

Answers Nutrition for Healthy Living 120: Review Digestion and Carbohydrates

Questions:

1. Name the 6 basic nutrients you must obtain from the foods you eat.
Carbohydrates, fats, proteins, vitamins, minerals and water
2. What are the 3 main functions of nutrients?
Build and repair body tissues
Regulate all body processes
Provide energy
3. What is the difference between macronutrients and micronutrients? Give an example of each.
Macronutrients are nutrients the body needs in large quantities, micronutrients are nutrients the body needs in small amounts. Macronutrients include carbohydrates, proteins, fats and water. Micronutrients include vitamins and minerals.
4. What is the difference between mechanical and chemical digestion? Where does each type of digestion take place?
Mechanical digestion happens as food is crushed and churned, such as through chewing. Occurs mainly in the mouth.
Chemical digestion is when food is mixed with powerful enzymes and acids, which cause food to break apart and form simpler substances. Occurs mainly in the stomach.
5. Briefly explain the process of digestion from the mouth to the large intestine.
Digestion begins in the mouth where food is masticated (chewed) and covered in saliva and specifically an enzyme called salivary amylase. At this point it is referred to as a bolus. The bolus travels from the mouth through the esophagus using the process of peristalsis. The epiglottis prevents the food from entering the trachea and directs the food down the esophagus. Food enters the stomach and is broken down further using gastric juices (pepsin, mucus, hydrochloric acid) and the muscle contractions of the stomach. At this point the bolus is now considered to be chyme. The chyme leaves the stomach and enters the small intestine. This is where the majority of digestion takes place (95% of it). The chyme enters the large intestine. The main job of the large intestine is to reabsorb any water and to break down some of the fiber and manufacture small amounts of vitamins. Solid wastes are then excreted from the large intestine.
6. What is the function of mucus? Where is it found?
Mucus is a thick fluid that helps soften and lubricate food. It also helps protect the stomach from its strong acidic juices. Found in the stomach.
7. What is the function of salivary amylase? Where is it produced?
Salivary amylase chemically digests starches in foods. It is produced in the mouth.
8. What is the main job of the large intestine?
The main job of the large intestine is to reabsorb water.
9. Name two monosaccharides and two disaccharides.
mono. - fructose, glucose, and galactose
disac. - sucrose, lactose, and maltose
10. How do simple carbohydrates differ from complex carbohydrates?
Simple carbohydrates consist of monosaccharides and are single sugar molecules disaccharides are two sugar molecules. Simple carbohydrates break down much faster and provide a quick burst of energy rather than providing sustained energy and giving you that full feeling.

Complex consists of polysaccharides which have many sugar molecules. Complex carbohydrates provide more satiety because their energy lasts a longer period of time.
11. List 3 sources of fiber.
whole grain bread/cereals
vegetables
fruits
dried beans

12. What is the difference between a refined grain and a whole grain? Give two examples of each.
 Refined grains have the outer parts removed whereas the whole grains leave the outer parts intact making them more nutritionally rich. Example of refined grains = white bread, white rolls, grits, couscous, regular pasta, pretzels. Examples of whole grains = brown rice, whole grain bread, quinoa, bulgar, oatmeal, popcorn.
13. Where is the body's glycogen stored and how is it used?
 2/3 stored in muscles for muscular activity
 1/3 stored in liver for rest of the body
14. What happens to a person's blood glucose level after eating?
 Blood glucose increases after eating.
15. What form must all carbohydrates be in for cells to use them as energy? How does this happen?
 All carbohydrates must be in the form of glucose in order for your cells to use them as energy. This happens because your body starts by breaking the larger polysaccharide and disaccharides into monosaccharides. Once they are monosaccharides they can travel through the blood to the liver and then insulin is released. If the cells do not need energy right away they convert the glucose to glycogen and store it in the muscles or the liver.
16. Classify each of the following as simple or complex carbohydrates:
- | | |
|--------------------------------------|---------------------------------------|
| Fiber (Complex Carbohydrate) | Polysaccharide (complex carbohydrate) |
| Glucose (simple carbohydrate) | Starch (complex carbohydrate) |
| Monosaccharide (simple carbohydrate) | |
| Sugars (simple carbohydrate) | |
17. Describe the health benefits of soluble and insoluble fiber.
 Soluble fibers can dissolve in water and they can help to lower blood cholesterol levels. Insoluble fibers cannot dissolve in water and they have been associated with reducing cancer risks.
18. What are the 4 main functions of carbohydrates?
 Produce Energy
 Spare Proteins
 Break Down Fats
 Provide Bulk in the diet
19. If you do not eat enough carbohydrates, how will your body get its energy?
 If you do not eat enough carbohydrates your body will get its energy from protein.
20. Why do refined sugars in the diet cause greater concern among nutrition experts than naturally occurring sugars?
 naturally occurring sugars accompany other nutrients
 refined sugars have no other nutrients (simple CHO)
21. If a person needs 3,000 calories per day, about how many of these calories should come from complex carbohydrates? Refined sugar?
 A minimum of 600 calories should come from complex carbohydrates (20%). A maximum of 700 calories or 25% of your total calorie intake should come from refined sugars.

Fill in the blanks:

- 1) The enzyme salivary amylase helps break down starches in the mouth.
- 2) The epiglottis closes to keep food from entering the trachea.
- 3) The liver produces bile which helps fat digestion.
- 4) The esophagus connects the mouth to the stomach.
- 5) Most absorption takes place in the small intestine.
- 6) Bile is stored in the gallbladder.
- 7) The most digestion occurs in the small intestine 95% of it.
- 8) When food leaves the stomach it goes into the small intestine.
- 9) The least amount of digestion occurs in the large intestine.
- 10) Carbohydrates are the body's preferred fuel source.
- 11) Monosaccharides and disaccharides are known as simple carbohydrates.
- 12) sucrose is a disaccharide known as table sugar.