

Sports Nutrition II

Carbohydrates

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Carbohydrates are natural compounds which come from starches and sugars. Foods which contain the most beneficial forms of carbohydrates include vegetables, fruits and whole grains. Refined foods such as candy, pastries, syrups and soft drinks also contain carbohydrates but are “empty calorie” foods and should be avoided by the athlete. As carbs travel through the digestive system, they are converted into glucose, a principle energy source for the working body. Any excess glucose is converted into glycogen, which is how the body stores carbs. The glycogen can be changed back into glucose when the body needs additional energy.

As exercise begins, carbohydrates assume a primary role in supplying energy to active muscle tissue. Early in exercise much of this energy comes from the breakdown of muscle glycogen into glucose. As muscle glycogen stores become depleted with continued exercise, the body must rely more on blood glucose and oxidation of fatty acids; fat being a more significant source of energy during long term exercise. When exercise is continued to the point of muscle glycogen depletion, the body will become fatigued - a phenomenon the athlete knows as “hitting the wall.”

By utilizing proper dietary levels of carbohydrates and regular training, the athlete can increase muscle stores of glycogen, allowing for longer periods of physical performance. Training also has a glycogen “sparing” effect and produces a greater capacity for utilizing fat during exercise. Improved use of fatty acids occurs with regular exercise and is linked to the “second wind” phenomenon, where exercise becomes more effortless after time.

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