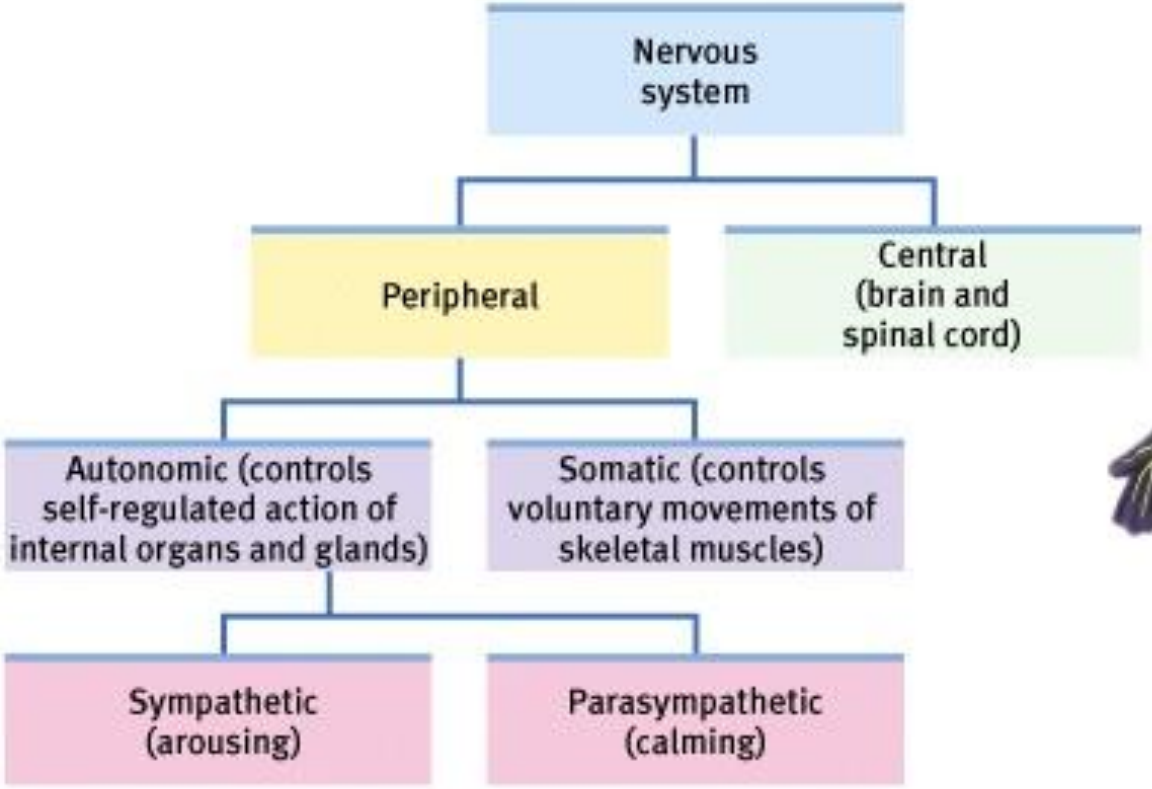
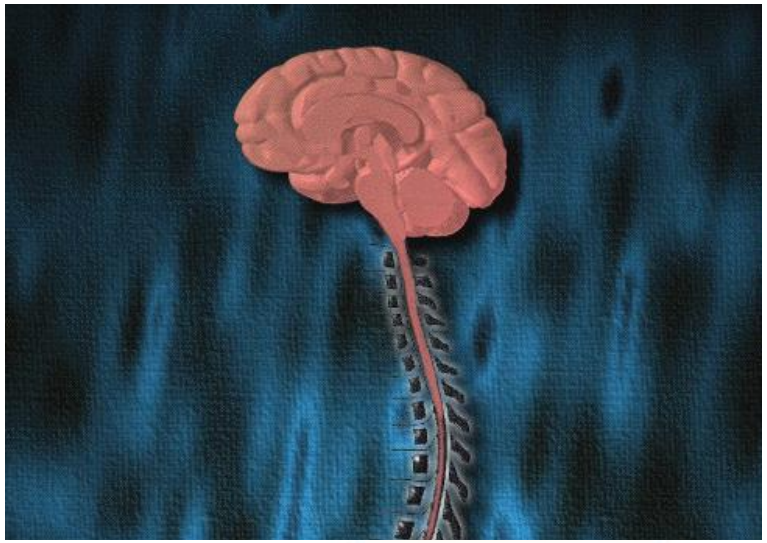
The Nervous System

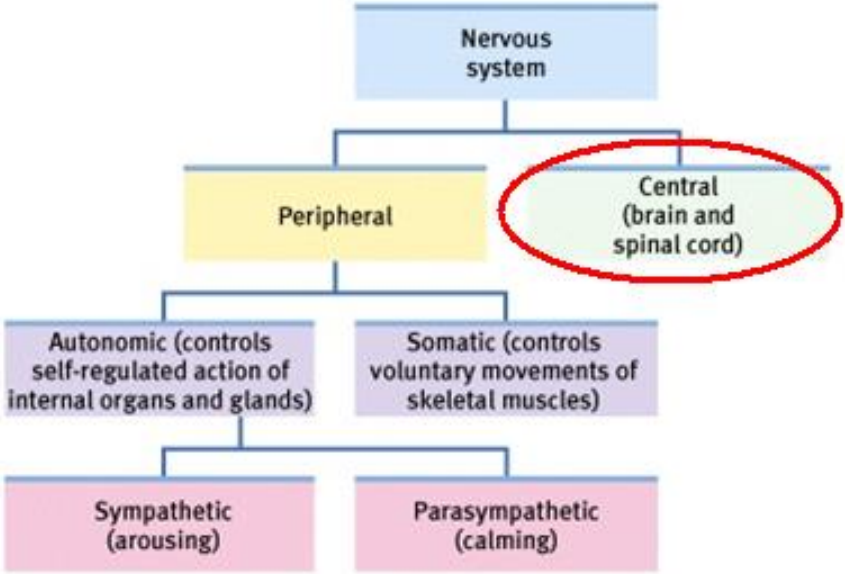


The **<u>Nervous System</u>** - body's speedy, electrochemical communication network consisting of nerve cells

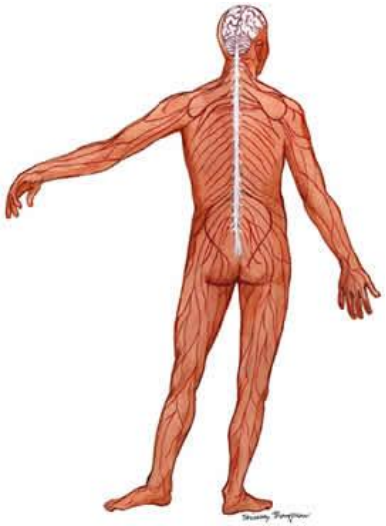
Central Nervous System (CNS)

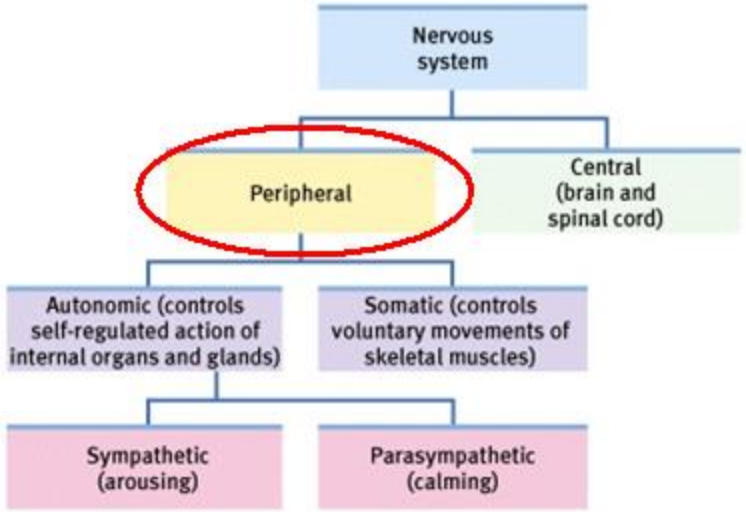
- The Brain and spinal cord
- **<u>Neural networks</u>** – interconnected neural cells; more connections made as experience gained





Peripheral Nervous System



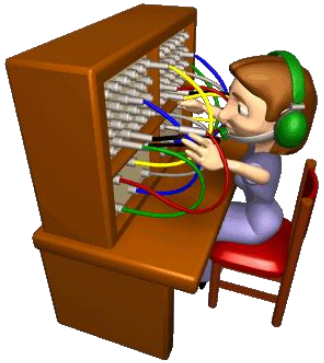


- All nerves that are not encased in bone.
- Everything but the brain and spinal cord.
- Is divided into two categories….**somatic** and **autonomic**.

Types of Neurons

- **Sensory Neurons** – sends receptors to CNS (Also called **Afferent Neurons**)

- **Interneurons** – internal communication neurons (Located in the Brain and Spinal Cord) takes in Sensory Signal and sends out Motor Signal

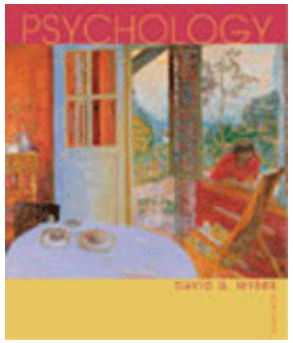


- **Motor Neurons** – CNS to muscle and glands (Also called **Efferent Neurons**)

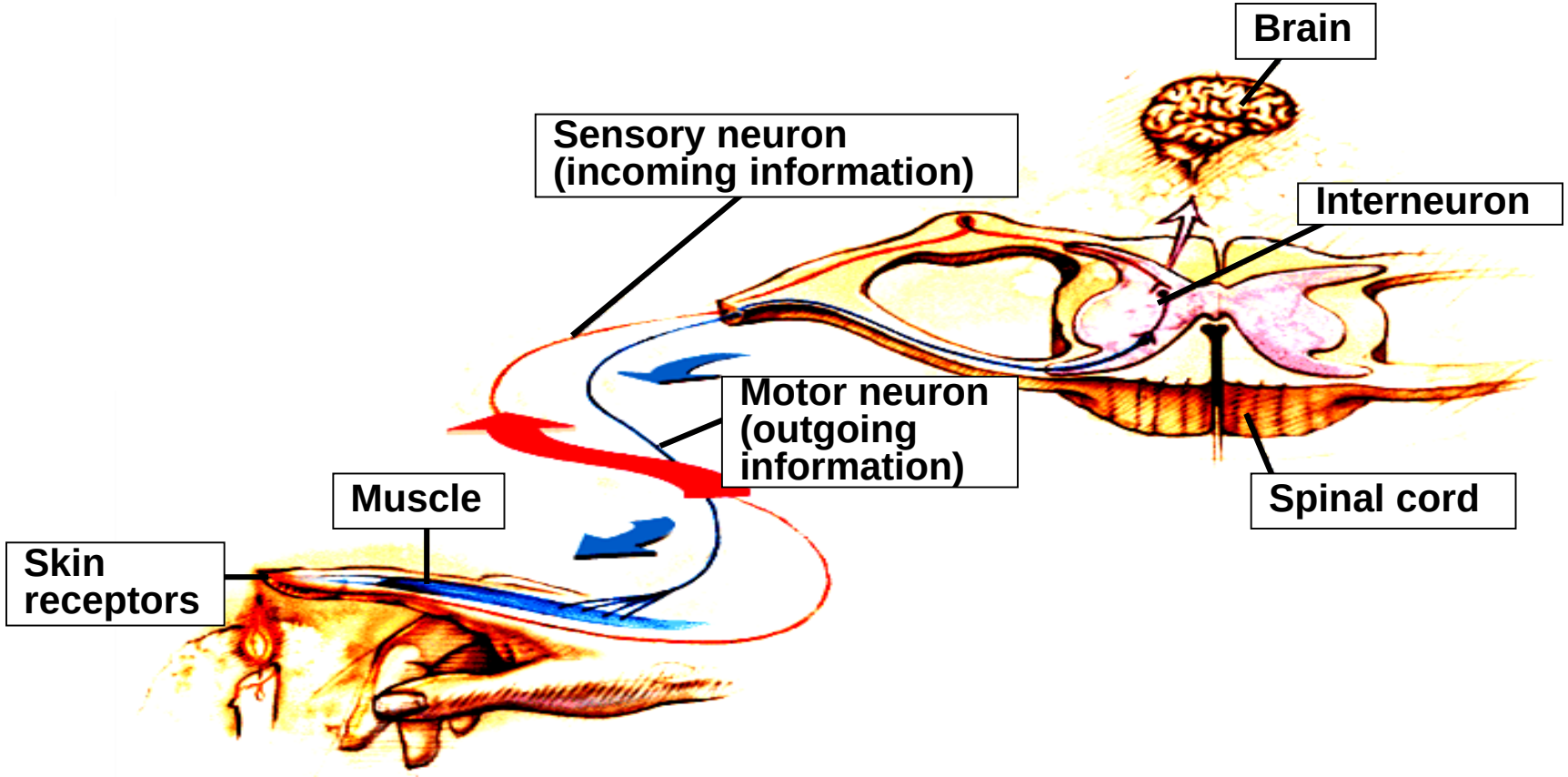
Reflexes

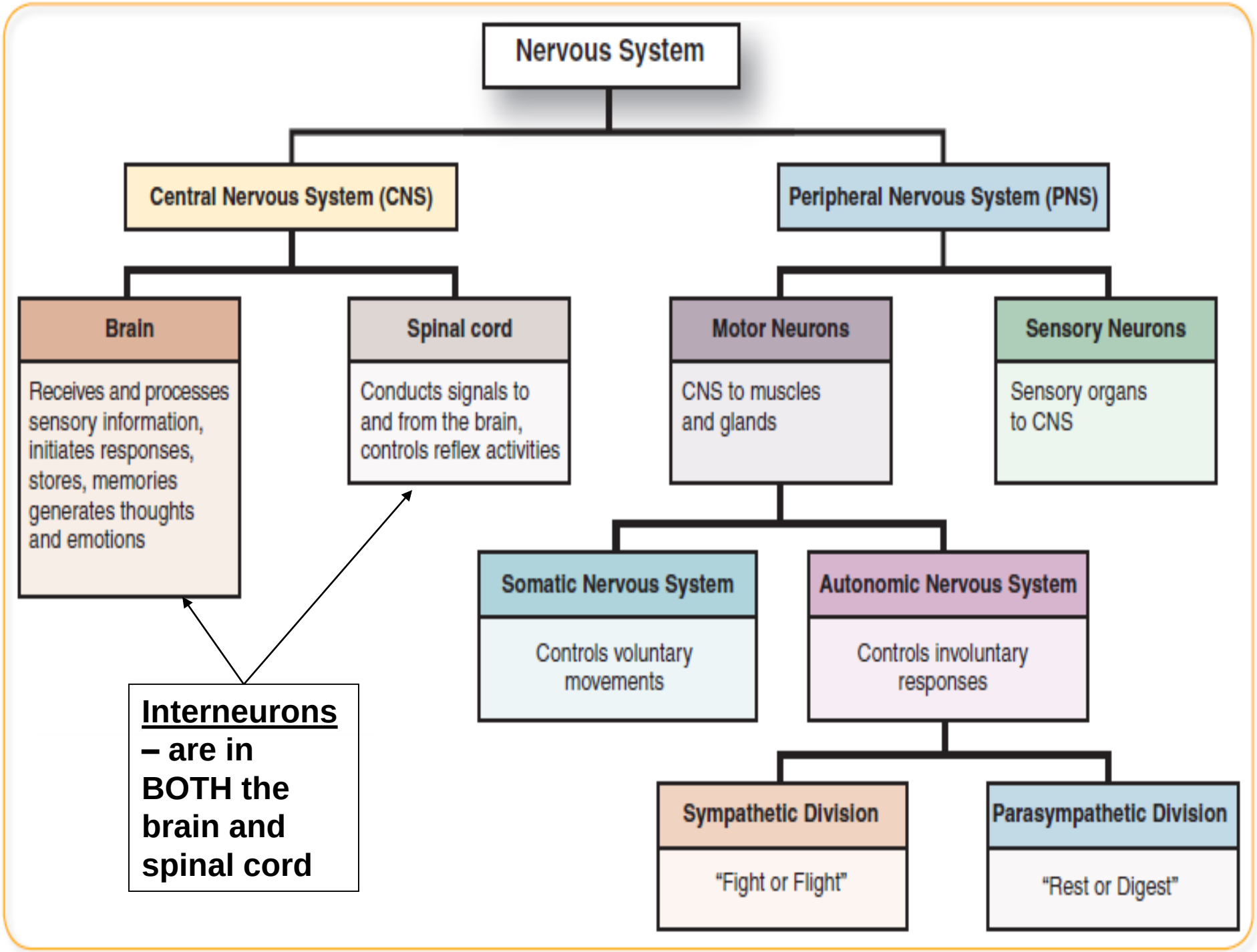
- Normally, sensory neurons take info up through spine to the brain.
- With reflexes though, some reactions occur when sensory neurons reach just the spinal cord.
- Automatic response to sensory stimulus; **interneurons** react to **sensory** neurons w/o going to brain

The Nervous System



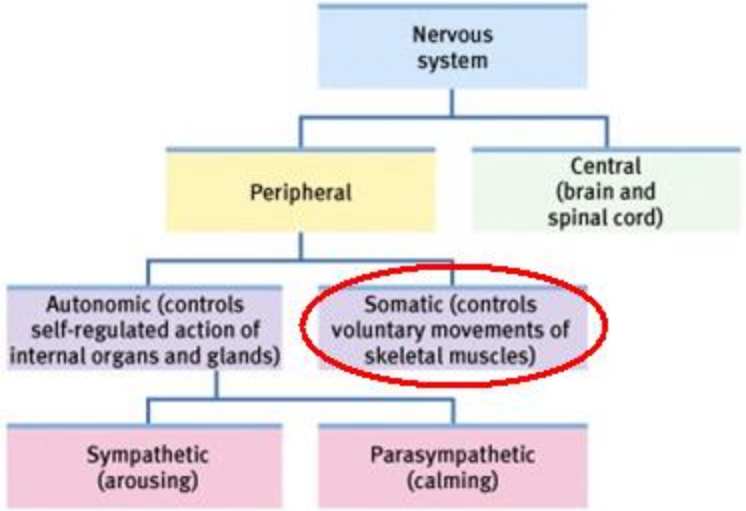
- Reflex
  - a simple, automatic, inborn response to a sensory stimulus



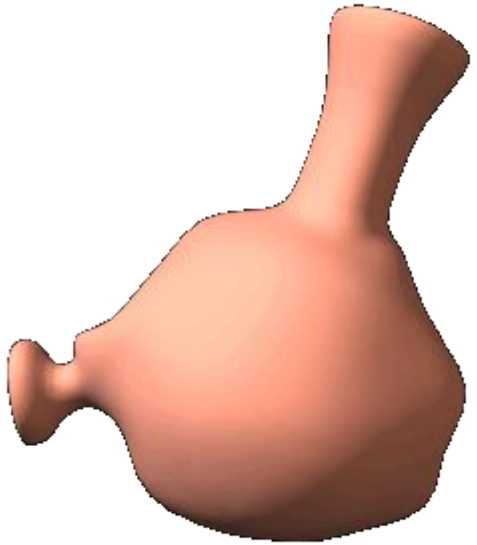

Nervous System
Central Nervous System (CNS)
Peripheral Nervous System (PNS)
Brain
Receives and processes sensory information, initiates responses, stores, memories generates thoughts and emotions
Spinal cord
Conducts signals to and from the brain, controls reflex activities
Motor Neurons
CNS to muscles and glands
Sensory Neurons
Sensory organs to CNS
Somatic Nervous System
Controls voluntary movements
Autonomic Nervous System
Controls involuntary responses
Sympathetic Division
"Fight or Flight"
Parasympathetic Division
"Rest or Digest"
Interneurons – are in BOTH the brain and spinal cord

Somatic Nervous System

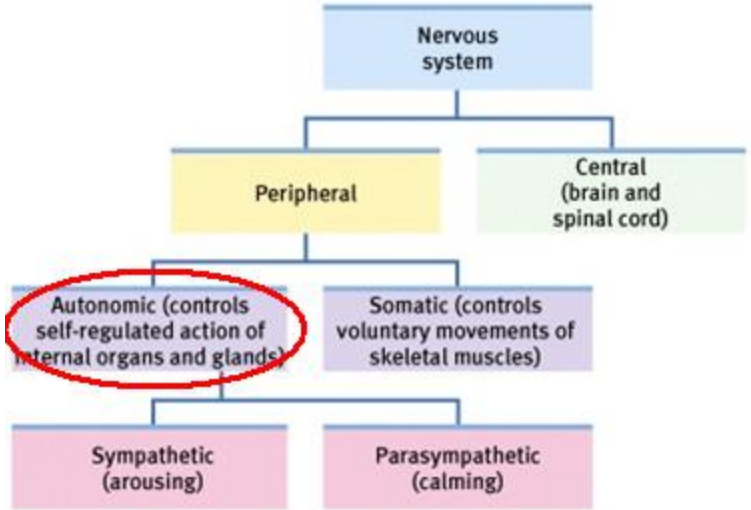
- Controls voluntary muscle movement.
- Uses motor (efferent) neurons.



Autonomic Nervous System

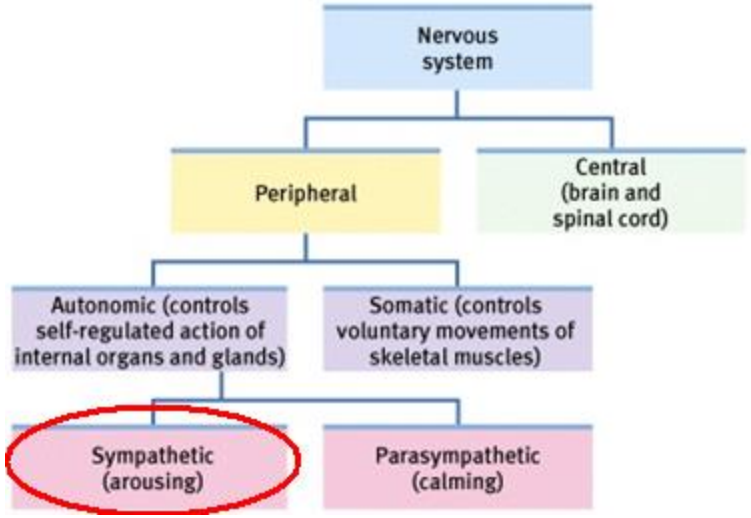


- Controls the automatic functions of the body.
- Divided into two categories…the **sympathetic** and the **parasympathetic**

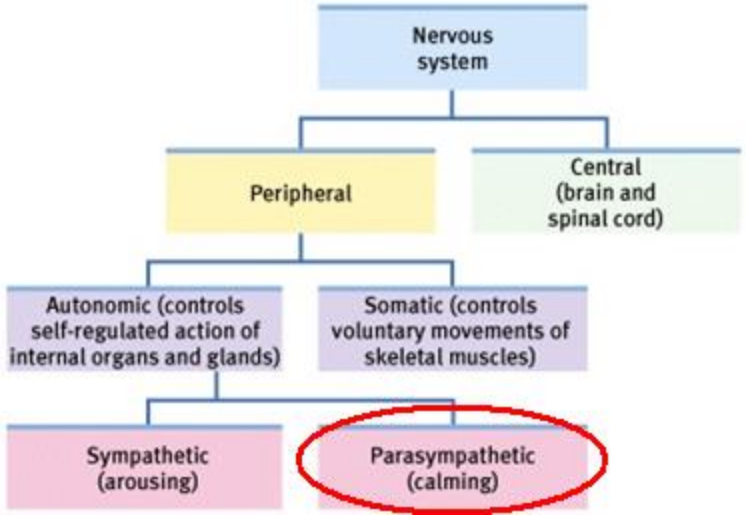


Sympathetic Nervous System

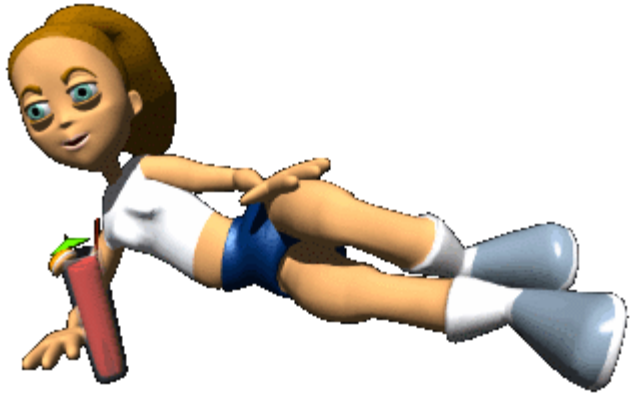
- Fight or Flight Response.
- Automatically accelerates heart rate, breathing, dilates pupils, slows down digestion.



Parasympathetic Nervous System



- Automatically slows the body down after a stressful event.
- Heart rate and breathing slow down, pupils constrict and digestion speeds up.



Sympathetic and Parasympathetic