

CHAPTER # 12

COORDINATION AND

CONTROL

Q1. Briefly describe coordination with examples.**Ans: Coordination:**

The tissues and organs in the bodies of multicellular organisms do not work independently of each other.

They work together performing their many tasks as the needs of the whole body.

This means that these activities are coordinated. Coordination also enables the organism to respond to happenings in the world around it.

Animals have both the nervous and chemical coordination systems in their bodies while plants and other organisms have only chemical coordination.

Coordination also takes place in unicellular organisms. The response to stimuli is brought about through chemicals.

Example 1:

When we are writing something our hands and fingers work in collaboration with our muscles, eyes, thoughts etc. and then very intricate movements result.

Example 2:

When a boy runs to catch a ball, he uses hundreds of muscles to move his arms, legs and back. His nervous system uses information from his sense organs and coordinates these muscles.

Due to this coordination, the muscles contract in the correct sequence, power and length of time. But that is not all.

Such activities involve many other kinds of coordination.

Example:

For example, breathing and heartbeat rates are increased blood pressure is adjusted, and extra heat is removed fast from the body.

Note:

Life activities are controlled and coordinated so the body works as one unit, in which its different organs and systems cooperate and work in harmony with each other.

Q2. Identify the two types of coordination in living organisms.**Ans: Types of Coordination:**

There are two types of coordination in organisms

- i. Nervous coordination brought about by nervous system and
- ii. Chemical coordination brought about by endocrine system

Q3. Explain the role of the components of coordinated action?**Ans: Coordinated Action:**

A coordinated action has five components

Stimulus - Receptor - Coordinator - Effector - Response

i. Stimuli:

We can define a stimulus as any change in environment (external and internal), which can provoke a response in organism.

Touch light etc. are factors that can bring about certain responses living organisms. These factors are called stimuli.

Examples:

Examples of stimuli are heat, cold, pressure, sound waves, presence of chemicals, microbial infections etc.

ii. Receptors:

The organs, tissues or cells which are specifically built to detect particular type of stimuli are called receptors.

Stimuli are detected by special organs, tissues or cells of body

Examples:

For example, sound waves are detected by ears, light is detected by eyes chemicals in air are detected by nose and so on.

iii. Coordinators:

These are the organs that receive information from receptors and send messages to particular organs for proper action.

In nervous coordination brain and spinal cord are coordinators They receive information and send messages through neurons in the form of nerve impulses. On the other hand, in chemical coordination various endocrine glands play the role of coordinators. They receive information in the form of various chemicals and send messages by secreting particular hormones blood.

iv. Effectors:

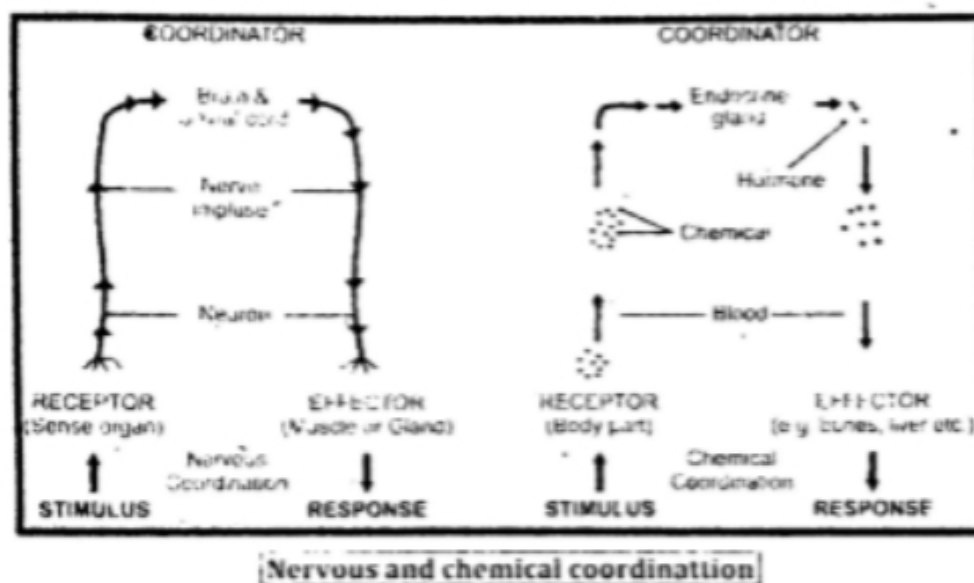
These are the parts of body which receive messages from coordinators and produce particular responses In nervous coordination, neurons carry messages from coordinators (brain and spinal cord) to muscles and glands which act as effectors in chemical coordination particular hormones carry messages from coordinators (endocrine glands) to particular target tissues, which act as effectors.

For some hormones nephrons act as effectors Similarly, bones and liver act as effectors for many hormones

v. Response:

On receiving the message from coordinators, the effector performs action. This action is called response.

For example, pulling our hand away from something very hot and the movement of the flower towards light are responses. Usually, nervous coordination produces mediate but short range responses while chemical coordination produces slow but long living responses.



Interesting Information

What happens when we touch a snail?

Ans: Snail just hide in its shell due to the response to stimuli (touch)

We might have seen the flowers of sunflower plant moving towards the sun. What could be the reason for all this?

Ans: Sunflower plant moving towards the Sun due to the response to stimuli (light)

Q4. Using the knowledge gained from the above topic, draw a table that can show the differences between the two types of coordination i.e. nervous coordination and chemical coordination.

Ans: Nervous coordination works through the nervous system of organisms such as the network of neurons.

Chemical coordination is hormonal control, and it works through the release of hormones into the blood to flow to target receptor cells.

Q5. How would you associate the role of human nervous system?

Ans: Human nervous System:

The nervous system in man and in other higher animals is composed of two major components i.e. central nervous system and peripheral nervous system

i. Central nervous system:

Central nervous system comprises of coordinators brain and spinal cord

ii. Peripheral nervous system:

Peripheral nervous system consists of nerves that arise from central nervous system and spread in different parts of body. All these components are made of neurons

Q6. Define neuron and describe the structure of a general neuron.

Ans: See Q# 3 from Exercise Understanding the Concept

Neuron or Nerve cell:

Nerve cell or neuron is the unit of the nervous system. The man nervous system consists of billions of neurons plus supporting (neuroglial) cells

Function of Neuron:

Neurons are specialized cells that are able to conduct nerve impulses from receptors to coordinators and from coordinators to effectors. In this way they communicate with each other and with other types of body cells

Structure of Neuron:

The nucleus and most of the cytoplasm of a neuron is located in its cell body. Different processes extend out from cell body these are called dendrites and axons

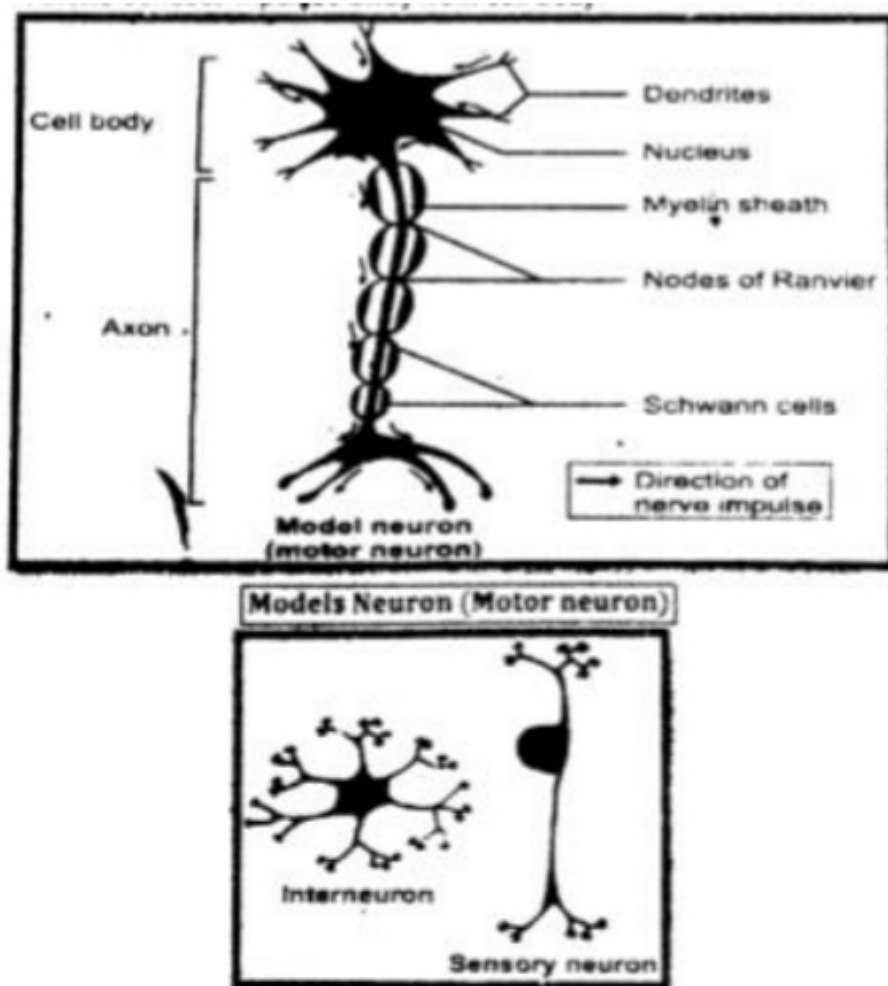
Dendrites:

Dendrites conduct impulses toward cell body

Axons:

Axons conduct impulses away from cell body

ClassNotes

**Schwann cells:**

Schwann cells are special neuroglial cells located at regular intervals along axons

Myelin sheath:

In some neurons, Schwann cells secrete a fatty layer called myelin sheath, over axons.

Nodes of Ranvier:

Between the areas of myelin on an axon, there are non-myelinated points, called the nodes of Ranvier.

Myelin sheath is an insulator so the membrane coated with this sheath does not conduct nerve impulse.

Saltatory (jumping) impulses:

A neuron, impulses jump over the areas of myelin going from node to node. Such impulses are called saltatory jumping') impulses. This increases the speed of nerve impulse.

Types of neuron:

On the basis of their functions, neurons are of three types:

i. Sensory neurons:

Sensory neurons conduct sensory information (nerve impulse) from receptors towards the CNS. Sensory neurons have one dendrite and one axon.

ii. Interneurons:

Interneurons form brain and spinal cord. They receive information, interpret them and stimulate motor neurons. They have many dendrites and axons.

iii. Motor neurons:

Motor neurons carry information from interneurons to muscle or glands (effectors). They have many dendrites but only one axon.

Q7. What is nerve impulse?

Ans: A nerve impulse is a wave of electrochemical changes that travels along the length of neurons.

Interesting Information

Unlike ordinary cells, mature neurons never divide. But a protein called nerve-growth-factor promotes the regeneration of broken nerve cells. The degenerating brain cells could be repaired, by using embryonic stem cells.

Q8. Define nerve and describe the different types of nerve?

Ans: Nerve:

A nerve means the union of several axons that are enveloped by a covering made of lipid

Types of nerve:

Based on the property of axons, the nerves are classified into three types

i. Sensory nerves:

Sensory nerves contain the axons of sensory neurons only.

ii. Motor nerves:

Motor nerves contain the axons of motor neurons only.

iii. Mixed nerves:

Mixed nerves contain the axons of both i.e. sensory and motor neurons

Q9. What is ganglion?

Ans: In certain parts of body, the cell bodies of many neurons form a group enveloped by a membrane. This is called ganglion.

Q10. Enlist the division of the nervous system?

Ans: Divisions of the Nervous System:

The nervous system consists of:

- i. The central nervous systems ii. Peripheral nervous systems

i. Central Nervous System:

The central nervous system consists of brain and spinal cord.

ii. Peripheral nervous systems:

The peripheral nervous system (PNS) is composed of nerves and ganglia

Q11.Explain the location and function of these parts of brain; cerebrum, cerebellum, pituitary gland, thalamus, hypothalamus, medulla oblongata.

OR

How would you associate the role of brain and spinal cord in central nervous system?

OR

Explain central nervous system in detail?

Ans: See Q #2 from Exercise (Understanding the Concept)

Q12. What is the Importance of Hippocampus?

Ans: "Hippocampus:

Hippocampus is a structure that is deep in the cerebrum. It functions for the formation of new memories People with a damaged hippocampus cannot remember things that occurred after the but can remember things that occurred before damage.

Q13. How rest of the brain connect to spinal cord?

Ans: The medulla oblongata pons, and midbrain connect the rest of brain to spinal cord. They are collectively referred to as brain stem.

Q14. What is spinal cord and how long it is?

Ans: Spinal cord is the continuation of medulla oblongata Spinal cord is roughly 40cm thumb long and about as wide as your for most of its length.

Q15. How would you describe the structure of peripheral nervous system?

Ans: Peripheral Nervous System:

The peripheral nervous system (PNS) is composed of nerves and ganglia Ganglia are the clusters of neuron cell bodies outside CNS. Nerves arise or lead to brain and spinal cord. So, they are named as cranial and spinal nerves

Humans have 12 pairs of cranial nerves and 31 pairs of spinal nerves Some cranial nerves are sensory; some are motor and some are mixed. On the other hand, all spinal nerves are mixed nerves.

Pathways:

The cranial and spinal nerves make two pathways i.e. sensory pathway (conducting impulses from receptors to CNS) and motor pathway (conducting impulses from CNS to effectors)

Systems of Pathway:

Motor pathway makes two systems

i. Somatic Nervous System:

It is responsible for the conscious and voluntary actions. It includes all of the motor neurons that conduct impulses from CNS to skeletal muscles

ii. Autonomic Nervous System:

It is responsible for the activities, which are not under conscious control. It consists of motor neurons that send impulses to cardiac muscles, smooth muscle, and glands.

Types of Autonomic Nervous System:

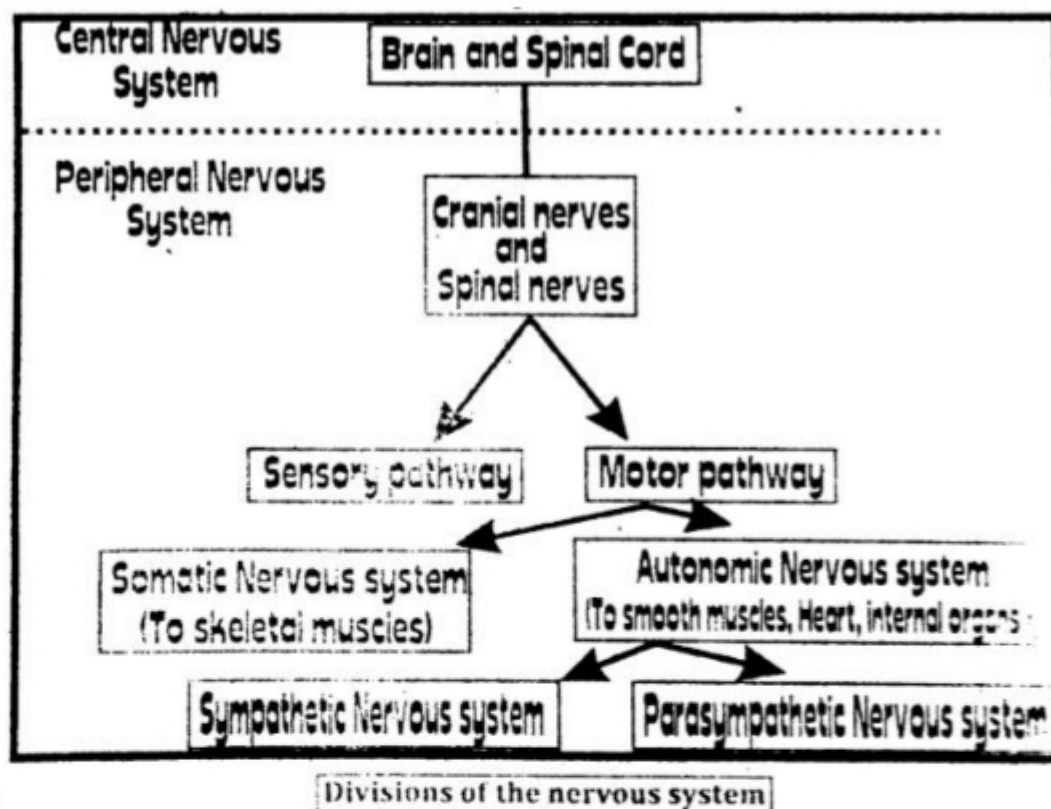
Autonomic nervous system comprises of sympathetic system and parasympathetic system.

Sympathetic nervous system:

Sympathetic nervous system prepares the body to deal with emergency situations. This is often called the "fight or flight" response. During an emergency situation, this system takes necessary actions. For example, it dilates, accelerates heartbeat, increases breathing rate, and inhibits digestion.

Parasympathetic Nervous System:

When stress ends, the parasympathetic nervous system takes action and normalizes all the functions. It causes pupils to contract, promotes digestion, and slows the rate of heartbeat and breathing rate.



Q16. Explain why you will need a reflex action?

OR

Explain the role of reflex action in a human body?

Reflex Action:

The involuntary and immediate response to a stimulus is called reflex action. Where central nervous system sends impulses to muscles and glands, two types of actions (responses) result.

- i. The higher centres of brain control the conscious action or voluntary actions
- ii. When impulses are not passed to the higher centres of brain, it results in responses which are not under conscious control. Such responses are

called involuntary actions. Sometimes, the involuntary response produced by the

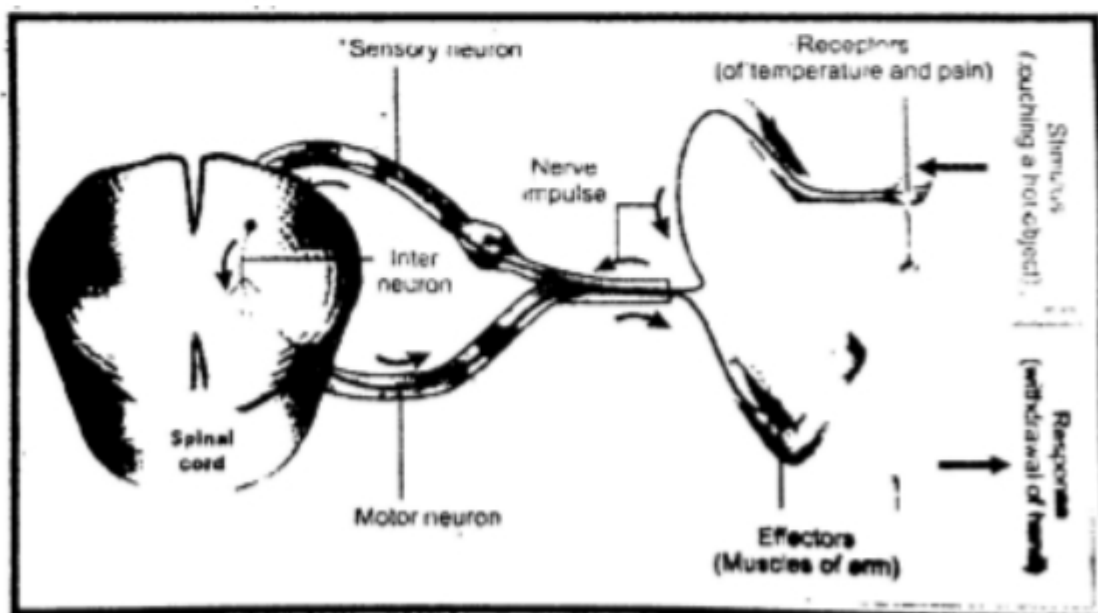
CNS is very quick. Such a response is called reflex action.

Reflex arc:

The pathway followed by the nerve impulses for producing a reflex action, is called reflex arc.

Example of reflex action:

The most common example of reflex action is the withdrawal of hand after touching a hot object. In this reflex action, spinal cord acts as coordinator, Heat stimulates temperature and pain receptors in skin. A nerve impulse is generated which is carried by sensory neurons to the interneurons of spinal cord. From interneurons, the impulse is passed to motor neurons, which carry it to the muscles of arm. As a result, the muscles contract to withdraw hand. During it other interneurons transmit nerve impulses up to brain so that the person becomes aware of pain and what happened.



Receptors in Humans:

We know that the organs or parts which are specifically built to detect particular type of stimuli are called sense organs or receptors. Main receptors in man are eyes, ears, nose, taste buds, receptors of touch, heat and cold etc.

Q17. Describe the structure of human eye?

Ans: See Q# 4 from Exercise (Understanding the Concept)

Eye:

Our eyes are located in small portions of skull known as the orbits or eye sockets. Eyelids wipe eyes and prevent dehydration. They spread tears on eyes, which contains substances for fighting bacterial infections. Eyelashes prevent fine particles from entering eye.

Structure of human eye:

The structure of eye can be divided into three main layers

i. Outer layer:

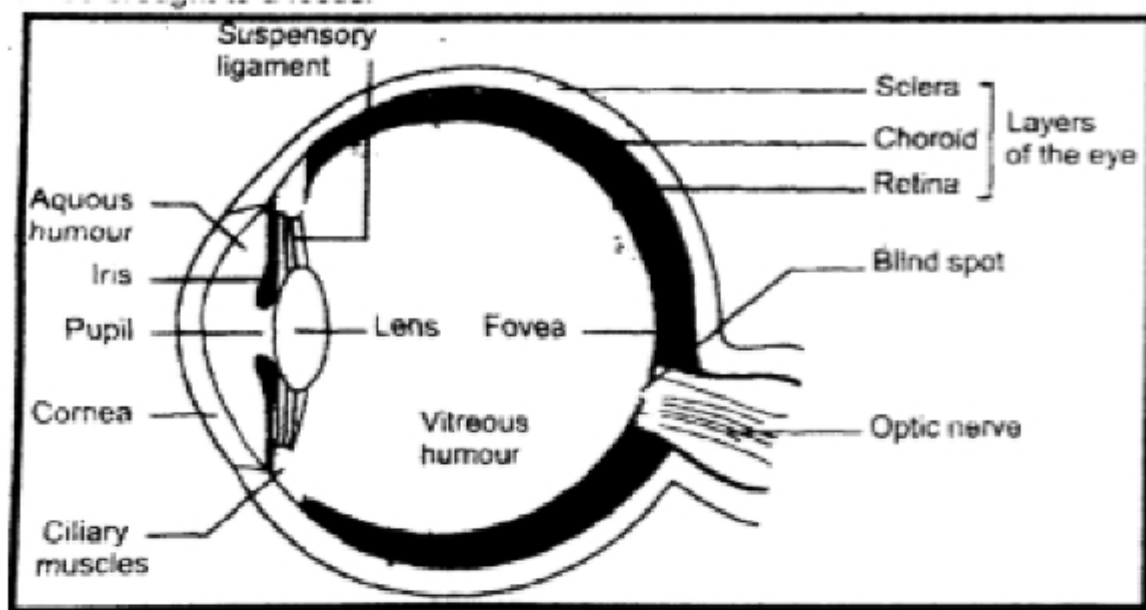
The outer layer of eyeball consists of sclera and cornea

Sclera:

Sclera gives eye most of its white colour. It consists of dense connective tissue and protects the inner components of eye and maintains its shape. In the front, sclera forms the transparent cornea.

Cornea:

Cornea admits light to the interior of eye and bends light rays so that they can be brought to a focus.



Structure of human eye

ii. Middle layer:

Choroid:

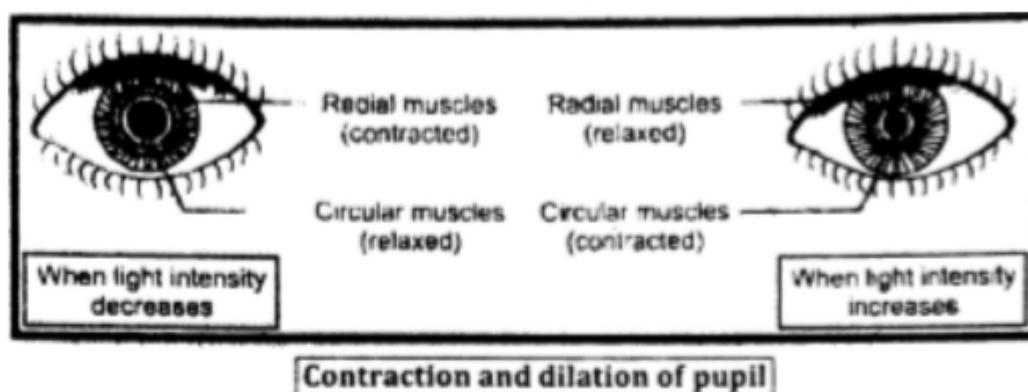
The middle layer is called choroid. It contains blood vessels and gives the inner eye a dark colour.

Iris:

The dark colour prevents disruptive reflections within eye. Behind cornea choroid bends to form a muscular ring, called iris.

Pupil:

There is round hole, called pupil, in the centre of iris. After striking the cornea light passes through the pupil. The size of pupil is adjusted by the muscles of iris. Pupil constricts in bright light when the circular muscles of iris contract. Similarly, pupil dilates in dim light when the radial muscles of iris contract.



Convex lens:

Behind iris, there is a convex lens, which focuses light on retina. Lens is attached to ciliary muscles of eye via a ring of suspensory ligament. To clearly see an object far away, ciliary muscles are relaxed and lens becomes less convex. When ciliary muscles contract lens becomes more convex and rounder.

iii. Inner layer: Retina:

The inner layer is sensory and is called as retina. It contains the photosensitive cells called rods and cones and associated neurons.

Rods:

Rods are sensitive to dim light while cones are sensitive to bright light and so distinguish different colours. Retina has two points i.e. fovea and optic disc.

Fovea:

Fovea is a dip in retina, directly opposite to lens and is densely packed with cone cells. It is largely responsible for colour vision and sharpness.

Optic disc:

Optic disc is a point on retina where the optic nerve enters retina. There are no rods and cones at this point, that is why it is also referred to as the blind spot.

Chambers:

The iris divides the cavity of eye into two chambers. The anterior chamber is in front of iris i.e. between cornea and iris, whereas the posterior chamber is between iris and retina.

Aqueous humour:

The anterior chamber contains a clear fluid known as aqueous humour

Vitreous humour:

The posterior chamber contains a jelly-like fluid known as vitreous humour. It helps maintain the shape of eye and suspends the delicate lens.

Sensation of vision:

Light from objects enters eye and is refracted when it passes through cornea, aqueous humour, lens and vitreous humour. Lens also focuses light on retina. As a result, the image falls on retina. Rods and cones generate nerve impulses in the optic nerve. These impulses are carried to the brain, which makes the sensation of vision.

Rhodopsin:

Rods contain a pigment called rhodopsin. When light falls on rhodopsin, it breaks down generating a nerve impulse. In the absence of light the breakdown products are again converted into rhodopsin.

Q18. Justify the difference between night blindness and colour blindness.**Ans: Night Blindness:**

Body synthesizes rhodopsin from vitamin A and that is why the deficiency of vitamin A causes poor night vision. This problem is called night blindness.

Cones also contain a pigment, known as iodopsin. There are three main types of cones and each type has a specific iodopsin. Each type of cones recognizes one of the three primary colours i.e., blue, green and red.

Colour Blindness:

If any type of cones is not working well, it becomes difficult to recognize that colour. Such person is also not able to distinguish different colours. This disease is called colour blindness. It is a genetic problem.

Interesting Information

Too much light being let in could damage the retina; too little light makes sight difficult.

Interesting Information

It doesn't matter how clever we are we will always pull our hand away from a flame without thinking about it.

Q19. How many rods and cones are present in human eye?

Ans: In a human eye there are about 125 lakhs rods and 7 lakhs cones.

Q20. Have you seen the eyes of cat and dog shining in the night?

Ans: The reason for this is the presence of tapetum behind the eye which is a layer capable of reflecting light

Q21. Why is colour vision essential for a pilot?

Ans: For a pilot, colour vision is essential so that he/she can recognize aircraft position lights, light-gun signals, airport beacon, approach-slope indicators, and chart symbols, especially at night. A pilot must have the ability to perceive these colours necessary for the safe performance of his/her duties.

Q22. Briefly describe disorders of the Eye.**Ans: Disorders of the Eye:**

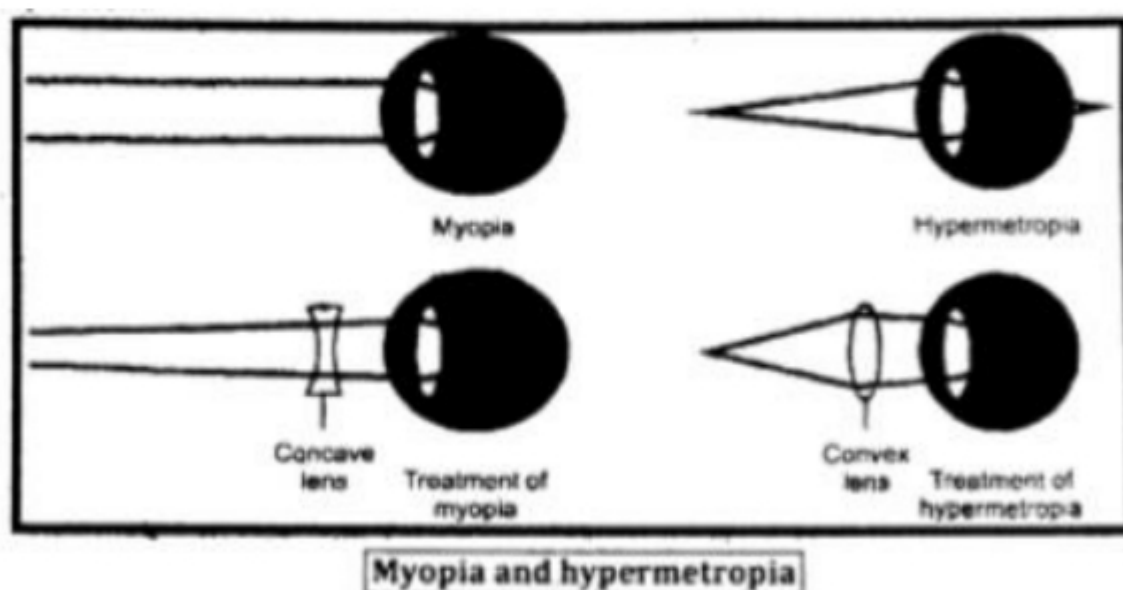
The working of eye is affected by the changes in the shape of eyeball

Myopia (Short sight):

The elongation of eyeball results in myopia. Such persons are not able to see distant objects clearly. The image of a distant object is formed in front of retina. This problem can be rectified by using concave lens.

Hypermetropia (Long sight):

It happens when eyeball shortens. Such persons are not able to see near objects clearly. The image is formed behind retina. Convex lens is used to rectify this problem.

**Q23. Highlight the Contributions of Muslim Scientists in the field of biology?****Ans: Contributions of Muslim Scientists:****Ali Ibn Isa:**

Ali ibn Isa (950 - 1012) was a famous Arab scientist. He wrote three books on ophthalmology (study of the diseases and surgery of eyes). He described 130 eyes diseases and prescribed 143 drugs to treat these diseases.

Ibn al-Heytham:

Ibn al-Haytham (965 -1039), an Arab scientist, made significant contributions to the principles of eye and vision. He is regarded as the father of optics (study of the behavior of light).

His "Book of Optics" correctly explained and proved the modern theory of vision. He discussed the topics of medicine and eye surgery in his book. He made several improvements to eye surgery and accurately described the process of sight, the structure of eye, image formation in eye and visual system. Ibn al-Haytham also described the principles of pinhole camera.

Ibn al-Haytham's Book of Optics has been ranked alongside a book of Isaac Newton. It is one of the most influential books ever written in the history of physics.

Q24. Why Owl is not able to see during day time?

Ans: The reason for this is the deficiency of cones which receive and sense the bright light. But the presence of more rods gives it greater power of vision during night. All animals that search for prey during night have this characteristic.

Q25. How would you describe the structure of the external, middle and inner ear of man?

Ans: See Q# 5 from Exercise (Understanding the Concept)

Q26. Which is the smallest bone of the human body?

Ans: Stapes is the smallest bone of the human body

Interesting Information

Hold the fingers of your palm close to each other and place it behind the pinna. Then concentrate on a particular sound continuously having the same frequency. Remove the palm and concentrate on the same sound again.

Q27. Briefly explain the process of hearing.

Ans: Process of hearing:

The pinna of the external ear focuses and directs sound waves into auditory canal. The sound waves strike eardrum and produce vibrations in it. From eardrum, the vibrations strike middle ear and produce further vibrations in malleus, incus and then stapes. From stapes, the vibrations strike the oval window and then reach the fluid filled middle duct of cochlea. The fluid of cochlea is moved and receptor cells are stimulated. The receptor cells generate a nerve impulse, which travels to brain and is interpreted as sound.

Q28. What do you mean by soundless world?

OR

Write a note on deafness.

Soundless world:

Deafness is a state in which hearing is not possible. The defect of ear drum, cochlea, middle ear ossicles, or auditory nerve may cause deafness. Infection in Eustachian tube may spread to middle ear too. Ear drum may be damaged by an infection in auditory canal. Excessive noise, strong blows on

cheek, pointed objects entering auditory canal and attack from insects may also affect hearing.

Q29. Explain the role of ear in the maintenance of balance.

Ans: See Q# 7 from Exercise (Understanding the Concept)

Interesting Information

A thunderstorm is characterized by the presence of lightning and a thunder. The lightning is caused by an electrical charge due to the movement of water droplets or crystals carried by the wind. The sudden increase in pressure and temperature from lightning produces rapid expansion of the air. This expansion of air produces a sound of thunder. The flash of lightning is followed after some seconds by a roar of thunder. This time difference is due to the fact that sound travels slower than light.

Q30. How would you describe the Endocrine System?

Ans: Endocrine System:

The system of glands that produce endocrine secretions that help to control bodily metabolic activity.

The endocrine system is the system of glands, each of which secretes different types of hormones directly into the bloodstream (some of which are transported along nerve tracts [citation needed]) to regulate the body. The endocrine system is in contrast to the exocrine system, which secretes its chemicals using ducts. The word endocrine derives from the Greek words "endo" meaning inside, within, and "crinis" for secrete.

Functions of endocrine system:

The activities such as growth, reproduction, maintenance of glucose concentration in blood, re-absorption of water in kidneys etc. need to be regulated. Endocrine system performs this job. This system uses chemicals to "communicate with its effectors. These chemicals are known as hormones. A hormone is a specific messenger molecule synthesized and secreted by an endocrine gland. These glands are ductless and release their secretions (hormones) directly into bloodstream. Blood carries the hormones to target organs or tissues, upon which they act.

Exocrine Glands:

Many glands in our body are exocrine. Such glands have ducts for releasing their secretions e.g. digestive glands, skin glands etc.

Q31. To which part of ear, the tympanum belongs?

Ans: External ear.

Q32. What is the function of hormones in the stepwise process of

Metamorphosis in many animals?

Ans: Function of Hormones:

The stepwise process of metamorphosis in many animals is controlled by hormones. Life activities such as cell division in invertebrates are also regulated by hormones. Hormones also control activities like migration in birds. Hormones have been identified even in unicellular organism.

Q33. Outline the major glands of the endocrine system (pituitary, thyroid, pancreas, adrenal, gonads), with name of their hormones and their functions.

Ans: See Q# 9 from Exercise (Understanding the Concept)

Q34. Outline the Parathyroid glands of the endocrine system with name of its hormones and their functions.

Ans: Parathyroid glands:

These are four glands situated on the posterior side of thyroid gland. They produce a hormone known as parathormone.

Function of Parathormone:

It increases the level of calcium ions in the blood. When there is increased production of parathormone, more than normal calcium, consequently the bones become brittle. If there is deficiency in the production of parathormone blood calcium level falls. It leads to tetany, which affects the functioning of muscle.

Q35. Have you notice that during summer the urine output is low?

Ans: Yes, during summer, the urine output is low. Due to increased sweating, the water level of blood is lowered. As a result, pituitary releases more ADH into blood

Interesting Information

Calcitonin and parathormone complement each other and regulate the level of calcium ions in blood.

Interesting Information

Tetany:

Tetany is marked by sharp flexion of the wrist and ankle joints, muscle twitching, cramps and convulsions. It is due to decreased blood calcium level which makes the nerves and muscles more excitable.

Interesting Information

Facing of any emergency situation:

When a person experiences fear, anger or anxiety, the rate and intensity of heartbeat increases, blood pressure increases, blood flow to the limbs increases blood flow to the alimentary canal and skin is reduced. Such changes prepare the body to face any emergency situation.

Interesting Information

The blood glucose concentration is maintained at the rate of 80 to 120 mg per 100 ml of blood.

Q36. Briefly describe Blood Glucose Concentration (BGC) Test.

Ans: Blood Glucose concentration (BGC) Test: The amount of glucose in blood is measured by Blood Glucose Concentration (BGC) Test. It is used to diagnose diabetes. Blood glucose may be measured on a fasting basis (collected after an 8 to 10 hour fast), randomly (anytime) and after a meal

The results of some BGC tests are given here

Blood Glucose After 8-10 hours fast	
BGC	Diagnosis
From 70 to 99 mg/100ml	Normal

From 100 to 125 mg/100ml	Pre-diabetic
126 mg/100ml and above	Diabetic
Diabetic Blood Glucose 2 hours after a 75 gram Glucose drink	
BGC	Diagnosis
Less than 140 mg/100ml	Normal
From 140 to 200 mg/100ml	Pre-diabetic
Over 200 mg/100ml	Diabetic

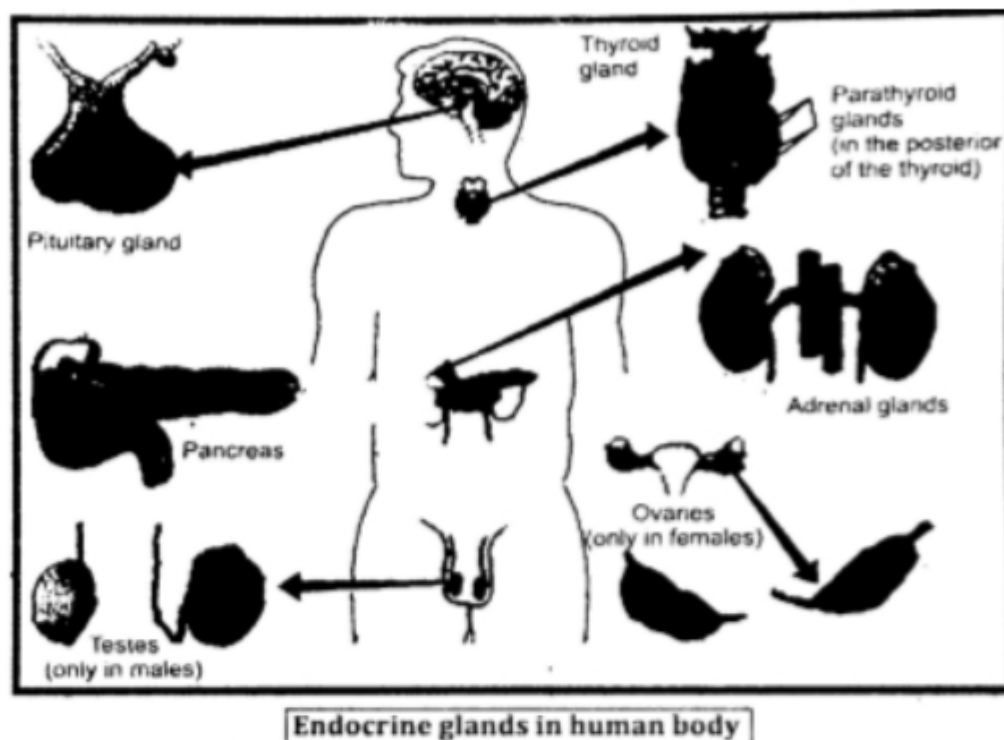
Q37. Briefly explain Feedback Mechanisms and its types.

Ans: Feedback Mechanisms:

Endocrine glands do not secrete their hormones at a constant rate. The rate varies with the needs of the body. Like many other functions in body, the secretion of hormones is also regulated by feedback mechanisms. Feedback mechanism means the regulation of a process by the output of the same process.

Types of Feedback Mechanisms:

Feedback mechanisms are of two types i.e. positive and negative feedbacks.



i. Negative feedback:

In negative feedback, the output of a process decreases or inhibits the process. This mechanism works to return a condition towards its normal value.

Example:

When the blood glucose concentration rises, pancreas secretes insulin it decreases the blood glucose concentration. Decline in the blood glucose concentration to a normal set-point inhibits the secretion of insulin.

Similarly, when blood glucose concentration drops below normal, pancreas secretes glucagon. It raises the blood glucose concentration. In this case, rise in the blood glucose concentration to a normal set-point inhibits the secretion of glucagon. In other words, the blood glucose concentration (output) controls the process i.e. the secretion of insulin and glucagon.

ii. Positive feedback:

In positive feedback, the changes resulting from a process increase the rate of process.

Example:

Suckling action of an infant stimulates the production of a hormone in mother. This hormone works for the production of milk. More suckling leads to more hormone, which in turn leads to more milk production.

Q38. Highlight the disorders of Nervous System.

OR

Differentiate between paralysis and epilepsy.

Ans: Disorders of Nervous System:

Disorders of nervous system can be categorized into two main types i.e.

- i. Vascular disorders (e.g. Paralysis)
- ii. Functional disorders (e.g. Epilepsy)
- i. **Vascular disorders:**

Vascular disorders are due to any disturbance in the blood supply to nervous system while functional disorders are due to disturbance in nerve impulse generation and transmission.

Paralysis:

Paralysis is the complete loss of function by one or more muscle groups.

Cause:

It is most often caused by damage to the central nervous system (brain or spinal cord). The damage may be due to stroke (rupture in a blood vessel of brain or spinal cord), blood clotting in these blood vessels, or poison produced by polio viruses.

Patient may have weak paralysis throughout his/her body or have paralysis in one side of body. There may also be paralysis in the lower extremities or in all four limbs.

ii. Functional disorders (e.g. Epilepsy):

Epilepsy:

Epilepsy is a nervous disorder in which there is abnormal and excessive discharge of nerve impulses in brain.

Cause:

It causes unprovoked seizures in patient. A seizure of epilepsy is a temporary abnormal state of brain marked by convulsions.

In younger people, epilepsy may be due to genetic or developmental causes. In people over age 40 years, brain tumours are more likely to cause epilepsy. Head trauma and central nervous system infections may cause epilepsy at any age.

Treatment:

There is no known cure of epilepsy but medicines can control seizures. Patients of epilepsy have to take medicines daily for the treatment as well as prevention of seizures. These are termed "anticonvulsant" or "antiepileptic" drugs.

Interesting Information

Seizure attack:

During a seizure attack, objects should never be placed in a patient's mouth as it can result in serious injury. It is possible that the patient will bite his/her own tongue.

The knowledge of the composition and functioning of nervous system has helped man in the diagnosis and treatment of nervous disorders including

paralysis and epilepsy Man has discovered the areas of brain that receive information from different sense organs and the areas that send messages to different effectors Such knowledge helps a lot in identifying the malfunctioning areas of brain.

ClassNotes

