

## Diseases and Hygiene

On the basis of causative agents - **Infectious and Non-infectious**

- **Infectious** - Diseases such as influenza, cold, etc., which are caused due to infectious agents . An infectious disease is classified as **communicable** because it can be transferred from an infected person to a healthy person.
  - **Non-infectious** - Diseases such as high blood pressure, cancer, etc., which are caused by some internal causes such as excessive weight, genetic defects, etc. These are **non communicable** because it cannot be transmitted from a diseased person to a healthy person.
1. **Communicable Diseases** - Diseases which spread from one person to another, such as influenza, cold, etc. They are caused by the disease-causing microorganisms.
  2. **Non-communicable Diseases** - Diseases which cannot spread from one person to another such as high blood pressure, cancer, etc. These diseases are caused by some internal causes such as excessive weight, genetic defects, etc.

### Communicable diseases

The disease-causing microorganisms that transmit communicable diseases belong to different categories such as:

- **Viruses** - These are tiny organisms that grow, multiply, or reproduce only inside the host cells.

Diseases caused by viruses - Influenza, cold (Rhinovirus), dengue, AIDS, etc.

- **Bacteria** - These are unicellular organisms; larger than viruses

Diseases caused by bacteria - Whooping cough, typhoid, cholera, anthrax, etc.

- **Fungi** - These are plant-like organisms; heterotrophic

Diseases caused by Fungi - Athlete's foot, candidiasis, ringworms, etc.

- **Protozoa** - These are simple, primitive unicellular organisms which are often found in water.

Diseases caused by Protozoa - Amoebiasis, kala azar, malaria, African sleeping sickness, etc.

- **Multicellular animals like worms** - These are parasites that infect the intestines of human beings and other animals.

Diseases caused by worms- Diarrhoea, anaemia, liver rot, etc.

- **Means of spread of communicable diseases**

Based on the mode of transmission, communicable diseases are of following types

- **Air-borne diseases** - Transmitted when disease-causing microorganisms are expelled into the air by coughing, sneezing, talking, etc.

Eg. Common cold, chicken pox, small pox, pneumonia, influenza, tuberculosis, etc.

- **Water-borne diseases** - Spread when the excretions, from an infected person, containing causal microorganisms get mixed with drinking water and this contaminated water is consumed

Eg. Cholera, typhoid, hepatitis A, etc.

- **Food borne diseases** – Caused by consuming food infected by disease causing microbes.

Eg. Botulism, stomach infections, etc.

- **Contact** – spreads through coming in contact with the diseased person or using the articles used by him

Eg. swine flu, ringworm, conjunctivitis

- **Animals** – Animals which transfer disease-causing microorganisms from an infected person to others are called vectors

Eg. female mosquitoes can transfer the malaria-causing Plasmodium

**Non-Communicable diseases**

A non-communicable disease can be caused by nutrient deficiency, malfunctioning of body organs (degenerative diseases), and bad habits like drug abuse.

- **Nutrition deficiency** – These diseases are caused by deficiency of certain nutrients like carbohydrates, proteins, minerals, vitamins, etc. The person suffering from such diseases is called malnourished
- 1. **Carbohydrate and protein deficiency** – Leads to marasmus. In this the body becomes lean and thin, ribs become prominent and child suffers from mental retardation.
- 2. **Protein deficiency** – Leads to Kwashiorkor. In this, the belly protrudes out, eyes bulge and the legs become stick thin.
- 3. **Vitamin deficiency** – deficiency of different vitamins lead to different diseases.

| Deficiency of | Leads to        |
|---------------|-----------------|
| Vitamin A     | Night blindness |
| Vitamin B     | Beri-beri       |
| Vitamin C     | Scurvy          |
| Vitamin D     | Rickets         |
| Vitamin K     | haemorrhage     |

- 4. **Mineral deficiency** – deficiency of different minerals lead to different diseases.

| Deficiency of | Leads to            |
|---------------|---------------------|
| Iron          | Anaemia             |
| Calcium       | Rickets             |
| Sodium        | Muscle cramps       |
| Phosphorus    | Bad teeth and bones |
| iodine        | Goitre              |

- **Infectious agents**

- They are the disease-causing microorganisms which belong to different categories such as:
  - **Viruses** - These are tiny organisms that grow, multiply, or reproduce only inside the host cells. Some diseases caused by viruses - Influenza, cold (Rhinovirus), dengue, AIDS, SARS etc.
  - **Bacteria** - These are unicellular prokaryotes which are harmful as well as beneficial for humans. Some diseases caused by bacteria - Whooping cough, typhoid, cholera, anthrax, etc.
  - **Fungi** - These are eukaryotic heterotrophic organisms. Some diseases caused by Fungi - Athlete's foot, candidiasis, ringworms, etc.
  - **Protozoa** - These are simple, primitive unicellular organisms which are often found in water. Some diseases caused by Protozoans - Amoebiasis, kala azar.
  - **Multicellular animals like worms** - These are parasites that infect the intestine of human beings and other animals. Some diseases caused by worms - Diarrhoea, liver rot, etc.

- **Communicable diseases**

- An infectious disease is classified as communicable disease as it can be transferred from an infected person to a healthy person

- **Means of disease spread**

- They are the disease-causing microorganisms which belong to different categories such as:
  - **Air-borne diseases** - Transmitted when disease-causing microorganisms are expelled into the air by coughing, sneezing, talking, etc. **E.g.**, common cold, chicken pox, small pox, pneumonia, influenza, tuberculosis, etc.
  - **Water-borne diseases** - Spreads when the excretions (from an infected person) containing causal microorganisms get mixed with drinking water and this contaminated water is consumed. **E.g.**, cholera, typhoid, hepatitis A, etc.
  - **Physical contact** – Includes sexually-transmitted diseases. **E.g.**, syphilis, gonorrhoea, AIDS, etc.
  - **Blood to blood contact** – Such contact is established during blood transfusion or pregnancy (between the mother and her baby). **E.g.**, AIDS can spread through blood contact

- **Animals** –Animals that transfer disease-causing microorganisms from an infected person to others are called vectors. **E.g.**, female mosquitoes can transfer the malaria-causing Plasmodium
- **Effects of diseases**
  - **Local effects** - Includes swelling, pain, joint stiffness, etc., that occur only at the site of infection
  - **General effects** - Includes fever chills, headaches, fatigue, loss of appetite, etc., that occur all over the body
  - **Inflammation**- The process by which the body's immune system shows response to protect the body from infection

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All the nutrients required by our body in the right quantities constitute a balanced diet. It should also contain a good amount of roughage and water. Deficiency of a particular nutrient can lead to a deficiency disease.

- **Disorders** caused by deficiency of vitamins and minerals
  - Deficiency of Vitamin A - **Night blindness**
  - Deficiency of Vitamin B1 - **Beriberi**
  - Deficiency of Vitamin C – **Scurvy (bleeding gums)**
  - Deficiency of Vitamin D - **Rickets**
  - Deficiency of Iron - **Anaemia**
  - Deficiency of Iodine - **Goitre**
  - Deficiency of Calcium – **Weak bones and teeth**
- **Carbohydrates, fats and proteins**
  - Sources of **carbohydrates** - wheat, potato, maize, sweet potato, etc.
  - Sources of **proteins** - pulses, milk, fish, meat, etc.
  - Sources of **fats** - oil, ghee, milk, butter, etc.
  - Deficiency of proteins – kwashiorkor characterized by oedema, matchstick legs, bulging eyes, etc.
- **Deficiency of proteins and carbohydrates** – marasmus characterized by total disappearance of fat layer, thin and wrinkled skin, retarded physical and mental growth.

Disease-causing microorganisms are called **pathogens**.

### **Preventive measures for air-borne diseases**

- Stay away from the infected person
- Cover your mouth or nose while sneezing or coughing
- Get vaccinated at the right time

### **Preventive measures for water-borne diseases**

- Ensure proper disposal of sewage
- Ensure supply of safe and clean drinking water

- Maintain good sanitary habits
- Always drink boiled water
- Get vaccinated at the right time

### **Preventive measures for vector-borne diseases**

- Use mosquito repellent
- Do not allow water to stagnate in your surroundings
- Keep your surroundings neat and clean