes rise in blood pressure and leads to sleeplessness. However, some amount of stress also helps you to perform well. The three different dimensions of health are together referred to as health triangle as shown in Figure 32.1



Fig. 32.1: Health triangle showing three different dimensions of health.

Do you observe some of these features in your-self?

Signs of good health: Given below are some signs of physical, mental and social health. They help in assessing one's state of health.

A. Signs of physical health: If you have good physical health you

- shall be energetic and alert.
- have weight which is normal for your age and height.
- have bright and shining eyes.
- have all the body organs functioning normally and fall sick less often.
- have clean and clear skin.
- have normal growing hair of natural colour and texture.
- have odourless breath.
- have good appetite and
- get sound sleep.

Healthy individuals are active, responsive and happy and can work hard and perform well

B. Signs of mental health: If you have good mental health, you shall have

- control over your emotions
- balanced feelings, desires, ambitions and ideas
- the ability to accept the realities of life and face them
- confidence in yourself
- the ability to cope with the normal stresses of life
- sensitivity towards needs of others



Healthy Teenagers

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- the ability to give and seek help when needed
- the ability to cope with conflict and disagreement

What do you do when you feel stressed?

C. Signs of social health: If you have good social health, you shall

- have a positive attitude towards life
- get along well with others
- have a pleasant personality
- fulfil responsibility/duties towards others
- have healthy interpersonal relationships
- be able to express disagreement positively

Such people form a progressive society that tries to address social issues and find solutions.



ACTIVITY 32.1

Based on the WHO definition of health, complete the table given below. Provide **three reasons** for your conclusion. Two cases are done for you.

Name	Characteristics of the person	Do you consider the person healthy? Answer in yes or no.
1 Reshma	Cheerful, takes interest in work, helpful to others.	Yes
2 Kabir	Lethargic, physically weak and does not want to go for work or play.	No
3 _____ (yourself)		
4 _____ (any friend or family member)		

32.2 HYGIENE

To keep ourselves free from diseases and maintain good health we need to practise proper hygiene. **The various practices that help in maintaining health constitute hygiene.** The word hygiene comes from a Greek word *Hygeia* that means 'Goddess

of health'. Adopting hygienic practices and promoting hygiene in the community, school and workplace prevent spread of many infectious diseases.

Hygiene deals with both personal health as well as community health

32.2.1 Personal And Community Health

Both personal and community health are important for the well being of an individual as well as the community. Health may be affected by the environment, availability of quality food and other necessities. Participation of local and government organizations becomes essential in promoting community health.

32.2.2 Personal Health

In the table below, we have listed some of the 'healthy habits' commonly prescribed by adults. But, we would like to know your ideas about healthy habits. List them in the table given below



ACTIVITY 32.2

My Health: My Choice

Suggestions by adults	My idea of healthy habits
1. Brush your teeth, cut your nails	1.
2. Have a bath daily, wear clean clothes	2.
3. Eat nutritious food	3.
4. Have regular eating habits	4.
5. Follow a disciplined life	5.
6. Exercise regularly	6.

- Do you think differently from the adults around you? Yes/ No (Encircle one response)
- Do you think this is normal? Yes/ No (Encircle one response)
- Who do you think needs to change? You/ Adults/ Both of you (Encircle one response) Provide two reasons for your response.

Taking care of oneself to remain healthy and free from diseases constitute **personal health**.

Different aspects of **personal health** are given below.



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(i) **Balanced diet:** A balanced diet is one containing carbohydrates, proteins, fats, vitamins, minerals and fibres in correct proportion to meet the nutritional requirement of a person at a certain age and doing a certain amount of physical work. The energy requirement for moderately active adolescent (teenage) boy is about 2200 to 2400 Calories where as for adolescent girls it is 2000 Calories. The food pyramid shown in figure 32.2 depicts the different categories of food and their quantities that we need to include in our diet.

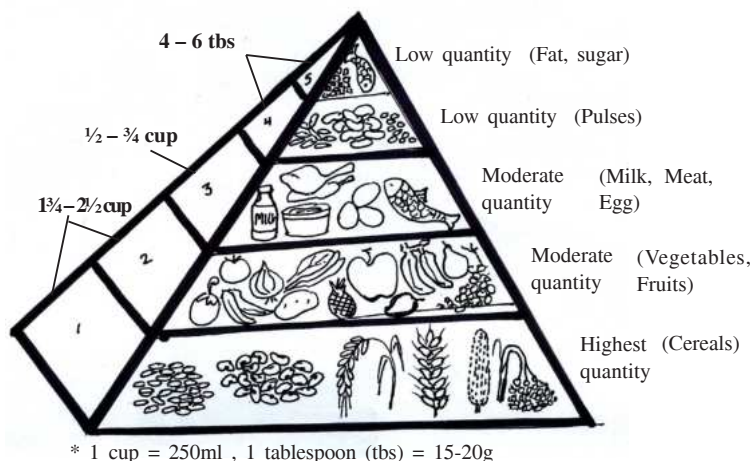


Fig. 32.2: Balanced diet chart for an adult/day

(ii) **Personal hygiene:** Following are some necessary hygienic habits.

- **Regular toilet habit:** Regular bowel movement keeps us free of waste generated within the body.
- **Washing hands before eating:** Our hands may carry many disease causing germs and therefore we must wash them with soap or ash before taking food.
- **Bathing regularly and wearing clean clothes:** Bathing regularly keeps our body free of dirt, body lice and germs.
- **Cleaning the teeth:** When we eat, some food particles may remain stuck to our teeth. These particles attract germs which harm our gums and teeth, and cause bad breath. Brushing teeth every morning and after dinner helps in their removal.
- **Washing hair, cleaning eyes, ears and nails:** Regular washing and combing of hair, and washing eyes with clean water helps to keep the germs away. Nails of both hands should be clipped regularly. Nail biting is unhygienic and must be avoided.

(iii) **Domestic hygiene**

We dust and mop our houses to keep them clean and free from dirt, flies and germs. Disposal of garbage in the allotted bins ensures clean surroundings and prevents breeding of disease causing organisms. Used sanitary napkins need to be wrapped and put in the garbage bins.



Germs/pathogens are disease causing microorganisms.



All utensils that are used at home should be kept clean.

(iv) Clean food and water

Before they are consumed, fruits and vegetables should be washed thoroughly in clean water to make them free from germs.

In many households it is a common practice to remove the footwear outside before entering the house. What could be the possible advantage of this practice?

Water used for drinking, cooking, bathing and washing utensils should be from a clean source such as taps, hand pumps and covered wells setup by corporations/panchayats.

(v) Cooking with care

- Food should be prepared in a clean kitchen.
- While cooking food, it is important to heat it to high temperature to kill germs.
- Cooked food should be eaten fresh or covered and stored in cool and clean place. If stored, food should be kept at a low temperature using either conventional methods or in a refrigerator.

(vi) Exercise

Regular walking, yoga and physical exercises and outdoor games keep the heart and circulatory system in good condition. Walking keeps the joints healthy.

(vii) Regular sleep and relaxation

Is necessary for good health.

(viii) Abstaining from habit-forming substances such as smoking, chewing of betel nut, gutka, tobacco, and drinking alcohol;

These are addictive and their continuous use damages the liver, kidney, heart, gums and teeth. You may have noticed that spitting is quite common among people who chew betel nut, gutka and tobacco. We must stay away from such habits and try to convince others to do the same. You will learn more about it in section 32.6.



ACTIVITY 32.3

Check list for your personal health status.

Given below are some attributes to help you assess your health status. Please read them carefully and respond honestly. Put a tick mark (✓) in the space provided.

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Section-I

	<i>Features of personal health and hygiene</i>	<i>No</i>	<i>Yes</i>
1	Each morning when you get up do you have enough energy to carry out your routine/regular activities of the day.		
2	Do you attempt to play, work and study regularly?		
3	Do you have good appetite?		
4	Do you have regular toilet habit?		
5	Do you bathe regularly?		
6	Do you wear clean clothes?		
7	Do you have healthy, good textured hair and clean skin without rashes?		
8	Do you have fresh breath?		
9	Do you get sound sleep?		
10	Do you spend enough time with your family?		

Section-II

	<i>Features of mental health</i>	<i>No</i>	<i>Yes</i>
1.	Whenever there is a disagreement with your friends/ elders, do you always accept their view to keep them happy?		
2.	Do you often go to bed late but force yourself to get up early in the morning to attend to your jobs /duties well?		
3.	When facing a difficult situation/problem or challenge that you are unable to meet do you feel dejected and not seek help from others?		
4.	Do you often choose fast food like noodles/pizza/burger over home cooked meals?		



INTEXT QUESTIONS 32.1

1. Why do we need to be healthy? List any three reasons.

2. State the definition of health given by WHO.



3. List the three different dimensions of health.

4. How is hygiene related to health?

5. Identify any one healthy habit. How will you motivate your younger brother/sister to practise this habit?

6. You have prepared lunch early in the morning at 9 A.M. and it will be served at 1.00 P.M. List any two precautions you will take to store it.

7. Suggest any two ways by which you along with your elders can maintain a healthy environment at home.

8. Tick (✓) the situations given below which in your opinion are correct
 - (i) It was 11.30 pm. Raju was celebrating his birthday. There was loud music. His neighbour Tinku had a Mathematics exam the next day and was not able to concentrate. He went to Raju and explained the situation but Raju did not pay any attention. Then, Tinku called the police. They came and stopped the music, the party was spoiled but it was a necessary step.
 - (ii) Rohan believes that taking drugs once or twice is not harmful.
 - (iii) Ashu copied some answers from her friend's sheet during the examination. But later she felt very guilty and confided in her parents. Her friends said that she was a fool to speak the truth.
 - (iv) Its fun driving at a very high speed and gives a lot of thrill. There is nothing wrong in doing so if road has no traffic.
 - (v) People should not be allowed to burst loud crackers especially late at night even if it curtails fun and enjoyment.
 - (vi) Just when you were ready to leave for a movie, you found that your bike is punctured. In your frustration you kicked the dog sleeping nearby to vent your anger. It calmed you down. Later you regretted your action.

32.2.3 Community health

In the previous section you studied some of the ways that will help you to remain healthy. However can we remain healthy entirely by our own efforts?

Consider the following situations

1. In absence of potable water, your mother collects water from a shallow hand pump in the neighbourhood.

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2. Garbage is not collected for many days. As a result it forms a breeding ground for mosquitoes and flies besides leading to bad odour.
3. There is an outbreak of infectious disease like dengue/malaria.
4. A natural calamity like Tsunami strikes a certain part of your country.



How is the health of the population in such areas affected? Mention two short term and two long term effects in the space provided below.

Short term effects: _____

Long term effects: _____

Community health is the practice of preventing disease and promoting health of a population through the organized efforts of society, public and private organizations, communities and individuals.

There are various activities and programmes undertaken by the government and local organizations to maintain health of the people and keep them free from disease.

Some of these activities and programmes are listed below:

1. Maintain cleanliness of the villages, towns, cities and localities through proper garbage disposal.
2. Ensure that prescribed standards in food stores, meat and milk outlets are strictly followed.
3. Organize health promotion and disease prevention, including
 - a) Immunization programmes for infants and children, for instance The National Pulse Polio Programme that is being run by the government.
 - b) Various awareness programmes have been undertaken against the spread of diseases of national concerns like malaria, AIDS, polio, leprosy, tuberculosis and hepatitis B. The National Malaria Eradication programme is an example of one such programme.



Activities not conducive for healthy environment



4. Organize mid day meals in schools to provide adequate nourishment to growing children.
5. Set up hospitals and dispensaries to provide medical facilities to the general public either free of cost or at highly subsidized rates.

Some of the activities undertaken by a community health centre are shown in Figure 32.3



(a) Immunization programme
polio vaccination



(b) Mid day meal



(c) Fumigation



(d) Waste disposal

Fig. 32.3: Picture showing community based health activities

How can we keep our environment clean?

To keep the environment clean we need to:

1. Keep our house clean.
2. Keep our neighbourhood clean.
3. An effective drainage system is essential as stagnated water allows breeding of mosquitoes.



ACTIVITY 32.4

Have you heard of garbage bins with labels such as “Biodegradable wastes”, “paper waste”, “Biodegradable green waste” and “Non degradable wastes”? Some of the common garbage items generated at our homes are: waste paper,

Eradication:
Elimination or
abolition of a disease
causing organism

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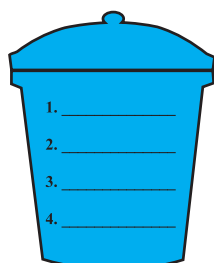
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plastic carry bags, vegetable peels, used batteries, stale food items, used pen, old clothes, and broken glass. (a) Identify the garbage items you will put in each of these dust bins shown below. (b) If possible, name the community centre or area where such practice is being adopted.



For paper waste



For Biodegradable waste



For Non-Biodegradable waste

Biodegradable and Non-Biodegradable bins

The Bhagidari Scheme

It is the government's responsibility to provide civic amenities like water, electricity, roads and garbage disposal facilities. However, every individual who uses these facilities has a responsibility in maintaining them. Taking this idea forward, the Government of Delhi has launched a unique scheme named **Bhagidari** which aims at eliciting people's participation in governance. The basic idea is to establish a dialogue between the stakeholders i.e. the Government Departments and citizens groups like Resident Welfare Associations (RWAs) and Market and Traders Associations (MTAs) in order to work out solutions to common civic problems.



INTEXT QUESTIONS 32.2

1. List some of the activities that are undertaken by the government and local organizations to maintain public health.
2. Samina's family members are expert house keepers. The bathrooms are as clean as the bedrooms and the kitchen. But when Samina steps out, foul odour irritates her nostrils; her feet sink in garbage piles and pot holes. Neither the local government authorities nor anyone in Samina's neighbourhood seems to care. She is very sad and wants to do something to change this situation.

Taking cue from the 'Bhagidari initiative' launched by the Government of Delhi, please provide three suggestions to Samina to enable her to make her neighbourhood clean

32.3 DISEASE

A condition that interferes with the normal functioning of the body is called a **disease**. It can be as mild as a cold, sore throat or as serious as cancer or tuberculosis.

A disease can strike any part of the body and at any age. In this section, we will discuss some common diseases of the body. Study the Figure 32.4 carefully.

You have already learnt about the non communicable diseases in lessons on life process I and II and the congenital disease and STIs in the lessons Reproduction and Heredity respectively. Classify the following diseases on the basis of the above table 32.4.

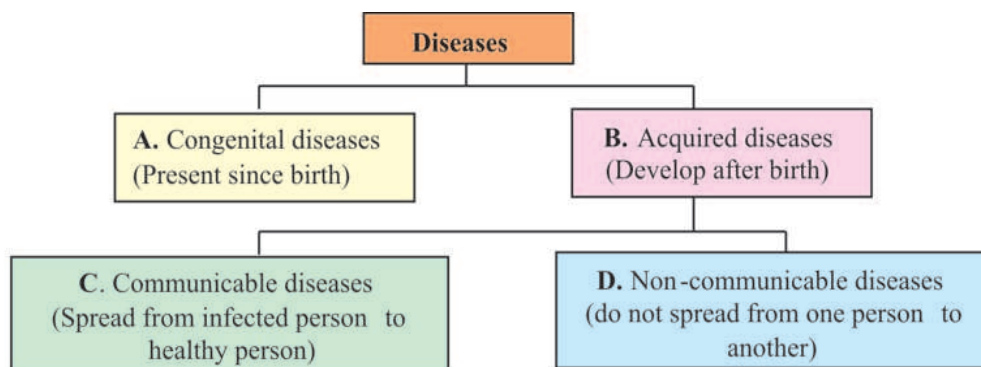


Fig. 32.4: Classification of human diseases

Marasmus, amoebiasis, Hypertension, Diabetes, Dengue, Haemophilia (Bleeders disease), Anaemia.

Which one is caused by dietary deficiency?

Here we shall learn about a few communicable and non-communicable diseases of national concern.

32.3.1 Communicable diseases

Communicable diseases spread from one person to another by the entry of pathogens (disease causing organisms). Pathogens enter our body through various means, and then multiply there. They can **be transferred** from one person to another by **direct** or **indirect contact**.

Method of Transmission	
Direct	Indirect
Close contact with the diseased person	Fomite like bedding, used utensil, towels etc.
Droplet infection	Vector like mosquitoes
Exposure to contaminated blood	Carrier like house flies and cockroaches
Infected mother to the foetus	Through inhalation of infected droplets present in air

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Do you know

Droplet infection: The tiny droplets of mucous that are thrown out when a person is coughing, sneezing or spitting may contain the pathogen if the person is infected. By inhaling the air containing the infected droplets, a healthy person may get the infection. Diseases like cold, influenza, tuberculosis (TB), whooping cough and measles spread through droplet infection



Do you know


Fomite is any non-living object or substance capable of carrying disease causing organisms and hence, transferring them from one individual to a nother. Fomite could be anything, for example, clothing, utensils bedding items and others.

Under no circumstances should the individual suffering from infection be blamed or stigmatized. It is important to remember that certain infections, for example, the Human Immunodeficiency Virus (HIV) do not spread by shaking hands, hugging and/or sharing food. Hence, there should be no hesitation or fear in sharing these activities with HIV-infected individuals.

Carriers like flies/ other insects which transfer germs from one place to another and thereby contaminate food or drink.




Vectors: Organisms that harbour germs within their body but remain unaffected by them (for example, female *Anopheles* mosquito). The germs multiply/ develop in the vectors' body and get transmitted to humans as vectors come in contact with them.

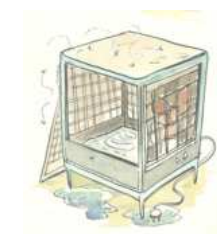
Table 32.1 Some common Communicable Diseases

S. No.	Name of disease, its causative agent & mode of transmission	Symptoms	Prevention & Treatment
1.	<p>Amoebiasis caused by: <i>Entamoeba histolytica</i> a protozoan parasite infecting large intestine</p> <p>Transmission:</p> <ul style="list-style-type: none"> by air; by house fly and cockroaches that may carry the pathogen from the infected person's stool to food/water and thereby contaminate it. 	Abdominal pain, constipation, cramps, stools with mucous and blood.	<p>Prevention:</p> <ul style="list-style-type: none"> Washing hands before eating and after defecation. Proper sanitary disposal faecal matter Personal hygiene Washing fruits and vegetables before eating. <p>Treatment:</p> <ul style="list-style-type: none"> Antibiotics (on doctors prescription)
2.	<p>Ascariasis caused by: <i>Ascaris lumbricoides</i> (round worm). That resides in the small intestine.</p> <p>Transmission:</p> <p>Eggs of the parasite come out along with the faeces of the infected person and contaminate soil, water, plants etc.</p> <p>A healthy person gets infected in the same manner as he/she gets infected for amoebiasis.</p> <p>Why do you think it is more common in children?</p>	<p>Muscular pain, internal bleeding, impaired digestion, colic pain and blockage of intestinal passage.</p> <p>In children, may lead to retarded physical and mental growth.</p>  <p>Male and female ascariasis</p>	<p>Prevention:</p> <ul style="list-style-type: none"> Same as Amoebiasis, <p>Treatment:</p> <ul style="list-style-type: none"> Anthelmintic drugs (doctor's prescription).



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3.	<p>Malaria Caused by: <i>Plasmodium</i>. It complete its lifecycle in two hosts, human and mosquito.</p> <p>Transmission: By the bite of an infected female <i>Anopheles</i> mosquito. Malarial parasites multiply within the red blood corpuscles (RBCs) of human blood and increase to enormous numbers. So the RBCs rupture and the toxin produced by the parasite is released in the blood.</p>	<ul style="list-style-type: none"> Shivering and high fever which occurs at regular intervals accompanied by headache and nausea. Fever may last for 6-10 hrs. After the fever sweating starts and the temperature falls.  <p><i>Bite of infected mosquito's</i></p>	<p>Prevention:</p> <ul style="list-style-type: none"> Eradication of mosquitoes and their larvae by use of kerosene/larvae eating fish Don't allow water to accumulate in the surrounding areas. Sleep under mosquito nets. Use mosquito repellents at night. Cover doors and windows with wire mesh. <p>Treatment:</p> <ul style="list-style-type: none"> Anti malarial drugs (on doctor's prescription)
4.	<p>Filariasis /Elephantiasis is caused by: <i>Wuchereria bancrofti</i>, another worm similar to <i>Ascaris</i>.</p> <p>Transmission: Bite of the female <i>Culex</i> mosquito.</p>	<ul style="list-style-type: none"> Fever in the initial days, the parasites reside in the lymph vessels and cause chronic inflammation of the organs, specially in lower limbs resulting in enormous swelling of the limbs. 	<p>Prevention:</p> <ul style="list-style-type: none"> Same as Malaria. <p>Treatment:</p> <ul style="list-style-type: none"> Medicines on doctor's prescription 
5.	<p>Dengue fever (break bone fever) caused by a virus</p> <p>Transmission: by the bite of a female mosquito <i>Aedes</i>.</p>	<ul style="list-style-type: none"> Abrupt high fever, severe headache and pain behind the eye muscles and joints, loss of appetite, rashes over chest and upper limbs. Symptoms may turn into haemorrhagic fever causing bleeding from mouth, gums and skin. Burning mouth, severe stomach pain and frequent vomiting with or without bleeding. 	<p>Prevention:</p> <ul style="list-style-type: none"> Same as malaria and filariasis. However aedes <p>Treatment</p> <ul style="list-style-type: none"> doctor to be consulted. mosquito is active during day time and breeds in fresh water. Therefore clothes which cover the arms and legs protect from during day time
6.	<p>Influenza (flu) is a viral infection of the respiratory tract.</p> <p>Transmission :through direct or indirect contact including infected droplets. These viruses mutate all the time and as a result different strains of influenza virus exist. Our immune system needs to fight each new strain in order to provide protection against the virus. You might have heard of H5N1 (bird flu virus) and</p>	<p>Fever (100°F to 103°F), sore throat, cough, sneezing, running nose, headache, body pain, fatigue.</p>  <p><i>Drop Infection</i></p>	<p>Prevention:</p> <ul style="list-style-type: none"> The infected person should cover their mouth and nose when they cough or sneeze. The infected person should avoid public places. Vaccination. <p>Treatment:</p> <ul style="list-style-type: none"> Patients should take plenty of fluids. Medicine prescribed by the physician.



**Collage common
“mosquito breeding
sites”**

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7.	Tuberculosis (T.B.) Caused by bacteria <i>Mycobacterium tuberculi</i> . It affects bones, lymph node and most frequently the lungs. Transmitted by inhaling “droplets of patients present in their sputum, cough and sneeze. Requires prolonged contact with the patient and therefore is common in crowded and poor living conditions.	Persistent low grade fever and cough. Blood in sputum. Weight loss, chest pain, excessive fatigue, night sweating, poor appetite.	Prevention: <ul style="list-style-type: none"> BCG vaccine at birth Patient suffering from T.B. should be kept isolated and given proper medication. Clothes and utensils used by TB patient should be regularly disinfected. Treatment: <ul style="list-style-type: none"> Regular course of antibiotics as prescribed by the doctor. Treatment is for 6-8 months.
			<ul style="list-style-type: none"> Directly Observed Treatment under Supervision (DOTS) is an effective way of treatment



ACTIVITY 32.5

Have you ever suffered from malaria? List the steps you would take to prevent yourself or anyone else in your family or neighbourhood from getting malaria.

32.3.2 What are the ways to **prevent contracting infectious diseases**? Some of the practices that are useful in preventing infectious diseases are intake of balanced diet; maintaining personal cleanliness and ensuring clean surroundings, proper disposal of waste, and immunization against vaccine preventable diseases. List in the space given below any two more practices that are not listed here and you think are effective in preventing infectious diseases:

- _____
- _____

Answer: Be aware of what you eat, exercise regularly, wash your bedding and other clothes regularly, wash your hands always thoroughly before cooking and if caring for a sick person, if you are sick allow yourself time to heal and recover. (or any other relevant point)

32.3.3 Non communicable diseases

Hypertension, Diabetes and Obesity

In the fast-paced life that many of us live today, there is a lot of conflict, unhealthy competition, and pressure to make quick money and gain power. This kind of lifestyle generates a lot of stress that leads to anger and frustration. In trying to gain



mileage in mindless competition, people are likely to neglect their health and suffer from ailments like high blood pressure (also known as hypertension), increased blood sugar (known as diabetes) and many others. Although these diseases have a genetic predisposition, they have started affecting younger age groups due to undisciplined life style. These are known as life style disorders.

Causes

1. **Sedentary lifestyle:** Insufficient or no physical activity, no outdoor games, lack of exercise, excessive use of vehicles are some of the factors that are responsible for the above mentioned diseases.
2. **Eating habits:** Easily available fast food that is high in fat and sugar in popular food items like burgers, cakes, aerated drinks lead to obesity at young age. Can never replace the balanced nutrition provided by the Indian meal of chapattis or rice, pulses and vegetables.
3. **Type “A” personality:** People who are always focused on doing better than others rather than doing their best, those who get angry and frustrated easily and are intolerant towards others are more susceptible to lifestyle diseases.
4. **Family history** of heart disease and diabetes also predispose people to these diseases.

Prevention

- Increased awareness of the reasons for lifestyle related disorders
- Regular exercise, yoga, meditation
- Avoiding junk food, and increasing intake of vegetables and water
- Stress management, increased tolerance for others and positive attitude
- Setting one’s own goals for improvement rather than blindly copying others
- Motivating people around you for practising the above mentioned healthy habits.

It is no secret that stress (over work, grief, depression) can depress the immune system and increase chances of falling ill. Therefore we need to learn how to handle stress in life.



INTEXT QUESTIONS 32.3

1. Why is Filariasis also called Elephantiasis?



2. How will you identify a TB patient? List any four symptoms.

3. Complete the table given below:

Modes of transmission	Disease
Droplet infectiona
Bite of Infected <i>Aedes</i> mosquitob
.....c	Amoebiasis
.....d	Malaria

4. Complete the table

Preventive actions	Name of the diseases that are prevented
i Use of mosquito net,	a) _____ b) _____
ii Sanitary condition and proper disposal of human excreta	c) _____
iii BCG vaccine	d) _____
iv Cover your cough, sneeze	e) _____ f) _____

32.4 IMMUNIZATION: PROTECTION AGAINST CERTAIN COMMUNICABLE DISEASES

We are exposed to a large number of disease causing agents every day. Our body is able to ward off most of these foreign agents. This overall ability of the body to protect itself against the foreign agents including the disease causing organisms is called **immunity**. It is of **two types**:

- Innate immunity
- Acquired immunity.

a) Innate immunity is present from the time of birth and provides protection against the entry of any foreign agent into our body. Skin and the mucous membranes prevent entry of foreign agents into the body. Hydrochloric acid in the stomach kills the germs that reach the stomach. White blood cells (WBC) engulf foreign particles and destroy them.

b) Acquired immunity- It develops during one's life time by producing antibodies in response to foreign bodies termed **antigens**. Each antigen is recognised by a specific antibody. **Antibodies'** are proteins produced by lymphocytes (a type of WBC), against specific antigen. Antibodies remember and recognize the infective agents that have once attacked the body and recognise and kill them when they enter the body again. This is called the **memory** of the immune

system and is the basis of immunisation programme. Such as against mumps or measles.

Acquired immunity can develop either naturally or artificially.

(a) Natural acquired immunity develops after infection or exposure to a disease. The body develops its own antibodies which remain in the body and provides immunity against the pathogen in the future.

(b) Artificial acquired immunity can be developed through **vaccination**: Vaccines are inactivated or weakened pathogens or their products that function as antigens or foreign agents. They activate the immune system forming memory cells. For example, the immunization against diphtheria, pertussis and tetanus require booster or repeat doses for providing protection against these infections.



Do you know

The diseases against which the national immunization program provides protection? List them.

Acquired immunity may be active or passive.

Acquired immunity

<i>Active immunity</i>	<i>Passive immunity</i>
<ul style="list-style-type: none"> Host develops antibody against the pathogens It takes some time to show the response. For example : BCG for tuberculosis and polio 	<ul style="list-style-type: none"> Readymade antibodies are given Provides immediate protection.

Mother's milk in the initial 1-2 days (also known as colostrum) is considered very essential for new born infant. Do you know why? It contains abundant maternal antibodies to protect the infant. It provides quick immunity.

Primary immunization

You are aware of various immunization programmes that are run by the government for the general public especially for the pregnant women, infants and children. Table 32.2 below illustrates the primary immunization programme for a new born baby and the subsequent booster doses. Immunization is given free of cost, at all government dispensaries and hospitals. Ask your parents about the vaccines given to you and your sibling during childhood and list them.



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Table 32.2 National Immunization Schedule in India for children up to the age of 24 months and pregnant women

Vaccine	Age				
	Birth	6 weeks	10 weeks	14 weeks	9-12 months
Primary vaccination					
BCG against T.B	✓				
Oral polio	✓	✓	✓	✓	
DPT against Diphtheria, Pertussis, Tetanus		✓	✓	✓	
Measles					✓
Booster Doses					
DPT + Oral polio	16 to 24 months				
DT	5 years				
Tetanus toxoid (TT)	At 10 years and again at 16 years				
Vitamin A	9, 18, 24, 30 and 36 months				
Pregnant women					
Tetanus toxoid :1 st dose	As early as possible during pregnancy				
2 nd dose	1 month after 1 st dose				
Booster	Within 3 years				

The timing, sequence and frequency of the immunization should be followed as detailed in the chart above.



ACTIVITY 32.6

Find a child below the age of two years (may be from your family) and compare the immunization status of the child with the table 32.2 and fill up the table given below:

Name of the child :

Date of birth:

Age of child when you check the immunization record:

Vaccine	Age				
	Birth	6 weeks	10 weeks	14 weeks	9-12 months
BCG					
Polio					
DPT					
Measles					



Has the child received all the primary immunizations as per the schedule? Yes/No (encircle one option)

If the child has incomplete or delayed immunizations, give them three important reasons to get their child immunized on time.

If the answer is 'no' (incomplete, delayed or no vaccines received) try to identify the possible reasons. Tick the most possible action you would take.

1. Contact the health workers for possible remedy.
2. Tell the parents that healthy food and hygienic environment can replace immunisation and prevent all diseases.
3. Feel sorry as nothing can now be done.
4. Convince the parents to take the child to the nearest health centre and contact the health worker for possible action

You must have seen posters on **Pulse-Polio Abhiyan** from time to time. What are they about?



INTEXT QUESTIONS 32.4

1. Mention the six killer diseases that are targeted in primary immunization.

2. Name the vaccines against TB and Polio. At what age are these vaccines first administered?

3. Which day of the week is usually chosen for the pulse polio and why?

4. How will large scale destruction of lymphocytes affect our ability to fight the diseases?

5. Given below are four situations that are conducive to mosquito breeding. Identify with any one situation that you are familiar with and answer the questions that follow.
 - A — building construction site
 - B — Children playing near an open drain/nallah
 - C — Tea stall with used paper cups and plates strewn around allowing water accumulation
 - D — House with leaking roof and water puddles around



Tick (✓) one or more remedial measure that you think are most applicable for prevention of mosquito breeding in the situation selected.

- (i) Apply mosquito repellent cream or use mosquito net and door nets.
- (ii) Fumigate the place or put Kerosene oil in water.
- (iii) Convince the concerned persons prevent accumulation of dirt and water.
- (iv) Not allow stagnation of water in and around your own home.

32.5 FIRST AID

While playing, working or otherwise, one could meet with an accident. You may get burnt or hurt or fall sick suddenly. Timely intervention and immediate care can prevent further deterioration of the victim and even save a life. You can be of great help in such situations if you have the basic knowledge of first aid.

The immediate care given to the victims of an accident or sudden illness before medical help arrives is called first aid.

However, medical help should be sought after first aid.

1. Shock- When a person is hurt, a person experiences 'shock' and looks pale and tired. The following first aid can help someone in shock

- Lay down the victim and raise the legs.
- Loosen the clothes
- Calm down the patient
- If mouth feels dry, give a clean, wet cloth to suck.
- Call the doctor immediately.

2. Severe bleeding- The following first aid is useful.

- To stop bleeding, keep sterilized dressing or clean handkerchief and press directly on the wound with the thumb.
- Make the victim lie down and elevate the bleeding part to minimize flow of blood.
- Call the doctor.

3. For Nose bleeding:

- Make the victim sit up and place a cold compress over the nose.
- Consult a doctor if bleeding doesn't stop.





4. **Dehydration** is excessive loss of body fluid and causes severe headache, dizziness and even fainting. Severe dehydration can result in death.

In **mild to moderate dehydration** there is decreased urine output (8 hours or more without urination), dry sticky mouth, thirst, sunken eyes, restless or irritable behaviour and tiredness. In case of **severe dehydration** the symptoms are fever, and shock with diminished consciousness, little or no urine output, rapid and feeble pulse and finally death.

Dehydration may be caused by extreme heat, excessive physical activity and inability to drink water, frequent vomiting, diarrhoea and in cases of gastrointestinal infection.

- Victim should be made to drink small quantities of Oral Rehydration Solution (ORS) at frequent intervals. ORS can be made by adding one teaspoon of sugar and a pinch of salt in a glass of (about 200 ml) water. ORS packets are also available free of cost at all government health centres



Doctor should be consulted if need be.

5. Animal bites

Can be serious sometimes.

- Wash the area of bite with soap and water. Loosely from a hospital or bandage.
- In case of dog bite, anti-rabies injection is to be taken from a hospital or qualified doctor and dog kept under observation for a week to check for rabies.

Bee sting: Do not press the bag (of the sting). Use any blunt edged object to remove the sting. Apply cold pack of weak ammonia or a paste of baking soda and water to relieve pain and itching.

6. Burns

The first-aid for burns depends upon the severity of the injury.

For first aid

Place the injured area in cold water immediately to reduce the pain and tissue damage. Blot the area and apply a dry sterile dressing. Do not break any blister formed or apply anything on it.

Severe (third degree) burns destroy the deepest layer. Cover with clean towel / cloth to prevent infection and immediately rush to the hospital.

Chemical burns caused by acids or alkalis should be flushed with large amounts of water for at least 10 minutes.



7. Fractures and dislocations

Fracture is a break in the bone and dislocation when bone end moves out of its normal position. Signs of fractures and dislocation include pain, tenderness, swelling around the injury and immobility of the affected body part.

What needs to be done?

- Do not move the victim until expert help arrives.
- Apply a splint in that area if victim has to be moved. Splint is a support which can be made by padding a stick or scale, umbrella or any rod with a soft cloth. Splint is then placed below the injured area and lightly tied above and below the fracture.
- Do not move a person who has suffered neck or spinal injury. Ask for immediate medical help.



INTEXT QUESTIONS 32.5

1. How is O.R.S. solution made at home?

2. What first aid would you give to a person who has received burn?

3. List two precautions to be taken in case of bleeding from any wound.

4. On a hot sultry day you suddenly get a telephone call from your aunt that your cousin who has just returned from Chandigarh has fainted and was bleeding through his nose. Which first aid measures would you suggest to your aunt?

32.6 PREVENTION OF SUBSTANCE ABUSE

It is a matter of great concern that use of tobacco, alcohol and drugs is on the rise world over especially among the youth. Young people are more vulnerable to substance abuse. Can you guess the reasons? Yes, you are right. Youth are curious and like to try out new things. In order to further increase their profit margins, tobacco and alcohol companies especially target young people in their media campaigns. Young people also pick up the habit interacting with adults who are addicted to tobacco, alcohol or drugs.



Notes

These substances harm both the body and the mind.

In this section of the lesson, we will discuss issues related to substance abuse.

32.6.1 What is a drug

Drug is a chemical substance that changes the way our body works. Some chemical drugs are used as medicines for the treatment of physical and mental ailments. Drugs prescribed by the doctors and sold at medical stores are **legal drugs**. There are however, a large number of illegal drugs like cocaine, LSD, heroin, brown sugar, charas, ganja, bhang (Marijuana).

32.6.2 What is drug or substance abuse?

When drugs are taken for reasons other than medical or frequently or mode that for pleasure or false sense of happiness, it constitutes **drug or substance abuse**.

Table-32.3 Some common by abused drugs

S. No.	Drugs	Used as
1.	Narcotics eg. opium, morphine, brown sugar and smack (obtained from poppy plant)	Analgesics and sedatives and pain killers.
2.	Cocaine(from leaves of cocoa plant) and amphetamines	Sense of euphoria and increased level of energy. Can you now guess why some sport persons abuse drugs?
3.	Barbiturates/Benzodiazepines	Sedative and tranquilizers. Produce a feeling of calmness and relaxation
4.	Alcohol	Depressant of the nervous system. Changes the perception and the state of mind.
5.	Cannabinoids (hallucinogens) like LSD (From ergot fungus)and bhang, ganja, charas and hashish(obtained from <i>Cannabis</i> plant)	Alter thought, feeling and perception, produce pleasing excitement. Affect the cardiovascular system

Use of tobacco is very common in India. It can be smoked in cigarettes and bidis or traditional 'hookahs.' Cigarettes contain nicotine which narrows blood vessels, increases blood pressure and may cause heart disease. Tobacco contains tar which collects in lungs and makes an individual prone to respiratory infections. Tar also causes cancer of lung and throat. Cigarette smoking is not only harmful for the smoker but its poisonous fumes also harm the people around the smoker (*passive smoking*). Smoking in public places is banned.



Prohibitory signs for smoking and drinking



How does drug addiction begin? Who takes to drugs and why?

There is no single reason for drug addiction. Some common reasons are :

- Mere curiosity, for excitement and adventure or under peer pressure.
- Desire to do more physical and mental work than one's capacity.
- To overcome pain, boredom, fatigue, depression and stress.
- A false idea that taking drugs once will not make any difference -

32.6.3 Drug addiction, dependence and withdrawal symptoms

Addiction is a state where the drug user gets 'hooked on' to the drug and constantly craves for a feeling of well being or euphoria that is associated with the drug or alcohol provides. This leads to taking drugs even when are not needed and is termed 'drug addiction'.

Drug abuse leads to drug **addiction** after developing **tolerance and dependence**. Repeated use of a drug makes body tolerant to lower doses. Subsequently body needs increasing quantities of the drug. This is referred to as the state of **dependence**.



After the user becomes dependent upon the drugs the body manifests a characteristic and unpleasant **withdrawal** syndrome if intake of the drug is abruptly stopped. These may range from anxiety, nausea, mild tremors, abdominal pain, palpitation or sweating, severe agitations and fits. The intensity of the withdrawal symptoms depends upon the type of drug abused and the duration of drug intake. Sometimes these can be more severe and even life threatening and need medical supervision during withdrawal period. **These withdrawal symptoms make it difficult for the user to give up drugs.**

32.6.4 Effects of drug

Short-term effects – Appear instantly or within a few minutes after the intake of drugs.

Long-term effects – Constant and excessive use of drugs over a long period can cause both physical as well as mental damage. Those addicted are not able to focus much on work or studies. Hence, they are not likely to do well in their studies or jobs. Inter-personal relationships suffer. They may get involved in criminal activities. As they always need money to buy the drugs, these individuals are not likely to be financially stable.



Notes

32.6.5 Prevention



ACTIVITY 32.7

Suresh knows that drugs are harmful. But taking drugs and watching adult movies is now very common among his friends, and they tempt him to try drugs almost everyday. He is thinking of giving in into peer pressure.

- Do you think his decision is right? Why or why not?
- Can you suggest to Suresh at least three different ways of refusing his friends and not trying out the drugs?

Yoga, exercise, sports, music, reading etc. help in releasing stress. How do you manage stressful situation during examination?

It is important to remember that **prevention is better than cure**. The following tips may help you avoid drugs:

- **Avoid undue peer pressure:** Good friends will respect your wishes and will not force you into anything. Hence, it is important to say 'no' to peers/ friends if you are not convinced that you want to engage in a particular activity.
- Choose your friends carefully as they may compel you into certain actions which are contradictory to our personal values and beliefs.
- Try to perform the best that you can and do not stress yourself too much.
- **Be optimistic and have a positive outlook.** Learn to face problems and stresses and accept disappointments and failures as part of life; you may seek help from parents and peers because they can provide support and guidance to sort out your problems and vent feelings of anxiety and guilt.

If a friend of yours has confided in you about trying out drugs, what would you do inform parents or elders or any other close friends? Why and why not?

- **Looking for danger signs:-** As friends if you find someone using drugs you should not hesitate to bring it to the notice of the concerned elders. Timely intervention would help in initiating proper remedial steps or treatment.

Danger signs

- ✓ Desire to have the substance on a regular basis to deal with problem or have fun and relax
- ✓ Sudden change in work or school attendance and quality of work
- ✓ Frequent borrowing money or stealing items from home/school/ workplace

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- ✓ Outbursts of anger, lack of concentration, running nose, and red eyes, dark circles under eyes, nausea, vomiting and body pain
- ✓ Deteriorating personal appearance and grooming
- ✓ Staying away from friends who are non users
- ✓ Engaging in secretive behavior
- ✓ Talking about the substance all the time and pressurizing others to use it
- ✓ Feeling exhausted, depressed or suicidal
- ✓ Fresh and numerous injection sites on the body
- **Seeking professional / medical help:** A lot of help is available in the form of highly qualified psychologists, psychiatrists and de-addiction and rehabilitation programmes to help individuals who have unfortunately got into the trap of drug or alcohol abuse. With such help and with sufficient effort and willpower on the part of the individual these problems can be solved and individuals can lead a perfectly normal and healthy life. In case you know of someone who is addicted to substance, try to lend a helping hand and take the person to the professional institution where s/he can be treated.

NOTE: To know more about the ways of staying away from drug abuse help is available at NIOS helpline number 18001809393



INTEXT QUESTIONS 32.6

1. How will you convince your friend not to take drugs? Give any three reasons.

2. How will you get to know if a friend of yours is taking drug or not? List three important signs that will help you to identify him/her.

32.7 SOME MODERN DAY DIAGNOSTIC TECHNIQUES

Whenever we fall ill and visit a doctor, he has to ascertain the nature of the disease, damage caused and its extent. For this certain tests or examinations such as blood tests, x-ray, ECG or MRI etc are recommended. These examination procedures and the equipment used are called diagnostic techniques and tools respectively. Given below is a brief account of some of these remarkable and modern diagnostic techniques.

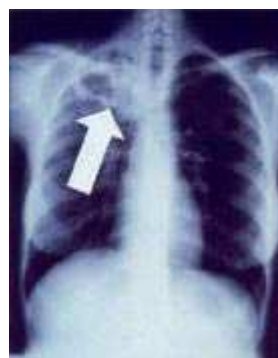


Notes

32.7.1 Radiography (X Ray)

1. X-ray radiography is one of the oldest and still the most widely used diagnostic imaging technique.

It uses a beam of x-rays/electromagnetic waves of very short wavelength) directed at the body part to be examined. The rays pass through the body part to be examined and fall on an x-ray sensitive film and produce a shadowy image of the dense parts of the body. Dense structures like tumours absorb the x-rays the most and so appear as light areas on the radiograph (the film). Hollow organs, fat tissues absorb x-rays to a lesser extent and appear as dark areas (Source: Wikipedia)

*X-Ray*

Uses: Visualizes hard bony structures the best. Therefore, it is useful in cases of dislocation and fractures of bones. Locates abnormally dense structures (tumour, T.B. nodules) in the lungs. Helps in diagnosing conditions like osteoporosis and rickets.

32.7.2 Ultrasound imaging technique or sonography is a simple, non invasive technique based on ultrasound (frequencies above 20KHz or 20,000 cycles per second) that are beyond the range of human hearing. Diagnostic ultrasound uses 1-15 MHz (10^6 cycles/sec = 1 MHz)

The body is probed with precise sequence/pulses of ultrasound waves that traverse through different body tissues. Sound waves get reflected and scattered to different extent by the body tissues depending on their densities. These reflected waves are received back and processed by a computer to construct visual image of the outline of the body organ under investigation.

To obtain the image, a single hand held device is used both to emit the sound waves and to pick up the reflected waves. The device is easy to move around and is slid across the skin overlying the area to be imaged.

Use: It is a safer method of imaging. The ultrasound waves seem to be safer than the radiations used in some other imaging techniques. Used in imaging internal organs or structures and provide valuable information regarding size, location, displacement etc. of a given structure. Tumours can be detected. It is used to assess foetal growth and structure.

32.7.3 MRI of human brain taken

MRI (Magnetic resonance imaging) is a technique that produces high contrast image of our soft tissues (Muscles, cartilage, ligaments, tendons, blood vessels) an area in which x-rays and other imaging techniques are weak.

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MRI

For MRI, the patient is positioned at the centre of a machine which has powerful magnets. It creates a magnetic field. The protons (of Hydrogen molecule) align themselves in this magnetic field. When the magnetic field is turned off, energy is released by the protons. This energy is received by sensitive detectors and is fed to powerful computers to generate extraordinarily detailed images from any part of the body. Image of different tissue can be contracted depending and their water content.

Patients, who have metal implants, pace-makers etc. cannot be imaged.



INTEXT QUESTIONS 32.7

1. Read the following table carefully and fill in the blanks.

Name of the technique	Basis of the technique	Technique best used for
Radiography	Use of beam of electromagnetic waves of short wave length	detecting fracture, a----- , b-----
c-----	Powerful magnetic field is used to map the distribution of water in different tissues	Detecting d---- , e----- , multiple sclerosis of brain.
Sonography	f ----- -----	providing information for g----- , h-----



WHAT YOU HAVE LEARNT

- Health is not mere physical fitness or absence of diseases. It is a “state of complete physical, mental and social well being.”
- A physically healthy person is energetic, alert and is able to perform his/her jobs well.
- Mentally and socially healthy persons have control over their emotions, do not worry unnecessarily and have confidence in themselves. They take care of themselves and fulfill their duties towards others in the society.
- Hygiene deals with various practices, principles or habits that help in maintaining health. Hygiene deals both at personal as well as at community level.
- Balanced diet, personal hygiene, domestic hygiene, clean food, exercise, regular sleep habits and abstaining from habit forming substances are some of the important prerequisites of personal health.



- Provision of clean environment, standard food and safe drinking water, health services and immunization against common infectious diseases are needed for a healthy community life.
- There may be various causes of disease. These could be communicable or non communicable.
- Amoebiasis is an intestinal disease caused by protozoan parasite; filariasis, malaria and dengue fever are spread by different species of mosquitoes and caused by worms, Protoctista (Protista) and virus respectively.
- Pneumonia and T.B. are bacterial diseases spread through droplets expelled by the patients.
- Cases of hypertension and diabetes are on the rise. This is due to faulty lifestyle practices.
- Vaccines are available against some of the deadly diseases such as TB, polio, tetanus, pertusis, diphtheria and hepatitis.
- The ability of the body to fight the disease causing organisms is known as immunity. It can be inborn or acquired during our life time.
- Acquired immunity develops either when we survive a disease or through vaccination. Active immunity is when we develop antibodies against a pathogen. In passive immunity readymade antibodies are injected into the body.
- We must have the basic knowledge of first aid so that in case of an emergency immediate care can be provided to the affected person.
- Drugs are chemicals that alter the way our body works. These are normally prescribed for treatment of physical and mental illness. When taken for non medical purpose it leads to drug abuse and has serious consequences on our health.
- Opium, morphine, smack, cocaine, LSD, marijuana, ganja, and charas are some of the commonly abused drugs.
- Drug addiction is a state where a person gets hooked on to the drug and constantly craves for it. Repeated use of drug leads to the drug tolerance where high doses are demanded by the body. This leads to drug dependence. When drugs are discontinued it leads to withdrawal syndrome. Medical help enables the addicts to overcome this difficult phase.
- One must be aware of the signs of drug addiction, ways of staying away from it and seek or provide help to a person in need.

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- X-ray, MRI and ultrasound imaging are certain non invasive diagnostic techniques that help in detection of diseases/damages of the internal organs of the body.



TERMINAL EXERCISES

1. Differentiate between dislocation and fracture. Mention the role of a splint.
2. What is drug abuse? Explain its dangers in terms of addiction, tolerance and dependence.
3. List any four steps that can help a person stay away from drugs.
4. List the danger signs of drug addiction.
5. What role does vaccination play in control of diseases? Explain.
6. How is innate immunity different from acquired immunity?
7. List at least six steps you think are essential to remain healthy.
8. How are personal health and community health related? Explain with the help of an example.
9. What precautions will you take while storing food?
10. List the activities that are carried out by community health organizations.
11. Chill and high fever at periodic interval is characteristic of malaria. What is responsible for this periodic symptom? List any two other symptoms of malaria.
12. List the various preventive measures that are essential for controlling spread of TB.
13. BCG vaccine provides an artificial and active immunity. Justify.
14. Why do bones appear lighter on a radiograph?
15. Brain appears clearer in an MRI than in an X-ray. Explain.
16. Name the technique that is best used for monitoring foetal growth.



ANSWERS TO INTEXT QUESTIONS

32.1

1. We need to be healthy because healthy persons are energetic, efficient, happy and productive.



2. Health is state of complete physical, mental and social well being and not merely the absence of disease.
3. Physical, mental and social aspects.
4. Principles, practices or habits that help in remaining healthy are known as hygiene. Thus hygienic ways help in remaining healthy.
5. Brushing teeth regularly is very important *Brushing teeth* removes the food particles that remain stuck to our teeth. These food particles allow germs to multiply and harm our teeth and gums and lead to bad breath. or any other healthy habit
6. Food should be covered, stored in cool and insect proof place.
7. Try to maintain physical health of self /family members, be confident and sensitive towards others' needs, have healthy interpersonal relationship and try to fulfil duties towards others. (or any other correct point)
8. Items I, V, VI are correct. Reasons are I: sensitivity towards other's need, V: duty towards others, VI: control over your emotions
II, III, IV does not reflect mental/social health.

32.2

1. Removal of garbage, supply of clean drinking water, fumigation, organizing immunization programmes, ensuring food standards in food stores and milk outlets.
2. Discussions with neighbours convincing them with the association between healthy population and clean environment and therefore the need to keep their neighbourhood clean; forming peer groups and distribution of hand bills to educate people around, making posters depicting ways of keeping a place clean, contacting the municipality for providing garbage bins and garbage collection, and also for repair of the roads

32.3

1. In this disease the swollen leg resembles that of an elephant.
2. Persistent low grade fever, blood in sputum, cough, weight loss, chest pain, fatigue. (any four)
3. a: TB, b: Filaria c: contaminated food, water d: bite of a infected female Anopheles mosquito.
4. a) malaria, b) dengue/ filariasis c) amoebiasis /ascariasis d) tuberculosis e) influenza f) /tuberculosis



32.4

1. Tuberculosis, Diphtheria, Tetanus, Pertussis, Polio, Measles.
2. BCG; to be given within two weeks of infant's birth and OPV; at the age of two months.
3. Sunday, for the convenience of the parents to take their children to the Polio Booth for vaccination.
4. It is the lymphocytes that recognize an antigen (disease causing agent) and produce antibodies against it to destroy it. If lymphocytes are destroyed, our body will become more susceptible to diseases as there will be no antibodies to counter the antigens.

32.5

1. By adding one teaspoon of sugar and a pinch of salt in a glass of (about 200mL) water.
2. a) Place the injured area in cold water/ice to relieve the pain.,
b) Blot the area and apply a dry sterile dressing.
3. Press directly on the wound with thumb, make the victim lie down and elevate the bleeding part above the rest of the body.
4. Dehydration; give him/her lot of house made fluid or ORS. Keep in a cool place and consult the doctor.

32.6

1. Reasons; drugs are harmful for both physical as well as psychological health and such chemicals will have serious consequences on their health. May cause physical as well as mental damage. It may affect their academic field, employment; interpersonal relationship. It also leads to financial ruin and increased risk of contracting STDs.
2. a) Sudden change in work or school attendance and quality of work;
b) Outbursts of anger, lack of concentration, running nose, red eyes, dark circles under the eyes, nausea, vomiting and body pain;
c) Engaging in secretive behaviour and staying away from friends who are non users, frequent borrowing money or stealing items from home/work place.

32.7

1. a—rickets, b—osteoporosis, c—MRI, d—tumour, e—slipped disc,
f— Sound waves of $1-15\text{MHz}$ used which are absorbed and then reflected and scattered to different extent by different tissues, g —provides valuable information of different internal organs, h—foetal growth