

- ← Somatic motor system
 - Spinal cord → ventral root → spinal nerve → ventral ramus or dorsal ramus → skeletal muscle
- ← Autonomic Nervous System
 - Visceral motor system
 - Regulates body temperature
 - Coordinates many system functions
 - Cardiovascular
 - Respiratory
 - Digestive
 - Excretory
 - Reproductive
 - Innervates
 - Smooth muscle
 - Cardiac muscle
 - Glands
 - 2 sub systems
 - sympathetic system- thoracolumbar system
 - 2 neuron systems
 - preganglionic neuronal- cell body and fiber/axon
 - postganglionic neuronal-
 - parasympathetic system- craniosacral system
 - 2 neuron systems
 - preganglionic neuronal- cell body and fiber/axon
 - postganglionic neuronal-
- ← Pathways for visceral motor output

- Two neuron system
 - Preganglionic neurons
 - Visceral motor neurons (cell body) in the CNS
 - Axon is preganglionic fibers
 - Axons synapses on postganglionic neurons
 - Postganglionic neurons
 - Visceral motor cell bodies located within ganglia in PNS
 - Axon is postganglionic fiber
- Innervates
 - Smooth
 - Cardiac
 - glands
- ← Off of ventral primary ramus
 - Grey communicating ramus
 - White communicating ramus
- ← Somatic motor → skeletal muscles
 - One neuron system
- ← Visceral motor → smooth, cardiac, glands
 - Two neurons system- ANS
- ← Sympathetic System
 - Thoracolumbar division (T1-L2)
 - Where preganglionic neurons are located (T1-L2)
 - Postganglionic neurons in sympathetic chain/trunk or collateral ganglia
 - The beaded structure on the outside of spinal cord found all the way down sacral nerves
- Function
 - Stimulates tissue metabolism

- o Increase alertness
 - o Prepares body to deal with emergencies
- Fight or flight
- Sympathetic trunk → grey communicating ramus → skin, sweat glands, erector pili muscle, blood vessels
- Organs- visceral nerves from trunk to organs
- Grey communicating rami → postganglionic?
- White communicating ramus → preganglionic?
- ← Parasympathetic system = craniosacral system
 - Brainstem and cranial nerves 3, 7, 9, 10
 - Sacral nerve (
 - Mainly from vagus nerve to organ of thoracic cavity and abdominal cavity and sacral part innervate organs of abdominopelvic cavity
 - Dual innervation
 - o Many organs
- ← Adrenal Gland
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- ← Gray communicating ramus- connected to sympathetic postganglionic fibers to the skin to innervate sweat glands, erector pili, and blood vessels
- ← 31 to 32 pairs of gray communication rami
- ← collateral ganglia
 - postganglionic sympathetic neurons
 - innervate abdominopelvis
- Parasympathetic- cranial- oculomotor
 - nucleus in brain stem → oculomotor →
 - cilia muscle → allows to see things focused at a distance and up close
- ← dual innervation
 - sympathetic- dilator muscle
 - parasympathetic- constrictor muscle
- ← Neurotransmitter release
 - All pre → Ach (acetylcholine)
 - Post para → release Ach
 - Post sym → release NE (norepinephrine/epinephrine)
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