



# Nutrition

# Introduction

Proper nutrition is a vital component to the growth and development of children. The role of nutrition is to supply the body with the nutrients it requires in order to perform daily functions, to grow and to be active. Nutrients come from the foods and drinks that are consumed throughout the day and are grouped into six classes: water, carbohydrates, proteins, fats, vitamins, and minerals.

# Water

Water is often taken for granted, but is, however, possibly the most important nutrient of the six. The body does not store large amounts of water, and therefore, regular rehydrating is required. Water is important for several functions including: temperature regulation, removal of waste products, lubrication of joints, and the production of saliva. The loss of water or dehydration can lead to serious decreases in physical and mental performance.

# Carbohydrates

Carbohydrates are the main fuel source for the body; however, they are stored in low quantities in the body. Therefore, regular consumption is required in the form of simple and complex sugars. Simple sugars are found in table sugar, milk products, and fruit. Complex sugars are found in products such as whole grains, vegetables, fruit, beans, breads, pasta, and rice. Because of the complex structure of compound sugars, they are the preferred source for carbohydrates.

# Proteins

Proteins are the building blocks for the body and are found in bone, muscle, blood, enzymes, and other organs. Proteins are formed by linking amino acids together. The body requires the use of 20 different amino acids in order to function properly. Of those 20 amino acids, nine are considered to be essential amino acids and must be consumed through food. The other 11 may be produced within the body. Most protein is consumed through eating meat products; however, peas, beans, soybeans, nuts, and seeds also contribute to protein consumption.

# Fats

Fats and oils, also known as lipids, provide the body with energy and, because of their chemical structure, actually provide a higher amount of energy than carbohydrates. Fats are either saturated or unsaturated. Saturated fats are the fats that come from consuming meat products while unsaturated fats come from the oils of plants. Some unsaturated fats are known as essential fatty acids, which must be supplied in the diet in order to maintain health. Essential fatty acids are used by the body to regulate blood pressure and assist in the synthesis and repair of vital cell parts. The body has a limitless ability to store fat, which is used as an energy source, insulating the body from cold climates, and to protect vital organs from injury.



# Vitamins

Vitamins are organic substances that are needed in small amounts in the diet for normal function, growth, and maintenance of the body. Vitamins themselves do not yield any energy to the body; however, they enable reactions that release energy from carbohydrates, fats, and proteins. There are two forms of vitamins: fat-soluble and water-soluble. Fat-soluble vitamins require dietary fat in order for the vitamins to be absorbed into the body. These vitamins are A, D, E, and K. Individuals who have certain medical conditions, or are on medications or dietary supplements that block the absorption of fat will have a difficult time absorbing fat-soluble vitamins. Water-soluble vitamins are more readily excreted from food and absorbed by the body. Diets that have an increase intake of these vitamins are excreted from the body as waste material in order to prevent toxicity. The recommended daily intake of vitamins is dependent upon each individual vitamin.

#### Minerals

Minerals are non-energy yielding inorganic compounds used by the body to assist in normal body development, function, and maintenance. Minerals are consumed in both plant and animal products, with those coming from animal products having a higher rate of absorption. Many factors can affect absorption amounts of minerals including fiber, other minerals, and vitamins. There are two groups of minerals: major and trace. When the body requires more than 100 milligrams per day of a certain mineral, it is considered a major mineral. All other minerals are considered trace minerals. Excess mineral intake can lead to toxicity. Toxicity is most common with trace minerals and when an individual is using supplementation improperly. Daily recommended allowances of minerals are dependent upon the mineral (Wardlaw 2003).

# MyPlate.gov

MyPlate is part of a larger communications initiative based on 2010 Dietary Guidelines for Americans to help consumers make better food choices and designed to remind Americans to eat healthfully; it is not intended to change consumer behavior alone. MyPlate illustrates the five food groups using a familiar mealtime visual, a place setting.





# **Energy Requirements**

Food that is eaten is basically used to either repair and build the body or supply the body with energy. The amount of energy that food supplies to the body is measured in calories. The amount of food consumed needs to match the amount of energy required by the body. Supplying the body with too much of a fuel source will be stored as fat. Kids require a different amount of fuel than adults and boys require a different amount than girls. The following chart gives the average daily energy requirements based on age and gender (Malina, Bouchard et al. 2004).

	Energy Requirements for Girls	Energy Requirements for Boys
Age	Calories	Calories
8 – 9	1,830	2,070
9 – 10	1,880	2,150
10 – 11	1,910	2,140
11 – 12	1,980	2,240

# Kids and Caffeine

The consumption of caffeine by kids has been a growing concern. Caffeine is found in soft drinks, tea, coffee, energy drinks, and chocolate. Although caffeine does not stunt the growth of children, its daily consumption should be kept to a minimum. Caffeine does, however, create jitteriness, difficulties in concentration, difficulty in sleeping, and nervousness. Studies also have shown that kids who begin drinking one or more 12 ounce soft drinks a day are 60% more likely to become obese (Nemours 2009).

# References

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Malina, R. M., C. Bouchard, et al. (2004). <u>Growth, Maturation, and Physical Activity</u>. Champaign, IL, Human Kinetics.

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