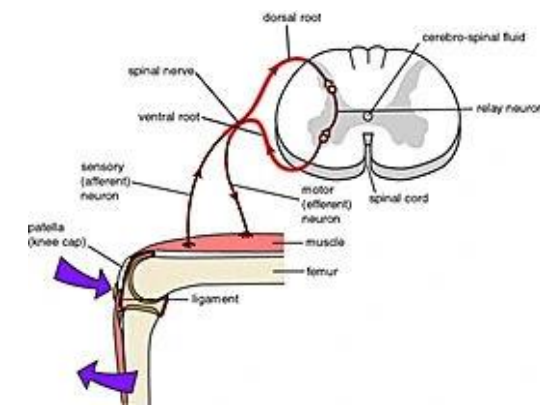
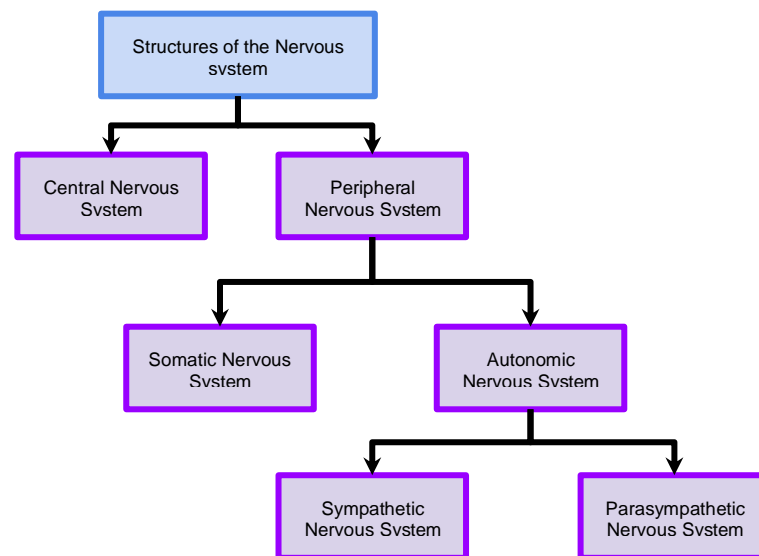


Neurotransmitter



<p>Central Nervous System - Comprises of the brain and Spinal Cord and processes information and activates appropriate responses</p>	<p>Peripheral Nervous System - The entire network of nerves outside the CNS; includes muscles and organs; split into 2 systems: Somatic and Automatic</p>	<p>Somatic NS - Subdivision of the PNS; Carries sensory information to the CNS and Motor information from the CNS; Motor function is demonstrated whenever voluntary actions are performed</p>				<p>Conscious individual's internal and external awareness</p>	<p>Unconscious involuntary automatic response</p>	<p>Conscious response is a reaction to a sensory stimulus with awareness</p>
<p>Brain - Intricate network of cells; continuously receives and processes information through neural pathways and directs the actions within the body.</p>	<p>Divisions of the NS</p>	<p>Autonomic NS - Subdivision of the PNS; connects to internal organs and glands providing feedback to the brain about their activities. Heart beating and breathing are automatic process involved</p>	<p>Divisions of the NS</p>	<p>Nervous System</p>	<p>Conscious and Unconscious Responses</p>	<p>Unconscious response is a reaction to a sensory stimulus that does not involve awareness</p>	<p>Conscious and Unconscious Responses</p>	<p>Example (Conscious):</p> <ul style="list-style-type: none"> - episodic memory recall, which involves recalling something that happened
<p>Spinal Cord - A long thin bundle of nerves; Receives Sensory information from PNS; Receives Motor information from the Brain and sends it to the relevant parts</p>	<p>Parasympathetic NS - subdivision of the ANS; Helps maintain the internal body environment; restores body to a calm state after stressor is dealt with.</p>	<p>Sympathetic NS - Subdivision of the ANS that activates internal muscles, organs and glands to prepare for stressful or threatening situations; relates to Stress via Fight - Flight - Freeze reflex</p>	<p>Role of the Neuron</p>	<p>Role of Neurotransmitters</p>	<p>Parkinson's Disease</p>	<p>Example (Unconscious):</p> <ul style="list-style-type: none"> - spinal reflex - Pumping blood from your heart. - Digesting food - Heart beating 	<p>Spinal Reflex- An unconscious, involuntary, and automatically occurring responses to certain stimuli initiated within the spinal cord with no involvement of the brain.</p>	
<p>Sensory Neurons (Afferent) Neurons that receive info from our sensory organs and travel towards the CNS. Motor Neurons (Efferent) Neurons that send info from our CNS to our limbs and organs.</p>	<p>Neurons A neuron is an individual nerve cell that is specialised to receive, process and transmit information.</p>	<p>Dendrites Detect and receive information from other neurons.</p>	<p>Neurotransmitters= a chemical substance produced by a neuron that carries a chemical message</p>	<p>Released from the axon terminals and through the synapse</p>	<p>Lock & Key Process: Neurotransmitters have a chemically distinctive shape, which needs to match the receptor site in order to bind and have an effect.</p>	<p>Parkinson's disease a chronic neurodegenerative disease affecting motor and non motor functions, believed to be due to the loss of dopamine producing neurons in the brain.</p>	<p>Substantia Nigra a structure located in the Mid-brain which contains Dopamine producing neurons.</p>	<p>Dopamine the neurotransmitter in the brain that plays a role in coordinating movement, a reduced level contributes to Parkinson's Disease</p>
<p>Axon Transmits information from the cell body to the axon terminals.</p>	<p>Role of the Neuron</p>		<p>Role of Neurotransmitters</p>	<p>Two Effects:</p> <ol style="list-style-type: none"> 1. Excitatory (more likely to fire) 2. Inhibitory (less likely to fire) 	<p>The role of Dopamine neurons in the Substantia Nigra produce dopamine, so when this is damaged the amount of dopamine is reduced, which would normally lead to smooth and coordinated muscle function.</p>	<p>Parkinson's Disease</p>	<p>eg- motor- -bradykinesia -tremor -muscle rigidity eg- non motor- -affected speech fluency -loss of sense of smell -cognitive function and slowness of thinking.</p>	
<p>Interneurons Neurons that allow communication between motor and sensory neurons. They are only found in the CNS (spinal cord and brain).</p>	<p>Axon Terminals Small branches at the end of an axon that release neurotransmitters into the synaptic gap.</p>	<p>Myelin A fatty substance that surrounds and insulates the axon. The myelin sheath (the coating) enhances and speeds up neural transmission within neurons.</p>	<p>Glutamate- excitatory neurotransmitter (involved in perception, learning, memory, thinking, movement)</p>	<p>GABA- inhibitory neurotransmitter (involved in maintenance of neurotransmission)</p>	<p>Neurotransmitters that do not bind to a postsynaptic neuron, get reabsorbed by the presynaptic neuron (reuptake)</p>	<p>Symptoms of Parkinson's develop slowly and normally progress over a long period of time, symptoms vary from person to person.</p>	<p>Motor symptoms Many motor symptoms start on one side of the body and are more intense on one side, even though the disease affects the whole body.</p>	<p>Non motor symptoms can affect any body system, and cause disability and a loss of independence.</p>