

## Answers Nutrition 120 Exam Review: Unit 2 Digestion and Carbohydrates

### Review Questions:

1. 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.
2. 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.
3. 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
4. Name two monosaccharides and two disaccharides.  
mono. - fructose, glucose, and galactose  
disac. - sucrose, lactose, and maltose
5. 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.
6. Classify each of the following as simple or complex carbohydrates:  
Lactose   S                        Starch   C                        Glucose   S    
Fiber   C                          Sucrose   S                        monosaccharides   S
7. List 3 good sources of fiber.  
whole grain bread/cereals  
vegetables  
fruits  
dried beans

8. Where is the body's glycogen stored?

2/3 stored in muscles for muscular activity

1/3 stored in liver for rest of the body

9. What are the 4 main functions of carbohydrates?

Produce Energy

Spare Proteins

Break Down Fats

Provide Bulk in the diet

10. Why are carbohydrates the body's preferred source of energy?

Carbohydrates are the body's preferred source of energy because for each gram of digested carbohydrate you receive 4kcal of food energy. Your body converts carbohydrates in the foods you eat into glucose which is a quick fuel for any activities you are conducting.

11. What happens if you do not eat enough carbohydrates?

If you do not eat enough carbohydrates your body will get its energy from protein.

12. What advice would you offer a friend who wanted to go on a no-carb diet?

When you are on a no carb diet your body will be using up your protein as energy rather than using the energy from carbohydrates. So you will need to ensure you are increasing the amount of protein and fat in your daily diet so you will have enough energy. Also you will have to ensure you are able to get fiber from another source because fiber is important in proper digestion. Being on a no carbohydrate diet is also very restrictive in the foods you are able to eat. Rather than cutting carbohydrates completely I would suggest my friend lower their amount of carbohydrates and make sure they are choosing the right complex carbohydrates rather than simple carbohydrates to get the most out of the food they are eating.

13. Why should you try to eat a diet containing foods rich in complex carbohydrates, rather than simple carbohydrates?

You should try to eat a diet containing foods rich in complex carbohydrates rather than simple carbohydrates because although both provide you with sugar and energy. The energy you receive from a complex carbohydrate also contains other nutrients like fiber or starch and the energy will last longer than that received from a simple carbohydrate.

14. Why do refined sugars in the diet cause greater concern than natural sugars?

naturally occurring sugars accompany other nutrients

refined sugars have no other nutrients (simple CHO)

15. If a person needs 2,500 calories per day, how many of these calories should come from carbohydrates?

Refined sugar?

A minimum of 500 calories should come from complex carbohydrates (20%). A maximum of 625 calories or 25% of your total calorie intake should come from refined sugars.