

FAQ – PROTO WHEY - 100% High-DH Hydrolysate

What is a whey protein hydrolysate?

It is whey protein that has been hydrolyzed---which means it is sliced into smaller pieces by enzymes.

What is hydrolysis?

It is the process of enzymatic breakdown of protein, normally conducted in the GI tract (stomach and small intestine). Enzymatic hydrolysis can also be performed outside the human body, and this is how whey protein hydrolysates are processed. Food-grade enzymes are introduced to whey protein concentrate or isolate thus reducing the size of the protein molecules, called peptides.

Is hydrolysis necessary?

Yes. It is critical to absorption. All dietary protein must be reduced (hydrolyzed) to the smallest peptides called di and tripeptides, or free form aminos in order to be absorbed by the body (muscles, organs, etc). If you consume protein that is not hydrolyzed, like isolates, concentrates, blends, caseins, soy and caseinates, it must be hydrolyzed in your GI tract (stomach and small intestine). Whatever protein is not hydrolyzed down to di and tripeptides or free form aminos will not be transported into the blood for distribution to your muscles and other tissues and will travel on into the colon where it is not absorbed and becomes food for bacteria to metabolize which results in gas, bloating and other generally unpleasant side effects.

Are other hydrolysates the same as Proto Whey?

Not at all! What is important is the DH or degree of hydrolysis. A high degree of hydrolysis (**high-DH**) will produce more di and tripeptides and significantly lower AMW (average molecular weight) whereas lower DH powders, often used due to their lower cost and ease of flavoring may have little to no concentrations of di and tripeptides or micro-peptides, a higher AMW, and may be relatively biologically unchanged from their prior unhydrolyzed state. Proto Whey is currently the only 100% high-DH hydrolysate in the market.

How can I tell if a product has an effective level (High-DH) of hydrolysis?

The best test is to find out the per cent of di and tripeptides. A high-DH will have over 30% to 40% di & tripeptides. Proto Whey, by far the best in the market, has 50% or more di and tripeptides, which produces an AMW of less than 1,000-1,200 daltons. Just as important, a top quality high-DH, biologically-efficient protein product like Proto Whey contains low concentrations of amino acids; levels under 3-5% free form aminos. Some products attempt to deceive the consumer by reducing their average molecular weight tests by adding large amounts of free form aminos. This is not what a true high-DH hydrolysate protein is. Adding amino acids to a true high-DH product is a waste and undesirable as it could easily cause osmotic diarrhea and gas. Also, check the ingredient listing to see if free form aminos are added, and for the inclusion of whey protein hydrolysates in the number one spot (although this will not tell you the DH of the hydrolysate).

What is the value of Proto Whey versus concentrate or isolate forms or other whole proteins like casein, egg, collagen or soy?

Because Proto Whey is an extremely high-DH hydrolysate, the protein is absorbed much faster and more efficiently than whole proteins. This means that your digestive tract is able to absorb all of the protein you have consumed. In addition, the highly increased levels of di & tripeptides that enter your system ready for immediate absorption allows your body to *retain* more than would be possible if you were consuming dietary protein that required complete digestion. Recent science has shown that nitrogen retention and protein utilization is higher with hydrolysates because they are handled differently by the liver as well as other tissues, including brain, lung, and kidney.

Wouldn't taking enzymes or adding them to a protein supplement help the absorption or hydrolysis?

The whole point of a true hydrolysate is to supply di and tripeptides ready for immediate absorption by speeding up and/or avoiding the normally lengthy breakdown process and to insure delivery of di and tripeptides (*not free form amino acids*) directly into the blood. Therefore a quality high-DH protein supplement would gain nothing as far as absorption by adding enzymes as it wouldn't add to the process. Though it might seem like it makes sense, the reality is that enzymes, which are also proteins, would not survive intact long enough to increase enzyme activity in the small intestine. In addition, lack of enzyme activity is not really the barrier to full absorption of whole proteins. It is more the time factor necessary to fully hydrolyze all the protein in a meal or supplement before it passes out of the small intestine into the colon that is the challenge.

Who benefits from using Proto Whey?

Virtually any person wishing to maximize their protein nutrition. This would include bodybuilders, athletes of any kind, people on a diet or weight loss program or anyone looking to derive maximum protein nutrition for the best price.

What about persons with allergies to milk products?

Proto Whey has virtually no allergenic response since the peptides are reduced to micro peptides, which have no capacity to produce allergic response.

What about other persons with health issues such as diabetes and bariatric surgery?

Persons with prior bariatric surgery report thriving on Proto Whey. They have reported little to no "dumping syndrome" and appreciate the high level of absorption in very little time. Diabetics also do very well with Proto Whey as it has low carbohydrate and sugar and contains medium chain triglycerides and quality soluble fiber.

Why are di and tripeptides a better form of protein nutrition than free form aminos?

Protein absorbed as di and tripeptides is not metabolized by the liver in the same way circulating amino acids are metabolized, particularly large doses of free form amino acids (other than BCAAs, which normally by-pass first pass hepatic metabolism) directly absorbed from the gut. The di and tripeptides absorbed into the blood are utilized for protein synthesis at a higher rate. Once absorbed, the di and tripeptides are not transaminated or deaminated by the liver to the same extent as circulating amino acids. The liver limits the amount of free aminos that can be in the blood at any one time, so large spikes in amino acids being absorbed from the gut increases amino acid oxidation, which converts precious amino acids into energy rather than protein.

In addition, levels of free form aminos greater than a few grams can cause osmotic diarrhea, gas pains and other intestinal discomfort. Di and tripeptides do not have this limitation because they have their own high-throughput transporter (PEPT-1), so protein absorption is not limited in this way – a huge value to any athlete attempting to absorb large amounts of protein necessary for peak recuperation and muscle building. In addition di and tripeptides utilize PEPT1 and PEPT2 transporters exclusively whereas free form aminos do not. Free amino acids use many low-throughput high-specificity amino acid transporters. Recent studies that measure the effects of di & tripeptides on their transporter systems (PEPT-1 particularly) have shown that higher concentrations of di & tripeptides in the upper small intestines up-regulates the intestine's ability to consume more protein by increasing the density of PEPT-1 transporters in the upper intestine. Recent studies have shown that the high utilization of these transporters may up-regulate virtually all metabolic functions that rely on protein such as muscular repair, immune response and neurological function.

I have heard that some proteins are fast and some are slow such as whey concentrate and isolate, casein, and blends which claim to have both. Why would you want a specialized fast absorbing source protein like a high-DH whey protein hydrolysate?

Because di & tripeptides are absorbed by a high-throughput low specificity transporter (PEPT-1), high-DH whey hydrolysates are fundamentally different than their whole protein cousins, WPC/WPI or whole casein or blends of both. Proto Whey can stand alone or be added to either fast or slow whole proteins and still maintain its unique affect on protein metabolism. So fundamentally, in addition to the highest absorption value when consumed alone, Proto Whey hydrolysates added to other protein blends make them better than they would otherwise be on their own.

I have heard and read that pure hydrolysates do not taste good. Is this true?

Generally speaking this is the biggest reason there aren't many pure hydrolysate powders on the market, and only one 100% high-DH product. Proto Whey by BNRG has completely overcome this with proprietary processing of the hydrolysates and newly engineered flavoring technology.

Are there other advantages to high-DH hydrolyzed whey?

Generally athletes know they can't consume protein meals or supplements before training or competing due to the time involved in digestion and the energy it steals from muscles. With Proto Whey, you can load up with energy producing and sustaining protein immediately prior to your athletic activities without worrying about nausea, gas or other issues that may negatively affect your performance.

If I am consuming large amounts (over 20 grams) of protein per serving, would Proto Whey have any effect?

As mentioned above, Proto Whey, when added to traditional slow and/or fast proteins improve the performance of these other products. But in addition to improving the performance of any whole protein supplement, Proto Whey has a positive impact on efficient protein absorption, digestion, and utilization when consumed alone.

With whole proteins, the more that is consumed at one time, as in a single shake, bar or meal, the less efficient digestion and ultimately absorption. As the amount of protein in the gut increases, digestive processes, which are also influenced by factors that increase motility (movement through the intestines) like emotional stress and the stress

associated with intense training, can become overloaded and therefore less efficient. Conversely, since there is relatively little work for the gut to do in terms of breakdown, large protein meals utilizing Proto Whey continue to be virtually completely absorbed. With whole protein products, the amount of wasted protein increases as the amount of protein consumed increases. With Proto Whey this does not happen.