

The Digestive System & Metabolism

Study Guide C25 & C26

(> = hot list questions)

1. What are the functions of the digestion system? Significance of each function?
2. What is the order of the segments in the gastrointestinal tract?
- >3. What is the function for each segment of the GI tract?
4. What is common histology seen throughout the GI track? What is the lamina propria?
5. What type of muscle regulates passage along the GI tract?
- >6. What are the accessory organs of the digestive system? Functions of each?
- >7. What are the four classes of macromolecules? What is the name of their monomers? Are they hydrophobic or hydrophilic? Significance?
8. What role does the pancreas provide in digestion? (2- Explain both.)
- >9. What is a zymogen?
10. What is the structure of a gastric pit?
- >11. What are the four different type of cells in a gastric pit? What is each cell's secretions and it functions?
- >12. What is the difference between chemical and mechanical digestion? Significance? Different locations for each macromolecule?
- >13. What is the enterogastric reflex?
- >14. How long does it take to empty the stomach after a meal?
15. What macromolecules are polymers of glucose? Which exogenous polymer can we digest? Where is this polymer stored? What is the polymer that we can not digest?
- >16. What polymer of glucose is made by humans? Location of single largest deposit of this polymer?
17. When running, how long does it take to deplete glycogen from the liver?
- >18. What are the three components of bile? Function of each component?
19. What is an enteroendocrine cell? Location(s)?
- >20. What is secretin? Produced by? Function? Target tissue(s)?
- >21. What is cholecystokinin? Produced by? Target tissue(s)?
- >22. What is glucose-dependent insulinotropic peptide? Produced by? Target tissue?
- >23. What is grelin? Nickname? Target tissue?
- >24. What is contact digestion? Where does this occur? Type of molecule? Function?
- >25. What is segmentation? Location? Function? Occurs when?
- >26. What is peristalsis? Also called? Location? Function? Occurs when?
- >27. What is the structure and function of micelles? When and where are they formed?
- >28. What is the structure and function of chylomicrons, HDL, VLDL, and LDL? Nicknames? Why are they necessary?
- >29. How is the surface area of the small intestine increased (3)? Significance?
30. What is the volume of the stomach when empty? After normal meal? After holiday meal?
- >31. How long does it take to empty the stomach after a normal meal?
32. What terms are used to describe the food as it passes through the alimentary canal (3 terms)?
- >33. How much food passes into the duodenum with each stomach contraction? Why? What is the negative feedback mechanism?
- >34. Where is 99% of the nutrients digested and absorbed from?
35. Where does carbohydrate digestion start? Where does most of the carbohydrate digestion occur? Type of enzyme for carbohydrate digestion? Multiple sources?
36. Does carbohydrate digestion occur in the stomach? Or is it stopped there? Why?
37. Where does protein digestion begin? Enzyme for this digestion? What is pH's role?
38. Where does lipid digestion start? Where does most lipid digestion occur?
39. What helps lipid digestion in the duodenum? Sources for these substances?
- >40. What is the significance of the hepatic portal vein?
41. What nutrient does not travel through the hepatic portal vein? Why?

- >42. What are the three phases of gastric regulation? Explain
- >43. What three factors protect the stomach's mucosa from "digestion"?
- >44. What is the enterohepatic circulation? Used for what?
- 45. What is the alkaline tide? What enzyme makes this possible?
- >46. What is the only essential function of stomach?
- >47. What is glycolysis? Where does it occur? Significance? Requirements? What occurs if oxygen is present?
- >48. What is the Krebs's Cycle? Where does it occur? Significance? Requirements? All end products?
- 49. What is the net result of each pathway? Include products and waste?
- >50. What is the electron transport chain? Location? What molecules are reduced? What happens to the captured protons? How are the protons used to make ATP?
- >51. What are enterokinase? What is the function of enterokinase?
- 52. What is the significance of the enteric nervous system? What does it regulate? How is it modified?
- 53. What is the function of Vitamin D? How is it formed? Nickname?

- >54. What are the monomers for the four macromolecules and how are their monomers absorbed across the GI tract mucosa?
- >55. What is a lacteal? Function?
- > 56. What is the location for chemical digestion for each of the four macromolecules? Multiple locations?