The MOSS NUTRITION REPORT

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Product Review

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USING PROTEIN POWDERS TO REDUCE THE ADVERSE METABOLIC IMPACT OF SUCROSE-CONTAINING SNACK FOODS

INTRODUCTION

As we all know, the many forms of deprivation and isolation that occurred due to COVID-19 restrictions since early 2020 led to an interesting decision by many Americans to "reward" themselves for their compliance with recommended COVID-19 restrictions by ingesting increased amounts of high refined carbohydrate snack foods. This, in turn, led to weight gain often termed "the COVID 15," referring to the amount of weight gain that occurred as a consequence of the "reward." Given that many patients who still have very fresh memories of the COVID-19-mandated isolation and restrictions may still be reluctant to give up the high refined carbohydrate "rewards," is there a way that will allow them to "have their cake and eat it too" so to speak by finding easy, practical and low cost ways to minimize the metabolic impact of the "rewards?" An interesting, recently published study suggests that the answer to this question may be in the affirmative.

USING PROTEIN POWDER TO REDUCE THE ADVERSE METABOLIC IMPACT OF SUCROSE INGESTION

In "Effect of sucrose on amino acid absorption of whey: A randomized crossover trial" by Wajiki et al (Wajiki M et al. *Metabolites*, Vol. 12, No. 282, 2022) the authors examined the impact of sucrose ingestion on whey protein absorption in six healthy males and five healthy females. Their ages were 20 to 60 years with the average age for males being 34.5 ± 3.0 years and the average age for females being 39.8 ± 4.3 years. None of the participants were overweight.

During each of four 180-minute experimental periods that were separated by 1–2-week washout periods, the participants were randomly divided into the following groups:

- Ingestion of water only (P group)
- Ingestion of 10 g sucrose (S group)
- Ingestion of 10 g whey protein (W group)
- Ingestion of 10 g whey protein + 10 g sucrose (W-S group)

The primary end point being ascertained was blood amino acid levels. However, plasma glucose was also measured, as will be discussed.

What is the importance of knowing the impact of different foods on blood amino acid levels? Wajiki et al state:

"Muscle protein synthesis (MPS) rates increase as blood amino acid concentration rises. Conversely, insufficient nutrient consumption leads to muscle protein breakdown (MPB), even in continuous training."

As we all realize, the last statement in the above quote is particularly clinically relevant as many patients erroneously maintain the belief that exercise alone can compensate for suboptimal diet.

Another important quote I would like to feature from the authors' introductory text is that surprisingly, very few studies have investigated

the impact of ingesting highly refined carbohydrate "junk food" with protein, probably a very common occurrence in our COVID society right now:

"The majority of studies investigating the simultaneous ingestion of carbohydrates and proteins include entire meals, and few have explored the relationship between ingestion of isolated whey protein and simple carbohydrates."

Study results

Blood glucose **-** First, as you might expect, the sugar group had higher elevations in blood sugar compared to the placebo and whey groups:

"Between 15 and 30 min post-ingestion, blood glucose levels of the S-group were elevated relative to those of the P- and W-groups. Especially at 30 minutes after ingestion, blood glucose levels of the S-group were elevated relative to those of the W-S group. As expected, blood glucose levels did not differ significantly between the W- and P-groups."

Plasma total amino acid (TAA) levels – What is most interesting about this study and also most clinically significant is the fact that the sugar only group had a noticeable decrease in TAA levels compared to the placebo group:

"At 120 min post-ingestion, TAA levels of the S-group were lower to those of the P-group."

In contrast, this effect was completely negated when whey was ingested with the sugar (The W-S group). In fact, both the whey (W) and whey-sugar (W-S) groups demonstrated elevations in TAA compared to placebo (P):

"At 15-90 min post-ingestion, TAA levels of the W- and W-S-groups were elevated relative to those of the P- and S-groups. Similar trends were noted for plasma essential amino acid and branched-chain amino acid levels."

With the above findings in mind, Wajiki et al point out the importance of ingesting protein with refined carbohydrate foods:

"The fact that carbohydrate has no effect on blood amino acid levels after protein intake in this study of a wide age range encourages people to consume protein-rich confections and foods."

Furthermore, as the authors point out in their conclusion:

"In conclusion, the present study demonstrates that sucrose consumption in isolation decreases blood amino acid concentration and reports that co-consumption of whey protein with sucrose negates this effect. It also confirms that whey protein and sucrose co-consumption decrease the sucrose-induced increase in blood glucose level…Therefore, our findings indicate that protein co-ingestion with carbohydrates is an effective way to supply protein."

MOSS NUTRITION PROTEIN POWDER PRODUCTS

Moss Nutrition provides two protein powder products – **Select Whey® Vanilla** and **Organic Select Pea® Vanilla**. While the Wajiki et al study reviewed above only discussed whey protein, both anecdotal and published research suggest that similar results would be observed with pea protein. It has been suggested that this similarity is due to comparable amino acid profiles, particularly in relationship the branched chain amino acids and, specifically, leucine.

As I suggested in the introduction to this newsletter, more and more patients are going to be coping with the seemingly endless cascade of stressors in our current daily lives by ingesting refined carbohydrate comfort foods. Will some of these patients change to healthier food choices based on our recommendations? Possibly and even probably depending on your patient population. However, it is also very possible and even probable that some patients will not follow our recommendations about avoiding or greatly reducing refined food intake. For those patients, as suggested by the Wajiki et al study just reviewed, we can still gain metabolic improvement in health, not by subtracting, but by what can easily be added - a quality whey or pea protein powder.