Origin: Chapter 2- Carbohydrates, 1
Chapter: 02
Client Needs: D1
Cognitive Level: Knowledge
Difficulty: Easy

1. The nurse is planning a weight loss class to teach a group of clients how to read nutritional labels to enable them to make informed choices. The nurse plans to include information about the various names that are used to identify monosaccharides, such as dextrose. What is dextrose also known as?

A) Levulose **B)** Fructose **C)** Glucose **D)** Maltose
Ans: C
Feedback:
Dextrose is also known as glucose. Glucose is the sugar of greatest distinction: It circulates through the blood to provide energy for body cells; it is a component of all disaccharides; it is virtually the sole constituent of complex carbohydrates; and it is the sugar to which the body converts all other digestible carbohydrates. Fructose is another monosaccharide, but it is known as "fruit sugar" or levulose. Maltose is a disaccharide and is not naturally found in foods.

Origin: Chapter 2- Carbohydrates, 2
Chapter: 02
Client Needs: D1
Cognitive Level: Knowledge
Difficulty: Easy

2. Much has been learned in the field of nutrition about nutritional intake and how to work toward making our diets nutritionally optimal. When it comes to carbohydrate intake, the latest findings indicate that Americans should do what?

A) Decrease their intake of fiber and increase their intake of complex carbohydrates.
B) Increase their intake of fiber and limit consumption of added sugars.
C) Eat total carbohydrates consisting of 50% fiber and 50% simple sugars.
D) Eat a diet based on plenty of fruits and vegetables and limit carbohydrates.
Ans: B
Feedback:
For optimal carbohydrate intake, Americans are urged to increase their intake of fiber and limit consumption of added sugars. Decreasing the intake of fiber is not recommended. Total carbohydrate consumption should not consist of 50% fiber and 50% simple sugars. Fruits and vegetables are sources of carbohydrates.

Origin: Chapter 2- Carbohydrates, 3
Chapter: 02
Client Needs: D1
Cognitive Level: Comprehensive
Difficulty: Moderate

3. Lactose is composed of glucose and galactose and is a naturally occurring carbohydrate. Unfortunately, many individuals cannot tolerate lactose and develop gastrointestinal symptoms after ingesting it. These individuals would do best eating what dairy food?

A) Milk **B)** Cheese **C)** Yogurt **D)** Butter
Ans: B
Feedback:
Cheese is virtually lactose free because it is converted to lactic acid during production, with the exception of cottage cheese. The other answers are incorrect because lactose is the naturally occurring carbohydrate in milk, yogurt has large amounts of lactose as well as added sugars, and butter is made from milk.

Origin: Chapter 2- Carbohydrates, 4
Chapter: 02
Client Needs: D1
Cognitive Level: Comprehension
Difficulty: Moderate

4. Polyols or sugar alcohols are one of the alternatives to naturally occurring sugar that are used widely in the American diet. Some of the sugar alternatives can cause unpleasant side effects in some people if eaten in large amounts. What can large amounts of polyols cause in some people?

A) Diarrhea
B) Constipation
C) Elevated serum glucose levels
D) Nausea
Ans: A
Feedback:
Polyols (e.g., sorbitol, mannitol, and xylitol) are natural sweeteners derived from monosaccharides. Some people experience a laxative effect (abdominal gas, discomfort, or osmotic diarrhea) after consuming polyols. Nausea and constipation are not caused by large intakes of sugar alcohols. Sugar alternatives do not increase serum glucose levels.

Origin: Chapter 2- Carbohydrates, 5
Chapter: 02
Client Needs: D1
Cognitive Level: Application
Difficulty: Moderate

5. The clinic nurse is teaching clients with newly diagnosed type 2 diabetes about diet and weight control. One of the subjects covered is how to figure out the caloric content of commonly eaten foods. An exercise given to the client is to figure out the calories in a tablespoon of jelly that contains 13 g of carbohydrates, no protein, and no fat. What is the correct number of calories in the jelly?

A) 26 calories **B)** 39 calories **C)** 52 calories **D)** 65 calories
Ans: C
Feedback:
All digestible carbohydrates provide 4 cal/g consumed. A tablespoon of jelly that contains 13 g of carbohydrates, no protein, and no fat provides 52 calories (4 cal/g × 13 g = 52 cal).

Origin: Chapter 2- Carbohydrates, 6
Chapter: 02
Client Needs: D1
Cognitive Level: Knowledge
Difficulty: Easy

6. The nurse is teaching a basic class of nutrition to clients in a weight loss program. After discussing the complex process of carbohydrate digestion, the nurse recognizes the class understood when he hears a client state that the primary site of carbohydrate digestion occurs where?

A) In the mouth
B) In the stomach
C) In the small intestine
D) In the large intestine
Ans: C
Feedback:
Most carbohydrate digestion occurs in the small intestine, where pancreatic amylase reduces complex carbohydrates into shorter chains and disaccharides. Carbohydrate digestion begins in the mouth, but its effects are halted by the acids in the stomach. Carbohydrates are digested before they reach the large intestine.

Origin: Chapter 2- Carbohydrates, 7
Chapter: 02
Client Needs: D1
Cognitive Level: Analysis
Difficulty: Easy

7. In 2009, the American Heart Association (AHA) recommended limits of added sugar intake for adults to help prevent disease. What were those recommendations?

A) 6 teaspoonfuls for women; 10 teaspoonfuls for men
B) 8 teaspoonfuls for men; 6 teaspoonfuls for women
C) 6 teaspoonfuls for men; 10 teaspoonfuls for women
D) 4 teaspoonfuls for women; 6 teaspoonfuls for men
Ans: A
Feedback:
In 2009, the AHA recommended that most American women limit added sugar intake to a maximum of 100 calories per day (25 g or 6 tsp) and that most American men limit their added sugar intake to 150 calories or less per day (38 g or 10 tsp).

Origin: Chapter 2- Carbohydrates, 8
Chapter: 02
Client Needs: B
Cognitive Level: Knowledge
Difficulty: Moderate

8. The nurse is teaching the client with newly diagnosed type 2 diabetes mellitus how to keep track of his caloric intake. Although it is commonly assumed that fiber does not provide any calories, the client is surprised to learn that research indicates that the caloric value of fiber is which of the following?

A) Between 1 cal/g and 2 cal/g
B) Between 1.5 cal/g and 2.5 cal/g
C) Between 2 cal/g and 3 cal/g
D) Between 2.5 cal/g and 3.5 cal/g
Ans: B
Feedback:
It is commonly assumed that fiber does not provide any calories because it is not truly digested by human enzymes. Yet most fibers, particularly soluble fibers, are fermented by bacteria in the colon and produce carbon dioxide, methane, hydrogen, and short-chain fatty acids, which serve as a source of energy for the mucosal lining of the colon. Although the exact energy value is unknown, current data indicate the value is between 1.5 cal/g and 2.5 cal/g.

Origin: Chapter 2- Carbohydrates, 9
Chapter: 02
Client Needs: D1
Cognitive Level: Analysis
Difficulty: Difficult

9. A client is complaining of occasional constipation. The nurse recognizes that some foods have a physiologic effect on the body outside of their nutritional value. Of the following, what food would the nurse recommend to the client that may help prevent constipation?

A) Shredded wheat **B)** Puffed rice **C)** Oranges **D)** Lettuce
Ans: A
Feedback:
Fibers in whole grains, dried peas and beans, and bran increase stool weight to help prevent constipation. Puffed rice is made from white (refined) rice which is low in fiber. The fiber in fruits is in the skin, and we do not eat the skin of an orange. Lettuce is not a high-fiber food.

Origin: Chapter 2- Carbohydrates, 10
Chapter: 02
Client Needs: D1
Cognitive Level: Knowledge
Difficulty: Easy

10. The nurse is aware that sugar alternatives come in two categories: polyols and nonnutritive sweeteners. When helping a client develop a menu plan, which of the following is true about nonnutritive sweeteners that the nurse should share with the client?

A) They promote dental caries.
B) They are much less sweet than sugar.
C) They provide few or no calories.
D) They cause blood sugar levels to rise rapidly.
Ans: A
Feedback:
Alternatives to sugar arise from Americans' desire to "have their cake and eat it, too." People want the taste of sweetness without feeling guilty about the calories. The food industry has responded to this demand by developing numerous low-calorie and calorie-free nonnutritive sweeteners. Nonnutritive sweeteners are hundreds of times sweeter than sugar. They do not cause dental caries and do not raise blood sugar levels.

Origin: Chapter 2- Carbohydrates, 11
Chapter: 02
Client Needs: D1
Cognitive Level: Knowledge
Difficulty: Easy

11. The nurse is making recommendations to a client with a diagnosis of chronic constipation on ways to increase the fiber intake in his diet. Which of the following could be one of those recommendations?

A) Drink organ juice instead of orange drink.
B) Eat legumes two or three times per week.
C) Eat cream of wheat instead of white toast.
D) Eat pretzels instead of potato chips.
Ans: B
Feedback:
To increase the intake of fiber, encourage clients to eat dried peas and beans two or three times per week. Dried peas and beans are excellent sources of both insoluble and soluble fibers and are a fat-free alternative to meat. Orange juice and potato chips are not high sources of fiber, whereas cream of wheat and pretzels are made from refined grains rather than whole grains.

Origin: Chapter 2- Carbohydrates, 12
Chapter: 02
Client Needs: B
Cognitive Level: Application
Difficulty: Moderate

12. A nurse is conducting a weight management class at a local clinic for clients who have lost weight and are now trying to maintain a healthy BMI. Which of the following statements indicate the class understands the guidelines?

A) We should eat approximately three servings of whole grains every day.
B) We should eat approximately three servings of whole grains every week.
C) We should eat whole-grain products at least once a day.
D) We can eat both whole-grain and enriched refined-grain products in moderation.
Ans: A
Feedback:
Cross-sectional and prospective epidemiologic studies show that whole-grain intake is associated with lower risk of obesity and weight gain. Fourteen cross-sectional studies show that a daily intake of approximately three servings of whole grains is associated with lower BMI in adults. Studies have also shown that those who consumed more whole grains consistently weigh less.

Origin: Chapter 2- Carbohydrates, 13
Chapter: 02
Client Needs: D1
Cognitive Level: Knowledge
Difficulty: Easy

13. For decades, sugar has been blamed as the cause of various disease states. What has research shown sugar to be implicated in the development of?

A) Obesity **B)** Dental caries **C)** Heart disease **D)** Diabetes mellitus
Ans: B
Feedback:
Sugar is implicated in the development of dental caries. Feeding on sugars and starches, bacteria residing in the mouth produce an acid that erodes tooth enamel. Obesity is caused by an intake of too many calories. Sugar itself is not implicated in either heart disease or diabetes mellitus but obesity is.

Origin: Chapter 2- Carbohydrates, 14
Chapter: 02
Client Needs: D1
Cognitive Level: Implementation
Difficulty: Moderate

14. The local community center is offering a class for citizens who are morbidly obese. They plan to provide a selection of foods to create nutritional menu plans for a 3-day period. Some of the criteria for the nutritional menu are to meet the RDA for carbohydrates and to include a whole-grain food at least two times a day. Which of the following is an example of a whole-grain food?

A) Cheerios **B)** Corn flakes **C)** Puffed wheat **D)** Rice Krispies
Ans: A
Feedback:
An example of a whole grain is Cheerios. The other cereals are made from refined grains.

Origin: Chapter 2- Carbohydrates, 15
Chapter: 02
Client Needs: D1
Cognitive Level: Knowledge
Difficulty: Easy

15. A client in a nutrition class is concerned about constipation and not having enough fiber in his diet. What would be the best response to this client to increase fiber intake?

A) Eat legumes in place of meat.
B) Eat cooked vegetables instead of raw vegetables.
C) Bake foods instead of frying them.
D) Eat small, frequent meals.
Ans: A
Feedback:
To increase the intake of fiber, encourage clients to eat dried peas and beans two to three times per week. Nuts, dried peas, and beans provide significant starch and fiber, but they are generally consumed less often than other carbohydrate-free selections. The other foods do not increase the fiber content of the diet.

Origin: Chapter 2- Carbohydrates, 16
Chapter: 02
Client Needs: D1
Cognitive Level: Knowledge
Difficulty: Easy

16. A nurse is trying to help a client understand the difference between glucose and glycogen. She explains that glycogen is stored in the liver in limited amounts and it is released between meals as glucose to maintain serum blood glucose levels. The client shows he understands when he indicates that glycogen is the human version of which of the following?

A) Fiber **B)** Sugar **C)** Starch **D)** Protein
Ans: C
Feedback:
Glycogen is the animal (including human) version of starch. It is a stored form of carbohydrate that is available for energy as needed.

Origin: Chapter 2- Carbohydrates, 17
Chapter: 02
Client Needs: B
Cognitive Level: Comprehension
Difficulty: Moderate

17. The National Academy of Sciences has put forth a recommendation to replace the terms “insoluble” and “soluble” with terms more descriptive of the physiologic benefits of particular fibers. What term has been suggested for intact and naturally occurring plant fiber?

A) Functional fiber **B)** Dietary fiber **C)** Total fiber **D)** True fiber
Ans: B
Feedback:
The National Academy of Sciences recommends that the terms “insoluble” and “soluble” be phased out in favor of attributing specific physiologic benefits to a particular fiber. “Dietary fiber” refers to intact and naturally occurring fiber found in plants. “Functional fiber” refers to fiber that has been isolated or extracted from plants that has beneficial physiologic effects in the body. The sum of dietary and functional fiber equals total fiber. Functional fiber is plant fiber that has been isolated or extracted from plants for the beneficial physiologic effects on the body. Total fiber is the sum of dietary and functional fiber. The term “true” fiber has no meaning in this chapter.

Origin: Chapter 2- Carbohydrates, 18
Chapter: 02
Client Needs: B
Cognitive Level: Comprehension
Difficulty: Easy

18. A client has been working with the nurse to improve her diet and lose weight. The nurse congratulates the client for choosing skim milk over whole milk. Skim milk is a better choice of beverage than whole milk because, along with the lower fat content, it has what?

A) A higher carbohydrate content **C)** The same carbohydrate content
B) A lower carbohydrate content **D)** No carbohydrate content
Ans: C
Feedback:
One cup of milk, regardless of the fat content, provides 12 g of carbohydrates in the form of lactose.

Origin: Chapter 2- Carbohydrates, 19
Chapter: 02
Client Needs: B
Cognitive Level: Knowledge
Difficulty: Easy

19. Phenylketonuria (PKU) is a genetic disorder that is characterized by an inability of the body to use the essential amino acid phenylalanine. People with PKU should avoid which nonnutritive sweetener?

A) Aspartame **B)** Saccharin **C)** Acesulfame K **D)** Sucralose
Ans: A
Feedback:
Aspartame is made from the amino acids aspartic acid and phenylalanine. People with phenylketonuria must avoid aspartame. Saccharin, acesulfame K, and sucralose do not have phenylalanine as an ingredient.

Origin: Chapter 2- Carbohydrates, 20
Chapter: 02
Client Needs: B
Cognitive Level: Application
Difficulty: Moderate

20. A pediatric nurse is often asked by parents what they can do to reduce the risk of cavities in their children's teeth. Which of the following would be the best response?

A) "Be sure to feed your children small, frequent meals."
B) "The best thing you can do is eliminate all sugars from their diet."
C) "A good way is to limit between-meal snacking on carbohydrates, including soft drinks."
D) "You can give them teeth-friendly snacks, such as orange juice and whole-grain crackers."

Ans: C
Feedback:
Clients who want to reduce their risk of cavities should be advised to limit between-meal snacking on carbohydrates, including soft drinks. Eating small frequent meals or feeding children orange juice and whole-grain crackers do not limit the nutrients in food that erode the teeth. It is not possible nor is it advisable to eliminate all sugars from their diet.

Origin: Chapter 2- Carbohydrates, 21
Chapter: 02
Client Needs: B
Cognitive Level: Knowledge
Difficulty: Easy

21. Food has a definite effect on the blood glucose concentration. Some foods may quickly raise glucose levels; raise glucose levels to various amounts; and return to normal at different rates. What is this response called?

A) Glycemic index
B) Glycemic indication
C) Glycemic load
D) Glycemic response

Ans: D

Feedback:

The glycemic response is the effect a food has on the blood glucose concentration; how quickly the glucose level rises, how high it goes, and how long it takes to return to normal. The glycemic index is a numeric measure of the glycemic response of 50 g of a food sample. The glycemic load is a food's glycemic index multiplied by the amount of carbohydrate it contains to determine impact on blood glucose levels.

Origin: Chapter 2- Carbohydrates, 22
Chapter: 02
Client Needs: B
Cognitive Level: Knowledge
Difficulty: Easy

22. The glycemic index is a listing of foods and what their impact is on blood glucose response. How is a food's glycemic index determined?

A) A comparison is made between the blood glucose response caused by 25 g of pure glucose and 25 g of a food sample.
B) Serial blood glucose levels are drawn after eating 25 g of a food sample and compared to a chart on blood glucose levels after eating 25 g of sucrose.
C) Serial blood glucose levels are drawn after eating 50 g of pure sucrose and compared to blood glucose levels after eating 50 g of a food sample.
D) A comparison is made between the blood glucose response caused by 50 g of pure glucose and 50 g of a food sample.

Ans: D

Feedback:

To more accurately assess a food's impact on blood glucose response, the concept of glycemic index was developed. A food's glycemic index is determined by comparing the impact on blood glucose after 50 g of a food sample is eaten compared to the impact of 50 g of pure glucose or white bread.

Origin: Chapter 2- Carbohydrates, 23
Chapter: 02
Client Needs: B
Cognitive Level: Knowledge
Difficulty: Easy

23. What concept was developed from the amount of carbohydrate contained in a food and the glycemic index of the food?

A) Glycemic response **C)** Glycemic level
B) Glycemic indication **D)** Glycemic load
Ans: D
Feedback:
Because the amount of carbohydrate contained in a typical portion of food also influences glycemic response, the concept of glycemic load was created to more accurately define a food's impact on blood glucose levels. It takes into account both the glycemic index of a food and the amount of carbohydrate in a serving of food. Glycemic indication and glycemic level do not exist. The glycemic response is a physiologic reaction impacted by the glycemic load.

Origin: Chapter 2- Carbohydrates, 24
Chapter: 02
Client Needs: B
Cognitive Level: Knowledge
Difficulty: Easy

24. Sugar comes in several different forms and is handled by the body in different ways. Which one, when burned by the body, does not leave an end-product to be excreted by the body?

A) Sucrose **B)** Glucose **C)** Fructose **D)** Maltose
Ans: B
Feedback:
Glucose is burned more efficiently and more completely than either protein or fat, and it does not leave an end product that the body must excrete. The other sugars all break down, leaving end products that the body must excrete.

Origin: Chapter 2- Carbohydrates, 25
Chapter: 02
Client Needs: B
Cognitive Level: Knowledge
Difficulty: Easy

25. When the body does not have enough glucose, fat cannot be completely burned for energy. What happens to fat oxidation without adequate glucose?

A) Fat oxidation goes to completion because it draws on the body's store of glucagon.
B) Fat oxidation stops prematurely, and fat is excreted in the body's waste.
C) Fat oxidation goes to completion because it forces the body into ketosis.
D) Fat oxidation stops prematurely at the intermediate step of ketone formation.

Ans: D

Feedback:

Fat normally supplies about half of the body's energy requirement. Yet glucose fragments are needed to efficiently and completely burn fat for energy. Without adequate glucose, fat oxidation prematurely stops at the intermediate step of ketone body formation. Fat oxidation does not go into completion without adequate glucose. Fat oxidation does not draw on the glucagon stores of the body. Fat oxidation does not stop prematurely and fat is excreted in the body's waste.

Origin: Chapter 2- Carbohydrates, 26
Chapter: 02
Client Needs: B
Cognitive Level: Knowledge
Difficulty: Easy

26. The body uses glucose for energy. After those energy needs are met, the excess glucose is converted into other substances. What is one of those substances?

A) Essential amino acids
B) Nonessential amino acids
C) Muscle
D) Glucagon

Ans: B

Feedback:

After energy needs are met, excess glucose can be converted to glycogen, be used to make nonessential amino acids and specific body compounds, or converted to fat and stored. Essential amino acids need to be a part of a diet but are not manufactured by the body. Glucose cannot be converted into muscle. Glucose can be stored as glycogen, not glucagon.

Origin: Chapter 2- Carbohydrates, 27
Chapter: 02
Client Needs: B
Cognitive Level: Knowledge
Difficulty: Easy

27. The RDA for carbohydrates is based on the minimum amount of glucose used to fuel the brain. This is not an appropriate guideline for determining carbohydrate intake. It is more appropriate to use the Acceptable Macronutrient Distribution Range (AMDR). What is the suggested carbohydrate intake put forth by the AMDR?

A) Carbohydrates should make up 25% to 50% of total dietary calories.
B) Carbohydrates should make up 45% to 65% of total dietary calories.
C) Carbohydrates should make up 50% to 75% of total dietary calories.
D) Carbohydrates should make up 65% to 85% of total dietary calories.
Ans: B
Feedback:
A more useful guideline for determining appropriate carbohydrate intake is the Acceptable Macronutrient Distribution Range. It suggests carbohydrates provide 45% to 65% of total calories.

Origin: Chapter 2- Carbohydrates, 28
Chapter: 02
Client Needs: B
Cognitive Level: Knowledge
Difficulty: Easy

28. The human body uses checks and balances to maintain homeostasis. When the body is in the postprandial state, a slight fall in blood glucose stimulates the pancreas to release what?

A) Glucose **B)** Amylase **C)** Bile **D)** Glucagon
Ans: D
Feedback:
In the postprandial state, as the body uses the energy from the last meal, the blood glucose concentration begins to drop. Even a slight fall in blood glucose stimulates the pancreas to release glucagon, which causes the liver to release glucose from its supply of glycogen. The result is that blood glucose levels increase to normal. The pancreas does not release glucose or bile. The pancreas does release amylase but not in response to a fall in serum glucose levels.

Origin: Chapter 2- Carbohydrates, 29
Chapter: 02
Client Needs: B
Cognitive Level: Knowledge
Difficulty: Easy

29. Fiber is a necessary part of the nutritional intake. It can, however, cause the absorption of some minerals to be incomplete. Fiber impairs the absorption of what minerals? Select all that apply.

A) Potassium **B)** Zinc **C)** Magnesium **D)** Calcium **E)** Chloride
Ans: B, D
Feedback:
Fibers may impair the absorption of some minerals—namely, zinc, calcium, and iron—by binding with them in the small intestine.

Origin: Chapter 2- Carbohydrates, 30
Chapter: 02
Client Needs: B
Cognitive Level: Comprehension
Difficulty: Moderate

30. There is more to the glycemic response to a food than the caloric value of the food. The glycemic response is influenced by many different variables. What variables influence the glycemic response of the body to a food? Select all that apply.

A) Amount of acid in the food
B) The degree the food has been processed
C) What other foods are eaten at the same time
D) What the glycemic indication of the food is
E) How well masticated the food is
Ans: A, B, C
Feedback:
A food's glycemic response is actually influenced by many variables including the amounts of fat, fiber, and acid in the food; the degree of processing; the method of preparation; the amount eaten; the degree of ripeness (for fruits and vegetables); and whether other foods are eaten at the same time. There is no glycemic indication of food. The absorption of food is more important to glycemic response than how well masticated a food is.