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# Basic Nutrient Requirements

Patient name: \_\_\_\_\_ Admission: \_\_\_\_\_

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**I. The client/caregiver can define and list the nutrients that are needed by the body.**

- A. Nutrients are chemical substances supplied by food that the body needs for growth, maintenance, and repair.
- B. There are six nutrients.
  1. Carbohydrates
  2. Proteins
  3. Fats
  4. Minerals
  5. Vitamins
  6. Water
- C. Macronutrients are carbohydrates, proteins, and fats. They all help produce energy and have calories.
- D. Micronutrients are minerals, vitamins, and water. They are still very important but do not have any calories.

**II. The client/caregiver can state purpose and food sources of each nutrient.**

- A. Fats provide energy and body heat, provide organ protection, are for absorption and digestion of fat-soluble vitamins, carry essential fatty acids, are for satiety and flavor to foods. Food sources include milk, meats, and butter.
- B. Proteins provide building tissue and energy; they provide water balance to regulate hormones and enzymes for immunity. Food sources of complete protein include meat, poultry, eggs, and cheese. Food sources of incomplete protein include grains, vegetables, nuts, and seeds.
- C. Carbohydrates provide energy and help to spare body protein. Food sources include breads, vegetables, fruit, and milk.
- D. Water is essential for almost every body process, including digestion, absorption, circulation, and excretion. It helps maintain a normal body temperature, carries wastes out of the body, and transports nutrients throughout the body. It prevents constipation.

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**III. The client/caregiver can state purpose and food sources of vitamins.**

- A. Vitamin A
  1. It is necessary for maintenance of skin, hair, gums, bones, and teeth.
  2. It promotes good vision, helps prevent infections, and acts as an antioxidant.
  3. Food sources include liver, kidney, milk, cream, butter, egg yolk, fortified milk and dairy products, carrots, sweet potatoes, tomatoes, pumpkins, apricots, fish liver oils, beets, cantaloupe, garlic, and spinach.
- B. Vitamin B1 (thiamine)
  1. It is necessary for growth and energy.
  2. It improves mental attitude.
  3. It improves functioning of nervous system, heart, and muscles.
  4. Food sources include lean pork, beef, liver, whole grains, beans, peas, wheat germ, brewers yeast, eggs, fish, brown rice, soy beans, nuts, and oatmeal.
- C. Vitamin B2 (riboflavin)
  1. It is necessary for metabolism of protein, fats, and carbohydrates.
  2. Helps build and maintain body tissues, growth, and reproduction.
  3. It releases energy to cells.
  4. It protects skin and eyes from disorders.
  5. Food sources include milk, liver, eggs, grains, green leafy vegetables, legumes, yogurt, cheese, meat, fish, and poultry.
- D. Vitamin B3 (niacin)
  1. It is necessary for nervous system, and healthy skin.
  2. It aids digestion and helps lower cholesterol.
  3. It is used in fat, carbohydrate, and protein metabolism.
  4. Food sources include meat, peanuts, peas, beans, sunflower seeds, beef, broccoli, eggs, fish, milk, potatoes, and carrots.

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- E. Vitamin B5 (pantothenic acid)
  1. It is necessary for coping with physical and mental stress and production of antibodies.
  2. It helps convert carbohydrates, fats, and protein into energy.
  3. It aids in digestion.
  4. Food sources include liver, kidney, whole grain, legumes, eggs, peanuts, sunflower seeds, beef, and fresh vegetables.
- F. Vitamin B6 (pyridoxine)
  1. It is necessary for production of red blood cells.
  2. It aids in normal function of nervous system.
  3. It helps maintain most body functions.
  4. It aids in protein and carbohydrate metabolism.
  5. Food sources include whole grains, seeds, liver, kidney, eggs, oatmeal, walnuts, pork, wheat germ, bananas, potatoes, brewers yeast, chicken, fish, brown rice, cabbage, cantaloupe, and carrots.
- G. Vitamin B12 (cobalamin)
  1. It is necessary for development of vital nerve structures.
  2. It prevents pernicious anemia.
  3. It aids in cell formation and digestion.
  4. Food sources include liver, kidney, sardines, lean meat, milk, cheese, beef, blue cheese, clams, eggs, beef, and herring.
- H. Vitamin C
  1. It is necessary to combat stress and improves immunity and helps resist infections.
  2. It acts as an antioxidant.
  3. It is needed for amino acid metabolism and synthesis of hormones.
  4. It is needed for wound healing, adrenal gland function, iron absorption, and folic acid conversion.
  5. Food sources include citrus fruits, melons, kiwi, strawberries, peppers, tomatoes, cantaloupe, oranges, potatoes, cabbage, and broccoli.
- I. Vitamin D (calciferol)
  1. It is necessary for normal growth and development.
  2. It helps calcium and phosphorous absorption and use for healthy teeth and bones.

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- 3. Food sources include cereal, fortified milk, sardines, tuna, cod liver oil, and egg yolk.
  - 4. A major source is sunshine.
  - J. Vitamin E
    1. It is necessary for metabolism of fats and repair of tissue.
    2. It helps protect from toxins.
    3. It acts as an antioxidant.
    4. Food sources include milk, eggs, fish, cereals, green leafy vegetables, vegetable oils, whole grains and wheat germ, brown rice, liver, sweet potatoes, poultry, and nuts.
  - K. Vitamin K
    1. It is necessary for normal blood clotting and normal liver function.
    2. Food sources include leafy vegetables, milk, meats, eggs, cereals, broccoli, cauliflower, oatmeal, liver, spinach, strawberries, tomatoes, liver, and wheat bran.
- IV. The client/caregiver can state purpose and food sources of minerals.**
- A. Calcium
    1. It is necessary for healthy bones and teeth, muscle, and nerve function.
    2. Food sources are milk and milk products, sardines, oysters, salmon, broccoli, cabbage, oats, turnips, and mustard greens.
  - B. Chromium
    1. It is necessary for metabolism of glucose and synthesis of fatty acids and cholesterol.
    2. Food sources include cereal, whole grains, brewers yeast, wheat germ, chicken, clams, brown rice, cheese, meat, liver, mushrooms, and potatoes.
  - C. Iodine
    1. It is necessary for function of thyroid gland and for physical and mental development.
    2. Food sources include seafood and iodized salt.
  - D. Iron
    1. It is necessary for production of hemoglobin; it increases resistance to stress and disease and helps in energy production.

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2. Food sources include meat, poultry, fish, eggs, whole grains, leafy vegetables, potatoes, dates, peaches, pears, and iron-fortified foods.
- E. Magnesium
1. It is necessary for bones, nerves, muscle, and teeth, transmission of nerve impulses; it activates enzymes and aids in the release of energy.
  2. Food sources include all unprocessed foods, whole grain cereals, seeds, legumes, nuts, green vegetables, bananas, milk, cheese, and meat.
- F. Manganese
1. It is necessary for skeletal development, nerves, and brain.
  2. Food sources include whole grains, leafy vegetables, cereals, peas, nuts, seeds, avocado, milk, tea, and coffee.
- G. Phosphorous
1. It is necessary for repair of cells and energy production; it builds bones and teeth and promotes nerve function.
  2. Food sources include milk, meat, poultry, fish, cereal, nuts, and legumes.
- H. Potassium
1. It is necessary for nerves, muscles, and heart; it regulates the body's fluid balance.
  2. Food sources include buttermilk, garlic, nuts, meats, brown rice, legumes, whole grains, apricots, avocados, bananas, and potatoes.

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- I. Zinc
1. It is necessary for healing and development of new cells; it aids in digestion and metabolism, male fertility, and brain development and improves immunity and prostate function.
  2. Food sources include seafood, oysters, liver, meat, milk, cheese, whole grains, pecans, pumpkin seeds, eggs, and lima beans.
- J. Selenium
1. It acts as an antioxidant and works with vitamin E for some functions.
  2. Food sources include seafood, liver, kidney, and other meats.

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