

# Concentrated, Free-Form, Essential Amino Acid Formula

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## WHAT IS AMINO COMPLEX?

Amino Complex is a free-form amino acid formula that provides all nine essential amino acids our body requires. Since the body cannot create them, they must be obtained through food or supplementation. Among the essential amino acids provided in Amino Complex is leucine (2.5 g per serving) to promote muscle health and function, overall protein status, and homeostasis of the body.\* Amino acids, in their free form, are immediately available for absorption and can be used metabolically more readily and rapidly compared with amino acids that must be liberated from dietary proteins.\*

Amino acids are best known for their role as the building blocks of the human body.\* Unlike fatty acids and starches, the human body is unable to store excess amino acids for later use. Therefore, essential amino acids must be consumed in adequate amounts to help discourage the breakdown of body tissues that contain amino acids, such as skeletal muscle.\* Amino acid deficiency can have detrimental impacts on protein synthesis and whole-body homeostasis.<sup>1</sup> They are needed to synthesize various neurotransmitters (e.g., serotonin and dopamine), hormones, enzymes, and immune system antibodies, and they serve as critical factors in cellular energy generation.<sup>1</sup> This formula may be beneficial for athletes seeking extra protein support to maintain greater lean body mass.\*

## WHY ALPHA-KETOGLUTARATE AND VITAMIN B6?

Alpha-ketoglutarate is a compound involved in the generation of cellular energy and supports amino acid metabolism and bioavailability.\* Providing this, along with free-form essential amino acids, may help promote stamina and healthy energy production.\* Vitamin B6 is featured in the bioactive form of vitamin B6 (as pyridoxal-5-phosphate). Vitamin B6 is required for the conversion of amino acids into their end products. For example, sufficient vitamin B6 is required to convert tyrosine into dopamine, the neurotransmitter associated with motivation and reward.<sup>2</sup> Synthesis of collagen — the main structural protein in the body — also requires B6.<sup>3</sup> However, commonly consumed beverages, such as coffee, interfere with and may deplete vitamin B6 metabolism and absorption, leaving many people potentially low in this essential vitamin.<sup>4</sup>

## FORMULA HIGHLIGHTS

- A balanced mix of readily absorbable, free-form, essential amino acids in targeted amounts
- Features all nine essential amino acids required by the body, supporting overall health and optimal protein status\*
- Features 2.5 g of L-leucine per serving to support sports nutrition and muscle health\*
- Convenient powder formula available in two delicious flavors: Fruit Punch and Natural Orange
- Zero grams of sugar, sweetened with organic stevia leaf
- Does not contain synthetic dyes or artificial sweeteners
- Gluten-free, dairy-free, soy-free; non-GMO
- NSF Certified for Sport®



## SUPPORTS MUSCLE STRENGTH\*

Amino acids are the building blocks for proteins in the human body.\* Muscle protein is an important tissue that can benefit from acquiring sufficient or extra amino acids.<sup>5,6</sup> According to a population-based, cross-sectional study from the 2014-2019 Korea National Health and Nutrition Examination Survey (KHANES), higher total essential amino acid scores were associated with higher muscle strength for adults over 65, based on data from 24-hour diet recalls.<sup>5</sup> Randomized controlled trials also support this finding, as was seen in a double-blind placebo-controlled study that evaluated the impact essential amino acid (EAA) supplementation would have on the muscular strength and power of 38 healthy elderly adults. The intervention group supplemented 5 g of EAA twice daily before lunch and dinner for 12 weeks. At the

end of the study, it was measured that those who had been supplementing EAAs had significantly improved muscle contractile capacity (+ 0.52kg) and peak power (+ 9.87 W) compared to the placebo group.<sup>6</sup>

**SUPPORTS MUSCLE PROTEIN SYNTHESIS AND LEAN BODY MASS\***

Professional athletes and healthy individuals alike aim to develop and maintain adequate muscle mass to support athleticism and longevity, and ingesting EAA can help support this goal for adults of any age.<sup>7,8</sup> Supplementing with EAA daily has been shown in clinical research to improve the rate of muscle protein fractional synthesis, which also supports lean body mass.<sup>7,9</sup> One double-blind placebo-controlled study evaluated the impact of supplementing 7.5 g twice daily of EAA for three months on the muscle health of 14 older women. The researchers found a statistically significant increase in lean body mass, basal muscle protein synthesis rates, and insulin-like growth factor-1 (IGF-1), a hormone that is crucial for muscle growth, in the women supplementing with EAA compared to those in the placebo group.<sup>7</sup>

Essential amino acids are required for muscle protein synthesis, and leucine may be of high importance as it is a highly anabolic amino acid.<sup>8</sup> Leucine-enriched amino acid intake has been shown to stimulate protein synthesis in skeletal muscle plays by activating the mammalian


target of rapamycin (mTOR), a primary pathway in cellular anabolism.<sup>8,10</sup> For this reason, ensuring adequate leucine status is ideal for supporting muscle protein synthesis.\* This was investigated in a double-blinded, randomized controlled trial on 40 young men who supplemented once before exercise with 6.25 g of whey protein with varying levels of leucine or with a 25 g whey protein with no added leucine. They found that the group supplementing the highest amount of leucine (5 g) and only 6.25 of whey had nearly the same effect on muscle protein synthesis following knee-extensor resistance exercise as the high, 25 g whey protein-only intervention group.<sup>8</sup> This suggests that proper leucine intake promotes optimal muscle protein synthesis.\*

**BENEFITS**

- Supports muscle protein synthesis<sup>5,7,9</sup>
- Supports muscle strength and power<sup>5,6</sup>
- May help mitigate age-related muscle loss<sup>6,7</sup>


**HOW TO TAKE**

Mix 12 grams (approx. one scoop) in 8-10 ounces of water. Essential amino acids can be taken before or after a workout to support muscle protein synthesis.\*



Supplement Facts			
Serving Size 12 grams (approx. one scoop) Servings Per Container 30			
Amount Per Serving	% Daily Value	Amount Per Serving	% Daily Value
Calories	5	L-Arginine	525 mg *
Total Carbohydrate	1.5 g 1%**	L-Isoleucine	525 mg *
Dietary Fiber	less than 1 g <4%**	Alpha-Ketoglutarate	470 mg *
Vitamin B-6 (as Pyridoxal-5-Phosphate)	20 mg 1176%	L-Methionine	435 mg *
L-Leucine	250 mg *	L-Threonine	385 mg *
L-Phenylalanine	775 mg *	L-Tryptophan	120 mg *
L-Valine	615 mg *		
L-Histidine	590 mg *		
L-Lysine	525 mg *		

Other Ingredients: Natural Flavors, partially hydrolyzed guar gum, citric acid, PhytoSweet® blend (rebaudioside M, steviol glycosides (from Stevia rebaudiana leaf)), B-carotene (color).



Supplement Facts			
Serving Size 12 grams (approx. one scoop) Servings Per Container 30			
Amount Per Serving	% Daily Value	Amount Per Serving	% Daily Value
Calories	5	L-Arginine	525 mg *
Total Carbohydrate	2 g 1%**	L-Isoleucine	525 mg *
Dietary Fiber	1 g 4%	Alpha-Ketoglutarate	470 mg *
Vitamin B-6 (as Pyridoxal-5-Phosphate)	20 mg 1176%	L-Methionine	435 mg *
L-Leucine	25 g *	L-Threonine	385 mg *
L-Phenylalanine	775 mg *	L-Tryptophan	120 mg *
L-Valine	615 mg *		
L-Histidine	590 mg *		
L-Lysine	525 mg *		



Other Ingredients: Natural Flavors, partially hydrolyzed guar gum, steviol glycosides (from organic Stevia rebaudiana leaf), citric acid, beet powder (color).







**FORMULATED WITH ALPHA-KETOGLUTARATE AND VITAMIN B6 (AS PYRIDOXAL-5-PHOSPHATE) FOR OPTIMAL ABSORPTION AND EFFICACY\***

**FEATURING TWO DELICIOUS FLAVORS: NATURAL ORANGE & FRUIT PUNCH**

**IMMEDIATELY ASORBABLE WITH FREE-FORM AMINO ACIDS**

**ZERO GRAMS OF SUGAR AND IS SWEETENED WITH STEVIA.\***





SOY-FREE   GLUTEN-FREE   DAIRY-FREE   0 GRAMS SUGAR   NON-GMO   HIGHLY ABSORBABLE\*

\*These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure or prevent any disease.

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# References

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