



**Libyan International Medical University**  
**Faculty of Pharmacy**



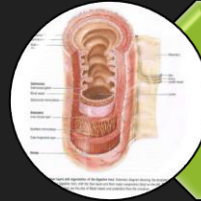
# **Analysis of the physiological anatomy of "GIT"**

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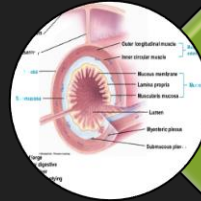
# Objectives

1. Define layers of "GIT".
2. Demonstrate the components of mucosa
3. Demonstrate the components of serosa
4. List bile functions
5. Restate the secretion of mucus by duodenum & large intestine

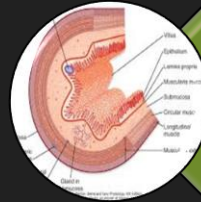
# Layers of GIT:



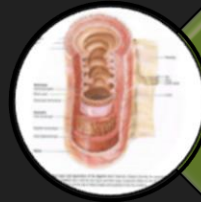
*mucosa*



*sub mucosa*



*Muscular*



*Serosa*

Body wall

Peritoneum

Mesentery

*Serosa*

*sub mucosa*

Outer longitudinal muscle

Inner circular muscle

Mucous membrane

Lamina propria

Muscularis mucosa

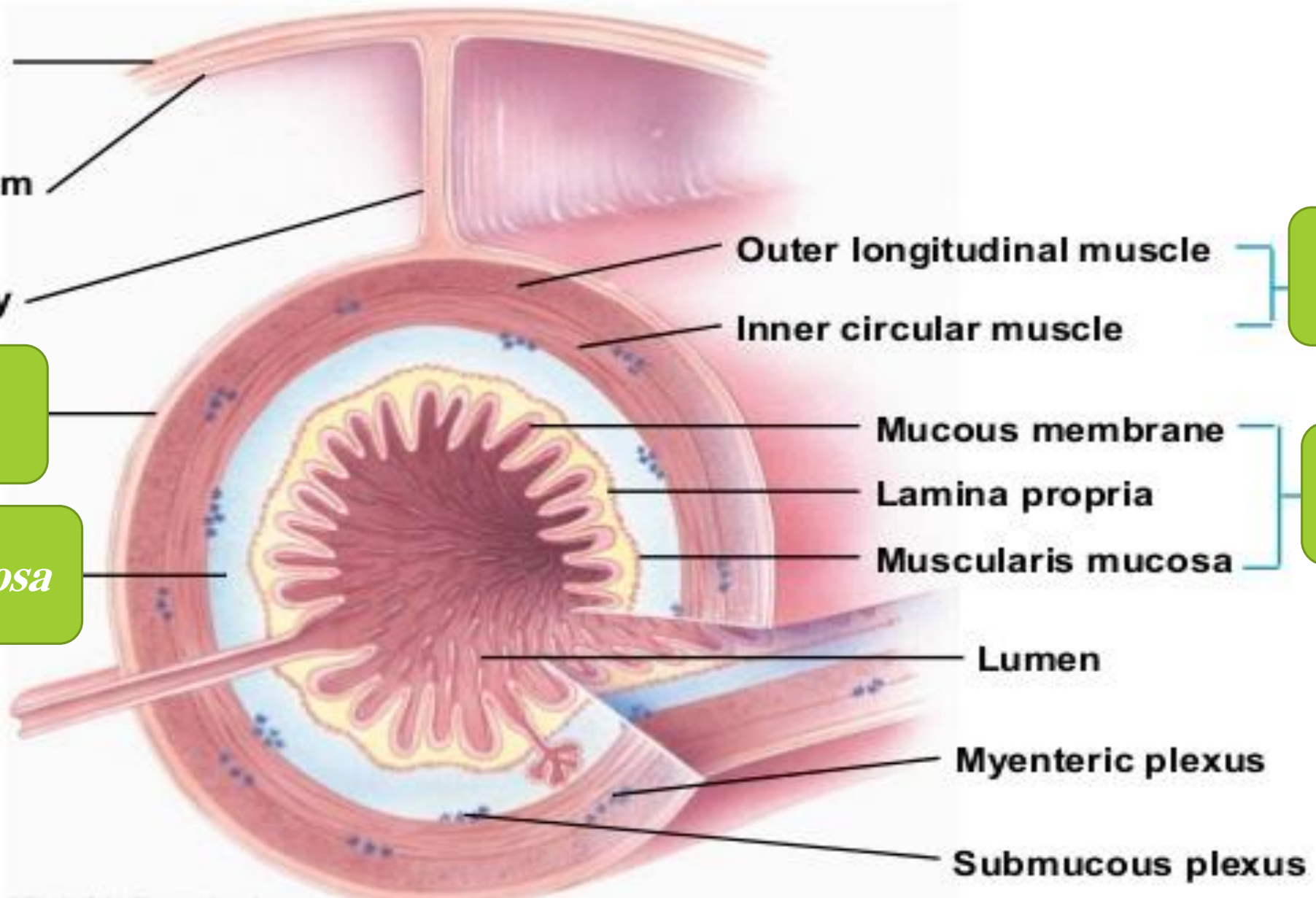
Lumen

Myenteric plexus

Submucous plexus

*Muscular*

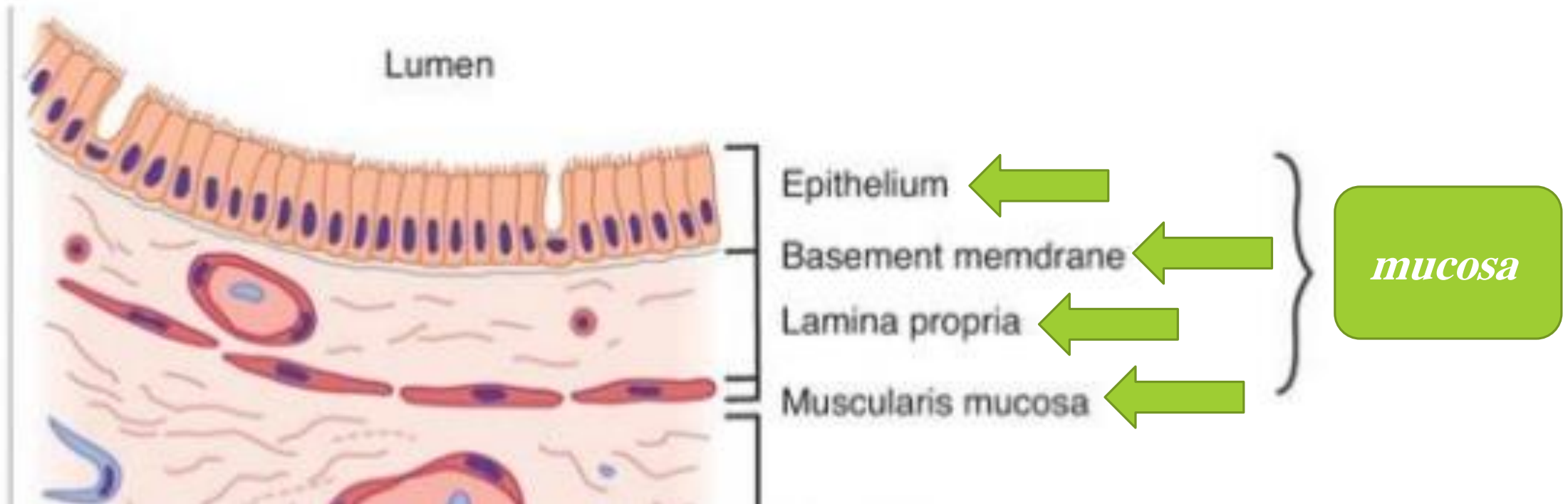
*mucosa*



# *The mucosa*

The mucosa lines the luminal surface. Its inner epithelial layer has exocrine and endocrine cells. It contains nerve fibers and small blood and lymph vessels in which absorbed nutrients pass. Mainly for absorption and secretion. May also help in digestion.

# *The mucosa consists of :*





# ***The sub mucosa***

- Is under the mucosa.**
- This connective tissue has large blood and lymph vessels.**
- It contains a sub mucosal plexus .**
- One of the two major nerve networks of the enteric nervous system.**

# *The Muscular*

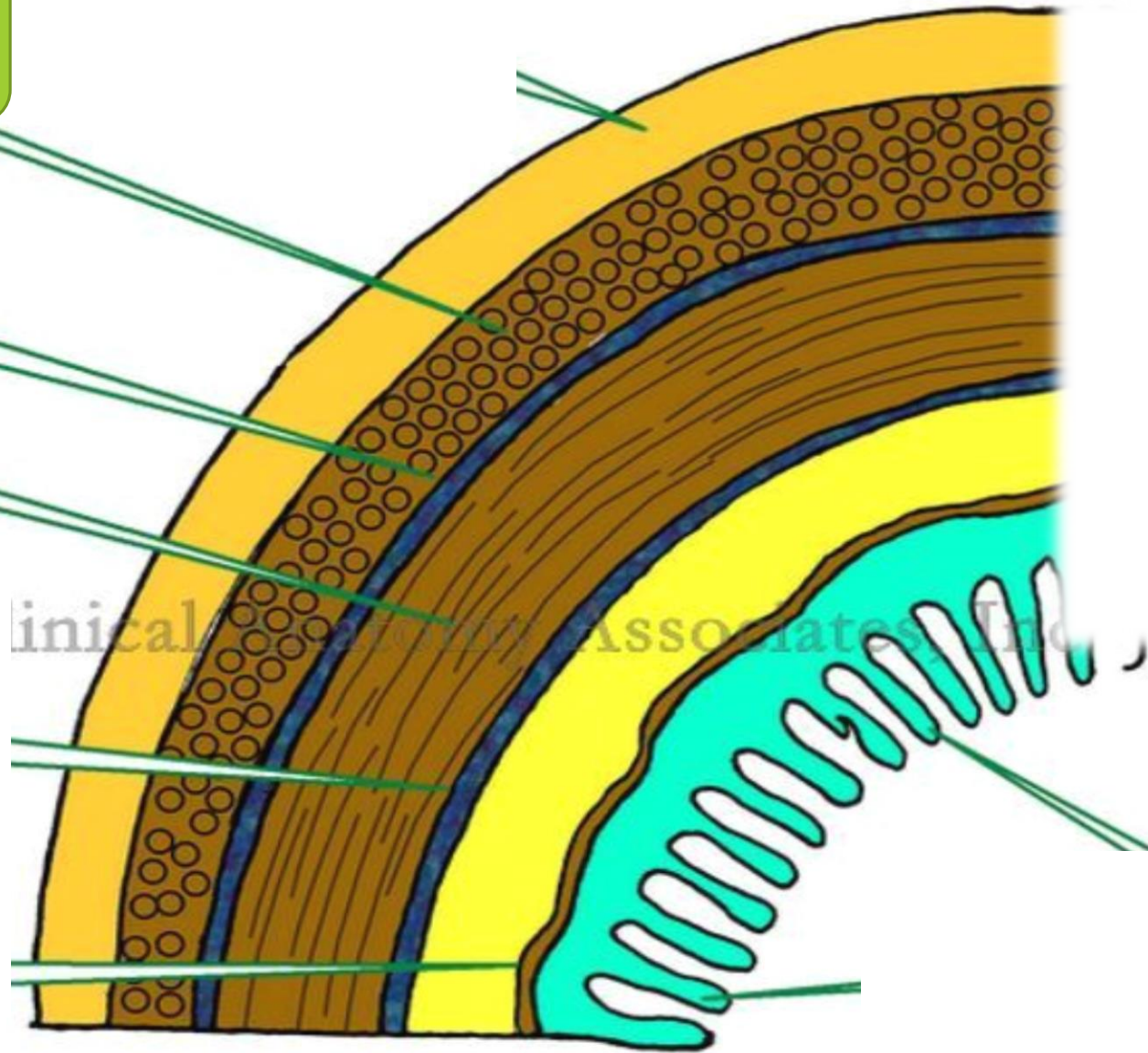
- ➔ Is responsible for segmental contractions and extrusion movement **through the GIT.**
- ➔ The outer wall of the intestinal tract consists mostly of two layers of smooth muscles:
  - 1- Inner circular layer
  - 2- Outer longitudinal layer
  - 3- Myentric nerve plexus in between these 2 layers



longitudinal layer

Myentric  
nerve plexus

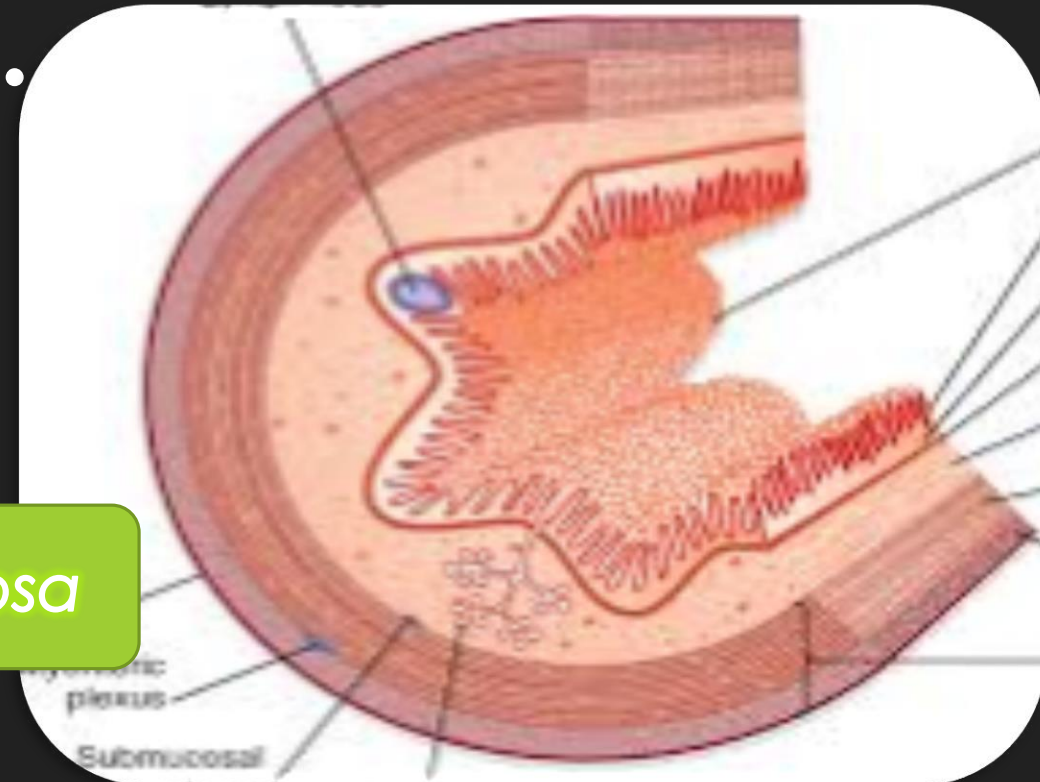
circular layer



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# *The serosa :*

- ➔ This is a membrane that covers the G.I. tract.
- ➔ It completes the wall of **GIT**.

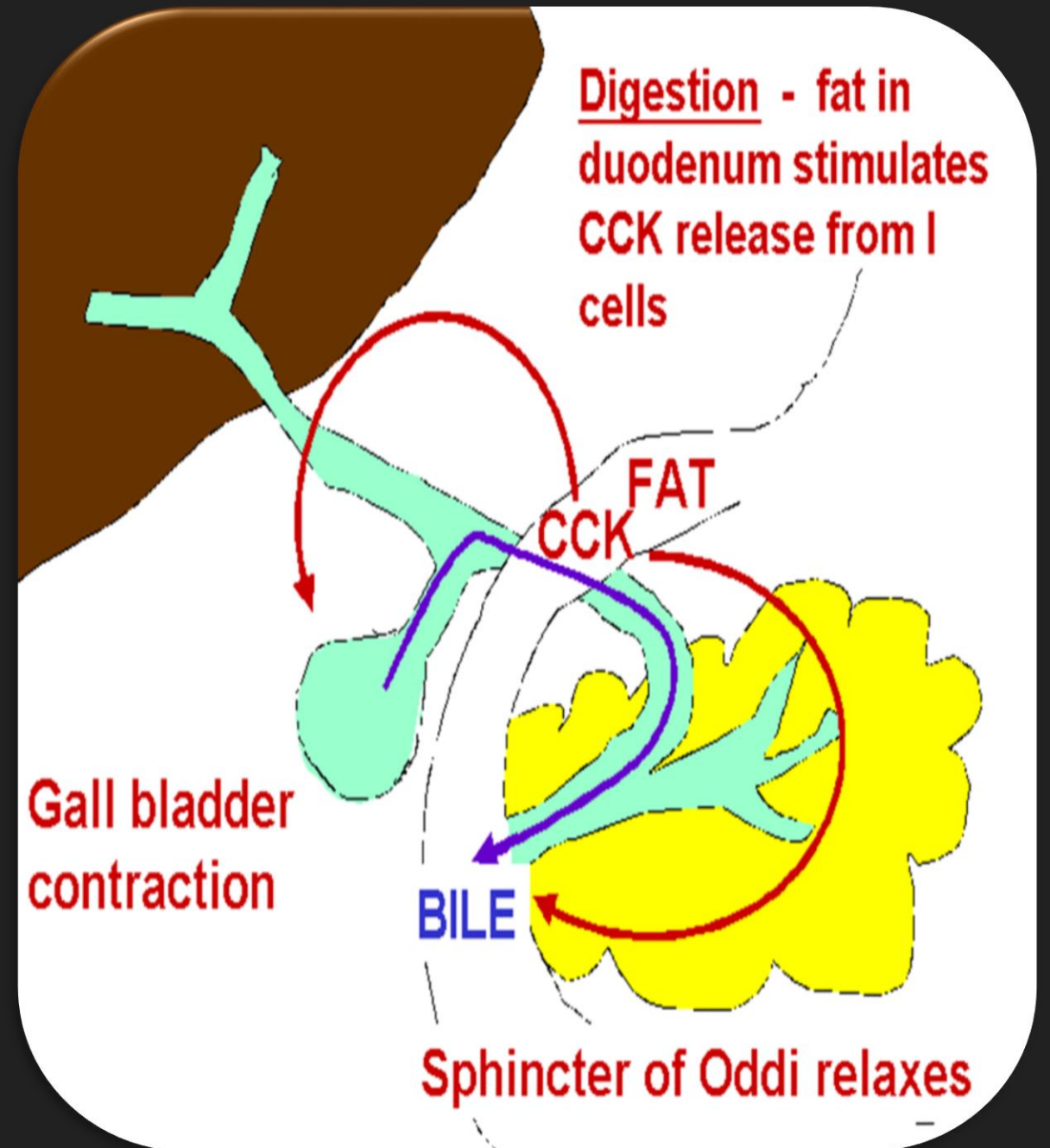


serosa

# Functions of bile

**1- Digestion of fat :** Bile salts promote breakdown of fat into fine particles (emulsification) which help in fat digestion.

**2- Absorption of fat :** Bile salts form water soluble micelles thereby helps in fat absorption.



### ***3- Absorption of vitamins :***

Bile salts help in the absorption of fat-soluble vitamins.

### ***4- Cholera:***

Bile salts stimulate the liver to secrete bile.



**Restate the secretion of mucus by  
bronners in duodenum**

**An extensive array of compound mucous glands, called *Brunner's glands*, is located in the wall of the first few centimeters of the duodenum, mainly between the pylorus.**

**These glands secrete large amounts of alkaline mucus in response to the following (next slide):**



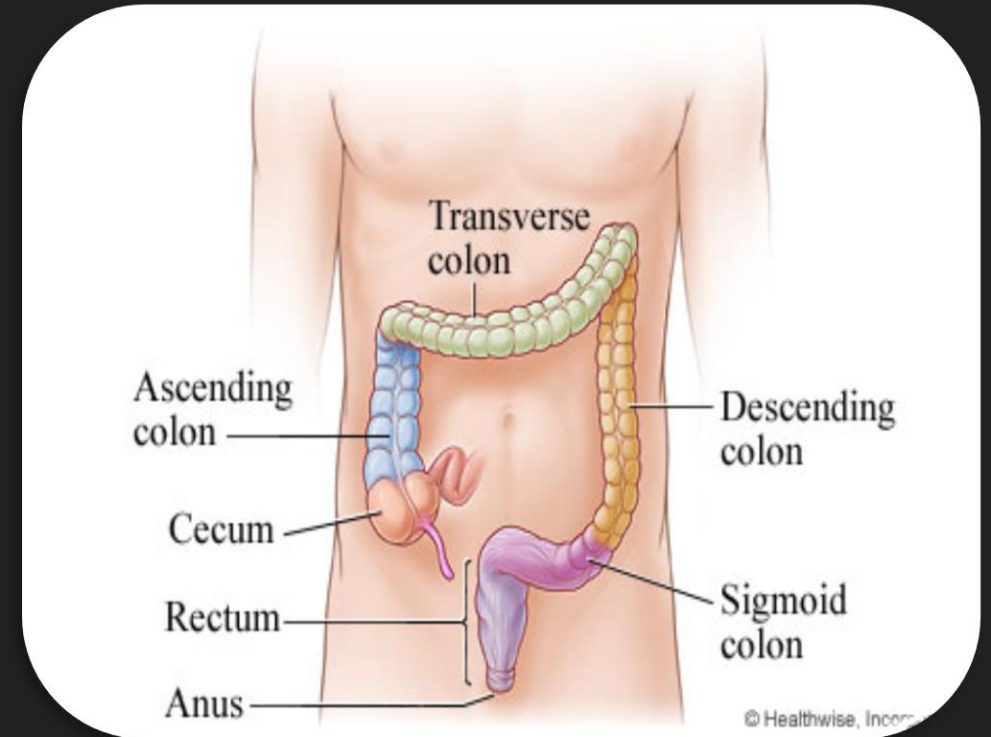
- (1) Tactile or irritating stimuli on the duodenal mucosa**
- (2) Vagal stimulation, which causes increased Brunner's glands secretion concurrently with increase in stomach secretion**
- (3) Gastrointestinal hormones, especially *secretin***

**Restate the secretion of mucus by large intestine**

➔ It is secreted by mucus (**epithelial**) cells of large intestine.

## Composition:

The mucus contains moderate amount of bicarbonate secreted by non-mucus secretion epithelial cells.



## **Functions of large intestine:**

- 1. Excretion**
- 2. Gut flora**
- 3. Standing gradient osmosis**

# Reference:

- Guyton, 2011, medical physiology, twelfth edition, united states of America, Elsevier