

## Chapter-14

### Health, Disease and Yoga

#### 14.1 Meaning of Health :

"Healthy body is the first happiness" and "Healthy mind resides in a healthy body" are the quotes which are very old and prevailing ones and are absolutely correct. Health is essential, rather mandatory, for everyone. Only a healthy person can accomplish any work smoothly and efficiently.

#### 14.2 Significance of Health :

To remain healthy is essential to lead a happy life. If we are healthy we will be able to use our potential to the maximum: physically, mentally and socially. We can lead a happy life by remaining healthy.

Being in good physical condition is the main characteristic of our being healthy. Only a healthy person can build a healthy and strong nation. Much emphasis is being given in our country on remaining healthy.

Generally a healthy person means the one who is physically fit, whose head and heart are healthy, family is healthy and who lives in a healthy environment.

It is essential to remain healthy in order to be able to perform our tasks in a smooth and efficient manner. Only a happy, disease free and healthy person can have the potential to accomplish the work efficiently therefore to improve the quality of life it is essential to focus on the complete state; particularly efficiency, being energetic, satisfaction and peace levels.

#### 14.3 Balanced Diet and its Components :

A balanced diet is one which has all the nutrients (carbohydrates, proteins, fats, vitamins, water and minerals) in proper quantity (Table 1). Carbohydrate and fat provide energy to the body. Protein is essential for growth and formation of cellular components. Minerals and vitamins are required for the biological reactions taking place in cells and tissues. Water plays an important role in various cellular and biological functions like

digestion, excretion, translocation etc. Along with these, some roughage is also essential for proper digestion. Roughage chiefly comprises indigestible cellulose, which absorbs water and increases the quantity of food so that constipation does not occur. (fig. 14.1)

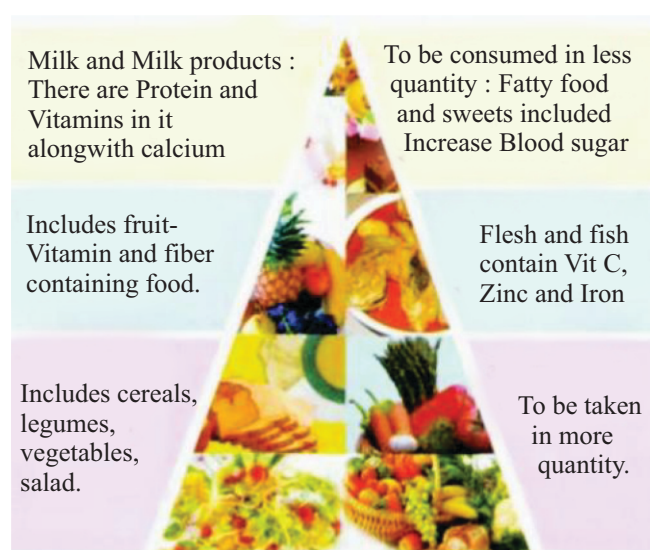


Fig. 14.1 Balanced Diet

#### Components of a Balanced diet :

The main components of a balanced diet are as under :

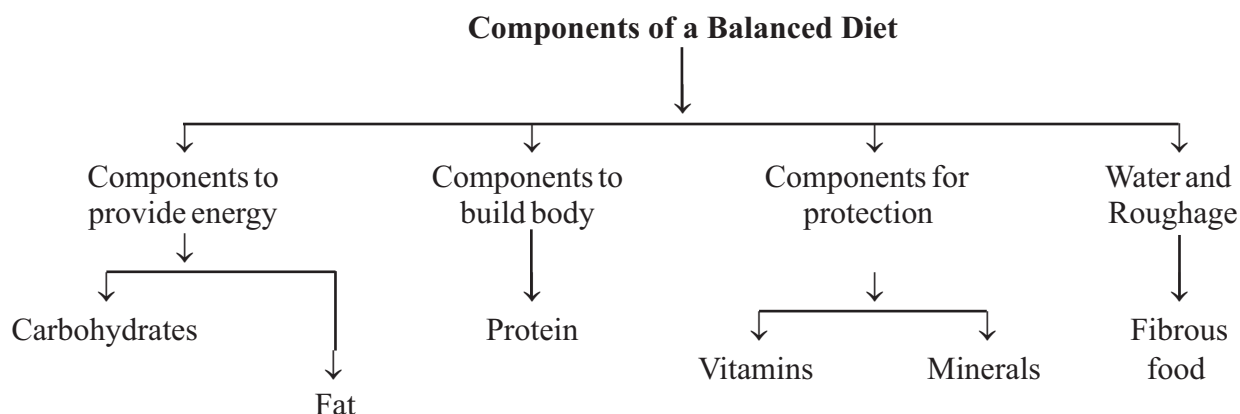
##### (1) Carbohydrates :

Carbohydrates (starch and sugar) are the main source of energy for our body. Although they are not very rich source, but are the most cheap ones. Generally, carbohydrates provide for 60% to 80% of the total food energy of our diet.

When we consume fruits, vegetables and other vegetable products, we receive large quantities of plant cells whose cell wall is made up of cellulose - a carbohydrate. Our body does not have enzymes to work upon cellulose hence they act as roughage.

##### (2) Fats :

On being oxidised, fats provide double the



amount of energy as provided by carbohydrate. It is because oxygen is less in fat molecules. Apart from providing energy they also help in formation of structural components of cells and tissue; for example cell membrane and other organelle. Fat is also stored by the body for future usage. If we consume food in such large quantities that the body is unable to utilize all the energy produced from it then the extra energy is deposited below our skin, in the form of hypodermal adipose. We obtain fat from butter, ghee, paneer milk, yolk, nuts, flesh and all edible oils.

### (3) Protein :

Protein is the member of the nutrient group of which our body is majorly made up of. In cytoplasm apart from water, remaining part is mostly protein. Our body selects the amino acids as per its requirement, re-organizes them and makes the specific proteins. Proteins are digested in the small intestine and the amino acids formed in the process are absorbed by the intestine. Then after, they bind in new groups forming special proteins in the body cells from which the cells and tissue develop - for example the skin, muscles, blood and bones. Like carbohydrates and fats, even protein is a compound made up of carbon, hydrogen and oxygen but it also incorporates some other elements like nitrogen and sulphur which play very significant role in biological processes. There are some proteins which are derived directly from our food. All plants contain some amount of protein, but groundnut, beans, cereals (Maize and Wheat) and lentils are the best vegetarian sources. Meat, Fish, Egg, Milk and Cheese are the source of animal proteins.

### (4) Water and Roughage :

Water and roughage are of equal importance

in a balanced diet. Water is present in the cytoplasm, blood-plasma and the interstitial fluid of the tissue. It is present in many processes in the form of a solution. Water regulates our body temperature by sweating and evaporation and in this way plays an important role in the excretion of waste substances from the body. The water required by our body is majorly obtained from the water we drink and other liquid substances like tea, coffee, fruit juices, milk etc. Some water is also produced as a by-product in oxidation and other reactions.

The salad, vegetables and fruits having more of fibres and rind provide roughage in our diet. They are good for digestion and help in the movement of the excreta. Porridge and maize have good roughage along with the nutrients.

### (5) Minerals :

We need many metals and salts, like iron (Fe), zinc (Zn), iodine (I), salt (NaCl), calcium phosphate  $[\text{Ca}_3(\text{PO}_4)_2]$  etc. for the different reactions of our body. Together they are known as the minerals. You must have observed that during summer months very often there are white stains on our cloths due to sweat. It is mainly sodium chloride i.e. common salt (NaCl). Even calcium salts are important to provide strength to our bones and teeth and is also essential for clotting. Sodium (Na) and Potassium(K) salts are required to maintain osmotic concentration of cells and tissues. Iodine, in very small quantity is essential for the formation of thyroid hormone. Iron is required for the formation of haemoglobin protein. This haemoglobin is responsible for the transportation of oxygen to various parts of our body. Many compounds of phosphorus, chlorine, copper, magnesium and zinc are also important to control many important reactions of our body and for general health and growth.

### (6) Vitamin :

Vitamins play an important role in our nourishment. They have a major contribution in body metabolism. This component of our diet is helpful in the growth and development of our body. They are present in very minute quantities in the food substances but their presence is essential (Table 2).

**Table 1 :**  
**Important nutrients in some common food substance**

<b>Carbohydrates</b>	<b>Fat</b>	<b>Protein</b>	<b>Minerals</b>
Rice, Idli, Bread (Roti : wheat, jowar bajra) Casava, normal sugar, honey jaggery, underground tubers like potato, colocasia, sweet potato, sweet juicy fruits	Butter, groundnut Ghee, Refined vegetable oil (mustard, ground nut, sunflower) nuts, animal fat obtained from meat	Egg, Meat fish, milk cheese, ground nut, lentils Pea, Soyabean	<b>Calcium</b> : milk curd, green vegetable, Ragi. <b>Iron</b> : liver, egg, meat, Pea, dry fruits, Green leafy vegetables Jaggery. <b>Phosphorus</b> : Milk curd, green leafy vegetables <b>Sulphur</b> : egg, yolk <b>Iodine</b> : Sea food

**Table - 2**  
**Description of Vitamins Important for Man Vitamins Source Main disease Effect**

1. Vitamin A (Retinol) Soluble in fat	Green leafy vegetables, carrot, fish, liver oil	Night blindness	Lack of night vision
2. Vitamin B Soluble in water	Milk, sea food, soya bean, whole grain, green vegetables, germinated lentils meat, potato	Beri-Beri	Decrease in hunger, weakness, in active -ness of muscles headache, paralysis
3. Vitamin C (Ascorbic acid) Soluble in water	Juicy fruits especially Amla, Lime, Orange, guava	Scurvy	Bleeding gums, Red spots on skin
4. Vitamin D (Calciferol) Soluble in fat	Milk, Fish liver oil, egg, produced by the body itself in the presence of sunlight	Rickets	In children the bones become abnormal and soft, interruptions in the growth of teeth.
5. Vitamin E (Tocopherol) Soluble in fat	Green leafy vegetables, milk, butter, tomato liver, soyabean	Sterility and Paralysis	the reproductive epithelium gets damaged and leads to sterility Paralysis due to neuro muscular dystrophy
6. Vitamin K (Phylloquinone) Soluble in fat	Milk product, almonds spinach, sunflower seeds, soyabean, tomato green vegetables	Haemorrhage	Continuous blood flow, Absence of clot formation

#### 14.4 Fast food :

In the present day physical world, fast food has become a popular alternative for our food. But it does not provide the required nourishment to our body. It does not also fulfil the need for various nutrients for our body to remain healthy. The person in turn remains tired and is not capable of doing the daily chores. In our country we have many better, nutritive food products like - poha, pakore, idli, dosa germinated grains, fruits, egg, upma, gajak, tilpatti, gur, sangri, mathri etc., which do not harm our body. Regular use of fast food leads to various diseases/disorders like fatness, hypertension etc. Healthy mind and healthy psyche results from healthy body. But fast food like pizza, burger, noodles etc. do not provide a healthy body because they do not have enough of proteins and good carbohydrates and have large quantity of fats which deposit in body and lead to various diseases like heart attack, blood pressure, kidney dysfunctioning, arthrites, diabetes etc. Thus because of fast food, neither we have a healthy body nor a healthy psyche. Obsessed mentality is responsible for many crimes.

Among humans, to remain healthy, a young person needs about 1800-2600 calories, an adult female 2200 and an adult male about 2000-3200 calories. The diet required to obtain these calories must have less quantity of saturated fats, trans-fats, cholesterol salt, sugars etc. But fast foods have an excess of all these which is harmful for our body and results in the development of serious health problems. This is one of the main reason for obesity among school children, weak and distorted mentality and hence they are involved in crimes of various nature and also suffer from serious health problems.

Fast food is very high in calory content and low in nutrition. Because of its easy availability and varied taste all the age-groups are attracted towards it as a result the society on the whole is struggling against various types of health concerns. We are witnessing a range of fatal effects of all this.

#### 14.5 Effects of Synthetic Food Beverages :

In today's era the trend of synthetic beverages has increased. These beverages are contributing towards a range of diseases. They have been found to have high phosphate content, thus disturbing our bodies calcium and phosphate

balance. This leads to various health problems. In young age body needs more of calcium that we obtain from food products like egg milk etc. But the increasing trend of synthetic beverages is retarding healthy growth of our younger generation.

These drinks are rich in sugar content. Body has to secrete excess of insulin to control the blood sugar level, which over a period of time may lead to diabetes. The high level of cholesterol in them is responsible for increasing risk of heart problems (fig. 14.2).

The synthetic drinks do not let the various metabolic activities of our body to occur smoothly. This leads to tensed state in the body and results in various problems like brain cancer, mental and



**Fig. 14.2**  
**Effect of synthetic beverages**  
**and fast food on the body**

emotional defects etc. These drinks increase the acid level of our body which gradually deforms our digestive system. Synthetic beverages are unnatural substances which do not provide any nourishment instead the present generation is struggling with its negative impact. There is high concentration of sugar, sodium and caffeine in these drinks which results in dehydration of the body and also leads to obesity and the various diseases that follow therefrom. The mental deformities being induced in the youth of our generation by their fallacious eating habits is resulting in an increase in the crime rate in



the present day society. To avoid these and various other negative impacts natural drinks such as coconut-water, lime-water, fruit juices, shakes etc. should be used instead of the synthetic beverages.

### 14.6 Malnutrition :

Malnutrition refers to a lack of balanced diet. The diseases due to malnutrition i.e. lack of one or more nutrients in our diet are known as malnutrition diseases or deficiency diseases. For a balanced growth there should be a balanced quantity of various nutrients like - proteins, carbohydrates, fats, vitamins, minerals and various micro-nutrients, in our food.

In our country and in other developing countries people are malnourished in large number, because they do not take a balanced diet.

#### 14.6.1 Causes of Malnutrition :

1. Poverty and ignorance
2. Unemployment and increasing population.
3. Lack of food grains and food adulteration.
4. Our food habits.
5. Mental agony and tension
6. False notions

#### 14.6.2 Symptoms and Causes of the Malnutrition diseases :

##### (A) Disease due to protein deficiency :

Protein is essential for physical development of humans. In children maximum malnutrition is reported due to protein deficiency. This leads to two main diseases (fig. 14.3) :

1. **Kwashiorkor** : It is a disease due to protein deficiency. The main symptoms include - loss of appetite, swelling in body, change in skin colour to yellow, dryness and irritability.
2. **Marasmus** : It is due to lack of calories and protein deficiency. In this disease the body starts drying, patient becomes feeble with weak face, lustre-less, sinking eyes and chronic diarrhoea.



Fig. 14.3

Diseases due to protein deficiency  
(a) Kwashiorkor (b) Marasmus

##### (B) Diseases due to carbohydrate deficiency :

Carbohydrates is the main source of energy in a balanced diet; therefore its deficiency leads to serious diseases :

**Hypoglycemia** : There is reduction in level of blood sugar because of unavailability of glucose in the body due to carbohydrate deficiency in the diet. The symptoms includes shakiness, fatigue, lack of energy etc.

##### (C) Diseases due to deficiency of minerals:

Minerals are the substances which strengthen bones, tissues and teeth and forms a healthy body. Many diseases develop in body due to deficiency of various minerals (fig. 14.4) :

1. **Calcium and Vitamin D** : These are important for maintaining bone density. Calcium deficiency leads to pain and twitching in bones and muscles which results in repeated fractures. In an adult body the magnesium level is to be maintained to maintain the energy level because its deficiency leads to the deficiency of other minerals like potassium, sodium and calcium. The symptoms of such a condition includes - jerking, twitching and nausea etc. Potassium helps in smooth functioning of the muscles. Iron

deficiency in the body results in reduction of haemoglobin in the body which is the symptom of a disease-anemia. Zinc is responsible for mental growth and strengthening of the immune system.

2. **Goiter** : Iodine is an important requirement of our body. It is required in very less quantity. It helps in the secretion of thyroxine

hormone from the thyroid gland, which controls various metabolic processes of the body. Many defects occur due to iodine deficiency including various mental and physical growth defects. The size of thyroid gland increases and results in the symptom known as goiter.

**(D) Diseases due to Vitamin deficiency :**



**(a) Goiter due to iodine deficiency**



**(b) Yellowing of teeth**



**(c) Spots on the body**



**(d) Defective broken and damaged nails**

**Fig. 14.4 Diseases due to deficiency of minerals**

Vitamins are not synthesized in the body hence they are supplied in the diet.

1. **Night blindness** : It results from the deficiency of vitamin A. The patient lacks night vision.
2. **Beri-beri** : This disease is due to deficiency of vitamin B<sub>1</sub> which directly affects the nervous system. The symptoms are - loss of appetite, weakness in body, inactive muscles etc.
3. **Scurvy** : This disease develops due to deficiency of vitamin C. It results in symptoms like formation of skin-spots, bleeding gums etc. This also weakens the body immunity system.
4. **Rickets** : Rickets disease develop in children due to deficiency of vitamin D; in adults it is known as osteoporosis. Bone disability develops from this disease which lead to bow-shaped legs, pigeon like chest and decay of teeth enamel.
5. **Sterility** : Deficiency of vitamin E leads to sterility.
6. **Haemorrhage** : This disease develops due to deficiency of vitamin K. It prevents formation of blood clots and leads to excessive bleeding. In extreme condition it leads to the death of the patient due to excessive blood loss.

### 14.7 Diseases :

Various pathogens present in the environment enter the body and make it diseased. White blood cells (WBC) kill the pathogens that enter the body. In many circumstances if WBC are unable to kill the pathogens they destroy various organs in the body and as a result a healthy person becomes diseased.

Development of abnormality in the general processes of body or any part thereof is known as a disease.

#### 14.7.1 Causes of Disease :

1. **Biological agents** : The organisms which become the reason for disease development are known as **pathogens**.

For example - virus, bacteria, mycoplasma fungi, protozoans, helminthes etc.

2. **Chemical agents** : The chemical substances which cause disease in the body are the chemical agents. For example - pollutants, spores, pollen grains, the urea and uric acid being produced in the body etc.
3. **Nutritional agents** : Excess or deficiency of various nutritional substances also act as agents of disease development : For example - carbohydrates, minerals, fats, proteins, vitamins etc.
4. **Mechanical agents** : Disease causing agents which cause diseases because of mechanical injury. Examples - friction, injury, wound, bone fracture, muscle sprain or strain etc.
5. **Physical agents** : Factors like heat, cold, humidity, electric shock, sound or radiations which cause diseases.
6. **Deficiency or excess of substances** : Substances like hormones, enzymes etc. cause physical disorders and diseases if deficient or present in excess.

### 14.8 Communicable and Non communicable diseases :

Diseases have been categorized into two types on the basis of their nature and causal agents (A) Communicable and (B) Non-communicable diseases.

- (A) **Communicable diseases** : Diseases caused by various living factors like - bacteria, virus, protozoa etc. can be transmitted from person to person and are hence known as communicable diseases.

#### 14.8.1 Viral diseases :

- (i) **Chicken pox** :

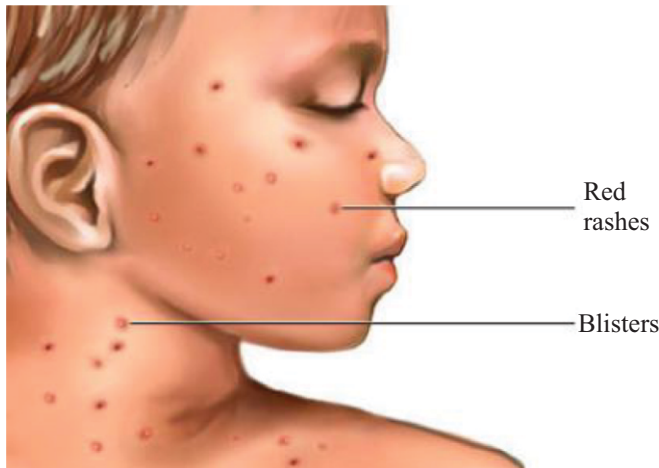
It is commonly known as "choti mata".

**Pathogen** : *Varicella* virus

**Symptoms** : Fever, coughing, intense pain in back and neck, itchy blister like rashes on the skin. (Fig. 14.5)



**Treatment :** The things used by infected patients should be disinfected and the patient should be taken to health center, well in time. Antibiotics should be used for its cure and prevention.



**Fig. 14.5 Patient suffering from chicken pox**

**(ii) Poliomyelitis :**

**Pathogen :** *Enterovirus* - It is the smallest known virus.

**Symptoms :** Stiffness in neck, lying down of the patient without movement, weakness in limbs, nervous system and muscles are also influenced. In case of intense infection, physical disability is caused.

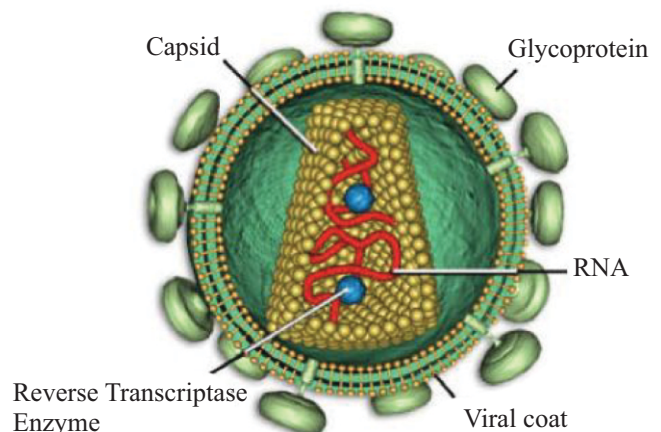
**Treatment :** Proper and regular vaccination of children as scheduled by the pulse polio campaign.

**(iii) Aids (AIDS- Acquired Immuno Deficiency Syndrome)**

**Pathogen :** **HIV virus (Human Immuno - Deficiency Virus).** (Fig. 14.6)

**Symptoms :** Loss in body weight, persistent fever, diarrhoea, ulcers in the throat, loss in general body immunity, swelling and irritation on skin, lymph glands are affected.

**Transmission of disease :** Sexual contact with infected person, on coming in contact with the blood of the infected person, on being born of an infected mother, by using infected needle etc.



**Fig. 14.6 : HIV virus**

**Prevention :** Using sterilised needle, by not marrying an infected person, infected mother should not get pregnant, by having safe sex.

**Treatment :** HIV cannot be cured but can be controlled by using ART (Anti retroviral therapy). A combination of HIV drugs are used for treatment of HIV.

**(iv) Dengue :** It is also known as the bone breaking fever or dandy fever. It is a viral disease that is transmitted by female *Aedes aegypti* mosquito bite.

**Symptoms :** Fever, feeling cold, intense pain in muscles and joints, weakness, loss of appetite, dizziness, decrease in the number of blood platelets, fall in pulse rate, possibility of death etc.

**Treatment :** Mycophenolic acid and ribavirin are used to control the growth of dengue virus controlling the mosquito population by various means like adding gambusia fish in lakes and water tanks. There is no specific medicine or vaccine to cure dengue.

**14.8.2 Bacterial Diseases :**

The diseases that develop due to bacterial infection are known as bacterial diseases. A few important ones include :

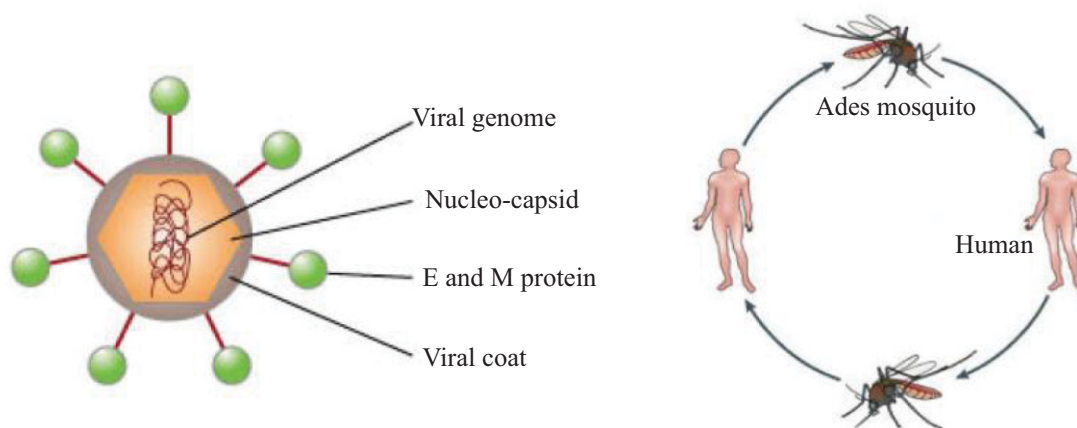
**(i) Tuberculosis or TB :**

**Pathogen :** *Mycobacterium tuberculosis*.

**Symptoms :** Fatigue, loss in weight, blood tinged cough, fever, cold, chest pain, heaviness of voice etc.

**Transmission of the disease :** Living in





**Fig. 14.7 : (a) Dengue Virus (b) Transmission of Dengue Virus**

contact with a TB patient (i.e. sleeping, sitting, eating moving etc. with TB patient), due to malnourishment, consuming milk of an infected cattle, using things used by infected person, smoking, drinking hukka and chewing tobacco etc.

**Treatment :** Medicines like streptomycin, vitamin B-complex and isoniazid are important for its treatment. BCG (Bacillus Calmette Guerin) vaccine is used against tuberculosis and is administered to newly born child.

- (ii) **Diphtheria :** It is a serious bacterial infection generally of children but even adults are infected.

**Pathogen :** *Corynebacterium diphtheriae*.

**Symptoms :** It affects the mucous membrane of the throat and nose, with laziness and lethargy, loss in appetite, fever, headache, dizziness and in extreme cases the nervous system, heart and lungs are also affected. Bleeding with nasal mucous, congestion which at times may lead to death.

**Transmission of disease :** Generally is spread by direct contact with the patient. The bacteria spreads in the atmosphere by flies, sneezing, coughing, spitting in environment etc. The disease is transmitted by direct

contact with the patient i.e. living, eating, moving around, kissing etc.

**Treatment :** Primary immunization of children is done using DPT vaccine (Diphtheria, Pertussis and Tetanus). It is done as prevention against diphtheria, whooping cough and tetanus. Various antibiotics like-penicillin, erythromycin etc. are also administered.

- (iii) **Jaundice :** This disease leads to liver cirrhosis. It is also known as icterus. Jaundice is a sign of diseases like hepatitis. The patient becomes yellow due to increased level of bilirubin.

**Symptoms :** Inactive liver, increase in level of bilirubin, body weakness, yellowing of skin, liver cirrhosis etc.

**Transmission of disease :** It develops due to use of contaminated water.

**Treatment :** New Livfit medicine is prescribed to keep the liver healthy. Hepatitis vaccination should be done.

- (iv) **Leprosy :**

**Pathogen :** *Mycobacterium leprae*.

**Symptoms :** Loss in skin sensitivity, appearance of colourless spots on the skin, thickening of skin in the infected area, dissolving of the skin etc. It also affects nerves, skin, fingers and toes.

**Transmission of disease :** By living in contact with infected person for long.

**Treatment :** It is diagnosed by the lepromin test and is treated at the leprosy prevention centers.

#### 14.8.3 Protozoan Diseases :

(i) **Amoebiasis :**

**Pathogen :** *Entamoeba histolytica*

**Symptoms :** Mucous and blood are excreted along with the stool of the infected person. There is twitching of the intestines. Ulcers develop in the colon (large intestine). If it infects the liver it leads to anaemic hepatitis.

**Prevention :** Wash vegetables thoroughly before use, Amoebic vesicles should be completely destroyed using chlorine, phenol, cresol etc. Antibiotics like Tetracycline, teramycin etc. are used for treatment.

(ii) **Malaria :**

Malaria in humans is transmitted by the bite of the female *Anopheles* mosquito. The pathogen plasmodium is present in the saliva of this insect.

**Pathogen :** The four species of plasmodium are as under

1. *Plasmodium vivax*
2. *Plasmodium ovale*
3. *Plasmodium malariae*
4. *Plasmodium falciparum*

**Symptoms :** Body ache, twitching of limbs, headache, chills, shivering, loss of appetite, anemia, weakness, lethargy, short tempered.

**Treatment :** Spray of insecticides to kill mosquitoes. Clean the water filled ditches, use mosquito nets. Use of medicines like quinine, chloroquine etc.

**B. Non-Communicable Diseases :**

Diseases which are not transmitted from person to person are known as non-communicable diseases.

(i) **Diabetes :** It is also known as the sugar disease. It results from insufficient secretion of insulin from the pancreas. There is increased level of blood sugar or blood glucose along with high sugar level

in urine too. Fatigue persists and the patient feels weak. External dose of insulin is injected in the blood to control the sugar level.

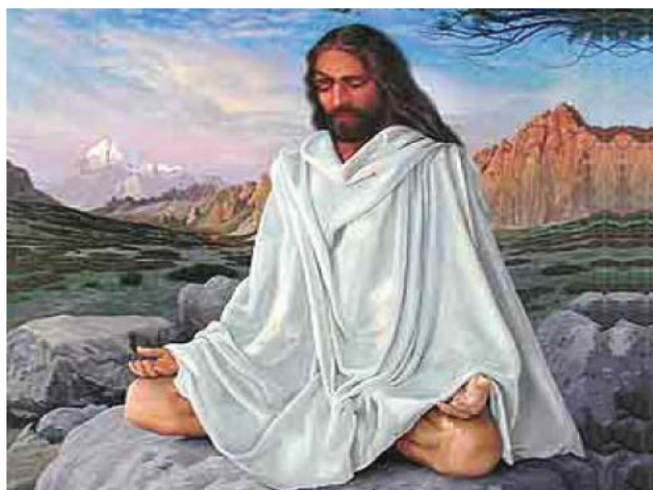
(ii) **Cancer :** Cancer may occur in any body part. It may be caused by many factors like smoking, chemicals, carcinogenic factors (like X-rays, UV radiations etc.) In it there is irregular cell growth and division which leads to formation of ever growing tumors. This condition is known as cancer.

**Symptoms :** Reduction in body weight, formation of tumors, persistent wounds, headache, stomach ache, change in shape of testicular chamber/mammary glands, bleeding while urinating etc.

**Treatment :** The diseased part is removed by surgery. The cancerous cells are destroyed with the help of radiations and medicines, use of antibiotics, alkaloids etc., surgery by radio therapy or Bone-marrow transplantation etc. Medicines - Vincristine, Vinblastin.

#### 14.9 Patanjali :

In yoga traditions, Maharshi Patanjali is a revered person. He is known as the 'father of yoga'. The 'ashtang yog' propounded by Maharshi Patanjali is not a notion, religion, caste or creed. Rather it is a complete method of leading life. The tradition of yog dates back at least to the Mahabharat era. Yog provides focus to the deviated and distracted mind and ends conflict of thoughts i.e. mental deviations. Yog helps us to inculcate many qualities in our life, like - abstinence, truth, non-violence, self-contemplation, contentment, discipline, focus, concentration, self-control, dedication etc. which leads to the transmission of positive energy and thoughts in the human body and this is very essential for today's generation. Today's generation lacks these qualities. Patanjali decided to provide all these benefits to the humanity. Now-a-days we have conquered many of the irretrievable diseases by yog. (fig. 14.8)



**Fig. 14.8 Maharshi Patanjali**

### 14.10 Effects of Yog on Health :

Yog has surfaced as a 'life giving elixir' in the present day, tensed life. There are two faces of yog - physical yog and the spiritual, philosophical, emotional side. From physical health to the attainment of trance (samadhi), the journey of yog is very easy, simple, scientific, certified, practical and universal. Life is supposed to have three basic elements - thoughts, feelings and actions. On doing

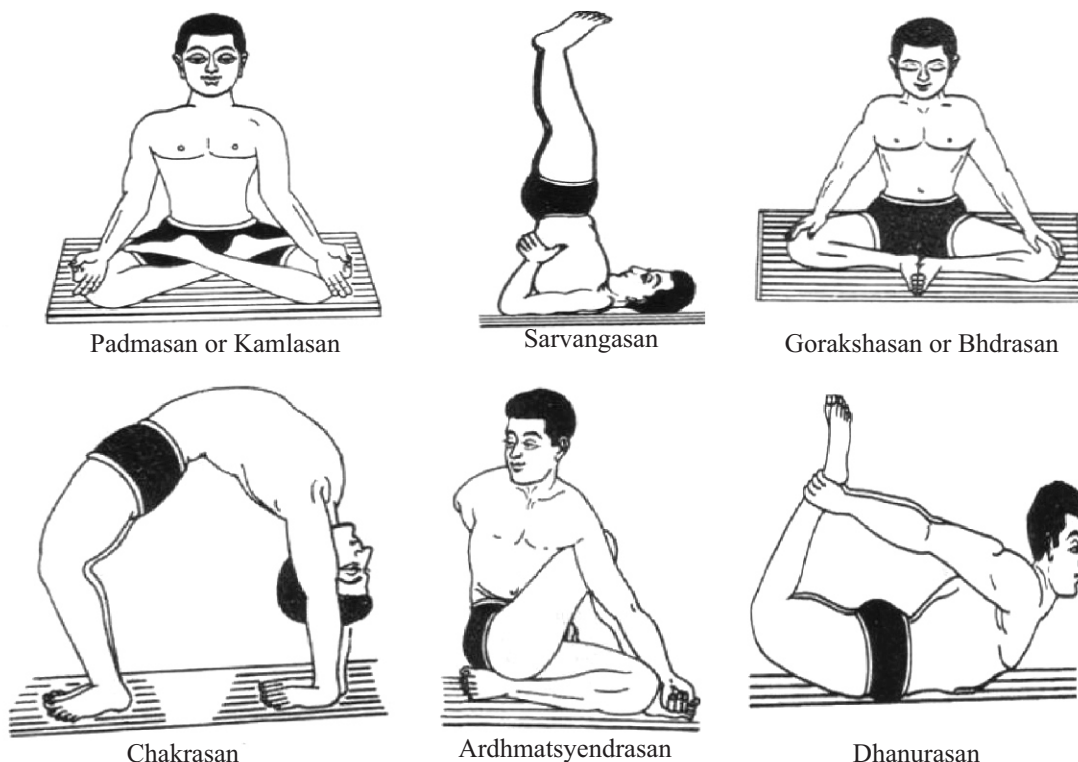
yog these basic elements of life and many other fundamental transformations which are essential, occur. The person who performs yog is pious and non-violent, i.e. does not believe in rajsik, tamsik and violent tendencies. Yog maintains a balance between the individual and the masses. Yog induces a flow of spiritual and prudential ideology in a person's life.

Yog is a very transcendental, useful and practical subject, it is a science of transformation. Yog is not just for the sages, monks, saints etc. but every individual, whether he be a businessman, farmer, serviceman, worker or students, they can be benefited from it.

Yog is a very ancient bhartiya lifestyle. The body becomes disease-free and graceful (agile). Yog leads to overall development of an individual. 21st June 2015 was celebrated as the international Yog Day. Most of the countries of the world have understood the utility of yog.

#### Ashtang Yog :

Maharshi Patanjali outlined the eight-steps for attainment of union between body, mind and spirit which leads to everlasting peace. These steps are known by the term - **Ashtang Yoga**. These eight



**Fig. 14.9 Different types of Yogasans**



steps are as following :

- (1) **Yam : (Social discipline )** : This is the first element of Ashtang Yog. By adopting it the mind is diverted from violence etc. and is self-focused. It is the universal morality.
- (2) **Niyam : (Personal discipline)** : By niyam, individual learns the compliance of the laws, customs, commands or rules for a disciplined life. On adopting it the person develops a good character.
- (3) **Asanas** : Body postures which result in stability and happiness. (fig. 14.9)
- (4) **Pranayam (Control and regulation of the breathing process)** : Its purpose is to receive, regulate and balance the vital energy that resides in our body.
- (5) **Pratyahara : (Control of the senses)** : Divert the mind and senses from the external environment and make them introvert. Pratyahara leads to complete control of senses i.e. the senses follow the mind instead of the mind following the senses.
- (6) **Dharana (Concentration)** : It means the immovable concentration of the mind on any one of the body areas like navalpoint, heart-lotus, bhumadya, Baharandh, nose etc.  
Due to pratyahar, when the mind and senses are diverted from the external sensations and they become introvert, at that time focusing them at a particular point is known as dharna.
- (7) **Dhyaan : (Sadhna or Meditation)** : When an individual frees himself from the time and space shackles and concentrate, then the stage is that of dhyaan, i.e. perfect contemplation.
- (8) **Samadhi (Self realization)** : In it the individuality of a person is lost internally and externally in meditation. The individual goes beyond consciousness. It is the stage of perfect bliss - the height of meditation.

#### **Effect of Yog on Health :**

1. Yog improves the flow of oxygenated blood which help to cure problems like

- arthritis, swelling, reduction in number of platelets etc.
2. With yog there is improvement in the physical and mental health of the individual.
3. Yog brings out a person from a state of internal depression. Thus reducing the intensity of the criminal and violence mentality.
4. By following yog on a regular basis the physical balance of the body is maintained even in the old age.
5. Yog leads to qualities like self contemplation, spontaneity, practicality, emotionality, concentration and firm determination.
6. Yog and pranayam subdues the excitation of the nervous system which delivers us from the tensed life.
7. Yog enhances the action-potential of our immunity system so that we can defend ourselves against various disease.
8. Yog guides an individual to perform the right deed which enhances the positive health and well being.
9. Yog and meditation induces enlightenment in the person so that in the present day culture, of competition, the anger and other destructive emotions are subdued and a positive approach is inculcated.
10. The healthy body achieved by yog leads to a better work-culture and the person serves others and the nation, on the whole, in a better way.
11. The internal body organs are activated by yog postures which leads to happy and healthy long life.
12. Immunity of the body increases.
13. Body becomes flexible.
14. Yog develops the mental and physical power to keep the mind peaceful and the senses under control.
15. Yogic postures purify blood.
16. Yog is a non-violent activity by which moral values are inculcated.
17. Yog excels various body glands. Thus assisting in balanced development of

the body.

To summarize, we may say that yoga leads to comprehensive development of an individual and a disease free long life.

### 14.11 Life of Nagarjuna :

Nagarjuna was a renowned metallurgist and alchemist of ancient Bharat. He was born near Somnath in Gujarat at Dahak district. His period is of about 7th and 8th century - the period of Ayurveda metallurgy. Nagarjuna was an alchemist.

His treatise "Ras-ratnakar" and "Rasendra-mangal" are well known.

In 'Ras-ratnakar' there is depiction of metal-purification and the representation of their properties. The most famous being the reference of mercury (use of mercury). The chemical actions mentioned therein, still astonish the scientists. Various experiments to prepare mercury compounds have been described in it. It also presents a survey of the standard of metallurgy and alchemy in the country. The methods of purifying silver, gold, tin, etc. have been described in it.

To prepare life saving drugs and other substances from mercury, Nagarjuna made use of animal and plant elements, acid, minerals etc. He suggested various acids prepared from vegetation to dissolve many metals. Many scientists have obtained their in-depth knowledge of chemistry by studying the treatise written by Nagarjuna. Nagarjuna has described many important chemical processes, like distillation, sublimation, liquification etc., in his books. All these processes play a pivotal role in chemistry till date. Nagarjuna had also described the process of forming gold or the metals with the gold-like yellow lustre, in his book.

All these facts make it clear that Nagarjuna had deep and intense knowledge about the chemical properties of various substances. Modern chemistry has developed from alchemy. Hence in Bharat, Nagarjuna is considered to be the promoter of metallurgy. Nagarjuna had described the method of preparing mercury ash and then its use to keep the body healthy, for long.

Nagarjuna edited a book named 'Sushruta Samhita' and added a new chapter 'uttar tantra'. This chapter describes method to prepare medicines.

Nagarjuna also composed many texts on Ayurveda, including - 'Aarogya manjiri', 'Yogsaar', 'yogashtak' etc. Many chemists used his knowledge for furthering their research.

### Important points

1. A balanced diet is one which incorporates all the nutrients (carbohydrates, proteins, fats, vitamins, minerals and water) in proper quantity.
2. Fast food and synthetic beverages are harmful for our body and gradually develop many serious diseases.
3. Malnutrition means unavailability of balanced diet for the body. The diseases which develop due to deficiency of one or more nutrients, in the diet, are known as malnutrition or deficiency diseases.
4. Protein deficiency leads to the Kwashiorkor and Marasmus diseases.
5. Deficiency of calcium leads to symptoms like pain in muscles and bones and twitching. It also results in repeated fractures.
6. Goiter develops because of iodine deficiency.
7. Beri-beri disease develops due to deficiency of vitamin B<sub>1</sub> and deficiency of vitamin C results in scurvy.
8. The diseases caused by various living factors like - bacteria, virus, protozoa etc., which are transmitted from person to person are known as communicable diseases. Examples - AIDS, Jaundice, Tuberculosis etc.
9. AIDS is transmitted by HIV.
10. Diseases which are not transmitted from person to person are known as non-communicable diseases. It is limited to the patient suffering from it. Examples - diabetes, cancer etc.
11. Yoga assists in the development of the physical and mental health of a person.
12. Maharshi Patanjali is known as the 'father of yoga'.
13. Nagarjuna was a renowned scholar of chemistry of the ancient period.
14. Nagarjuna edited a book named "Sushruta Samhita" and added a new chapter named "Uttar tantra".

## Important Questions

### Multiple Choice Questions :

1. Kwashiorkor disease develops due to deficiency of which nutrient in the diet :  
(a) Carbohydrate (b) Protein  
(c) Fats (d) Minerals
2. Which of the following disease is not by-birth -  
(a) Leprosy (b) Tetanus  
(c) Malaria (d) Chicken pox  
(e) None of the above
3. The food component, considered to be the chief source of energy is :  
(a) fat (b) carbohydrate  
(c) protein (d) Water
4. Disease due to Vitamin D deficiency is :  
(a) Leprosy (b) Tetanus  
(c) Malaria (d) Chicken pox  
(e) None of the above
5. AIDS is not transmitted by :  
(a) Blood (b) From mother to children  
(c) Touch (d) Sexual relations
6. Which of the following characters develops in a person, by Yog :  
(a) Self contemplation  
(b) Optimism  
(c) Discipline  
(d) All of the above

### Very short answer type questions :

7. What are the main components of a balanced diet and their main sources.
8. Name the vitamins essential for our body.
9. Name the deficiency disease of Iodine.
10. Name the diseases caused by virus.
11. Write the symptoms and treatment of Dengue.

### Short answer type questions :

12. Explain the effects of fast food on our body.
13. What is malnourishment? What are its reasons? Name two diseases that are caused due to malnourishment.
14. What is a balanced diet? What is the role of minerals in the balanced diet? Describe the diseases due to mineral deficiency.

### Essay type answer questions :

15. How many types of diseases are there? Explain the difference between communicable and non-

communicable diseases with examples. Also explain the factors responsible for development of a disease.

16. What is Yog? Name some of the important yoga. Elucidate the effect of yoga on health.
17. Explain the life-history of Nagarjuna and Patanjali.

### Answer Key

- 1.(b) 2.(e) 3.(b) 4.(e) 5.(c) 6.(d)