

How the Different Types of Enzymes Support the Process of Life

And there was this boy called Bill, one of my best friends in the Graduate School. Even if you are not an artist of a sort, you can easily draw up the full figure of him. Wondering how? Simple; draw a bamboo stick and now add a large vessel on the top of it and you get the exact picture of Bill. Thinking that this unique kind of the physique was the result of frugal food intake over a long period of time? Just the opposite! It was his extraordinary habit of devouring on everything that he could put his hands on that actually made him famous in the campus. Anytime of the day you catch the boy and you'll find him munching on something. Well, this poor boy, Bill helped me to learn an important lesson of life and that is: not everything that you swallow nourishes your body, only those elements that are absorbed in your body through proper digestion work for the nourishment of your body. And proper digestion would have been impossible had there been no enzyme. Not only digestion, for every function of our system we are indebted to variety of enzymes. In fact the human biological system is often described as the sum total of a number of enzymatic reactions taking place inside the body every moment! Enzymes are important for digesting food because they act as catalysts in the chemical reactions necessary for breaking up the food elements. In the absence of sufficient enzymes, these chemical reactions lose their momentum and the digestive organs are faced with several problems that manifest themselves in gas, acidity, bloating, diarrhea, burning sensation and like. However, modern researches have found out a direct link between the aging process and diminishing functions of enzymes in the system. Also the sources of several types of modern-day degenerative diseases can be traced in this diminishing level of activity of enzymes in the blood. These studies have established: as we grow older, the amount of enzymes and levels of their activities gradually decrease. The role and importance of enzymes in the metabolic process were known to medical researchers for long. Long back the medical scientists came to know about the proteins that can be found in all kinds of living things. Either the cells or the fluids surrounding the cells contain these proteins. The scientists coined the term, 'enzyme' for these proteins. Have you ever felt exhausted after gorging on some really rich foods? It is because system demanded greater supply of enzymes to digest them and greater amount of energy was expended in the procedure and hence this feeling of fatigue. On the other hand, have a great amount of salad and even then you will not get the same feeling. It is because; the fresh vegetables in them contain lots of enzyme that make the digestive procedure much easier. Thus body's metabolic process is managed almost single-handedly by the enzymes and we get the required energy to carry on with the journey of our life. Part II So now you clearly know about the importance of enzyme in our lives. Let us next discuss about the different categories of enzymes present in our body. In fact, you can find over thousands different types of enzymes in a human body. Actually, there are so many enzymes in the body and they perform such a complex network of activities that it is often said that the life itself is depended on the activities of variety of enzymes. There can be no single chemical reaction in the body, in which some type of enzymes does not participate. For the purpose of better understanding, all thousands of enzymes can be broadly categorized into two primary groups, namely, the metabolic enzymes and the digestive enzymes. The metabolic enzymes can be found in every cell, tissue, and organ in the body. They are like biochemical catalysts in nature and participate in all functioning of the living cells. Their activities never stop for a moment. These enzymes are under charge of controlling almost all chemical reactions associated with metabolism. Hence metabolic enzymes are described as the very basis of the life process. Then come the digestive enzymes. This category of enzymes is however further divided into two groups of enzymes: intrinsic and extrinsic digestive enzymes. Intrinsic digestive enzymes are naturally produced inside the body and secreted from several organs to break down food elements. The food we consume contains the basic elements of the proteins, fats, and carbohydrates. The enzymes secreted from such organs as the salivary glands in the mouth, the gastric glands in the stomach, and specific cells in the pancreas work for digesting these elements present in the foods. As for instance, the starch portion of the food is digested by the help of amylase enzyme. Protease breaks down proteins and lipase digests fat. Most of us have a fetish for cooked and processed foods and often tend to avoid fresh fruits, vegetables and salads. But you should know that these raw forms of foods are extremely rich in active enzymes that considerably help in digesting the proteins, starches, or fats that are present in those foods. Thus these foods are easy to digest. You have often been told about the nutritious value of papaya. Well it contains helpful Papain enzyme that works for breaking down small and large proteins. Then there are variety of nuts that contain Lipase which breaks down fats contents of dairy products, nuts, oils, and meat. Thus enzymes are the inseparable parts of the healthy human life as the two most important biological functions—digestion and metabolism are managed by the enzymes.

About the Author

In alchemy, Digestion is a process in which gentle heat is applied to a substance. Digestion is considered one of the 12 core alchemical.

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