Understanding Amino Acids and their Importance in Diet

By Protica Research

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The importance of protein in a healthy diet is well known to nutritional scientists, and widely understood by the general population. Indeed, every bodily system is directly or indirectly supported by protein. For example, protein supports the structural development of cells, helps ensure the integrity of tissue, aids digestion, carries hormones, and strengthens the immune system[i].

More recently, however, the motivation for people to choose protein−rich foods has been fueled by carbohydrate−free and carbohydrate−reduced diets, such as the AtkinsTM Diet, South Beach DietTM and Isometric DietTM. Via each of these diet programs, millions of people are vigilantly scanning food labels, and asking pertinent health questions when eating out. Added to this growing number of protein−aware people are, of course, the millions of bodybuilders, powerlifters and athletes who have demonstrated for centuries the irreplaceable value of protein in building and maintaining muscle.

As impressive and inspiring as it is to see that more people than ever before are "protein−conscious", there is still more useful protein information to learn. It is well past time to add an understanding of amino acids to this protein knowledge base.

Many people - understandably −− do not recognize that amino acids are not acids as they are conventionally understood. Rather, they are the molecular units that comprise protein. They are, quite simply, the very building blocks of protein.

Amino acids are organic compounds that contain two groups of molecules: amino (−NH2) and carboxyl (−COOH). There are a total of 19 amino acids in the human diet, of which 11 are non−essential, and the remaining 8 are essential. It is this critically important fact - that there are 2 kinds of amino acids −− that should be well understood and acted upon by eaters everywhere.

If the term "amino acid" does not readily suggest the link to protein, the terms "non−essential" amino acids and "essential" amino acids can be sources of even greater confusion. The nutritional world is fond of the word "essential", and uses it often to describe something that is important, or critical, or irreplaceable. For example, a nutritionist may rationally inform her patient that eating 50 grams of

protein per day is essential; and by this she means "very important".

This same application of the term does now, however, flow to the "essential" and "non essential" amino acid vocabulary.

Non−essential amino acids are those that the body is able to synthesize itself. This does not mean, of course, that the body can create these non−essential amino acids out of nothing. Rather, it means that the body's own internal laboratory can create these 11 non−essential amino acids from raw materials. It is for this reason that these 11 amino acids are called non−essential; it has nothing to do with the term "important" or "unimportant". These 11 non−essential amino acids include, in alphabetical order:[ii]

− Alanine

− Arginine
− Asparagine
− Aspartic Acid
− Cysteine
− Glutamic Acid
− Glutamine
− Glycine
− Histidine
− Proline
− Tyrosine

The remaining 8 amino acids are called essential; and this refers to the fact that they cannot be synthesized. The body can only receive them exogenously (eg. through food). These essential amino acids include, in alphabetical order:[iii]

− Isoleucine
− Leucine
− Lysine
− Methionine
− Phenylalanine
− Serine
− Threonine
− Tryptophan
− Valine

Understanding the importance of amino acids is critical, because a failure to eat foods that contain these essential amino acids can lead to deficiency and adverse health effects. These effects can include - but are not limited to −− fatigue, allergies, loss of memory, and even heart disease[iv]. When one considers the pain and suffering caused by any of these four ill health effects, and the myriad of subsequent ailments that they can provoke, it becomes readily apparent that a knowledge of amino acids, and especially "essential" amino acids, must be a part of an intelligent eater's knowledge base.

While there has been some movement on the part of nutritional supplement companies to provide eaters with convenient and palatable sources of protein, many of them have put their marketing needs first and ignored amino acids altogether. As a consequence of this omission, some eaters are actually suffering from an "overdose" of incomplete protein. This is because what they are eating may not provide them with the total, essential protein that they need. The only complete proteins on the planet are derived from dairy, meat, fish, poultry and soy, and these foods are not present in our most common foods. There are, however, protein supplements that also offer proteins with the full spectrum of amino acids.

The solution here is uncomplicated and accessible. Eaters must simply choose to eat foods and nutritional supplements that offer a "complete" source of protein. This means that all 19 essential amino acids must be present including, of course, the "essential 8" amino acids that the body cannot synthesize.

There are some companies - though still clearly in the minority - that create nutritional supplements that carefully ensure that all of the amino acids are present. It is notable that these companies do not necessarily have to do this, since neither the Food and Drug Administration nor many consumers are

demanding this from their food labeling; at least, not yet. This is all the more reason to laud those companies that are putting people and nutrition first, and marketing a distant second.

ABOUT PROTICA

Founded in 2001, Protica, Inc. is a nutritional research firm with offices in Lafayette Hill and Conshohocken, Pennsylvania. Protica manufactures capsulized foods, including Profect, a compact, hypoallergenic, ready−to−drink protein beverage containing zero carbohydrates and zero fat. Information on Protica is available at http://www.protica.com

You can also learn about Profect at http://www.profect.com

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Protein Diet − What Does It Mean For Your Body?

By Jeff Smith

To really understand the impact of a protein diet, it's important to know how it affects and interacts with your body.

When we speak of your muscles, glands, and organs, they are mainly made up of protein. Indeed the two major components making up our bodies are water and protein. So, why all the fuss about protein diet?

There is definitely a link between enhancing muscle and protein since muscle is largely composed of protein. So the argument goes, protein diets help in muscle growth which in turn, helps to fight fat.

Just as there are good and bad fats and carbohydrates, there are different categories of proteins as well.

Proteins are composed of amino acids, and the human body requires 20 such amino acids for it's normal growth and development. When considering a protein diet, it is important to know that certain foods carry proteins containing essential amino acids which are NOT produced by the body itself but ARE essential to the body's processing of the other 12 non−essential amino acids.

What does all this mean? Your protein diet must include foods that not only provide non−essential amino acids, but more important, must include foods that supply your body with essential amino acids.

Foods you should consider for your protein diet include: broccoli, spinach, walnuts (or many other nuts), beans, lentils, pastas, and barley.

Discover weight loss tips, protein diet tips, diet program reviews and fat burning techniques with Jeff Smith's Rapid Weight Loss resouce site at:

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