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Matric no: 18/MHS01/047

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**Assignment**

**Biological values of Proteins**: Biologicalvalue (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. 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 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" of the BV. BV provides a good measure of the usability of proteins in a diet and also plays a valuable role in detection of some metabolic diseases. BV is, however, a scientific variable determined under very strict and unnatural conditions. It is not a test designed to evaluate the usability of proteins whilst an organism is in everyday life. The BV of a diet will vary greatly depending on age, weight, health, sex, recent diet, current metabolism, etc. of the organism. In addition BV of the same food varies significantly species to species. Given these limitations BV is still relevant to everyday diet to some extent. No matter the individual or their conditions a protein source with high BV, such as egg, will always be more easily used than a protein source with low BV. For accurate determination of BV:

1. the test organism must only consume the protein or mixture of proteins of interest (the test diet).
2. the test diet must contain no non-protein sources of nitrogen.
3. the test diet must be of suitable content and quantity to avoid use of the protein primarily as an energy source.

These conditions mean the tests are typically carried out over the course of over one week with strict diet control. Fasting prior to testing helps produce consistency between subjects (it removes recent diet as a variable).There are two scales on which BV is measured; percentage utilization and relative utilization. By convention percentage BV has a percent sign (%) suffix and relative BV has no unit. The formula for the BV is

BV=retained N/absorbed N=[N intake]−[Δ fecal N]−[Δ urinary N]/[N intake]−[Δ fecal N].

**Methods of assessment of protein quality**:Proteinquality is the digestibility and quantity of essential amino acids for providing the proteins in correct ratios for human consumption. There are various methods that rank the quality of different types of protein, some of which are outdated and no longer in use, or not considered as useful as they once were thought to be. The Protein Digestibility Corrected Amino Acid Score (PDCAAS), which was recommended by the Food and Agriculture Organization of the United Nations (FAO), became the industry standard in 1993. FAO has recently recommended the newer Digestible Indispensable Amino Acid Score (DIAAS) to supersede PDCAAS. The dairy industry is in favor of this citation needed because while PDCAAS truncates all protein types that exceed the essential amino acid (EAA) requirements to 1.0, DIAAS allows a higher than 1.0 ranking: while for example both soy protein isolate and whey isolate are ranked 1.0 according to PDCAAS, in the DIAAS system, whey has a higher score than soy. The main limitations of PDCAAS is that it does not take into account anti-nutrient factors like phytic acid and trypsin inhibitors, which limit the absorption of protein among other nutrients, and its use of fecal digestibility, whereas in the DIAAS system, ileal digestibility of the essential amino acids is emphasized as a more accurate measure of protein absorption. For this reason, DIAAS is promoted as the superior method and preferable over the PDCAAS. Due to not factoring in anti-nutritional content into the digestibility equation, the PDCAAS has consequently been criticized for overestimating protein quality. Other older methods like BV, PER, NPU and nitrogen balance may not reveal much about the amino acid profile and digestibility of the protein source in question, but can still be considered useful in that they determine other aspects of protein quality not taken into account by PDCAAS and DIAAS.

Due to the difficulties of measuring amino acid digestion through the ileum, a minimally invasive dual-tracer method has been developed for the DIAAS method.