

Protein



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Protein is a vital nutrient essential to health. Every animal, including man, must have an adequate source of protein in the diet in order to maintain itself and grow. Proteins are one of three major food groups needed for proper digestion, along with carbohydrates and fats. Proteins, which yield amino acids, are also the fundamental structural element of every cell in the body. In its purest form, proteins consist of chains of amino acids. Twenty-two amino acids exist in nature that combine to form different proteins.

These twenty-two amino acids function to create muscles, blood, skin, hair, nails and internal organs. They help to regulate and form new tissue, regulate the balance of water and acid, transport nutrients and oxygen through our system and make antibodies for immune response. Eight of the twenty-two proteins necessary for the body to survive come from the food that we eat and enter the system as a result of the digestive process (Horton, 2002). The ability to define the molecular structure of proteins enables pharmacological mechanisms of molecules to be defined.

Additionally, an understanding of the sequence of proteins allows for a determinacy of how and where pharmacological processes occur (University of Colorado, 2001). Over the past few decades, advances have been made in the understanding of the human genome protein sequence. The process by which the human genome sequence is obtained and analyzed is called Bioinformatics (University of Texas, 1998). The success of research in bioinformatics, including the potential to sequence all 24 of the human chromosomes, can lead to exciting innovations in the study of Pharmacology.