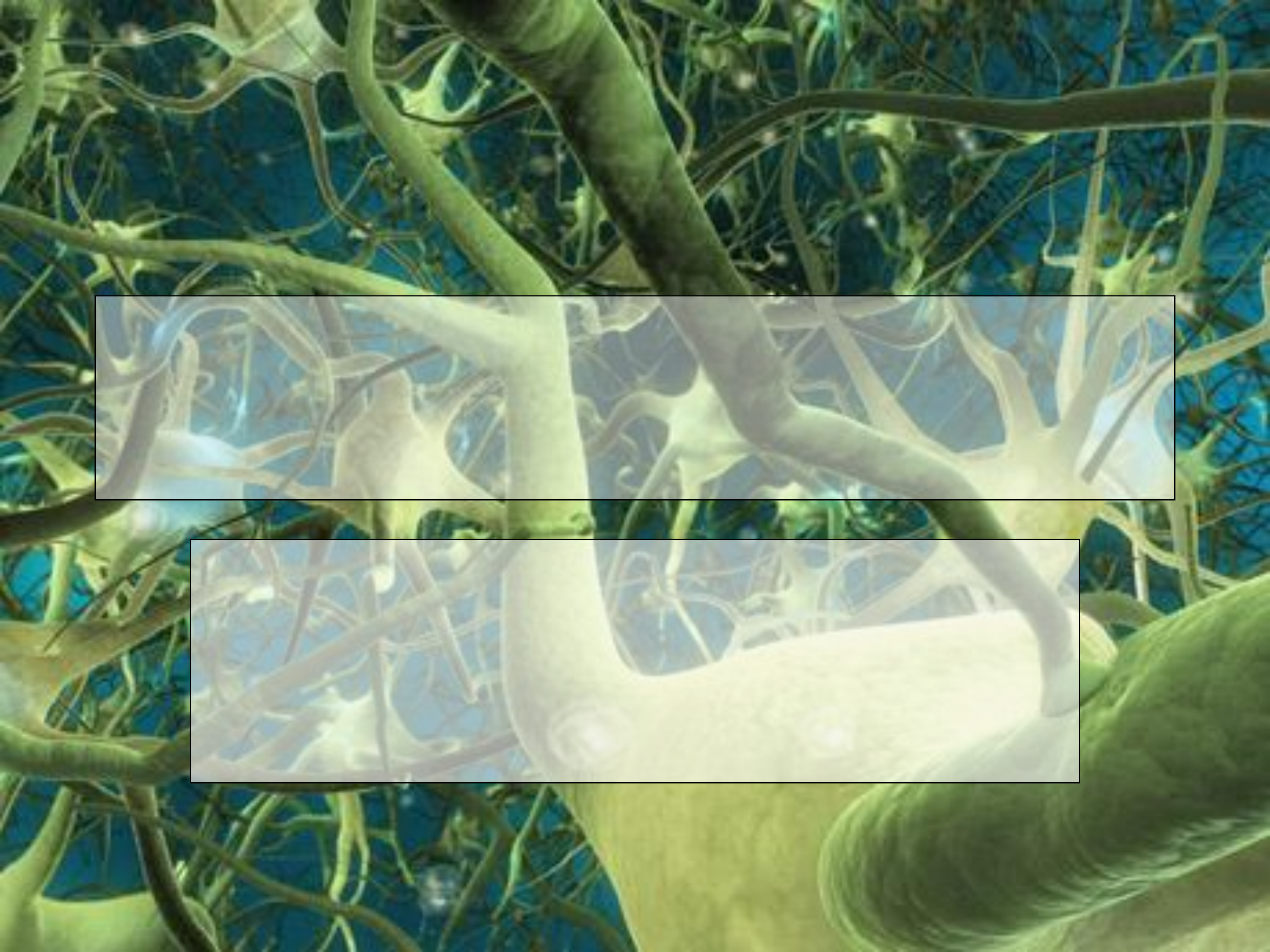

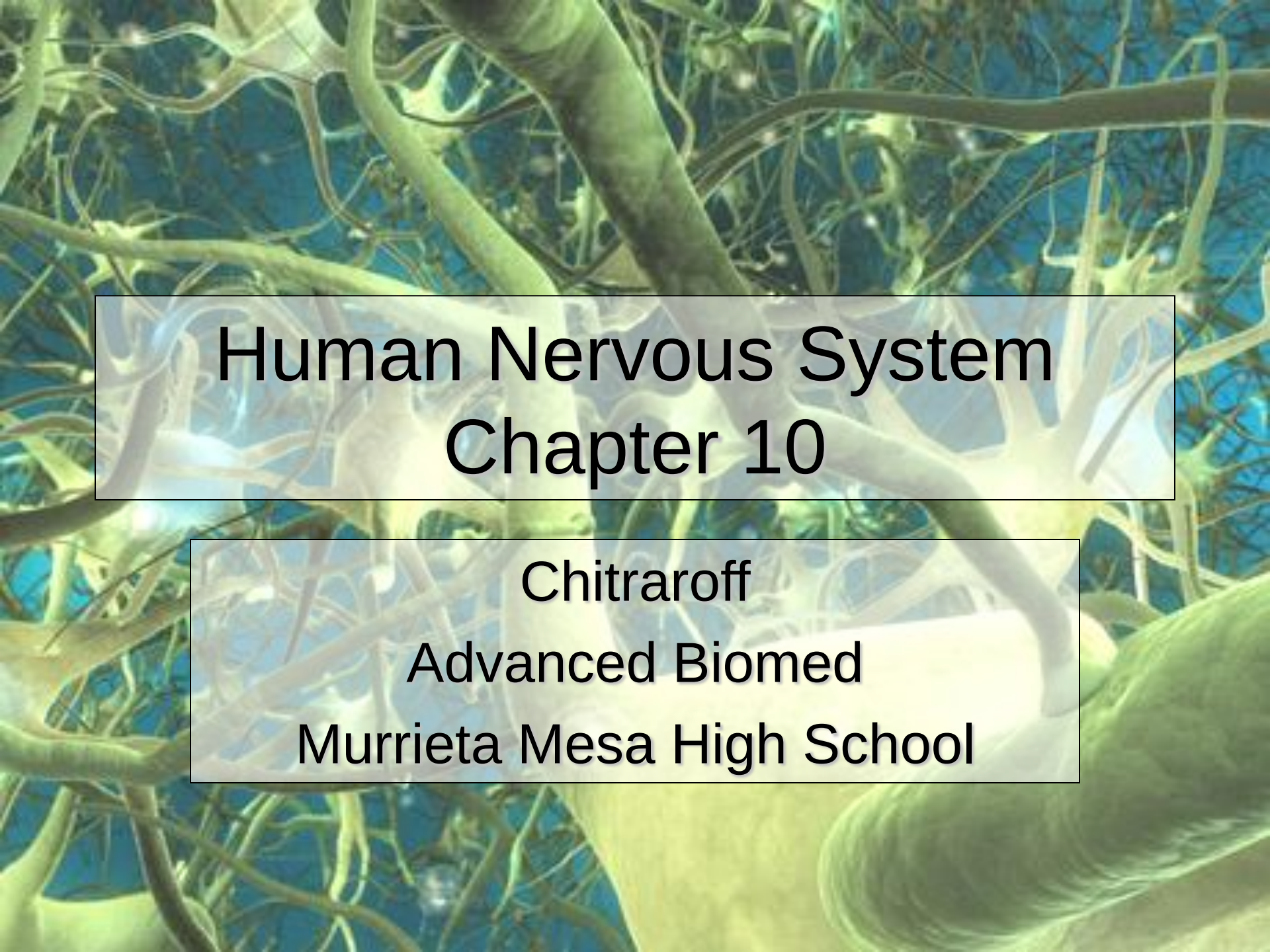

Human Nervous System Chapter 10

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Advanced Biomed

Murrieta Mesa High School

Objectives

1. Describe the functions and structures of the nervous system.
2. Identify the major divisions of the nervous system.
3. Recognize and define the terms related to the pathology and treatment of the nervous system.
4. Understand the treatment procedures of mental health disorders.

Organization

1. Central Nervous System (CNS)

   -brain and spinal cord

2. Peripheral Nervous System (PNS)

   -12 pairs of cranial nerves from brain.

   -31 pairs of spinal nerves extending from the spinal cord.

3. Autonomic Nervous System (ANS)

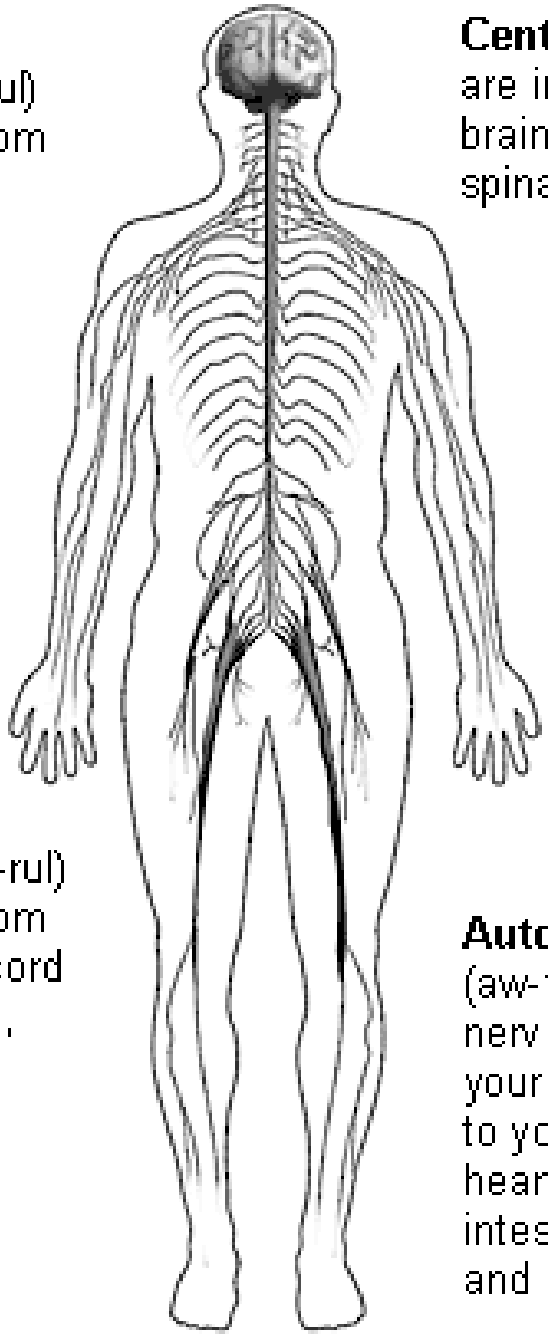
   -Nerves servicing your heart, lungs, digestive, urinary and reproductive organs.

Divisions of the Nervous System

1. Central
2. Peripheral
3. Autonomic

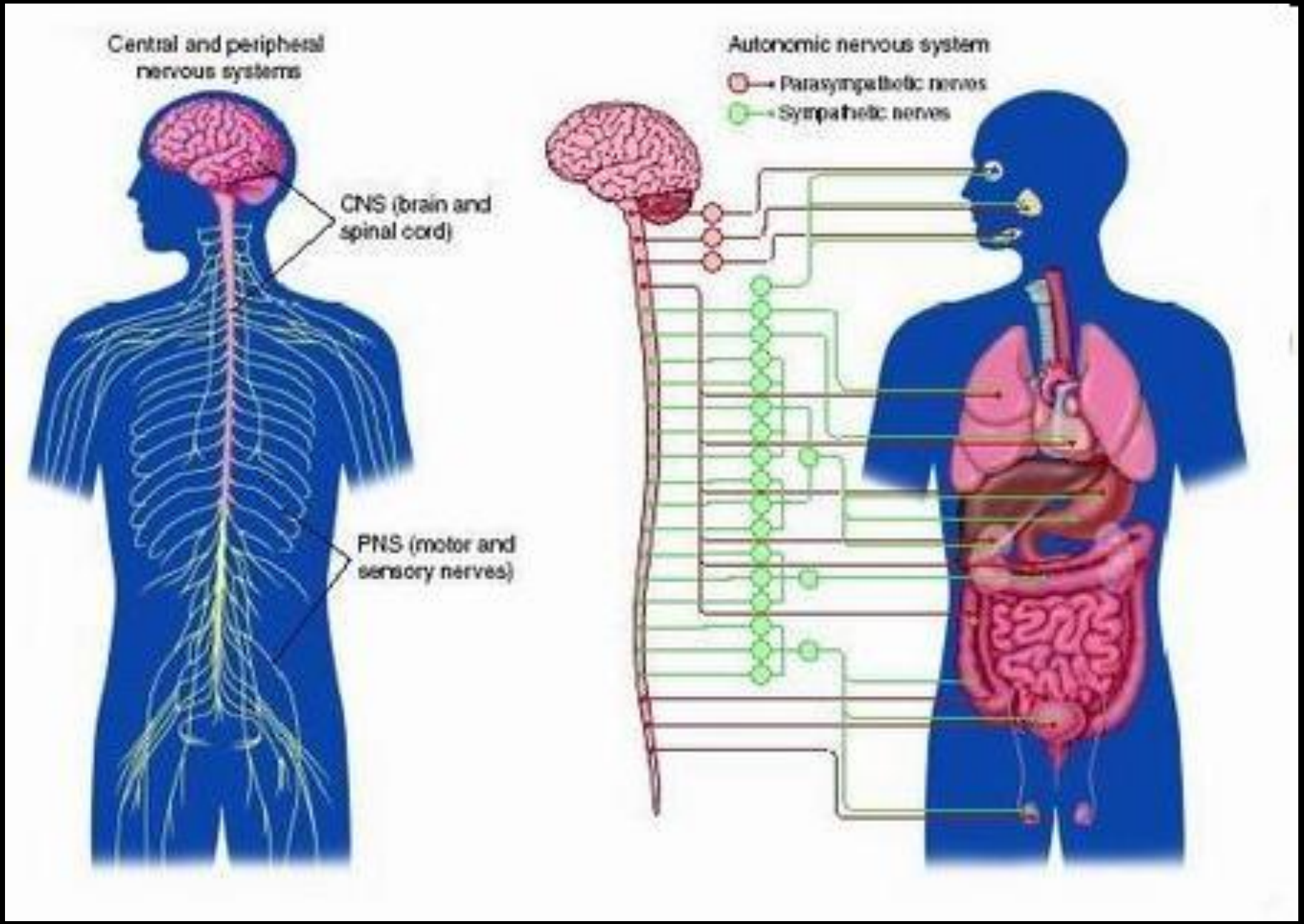
Cranial (KRAY-nee-ul) nerves go from your brain to your eyes, mouth, ears, and other parts of your head.

Central nerves are in your brain and spinal cord.



Peripheral (puh-RIF-uh-rul) nerves go from your spinal cord to your arms, hands, legs, and feet.

Autonomic (aw-toh-NOM-ik) nerves go from your spinal cord to your lungs, heart, stomach, intestines, bladder, and sex organs.


Central and peripheral nervous systems
CNS (brain and spinal cord)
PNS (motor and sensory nerves)
Autonomic nervous system
Parasympathetic nerves
Sympathetic nerves

Functions of the Nervous System

1. Sensory Input (5 senses)
2. Integrative (thinking processes)
3. Motor (movement) – neural connection to muscles.

The Nerve

- Definition: One or more bundles of neuron cells that connect the brain and the spinal cord with other parts of the body.

Nerve Bundles

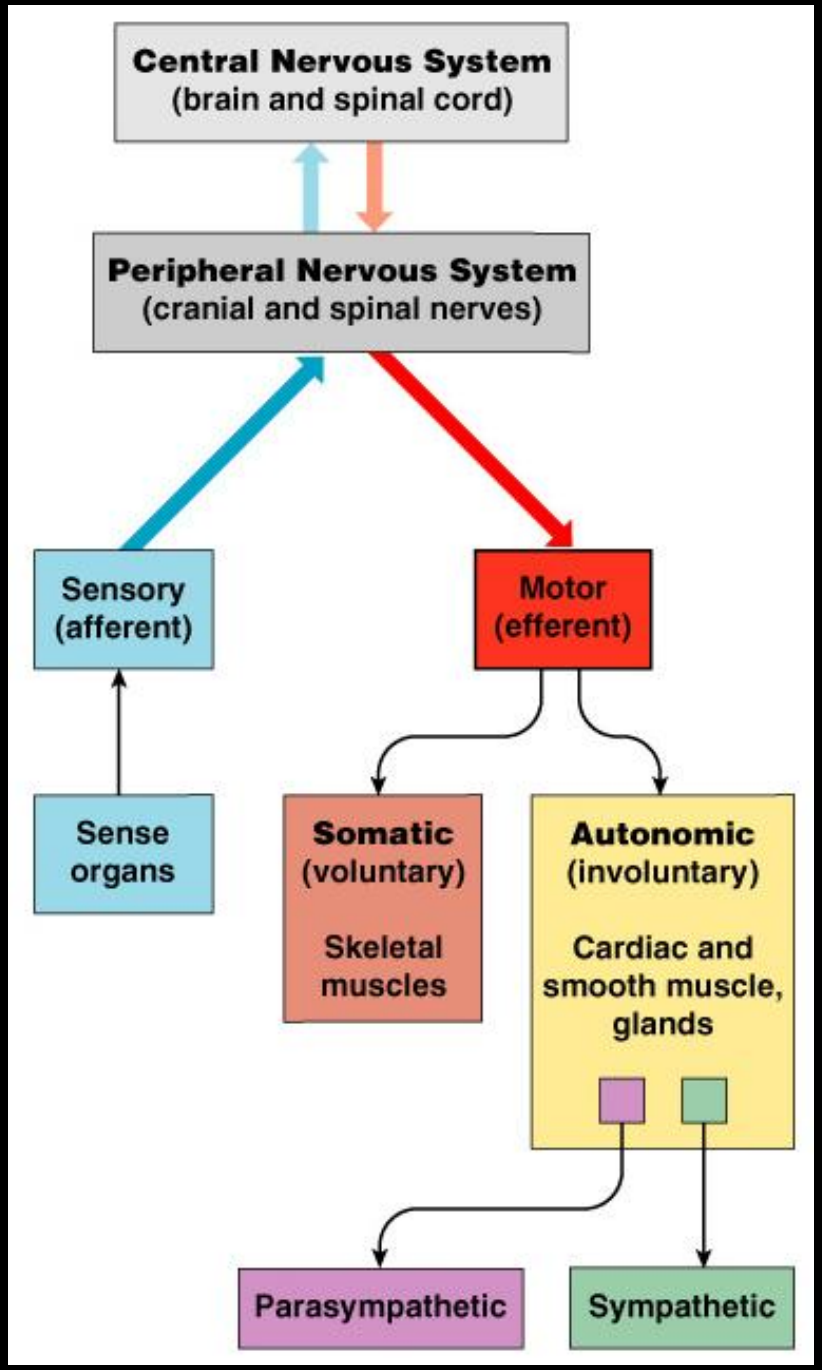
- **<u>Tract:</u>** bundle of nerve fibers located within the brain and spinal cord.
  - **Ascending Tract** = carry impulses toward the brain. (Afferent→ Sensory Driven)
  - **Descending Tract** = carry impulses away from brain. (Efferent→ Motor Response)

Divisions of the Nervous System

Afferent

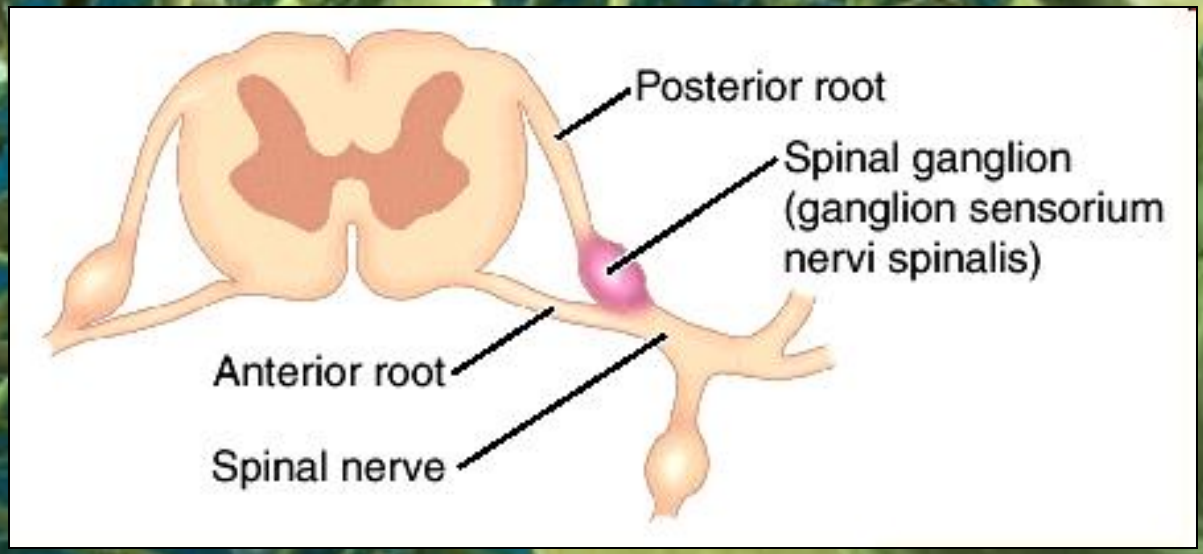
Vs.

Efferent



The Ganglion

- **Definition:** A knotlike mass of cells located outside the CNS. Usually associated with it's position in the body.
  - Example: Jugular ganglion.

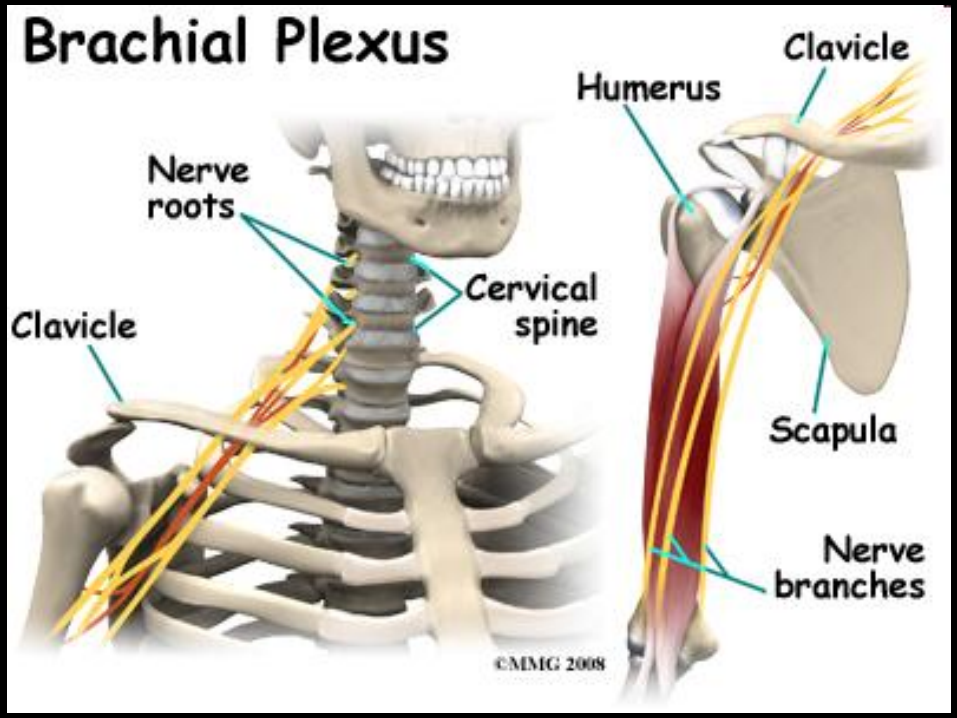


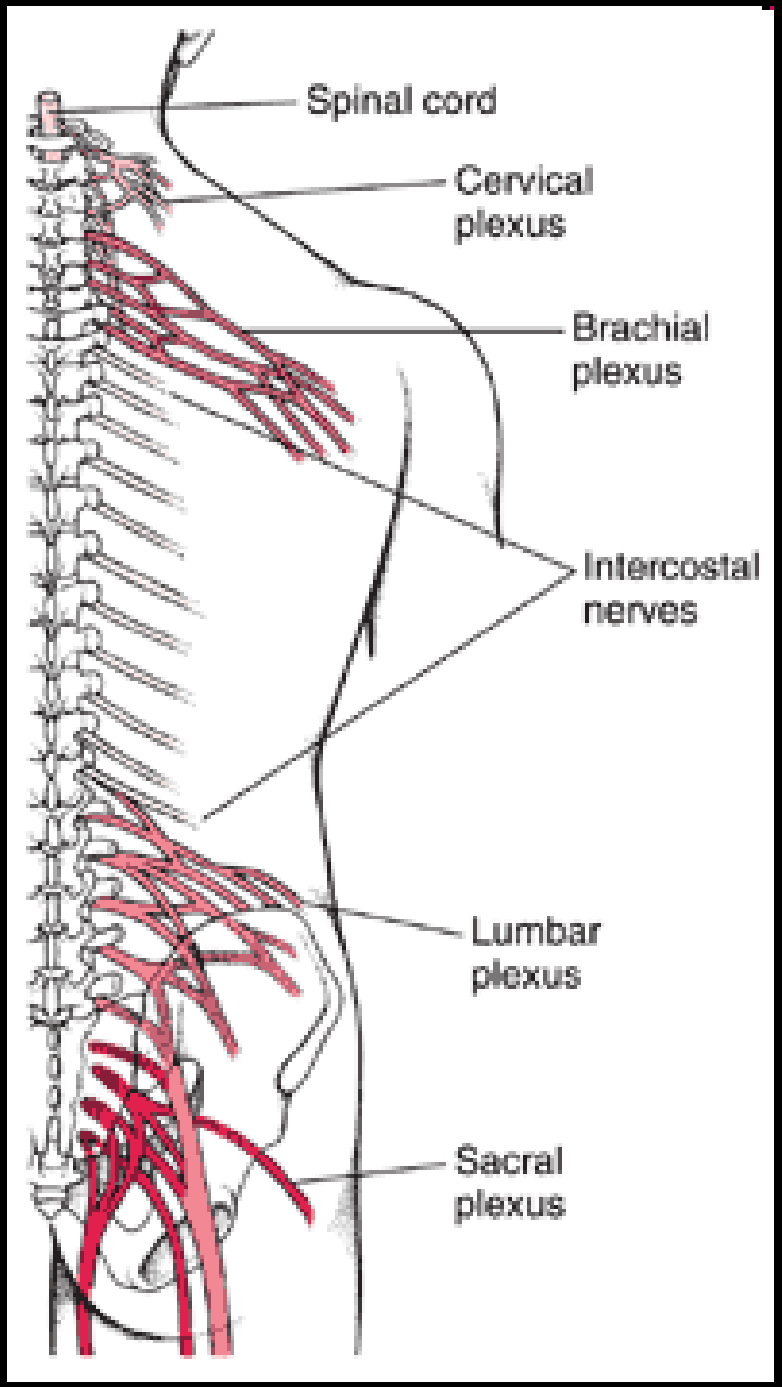
Nerve Plexus

Definition: A network of intersecting nerves and blood vessels or lymphatic vessels.

- Broken down by region within the body.
  - Examples: Brachial Plexus
    Cervical Plexus
    Lumbar Plexus
    Sacral Plexus

Nerve Plexus

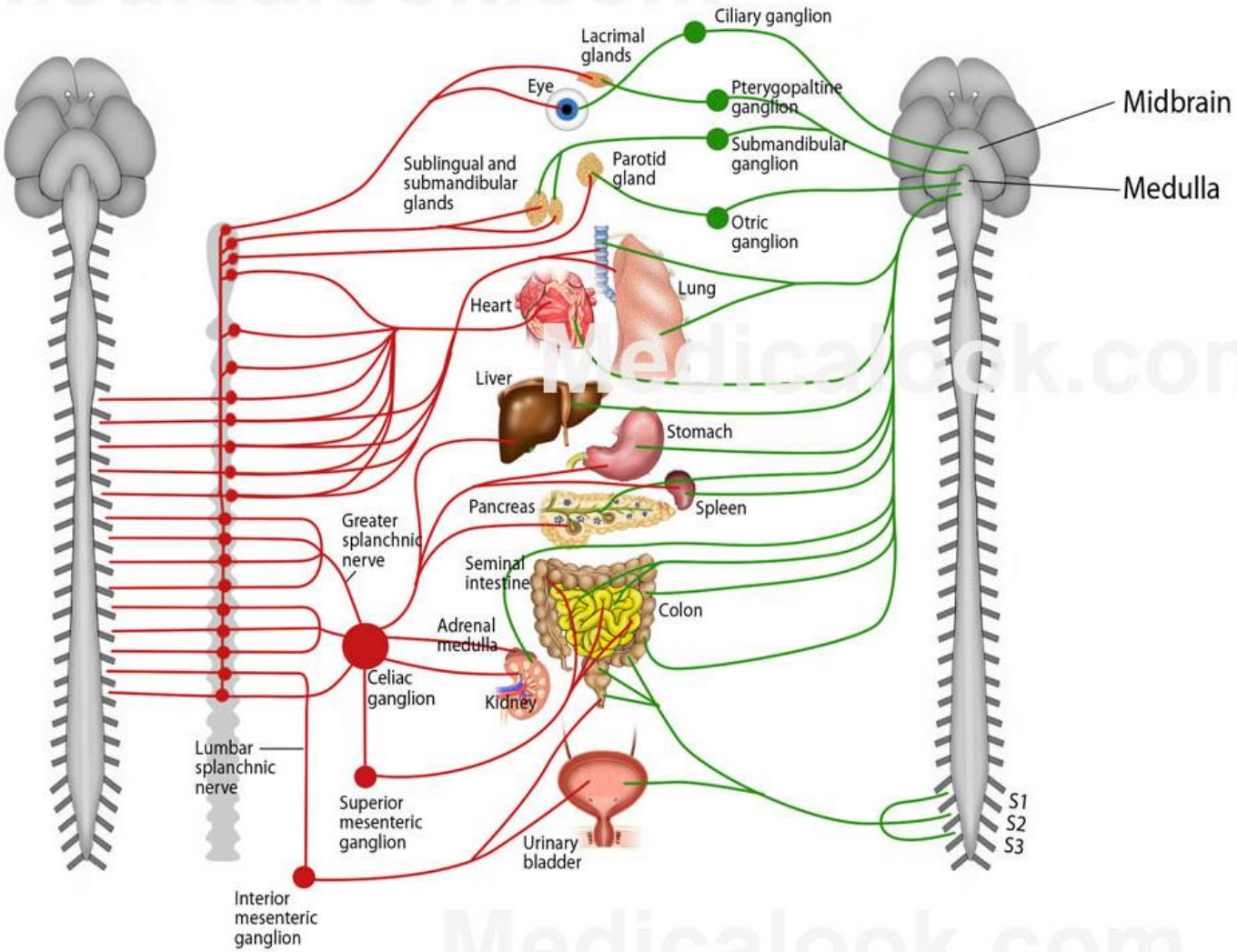




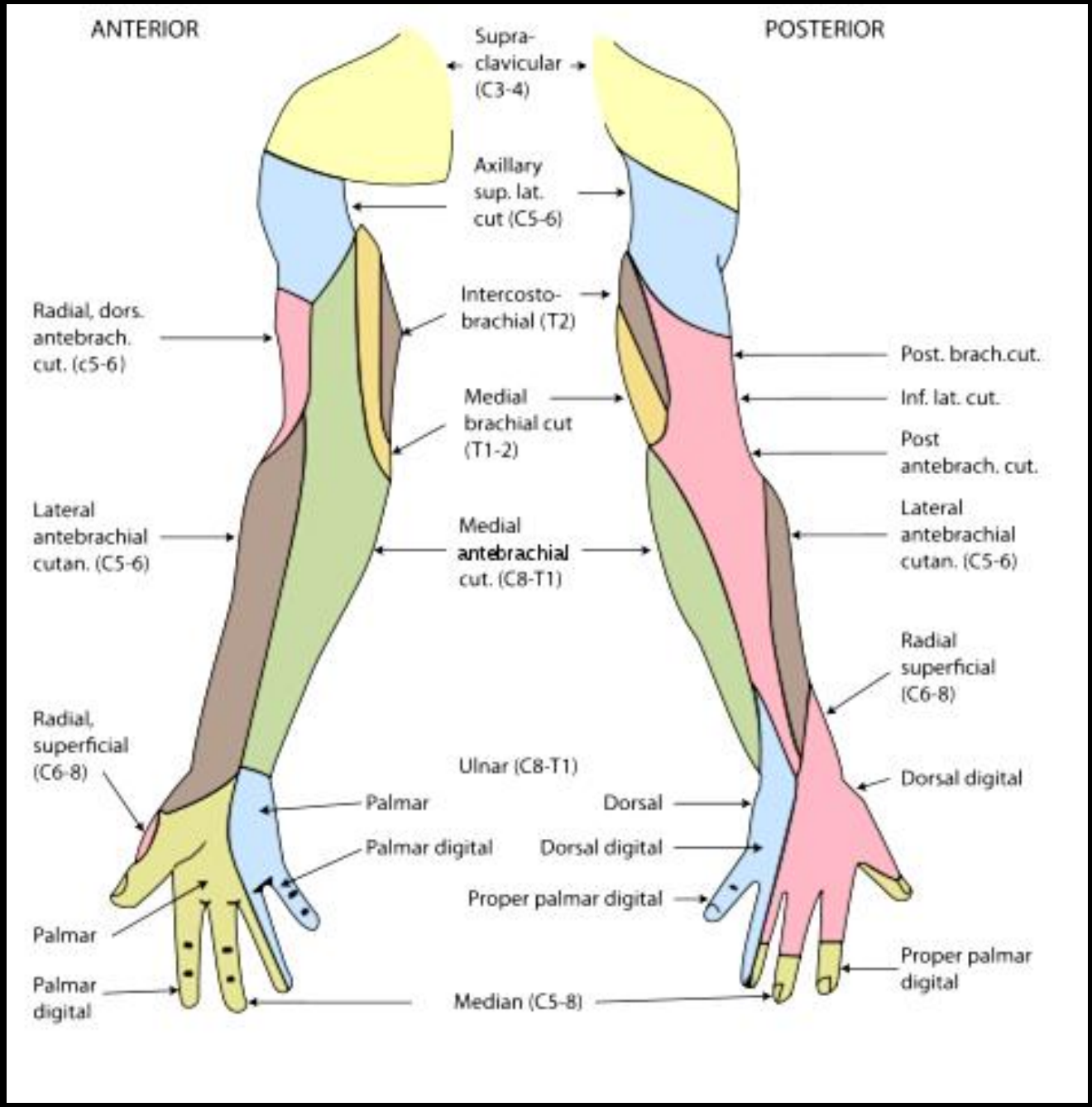
Innervation (a.k.a. The Road Map)

- The supply of nerves to a body part.
- The stimulation of a body part through the action of nerve impulses.

Innervation



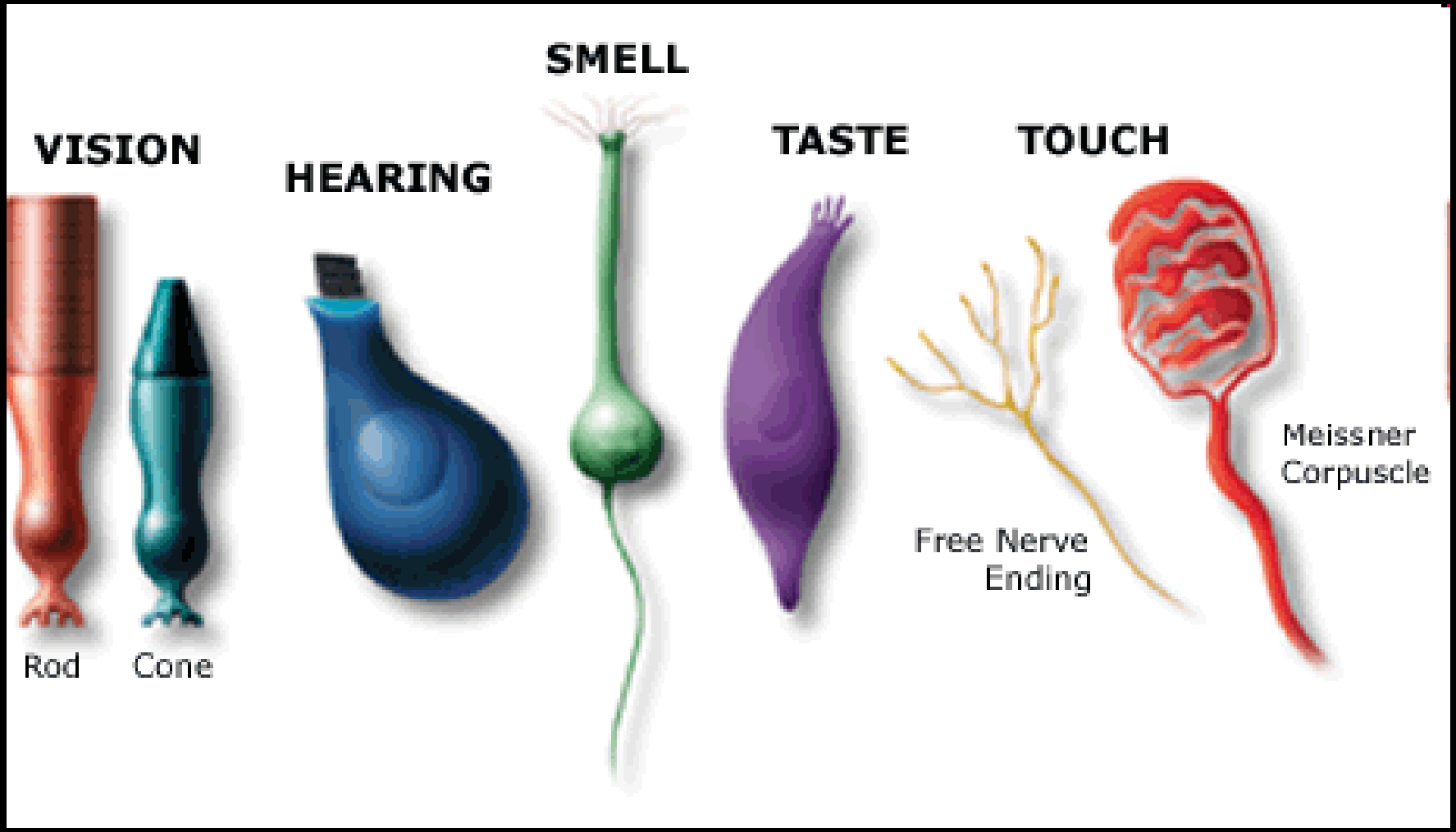
Innervation

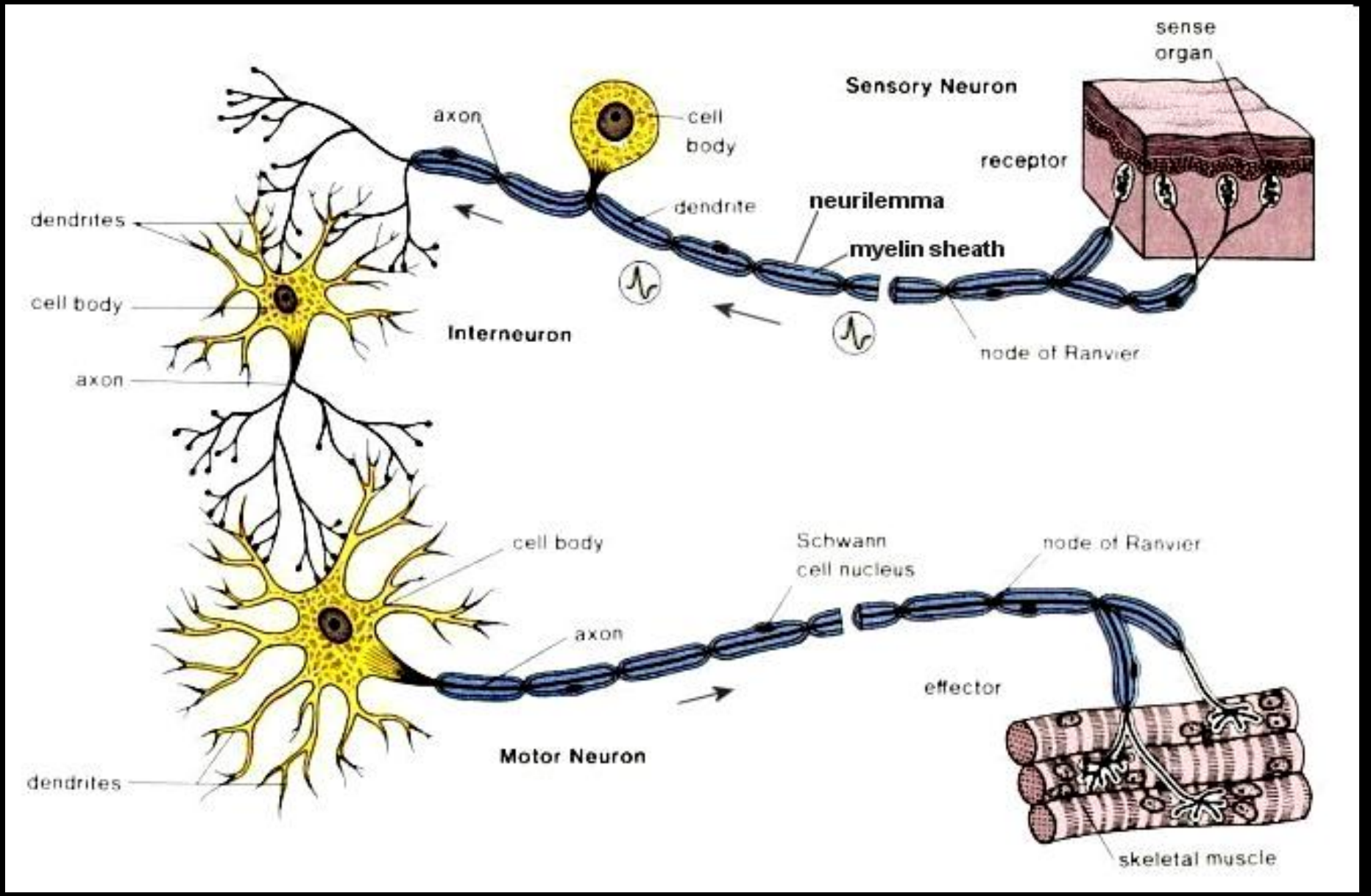


The Receptors

- The sites in the sensory organs that receive external stimulation.
- Sensory receptors send nerve stimuli through the sensory neurons to the brain for interpretation of the signal.
  - Stimulus = The cause. (A stinky smell)
  - Response = The effect. (Plugging nose)

Sensory Receptors




sense
organ
Sensory Neuron
axon
cell
body
receptor
dendrite
neurilemma
dendrites
myelin sheath
cell body
Interneuron
axon
node of Ranvier
cell body
Schwann
cell nucleus
node of Ranvier
axon
effector
Motor Neuron
dendrites
skeletal muscle