

# PROTEIN POWER

By Dan Young

If you are one of the people out there who works out in a fitness facility regularly, you've inevitably heard people talk about protein powders, if not talked about them yourself. If you are utilizing protein powders before, during or after exercise, good for you! All of the current research supports protein intake at any of those times as being beneficial for your body. The simple view is that exercise breaks down cells in your body and that your body then needs protein to rebuild those cells. The cleaner the protein source, the better the cells that it builds.

One topic that doesn't come up as often as it should, when discussing protein, is Bioavailability (BV). Bioavailability measures the intake of nutrients on a scale of 0% – 100% of the amount taken. Basically, it tells you how absorbable the protein that your ingesting actually is. Just because the label says that there are 10 grams of protein in a serving doesn't mean that your body can actually absorb and use all 10 grams. For example, if a 10-gram serving of protein is 80% bioavailable, the average body would absorb 8 of those 10 grams of protein.

Finally, we're only going to address 2 general types of protein powders in this article: Whey and Soy. Whey is the most popular and Soy has fallen in, out, and now back in again, due to a recent study in the US and Canada. We don't have enough space to talk about non-soy, plant based proteins here, as there has been an explosion of them on the market, which draw from a vast array of protein sources.

## Whey Protein

Protein comes in many forms; beef, chicken, fish, legumes, and of course milk. The most bio-available forms of protein are from milk and eggs. Egg protein sets the standard in the industry by being 100% Bio-Available, while Whey protein can be as low as 25% or as high as 104% on the BV scale.

Whey protein is the byproduct of making cheese from milk. Whey has considerably less fat, sodium, lactose and calories than milk in its natural state. It is a rich source of the essential amino acids needed by the body on a daily basis. In its purest form, whey protein isolate contains little to no fat, lactose or cholesterol.

There are two main forms of Whey Protein, differentiated by the way the product is filtered: Whey Protein Isolate (WPI) and Whey Protein Concentrate (WPC). Concentrate contains between 28% – 80% protein, while Isolate contains 90% and higher. In both cases, the remaining contents outside of the protein are fat, lactose, etc. As the protein level decreases, the amounts of fat and/or lactose increase, creating a lower BV score for the product.

Proteins are made up of amino acids. There are 9 Essential Amino Acids that the body needs to function properly and that it can't produce on its own – they must be absorbed through food. Whey is made up of molecules that are chains of amino acids called peptides. The human body can only absorb very small di- and tripeptides. Larger peptides must be enzymatically broken down before any absorption can occur.

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WPC has a higher percentage of large peptides, making it less readily absorbed by the body, but they contain more active ingredients, like immunoglobulins, which have healthy benefits. \*Not sure what he means by "they" here – is he talking about the large peptides or is he talking about WPC? WPI is the most Bioavailable form of protein not only because of its purity, but because it is high in di- and tripeptides and low in fat and lactose.

When deciding which type of whey protein powder may be right for you, you'll want to consider your nutrition or performance goals, the current state of your metabolism, your budget and any dietary concerns. Because Whey is a dairy product, it can cause digestive distress for those who have issues with lactose. A product that is purely WPC, for instance, will have a greater amount of lactose than a WPI product. It's good to note that some whey products contain digestive enzymes, which make the whey easier to tolerate.

## Soy Protein

The reason that soy has gotten a bit of a bad rap, and at times fallen from favor in the marketplace, is that a large portion of domestic soy is a GMO and that there have been some concerns regarding the effects of the natural phytoestrogens found in soy. Part of what makes phytoestrogens a bit tricky is their ability to both mimic estrogen and act as an estrogen antagonist (meaning they behave in the opposite way of biological estrogen).

Because estrogen levels have been shown to have an effect on certain cancers, specifically breast cancer, it was recommended, for a time, that many women should avoid soy in their diets. The most recent and comprehensive study, done by Tufts University of 6,235 women with breast cancer in the United States and Canada, all of whom were enrolled in the Breast Cancer Family Registry, found a 21% reduction in all-cause mortality among women with the highest dietary intake [of soy], compared to those with the lowest intake. Translation – soy may help you live longer, even if you have or have had breast cancer.

One of the most valuable features of the soybean is that it naturally provides all nine of the essential amino acids. Although this is true, it is important to understand that the plant kingdom is not as bioavailable as WPI or even WPC, even though we are able to isolate plant peptides. The most bioavailable soy protein powder on the market scores about a 60 on the BV scale.

Remember too, not all soybeans are created equal. Quality and amino acid content will vary based on soil conditions, variable growing and harvest conditions. If one essential amino acid is missing, the immune system can be depressed up to 30%, and many important body functions are delayed or stopped. The point? Go with a soy protein powder that you trust. The result is you.

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