

## المحاضرة 5 / الجهاز العصبي المحيطي \ علم الحيوان

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### 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 .**

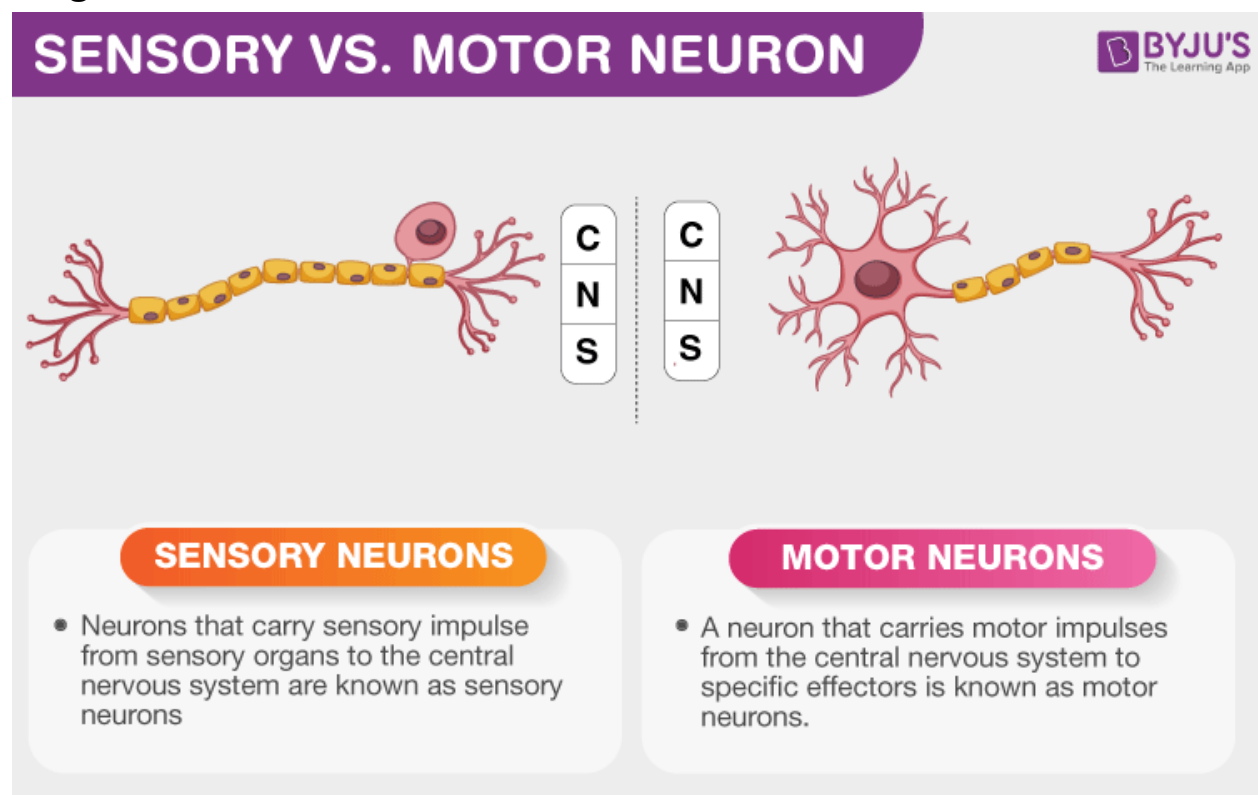
- **Autonomic Nervous System involuntary control , Cardiac muscle , smooth muscles and glands .**

- 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 .

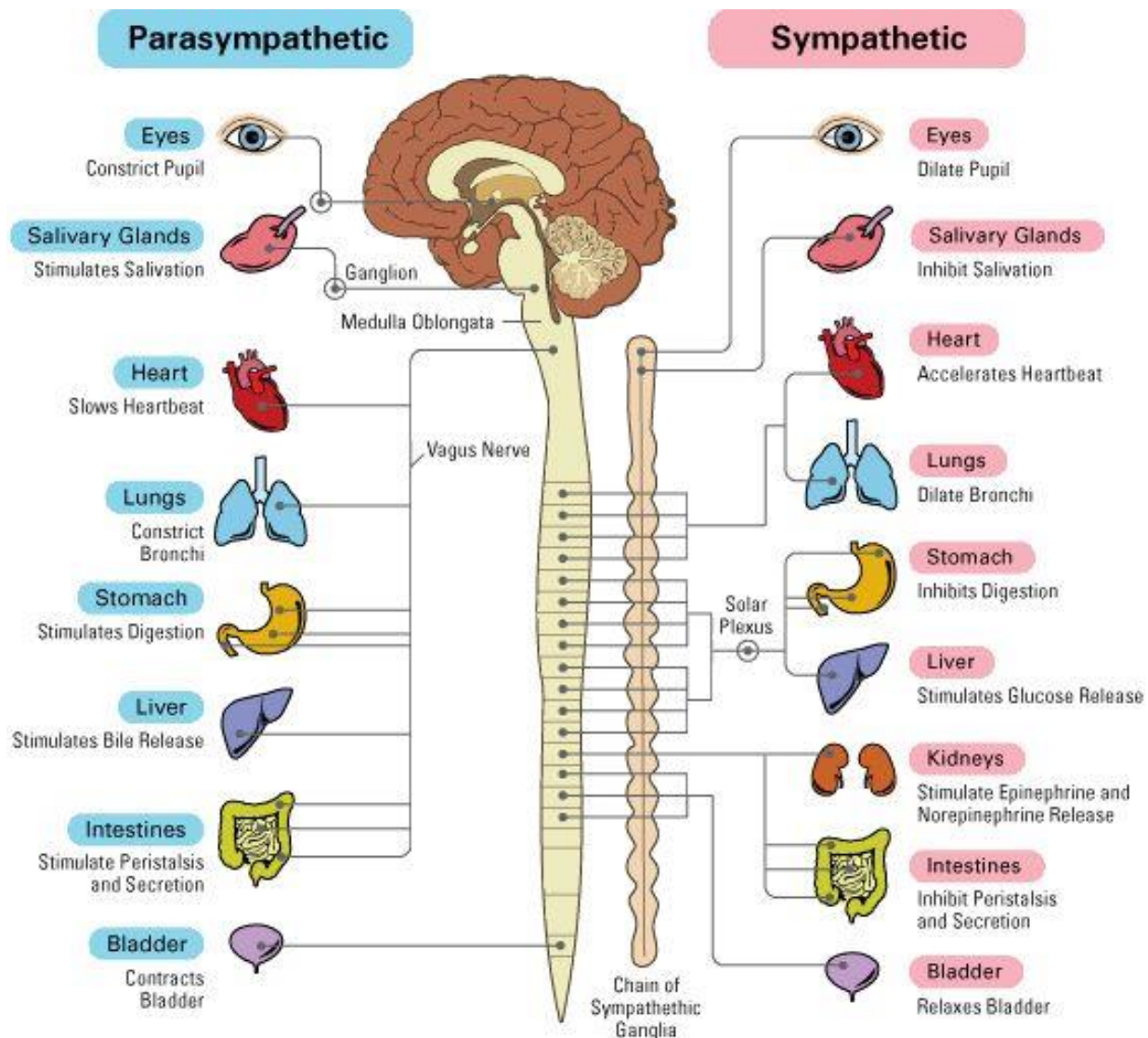
### Types of Nerves Physiologically :

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 .

