Absorption from Small Intestine   
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Absorption from the Small Intestine

All the dietary intakes of a human body are absorbed in the small intestine, be it simple lipids, carbs, proteins or minerals like vitamins A, Vitamin K, etc. (Smith & Morton, 2011). Everything gets absorbed into the blood plasma. Unsurprisingly, the walls of the intestine are highly specialized. They are made up of specialized epithelial cells that have tiny root hair-like structures called microvilli (Pappenheimer & Michel, 2003). These hair-like projections tend to increase the surface area of the cells and the small intestine to facilitate the absorption of a large number of nutrients.

Each villus has a network of small capillaries and lymphatic vessels known as the lacteals, present in its vicinity (Pappenheimer & Michel, 2003). The material and the nutrients come from the food into the small intestine where villi absorb all the essential and required nutrients into the capillaries from the lumen of a small intestine. The amino acids and carbohydrates are absorbed into the blood via the capillaries, while the lacteals take up the lipids. From there, the food is transported and provided to different organs of the body to perform their functions. For example, the absorbed glucose is used to provide energy to perform different metabolic functions of the body and absorbed protein is used to form building blocks of the body. The food that is undigested and unabsorbed is transferred to the large intestine.

It is interesting to note that the essential materials like glucose, amino acids, vitamins, and simple fats that are broken by the enzymes are absorbed into the small intestine by the action of the hormones and certain electrolytes. The jejunum is the part where almost all the major absorption takes place. Nutrients like iron is absorbed in the ilium while the terminal part of the ileum is associated with the absorption of vitamin B12 and Bile salts. Passive diffusion also occurs there, and water and salts are absorbed through this process. Facilitated diffusion also occurs and fructose is absorbed via the same process. Co-transport of amino acid and glucose also occurs. Sodium bicarbonate is absorbed in the intestines with the aid of the active transport mechanism.

References

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