Mini Review

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Protein Bioavailability

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ABSTRACT

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In a world flooded with misinformation, the future of health and nutrition will be built on meaningful, tangible results. The most impactful "NEWS" that needs to be shared is that protein supplements are not all what they are cracked up to be. Let's first agree that the best source of protein should come from whole foods! With that being said, there are circumstances that call for the added protein from a powdered supplement. Not all proteins are created equally when it comes to ingesting, digesting and utilizing the protein from these supplements. Let's start with some science that has been around for almost two decades that the nutrition and sports supplement industry has tried to suppress. This is all based around different proteins and their ability to be used (bioavailability) by our bodies. A protein's amino acid composition affects the rate of absorption, with some types of amino acids being absorbed more easily than others. On top of that, research shows that the length of the protein's amino acid chain also affects absorption, with long-chain peptides taking significantly longer to be broken down and absorbed in comparison to short-chain peptides. As you can see in the chart below, each type of protein has a different rate of absorption. Some types of protein, like whey, have a relatively high rate of absorption, while other proteins, like egg protein, are only absorbed in small amounts every hour. Here are the rates of absorption for the most popular protein powder supplements (Table 1).

Table 1.

Digestion speed of Varying proteins	
Protein*	**Absorption (g/hour)**
Raw Egg*	1.4
Cooked Egg	2.9
Pea Protein	3.5
Milk Protein	3.5
Soy protein	3.9
Casein Isolate	6.1
Whey Isolate	8-10
Pork Tenderloin*	10

We see by these scientific studies that Whey Protein Isolate is, at best, 34% useable by the human body and that the maximum amount of whey protein isolate a body can use is an average of 8g/hour and that we only have 1.5 hours to process as much of that protein as possible before it is expelled as waste. Conclusion – if we have 1.5 hours to use the protein supplements with the average of 8g/hour to absorb. That means that our bodies can only use, at best 12g of protein. Why doesn't the supplement industry want this information out? It's pretty simple. When you are buying any protein supplement, you are buying the protein that is in the container along with sweeteners, preservatives etc. Let's look at it

from the consumers point of view. You take the huge scoop out of the jug and have 30g of powder to consume. Out of that scoop, 4g of the powder is the sweeteners and flavoring so 26g of the powder, on average, is in that one big scoop. Now, knowing the science of absorption and bioavailability, you take that 26g of protein and your body can only process 34% of it. That means your body is only absorbing a little more than 8g of protein. Sooooo, for every dollar we spend on these products, $0.66 is going right down the toilet (literally). This is also what causes gastric distress in over 90% of consumers.

Fortunately, there are some incredible companies out there that are making huge strides in scientifically enhanced proteins. One of those companies is Genepro Protein, Inc. They have partnered with some amazing companies to truly add innovation to a category that really has remained the same for decades. They have partnered with such companies as Entera Health and Plasma Nutrition to create the worlds most bioavailable (absorbable/useable) protein on the planet and have based these with over 40 published clinical and research papers. Let's put their amazing work into perspective. As previously mentioned above, the most "useable" protein supplement is whey protein with that bioavailability of 30%ish.. But, with Genepro, your actually getting 3 times the absorption through the patented plasma treatment process. With Genepro being 99.9% bioavailable you are getting that same amount of useable protein in your body as that big 30g scoop but with a serving size of only 11g… In other words, why use a 30g scoop of your Daddy's protein and have all the digestive discomfort and wasting close to 70% of what you consumed when you can get the industries best, scientifically proven, protein and have zero gastric distress and zero waste?? No bloat or discomfort and 100% USEABLE by your body.. This isn't where the Genepro products stop. Their proteins are FODMAP Certified, Truly Flavorless, average 40 calories per serving and mix instantly in any food or beverage. You can even cook and bake with it, Not all protein is created equal and Genepro is definitely not your Daddy's protein. For more information on Genepro, visit their site www.geneproprotein.com [1-9].

Human Clinical Trials

a. Postprandial Plasma Amino Acid Responses Between Standard Whey Protein Isolate and Whey Protein Isolate Plus Novel Technology – PDF / LINK

b. Comparison of a Plasma Modified Non-Hydrolyzed Whey Protein Isolate Supplement and a Standard Processed High DH Hydrolyzed Whey Protein Isolate Supplement on Bioavailability –PDF / LINK

c. Comparison of a Plasma Modified Branched Chain Amino Acid Supplement and a Standard Processed Branched Chain Amino Acid Supplement on Bioavailability –PDF / LINK

d. Comparison of a Plasma Modified Pea Protein Supplement and a Standard Processed Pea Protein Supplement on Bioavailability –PDF / LINK

e. Comparison of a Plasma Modified Pea Protein Supplement and a Standard Processed Whey Protein Supplement on Bioavailability –PDF / LINK

f. The effects of whey protein isolate vs. a reduced volume of a proprietary processed whey protein isolate supplementation in conjunction with resistance training on body composition in resistance trained males. –PDF / LINK

g. The effects of whey protein isolate vs. a reduced volume of a proprietary processed whey protein isolate supplementation in conjunction with resistance training on maximal strength in resistance trained males. –PDF / LINK

h. The Effects of Supplementing Ingredient Optimized Whey Protein Isolate (ioProtein) Versus Whey Protein Comparator Following High-Intensity Exercise – PDF

i. The Beneficial Effects of Ingredient Optimization Technology on Whey Protein for Body Composition and Senior Physical Fitness Test Performance in Elderly Person –PDF

j. Comparison of a Plasma Modified Leucine Supplement and a Standard Processed Leucine Supplement on Bioavailability – PDF / LINK

Pre-Clinical Research

a. A Circular Dichroism Analysis of Commercially Available Powdered Whey Protein Structure – PDF

b. Effect of Atmospheric Plasma on the Surface Area of Powdered Whey Protein Isolate –PDF / LINK

c. The Effect of Atmospheric Plasma on the Hydrophobicity of Powdered Whey Protein Isolate –PDF / LINK

d. The Effect of Atmospheric Plasma on the Perception of Taste and Mixability of Powdered Whey Protein Isolate –PDF / LINK

e. The Effect of Atmospheric Plasma on the Solubility and Dispersibility of Powdered Whey Protein Isolate – PDF / LINK

f. The Effect of Atmospheric Plasma on the Shipping Stability of Powdered Whey Protein Isolate –PDF / LINK

g. The Effect of Atmospheric Plasma on Cold Thermal Stability of Powdered Whey Protein Isolate – PDF / LINK

h. The Effect of Atmospheric Plasma on a Protein Thermal Shift Assay of Powdered Whey Protein Isolate –PDF / LINK

i. The Effects of Atmospheric Plasma on Microbes, Mold and Yeast in Powdered Protein –PDF / LINK.

References

1. Hoffman JR, Falvo MJ (2004) Protein – Which is Best? Journal of Sports Science & Medicine 3(3): 118-130.
2. Tome D, Bos C (2000) Dietary Protein and Nitrogen Utilization. The Journal of Nutrition. 130(7): 1868S-1873S.
3. Wilson J, Wilson GJ (2006) Contemporary Issues in Protein Requirements and Consumption for Resistance Trained Athletes. Journal of the International Society of Sports Nutrition. 3(1): 7-27.
4. Silk DB, Grimble GK, Rees RG (1985) Protein digestion and amino acid and peptide absorption. Proceedings of the Nutrition Society 44(1): 63-72.
5. Erickson RH, Kim YS (1990) Digestion and Absorption of Dietary Protein. Annual Review of Medicine 41: 133-139.
6. Chung YC, Kim YS, Shadchehr A, Garrido A, Macgregor IL, et al. (1979) Protein digestion and absorption in human small intestine. Gastroenterology 76: 1415-1421.
7. Dangin M, Guillet C, Garcia-Rodenas C, Gachon P, Bouteloup-Demange C, et al. (2003) The rate of protein digestion affects protein gain differently during aging in humans. Journal of Physiology 549(Pt 2): 635-644.
8. Biorie Y, Dangin M, Gachon P, Vasson MP, Maubois JL, et al. (1997) Slow and fast dietary proteins differently modulate postprandial protein accretion. PNAS 94(26): 14930-14935.
9. Grimble GK, Rees RG, Keohane PP, Cartwright T, Desreumaux M, et al. (1986) Effect of Peptide Chain Length on Absorption of Egg Protein Hydrolysates in the Normal Human Jejunum. Gastroenterology 92(1): 136-142.

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