

AMINO ACIDS

ESSENTIAL VS NON-ESSENTIAL

In order to enjoy peak health and good vitality, all of the essential nutrients that are the building blocks of our body are required—in optimum quantities. Among these are amino acids. An amino acid is a large group of organic compounds, which are the end product of protein hydrolysis. Many important body & brain functions are dependent upon concentrations of amino acids in the bloodstream.

Some amino acids are produced by the body, and so it is not necessary to get them from food sources. These are the non-essential amino acids. These include: alanine, arginine, asparagine, aspartate, cysteine, glutamate, proline, serine and tyrosine.

The **essential** amino acids are those we get only from what we ingest. There are nine essential amino acids that we must get from our diet (or supplement). These are:

- Leucine
- Valine
- Isoleucine
- Lysine HCl
- Phenylalanine
- Threonine
- Methionine
- Tryptophan
- Histidine

Biosynthesis is used by the body to make non-essential amino acids. This is done by mainly synthesizing glucose and intermediates in the citric acid cycle. Amino acids are nutrients highly dependent on balance. There is a saying that we are only as strong as the weakest link. This is definitely the case with amino acids. A healthy functioning body is capable of making the amounts of non-essential amino acids that it needs. But, for the essential amino acids,

we must eat a diet that provides what we need for health and maintenance. Otherwise a deficit in any essential amino acid would reduce the overall benefit we receive of them to the level of the smallest amount of any one of these, regardless of how much we are taking in of the others.

How much do we need? Unfortunately, actual RDA's cannot be determined because it is completely dependent on the individual's constitution, health status (if they're fighting a health challenge) and lifestyle—particularly if they are active, and to what degree. The more exercise a person is getting, the more essential amino acids they will need in their diet in order to maintain (or build) muscle. If these needs are not met, then the muscle breakdown that happens during exercise may not get rebuilt or increased due to these deficiencies. This could cause one to feel very weak and depleted from exercise, with no benefit of an increased metabolism that happens from increased muscle mass.

A healthy functioning body will make the non-essential amino acids needed. Foods that will provide all nine essential amino acids (complete proteins) are eggs, soy (tofu and soy milk), dairy and meat (flesh). If one is vegetarian or vegan, all nine can be gotten from tofu and from eating a variety of vegetables. Besides soy/tofu, vegetables, grains and nuts provide essential amino acids, but none of them contain ALL of them, so in order to get all of them, we would need to eat a good variety of vegetables, nuts and grains—ideally, along with tofu or soy milk. ♦