

NUTRITION FOR THE MODERN SOCCER PLAYER

A. Nutrients

Non-Caloric Nutrients

i) *Water:* Water is the most important nutrient in the body and is second only to Oxygen as a substance necessary to sustain life. Water is important because every cell in our bodies relies on water to carry out its activities, including transporting nutrients, removing wastes, and regulating body temperature. Failure to consume adequate water results in fatigue, faulty regulation of body temperature, and an increased risk of heat exhaustion and heat stroke. For athletes, water consumption is especially important because when exercising, our bodies lose large amounts of water and as a result experience drastic changes in body temperature. In general, athletes are recommended to drink *at least* eight glasses of water per day. Furthermore, athletes must learn not to use thirst as an indicator of when their bodies need fluid. By the time they feel thirsty, they may be already well on their way to becoming *dehydrated*. **On game and practice days, players should consume at least 8 ounces of water in the half-hour before playing, 3 to 6 ounces every 10 to 15 minutes while playing, and another 8 to 10 ounces in the 30 minutes immediately after playing, whether they feel thirsty or not.**

ii) *Vitamins and Minerals:* Vitamins are organic substances that are vital to life and play a key role in energy production, growth, maintenance, and repair. They are only needed in small amounts, but must be obtained from the diet, as the body cannot manufacture them. Of particular importance to athletes (and soccer players) are *Vitamin C*, which helps maintain the health of bones, cartilage, muscle and blood vessels; and the *Vitamin B-Complex*, which aid the body in metabolism (release and use of energy from food) and in cell development. **Athletes should have a diet rich in Vitamin C and the B-Complex Vitamins in order to ensure optimal performance.** Minerals are inorganic substances that must be included in the diet to maintain a number of vital functions and body process, such as the regulation of heartbeat, the transportation of Oxygen to every cell, the formation of hemoglobin, the building of bones and teeth, and muscle contraction. Two minerals in particular play a vital role in the body during exercise; *sodium* and *potassium*. These minerals are “electrolytes” or salts, which enter and exit (and re-enter) muscle cells during muscular contractions and relaxations. When we exercise, large amounts of electrolytes are lost through sweat, and this creates an imbalance in the body which can be dangerous if they are not replenished. Thus, **foods or sports drinks (ie: Gatorade) containing sodium and potassium should be consumed during or immediately after soccer games and practices.** All of the above-mentioned processes and functions are important to athletes. It should be noted that there is no preferred time of day to consume vitamins or minerals, as long as the daily requirements are met.

Caloric Nutrients

iii) *Carbohydrates:* Carbohydrates are divided into two types: simple and complex. *Simple carbohydrates* are single molecules of sugar, such as glucose, fructose, and lactose, and are contained in foods such as fruit, pop, and “junk food” (candy, chocolate, ho-ho’s, etc.). Sugars are the first available source of energy to the body during exercise; however, most of the sugar we consume is not used up during exercise, and is consequently converted to fat and stored in the body. Thus, **simple carbohydrates are an inefficient energy source and should only be consumed in moderation by athletes.** *Complex carbohydrates*, or starches, are made up of long chains of simple carbohydrates, and are found in such foods as bread, cereal, pasta, and rice. As starches are digested, they are converted into glycogen (a stored version of glucose) which is stored in the body for future energy consumption. **Athletes, especially soccer players, should consume large amounts of complex carbohydrates.** The reason for this is that research has shown that glycogen (stored glucose) in the muscles is the main energy source which is depleted during soccer games, or aerobic exercise of the same intensity. It should be noted that fiber, which is the indigestible portion of carbohydrates, is also an essential element of a healthy diet. Timing of carbohydrate consumption, both simple and complex, is of special importance to athletes and specifically soccer players. In general, players should follow these guidelines with respect to carbohydrate consumption:

- The day before practices and games should be considered a “carbo-loading” day, during which consumption of complex carbohydrates is high. This is because energy used for exercise is generally derived from the food consumed the day before. And since soccer players use up large amounts of starches during games and practices, these need to be consumed the day before.
- Consumption of simple carbohydrates should be limited, as they are an inefficient energy source. The most appropriate time to consume simple carbohydrates is during or immediately after exercise, because they will immediately replenish depleted glycogen stores in the body.
- Consumption of complex carbohydrates should also be high during the first meal after exercise, which should be no later than 2 hours after the end of the game or practice.
- Fruits, though high in sugar, are the best source of simple carbohydrates, because they are high in vitamins and fibre, which are both essential to the body.
- Wherever possible, whole wheat forms of complex carbohydrates should be chosen over “white grain” or refined carbohydrates. This is because the whole wheat variety take the longest to digest and thus are the most efficient energy source. In general, the longer it takes for carbohydrates to be digested, the more likely they are to be used up as a source of energy rather than being converted to fat and stored in the body.

iv) *Protein:* Proteins are organic substances containing Carbon, Oxygen, Hydrogen, and Nitrogen. Each protein molecule is made up of sub-units called *amino acids*. 20 different amino acids are found in the body; however, 9 of these cannot be manufactured and therefore are considered the “essential” amino acids which must be consumed in the diet. Proteins are vital to the repair of muscle tissue which gets damaged during exercise. They are also important for young athletes because they help the body grow and build brain, muscle, skin, hair, and connective tissues. There are two different kinds of protein: complete and incomplete. *Complete proteins*, found in meat, fish, and poultry, contain all 9 essential amino acids. *Incomplete proteins*, found in vegetables, grains, and nuts, contain less than 9 essential amino acids. **An effort should be made to eat regularly foods that contain all 9 essential amino acids.** Protein is not a readily available energy source, and so large consumption of protein should not occur prior to games and practices. The best time to consume foods high in protein is during the first meal after exercise. Any other meal which is high in protein should be consumed no later than 3 hours before exercising to ensure proper digestion.

v) *Fat:* Fat is a source of energy which supplies the *fatty acids* necessary for many of the body’s activities. There are two different kinds of fat: saturated and unsaturated. *Saturated fat* generally comes from animal sources and is solid at room temperature. *Unsaturated fat* generally comes from plant sources and is liquid at room temperature. In general, **unsaturated fats are preferred over saturated fats** because they contain essential fatty acids and are known to stabilize and/or reduce serum cholesterol levels. Only a small amount of fat – as little as 1 tablespoon per day of poly-unsaturated fat – is needed to meet the basic nutritional needs. **High fat consumption for soccer players is not recommended, because stored fat is not a main energy source during soccer games, or aerobic exercise of similar intensity.**