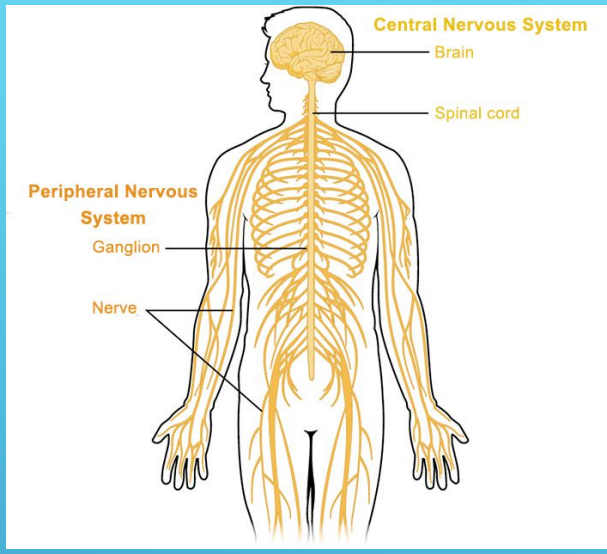
PERIPHERAL NERVOUS SYSTEM

WHAT IS PERIPHERAL NERVOUS SYSTEM

- The peripheral nervous system is the division of the nervous system containing all the nervous system containing all the nerves that lie outside of the central nervous system.
- Primary Role- to connect the CNS to the organs, limbs and skin. These nerves extend from the central nervous system to the outermost areas of the body.

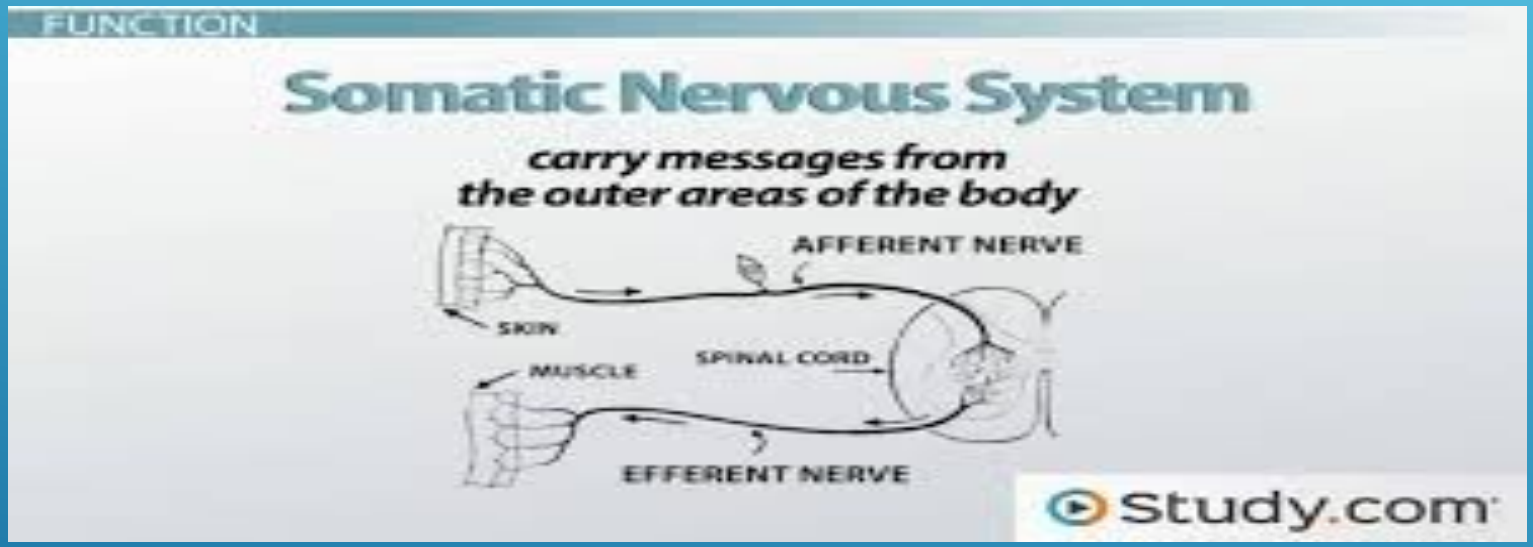


SOMATIC NERVOUS SYSTEM

- The part of the peripheral nervous system responsible for carrying sensory and motor information to and from the central nervous system.
- Derives form Greek word **Soma**, which means body.
- Responsible for transmitting sensory information as well as for voluntary movement.
- Contains two major type of neurons-

1) **sensory neurons or afferent Neurons**- carry information from the nerves to the central nervous system.

2) **motor neurons (or efferent neurons)**- carry information from the brain and spinal cord to muscle fibers throughout the body.



SOMATIC NERVOUS SYSTEM

SOMATIC NERVOUS SYSTEM

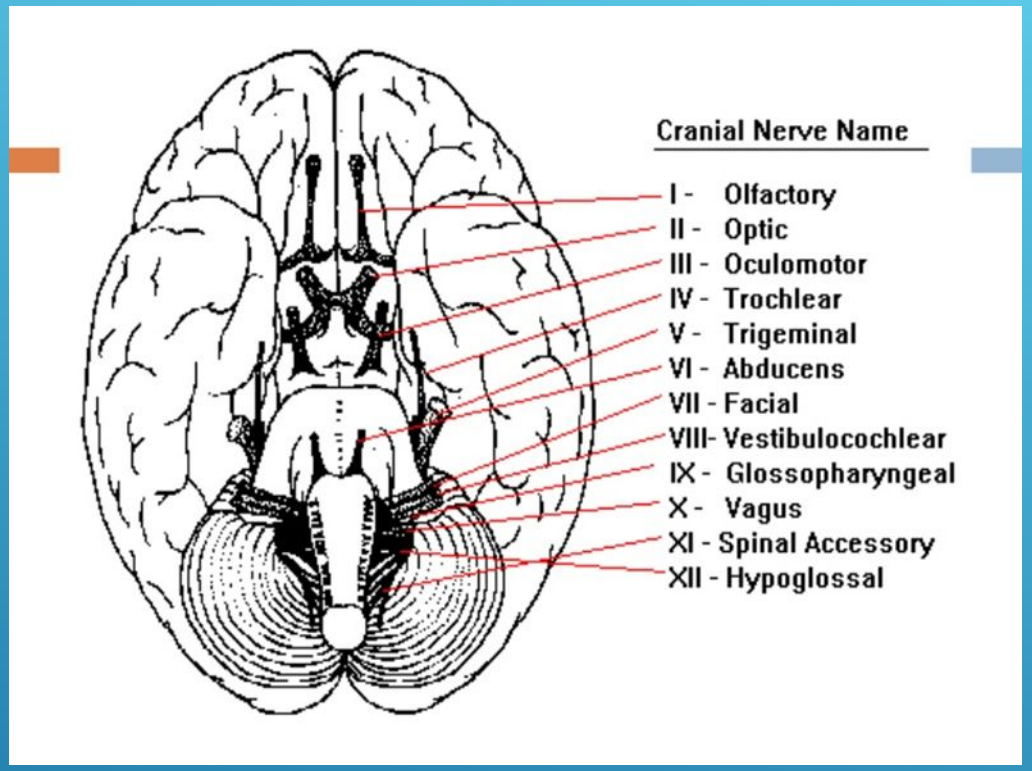
- The somatic system consists of

  12 pairs of cranial nerves

  31 pairs of spinal nerves

- **Cranial nerves**- nerves that emerge directly from the brain, in contrast to spinal nerves, which emerge from segments of the spinal cord. In humans, there are traditionally twelve pairs of cranial nerves. Only the first and the second pair emerge from the cerebrum; the remaining ten pairs emerge from the brainstem.
- **Spinal nerves**- spinal nerves or nerve roots, branch off the spinal cord and pass out through a hole in each of the vertebrae called the Foramen. These nerves carry information from the spinal cord to the rest of the body, and from the body back up to the brain.

CRANIAL NERVES



Nerves	Type	Function
I Olfactory	sensory	olfaction (smell)
II Optic	sensory	vision (Contain 38% of all the axons connecting to the brain.)
III Oculomotor	motor*	eyelid and eyeball muscles
IV Trochlear	motor*	eyeball muscles
V Trigeminal	mixed	Sensory: facial and mouth sensation Motor: chewing
VI Abducens	motor*	eyeball movement
VII Facial	mixed	Sensory: taste Motor: facial muscles and salivary glands
VIII Auditory	sensory	hearing and balance
IX Glossopharyngeal	mixed	Sensory: taste Motor: swallowing
X Vagus	mixed	main nerve of the parasympathetic nervous system (PNS)
XI Accessory	motor	swallowing; moving head and shoulder
XII Hypoglossal	motor*	tongue muscles

TYPES OF CRANIAL NERVES

MNEMONICS

The Peripheral Nervous System

Cranial Nerves

12 Pairs of nerves that connect to the brain & not to the spinal cord.

Mnemonic Devices:

Name:

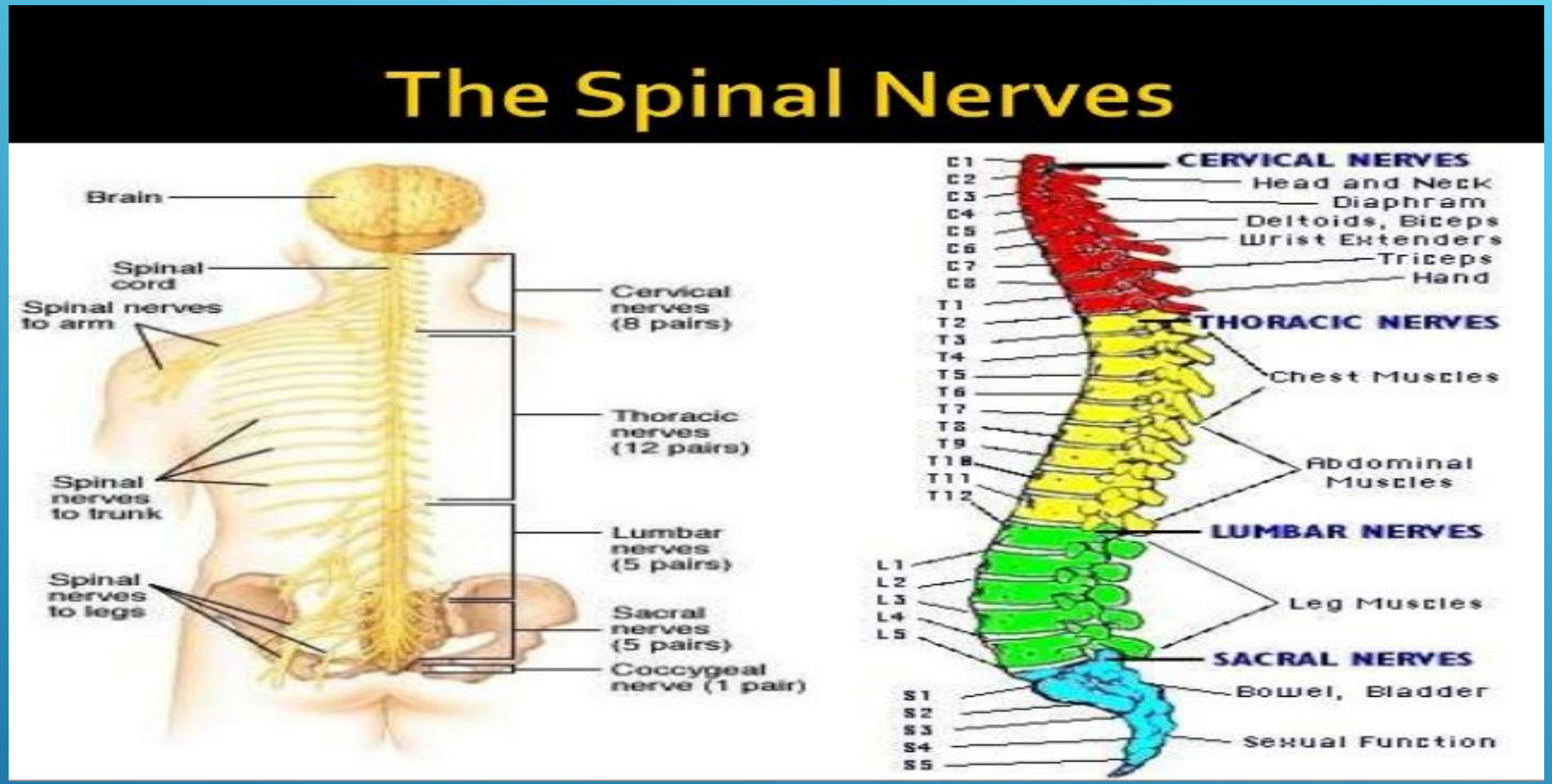
Oh Oh Oh To Touch And Feel Very Green Vegetables Always Healthy

Function:

Some Say Marry Money But My Brother Says Bad Business Marry Money

General Naming Order:

Anterior to Posterior



SPINAL NERVES

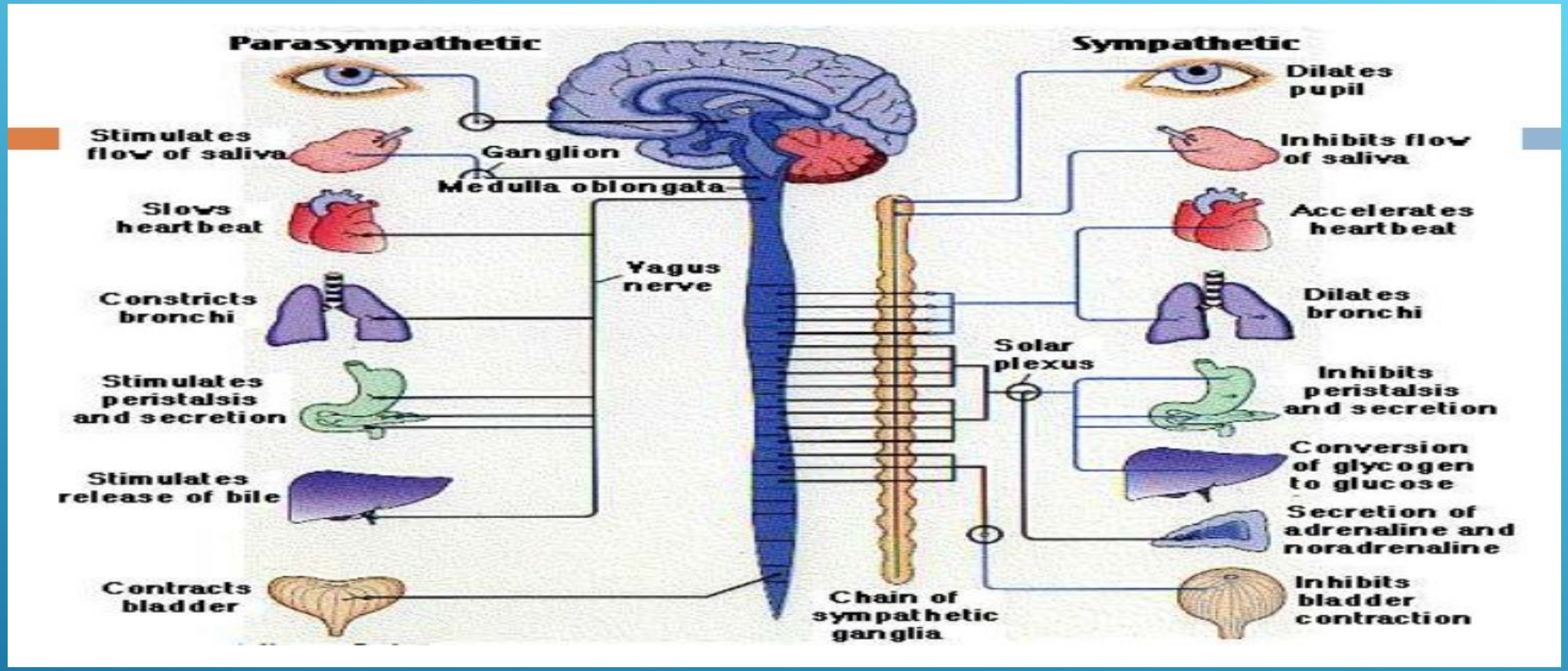
- Sensory Neurons- running from stimulus receptors that inform the CNS of the stimuli.
- Motor Neurons- running from the CNS to the muscles and glands- called effectors- that take action.

AUTONOMIC NERVOUS SYSTEM

- Is the part of the peripheral nervous system responsible for regulating involuntary body functions, such as blood flow, heartbeat, digestion and breathing.
- Further divided into branches

Sympathetic system regulates the flight- or- fight Reponses.

Para Sympathetic system help maintains normal body functions and conserves physical resources.


Parasympathetic
Sympathetic
Stimulates flow of saliva
Ganglion
Medulla oblongata
Slows heartbeat
Vagus nerve
Constricts bronchi
Stimulates peristalsis and secretion
Stimulates release of bile
Contracts bladder
Chain of sympathetic ganglia
Solar plexus
Dilates pupil
Inhibits flow of saliva
Accelerates heartbeat
Dilates bronchi
Inhibits peristalsis and secretion
Conversion of glycogen to glucose
Secretion of adrenaline and noradrenaline
Inhibits bladder contraction

DIFFERENCE

Stimulates heartbeat

Raises blood pressure

Dilates the pupils

Dilates the trachea and bronchi

Shunts blood away from the skin and viscera to the skeletal muscles, brain and heart

SYMPATHETIC NERVOUS SYSTEM

PARASYMPATHETIC NERVOUS SYSTEM

- The parasympathetic system is the branch of the autonomic nervous system responsible for the body's ability to recuperate and return to a balanced state (known as homeostasis)after experiencing pain or stress.
- It causes-

Slowing down of the heartbeat

Lowering of blood pressure

Constriction of the pupils

Increases blood flow to the skin and viscera


thank you