

## Revision Notes

### Class – 9 Science

#### Chapter 13 - Why do we fall Ill

- **What is health? What is its significance?**

Health: A state of complete physical, mental and social well-being of a person. Anything that leads to the disturbance with the proper functioning of cells and tissues will cause a lack of proper functioning of the body. Personal as well as community issues both play important roles in health.

- The health of all organisms does rely either on their surroundings or their environment. The environment includes the physical environment. Our social environment, public cleanliness, good financial conditions and jobs, social equality, and agreement are also significant in determining an individual's health.

- **Difference between “Health” and “Disease Free”**

Disease simply means "uncomfortable". A person suffering with disease will have improper functioning of the organ systems inside. Healthy state is a state where a person is fit as well as fine from all aspects which include physical, mental, psychological, and emotional state. And Healthy means to be free from any kind of disease. But, being free from disease does not mean to be healthy, i.e. a person who is disease-free might not be stable from the mental state as that of a healthy person.

- **Disease and Its causes**

When a person encounters disease, either his functioning or the appearance of the systems of the body will start changes for the worse. These changes will lead to symptoms and signs of that disease. Symptoms of disease are said to be the unusual changes felt by the person. Different symptoms which could occur during the diseased condition include headache, cough, diarrhea and wounds filled with pus. These symptoms are an indication to a disease, but they don't indicate the cause of the disease.

- **Acute and chronic diseases**

Diseases are classified as acute and chronic diseases on the basis of their duration. Acute diseases usually last for a short period of time without posing adverse effects on health. For example, the common cold. Chronic diseases are those that can last for a prolonged period can lead to drastic effects on health. Diabetes is one such example of a chronic disease. Chronic diseases tend to have more drastic long-term effects on a person's health in comparison to acute diseases.

- **Cause of diseases**

Most diseases can have many causes, rather than just one single cause which could be poor nourishment, genetic defects, lack of public services, and by microorganisms.

- **Infectious and non-infectious:**

A disease could be Infectious or non-infectious diseases based on the occurrence or spread and duration. Infectious diseases are caused by microorganisms like bacteria, viruses, fungi, and protozoa. These can be transmitted i.e. spread from one person to another through various mediums like air, food, water, etc. Non-infectious diseases are due to genetic abnormalities. They are also known as non-communicable diseases since they do not spread from one person to another. Cancer is one such example of non-infectious disease.

- **Infectious agents**

Disease causing organisms are known as infectious agents. They obtain their nourishment from the host organism. eBacteria, Viruses, Fungi, Protozoa, Helminths are some of its examples. Typhoid, cholera, tuberculosis, anthrax, pimples and peptic are some of the diseases caused by bacteria and ulcers. Some viral diseases are common cold, influenza, dengue fever, SARS and AIDS. Skin infections are caused by Fungi. Protozoa is responsible for malaria, kala – azar and sleeping sickness. Helminthic worms can cause intestinal infections or elephantiasis.

- **Mode of Transmission:**

Infectious diseases are spread through microbial organisms from an infected person when he comes in contact with a healthy person. Hence, they are also called communicable diseases. Microorganisms are also transmitted through physical contact, air, water and vectors.

1. Air borne diseases: Diseases that are transmitted through air in the form of droplets. Common cold, pneumonia and tuberculosis are some of the air-borne diseases.
2. Waterborne diseases: Diseases transmitted through the excreta from someone suffering from an infectious disease. For example, cholera get mixed with the drinking water used by people living nearby.
3. Physical contact: Diseases transmitted through direct contact. AIDS is transmitted through various pathways like blood-blood contact with infected people or from an infected mother to her child during pregnancy, or by intimate contact between partners.
4. Vectors: Commonly known as carriers. Vectors responsible for transfer of microorganisms from one human being to another are female mosquitoes, dogs, hens, etc. Rabies virus is transmitted by dogs and cats bite(saliva).

- **Organ-specific and tissue-specific manifestations:**

Microorganisms target a specific site in the body. Symptoms are indications of the organ infected. Malaria causing microbes, enters in the human body through a mosquito bite, and reaches the liver, and starts destroying red blood cells.

The signs and symptoms of the disease depend on the target tissue or organ. If the liver is targeted, it will lead to jaundice. If the brain is targeted, then headaches, vomiting, fits or unconsciousness will occur.

An active immune system gives instructions to many cells to reach the affected tissue and kill the disease-causing microorganism. This recruitment process is known as inflammation. The immune system plays a major role in determining the number of microbes surviving inside the body.

- **Principles of treatment and Prevention:** There are several ways to treat an infectious disease:

1. First, to reduce the effects of the disease and the second to kill the cause of the disease. Antibiotics drugs are used in treating the diseases caused by bacteria, fungi and protozoans. Penicillin is an antibiotic drug. Antiviral drugs are the medicines used to kill diseases caused by viruses. These drugs are quite difficult to prepare in comparison to antibacterial drugs. Despite this

limitation, there are now effective anti-viral drugs in the market like the drugs to keep HIV infection under control.

2. The general ways of preventing any infection is mainly to prevent infections. Like airborne microorganisms can be prevented by improvement in living conditions which are away from overcrowded places. Water-borne diseases can be prevented by safe drinking water and promoting a sanitized environment. Vector-borne diseases by keeping a clean environment. Public hygiene is one such basic step in order to prevent infectious diseases. Proper and sufficient food can also prevent infectious diseases. Immunization needs to be done in a timely manner. Vaccines are one such specific way of preventing diseases and are helpful against many diseases like vaccines against tetanus, diphtheria, whooping cough, measles, and polio.