A Scientific Look at Nutrition

Supplement for CEV DVD #80121
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Goal:
To understand the purpose and function of the six essential nutrients

Objectives:

1. The student will identify how each essential nutrient functions in the body.

2. The student will learn the different classifications of carbohydrates, proteins, vitamins and minerals.

3. The student will understand metabolism, energy and digestion.
Directions: Fill in the blanks.

1. The six essential nutrient classes needed to fuel our bodies are carbohydrates, _____________ , ____________, vitamins, _____________ , and water.

2. The body uses carbohydrates as its basic fuel supply, as they are the main source of _____________ for the body.

3. _____________ and _____________ are the two forms of energy from carbohydrates.

4. Carbohydrates also contain _____________ amounts of dietary fiber.

5. Fats and lipids are _____________ _____________ of fuel to the body’s energy system.

6. You can find fats in _____________ and _____________ sources.

7. Both forms yield the same amount of fuel or energy for the body, but they are significantly different in relationship to your _____________.

8. _____________ are a very important part of fueling your body, they allow for available energy if there is no energy left from other sources.

9. Proteins or amino acids are building blocks for bones, _____________, muscles, _____________, skin, _____________, hormones and ____________.

10. Protein foods can be grouped into _____________ and _____________ proteins based on the amino acids they contain.
11. Complete proteins are found in ______________ ___________ products.

12. These foods are fish, ______________, beef, __________, eggs, _____, cheese and ____________.

13. Incomplete proteins come from ______________ ___________ foods which may be low or lacking in one or more of the needed amino acids.

14. These foods are rice, ______________ __________, peas, nuts, __________, wheat, _________________ and corn.

15. Vitamins are defined as any ______________ ___________ essential in small quantities to the nutrition and normal metabolism of most animals.

16. Vitamins can be broken into two classifications ______________ and ________________.

17. ________________ vitamins are vitamins A, D, E and K.

18. Vitamin A enters the body in two ways, through ______________ sources and ______________ food sources.

19. Vitamin D is a ________________ produced in the body and activated by sunlight.

20. ________________ acts as an agent that prevents tissue breakdown by oxygen.

21. Vitamin K is important in ________________ ___________ and ________________ ______________ clotting.

22. ________________ is important as it helps heal cuts and wounds and keeps teeth and gums healthy.

23. B vitamins allow the body to form ______________ ______________ ________, which fight off infection.
24. Of these 25 they are broken down into two groups, ____________ and _____________ minerals.

25. They are not named “major” because they have more importance in the body, but simply because they occur in ____________ ____________ in the body.

26. Trace elements are no less important, but they occur in very ____________ amounts in the body.

27. Water is the most important ______________________ in our bodies.

28. Next to air, __________ is the most essential substance to our survival.

29. Digestion is an important function in our bodies, as it allows us to ____________ the needed nutrients and _______________ the unneeded substances.

30. We have learned why digestion is important. The main types of digestion are _______________ and ____________

31. The process along with the act of chewing or ________________ is considered mechanical digestion.

32. While you are chewing your mouth makes saliva, this saliva has ________________ in it to help break down that bit of food, this is considered chemical digestion.

33. Once the food has been chewed, it is swallowed into the ________________; this is considered the food tube that transports food from the ________________ to the ____________

34. The stomach has three jobs of ________________ ______________, first it must store the swallowed food and liquid, then it mixes the food, liquid and digestive juices and last of all it empties the food slowly into the small intestine.
35. __________________ ______________ also occurs in the stomach with the digestive juices.

36. After leaving the stomach the food enters the __________________ ________________, where the most important part of digestion take place.

37. As the thick liquid food paste travels through your small intestines the nutrients, vitamins, minerals, proteins carbohydrates and fats are absorbed by millions of tiny finger-like objects called _____________ and sent into your bloodstream where the nutrients can travel to all of your body cells.

38. ________________ does not only aid in keeping your digestive tract running smoothly, it also aids in decreasing risk of heart disease, type 2 diabetes, diverticular disease and constipation.

39. The ____________________ is a collection of chemical reactions that takes place in the body's cells to convert the fuel in the food we eat into the energy needed to power everything we do, from moving to thinking to growing.

40. Specific proteins in the body control the _______________ ______________ of metabolism, and each chemical reaction is coordinated with other body functions.
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Directions
Fill in the blanks.

1. The six essential nutrient classes needed to fuel our bodies are carbohydrates, **proteins**, **amino acids**, vitamins, **minerals** and water.

2. The body uses carbohydrates as its basic fuel supply, as they are the main source of **energy** for the body.

3. **Starches** and **sugars** are the two forms of energy from carbohydrates.

4. Carbohydrates also contain **high** amounts of dietary fiber.

5. Fats and lipids are **concentrated sources** of fuel to the body’s energy system.

6. You can find fats in **animal** and **plant** sources.

7. Both forms yield the same amount of fuel or energy for the body, but they are significantly different in relationship to your **health**.

8. **Proteins** are a very important part of fueling your body, they allow for available energy if there is no energy left from other sources.

9. Proteins or amino acids are building blocks for bones, **cartilage**, muscles, **blood**, skin, **enzymes**, hormones and **vitamins**.

10. Protein foods can be grouped into **complete** and **incomplete** proteins based on the amino acids they contain.

11. Complete proteins are found in **animal based** products.

12. These foods are fish, **chicken**, beef, **pork**, eggs, **milk**, cheese and **yogurt**.
13. Incomplete proteins come from plant based foods which may be low or lacking in one or more of the needed amino acids.

14. These foods are rice, dried beans, peas, nuts, seeds, wheat, oats and corn.

15. Vitamins are defined as any organic substance essential in small quantities to the nutrition and normal metabolism of most animals.

16. Vitamins can be broken into two classifications fat-soluble and water-soluble.

17. Fat-soluble vitamins are vitamins A, D, E and K.

18. Vitamin A enters the body in two ways, through animal sources and plant food sources.

19. Vitamin D is a hormone produced in the body and activated by sunlight.

20. Vitamin E acts as an agent that prevents tissue breakdown by oxygen.

21. Vitamin K is important in bone development and normal blood clotting.

22. Vitamin C is important as it helps heal cuts and wounds and keeps teeth and gums healthy.

23. B vitamins allow the body to form healthy blood cells, which fight off infection.

24. Of these 25 they are broken down into two groups, major and trace minerals.

25. They are not named “major” because they have more importance in the body, but simply because they occur in larger amounts in the body.
26. Trace elements are no less important, but they occur in very small amounts in the body.

27. Water is the most important substance in our bodies.

28. Next to air, water is the most essential substance to our survival.

29. Digestion is an important function in our bodies, as it allows us to absorb the needed nutrients and eliminate the unneeded substances.

30. We have learned why digestion is important. The main types of digestion are mechanical and chemical.

31. The process along with the act of chewing or mastication is considered mechanical digestion.

32. While you are chewing your mouth makes saliva, this saliva has enzymes in it to help break down that bit of food, this is considered chemical digestion.

33. Once the food has been chewed, it is swallowed into the esophagus; this is considered the food tube that transports food from the mouth to the stomach.

34. The stomach has three jobs of mechanical digestion, first it must store the swallowed food and liquid, then it mixes the food, liquid and digestive juices and last of all it empties the food slowly into the small intestine.

35. Chemical digestion also occurs in the stomach with the digestive juices.

36. After leaving the stomach the food enters the small intestines, where the most important part of digestion take place.

37. As the thick liquid food paste travels through your small intestines the nutrients, vitamins, minerals, proteins carbohydrates and fats are absorbed by millions of tiny
finger-like objects called **villi** and sent into your blood stream where the nutrients can travel to all of your body cells.

38. **Fiber** does not only aid in keeping your digestive tract running smoothly, it also aids in decreasing risk of heart disease, type 2 diabetes, diverticular disease and constipation.

39. The **metabolism** is a collection of chemical reactions that takes place in the body’s cells to convert the fuel in the food we eat into the energy needed to power everything we do, from moving to thinking to growing.

40. Specific proteins in the body control the **chemical reactions** of metabolism, and each chemical reaction is coordinated with other body functions.
Directions:
Answer the following questions.

___ 1. How many essential nutrients are needed to fuel our bodies?
   a. two
   b. six
   c. five
   d. four

___ 2. What are the two forms of energy from carbohydrates?
   a. starches, sugars
   b. flour, salt
   c. minerals, carbohydrates
   d. vitamins, proteins

___ 3. Proteins are building blocks for what?
   a. bones
   b. cartilage
   c. blood
   d. all of the above

___ 4. What two classes are vitamins broken into?
   a. fat-soluble and animal-soluble
   b. water-soluble and food-soluble
   c. fat-soluble and water-soluble
   d. oil-soluble and liquid-soluble

___ 5. What is the most important substance to our bodies?
   a. water
   b. vitamins
   c. minerals
   d. proteins
6. Are the two main types of digestion mechanical and chemical?
   a. True
   b. False

7. Saliva has ___________ in it to help in the break down of food.
   a. water
   b. enzymes
   c. chemicals
   d. villi

8. What is the job of the esophagus?
   a. transports food from the mouth to stomach
   b. transports food from the stomach to the mouth
   c. transports food from the stomach to the small intestine
   d. none of the above

9. After food leaves the stomach where does it go?
   a. large intestine
   b. esophagus
   c. stays in stomach
   d. small intestine

10. What are the millions of tiny finger-like objects that absorb the nutrients from food in the small intestines?
    a. fingers
    b. villi
    c. suction
    d. sponge

11. The metabolism is a collection of chemical reactions that take place in the body’s cells to convert the fuel in the food we eat into the energy needed to power everything we do.
    a. True
    b. False
Directions: Choose the correct answer.

1. How many essential nutrients are needed to fuel our bodies?
   a. two
   b. six
   c. five
   d. four
   **b**

2. What are the two forms of energy from carbohydrates?
   a. starches, sugars
   b. flour, salt
   c. minerals, carbohydrates
   d. vitamins, proteins
   **a**

3. Proteins are building blocks for what?
   a. bones
   b. cartilage
   c. blood
   d. all of the above
   **d**

4. What two classes are vitamins broken into?
   a. fat-soluble and animal-soluble
   b. water-soluble and food-soluble
   c. fat-soluble and water-soluble
   d. oil-soluble and liquid-soluble
   **c**

5. What is the most important substance to our bodies?
   a. water
   b. vitamins
   c. minerals
   d. proteins
   **a**
6. Are the two main types of digestion mechanical and chemical?
   a. True
   b. False

7. Saliva has ___________ in it to help in the break down of food.
   a. water
   b. enzymes
   c. chemicals
   d. villi

8. What is the job of the esophagus?
   a. transports food from the mouth to stomach
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    a. fingers
    b. villi
    c. suction
    d. sponge

11. The metabolism is a collection of chemical reactions that take place in the body’s cells to convert the fuel in the food we eat into the energy needed to power everything we do.
    a. True
    b. False