1. Biological value of protein 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. Proteins are the major source of nitrogen in food. BV assumes protein is the only source of nitrogen and measures the proportion of this nitrogen and measures the proportion of this nitrogen absorbed by the body which is then excreted. The remainder must have been incorporated into the proteins of the organisms body. A ratio of nitrogen incorporated into the body over nitrogen absorbed gives a measure of protein "usability"

2 * Biological Value

Biological Value is known as the percentage of absorbed nitrogen retained in the body and a complete evaluation of the dietary protein includes measurement of the biological value and the digestibility. The values are obtained by measuring the fecal and urinary nitrogen when the test protein is fed and correcting for amounts excreted when a nitrogen free diet is fed.

* Net protein Utilization (NPU)

Similar to Biological value, NPU estimates nitrogen retention but in this case by determining the difference between the body nitrogen content of animals fed no protein and those fed a test protein. This value divided by the amount of protein consumed is the NPU which is defined as the "percentage of the dietary protein retained"

* Amino acid score

Block and Mitchell (17) originally proposed that since all amino acids must be present at the site of protein synthesis in adequate amounts, if protein synthesis is to proceed, a comparable amount deficit of any amino acid would limit protein synthesis to the same degree. Thus, they suggested that if the composition of an "ideal protein"

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was known i.e a protein which contained every essential amino acid in sufficient amounts to meet requirements without any excess, then it should be possible to compute the nutritive value of protein by calculating the deficit of each essential amino acid in the test protein from the amount in the "ideal" protein. The "most limiting amino acid", the one in greatest deficit would presumably determine the nutritive value.

* Tissue Regeneration

A variety of techniques involving the recovery of weight or of specific tissues after protein depletion have been proposed

* Microbiological Assays

Many micro-organisms require the essential amino acids required by monogastric animals. If it were possible to find organisms which required not only the same pattern of amino acids but in the same relative amounts, their growth response when supplied with limited amounts of various protein or protein hydrolysates hydrolysates would provide a simple and efficient assay of nutritive value.

* Plasma amino acids.

When there are changes in plasma amino acid levels after the feeding of various proteins can under certain conditions yield estimates of the nutritional quality.

* Relative Nutritive Value

A slope-ratio assay using rats in which the slope of regression line relating body protein (or body water) of a standard protein (egg protein or lactalbumin) assumed to have maximal nutritive value was compared to that of the test protein.

* Nitrogen Balance Index - the concept of this index is similar to Relative nutritive value. It was proposed that Biological value is the slope of the regression line relating nitrogen balance and nitrogen intake and suggested that it might have advantages over BV (biological value).

Net Protein Ratio - this is the overall difference in gain (
gain in weight of the test group loss in weight of the protein-
free group) divided by the protein eaten.

Drinkable -

protein efficiency ration - This test is dependent upon the amount of protein incorporated. It is calculated as the average total weight gain divided by the average grams of proteins that is consumed