

- Nervous system

- One of the two main communication systems in the body
- _____-all the activities of the body carrying messages from one cell to the next
- Enables the body to _____and _____to changes that occur inside and outside the body
- Basic structural unit is the _____or nerve cell
- The Nervous System

Each neuron consists of:

- **The cell body.**
- _____.
- **The _____.**
- Neurons
- Cell body consists of _____
- Dendrites consist of nerve fibers that carry impulses _____the cell body
- Axon is a single nerve fiber that carries impulses _____from the cell body
 - Myelin _____covers the axon (fat covering) that _____and maintains the axon
 - Nodes of _____are areas where no myelin is present
- The axon of one neuron lies next to the dendrites of another neuron
- The spaces between them are called _____
- Impulses coming from one axon “jump” the synapse to get to the dendrite of another neuron which carry it in the right direction
- Special chemicals, _____, found at the end of each neuron allow impulses to pass from one neuron to another so impulses can follow many different routes
- Nerve fibers
- Nerves are a combination of many nerve fibers found in the brain and spinal cord
- 3 types:

- _____ – sensory nerves
 - Nerves carry messages from body to the brain and spinal cord
- _____ – motor nerves
 - carries messages from the brain and spinal cord to the body
- _____ - interneurons
 - Carries impulses from the sensory neuron to the motor neuron

- 3 Divisions

_____nervous system

- Brain
- Spinal cord

_____nervous system

- Nerves
- Autonomic nervous system
 - Controls involuntary body functions

_____nervous system

- Includes _____nerves and _____(group of cell bodies outside the CNS that carry impulses to _____muscles and glands)

- Central nervous system
- BRAIN – mass of nerve tissue protected by membranes and skull

- _____
 - Largest and highest section
 - Has convolutions (folds) that separates the lobes
 - 4 lobes:
 - _____
 - _____

- _____
- _____
- Frontal lobe
- Links all components of _____
- _____ control
- Injury here may cause loss of function on one side of the body
- _____ may become halted or disorganized
- _____ changes can occur
- Social rules are disregarded
- Sustained attention and “insight” are affected
- Temporal lobe
- Perceives and recognizes _____ material
- Most commonly injured
- Causes misunderstandings in what is said
- _____ changes such as unexplained panic or tearfulness can occur
- Left temporal lobe involved in production of _____, _____ and _____ memory
- Right temporal lobe involves _____ ability, _____ language, _____ memory and _____ of the environment
- Parietal lobe
- Construction of language
- Recall of _____ term memories may be mixed up in time and sequencing
- Easily _____ or _____ about left/right
- Difficulty recognizing and naming what they see
- May affect ability to _____, _____ or perform _____
- Conscious _____ and _____ movement is affected

- Injury to front part of the lobe may cause loss of body sensation
- Occipital lobe
- Injury usually results in _____ to part or all of the visual field
- People may experience “blind spots” or “holes”
- May _____ pictures they see
- Recognition of _____ may be distorted

- _____

- Below cerebrum

- Responsible for

- _____

coordination,

- balance and posture,

- muscle _____

- _____

- Section between the _____ and _____

- Contains 2 structures

- _____ – acts as a relay center and directs sensory impulses to the cerebrum

- _____ – regulates and control the _____ nervous system, temperature, appetite, water balance, sleep, etc. Also involved in _____ such as fear, anger, pleasure, pain and affection

- _____

- _____ the cerebrum and top of the brain stem

- Responsible for conducting impulses between brain parts and certain _____ and _____ reflexes

- _____

- _____ the midbrain and in the brain _____
- Responsible for conducting messages to other parts of the brain, _____, _____, saliva production and assists with breathing
- _____
 - _____ part of the brain stem
 - Connects with the spinal cord and is responsible for _____, heartbeat, swallowing, coughing and _____
 - Spinal cord
 - Continues down from the _____
 - Ends at the first or second _____ vertebrae
 - Surrounded and protected by vertebrae
 - Responsible for many reflex actions and carrying _____ and _____ nerves
- _____
 - 3 membranes that _____ and _____ the brain and spinal cord
 - _____ mater – outer layer
 - _____ membrane – middle, delicate layer
 - _____ mater – attached to the brain and contains blood vessels that nourish the nerve tissue
 - The brain has _____ ventricles (_____ spaces that connect with each other and the space under the arachnoid membrane)
 - Filled with fluid called _____ fluid
 - Circulates _____
 - Serves as shock absorber to protect brain and spinal cord
 - Carries _____ to parts of the CNS and helps remove _____ products
 - Peripheral Nervous System
 - Consists of the _____ and _____ nervous systems

- Somatic nervous system
 - _____pairs of _____nerves
 - _____pairs of _____nerves
- Spinal nerves carry messages to and from the spinal cord and are mixed nerves (both afferent and efferent)
- Autonomic Nervous System
- Branch of peripheral nervous system
- Maintains _____ in the _____ functions of the body and allows the body to react in times of _____
- 2 divisions:
 - _____
 - _____
 - Work together to maintain homeostasis
- In times of emergency the _____nervous system prepares the body to act
 - Increased _____
 - Increased _____
 - Increased _____
 - _____digestion
- After the emergency, the _____nervous system counteracts actions of the sympathetic nervous system
 - Decreased _____
 - Decreased _____, etc.
- Diseases/disorders
- **Traumatic disorders – caused by injury:**
 - **Concussion.**
 - **Brain contusion.**
- **Congenital disorders – present at birth:**

- Spina bifida.
- Hydrocephalus.
- Cerebral palsy.
- Cerebrovascular accident (CVA).
- Encephalitis.
- Epilepsy.
- Meningitis.
- Multiple sclerosis (MS)
- Neuralgia.
- Paralysis.
- Parkinson's disease.
- Dementia.
- Alzheimer's disease.

● Spina Bifida

- Opening in the _____ column
- At delivery, spinal cord and nerves are _____ causing nerve damage
- Results in _____

● Cerebral Palsy

- Caused by brain damage at birth
- Lack of _____, birth _____, _____, etc.
- Symptoms:
 - Tense muscles leading to contractures
 - _____
 - Mental _____
- Treatment:

- Therapy, anticonvulsants, braces, surgery
- Cerebrovascular accident (CVA)
- a.k.a. _____
- Blood flow to the brain is impaired resulting in brain tissue _____
- Causes
 - Cerebral hemorrhage
 - _____
 - Weak blood vessels
 - _____
- Treatment depends on cause

- Encephalitis

- _____ of the brain resulting in _____, visual disturbances, vomiting, stiff neck and back, _____
- Caused
 - _____
 - Chemical
 - _____
- Treatment is supportive including medications and monitoring

- Epilepsy

- _____ syndrome
- Disorder associated with abnormal electrical _____ in the neurons of the brain
- Causes
 - _____
 - Toxins
 - _____

(spontaneous)

- Treated with medications

- Hydrocephalus

- Excessive accumulation of _____ fluid in the ventricles
- Symptoms include abnormally _____ head, prominent forehead, irritability, retardation
- Treated with
surgical _____
between _____

- Meningitis

- Inflammation of the _____ of the brain and/or spinal cord
- Caused by _____ or virus
- High fever, headaches, back and neck pain, n/v, delirium, convulsions and death
- Treatment includes medications and anticonvulsants

- Multiple sclerosis

- Chronic, _____

disabling condition resulting from _____ of the myelin sheath

- Occurs between 20 and 40 y.o.
- Cause is _____
- Progresses at different rates depending on the person
- No cure

- Neuralgia

- _____ pain
- Caused by inflammation, pressure, _____ and other disease
- Treatment directed at _____ the cause of the pain

- Paralysis

- Usually results from brain or spinal cord injury
 - _____
 - Paralysis on one side
 - _____
 - Paralysis of the arms, legs, and body below the spinal cord injury
- No cure, treatment is supportive
 - Parkinson's disease
- Chronic, progressive _____ of _____ cells usually in people over 50 y.o.
- Tremors, stiffness, muscular rigidity, forward leaning position, shuffling gait, mood swings, etc.
- Treatment is supportive and symptomatic
 - Shingles
- _____ zoster
- Inflammation of nerve cells caused by _____ virus
- Same virus that causes chicken pox
- Occurs in _____ area on one side of the body and follow path of affected nerves
- Itching, fever, increased skin sensitivity
- Treatment is to relieve pain and itching until inflammation subsides
 - Dementia
- General term defining a loss in at least _____ areas of complex behavior such as language, memory, visual/spatial abilities or judgment
- Does not mean that everyone that is forgetful has dementia
 - Alzheimer's disease
- Progressive disease where initial symptom is usually a problem with remembering _____ or _____ information
- Nerve endings in the cortex of the brain degenerate and block signals

- Cause is unknown and has 3 stages:
 - 1st stage lasts _____ years and involves short-term memory loss, anxiety and poor judgment
 - 2nd stage lasts _____ years and increases memory loss, difficulty recognizing people, motor problems, loss of social skills
 - 3rd stage lasts _____ years and includes inability to recognize self, weight loss, seizures, mood swings, and aphasia (loss of speech).