Biology Class 03

27th May, 2023 at 9:00 AM

A BRIEF DISCUSSION OF THE PREVIOUS CLASS (9:17 AM)
ENDOCRINE GLANDS (9:22 AM)

- It is meant for internal communication and regulation of the human body
- Hormones are the secretion of endocrine glands that do not have ducts and secrete directly into the blood to be transported to distantly located target organs
- ***Hypothalamus***
- Releasing hormone: It stimulates the release of secretions from the pituitary glands
- Inhibiting hormone: It inhibits the release of secretions from the pituitary glands
- ***Pituitary glands***
- *Anterior pituitary gland*
- Thyroid Stimulating hormones (TSH)- It stimulates the thyroid gland to release its secretion
- Prolactin- It helps in the formation of milk
- Adrenocorticotropic hormone (ACTH)- It stimulates the secretion from the adrenaline glands
- Follicle Stimulating Hormone (FSH)- It helps in the formation of sperm and the development of eggs
- Growth hormone- It is for the growth and development of a person
- Luteinizing hormone (LH)- It stimulates the gonads for the production of sex hormones
- *Posterior pituitary gland*
- Antidiuretic hormone (ADH or Vasopressin)- It helps in the reabsorption of water from the kidneys. Its deficiency causes diabetes insipidus
- Oxytocin- It is released during childbirth
- ***Thyroid glands***
- Thyroid hormone or thyroxine- It is for the metabolism of carbohydrates, protein, and fats
- Its oversecretion leads to hyperthyroidism and under-secretion leads to hypothyroidism
- ***Parathyroid glands***
- Parathyroid hormones are for the metabolism of calcium (directly related) and phosphates (inversely related)
- ***Adrenal Glands***
- It is divided into two parts
- *Adrenal Medulla*
- Adrenaline and noradrenaline hormones are the emergency hormones of the body which are released during situations of fear, being frightened, anxiety or extreme excitement
- *Adrenal Cortex*
- Mineralocorticoids regulate the balance of water and electrolyte in the blood
- Glucocorticoids are for carbohydrate metabolism
- ***Pancreas***
- It is a mixed gland with both endocrine and exocrine functions
- Insulin decreases blood glucose levels and glucagon increases the blood glucose levels

HEALTH (10:13 AM)

- Health is the complete physical, mental, and social well-being and not merely the absence of disease
- ***Disease***
- *Congenital disease*
- Any abnormality in the structure or function of a person which is present right from the time of birth
- For example, Down's syndrome, congenital heart disease, etc.
- *Acquired disease*
- Any disease which is not present at the time of birth but develops at the later stage of the life of an organism
- *Infectious or communicable diseases*
- They occur because of disease-causing organisms called pathogens
- For example, polio, Covid-19, etc.
- *Non-communicable disease or Non-infectious disease*
- They are not caused by pathogens but by lifestyle or environment-related factors
- For example, diabetes, etc.
- *Modes of transmission of communicable diseases*
- Air - Tuberculosis
- Water - Amoebiasis, Cholera
- Food- Typhoid
- Soil- Hookworm
- Blood and body fluids- AIDS
- Direct contact- Chickenpox
- Fomite (disease from non-living things)- Common cold
- Zoonotic (from animal suffering from a disease) - Rabies
- Vector (carrier of disease)- Malaria, dengue, etc.
- Vectors are organisms that do not cause the disease but spread infection by taking pathogens from one organism to another
- Mechanical vectors carry the pathogens on the surface of the body and biological vectors carry the pathogens within their body

- **Note: NERVOUS SYSTEM (11:10 AM)**
- It is the system for the control and coordination of the body
- It acts in two parts
- 1. Central Nervous System- Brain and spinal cords
- 2. Peripheral Nervous Systems- Nerves
- ***Bacterial disease***
- *Tuberculosis*
- Pathgogen responsible- Mycobacterium Tuberculose
- Transmission- Air through sneezing, droplets, coughing, etc.
- If it impacts the lungs then it is called pulmonary tuberculosis and is the most common form
- When it impacts other organs like bone, intestine, and brain then it is called extra-pulmonary tuberculosis
- Symptoms for pulmonary tuberculosis include persistent cough for more than two weeks, afternoon, weight loss, blood-stained sputum, night sweats, etc.
- ***Antimicrobial resistance***
- It is the ability of a microorganism like bacteria, viruses, fungus, etc. to stop an antimicrobial agent like antibiotic, antiviral, or antifungal from working against it
- Standard treatment become ineffective, the infection persists and may spread to others
- It can occur naturally or by misuse of drug therapy

Homework:NCERT Class XI - Chapter 19; Class VIII - Chapter 2

Topics for the next class: Continuation of communicable diseases, and Immunity