

# Research Moringa

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**Moringa Oleifera contains all 18 Amino Acids - properly sequenced and in the optimal ratios.**

**Amino Acids directly govern how the body works and functions:**

## **18 Amino Acids\***

**Isoleucine** – *ESSENTIAL AMINO ACID* – builds proteins and enzymes, stimulates the brain, promotes muscle recovery after physical exercise, regulates blood sugar levels and is used to make the vital iron carrying hemoglobin.

**Leucine** – *ESSENTIAL AMINO ACID* – is used in the liver, but primarily in the muscle and fat. It is used in the bio-synthesis of sterols in the body and has the ability to stimulate muscle growth and inhibit muscular degradation.

**Lysine** – *ESSENTIAL AMINO ACID* – is important for proper growth, and it plays an essential role in the production of Carnitine, a nutrient responsible for converting fatty acids into energy and helping to lower cholesterol.

Lysine aids in the absorption of calcium, plays an important role in the formation of collagen, (benefits bones, connective tissues including skin, tendon, and cartilage) and the formation of antibodies, hormones and connective tissues.

**Methionine** – *ESSENTIAL AMINO ACID* – is best known for its ability to supply sulfur and other compounds required for the metabolism and growth.

Sulfur is a key element and vital to the utilization of a number of antioxidant nutrients. It lowers cholesterol and reduces fat in the liver while increasing lecithin production.

**Phenylalanine** – *ESSENTIAL AMINO ACID* – the body changes this into tyrosine, another amino acid that is needed to make proteins, and neurotransmitters, including L-dopa, epinephrine, and norepinephrine, and thyroid hormones.

Norepinephrine can affect mood, and different forms of phenylalanine have been proposed to treat depression.

**Threonine** – *ESSENTIAL AMINO ACID* – helps the liver reduce fat, maintains protein balance and supports cardiovascular, liver, central nervous system and immune system function by being involved in the production of antibodies.

It is involved in the production of collagen, elastin, connective and muscle tissue, especially the heart, where it is found in higher concentration and may decrease wound healing and recovery time from injury.

Links indicate the Threonine may be beneficial in the treatment of Amyotrophic Lateral Sclerosis (ALS) and Multiple Sclerosis (MS).

**Tryptophan** – *ESSENTIAL AMINO ACID* – assists normal growth in infants and for nitrogen balance in adults. The body uses tryptophan to help make the B vitamin, niacin, and the neurotransmitter, serotonin.

Serotonin regulates mood, appetite and sleep and decreased levels of this neurotransmitter is linked to depression. Tryptophan supports your immune system, alleviates insomnia, reduces anxiety, depression and relieves symptoms of migraine headaches.

**Valine** – *ESSENTIAL AMINO ACID* – is a branched-chain amino acid found in high concentration in muscle tissue. Valine is helpful in treating addictions.

A deficiency may affect the myelin covering of nerves. Aside from being a component of many proteins, very little is known about the independent function of Valine.

**Alanine** – is important when it comes to providing energy for your muscle tissue, brain, and central nervous system.

This common amino acid is manufactured from other metabolites in the liver and plays a key role in the breakdown of glucose for energy and stabilizes glucose levels during exercise.

Alanine is used in the production of neurotransmitters, antibodies and stimulates lymphocyte production.

**Arginine** – plays an important role in cell division, the healing of wounds, removing ammonia from the body, immune function, and the release of hormones.

It has been shown in studies to cause the release of the growth hormones considered necessary for muscle growth and tissue repair, decreasing healing time.

Arginine is a precursor for the production of nitric oxide and is related to treating erectile dysfunction and providing cardiovascular benefits (lowering blood pressure) as it relaxes smooth muscle, acts as a vasodilator and increases blood flow.

**Aspartic Acid** – acts as a neurotransmitter and is involved in hormone production and release and nervous system function.

**Cysteine** – is a non-essential amino acid. In certain cases such as premature infants, the elderly, or those with metabolic disease or a malabsorption syndrome it may be considered to be essential and must be supplied from dietary sources.

Cysteine acts as an antioxidant and protects against radiation and pollution.

Like all antioxidants, it will slow the ageing process, deactivate free radicals, and neutralize toxins.

Cysteine is involved in the formation of one of the most potent detoxifiers in the body, glutathione in the lungs, liver, kidneys, and bone marrow.

**Glutamic Acid** – helps to prevent ammonia intoxication, and is an active neurotransmitter substance and is important for memory and learning. By being converted into the anti-neurotransmitter GABA, Glutamic Acid may help to prevent seizures.

**Glycine** – is used for muscular tissue, DNA and RNA creation and converting glucose into energy. It prevents muscular degeneration by increasing levels of Creatine. It is also important for the digestive system and nervous system function acting as an inhibitory neurotransmitter.

**Histidine** – is an ESSENTIAL AMINO ACID in infants and may be essential for some adults.

Histidine is used to form histamine a neurological compound released during allergic responses.

It is used for growth and for the repair of tissue, as well as the preservation of the myelin sheaths that protect nerve cells.

Histidine is required for the fabrication of both red and white blood cells, and helps to protect the body from damage caused by radiation and in heavy metals detoxification.

**Serine** – plays a major role as a catalyst for many enzyme functions and synthesizes the fatty-acid based sheaths around nerve fibers.

Serine is involved in the formation of immunoglobulins and antibodies strengthening the body's immune system. Plus, it synthesizes fatty acid sheaths around nerve fibers.

**Proline** – aids in the production of collagen and therefore affects joints, cartilage, tendons, the heart and skin. It is a precursor to Glutathione and very important for strengthening the heart.

**Tyrosine** – is a building block for several neurotransmitters, including epinephrine, norepinephrine and dopamine and supports the function of the thyroid, adrenal, and pituitary glands.

Tyrosine is a factor in regulation endocrine hormonal function and structurally is a component in most of the proteins in the body.

\* *Moringa Oleifera: Magic, Myth or Miracle* - Dr. Howard Fisher - 2011

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