Mechanical Digestion in the Gastrointestinal Tract

Directions:
a. Click the "Contents" button.
b. Open the Digestive System File.
c. Click Animations.
d. Click Mechanical Digestion in the Gastrointestinal Tract.

Introduction

1. Define the gastrointestinal tract (GI).

2. Identify three mechanical digestion activities.
   a. 
   b. 
   c. 

3. Name two feedback loops that regulate digestive system smooth muscle responsible for propulsive and mixing movements.

   

   

Neural Regulation of Mechanical Digestion

4. Identify three neural systems that control the mechanical movements in the GI tract.
   a. 
   b. 
   c. 

5. Describe the role of the CNS with regard to swallowing. What is the stimulus?

   

   

6. a. What are the components of the ANS (long) neural reflexes? 

   

   

b. What is the stimulus for ANS regulation?


c. What do ANS neurons regulate with regard to mechanical digestion? What are the possible responses?


7. Where are enteric nervous system plexuses located?


Mastication

8. Define and describe the events of *mastication*.


Deglutition

9. Define *deglutition*.

10. a. Describe during each stage of deglutition.

   *Voluntary* -

   *Involuntary pharyngeal* -

   *Involuntary esophageal* -

b. Describe *peristaltic* movement.


Stomach Peristalsis

11. a. Explain the role of stomach *stretch receptors*.

b. What is the function of stomach *mixing waves*.

   

   

c. Describe the role of the parasympathetic nervous system relative to digestive movements.
Endogastric Reflex

12. What are three functions of the enterogastric reflex?
   a. ______________________________________________________
   b. ______________________________________________________
   c. ______________________________________________________

13. Determine if these motor impulses are sympathetic or parasympathetic. __________________________________________

Segmentation and Migrating Motility Complexes

14. Describe segmentation and its effect. ______________________________________________________

15. Describe migrating motility complexes. ______________________________________________________

Gastroileal Reflex

15. The ileocecal valve is normally closed. Explain the role of the gastroileal reflex. 
   ______________________________________________________
   ______________________________________________________

Haustral Churning

16. What ultimately stimulates closing of the ileocecal valve? __________________________________________

17. Describe haustral churning and its function. ______________________________________________________

Gastrocolic Reflex and Mass Peristalsis

18. Describe the gastrocolic reflex and explain its function. __________________________________________
Defecation

19. a. What is the function of rectal stretch receptors? ________________________________

b. Describe the ANS pathway that regulates the defecation reflex. ____________________

c. Describe the defecation reflex responses to parasympathetic impulses.

  *Longitudinal contractions* - ________________________________

  *Internal anal sphincter* - ________________________________

  *External anal sphincter* - ________________________________