Protein

Protein is a part of muscles, bone, hemoglobin, myoglobin, hormones, antibodies, and enzymes, and makes up about 45% of the human body. There is no question that it is an important constituent of the diet, but the amount of protein we actually need for activity and health is considerably less than many people think we need.

The requirement for protein is dependent on total energy intake, the amount of training an athlete does, and the intensity of that training. Of these factors, the most important one is total energy (calorie) intake. Increasing energy intake from carbohydrate improves protein utilization, while lowering energy intake to a level below the amount needed causes increased protein losses and breakdown. Therefore, one of the best ways to make certain protein status is OK is to make certain enough total energy is consumed to maintain activity and growth requirements.

Muscle is approximately 70% water and only about 20% protein. Therefore, increasing muscle mass requires extra water, extra energy in the form of carbohydrates (to maintain the needs of that extra muscle), and a little extra protein. In fact, for an athlete increasing muscle mass at an extraordinarily high rate of 1 kg/week (2.2 lbs of extra muscle per week), only 4 extra ounces of meat per day would be needed. In most surveys that have been done on athletes, protein intake from food far exceeds requirement. The generally accepted athlete requirement for protein is between 1.5 and 2.0 grams per kilogram of body weight. Many studies show that athletes commonly consume well over 3.0 grams per kilogram of body weight. For athletes who take unnecessary protein powders and amino acid supplements, the intake of protein is often higher than 3.5 grams per kilogram of body weight. However, carbohydrate and water intake is typically lower than the amount needed to maintain or increase muscle mass. It also appears that those athletes (body builders, weight lifters, football players, etc) who generally consume supplements of protein and amino acids (components of protein) are those who need supplements the least.

High sources of protein include meat, poultry, fish, and eggs. However, vegetarians can obtain adequate protein by combining non-meat items. For instance, combining legumes (beans) and cereals (rice or corn) creates a protein combination of high quality. However, animal proteins provide numerous other nutrients (including iron and zinc) that are more difficult to obtain elsewhere unless the diet is very carefully planned.

The bottom line is this: If you consume enough energy from carbohydrates, then the protein you consume will be used for all the valuable protein related functions, such as synthesis and maintenance of muscle, synthesis of creatine, and the creation of hormones and enzymes. However, without enough carbohydrate energy, the consumed protein will be 'burned' as fuel rather than used for these other critical functions. Burning protein as fuel causes increased water loss that can increase the risk of dehydration (a major factor related to poor performance in athletes.)