Carbohydrates

- Provide energy:
  - Preferred source of energy; require the least amount of oxygen when burned
  - Stored for energy as glycogen in the muscles
  - Stored in the liver to fuel the brain and central nervous system. Liver glycogen can also be converted to supply working muscles with glucose.
- Preserve proteins
- Aid fat metabolism: by-products of carbohydrate metabolism are needed to burn fat completely
- Those from plant sources may provide bulk and fiber: they fill you up and aid digestion

Protein

- Primary function: growth, maintenance and repair of body structures, such as muscles, enzymes, hormones and antibodies
- Protein CANNOT be stored – after growth, maintenance and repair functions are fulfilled, excess is burned for energy or stored as fat. In either process, water is lost from the body.
- One pound of muscle contains 75-100 grams of protein
- Muscle is comprised of
  - 70-75% water
  - 15-20% protein
  - 5-7% glycogen, fat and minerals
- To build muscle:
  - You must perform resistance exercise
  - You MUST take in sufficient calories to maintain weight, otherwise protein will be burned for energy
  - You must take in sufficient protein
- Excessive protein intake leads to dietary imbalances and dehydration
Fat

- Is a concentrated source of energy
- Acts as a carrier for vitamins A, D, E & K. These nutrients are involved in calcium absorption, vision, blood clotting, among other functions
- Fats carry flavors and aromas. They also add to feelings of fullness from a meal
- A moderate amount of fat is key to good health and athletic performance
- Excessive dietary fat can crowd out important carbohydrates, and possibly contribute to weight gain and disease development
- Diets too low in fat can disrupt many important body functions, inhibit muscle development and interfere with healthy bone development

Water

- Is a nutrient vital to life.
- Comprises 40-60% of total body weight.
- Sedentary people need approximately 2.5 liters per day – athletes require more.
- Dehydration causes early fatigue, poor athletic performance and can have serious and dangerous consequences.

References: