

17/mhs06/047

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1. Biological value (BV) is a measure of the proportion of absorbed protein from a food which becomes incorporated into the proteins of the organism's body. It captures how readily the digested protein can be used in protein synthesis in the cells of the organism.

2. Net protein Utilization (NPU)
 - Protein Efficiency Ratio (PER)
 - Nitrogen Balance (NB)
 - Protein digestibility (PD)
 - Protein Digestibility Corrected Amino Acid Score (PDCAAS)

- **The net protein utilization** , or NPU, is the ratio of amino acid mass converted to proteins to the mass of amino acids supplied. This figure is somewhat affected by the salvage of essential amino acids within the body, but is profoundly affected by the level of limiting amino acids within a foodstuff. It is used as a measure of "protein quality" for human nutritional purposes. As a value, NPU can range from 0 to 1 (or 100), with a value of 1 (or 100) indicating 100% utilization of dietary nitrogen as protein and a value of 0 an indication that none of the nitrogen supplied was converted to protein. Certain foodstuffs, such as eggs or milk, rate as 1 on an NPU chart.
- **Protein efficiency ratio (PER)** is based on the weight gain of a test subject divided by its intake of a particular food protein during the test period.
PER= Gain in body mass (g)/ Protein intake.

- **Nitrogen balance** is a measure of nitrogen input minus nitrogen output. Nitrogen Balance = Nitrogen intake - Nitrogen loss Sources of nitrogen intake include meat, dairy, eggs, nuts and legumes, and grains and cereals. Examples of nitrogen losses include urine, feces, sweat, hair, and skin. Blood urea nitrogen can be used in estimating nitrogen balance, as can the urea concentration in urine.
- **Protein digestibility** refers to how well a given protein is digested. Along with the amino acid score, protein digestibility determines the values for PDCAAS and DIAAS .
- **Protein digestibility-corrected amino acid score (PDCAAS)** is a method of evaluating the quality of a protein based on both the amino acid requirements of humans and their ability to digest it. Using the PDCAAS method, the protein quality rankings are determined by comparing the amino acid profile of the specific food protein against a standard amino acid profile with the highest possible score being a 1.0. This score means, after digestion of the protein, it provides per unit of protein 100% or more of the indispensable amino acids required. The formula for calculating the PDCAAS percentage is: (mg of limiting amino acid in 1 g of test protein / mg of same amino acid in 1 g of reference protein) x fecal true digestibility percentage. The PDCAAS value is different from measuring the quality of protein from the protein efficiency ratio (PER) and the biological value (BV) methods.