James Emem Grace

Anatomy

18/MHS01/192

BCH 204

1. Define biological value of proteins in your own words.

Biological value of proteins can be said to be used to measure to be how well a protein is digested, absorbed and retained by the body once consumed. In other words can be used to show protein efficiency.

1. Methods of assessing proteins

## Biological Value

The biological value, or BV, test examines nitrogen balance. **This relates to the body’s ability to digest, absorb and excrete given proteins, which are the body’s source of nitrogen.** BV testing is a lengthy and somewhat expensive process that requires test subjects to fast for several days and then adhere to a strict diet containing protein in only the form being tested. Their urine and feces are tested for nitrogen levels after fasting and while on the diet. To determine the biological value, the nitrogen levels are compared to that of the whole food. However, both exercise and a protein-deficient diet, or fasting, will promote nitrogen retention, which could compromise the results.

## Chemical Score

Chemical Score compares essential amino acid, or EAA, levels to measure protein quality. The EAA profile of protein being tested is compared to a reference protein that has been assigned a score of one hundred. The EAA in lowest quantity relative to the reference protein is determined to be the limiting amino acid. This limiting amino acid generally signifies the ability of the protein to fulfill a human’s nutritional requirements, according to "The Journal of Nutrition." However, this method does not address digestibility.

## Protein Efficiency Ratio

The protein efficiency ratio, or PER, is a somewhat outdated method, though it is used by governments around the world. Lab rats are fed set amounts of a protein and then measured as they grow. The amount of weight they gain in grams is divided by the amount of protein eaten in grams, giving a PER score. **This method is beginning to come under criticism as it does not take into account that humans need a different amino acid profile than rats, and there are several unmeasured variables.**

## Protein Digestibility Corrected Amino Acid Score

**The Protein Digestibility Corrected Amino Acid Score, or PDCAAS, is the current gold standard for determining protein quality.** It is used by the Food and Agricultural Organization as well as the World Health Organization.