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ANIMAL
(PROTEIN)

VS

PLANT
(PROTEIN)



Battle for "Healthiest Protein"

Animal versus Plant Protein

Written by Anna Slebonick

Illustrated by Danny Valero

Everyone gushes over the alleged powers of protein: doctors, athletic trainers, and even scientists. They say, "it's good for you" and that "it will make you stronger." However, different sources of protein and their respective nutritional values are discussed less frequently. Perhaps animal protein is the best source, since animal meat is more likely than plant-based protein to contain all nine essential amino acids. However, not all proteins affect our bodies in the same way. Researchers have discovered stark differences between animal protein and plant protein. While vegetarians and vegans deal with common misconceptions about their plant-based diet, they may be avoiding certain health outcomes that meat-eaters could be subject to. At the same time, animal protein may have more nutritional value than plant protein.

The nutritional content of protein can be dissected into various components. The Protein Digestibility Corrected Amino Acid Score (PDCAAS) assesses the quality of a protein source based

... Researchers have discovered that animal protein can impact our bodies differently than plant protein.

on its digestibility and essential amino acid composition. A protein receives a higher score when it is highly digestible and contains all the essential amino acids. Animal proteins have a high PDCAAS, typically between 90 and 100, due to their high digestibility and amino acid content. Some plant proteins score just as highly as animal proteins, but as a whole category, plant proteins tend to have lower digestibility and fewer amino acid types. For example, whey protein, which is derived from cheese, has a PDCAAS score of 100, while peanuts have a score of just 52. Thus, in terms of digestibility and amino acid content, animal protein beats plant protein.

In addition to digestibility, the specific amino acids in the protein determine the beneficial properties of protein. For instance, the essential amino acid leucine may play a significant role in promoting muscle gain and during the post-exercise recovery period. In a study by Banzenek and colleagues, participants performed resistance training for eight weeks and consumed either pea or whey protein. At the end of the eight weeks, the muscle composition did not vary between the pea or whey protein-consuming groups. The researchers noted that pea and whey protein have similar leucine contents. In comparison, a study by Volek et al. "demonstrated that the lean body mass gain in young men was 45% lower after consumption of 20 g of soy protein isolate compared to whey protein concentrate during a 36 week period of resistance exercise training." Interestingly, soy protein isolate and whey protein both score 100 on the PDCAAS.

Volek and colleagues did note that whey protein is higher in leucine content. Banzenek et al.'s study showed that two proteins with similar leucine content had similar effects on muscle synthesis, while the study by Volek showed two proteins with different leucine contents have significantly different effects on muscle synthesis. These two studies suggest leucine content may serve as a better indicator than solely the PDCAAS in choosing the "best" protein specific to muscle synthesis. Since whey has the highest leucine content and builds and repairs muscle tissue in the most efficient manner, animal protein wins again.

While animal protein's nutritional value has a good reputation, its health outcomes do not. A study by Chavarro and colleagues investigated the effects of animal and plant protein intake on ovulatory infertility in women. The study found that switching five percent of carbohydrate intake to animal protein increased the risk for ovulatory infertility by 19 percent. Conversely, women who switched five percent of their carbohydrate intake to plant protein had a 43 percent lower risk of ovulatory infertility. These results suggest that consuming animal protein could harm a woman's reproductive future. It is still unknown why animal protein negatively affects a woman's fertility, yet plant protein has the opposite effect. Since animal protein negatively affects fertility, plant protein wins this round.

Animal protein's reputation worsens when looking at its overall impact on health. Two cohort studies by Dr. Song and colleagues examined the relationship between type of protein intake and mortality using thousands of participants over 20 years. The studies found that animal protein was associated with a higher mortality rate, and plant protein with lower mortality rates. Upon closer examination, the studies found that "processed red meat was strongly associated with mortality, whereas no association was found for protein from fish or poultry." Red meat is known to contain higher levels of cholesterol and saturated fat than other types of animal protein. On the other hand, the researchers noted that plant protein is associated with lower blood pressure, as well as lower risks of cardiovascular disease and Type 2 diabetes. The macronutrient composition of the protein of interest likely contributes to the correlation with mortality and overall health found in the Song et al. studies. In consideration of overall health and risk of mortality, plant protein comes out as the healthier protein.

So, which protein is the healthiest protein? The answer depends on the definition of "healthy." Plant protein is the better option for maintaining overall health, but animal protein delivers the most nutritional content. Women who intend on becoming mothers and individuals with or at risk for cardiovascular disease or Type 2 diabetes may want to choose plant protein over animal protein. Those concerned with building muscle may want to pick whey protein as their post-exercise snack. Ultimately, the choice comes down to individual lifestyle goals and preferences. ●●●