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Matric number: 18/mhs07/025

Assignment Title: NUTRITION

Course Title: Medical Biochemistry II

Course Code: BCH 204

Question

1. WHAT DO YOU UNDERSTAND BY THE TERM ''BIOLOGICAL VALUE OF PROTEINS"

Biological value also known as BV can be defined as a measure of the amount of absorbed protein from a food which becomes combined 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. BV is commonly used in nutrition science in many mammals, and is an important measure in humans.

2. LIST AND EXPLAIN THE VARIOUS METHODS OF ASSESSMENT OF PROTEIN QUALITY.

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

1. Net protein Utilization (NPU): The net protein utilization also known as NPU is the ratio of amino acid mass transformed to proteins to the mass of amino acids supplied. This figure is somewhat affected by the retrieval of essential amino acids within the body, but is affected by the level of limiting amino acids within a foodstuff. It is used as a measure of protein quality for human nutritional purposes. NPU can range from 0 to 1 (or 100), with a value of 1 (or 100) signifying 100% utilization of dietary nitrogen as protein and a value of 0 an indication that none of the nitrogen supplied was converted to protein.
2. Protein Efficiency Ratio (PER)

Protein efficiency ratio (PER) is a method that’s based on the weight gain of a test subject divided by its intake of a particular food protein during the test period. the PER had been a widely used method for evaluating the quality of protein in food.

PER= Gain in body mass (g) ÷ protein intake (g)

1. Nitrogen Balance (NB)

Nitrogen balance is a degree of nitrogen input minus nitrogen output.

The formula of Nitrogen Balance = Nitrogen intake - Nitrogen loss

Nitrogen balance is an old method of determining dietary protein requirements. Determining dietary protein requirements using nitrogen balance entails that all nitrogen inputs and losses are carefully collected, to guarantee that all nitrogen exchange is accounted for.

1. Protein Digestibility Corrected Amino Acid Score (PDCAAS)

Protein digestibility-corrected amino acid score (PDCAAS) is a method of assessing the quality of a protein based on both the amino acid requirements of humans and their capacity to digest it.

The PDCAAS rating was accepted by the US FDA and the Food and Agricultural Organization of the United Nations/World Health Organization (FAO/WHO) in 1993 as an ideal method to determine protein quality.