The Importance of Protein Part I

Because of the numerous responsibilities of protein in the body (from muscle regeneration to energy production) consuming the proper amounts on a daily basis are imperative for both health and performance. On a daily basis, your body continually makes new cells for your muscles, organs, glands and bones. Over 300 billion cells every day are replaced and every 7 years you have a new body. This process is your metabolism which consists of catabolism (breaking down) and anabolism (building up). Protein is the foundation of this process and is the main building block for it. Keep in mind, the longer and/or harder you train the higher your protein intake on a daily basis needs to be.

The Role of Protein

Before we get into how much protein your need on a daily basis, let's discuss the role of protein. In addition to growth and repair of muscles and other tissues, some protein is used for energy. Protein is also necessary for enzymes important to metabolism.

Protein is essential for maintaining neurotransmitters – the chemical messengers used by the nervous system to signal proper function throughout the body. Additionally, oxygen, fats and vitamins are transported throughout the body with the help of proteins. It plays an instrumental role in making natural antibodies for your immune system. When your protein consumption is too low, not only do you risk losing muscle mass (strength and endurance) but you will also have a weakened immune system.

So how much protein do you need?

The argument about how much protein is needed for optimum health & performance has become so convoluted, it has been revised by the RDI 10 times since 1943! The RDI's current recommendation is 0.8 grams of protein per kilogram of body weight. Keep in mind, the RDI was established as the minimum level of a nutrient needed to prevent disease for a sedentary person. Some health professionals believe that the gram per kilogram needs to be increased by 3 – 4 times this amount to maintain proper lean muscle mass, recover from exercise and keep the blood chemistry healthy in active people. These numbers should be based on your lean body mass and not your total body weight. You will need to have some sort of body composition test performed to be exact, but the average person can take 82% of their body weight for men and 75% of their body weight for women, and that will give you your pounds of muscle. Divide this number by 2.2 to convert it to kilograms and then you can determine your protein requirements. An easier way to figure this is to consume 1 gram of protein for each pound of lean body mass. This is right in the middle of the RDA and the high end of health professionals.

Signs of Inadequate Protein Intake

Look for some of these signs as indication your protein intake may be too low:

- Muscle Weakness
- Low Energy Levels
- Easily Broken Bones
- Slow Recovery after Exercise

Dangers of Taking in Too Much Protein

Many people are afraid of eating too much protein – and justifiably so; excessive protein intake is hard on your kidneys and can lead to excess fat weight. However, if your body needs 150 grams of protein per day, then 150 grams is not too much but rather your personalized protein needs!

Consuming enough water is critical to minimize any harmful effects of protein intake. Kidney stones are largely a result of chronic dehydration, not excessive protein intake. If you are consuming half of your body weight in ounces of water and calculating your sweat rate during exercise, you will minimize your risk of dehydration and the development of kidney stones.

Protein Intake to Build Muscle

One of the big misconceptions of building muscle is that you can accomplish this task by eating tremendous amounts of meat, nuts and protein shakes. The truth about building muscle has less to do with the amount of protein you take in, but rather the demands placed on your body to "need" more protein to rebuild stressed muscle tissue. If you consume more protein than your body needs (and your liver processes), the excess protein is broken down into carbohydrates and passed as urea waste or stored as fat.

The key to building more muscle mass is to stress the tendons, ligaments and muscles in a systematic manner to break down the muscle tissue without tearing it. A lot of who try to grow too fast, overstress their system, and instead of developing new muscle (natural anabolic growth mode) they put their bodies in a tear down mode (catabolic mode).

As you incrementally add more load and stress on your tendons, ligaments and muscles, consuming high quality protein will result in increased muscle mass.

The Quality of Protein

Like everything we eat, it isn't just how much you consume but also how much you absorb that improves your health and performance. All protein is broken down into individual amino acids. Think about amino acids as the "building blocks of protein". Protein must be digested in the stomach and intestine and broken down into amino acids for absorption. Once absorbed, the amino acids are used either as individual products or

recombined as proteins. For example, the amino acid tryptophan is used to make certain neurotransmitters in the brain. Additionally, recombining many amino acids provides for the manufacture of new cells and tissues. In order for this to happen, your body requires all of the essential and non-essential amino acids to be present.

Experts say that there are at least 20 amino acids necessary for optimum health and performance. While some of these amino acids can be made by the body (non-essential), others must be taken in through the diet (essential). The following table lists both types:

Essential Amino Acids	Non-Essential Amino Acids
Arginine	**Alanine**
Histidine	**Asparagine**
Isoleucine	**Aspartate**
Leucine	**Cysteine**
Lysine	**Glutamate**
Methionine	**Glutamine**
Phenylalanine	**Glycine**
Threonine	**Proline**
Tryptophan	**Serine**
Valine	**Tyrosine**

High quality proteins are ones that contain all of the essential amino acids. Because animal protein sources: meat, fish, cheese and eggs contain all amino acids, they are considered "complete" proteins and thus higher quality. Vegetables and grains contain only some of the amino acids and are considered "incomplete" proteins and thus lower quality. This is why vegetarians must combine various food groups to produce a complete amino acid profile that can be used by the body. In part II we'll look at various source of protein to help you make the best decisions for your nutrition.

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