

The Amazing Amino Acids

The Body's Building Blocks

Building blocks are basic components that can be assembled to form many different structures. Amino acids are the body's building blocks. The genes in DNA are blueprints that enable the body to splice amino acids into long chains called peptides and polypeptides. These chains are then linked to form proteins, the basis of all body structures.

Proteins not only form the scaffolding for the body's structure; they also regulate the body's functions. Enzymes are proteins that either assemble compounds the body needs or take apart compounds the body no longer needs. Many hormones and all neurotransmitters are based on amino acids, too. Amino acids can even be burned for fuel when the body needs energy.

There are twenty-two amino acid building blocks. Ten of these are considered essential because the body can't synthesize them. These essential amino acids are arginine, histidine, isoleucine, leucine, lysine, methionine, phenylalanine, threonine, tryptophan, and valine. The remaining amino acids can be synthesized from these ten.

Amino acid deficiencies can occur when people eat too many simple carbohydrates (sugars and starches) and not enough protein. The quality of protein matters, too, since amino acids can be denatured through processing and overcooking.

Amino acid deficiencies can also occur from digestive problems. To utilize protein, the body has to deconstruct the proteins we eat and convert them back to amino acids. This process starts in the stomach, where hydrochloric acid and pepsin break proteins down into peptides and polypeptides. Proteolytic (protein-digesting) enzymes from the pancreas finish the job by breaking these amino acid chains into free amino acids for absorption.

As we age, hydrochloric acid production tends to diminish, making it harder to assimilate protein. Furthermore, many people also take antacids or acid blockers which interfere with protein digestion.

Amino Acid Supplements

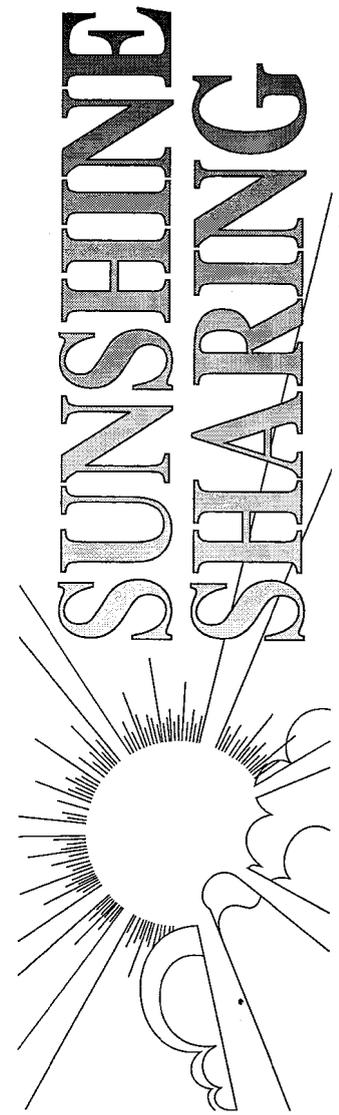
Body builders often take protein and/or amino acid supplements to help them build lean muscle, but these supplements aren't just for body builders. Amino acid supplements can be used to increase energy, aid weight loss, improve cardiovascular function, balance the mood, overcome learning disabilities and even boost the immune system.

Amino acid supplements are generally "free form" amino acids, which means that the proteins have already been broken down into their component amino acids. In other words, they are pre-digested, meaning the body doesn't have to process them to absorb them.

Amino acids supplements will generally have the letter "l" in front of them. This refers to the direction of spin on the amino acid. The "l-" form is the best form for our bodies to utilize. The "d-" form is not efficacious and is prohibited by the FDA. If an amino acid has "dl-" in front of it, then it is a mixture of both forms. Unless specified otherwise, we are referring to the "l" form when we discuss individual amino acid supplements.

In this issue of Sunshine Sharing, we'll tell you how various amino acids can help you build better health. We'll also tell you about some natural supplements that utilize these amazing building blocks.

Learn how amino acid supplements can help you inside...



Your guide to better health the natural way.

Vol. 22 No. 7

Important Notice

The information in *Sunshine Sharing* is for educational purposes only and should not be used to diagnose and treat diseases. If you have a health problem, we recommend you consult a competent health practitioner before embarking on any course of treatment.

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The Healing Powers of Amino Acids

Recent research has improved our understanding of how amino acids work in the body. Here's an introduction to what amino acid supplements can do for your health.



Tryptophan

Tryptophan is an essential amino acid that forms the basis for four neurotransmitters and hormones: serotonin, tryptamine, indolamine and melatonin. Serotonin is one of the brain's key neurotransmitters and is involved in regulating pain, controlling blood sugar and blood pressure, appetite regulation and mood. Under the influence of darkness, the pineal gland converts serotonin to melatonin, which promotes sound sleep.

In the early 1980's, supplements of l-tryptophan were widely recommended for their ability to counteract depression, enhance mood and ease pain. The FDA removed tryptophan supplements from the marketplace due to problems with a contaminated batch of the supplement. This occurred, rather conveniently, just prior to the release of a new class of drugs known as selective serotonin reuptake inhibitors (SSRIs). Interestingly, supplements of l-tryptophan are just as effective as SSRIs without the side effects.

In the brain, tryptophan is converted to 5-hydroxy-tryptophan (5-HTP) before being converted into serotonin. 5-HTP is available as a supplement and is found in **5-HTP Power**. Tryptophan is also one of the amino acids in the **Free Amino Acids** blend.

Arginine

Supplements of l-arginine have become increasingly popular in recent years due to the discovery of arginine's role in the production of nitric oxide, a neurotransmitter that dilates blood vessels, reducing blood pressure. Nitroglycerine pills, used to treat angina, create a nitric oxide response. Drugs used to treat erectile dysfunction, like Viagra®, also affect nitric oxide responses.

Supplementation with five grams of l-arginine per day has been shown to help reduce blood pressure, ease angina, prevent the formation of arterial plaque and even help to reduce existing atherosclerosis. This is why it is a key ingredient in the circulatory-boosting formula **Solstic Cardio** and the blood pressure reducing formula, **Blood Pressurax**.

L-arginine is also helpful for enhancing erectile function in men. It also boosts sperm motility, which in turn enhances fertility. It is one of the ingredients in **Men's X-Action Reloaded**.

Besides benefiting circulation and male reproductive function, l-arginine has been shown to accelerate the healing of wounds,

enhance glucose tolerance and insulin production, and increase fat metabolism. Arginine is also found in **Women's X-Action** and in the Free Amino Acid blend.

Glutamine

Glutamine is not an essential amino acid, but it plays a critical role in many of the body's functions nonetheless. It is converted into glutamic acid and gamma aminobutyric acid (GABA), two critical neurotransmitters in the brain. Glutamic acid is involved in mental activity and learning and GABA is a calming neurotransmitter that helps prevent epilepsy, tics, schizophrenia and "mind chatter."

L-glutamine is an ingredient in **Focus Attention**, a blend that helps with concentration and memory. This blend is useful for children (or adults) with ADHD or other learning problems. L-glutamine is also an ingredient in **GABA Plus**, a remedy that calms brain activity and may help with sleep.

Glutamine is helpful for hypoglycemics. It helps raise low blood sugar and improves glucose supply to the brain. It has been found to help reduce cravings for sugar and alcohol. It is found in **Target Endurance**, a formula for increasing energy and stamina and in **Solstic Cardio**, which supports the health of the cardiovascular system.

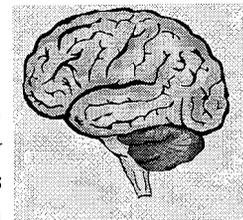
The single supplement **L-Glutamine** has also been used to help repair the intestinal tract in leaky gut syndrome. Glutamine is one of the amino acids needed to make the antioxidant glutathi-

one, which helps the body detoxify heavy metals and recycle other antioxidants. Glutamine supplementation may also be helpful for colitis, dizziness, drug withdrawal, hemorrhoids, menopause and ulcers of the stomach.

Lysine

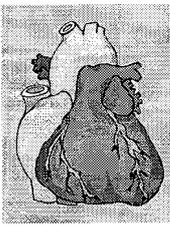
Lysine is an essential amino acid that is deficient in grains. Insufficient intake causes poor appetite, weight loss and anemia. Research suggests that lysine is involved in the immune system and its ability to fight viruses, particularly the herpes simplex virus. This makes it useful as a remedy for cold sores, canker sores, fever blisters and genital herpes. However, it only works if the diet is low in arginine.

Lysine helps the immune system manufacture antibodies and has been used for viral infections such as mononucleosis and shingles. It also helps ensure adequate absorption of calcium and the formation of collagen for bone, cartilage and connective tissue. **L-Lysine** is available as a single amino acid supplement and is also found in the Free Amino Acids blend.



Free Amino Acids

The blend, Free Amino Acids, contains 18 free amino acids: l-Lysine, l-Histidine, l-Arginine, l-Aspartic acid, l-Threonine, l-Serine, l-Proline, l-Alanine, Glycine, l-Glutamic Acid, l-Cystine, l-Valine, l-Methionine, l-Isoleucine, l-Leucine, l-Tyrosine, l-Phenylalanine, l-Tryptophan and l-Carnitine. These amino acids require no digestion to be absorbed and utilized by the body. This makes Free Amino Acids a beneficial way to rebuild the health of individuals with poor protein digestion and a lack of muscle tone. It can aid tissue repair, immune function and cardiovascular health. It is also a helpful supplement for body builders and athletes.



Carnitine

Carnitine is primarily derived from animal proteins, especially red meat. Although it is not an essential amino acid, supplementation with l-carnitine can have a number of beneficial actions on health.

One of the most important functions of carnitine is that it moves fatty acids into the mitochondria of the cell so they can be converted to energy. The ability of l-carnitine to enhance energy is why it is an ingredient in energy and fitness formulas like **Cellular Energy**, **Vita Lemon**, **Recovery** and **Solstic Revive**. Because it helps in burning fats, it is also found in **Nature's Hoodia**, a formula designed to suppress appetite and help with weight loss.

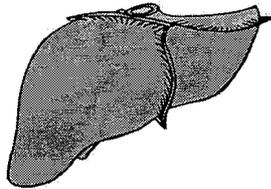
Carnitine is helpful for the heart and has been shown to be deficient in the hearts of patients who have died from myocardial infarctions. **Solstic Cardio** contains a special form of carnitine, acetyl l-carnitine, that is reported to benefit the heart.

L-Carnitine is also available as a single amino acid supplement and is used for heart problems, weight control, lack of energy, Reye's Syndrome and as a weight loss aid. People who do not consume very much animal protein may benefit from carnitine supplements.

Methionine

Methionine is an essential amino acid. It is a sulphur-bearing compound, which means it can be used in the process of sulfation in the liver to detoxify the body of various chemicals. Methionine is especially helpful in removing heavy metals from the body and protecting the body against radiation. It also assists in the metabolism of vitamin B12 and is essential for selenium bioavailability.

L-methionine is found in **Mega-Chel** and **Heavy Metal Detox**. These formulas are used to help the body get rid of heavy metals. **Mega-Chel** is also used to increase blood flow in the cardiovascular system. L-methionine is found in **Solstic Cardio**, which helps reduce high blood pressure and improve cardiovascular health. It is also one of the amino acids in **Free Amino Acids**.



Cysteine

Cysteine is another sulphur-rich amino acid. It is not an essential amino acid because it can be synthesized from methionine, but it does have many health benefits. For starters, it also plays a critical role in the production of glutathione, an important intracellular antioxidant that helps protect the body from toxins and heavy metals. L-cysteine is found in **Mega-Chel**, which is used to chelate heavy metals and improve circulatory health, and in **Free Amino Acids**.

One form of this amino acid is **N-Acetyl-Cysteine**, a supplement used to help liver detoxification. N-acetyl-cysteine is found in both **Heavy Metal Detox**, which is used to get mercury and heavy metals out of the body, and **Milk Thistle Combination**, a formula used to help the liver detoxify chemicals. N-acetyl-cysteine is also found in **Solstic Cardio** and **Perfect Eyes** because of its antioxidant ability, which helps protect heart and eye health.

Natural Amino Acid Supplements

There are some herbs that are natural sources of readily available amino acids. These include **Spirulina**, **Super Algae** and **Bee Pollen**. **Spirulina** is rich in many nutrients, particularly amino acids. The amino acids are easily assimilated, especially for vegetarians and people who have a hard time digesting animal proteins. It is a high-energy food and may act as an appetite suppressant.

Super Algae combines spirulina with two other algae: **Chlorella** and **Klamath Lake blue-green algae**. **Super Algae** is great brain food. The amino acids it contains can enhance memory, concentration and learning. It also helps to balance blood sugar levels and take away the cravings for sugar. It can be taken as a natural energy booster when feeling tired or sluggish.

Bee Pollen is also rich in amino acids and contains every other nutrient needed by the human body. It is also used as an energy pick-me-up and is a great super food for athletes, people trying to lose weight, weak or debilitated people or those just wanting to increase their energy and improve their health naturally.

Histidine

Another essential amino acid, l-histidine, is the precursor to histamine. Histamine is used to regulate water flow during dehydration. It moves water to critical organs to protect them from the shortage of water. High levels of histamine, as are found in allergies and asthma, may be directly linked with dehydration.

L-histidine has proven effective in the treatment of rheumatoid arthritis, removing toxic metals from the body, facilitating sexual arousal in women, protecting against the harmful effects of radiation, maintaining auditory function, and strengthening the myelin sheath. Histidine is found in the **Free Amino Acids** blend.

Phenylalanine

Phenylalanine is an essential amino acid that is converted to tyrosine, which is then converted to dopamine, epinephrine and norepinephrine. This makes it an important amino acid for regulating mood. It is also involved in regulating appetite. L-phenylalanine is found in the **Free Amino Acid** blend. DL-phenylalanine is a powerful, non-toxic, non-addictive pain killer and anti-depressant; it also aids in controlling weight and obesity.

Continued on page 4

Additional Help and Information

For more information about using amino acid supplements to improve health, contact the person who gave you this newsletter. Their contact information should be found at the top of page four. They have additional handouts and resource materials to help you. You can also consult some of the following sources:

Amino Acids in Therapy by Leon Chaitow, D.O., N.D.

The Amino Revolution by Robert Erdmann, Ph.D.

The Comprehensive Guide to Nature's Sunshine Products by Tree of Light Publishing



The Healing Powers of Amino Acids

Amino acids are used to build body structures and to create enzymes, hormones and neurotransmitters. Learn how free amino acids supplements can build better health inside.

Continued from Page Three

Taurine

Taurine is not an essential amino acid. It is found in animal foods but can also be synthesized by the liver. Supplementation with taurine has been found helpful in preventing epileptic seizures. It also helps regulate bile production and may play a role in migraines. L-taurine is found in Solstic Cardio and Solstic Revive.

Tyrosine

Tyrosine is not an essential amino acid as it can be synthesized from phenylalanine. It is a precursor to creating dopa, dopamine, epinephrine and norepinephrine. It is also needed for the production of the thyroid hormone, which is why l-tyrosine is included in **Thyroid Support**. It is also found in Solstic Cardio and Free Amino Acids. Tyrosine can play a role in stabilizing mood and may be helpful in Parkinson's and depression.

Other Amino Acids

Another non-essential amino acid, glycine, is used in the production of glutathione. It may also promote healing after trauma. It is found in Cellular Energy, Recovery, Solstic Revive and Free Amino Acids.

Threonine plays a crucial role in guarding against personality disorders. It is not present in grains, so vegetarians need to supplement their diet. Free Amino Acids contains l-threonine. Citrulline is a non-essential amino acid, but is a precursor to l-arginine. It is found in Solstic Cardio.

Researchers are still learning about the potential therapeutic uses of the body's amazing building blocks, the amino acids. Contact the person who gave you this newsletter for more help in selecting amino acid supplements that can improve your health.