

## DIET TIDBIT



**Fooducate**

Nov 12 2014

**What is a Protein's Biological Value and Why is it Important?**

# Biological Value of Proteins

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Egg	94
Milk	90
Rice	83
Quinoa	83
Fish	76
Beef	74
Soybeans	73
Whole wheat	64
Beans	58

Human nutrition is vastly more complicated than the the simplified information provided to Americans through dietary guidelines, nutrition facts panels, and ingredient lists on products. Scientific understanding is evolving as well. If once all fats were grouped as one, today we understand that we need to look at the building blocks of fats – fatty acids – to really understand the effects of fats on our metabolism.

The same is true of protein, the darling macro-nutrient everyone is clamoring to consume more of, even though the average American diet already overloads us with more protein than the body actually needs.

Proteins are composed of of 21 biological amino acids. 9 of these are “essential amino acids”, which means our bodies cannot produce them, and they must be derived from food sources. The essential amino acids are phenylalanine (25 milligrams per kg of body weight), leucine (39), lysine (30), valine (26), threonine (15), methionine (15), isoleucine (20), histidine (10), and tryptophan (4). When we digest a food with protein, it breaks down into its amino acids, and each is used by the body for slightly different purposes.

A complete protein is one that includes all 9 essential amino acids. Most animal sources are complete proteins, and some plant proteins are as well. By combining several types of plant proteins (beans and rice for example), even non-meat eaters get complete protein.

The biological value of a protein:

Let’s dive a bit deeper now. When a protein contains the essential amino acids in a proportion similar to that required by the body, it has a high Biological Value. When one or more of the essential amino acids are missing or present in low numbers, the protein is has a low biological value.

The biological value of a protein is a number from 100 down to 0, that describes how well it is absorbed by the body. More precisely, it is a measure of the percentage of the protein that is actually incorporated into the proteins of the human body.

The table of biological values shows that the proteins in eggs (white AND yolk) have the highest biological value. Rice (brown) and quinoa have higher biological value than beef or chicken! Of course this is per gram of protein consumed. Beef and chicken are much denser in protein per serving than rice is.

Why is biological value so important?

Unlike carbs or fats that can be stored in the body for future use, unused amino acids (protein) are excreted. Consuming a lot of food with a protein that has low biological value will not be very effective because most of the protein will not be utilized.

The biological value is determined by the amino acid composition of the protein and can only be as high as the amount of limiting amino acid present – the amino acid present in the smallest amount in the protein. In many cases, the limiting amino acid is lysine, which is not as common as the other amino acids.




The limiting amino acid tends to be different in different proteins, so when two plant based protein sources are eaten at a meal, say a grain (rice) and a pulse (lentils), the amino acids of one protein may compensate for the limitations of the other, resulting in a combination of higher biological value.

Other factors influencing Biological Value:

Methods of food preparation also have an impact on the biological value of protein in a food source; they may damage some of the essential amino acids.

High protein diets automatically reduce the biological value of all proteins consumed, because the body is getting more amino acids than it can actually metabolize at any given time.

The table of biological values provides information for an individual food consumed in a sterile lab situation. Everyday consumption is very different – with a combination of protein sources being eaten at the same time. The result is normally a higher biological value.

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**Erin\_1982**

Nov 23 2014

Exactly. Supplements are not needed, a varied, nutritious diet is.

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**Snochik1**

Nov 23 2014

This is useful information for professionals, not generally necessary for the everyday person. For professionals, measuring protein quality and digestibility is important. When evaluating someone's diet, especially an unhealthy individual, simple measures of protein foods are not useful by themselves. By protein scores alone, even animal hair and hooves would receive top scores, but these are obviously not proteins that people can use.

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**Erin\_1982**

Nov 23 2014

Animal meats are complete proteins and many soybean products are complete proteins. For most people, it is recommended to limit red meat consumption and remove fat from cuts of meat to lower one's saturated fat consumption. Eating a variety of protein sources is better than choosing one protein. In general, most Americans and people in developed countries eat too much protein and don't need to worry about the bioavailability.

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**Chris9814**

Nov 25 2014

It's bad information, like yours, Ronin Miller, that I followed when I tried going Vegan, and really damaged my health (burned out Adrenal glands, damaged Pancreas, etc.). Now working with an Naturopathic Dr. to restore health. Eating lots of protein, specifically chicken and turkey.

Reply Like 0 ...



**Erin\_1982**

Dec 16 2014

A better estimate of protein need is .8g per kilogram of body weight. Eating excess protein doesn't equal an automatic gain in lean body mass. Rather, physical activity itself triggers the building of muscle proteins. Excess amino acids can not be stored, so the excess is converted to glucose for storage as glycogen and/or converted to fatty acids.

Some sources will recommend higher protein intakes for strength and speed (power) athletes (1.2 to 1.7 g/kg/day) and for endurance athletes (1.2 to 1.4 g/kg/day). The key is, these higher recommendations are for professional athletes, not the average person. And the average American already eats too much protein per day.

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**Stefan98**

Dec 20 2014

Yes drop carbs and eat protein and fats, supplement with greens and multivitamin will drip body fat nicely. Look into that diet.

Reply Like 0 ...



**tripcee**

Jan 03 2015

Why don't they have a recommended percentage of protein on the food labels ? It's blank along with sugar.

Reply Like 0 ...



**Lou112**

Jan 20 2016

Hi, in terms of protein consumption it will not be a contributory factor to weight loss, it may help due to sending satiety signals to the brain, but as recommendation your daily intake for a healthy individual (adult) is 1g per kg of body weight. For a healthy intake, and anything in excess isn't stored, it's deaminated and excreted. Hope this helps.

Reply Like 0 ...



**jspgaming2017**

Jan 05 2017

hi

Reply Like 0 ...



**jspgaming2017**

Jan 05 2017

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