



➤ Product Review ◀

January 2017 #298

AMINOSELECT™ – OUR NEW HIGH LEUCINE AMINO ACID SUPPLEMENT

As I have been discussing for several years now, one of the main cornerstones of our systems approach to chronic illness at Moss Nutrition is optimization of muscle, both in terms of mass and function. Naturally, optimal protein intake is critical in terms of nutritional support to attain this goal. However, many other nutrients play major supporting roles: electrolytes (Potassium and magnesium in particular), B vitamins, and anti-inflammatory substances such as curcumin and fish oil. Of these supportive nutrients, one that is both particularly important and still particularly under-appreciated is the essential amino acid leucine. Mindful of this, we have already created products that contain these nutrients individually and four products that contain many or all of these nutrients in one formula: **SarcoSelect®**, **SarcoSelect® DF**, **Select Meal®** and **Select Meal® DF**. However, for some patients, especially the elderly – who often have a significantly increased need for these nutrients – ingestion of protein powders may be difficult or impractical. Fortunately, a large body of research points out a highly efficacious alternative in this situation: ingestion of essential amino acids. And, we now have this alternative: **AminoSelect™**.

AminoSelect™ supplies typical doses of all the essential amino acids except for one, leucine. Why? As you might expect from my many other newsletters on leucine, when extra leucine is added to essential amino acid formulations, whatever improvements in muscle mass and function that are gained from the ingestion of essential amino acids are magnified by the addition of leucine in amounts beyond the usual. Does published research support this

contention? What follows are reviews of two studies that establish the validity of using high leucine essential amino acid formulations to improve muscle mass and function, particularly in elderly populations.

The first study is “A high proportion of leucine is required for optimal stimulation of the rate of muscle protein synthesis by essential amino acids in the elderly” by Katsanos et al (Katsanos CS et al. *Am J Physiol Endocrinol Metab*, Vol. 291, pp. E381-287, 2006). In this study, both healthy young and elderly groups were fed servings of essential amino acids with extra leucine, after which blood samples were drawn and muscle biopsies were taken to determine the fractional synthetic rate and balance of muscle protein. As you might expect, the elderly groups noticed significant benefit:

“We conclude that increasing the proportion of leucine in a mixture of essential amino acids (EAA) can reverse an attenuated response of muscle protein synthesis in elderly but does not result in further stimulation of muscle protein synthesis in young subjects.”

The next two quotes from the paper point out why the extra leucine is so important:

“Ingestion of an amino acid mixture containing extra leucine has the potential to affect muscle protein metabolism in several ways. In addition to providing leucine and other amino acids as precursors for protein synthesis, the extra leucine may stimulate specific intracellular pathways associated with muscle protein synthesis. Specifically, there is evidence implicating a leucine-mediated increase in plasma insulin.”

In addition:

“There is also evidence suggesting that plasma leucine can regulate muscle protein synthesis by insulin-independent mechanisms.”

The next quote discusses why the extra leucine may be especially important to elderly populations:

“Ingestion of extra leucine may be particularly important for the stimulation of skeletal muscle protein synthesis in the elderly, because evidence from animal studies indicates that skeletal muscle protein synthesis becomes less responsive to the stimulatory effects of leucine with aging.”

The next two quotes I would like to feature emphasize the fact that, even though leucine is a star player in terms of muscle protein synthesis in the elderly, the other EAAs are still important:

“The importance of an improved response of skeletal muscle protein synthesis to the ingestion of amino acids is obvious for individuals across the age spectrum, and particularly the elderly, because skeletal muscle mass declines with advancing age.”

Concerning insulin optimization, as with muscle protein synthesis, even though leucine is important, the other EAAs play a role:

“It has long been known that EAAs stimulate insulin secretion...”

The second study I would like to discuss is a more recent study by Ispoglou et al entitled “Double-blind, placebo-controlled pilot trial of L-leucine-enriched amino acid mixtures on body composition and physical performance in men and women aged 65-75 years” (Ispoglou T et al. *Eur J Clin Nutr*, Vol. 70, pp. 182-188, 2016). Because the formulation in this study formed the basis for the formulation in **AminoSelect™**, I would like to discuss it in detail.

In this study, 25 healthy subjects (11 male and 14 female) aged 65-75 years were evaluated. For twelve weeks eight of the subjects ingested an EAA formulation consisting of 20% leucine, eight ingested an EAA formulation consisting of 40% leucine, and 9 ingested a placebo.

What were the results? As with the Katsanos et al study, muscle mass improved with both high leucine EAA formulations. However, in this

study there was another aspect of improvement that is more clinically relevant to our patients, functional performance:

“In contrast to other studies, subjects in the EAA groups improved functional performance, suggesting that supplementation with EAAs is an effective nutritional therapy for age-related sarcopenia with or without the presence of exercise, which is a known enhancer of effect.”

Another important benefit noted in this study by Ispoglou et al relates to bone health:

“In terms of bone health, our findings also suggest that supplementation with EAAs may improve bone mineral density, as there was an increase in bone mineral density, which was supported by medium effect sizes...for both the 20 and 40% groups, whereas this was not the case for the placebo group.”

Did Ispoglou et al agree with Katsanos et al in terms of the importance of extra leucine in the EAA formulation? The authors state:

“Our data suggest that increased dosage of leucine, branched-chain amino acids and EAAs through supplementation and food can benefit the functional status and body composition of elderly men and women.”

In conclusion, we are excited to give you **AminoSelect™** - Another option to address the ever increasing role that loss of muscle mass and function plays in contributing to chronic illness, not matter what the symptomatic presentation may be. For more information, please see our technical bulletin.

AminoSelect™ - Moss Nutrition

Contents: 120 capsules

