



Amino Acid Therapy

Many of today's most common health concerns are directly related to brain chemical (neurotransmitter) imbalances. Based upon the most recent data collected from testing over 25,000 subjects, approximately 84% of the U.S. population suffers of neurotransmitter imbalances. Amino acid therapy is a term used to describe the use of supplemental amino acids to help balance brain chemicals (neurotransmitters) and other aspects of the physiology. For this type of treatment to be most effective, it should include a neurotransmitter urinalysis test which provides a reliable means of measuring excretory values for neurotransmitters. From those findings an individualized protocol of amino acid supplementation is devised to improve the quantity and ratios of neurotransmitters in the brain.

What are Amino Acids?

Amino Acids are the building blocks of protein. The human body builds over 50,000 known proteins and over 15,000 known enzymes from amino acids. All enzymes, including digestive enzymes, are made from amino acids. Vitamins act as co-enzymes and minerals as activators. **Amino acids play a key role in normalizing moods, attention, concentration, aggression, sex drive, and sleep.** When a person eats protein, the body must first break it down into the individual amino acids before it can use them in specific metabolic pathways, or to build enzymes or body proteins. A lack of free amino acids can be followed by an inability to produce the digestive enzymes that are necessary to break down protein into its component amino acids. This fact can lead to a cycle of poor nutrition because your body needs amino acids in order to derive amino acids from the food you eat.

Misconceptions about Protein

A common misconception is that free amino acids are no problem if a person eats protein. Food protein, which is composed of long chains of individual amino acids coupled together, must be broken down into free or individual amino acids by enzymes, before it can be used to build body protein. Enzymes, which are made from individual amino acids, are responsible for the specific uncoupling between individual amino acids. Here is a circular problem: If your body lacks the free amino acids to make the necessary digestive enzymes, your body is unable to break down protein into the free amino acids that it needs. Although you might eat the right food protein, that is no guarantee of its biological availability. It must be uncoupled into free amino acids before it can complete the food protein to amino acid to body protein cycle.

Types of Amino Acids

There are two types of amino acids: essential and non-essential, and each type are described below.



Essential amino acids – this group of amino acids are important for the body but unfortunately could never be produced by the body. They should be obtained from foods with protein containing these amino acids.

The following are the essential amino acids:

- isoleucine
- lysine
- leucine
- methionine
- threonine
- phenylalanine
- tryptophan
- valine

Non-essential amino acids – this type of amino acids could be found in food but they are also produced by the body. Humans have the capability to produce the following non-essential amino acids.

The following are the non-essential amino acids:

- arginine
- alanine
- aspartic acid
- asparagine
- glutamine
- glutamic acid
- cysteine
- proline
- glycine
- serine
- tyrosine

Benefits of Free Amino Acids

A healthy body is continually breaking down proteins into individual amino acids, and assembling them into amino acid complexes as needed. Amino acids help in the development and preservation of body tissues. They also act as stimulants to improve the immune system of the individual. There are amino acids that are geared in improving blood pressures and heart rate. Some amino acids are even used for rejuvenation. The primary function of amino acids is NOT to supply energy, but to furnish the essential material for duplication of genetic code, for cell division, and for forming muscles and connective tissue. Amino acids are involved in the metabolism of hormones, neurotransmitters and your enzyme system. In fact, any enzyme system or biochemical function that depended upon amino acids might be helped by supplementation with free amino acids. Each amino acid has a health benefit and could be



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used to combat certain diseases or prevent them from occurring by improving certain functions of the body.

Unlike vitamins and minerals, which are required in only small amounts, amino acids are needed in relatively large amounts on a daily basis. The utilization of amino acids in the proper functioning of the biochemistry of the body is so fundamental that it is hard to overestimate the importance of amino acids for both physical and mental functions. You eat protein but your body only uses amino acids.

Last month's newsletter discussed neurotransmitters and the adverse health effects of low levels of neurotransmitters within the body. By testing for neurotransmitters, we can learn which amino acids are unbalanced. What has been learned is that using specific amino acids and balancing the use of these amino acids will enable us to balance the levels of specific neurotransmitters in the body. Using the amino acids enables us to bring in these back into physiological balance, removing a possible disease state. By using the amino acids in the fashion that we use them, we are able to take the body from automatic control of the neurotransmitters, to manual control and this enables us to restore the proper balance, overcoming the body deficiency. If you are interested in learning more about neurotransmitter testing to assess proper amino acid levels, or to discuss the best options available for you with Dr Flatland, please give our office a call at **(303) 447-1339**.

Thank you and be well.