

Digestive System Concept Questions

1. How do mechanical and chemical digestion work together to break down food?
2. How does chewing aid digestion?
3. Your friend notices that when they chew soda crackers they start to taste sweet. How would you explain this to your friend?
4. Your friend bets you that you cannot swallow food while standing on your head. Do you take the bet?
6. Imagine you've just eaten a snack during class. In what sense are nutrients from your snack not really "inside" your body? When can they be considered actually "inside"?
7. What would be the result if the stomach did not have sphincter muscles?
8. Why is it important that pepsin be released as pepsinogen, an inactive form?
9. Your friend's father has been diagnosed with a gastric ulcer. Explain to them what this means and give some advice about how to treat it.
10. Why is surface area important in the small intestine and what features increase it?
11. How is the structure of villi adapted to their function?
12. How do food molecules get from the stomach to your blood?
13. In cases of extreme obesity, surgical procedures can be used to control weight. For each, state the effect on the patient:
 - a) A section of the small intestine is removed.
 - b) The size of the stomach is reduced.

14. Complete the following table

Organ	Enzyme(s) produced	Function of enzyme(s)
Mouth		
Stomach		
Pancreas		
Small Intestine		

15. Complete the following table

Nutrient	Digestion Begins	Digestion Completed
Carbohydrates		
Proteins		
Fats		

16. How is the small intestine protected from the acid chyme? From pepsin?
17. a) A person can live without a gallbladder but not without a liver. Explain.
b) If the gall bladder is removed, why is the common bile duct left intact?
18. A family friend has just had their gallbladder removed and she's confused about why her doctor said to limit fatty foods in her diet. How would you explain it?
19. An insulinoma is a cancerous mass of pancreatic beta cells that secrete insulin but do not respond to feedback mechanisms. How you would expect an insulinoma to affect blood glucose levels and liver activity?

20. The incidence of colon cancer is highest in countries where people eat the greatest quantities of animal fats and proteins. Individuals who live in countries where cereal grains form the basic diet have a much lower incidence of colon cancer. What conclusion might you draw from these data? Can colon cancer be eliminated by a change in diet?
21. Imagine you are prescribed an antibiotic that kills all the bacteria in your body. How would your digestive system be affected?
22. What is the difference between a calorie and a Calorie?
23. Humans require all 20 amino acids to make proteins. Why aren't all 20 essential to the human diet?
24. Hummingbirds are well adapted to obtain sugary nectar from flowers, but they use some of the energy obtained from nectar when they forage for insects or spiders. Explain why this foraging is necessary.
25. Most plant proteins are incomplete. What must vegetarians do to ensure they get complete protein?
26. a) A man has a high level of cholesterol in his blood. What dietary recommendations would you give him?
- b) The man asks if he should avoid all fat at all costs. What would you say?
27. Why is fat a good choice for energy storage?
28. What would happen if you did not eat enough
- a) carbohydrates?
- b) fats?
- c) proteins?
29. Fad diets that claim rapid weight loss often suggest eating a limited variety of foods. Explain why these diets are usually an unhealthy way to lose weight.