

المحاضرة 5 / الجهاز العصبي المحيطي | علم الحيوان

الأستاذ الدكتور خيري عبدالله /

Lec . 5 / Peripheral Nervous System \Zoology

- Peripheral Nervous System , all nerves(bundles of axons) conduct information to and from central nervous system .
- Bodies of nerve cells are present in brain , spinal cord and ganglia .

Anatomically peripheral nervous system consists of all nerves that branch out from brain and spinal cord .(cranial nerves 12 pairs + Spinal nerves 31 pairs).

Physiologically spinal nerves include :

1 – Somatic Nervous System . (14 nerves) .

2 – Autonomic nervous System . (17 nerves) .

Number of vertebrates = 33 .

Cranial nerves :

They are 12 pairs : Names and functions

I – Olfactory Nerve : Sense of smell .

II – Optic Nerve : Ability of eyes to see .

III - Oculomotor Nerve : Movement of eyes .

IV – Trochlear nerve : movement of eyes up and down

V – Trigeminal nerve : Sensation of your face , cheek , taste and jaw movements .

VI – Abducens nerve : Movement of eyes .

VII - Facial nerve : Facial expressions and sense taste

VIII - Vestibulocochlear nerve : Sense of hearing and balance .

IX – Glossopharyngeal nerve : Ability of swallowing and taste .

X – Vagus Nerve : Digestion and heart beat .

XI – Accessory nerve : Shoulder and neck muscle movement .

XII - Hypoglossal nerve : Ability to move your tongue .

Synapses : Communication between two nerve cells .

Autonomic nervous System subdivided to :

A – Sympathetic nervous System .

B – Parasympathetic nervous System .

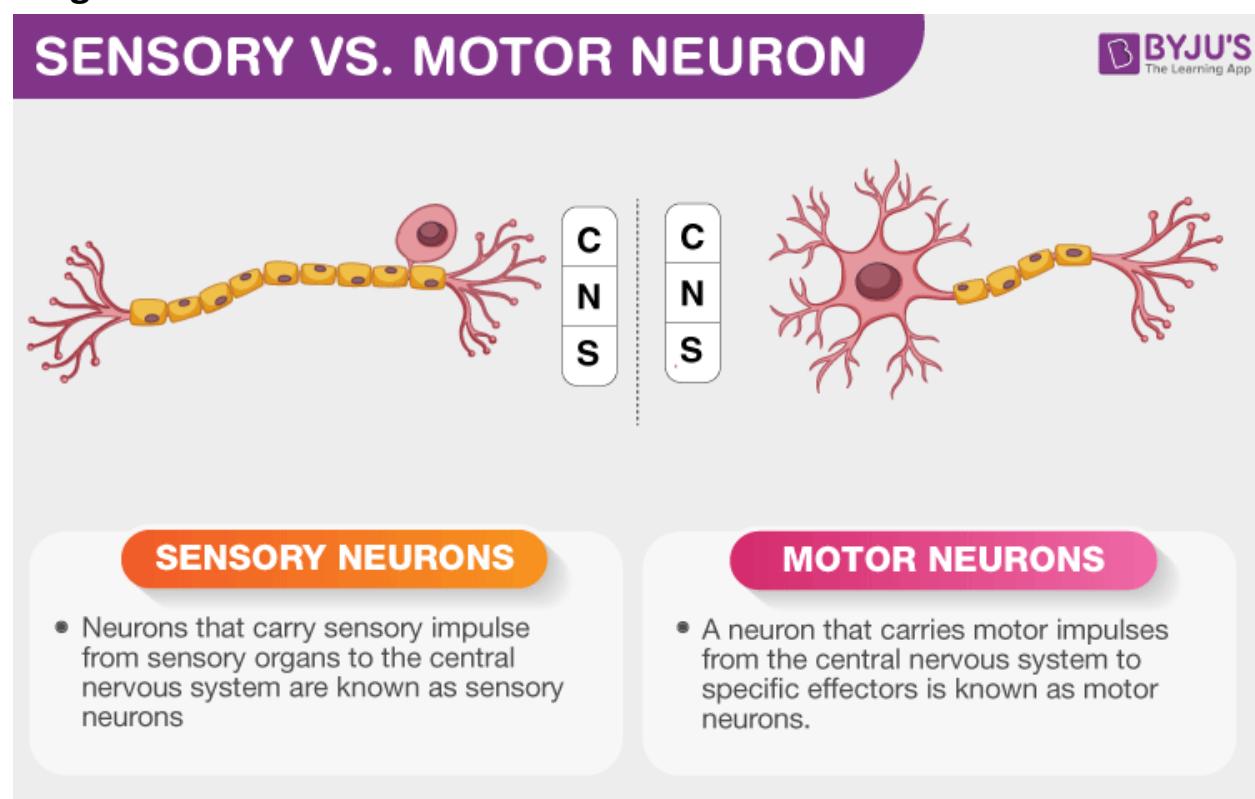
- **Autonomic Nervous System involuntary control , Cardiac muscle , smooth muscles and glands .**

- **Sympathetic Nervous System** activate (Fight or Flight) due to Secretion of adrenalin in response during threat or danger .
- **Parasympathetic Nervous System** restores the body to a state of calm due to secretion of Acetylcholine .

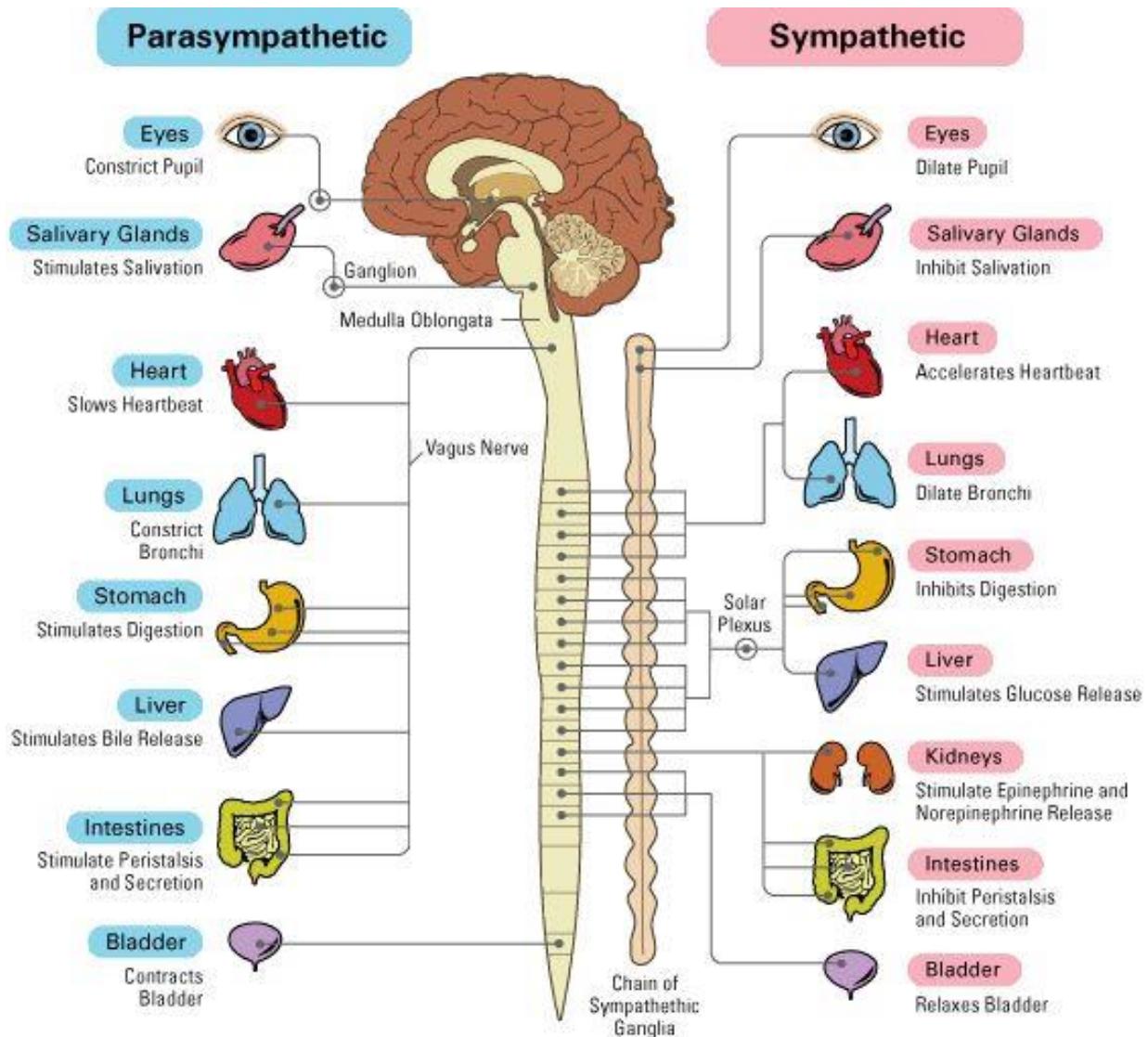
Types of Nerves Physiologically :

1 – Sensory Nerves : Carry signals as smell , taste , and touch to the brain .

2 – Motor Nerves : Carry signals from brain to organs to muscles or glands .



3 - Sensory Motors Nerves : for both Functions .



Schema Explaining How Parasympathetic and Sympathetic Nervous Systems Regulate Functioning Organs

Ganglia : ganglia of nervous system are collection of neuronal bodies found in the voluntary and autonomic branches (involuntary) of peripheral nervous system . Ganglia are synaptic relay stations between neurons . (Information enters the ganglia excites the neuron in the ganglia and then exits) . Present in brain and on dorsal roots of spinal nerves on both sides of both sides of vertebral column .

