Enteric Nervous System

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NERVE SUPPLY TO GASTROINTESTINAL TRACT

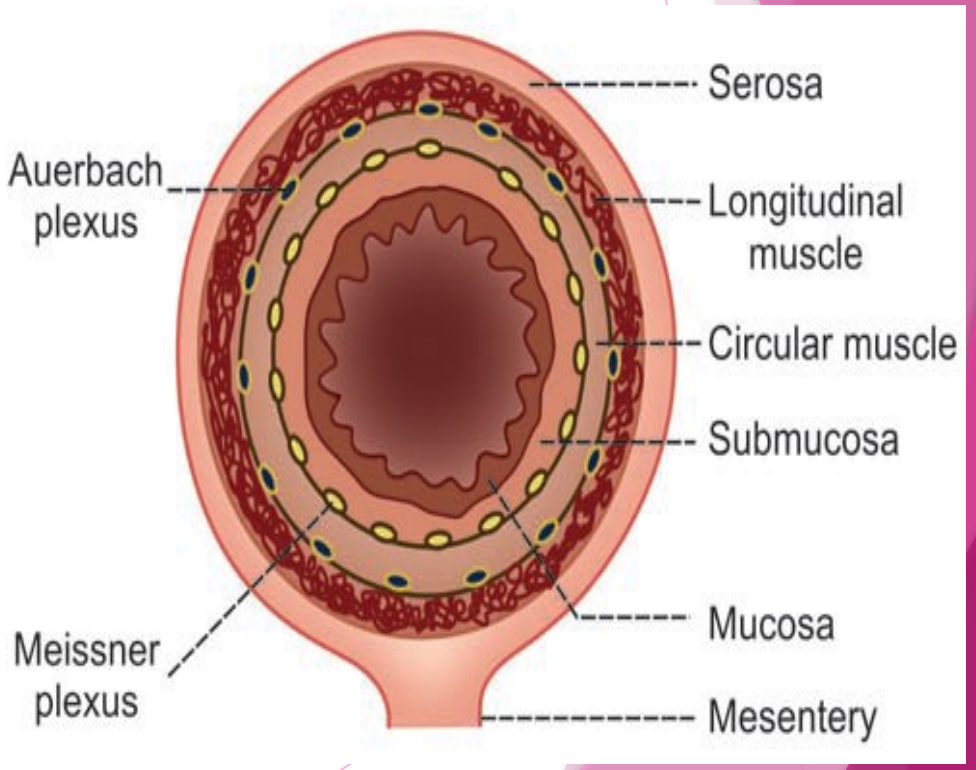
- GI tract has two types of nerve supply:
  - I. Intrinsic nerve supply
  - II. Extrinsic nerve supply.

INTRINSIC NERVE SUPPLY – ENTERIC NERVOUS SYSTEM

- **Intrinsic nerves** to GI tract form the enteric nervous system that controls all the secretions and movements of GI tract.
- Enteric nervous system is present within the wall of GI tract from esophagus to anus.

1. Auerbach plexus
2. Meissner plexus.

- These nerve plexus contain nerve cell bodies, processes of nerve cells and the receptors.
- The receptors in the GI tract are stretch receptors and chemoreceptors.
- Enteric nervous system is controlled by **extrinsic nerves.**



1. *Auerbach Plexus*

- Auerbach plexus is also known as **myenteric nerve plexus.**
- It is present in between the inner circular muscle layer and the outer longitudinal muscle layer.

Functions of Auerbach plexus

- Major function of this plexus is to **regulate the movements of GI tract**.
- Some nerve fibers of this plexus **accelerate** the movements by secreting the excitatory neurotransmitter substances like acetylcholine, serotonin and substance P.
- Other fibers of this plexus **inhibit** the GI motility by secreting the inhibitory neurotransmitters such as vasoactive intestinal polypeptide (VIP), neurotensin and enkephalin.

2. *Meissner Nerve Plexus*

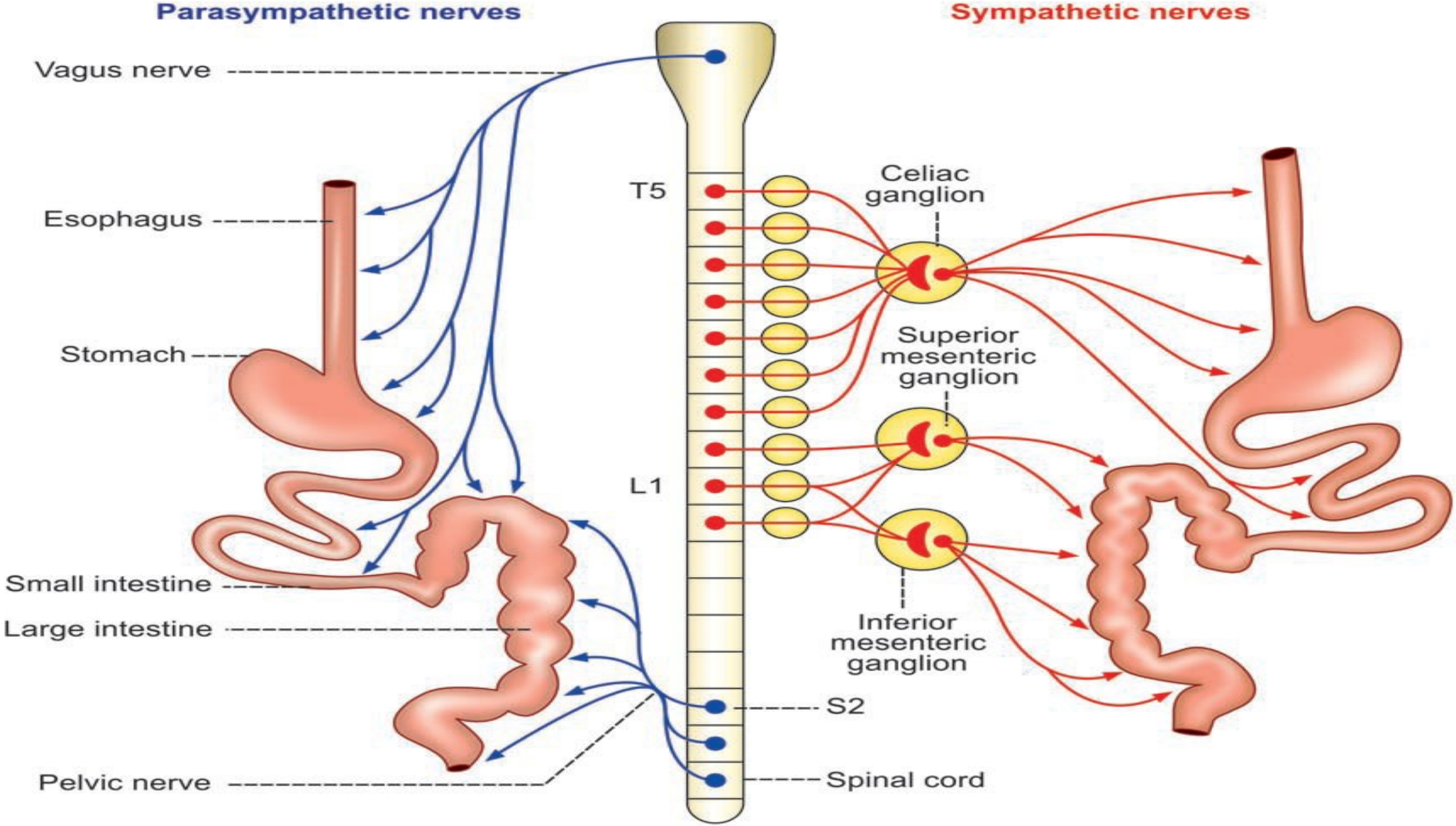
- Meissner plexus is otherwise called submucus nerve plexus.
- It is situated in between the muscular layer and submucosal layer of GI tract.

Functions of Meissner plexus

- Function of Meissner plexus is the **regulation** of secretory functions of GI tract.
- These nerve fibers cause constriction of blood vessels of GI tract.

EXTRINSIC NERVE SUPPLY

- Extrinsic nerves that control the enteric nervous system are from autonomic nervous system.
- Both sympathetic and parasympathetic divisions of autonomic nervous system innervate the GI tract.


Parasympathetic nerves
Sympathetic nerves
Vagus nerve
Esophagus
Stomach
Small intestine
Large intestine
Pelvic nerve
T5
L1
S2
Spinal cord
Celiac ganglion
Superior mesenteric ganglion
Inferior mesenteric ganglion

THANK YOU