**BIO 4432 – Human Anatomy**

*Resource #12*

The concepts this resource covers are the topics typically covered during this week of the semester. If you do not see the topics your particular section of class is learning this week, please take a look at other weekly resources listed on our website for additional topics throughout the semester.

**We also invite you to look at the group tutoring chart on our website to see if this course has a group tutoring session offered this semester.**

If you have any questions about these study guides, group tutoring sessions, private 30 minute tutoring appointments, the Baylor Tutoring YouTube channel or any tutoring services we offer, please visit our website www.baylor.edu/tutoring or call our drop in center during open business hours. M-Th 9am-8pm on class days 254-710-4135.

**Keywords: Innervation of the GI, Sympathetics, Parasympathetics**

## *Topic of the Week: GI Innervation*

### Sympathetic innervation

| Splanchnics | Synapse location | Effector organ(s) |
|---|---|---|
| Greater splanchnics (T5-T9) | Celiac ganglion | Foregut organs |
| Lesser splanchnics (T10-T11) | Superior mesenteric ganglion | Midgut organs |
| Least splanchnics (T12) | Superior mesenteric ganglion | Midgut, kidneys, adrenal glands |
| Lumbar splanchnics (L1-L2) | Inferior mesenteric ganglion | Midgut and hindgut organs |
| Sacral splanchnics (lumbar lateral cord and down) | Superior hypogastric plexus | Hindgut, pelvic, and perineal structures |

Sympathetics are going to:

- Relax the gallbladder
- Reduce peristalsis
- Stimulate the liver to produce more glucose

### Parasympathetic innervation

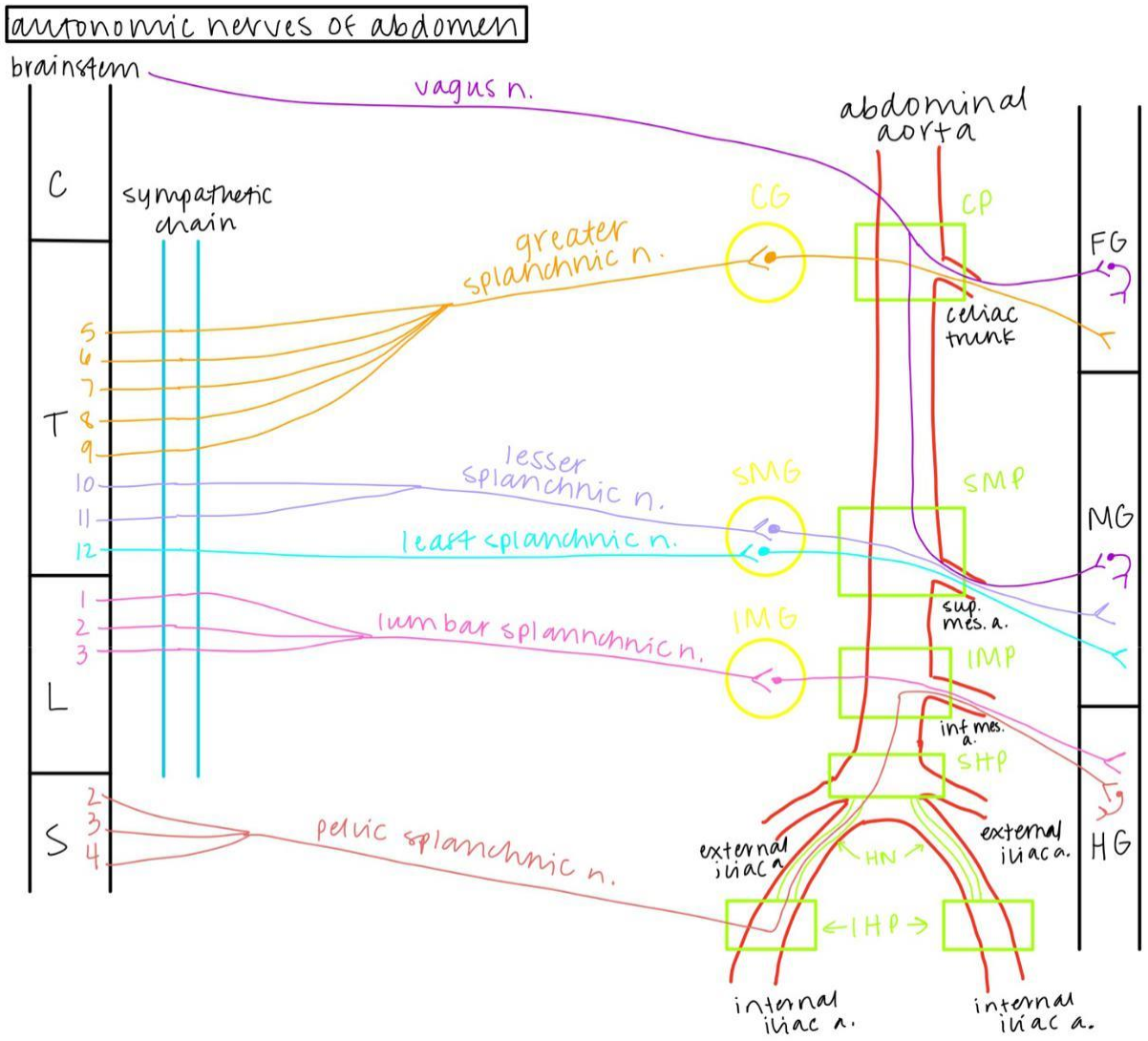
The vagus nerve innervates the foregut and the midgut.

The pelvic splanchnics (S2-S4) innervates the hindgut, pelvic, and perineal organs.

- Travels through the inferior hypogastric plexus (mixture of parasympathetics and sympathetics)
- Synapse at target organ
- **These are the ONLY parasympathetic splanchnics!!**

### Innervation drawing

Y'all should be drawing something similar, but I included mine below just in case. This can help you visualize where everything is synapsing, traveling to, and innervating.

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**Week 14 Knowledge Checkpoint:**

1. What nerves are responsible for relaxing the gallbladder?
    a. Lumbar splanchnics
    b. Lesser splanchnics
    c. Greater splanchnics
    d. Pelvic splanchnics

2. What nerve(s) supply parasympathetic innervation to the midgut?
    a. Pelvic splanchnics
    b. Vagus
    c. Lumbar splanchnics
    d. Least splanchnics

3. Where do the greater splanchnics synapse?

a. Celiac ganglion
b. Inferior mesenteric ganglion
c. Superior mesenteric ganglion
d. Inferior hypogastric plexus

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## THINGS YOU MAY STRUGGLE WITH!

1. ***GI as a whole:*** This includes information on last week's resource as well as this one. I would suggest (again) to split this material into foregut, midgut, and hindgut. When studying, make sure you know everything about all organs covered including what part of the GI system they're in, what they do, what their blood supply is, and what their innervation is.

**CONGRATS:** You made it to the end of the resource! Thanks for checking out these weekly resources! Don't forget to check out our website for group tutoring times, video tutorials and lots of other resources: www.baylor.edu/tutoring!

**Answers**

1. c
2. b
3. a