**The Function of Essential Amino Acids and the human body.**

An amino acid is a chemical unit that enables the cells to maintain their structure by providing them with all the necessary building material. The term amino acid comes from the fact that it contains an amino group (NH2) and an acidic carboxyl group (COOH).

**The function of essential amino acids in the human body**

Amino acids are organic compounds that act as building blocks for the body, as they make up proteins. Proteins are of vital importance. All the cells of our body are comprised of proteins, which are essential for the repair, growth and maintenance of the cells. Proteins are actually chains of amino acids linked together, which regulate all body functions. They control the body’s water balance and pH, they repair bones and cells, they facilitate the exchange of nutrients between the tissues, they provide the body with energy and they also form the structural basis of chromosomes. What is more, certain amino acids act as neurotransmitters and facilitate the communication of the brain with the nerve cells elsewhere in the body. The presence of amino acids also enables vitamins and minerals to perform all their important functions. Without these essential amino acids, the human body is unable to function normally and in some extreme cases, cause death.

**Essential amino acids**

Essential amino acids can’t be produced by the body and must be derived from food. If you fail to obtain even one of the essential amino acids, your body may have to break down muscle proteins, in order to get the amino acid that is needed. The good news is that the human body can store amino acids for several hours and if you fail to obtain some amino acids in one meal, you can consume them later in the day.

**The essential amino acids and their functions include:**

**• Tryptophan:** tryptophan is the largest amino acid and is a precursor of serotonin and melatonin, which means that it can regulate mood and sleep.
**• Valine:** valine is necessary for muscle metabolism and the repair of tissues and can be useful in the treatment of liver and gallbladder disorders.
**• Lysine:** lysine enables the synthesis of carnitine, which converts fatty acids into energy and also plays an important role in the production of hormones, antibodies and enzymes. Having a deficiency in lysine can lead to niacin deficiency and cause a health condition called pellagra.
**• Methionine:** this amino acid aids in the production of sulphur, which is necessary for normal metabolism and it is also essential for the synthesis of haemoglobin and glutathione that fights against free radicals.

**• Leucine:** Leucine is one of three essential amino acids that increase muscle mass and helps muscle recover after exercise. It also regulates blood sugar and supplies the body with energy. These functions make it invaluable when the body is stressed. Leucine is used clinically to help the body heal, and it also affects brain function and can be used in place of glucose in ‘fasting’ states.
**• Isoleucine:** isoleucine is important for the regulation of blood sugar.
**• Threonine:** this amino acid is needed to create other amino acids that aid the production of collagen. It is also important for antibody production.
**• Phenylalanine:** there are three forms of phenylalanine: D-phenylalanine, L-phenylalanine and DL-phenylalanine. This amino acid is a precursor to catecholamines that regulate the central and peripheral nervous system.

**Foods that contain Essential Amino Acids are:**

• Chicken & Eggs – preferably free range eggs and chicken
• Beef – preferably organic grass fed cows ONLY!
• Turkey – preferably organic free range