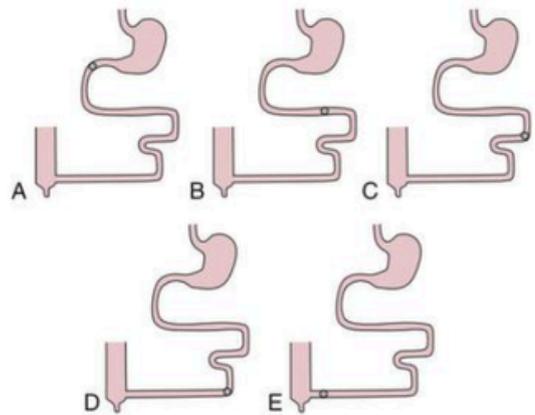


Lecture (1-3)

1. Swallowing is a complex process that involves signaling between the pharynx and swallowing center in the brain stem. Which structure is critical for determining whether a bolus of food is small enough to be swallowed?

- A) Epiglottis
- B) Larynx
- C) Palatopharyngeal folds
- D) Soft palate
- E) Upper esophageal sphincter



answer: c

2. Which substances have a physiological role in stimulating the release of hormones or stimulating nervous reflexes, which in turn can inhibit gastric acid secretion?

	Acid	Fatty Acids	Hyperosmotic Solutions	Isotonic Solutions
A)	No	No	Yes	No
B)	No	No	Yes	Yes
C)	Yes	Yes	No	Yes
D)	Yes	Yes	Yes	Yes
E)	Yes	Yes	Yes	No

answer: e

Lecture (1-3)

3. A clinical study is conducted to determine the time course of gastric acid secretion and gastric pH in healthy volunteers after a meal consisting of 10 percent fat, 30 percent protein, and 60 percent carbohydrate. The results show an immediate increase in the pH of the gastric juice after the meal, which is followed several minutes later by a secondary increase in the rate of acid secretion. A decrease in which substance is most likely to facilitate the secondary increase in the rate of acid secretion in these volunteers?

- A) Gastrin
- B) Cholecystokinin
- C) Somatostatin
- D) Vasoactive intestinal peptide

answer: c

4. Vomiting is a complex process that requires coordination of numerous components by the vomiting center located in the medulla. Which of the following occurs during the vomiting act?

	LES	Upper Esophageal Sphincter	Abdominal Muscles	Diaphragm
A)	Contract	Contract	Contract	Contract
B)	Contract	Contract	Relax	Relax
C)	Relax	Contract	Contract	Relax
D)	Relax	Relax	Contract	Contract
E)	Relax	Relax	Relax	Relax

answer : d

msq (GUYTON)

Lecture (1-3)

5. Gastric emptying is tightly regulated to ensure that chyme enters the duodenum at an appropriate rate. Which event promotes gastric emptying under normal physiological conditions in a healthy person?

	Tone of Orad Stomach	Segmentation Contractions in Small Intestine	Tone of Pyloric Sphincter
A)	Decrease	Decrease	Decrease
B)	Decrease	Increase	Decrease
C)	Increase	Decrease	Decrease
D)	Increase	Decrease	Increase
E)	Increase	Increase	Increase

answer : c

6. CCK and gastrin share multiple effects at pharmacological concentrations. Which effects do CCK and gastrin share (or not share) at physiological concentrations?

	Stimulation of Acid Secretion	Inhibition of Gastric Emptying	Stimulation of Gastric Mucosal Growth	Stimulation of Pancreatic Growth
A)	Not shared	Not shared	Not shared	Not shared
B)	Not shared	Not shared	Shared	Not shared
C)	Not shared	Shared	Not shared	Not shared
D)	Shared	Shared	Not shared	Not shared
E)	Shared	Shared	Shared	Shared

Answer : a

Lecture (1-3)

7. Which type of ion channel is most likely to be irreversibly opened in the intestinal epithelial cells of these people?

- A) Calcium
- B) Chloride
- C) Magnesium
- D) Potassium
- E) Sodium

answer : b

8. The proenzyme pepsinogen is secreted mainly from which of the following structures?

- A) Acinar cells of the pancreas
- B) Ductal cells of the pancreas
- C) Epithelial cells of the duodenum
- D) Gastric glands of the stomach

answer:d

9. Which hormone is released by the presence of fat and protein in the small intestine and has a major effect in decreasing gastric emptying?

- A) CCK
- B) GLIP
- C) Gastrin
- D) Motilin
- E) Secretin

answer:a

10. Compared with plasma, saliva has the highest relative concentration of which ion under basal conditions?

- A) Bicarbonate
- B) Chloride
- C) Potassium
- D) Sodium

answer :c

msq (GUYTON)

Lecture (1-3)

11. Which of the following can inhibit gastric acid secretion?

	Soma- tostatin	Secretin	GLIP	Entero- gastrones	Nervous Reflexes
A)	No	No	Yes	No	Yes
B)	No	Yes	No	No	No
C)	No	Yes	No	Yes	No
D)	Yes	No	No	Yes	Yes
E)	Yes	No	Yes	No	No
F)	Yes	Yes	Yes	Yes	Yes

answer:f

12. The gastrointestinal hormones have physiological effects that can be elicited at normal concentrations, as well as pharmacological effects that require higher than normal concentrations. What is the direct physiological effect of the various hormones on gastric acid secretion?

	Gastrin	Secretin	Entero- gastrin kinin	GLIP	Motilin
A)	No effect	Stimulate	Stimulate	No effect	No effect
B)	Stimulate	Inhibit	No effect	Inhibit	No effect
C)	Stimulate	Inhibit	No effect	No effect	No effect
D)	Stimulate	Inhibit	Inhibit	Stimulate	Stimulate
E)	Stimulate	Stimulate	Inhibit	Inhibit	No effect

answer: b

Lecture (1-3)

13. Which ion has the highest concentration in saliva under basal conditions?

- A) Bicarbonate
- B) Chloride
- C) Potassium
- D) Sodium

answer: a

14. A 23-year-old medical student consumes a cheeseburger, fries, and chocolate shake. Which of the following hormones produce physiological effects at some point during the next several hours?

	Gastrin	Secretin	Cholecystokinin	GLIP
A)	No	Yes	Yes	Yes
B)	Yes	No	Yes	Yes
C)	Yes	Yes	No	Yes
D)	Yes	Yes	Yes	Yes
E)	Yes	Yes	Yes	Yes

answer: e

15. A 68-year-old woman with hematemesis has heartburn and stomach pain. An endoscopy shows inflammation involving the gastric body and antrum as well as a small gastric ulcer. Biopsies were positive for *H. pylori*. *H. pylori* damages the gastric mucosa primarily by increasing mucosal levels of which of the following?

- A) Ammonium
- B) Bile salts
- C) Gastrin
- D) NSAIDS
- E) Pepsin

answer : a

Lecture (1-3)

16. A 10-year-old boy consumes a glass of milk and two cookies. His LES and fundus relax while the food is still in the esophagus. Which substance is most likely to cause relaxation of the LES and fundus in this boy?

- A. Gastrin
- B. Histamine
- C. Motilin
- D. Nitric oxide
- E. Norepinephrine

answer: d

17. A 19-year-old man is fed intravenously for several weeks after a severe automobile accident. The intravenous feeding leads to atrophy of the gastrointestinal mucosa, most likely because the blood level of which of the following hormones is reduced?

- A) Cholecystokinin only
- B) Gastrin only
- C) Secretin only
- D) Gastrin and cholecystokinin
- E) Gastrin and secretin
- F) Secretin and cholecystokinin

answer : b

18. Mass movements are often stimulated after a meal by distention of the stomach (gastrocolic reflex) and distention of the duodenum (duodenocolic reflex). Mass movements often lead to which of the following?

- A) Bowel movements
- B) Gastric movements
- C) Haustrations
- D) Esophageal contractions
- E) Pharyngeal peristalsis

answer : a

Lecture (1-3)

19. A 45-year-old woman with type 1 diabetes has an early feeling of fullness when eating. She is often nauseous after a meal and vomits about once each week after eating. Glucose-induced damage to which structure is most likely to explain her gastrointestinal problem?

- A) Celiac ganglia
- B) Enteric nervous system
- C) Esophagus
- D) Stomach
- E) Vagus nerve

answer: e

20. Which stimulus-mediator pair normally inhibits gastrin release?

	Stimulus	Mediator
A)	Acid	CCK
B)	Acid	GLIP
C)	Acid	Somatostatin
D)	Fatty acid	Motilin
E)	Fatty acid	Somatostatin

answer: c

Lecture (1-3)

21. A 62-year-old man with dyspepsia and a history of chronic gastric ulcer has abdominal pain. Endoscopy shows a large ulcer in the proximal gastric body. Biopsies were positive for *H. pylori*. Which substances are used clinically for treatment of gastric ulcers of various etiologies?

	Antibiotics	NSAIDs	H ₂ Blockers	Proton Pump Inhibitors
A)	No	No	Yes	Yes
B)	Yes	No	No	Yes
C)	Yes	No	Yes	Yes
D)	Yes	Yes	Yes	Yes
E)	No	Yes	Yes	Yes

answer: c

22. A 45-year-old man presents with abdominal pain and hematemesis. An abdominal examination was relatively benign, and abdominal radiographs were suggestive of a perforated viscus. Endoscopy revealed a chronically perforated gastric ulcer; through which the liver was visible. Which mechanism is a forerunner to gastric ulcer formation?

- A) Back-leak of hydrogen ions
- B) Mucus secretion
- C) Proton pump inhibition
- D) Tight junctions between cells
- E) Vagotomy

answer: a

Lecture (1-3)

24. A 55-year-old man consumes a meal consisting of 20 percent fat, 50 percent carbohydrate, and 30 percent protein.

The following gastrointestinal hormones are released at various times during the next 6 hours: gastrin, secretin, motilin, glucose-dependent insulinotropic peptide, and cholecystokinin. Which structure is most likely to release all five hormones in this man?

- A) Antrum
- B) Colon
- C) Duodenum
- D) Esophagus
- E) Ileum

answer : c

25. An 89-year-old man has a cerebrovascular accident (stroke) in the medulla and pons that completely eliminates all vagal output to the gastrointestinal tract. Which function is most likely to be totally eliminated in this man?

- A) Gastric acid secretion
- B) Gastrin release
- C) Pancreatic bicarbonate secretion
- D) Primary esophageal peristalsis
- E) Secondary esophageal peristalsis
- F) None of the above

answer: d

26. An 84-year-old man with hematemesis and melena is diagnosed with a duodenal ulcer. A patient diagnosed with a duodenal ulcer is likely to exhibit which of the following?

	Parietal Cell Density	Acid Secretion	Plasma Gastrin
A)	Decreased	Decreased	Decreased
B)	Decreased	Increased	Decreased
C)	Increased	Decreased	Increased
D)	Increased	Increased	Decreased
E)	Increased	Increased	Increased

answer: d

msq (GUYTON)

Lecture (1-3)

27. The gastric phase of gastric secretion accounts for about 60 percent of the acid response to a meal. Which substance can virtually eliminate the secretion of acid during the gastric phase?

- A) Antacids (e.g., Rolaids)
- B) Antigastrin antibodies
- C) Atropine
- D) Histamine H₂ blocker
- E) Proton pump inhibitor

answer : c

28. A 71-year-old man with upper abdominal pain and blood in the stool takes NSAIDs for the pain and washes it down with whiskey. Pentagastrin administration produced lower than predicted levels of gastric acid secretion. Secretion of which substance is most likely to be diminished in this patient with gastritis?

- A) Intrinsic factor
- B) Ptyalin
- C) Rennin
- D) Saliva
- E) Trypsin

answer : a

29. Gastric acid is secreted when a meal is consumed. Which factors have a direct action on the parietal cell to stimulate acid secretion?

	Gastrin	Somatostatin	Acetylcholine	Histamine
A)	No	No	Yes	Yes
B)	Yes	No	No	Yes
C)	Yes	No	Yes	Yes
D)	Yes	Yes	Yes	Yes
E)	Yes	Yes	No	Yes

answer: e