A Guide to the Right Tools for Building a Healthy Body

THE POWER OF AMINO ACIDS & PROTEIN

For additional information on the complete line of Bluebonnet free-form amino acids, protein powders and other Bluebonnet nutritional supplements, log on to:

www.bluebonnetnutrition.com

or write: Bluebonnet Nutrition Corporation
12915 Dairy Ashford, Sugar Land, TX 77478

Available in fine natural food stores

Bluebonnet
NUTRITION TO THE FIFTH POWER
NATURE · SCIENCE · QUALITY · TRUTH · KNOWLEDGE

These statements in this brochure have not been evaluated by the Food and Drug Administration. These products are not intended to diagnose, treat, cure or prevent any disease.
older adults need fewer calories, they tend to eat less than younger adults and sometimes they wear dentures, all of which can decrease adequate consumption of protein-rich foods. As a result, they often consume too little protein. High-quality protein is important for seniors because it is essential in the maintenance of muscle tissue, proper organ function and metabolism.

Amino acids are vital for the body’s ability to function at an optimal level. Unlike fat and carbohydrates, the human body does not store excess amino acids for later use. Amino acids must be obtained from protein in the diet on a daily basis to meet the needs of the body. They are crucial and have wide-ranging roles, including the repair and maintenance of muscles, organs, nails, hair, skin, ligaments, connective tissues, glands, etc. Because amino acids are considered the building blocks of life, specifically protein, a deficiency in even one of them can have detrimental effects on one’s health and well-being.

The following people can benefit tremendously from protein/amino acid supplementation:

- athletes/weekend warriors
- individuals who lead an active lifestyle
- seniors (particularly those who have ill-fitting dentures)
- individuals who have undergone trauma from surgery or an accident
DIFFERENT FORMS OF AMINO ACIDS: FREE-FORM VS PEPTIDES

Free-form amino acids are amino acids that are by themselves. No other amino acids are present, nor is it chelated (bound) to a mineral. However, when there is a link between one amino acid to another, it is referred to as a peptide bond or simply a peptide. Peptides (from the Greek πεπτίκος means "digestible") are the family of short molecules formed from the linking of various amino acids in a defined order. Multiple peptides are linked to form polypeptides. For a polypeptide (50 to 100 amino acids bonded together) to be a protein, it has to have some sort of biological function in the body. The main distinction is that peptides are short, and proteins are long.

ESSENTIAL VS NONESSENTIAL AMINO ACIDS

There are twenty “standard” amino acids used by cells in protein biosynthesis. Of the 20+ amino acids, 9 are “essential” and are required in the diet, since the body cannot produce them. “Nonessential” amino acids, on the other hand, are produced in the body from other amino acids when given an adequate supply of nitrogen, carbon, hydrogen and oxygen. Yet, even some of these nonessential amino acids are necessary at certain life stages or during certain situations, which is why some are considered “conditionally essential” (see Table 1).

<table>
<thead>
<tr>
<th>Essential Amino Acids</th>
<th>Conditionally Essential Amino Acids</th>
<th>Nonessential Amino Acids</th>
</tr>
</thead>
<tbody>
<tr>
<td>Histidine</td>
<td>Arginine</td>
<td>Alanine</td>
</tr>
<tr>
<td>Isoleucine</td>
<td>Cysteine or N-acetyl-cysteine (NAC)</td>
<td>Asparagine (Aspartic Acid)</td>
</tr>
<tr>
<td>Leucine</td>
<td>Glutamine (Glutamic Acid)</td>
<td>Ornithine</td>
</tr>
<tr>
<td>Lysine</td>
<td>Glycine</td>
<td>Serine</td>
</tr>
<tr>
<td>Methionine</td>
<td>Proline</td>
<td>Theanine</td>
</tr>
<tr>
<td>Phenylalanine</td>
<td>Taurine*</td>
<td></td>
</tr>
<tr>
<td>Threonine</td>
<td>Tyrosine</td>
<td></td>
</tr>
<tr>
<td>Tryptophan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Valine</td>
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</tbody>
</table>

*Conditionally essential amino acid derivative
DIFFERENT TYPES OF PROTEIN
PLANT-BASED VS ANIMAL-BASED PROTEINS

Getting to the Source of Proteins

Plant-based protein sources are soy, rice, pea, hemp and nuts, while animal-based proteins are beef, chicken, pork, egg and milk. The human body responds to different protein-containing foods in different ways depending on many factors: state of health, digestibility of the food, source of the protein, quality of the protein, amino acids present and other nutrients consumed with it. All of these variables will affect the protein’s availability, absorption and utilization in the body.

Assessing Protein Quality

In general, although both animal and plant foods contain protein, the quality of the protein is what differs. High-quality (complete) protein provides an ample amount of all nine essential amino acids. Animal foods, such as red meats, poultry, eggs and milk are considered high-quality (complete) protein sources versus vegetables, which contain no or low levels of some of the essential amino acids, with the exception of soybeans. Egg white albumin is the main protein found in egg white, making up 60-65% of the total protein. Whey is one of the principal proteins that is found in milk and is the protein of choice because of its superior biological value (BV) of 159, as well as being a rich, natural source of branched chain amino acids (BCAAs) and immunoglobulins for supporting the immune system (see Table 2)."
Biological value (BV) is the most popular measurement tool for assessing protein quality. When amino acids are provided in less than efficient amounts or improperly balanced, many are wasted in the body. When this occurs, the excess aminos cause the nitrogen group to be excreted. Therefore, the quality of a protein can be determined by evaluating the amount of nitrogen that is lost from the body. In general, the less nitrogen lost the more efficient the protein, which will ultimately result in a higher biological value.

**FAO/WHO ESSENTIAL AMINO ACID REQUIREMENTS**

In 1989, the Food and Nutrition Board Subcommittee of the U.S. Institute of Medicine, National Research Council updated the daily value of protein and amino acids largely on the recommendation sited in the 1985 Food & Agriculture Organization (FAO)/World Health Organization (WHO)/ United Nations University (UNU) committee report. The initial report from 1985 provided the scientific evidence that determined the amino acid requirements for various ages and developed adult essential amino acid standards. The reason the recommendations were established was to create an accurate method for determining protein quality.

**AJIPURE® AMINO ACIDS**

**Safe, Quality, Efficacy and Purity**

Bluebonnet uses Ajipure® amino acids from Ajinomoto, the global leader in the research, production and sales of amino acids. In fact, Ajinomoto was one of the first to make pharmaceutical-grade amino acids; they literally invented the process.

Unlike other amino acids, which can contain up to 6% impurities, Ajipure® amino acids are virtually 100% pure. Look to Bluebonnet Nutrition and the Ajipure® logo on your next bottle of amino acids to insure safety, quality, efficacy and purity.

**AMINO ACID SUMMARY TABLE**

<table>
<thead>
<tr>
<th>FREE-FORM AMINO ACIDS</th>
<th>ESSENTIAL/ NONESSENTIAL</th>
<th>MAIN ROLES</th>
<th>DAILY AMOUNTS ESTABLISHED BY RESEARCH</th>
</tr>
</thead>
<tbody>
<tr>
<td>L-Arginine</td>
<td>Conditionally Essential</td>
<td>Heart Health</td>
<td>3.5 to 5 g</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L-Leucine</td>
<td>Essential</td>
<td>Muscle Health</td>
<td>−6.5 mg per lb of body weight (e.g., ~975 mg/day)*</td>
</tr>
<tr>
<td>L-Isoleucine</td>
<td>Essential</td>
<td>Muscle Health</td>
<td>−4.6 mg per lb of body weight (e.g., ~690 mg/day)*</td>
</tr>
<tr>
<td>L-Valine</td>
<td>Essential</td>
<td>Muscle Health</td>
<td>−4.6 mg per lb of body weight (e.g., ~690 mg/day)*</td>
</tr>
<tr>
<td>L-Carnitine/ Acetyl-L-Carnitine</td>
<td>N/A</td>
<td>Heart Health</td>
<td>500 to 2000 mg</td>
</tr>
<tr>
<td>Cysteine/ Cystine/ N-Acetyl-L-Cysteine</td>
<td>Conditionally Essential</td>
<td>Immune Health and Antioxidant Protection</td>
<td>−6 mg of per lb of body weight (e.g., ~900 mg/day)*</td>
</tr>
<tr>
<td>L-Glutamine</td>
<td>Conditionally Essential</td>
<td>Muscle and Gastrointestinal Health</td>
<td>5 to 10 g</td>
</tr>
<tr>
<td>L-Glutathione</td>
<td>N/A</td>
<td>Immune Health and Antioxidant Protection</td>
<td>100 to 500 mg</td>
</tr>
<tr>
<td>L-Lysine</td>
<td>Essential</td>
<td>Joint and Skin Health</td>
<td>−5.5 mg per lb of body weight (e.g., ~825 mg/day)*</td>
</tr>
<tr>
<td>L-Methionine</td>
<td>Essential</td>
<td>Heart Health and Mood</td>
<td>−6 mg per lb of body weight (e.g., ~900 mg/day)*</td>
</tr>
<tr>
<td>L-Ornithine</td>
<td>Nonessential</td>
<td>Heart Health</td>
<td>500 to 3000 mg</td>
</tr>
<tr>
<td>Phenylalanine</td>
<td>Essential</td>
<td>Mood</td>
<td>−6.5 mg per lb of body weight (e.g., ~975 mg/day)*</td>
</tr>
<tr>
<td>Taurine</td>
<td>Conditionally Essential</td>
<td>Essential Amino Acid Derivative</td>
<td>−1 mg per lb of body weight (e.g., ~150 mg/day)*</td>
</tr>
<tr>
<td>Individuals under oxidative stress may benefit from higher levels of taurine: *</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L-Theanine</td>
<td>Nonessential</td>
<td>Memory Support and Mood</td>
<td>50 to 200 mg</td>
</tr>
<tr>
<td>L-Tryptophan</td>
<td>Essential</td>
<td>Healthful Sleep</td>
<td>−1.6 mg per lb of body weight (e.g., ~240 mg/day)*</td>
</tr>
<tr>
<td>Individuals wanting to engage in healthful sleep may benefit from 200 to 1000 mg of L-tryptophan: *</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L-Tyrosine</td>
<td>Conditionally Essential</td>
<td>Adaptogen for Physical Stress</td>
<td>−6.5 mg per lb of body weight (e.g., ~975 mg/day)*</td>
</tr>
</tbody>
</table>

* Based on 150 lb (70 kg) body weight of males


BRANCH CHAIN AMINO ACIDS (BCAAs)—are comprised of three essential amino acids including L-leucine, L-isoleucine and L-valine. These amino acids are found in proteins of all life forms. The BCAAs comprise about one-third of the protein found in muscle tissue, and they work synergistically to promote the building, healing and repair of muscle tissues. BCAAs are an important energy source, especially when carbohydrate stores are depleted. 

DIETARY SOURCES:
• L-isoleucine: beef, chicken, fish, pork, turkey, eggs, chickpeas, lentils, rye and seeds.
• L-leucine: beef, chicken, pork, turkey, beans, brown rice and whole wheat grains.
• L-valine: beef, chicken, pork, turkey, dairy products, whole wheat grains and mushrooms.

DAILY VALUE (DV): N/A
The daily amount of leucine that is supported by research is ~6.5 mg of leucine per lb of body weight (e.g., ~975 mg/day based on 150 lb body weight).

The daily amount of isoleucine that is supported by research is ~4.6 mg of isoleucine per lb of body weight (e.g., ~690 mg/day based on 150 lb body weight).

The daily amount of valine that is supported by research is ~4.6 mg of valine per lb of body weight (e.g., ~690 mg/day based on 150 lb body weight).

Products containing L-Arginine from Bluebonnet Nutrition:
• L-Arginine 500 mg Vcaps
• L-Arginine/Ornithine 500 mg/250 mg Vcaps
• Amino Acid 750 mg Vcaps
• Multi-Action Whey of Life® Whey Protein Powder (Natural Vanilla Blast and Chocolate Blitz Flavors)
• Super Earth® Phytonutrient Soy Protein Powder (Natural Toasted French Vanilla and Chocolate Truffle Flavors)
• 100% Natural Whey Protein Isolate Powder (Natural Original, French Vanilla, Chocolate, Strawberry and Mixed Berry Flavors)

Products containing BCAAs from Bluebonnet Nutrition:
• Amino Acid 750 mg Vcaps
• Multi-Action Whey of Life® Whey Protein Powder (Natural Vanilla Blast and Chocolate Blitz Flavors)
• Super Earth® Phytonutrient Soy Protein Powder (Natural Toasted French Vanilla and Chocolate Truffle Flavors)
• 100% Natural Whey Protein Isolate Powder
**L-CARNITINE** in the strictest sense is not an amino acid but rather an amino acid and B-vitamin derivative. In the body, carnitine is synthesized in the liver from methylated lysine, also known as trimethyllysine and is dependent on B6 for formation. However, even though L-carnitine is not an amino acid, it shares the same chemical backbone as other amino acids and therefore, it is usually classified as such. As for L-carnitine’s function, it is responsible for transporting long-chained fatty acids from the cytosol of the cell across the mitochondrial membrane for subsequent fat breakdown (beta-oxidation) and energy production of ATP (adenosine triphosphate).

**Acetyl L-Carnitine (ALC)** is the acetyl form of L-carnitine, which is found throughout the central nervous system as a source of acetyl groups for the synthesis of acetylcholine (neurotransmitter) and acetyl CoA, which is utilized in energy-producing reactions in the Krebs cycle.

Bluebonnet exclusively uses Lonza’s CarniPure® as its source of L-carnitine. CarniPure® L-Carnitine is produced via a proprietary yeast fermentation process and is naturally identical to what is found in the body.

**DIETARY SOURCES:** beef, dairy products, eggs, legumes, mustard greens and pumpkin, sesame and sunflower seeds.

**DAILY VALUE (DV): N/A**

The daily amount of L-carnitine that is supported by research for heart health ranges from 500 to 2000 mg.

**Products containing Carnitine from Bluebonnet Nutrition:**
- L-Carnitine 250 mg Vcaps
- L-Carnitine 500 mg Vcaps
- Acetyl L-Carnitine 250 mg Vcaps
- Acetyl L-Carnitine 500 mg Vcaps
- Liquid L-Carnitine 1100 mg (8 FL OZ) (Natural Vanilla and Raspberry Flavors)
- Amino Acid 750 mg Vcaps
- 100% Natural Whey Protein Isolate Powder (Natural Original, French Vanilla, Chocolate, Strawberry and Mixed Berry Flavors)
- Diet Chrome-Care® Vcaps
- Super Chrometene® Vcaps
**L-CYSTEINE/L-CYSTINE/N-ACETYL-L-CYSTEINE (NAC)**

(conditionally essential amino acid) is a precursor to the synthesis of proteins, taurine, coenzyme A and most importantly, glutathione, an important antioxidant, which functions in various redox reactions, such as in the destruction of peroxides and free radicals, the detoxification of harmful compounds and as a cofactor for enzymes. Since L-cysteine is a glutathione precursor, it may have a positive impact on immune function. **N-Acetyl-L-Cysteine (NAC)** is the stable acetyl derivative of cysteine, and since it is a carrier of an extra acetyl group, it may exert a more potent affect on glutathione biosynthesis and thus, on immune function.

**DIETARY SOURCES:** beef, chicken, pork, turkey, dairy products, eggs, broccoli, oats, red peppers and wheat germ.

**DAILY VALUE (DV): N/A**

The daily amount of methionine/cysteine that is supported by research is ~6 mg of methionine/cysteine per lb of body weight (e.g., ~900 mg/day based on 150 lb body weight).

**Interconnection of Sulfur (S)-Containing Amino Acids**

Methionine and cysteine are closely interconnected. In the body methionine, an essential amino acid is converted into cysteine, a conditionally essential amino acid, by cystathionine beta-synthase. In persons with a genetic absence or low activity of this particular enzyme results in a genetic disorder known as homocystinuria (HCU) and must follow a methionine-restricted diet and must supplement with cysteine for good health.

**Products containing Cysteine from Bluebonnet Nutrition:**

- L-Cysteine 500 mg Vcaps
- NAC 500 mg Vcaps
- Amino Acid 750 mg Vcaps

**L-GLUTAMINE** (conditionally essential amino acid) is important for maintaining muscle, as well as supporting immune and intestinal health. In fact, the body’s total amino acid muscle pool consists of 60% glutamine and is the highest concentrated amino acid found in the bloodstream. It transports nitrogen in and out of tissues and is important to the general amino acid balance in the body.

**DIETARY SOURCES:** beef, chicken, fish, dairy products, eggs and whole wheat grains.

**DAILY VALUE (DV): N/A**

The daily amount of L-glutamine that is supported by research ranges from 5 to 10 g.

**Products containing L-Glutamine from Bluebonnet Nutrition:**

- L-Glutamine 500 mg Vcaps
- L-Glutamine Powder (4 OZ/8 OZ)
- Amino Acid 750 mg Vcaps
- Multi-Action Whey of Life® Whey Protein Powder (Natural Vanilla Blast and Chocolate Blitz Flavors)
- Super Earth® Phytonutrient Soy Protein Powder (Natural Toasted French Vanilla and Chocolate Truffle Flavors)
- 100% Natural Whey Protein Isolate Powder (Natural Original, French Vanilla, Chocolate, Strawberry and Mixed Berry Flavors)
- Ultimate Hair & Nail Formula® Vcaps
L-GLUTATHIONE is a tripeptide of amino acids and is comprised of glutamic acid, cysteine and glycine. Glutathione is manufactured in every cell of the body and is important for a healthy immune system, since it acts in antioxidant and detoxification systems and is a cofactor for enzymes, which catalyze numerous reactions in the body.

DIETARY SOURCES: beef, chicken, fish, dairy products, asparagus, avocado, broccoli, spinach and walnuts.

DAILY VALUE (DV): N/A
The daily amount of L-glutathione that is supported by research for antioxidant protection ranges from 100 to 500 mg.

Products containing L-Glutathione from Bluebonnet Nutrition:
- L-Glutathione 100 mg Vcaps

L-LYSINE (essential amino acid) plays a major role in calcium absorption, blood sugar metabolism and in the formation of new collagen, a main structural component of connective tissues. Since L-lysine is also involved in the production of antibodies, enzymes and hormones, it is an important player in immune function as well.

DIETARY SOURCES: beef, chicken, fish, pork, turkey, dairy products, eggs, fenugreek seeds, nuts, soybeans and spirulina.

DAILY VALUE (DV): N/A
The daily amount of lysine that is supported by research is ~5.5 mg of lysine per lb of body weight (e.g., ~825 mg/day based on 150 lb body weight).

Products containing L-Lysine from Bluebonnet Nutrition:
- L-Lysine 500 mg Vcaps
- L-Lysine 1000 mg Vcaps
- Amino Acid 750 mg Vcaps
- Multi-Action Whey of Life® Whey Protein Powder (Natural Vanilla Blast and Chocolate Blitz Flavors)
- Super Earth® Phytonutrient Soy Protein Powder (Natural Toasted French Vanilla and Chocolate Truffle Flavors)
- 100% Natural Whey Protein Isolate Powder (Natural Original, French Vanilla, Chocolate, Strawberry and Mixed Berry Flavors)

L-METHIONINE (essential amino acid) is a sulfur-containing amino acid that is utilized in protein biosynthesis. Additionally, L-methionine participates in a wide range of biochemical reactions, including the production of S-adenosylmethionine (SAM or SAMe). SAMe is an active methyl (CH₃) donor in the body and is essential in the synthesis of the sulfur-containing amino acids L-cysteine and taurine, plus B-vitamin derivative L-carnitine and the sleep neurohormone melatonin and thus, methionine has been shown in the literature to be supportive of brain, heart, joint, liver and mood health.

DIETARY SOURCES: beef, chicken, fish, pork, dairy products, eggs, seaweed and sarsaparilla.
The daily amount of methionine/cysteine that is supported by research is ~6 mg of methionine/cysteine per lb of body weight (e.g., ~900 mg/day based on 150 lb body weight).

Interconnection of Sulfur (S)-Containing Amino Acids

Methionine and cysteine are closely interconnected. In the body, methionine, an essential amino acid, is converted into cysteine, a conditionally essential amino acid, by cystathionine beta-synthase. In persons with a genetic absence or low activity of this particular enzyme results in a genetic disorder known as homocystinuria (HCU) and must follow a methionine-restricted diet and must supplement with cysteine for good health.

Why Ornithine is often combined with Arginine?

Ornithine and arginine can synthesize each other in the urea cycle. The body’s ability to synthesize and utilize nonessential amino acids, such as arginine and ornithine, in the body can be greatly affected by factors like age, environment and overall health. Together, both are known to support the production of nitric oxide, which plays a fundamental role in vascular function and blood flow. Therefore, the combination of these two amino acids is important in supporting a healthy cardiovascular system.

Products containing L-Methionine from Bluebonnet Nutrition:

- L-Methionine 500 mg Vcaps
- Amino Acid 750 mg Vcaps
- Multi-Action Whey of Life® Whey Protein Powder (Natural Vanilla Blast and Chocolate Blitz Flavors)
- Super Earth® Phytonutrient Soy Protein Powder (Natural Toasted French Vanilla and Chocolate Truffle Flavors)
- 100% Natural Whey Protein Isolate Powder (Natural Original, French Vanilla, Chocolate, Strawberry and Mixed Berry Flavors)
- Diet Chrome-Care® Vcaps
- Ultimate Hair & Nail Formula® Vcaps

DAILY VALUE (DV): N/A

The daily amount of L-ornithine that is supported by research for cardiovascular and muscular health ranges from 500 to 3000 mg.

L-ORNITHINE (nonessential amino acid) serves as an important intermediate in the urea cycle, functioning along with arginine, to rid the body of ammonia, a by-product of protein metabolism and produces nitric oxide, thus supporting healthy blood flow.

DIETARY SOURCES: beef, chicken, fish, dairy products, eggs, brown rice, chocolate, nuts, oatmeal, sesame and sunflower seeds, and whole wheat bread.
L-PHENYLALANINE (essential amino acid) serves a vital role in producing neurotransmitters by being converted into tyrosine. Tyrosine is then further metabolized into the neurotransmitters, norepinephrine and epinephrine, the body’s two main stress-related hormones involved in the flight or fight response, thus helping to support mood.

DL-Phenylalanine (DLPA), on the other hand, contains a mixture of 50% L-phenylalanine and 50% D-phenylalanine and does not participate in protein biosynthesis. Unlike L-phenylalanine that influences the stress related hormones, this mixture influences neurotransmitter synthesis of endorphins and enkephalins, which mediate mood and muscular comfort.

**DIETARY SOURCES:** beef, chicken, pork, turkey, dairy products, eggs, almonds, cottage cheese, lima beans, peanuts, pumpkin and sesame seeds, and soybeans.

**DAILY VALUE (DV): N/A**

The daily amount of phenylalanine/tyrosine that is supported by research is ~6.5 mg of L-phenylalanine/tyrosine per lb of body weight (e.g., ~975 mg/day based on 150 lb body weight).

The daily amount of DLPA that is supported by research ranges from 500 to 1500 mg.

**Interconnection of Aromatic Amino Acids**

Phenylalanine and tyrosine are closely interconnected. In the body, phenylalanine, an essential amino acid is converted into tyrosine, a conditionally essential amino acid, by phenylalanine hydroxylase. In persons with a genetic absence or low activity of this particular enzyme results in a genetic disorder known as phenylketonuria (PKU) and must follow a phenylalanine-restricted diet and must supplement with tyrosine for good health.

TAURINE (conditionally essential amino acid derivative) is not a true amino acid but rather an end product of sulfur amino acid metabolism — a pathway whereby homocysteine, a risk factor to heart health, is broken down into the sulphur containing amino acids methionine and cysteine and subsequently, taurine. It is ubiquitous in the body and is involved in metabolic processes concerning the brain, retina, heart, skeletal and smooth muscle, platelets and white blood cells and nervous system— all of which require adequate amounts of taurine to function at the highest levels. It is a powerful antioxidant that donates electrons to reactive oxygen free radicals, neutralizing them to maintain healthy cells and tissues.

**DIETARY SOURCES:** beef, chicken, fish, dairy products and eggs.

**DAILY VALUE (DV): N/A**

The daily amount of taurine that is supported by research is ~1 mg per lb of body weight (e.g., ~150 mg/day based on 150 lb body weight). Individuals under oxidative stress may benefit from higher levels of taurine.

**Products containing Phenylalanine from Bluebonnet Nutrition:**

- L-Phenylalanine 500 mg Vcaps
- DLPA 500 mg Vcaps
- Amino Acid 750 mg Vcaps
- Multi-Action Whey of Life® Whey Protein Powder (Natural Vanilla Blast and Chocolate Blitz Flavors)
- Super Earth® Phytonutrient Soy Protein Powder (Natural Toasted French Vanilla and Chocolate Truffle Flavors)
- 100% Natural Whey Protein Isolate Powder (Natural Original, French Vanilla, Chocolate, Strawberry and Mixed Berry Flavors)

**Products containing Taurine from Bluebonnet Nutrition:**

- Taurine 500 mg Vcaps
- Taurine 1000 mg Vcaps
L-TRYPTOPHAN (essential amino acid) is converted into serotonin once it crosses the blood-brain barrier and is then further metabolized into melatonin, which has been shown in studies to help induce sleep, calm behaviors, reduce carbohydrate cravings and potentially reduce PMS symptoms. The free-form brand, TryptoPure™ by Ajinomoto, a vegetarian, pharmaceutical grade L-tryptophan, is derived from a traditional and time-tested microbial fermentation process using corn and is guaranteed to be free of EBT/EMS impurity. 

DIETARY SOURCES: chicken, fish, pork, turkey, dairy products, bananas, chickpeas, chocolate, oats, sesame seeds and peanuts.

DAILY VALUE (DV): N/A
The daily amount of tryptophan that is supported by research is ~1.6 mg of tryptophan per lb of body weight (e.g., ~240 mg/day based on 150 lb body weight).

The daily amount of L-tryptophan that is supported by research for sleep ranges from 200 to 1000 mg.

Products containing L-Tryptophan from Bluebonnet Nutrition:
- Pharmaceutical Grade L-Tryptophan 500 mg Vcaps
- Amino Acid 750 mg Vcaps
- Multi-Action Whey of Life® Whey Protein Powder (Natural Vanilla Blast and Chocolate Blitz Flavors)
- Super Earth® Phytonutrient Soy Protein Powder (Natural Toasted French Vanilla and Chocolate Truffle Flavors)
- 100% Natural Whey Protein Isolate Powder (Natural Original, French Vanilla, Chocolate, Strawberry and Mixed Berry Flavors)

L-THEANINE (nonessential amino acid) is not involved in protein biosynthesis and is very rare in nature. The free-form brand, Suntheanine®, has been shown in human clinical trials to influence neurotransmitters and induce alpha-waves in the brain, which may promote memory and learning, and mediate mood and stress.

DIETARY SOURCES: green tea and one species of mushroom, Xerocomus badius.

DAILY VALUE (DV): N/A
The daily amount of l-theanine that is supported by research for brain health ranges from 50 to 200 mg.

Products containing L-Theanine from Bluebonnet Nutrition:
- L-Theanine 200 mg Vcaps
PROTEINS A TO Z

Protein is a main component of muscles, organs and glands. Every living cell and all body fluids, except bile and urine, contain protein. The cells of muscles, tendons and ligaments are maintained and repaired with protein. Children and adolescents require protein in adequate quantities to sustain growth and development. A nutritionally balanced diet typically provides 10 to 25% of total caloric energy from high-quality protein.

Vegetarians too, are able to get enough protein if they eat the proper combination of plant proteins.

The following are the recommended serving sizes for foods in general; the foods represented are protein-rich:

- 2 to 3 oz of cooked lean meat, poultry and fish (a portion about the size of a deck of playing cards or a balled fist)
- 1/2 cup of cooked dry beans, lentils or legumes
- 1 egg or 2 tablespoons of peanut butter, which count as 1 ounce of lean meat
DAIRY-BASED PROTEINS

WHEY PROTEIN
Whey protein is the best natural protein source on the market, especially for those who lead an active lifestyle. Whey is a fast-acting protein, meaning that its amino acids are easily and readily available to the body for immediate use— an especially important consideration for active individuals, particularly athletes, to use after exercising to optimize the recovery phase by quickly replenishing the body’s amino acid pool.

Whey is the protein of choice because of its superior biological value, rich and natural source of branched chain amino acids (BCAAs), and unique source of lactalbumin and immunoglobulins known to enhance immune function. Whey, a protein derived from milk, has been recognized as a functional food with a number of health benefits. The biological components of whey, including lactoferrin, alpha-lactalbumin, beta-lactoglobulin, glycomacropeptide and immunoglobulins demonstrate a wide range of powerful immune-enhancing properties, which may be beneficial after long-strenuous activity.

Whey protein isolate contains negligible amounts of lactose and is therefore easily tolerated by most lactose-sensitive individuals since a special microfiltration process is employed that protects the important immunoglobulin fractions, while eliminating dairy components like lactose that can potentially cause GI upset.

Products containing Whey Protein from Bluebonnet Nutrition:

- Amino Acid 750 mg Vcaps
- Multi-Action Whey of Life® Whey Protein Powder (Natural Vanilla Blast and Chocolate Blitz Flavors)
- 100% Natural Whey Protein Isolate Powder (Natural Original, French Vanilla, Chocolate, Strawberry and Mixed Berry Flavors)
**SOY PROTEIN**
Soy protein is the best vegetarian source of protein on the market. Soy provides not only high-quality protein, but also beneficial isoflavones (e.g., genistein and diadzin) serving as phytoestrogens to help support the health of menopausal women and men’s prostate health. Soy isoflavones offer potent antioxidant protection as well as cardiovascular and bone support.

*Products containing Soy Protein from Bluebonnet Nutrition:*
• Super Earth® Phytonutrient Soy Protein Powder (Natural Toasted French Vanilla and Chocolate Truffle Flavors)

**CASEIN PROTEIN**
Casein is the predominant protein found in fresh milk. When coagulated with rennet (enzymes in the gut that curdle milk), casein is sometimes called paracasein. As it exists in milk, it is a salt of calcium. Micellar casein is the preferred undenatured form of casein, which is the form incorporated into select Bluebonnet products as opposed to popularly used acid or rennet casein that is exposed to high heat during hydrolyzation and/or pasteurization. A hydrolyzed protein is known as “pre-digested.” In the process of hydrolyzation, the casein is broken up enzymatically by hydrochloric acid (HCl), sulfuric acid and lactic acid in an atmosphere of nitrogen. Hydrolyzation destroys the protein structure and much of the functional benefit is lost, particularly its glutathione-immune boosting property. Casein’s functional roles have shown to be not just related to its amino acid profile but to the intact structure of casein microfractions.

Micellar casein is an extremely slow-digesting and rich protein source, which continues to feed muscles long after the whey proteins have been broken down. Micellar casein was found to prevent muscle breakdown and support prolonged stability of increased plasma concentrations of amino acids, which produces the best nitrogen retention and utilization by the body for optimal protein biosynthesis and subsequent muscle gain.

Casein protein contains negligible amounts of lactose and is therefore easily tolerated by most lactose-sensitive individuals since a special microfiltration process is employed that protects the important immunoglobulin fractions, while eliminating dairy components like lactose that can potentially cause GI upset.

*Products containing Casein Protein from Bluebonnet Nutrition:*
• Multi-Action Whey of Life® Whey Protein Powder (Natural Vanilla Blast and Chocolate Blitz Flavors)

**VEGETABLE PROTEINS**
**PEA PROTEIN**

Peas belong to the vegetable family known as legumes, whose plants produce pods with enclosed seeds. Legumes are protein-rich, low-fat, nutritional additions to almost any meal, and peas are certainly no exception. Beans and peas are noted for their health benefits. When mature legumes and seeds are produced in pods, they are allowed to develop fully on the plant before they are harvested. Peas are the richest source of protein than any other plant food. In fact, protein is the single most important macronutrient in peas. The special form of pea protein incorporated into select Bluebonnet products is derived from non-genetically modified (non-GMO) yellow and field peas (*Pisum sativum*) and contains 85% protein with an amino-acid profile very close to the ideal for human nutrition that is recommended by the Food and Agriculture Organization (FAO) of the United Nations (UNU) and the World Health Organization (WHO). It is rich in many amino acids, including lysine, branched chain amino acids (BCAAs), glutamine and arginine. These crucial amino acids have been shown to benefit...
To harness the **Power of Amino Acids & Protein**, look to Bluebonnet Nutrition for:

- A wide selection of pharmaceutical grade, free-form amino acids, ranging from Arginine to Tyrosine
- A unique array of high-quality, multi-ingredient protein powder formulas:
  - Early Promise Prenatal® Macronutrient Powder
    (Natural French Vanilla and Belgian Chocolate Flavors)
  - Multi-Action Whey of Life® Protein Powder
    (Natural Vanilla Blast and Chocolate Blitz Flavors)
  - Super Earth® Phytonutrient Soy Protein Powder
    (Natural Toasted French Vanilla and Chocolate Truffle Flavors)
  - 100% Natural Whey Protein Isolate Powder
    (Natural Original, French Vanilla, Chocolate, Strawberry and Mixed Berry Flavors)
- Multiple delivery systems (Caplets, Vcaps, Liquids and Powders)
- Amino acids and protein powders bearing the gluten-free symbol signifies that they are free of ingredients derived from gluten-containing cereals, such as wheat (including kamut and spelt), barley, rye, and triticale.
- Amino acids and protein powders bearing the kosher symbol signifies that they are kosher-certified, which not only appeals to those observing religious dietary laws, but also to vegetarians and others who equate the kosher symbol with quality and a higher level of cleanliness and purity.*

* Please refer to the label to determine if the Bluebonnet product is KOF-K Parve or KOF-K Dairy.

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**BROWN RICE PROTEIN**

Brown rice is a whole grain with the nutrient-rich germ and fiber filled bran. Brown rice is low in fat and sodium and is a good source of complex carbohydrates specifically soluble fiber, vitamins and minerals. It is also highly digestible, and when compared to that of other grains, it is considered one of the highest quality sources of protein from a vegetable source and for vegan lifestyles. It has a balance of all nine of the essential amino acids in the proper proportions necessary for protein biosynthesis, which promotes strong, healthy muscles. However, the protein in rice is still considered incomplete because it has lower levels of certain essential amino acids, specifically lysine. When combined with other complementary proteins, such as pea protein, that has adequate amounts of lysine, the combination provides a protein-rich, vegetarian meal that is comparative, from a complete protein standpoint, to any animal-based meal. The type of brown rice protein incorporated into select Bluebonnet products is one of the highest quality vegetable proteins available on the market. It is made from non-GMO, whole grain brown rice that is free of the common food allergens normally associated with products, such as milk, egg, fish, crustacean shellfish, tree nuts, peanuts, yeast and soybeans.*

**Products containing Brown Rice Protein from Bluebonnet Nutrition:**

- Early Promise Prenatal® Macronutrient Powder
  (Natural French Vanilla and Belgian Chocolate Flavors)