



Protein quality - Is animal protein better than protein from plant sources?

Protein quality varies between plant and animal sources and can be improved by combining protein sources.

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Explainer videos

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English translation of the German explainer video transcript

"Tofu is only for pea brains?", "Only chicken breast helps get rid of yours?", "And lettuce shrinks your biceps?". To answer these questions, stay tuned to the following video on the quality of alternative proteins.

What's the first thing that comes to mind when you think of protein-rich foods?

Let me guess: Dairy products, eggs and of course meat. It's no wonder that these animal foods come to mind first. Especially in industrialised countries, they are classically used as sources of protein. "No real meal without meat!" Plant-based protein sources, in contrast, are seen as inferior or not perceived as such at all. This is not only bad for the planet, but also wrong. Humans can also easily meet their protein needs with plant-based protein sources, which are often also referred to as alternative protein sources.

Why do we need proteins at all?

To build muscle, of course, but they can do much more. They are important components of all cells and thus also of tissues, such as muscles. They also form enzymes, hormones, antibodies, clotting factors and so on. Of course, they are also energy suppliers.

How much protein do we need?

According to current dietary recommendations, adults should consume about 0.8 grams of protein per kilogram of body weight per day. From the age of 65, the protein requirement increases to 1.0 gram of protein per kilogram of body weight. An adult 25-year-old person who weighs 60 kilograms should therefore consume about 48 grams of pure protein per day. Even if this sounds like a lot at first, it is not a problem in Germany. In fact, protein intake is often higher than the recommended amount.

Which foods provide much protein?

Protein is found in just about all foods. In some more, in some less. Animal foods are among the top performers. But many foods that are often not even considered or known in this context can also be quite respectable in their protein content. With almost twice as much protein as meat per 100 grams of food, legumes are true protein bombs. Nuts and seeds also contain a lot of protein, but their high fat content makes them more suitable as a supplement. Cereals are often completely neglected, but they are also a good source of protein, as well as edible mushrooms. Things get a little more experimental with microbial proteins from microalgae or mycoprotein from a certain fungus. Two protein sources that seem rather exotic to us are algae and insects. If you want to know more about pulses, soy, insects, and algae, it's worth staying tuned. You can find out more in other videos in our series.

Is protein always the same? Protein quality.

In addition to the quantity, the quality of the protein is also important. Many people mistakenly believe that vegetable protein is not as healthy as animal protein. Where does this come from? When assessing the quality of proteins, the content of essential amino acids is important first of all. Amino acids are the basic building blocks of proteins. Some of them the body can make itself, others it cannot. Essential amino acids are the amino acids that our body cannot produce itself and that we therefore have to take in through food. In addition, bioavailability and digestibility play a role because they determine how much protein the body can actually absorb from the respective food. With the help of these criteria, the Protein Digestibility Corrected Amino Acid Score can be calculated - a score for calculating the protein quality. The highest value for this score is 1, which means that foods that contain all essential amino acids and are easily digestible are rated 1. This would be, for example, eggs, milk protein or also soy protein and mycoprotein. Meat and fish are slightly below with a value of 0.9. Insects also rank among the high values. Other vegetable proteins are actually somewhat lower. For example, cooked beans, peas or rice with a score of 0.6.

And now? So it seems for the moment that there is some truth in the claim that vegetable protein is worse than animal protein. The lower values often result from the fact that one of the essential amino acids is missing in the respective food or is only present in a very small quantity. However, we can solve this "problem" of missing amino acids quite easily: by combining foods that match each other. This way, the missing amino acids can be compensated for and a higher value results for the whole meal. For example, the amino acid that is missing in cereals is present in pulses and vice versa. We already find this combination in many well-known dishes. Rice with lentils, maize and beans, peanut butter and bread. But the proteins do not necessarily have to be in the same meal. It is sufficient to eat them spread over the day, because our body can store the amino acids temporarily in almost all body cells and then take them from this amino acid pool as needed.

In summary, then, we can say:

Proteins have different qualities, which we can evaluate by the content of essential amino acids and by digestibility. Milk and eggs, but also soy, already have an optimal amino acid composition as individual foods. If we combine different vegetable protein sources with each other, we also achieve the optimal composition with these. So it doesn't always have to be animal! With alternative protein sources, we can cover our protein needs just as easily, sufficiently and in a balanced way, and without completely overburdening our planet. And even though lettuce may not be the best source of protein, plant-based proteins certainly won't shrink your biceps!

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