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NERVOUS SYSTEM

TOPICS :-

- ACTION POTENTIAL
- Sensory Receptors
- EMOTIONS

association association areas in cortex yaani cortex mein rehne vale association kshetra jo ek dosre se association tract ke dvaara connected(sampark mein) hain.

visual association area , facial recognition area, auditory association area, wernicke's (posterior) language area,

somatosensory association area, orbitofrontal cortex,common integrative area, prefrontal cortex(frontal association area), premotor area, frontal eyefield area.

associative cortex is associated with more complex integration function such as emotion, reasoning, memory, will, judgement, personality trait.

learning ek ability hain jismein naye soochna aur skills ko experience aur instruction ke dvaara accquire kiya jaata hain.memory ek process hain jismein learning ke dvaara laaye gaye soochna ko store karna aur retrieve kiya jaata hain.

memory ka padaav samay ke saath badhta hain ya banta hain.immediate memory jismein aadmi sirf thode ' seconds ke liye yaad rakh sakta hain jaise where we are,what we are doing.short term memory thode seconds se thode minutes ke liye rehta hain aur long term memory thode din se lekar thode saal tak rehta hain.

functions of nervous system

- thinking(sochna),
- thought(khayaal),
- emotion(bhaavana),
- fear(darr),
- love(pyaar),
- confidence(aatmavishwaas),
- anger(krodh,gussa),
- affection(sneha),
- annoyance(chedhaana)
- bore(uba dena) or boredom(udaasi)
- depression(udaas)
- sad(udaas)
- lust(havas)
- pity(daya)
- hate(nafrat)
- hatred(ghrenaa)
- humiliation(niraadar karna)

- autonomic+nervous+system
- sympathetic+nervous+system
- para+sympathetic+nervous+system
- central+nervous+system

- peripheral+nervous+system
- somatic+nervous+system
- enteric+nervous+system
- sensory+system
- motor+system

DORSAL STRIATUM AND VENTRAL STRIATUM DORSAL PALLIDUM AND VENTRAL PALLIDUM

DORSAL STRIATUM INCLUDES CAUDATE NUCLEUS AND PUTAMEN

VENTRAL STRIATUM INCLUDES – NUCLEUS ACCUMBENS AND OLFACTORY TUBERCLE

The largest component, the striatum (dorsal and ventral), receives input from many brain areas(FROM OTHER AREAS OF BRAINLAND) beyond the basal ganglia, but only sends output to other components of the basal ganglia(SENDS ONLY TO OTHER OFFICERS OF BASALGANGLIA GLOBALCENTRE) . The pallidum receives input from the striatum, and sends inhibitory output to a number of motor-related areas. The substantia nigra is the source of the striatal input of the neurotransmitter dopamine, which plays an important role in basal ganglia function. The subthalamic nucleus receives input mainly from the striatum and cerebral cortex, and projects to the globus pallidus.

Control of Body Movement and posture Language (भाशा) Learning Memory (स्मृती) Sensation Sleep (निद्रा)

Somnia .... 1.insomnia 2.narcolepsy 3.somnambulism 4.

THE important regulator of sleep is the central pacemaker or the biological clock situated in the suprachiasmatic nuclei of hypothalamus.

SLEEP IS THE NORMAL CYCLE WHICH OCCURS AFTER DAY'S WORK. BIOLOGICAL CLOCK = DAY AND NIGHT CYCLE DAY CYCLE OR LIGHT = AWAKE STATE NIGHT CYCLE OR DARKNESS = SLEEP STATE

SECRETION OF MELATONIN IS AN IMPORTANT REGULATOR OF CIRCADIAN RHYTHM

REM SLEEP AND NREM SLEEP – rapid(R) eye(E) movements(M) – non rapid eye movements —

Circadian clocks are the central mechanisms that drive circadian rhythms. They consist of three major components:

a central biochemical oscillator with a period of about 24 hours that keeps time; a series of input pathways to this central oscillator to allow entrainment of the clock; a series of output pathways tied to distinct phases of the oscillator that regulate overt rhythms in biochemistry, physiology, and behavior throughout an organism.

The clock is reset as an organism senses environmental time cues of which the primary one is light.

STORY OR ANALOGICAL COMPARISION :

nervous system do tarah ke hain nervous+system(central+peripheral) . central-beech mein rehne vala ya kendriya,peripheral yaani bahar.central nervous system naam isi liye diya gaya hain kyunki yen sharir se aane vali soochna(jo information prapt huyi hain ussi) ko ekikaran(integrate) karke coordinate karta hain aur sharir ke activity yaani gatividhi ko influence karta hain. autonomic nervous system is an INDEPENDENT WORKING SYSTEM which is outside the central nervous system or is a

type of peripheral nervous system which has its CONTROL ROOM = hypothalamus in the brain.

Autonomic nervous system has two branches(companies) which are Sympathetic nervous system and parasympathetic nervous system. sympathetic nervous system is often considered the fight or flight system parasympathetic nervous system is often considered the rest and digest or feed and breed system In many cases, both of these systems have opposite actions where one system activates a physiological response and the other inhibits it.

THE LIST OF DUTIES OR WORK THESE OFFICE PERSONNEL PERFORM ARE control of heart rate(control of traffic of blood by cardiac cycle - cardiac regulation control of respiratory rate(Control of traffic of air by breathing cycle) - control of respiration and coughing and sneezing control of swallowing(eating) and vomiting - control of digestion and absorption (control of traffic of food by peristalsis cycle) – control of renal excretion (traffic of waste fluid and substances by glomerular filtration rate)

nervous system ko hum communication system bhi keh sakte hain kyunki inka kaam idhar ki soochna udhar aur udhar ki soochna idhar karna. Nerves that transmit signals from the brain are called motor or efferent nerves, while those nerves that transmit information from the body to the CNS are called sensory or afferent.

COMMUNICATION SYSTEM ANALOGY TO NERVOUS SYSTEM.the communication system can also be called as the government of ANATOMY LAND WE HAVE DISCUSSED BEFORE. THE MOVEMENT OF PULLEY TRANSPORTING MESSENGERS = nerve impulse message = information transmission (THE MESSENGER TAKES THE MESSAGE AND GOES TO THE TARGET THROUGH PULLEYS) incoming call = sensory nerve or afferent nerve = caller or sender (THE INCOMING MESSENGER FROM CHECKPOINT/MONITRS) outgoing call = motor nerve or efferent nerve = receiver (THE OUTGOING MESSENGER FROM CENTRAL OFFICE) Channel of communication = PULLEY wires (Local call,national call) associative cortex = control room where MESSAGES are associated with one another

inorganic compounds have their own language of communication through code language which is decoded and then given in simple language (through telephone wires)

Organic molecules have their own language of communication through different types of organic molecules An information source, which produces a message. A transmitter, which encodes the message into signals (MESSENGER - A channel, to which signals are adapted for transmission (THE PULLEY AND POLES) A noise source, which distorts the signal while it propagates through the channel A receiver, which 'decodes' (reconstructs) the message from the signal. A destination, where the message arrives.(THE MESSENGER ARRIVES AND GIVES THE MESSAGE) here control room = central nervous system which includes cerebrum,cerebellum,basal ganglia,limbic system and others THE CONTROL ROOM IS again divided in to many rooms which have a specific function and they integrate and evaluate every information which comes to the control room through INCOMING MESSENGERS and OUTGOING MESSENGERS SEND THEM to receivers. here there are two types TRANSFER STATION = it is a route through which every MESSENGER WITH information has to pass , RELAY STATION = where the informer/messenger(khabri) can wait for sometime, MEMORY STATION = Where information is stored for quick retrieval.

messages are of two types stimulation — messaging the worker to work more or work faster.In a way they try to increase the WORK EFFECT OR FUNCTION. ihibition — messaging the worker to work less or work slowly or stop working.IN a way they try to decrease the work effect or function

TRANSMISSION OF INFORMATION

analogy of sensory system the first watchers = receptors.watchers are of many types every worker working in the city can go to inform control centre. every cell in the human body has receptors. incoming informer/messenger = sensory nerve.sensory nerve bundles together form ascending tracts. control room for receiving the incoming messengers and message = somatosensory cortex sensory system mein kya rehta hain.iske unit ko hum sensory unit kehte hain aur receptors ke rehne vale field ko receptive field. sensation aur perception iske do mulya functions hain.sensory system mein information ya soochna receptors ke dvaara conduct hokar ascending tracts ke dvaara jaati hain aur wahan se somatosensory cortex mein jaakar uska integration hota hain.somatosensory cortex upar brain mein rehta hain.ascending tracts kai tarah ke hain.yeh tract white column mein rehte hain yaani dorsal white column,ventral white column,lateral white column.lateral mein spinocerebellar tract aur spinothalamic tract rehte hain. dorsal white column mein fasciculus gracilis aur fasciculus cuneatus rehte hain.

analogy here is receiver = end organ ,muscles,glands (these can also be called as end controllers or the professional workers who can understand the messages sent by control centres). outgoing messenger = motor nerve which bundled together to form descending tracts control room for giving the messages to messengers which are going out = motor cortex.this control room is divided in to areas in which each area has separate function. motor system mein bhi motor unit rehta hain jo maans(muscles) mein rehta hain.ismein nerves rehte hain. ismein information ko conduction pehle motor areas se aakar descending tracts mein jaata hain aur unke dvaara muscles ya glands ka koi dosre organs mein jaata hain.descending tracts do tarah ke hain pyramidal tract aur extrapyramidal tract. motor areas mein area 4 jise hum motor cortex ya motor area, area 6 jise hum premotor cortex ya premotor area , area 8 jise hum frontal eye field kehte hain. ismein do tarah ke neurons rehte hain upper motor neurons(upar ke neurons) aur lower motor neuron(neeche ke motor neurons). upar ke neurons ke dvaara neeche ke neurons mein conduction hota hain.

reflex ek aisa action hain jismein central nervous system ka koi role nahi rehta lekin yeh bahut evolved reflex hain.ismein do trah ke hain monosynaptic aur polysynaptic reflex. monosynaptic reflex mein hain stretch reflex.stretch yaani hamare sharir ka jo bhaag stretch hota hain koi stimulus jaise impact dalne par usse hum stretch reflex kehte hain. agar knee stretch hota hain to usse hum knee jerk kehte hain aur agar biceps muscle stretch hota hain to usse hum biceps jerk kehte hain aur agar triceps muscle stretch hota hain to usse hum triceps jerk kehte hain. ismein maans ke andar jaane vale nerves ya uss kshetra ko hum muscle spindle kehte hain. polysynaptic reflexes mein hain gross extensor relfex, gross flexor reflex aur withdrawl reflex.