Role of water in digestion of food

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Abstract: Water is elixir of life. One can survive without food for few days but to live without water is impossible, just 20 percent reduction of water results in death. Water is involved in the various processes and reactions which are going on inside body. A man's body is about 60 % water, and a woman's is approximately 50 %. Human brain is approx. 75 percent water. We lose 2-3 quarts of water through urination, sweating and breathing, this loss should be compensated. Water has many functions in human body and it has very important role in digestion. Life is not possible without water.

Keywords; Water, Digestion, Enzymes, Nutrients

Introduction:

Water plays important role in digestion; it is involved in all the steps of digestion. Digestion makes minerals and nutrients available to the body. When we eat water directly is not involved in digestion, but it can help break down food, it also helps flush waste from the intestines and may help relieve constipation. Water helps to digest soluble fiber and benefits bowel health by making well-formed, soft stools that are easy to pass. All vertebrates have alimentary canals. Human digestion begins in the mouth, in this first stage of digestion, food is chewed water moisturizes food and saliva (it has water as a solvent) plays important role. Then food passes through the pharynx and esophagus into the stomach, propelled by peristalsis.

In the stomach the food is mixed with highly acidic gastric juices secreted into the stomach. The hormone gastrin stimulates the secretion of these juices, which contain water, inorganic salts, hydrochloric acid, mucin, and several enzymes, the most abundant of which is pepsin. Pepsin breaks protein molecules into smaller molecules called polypeptides. The stomach needs water in two important ways that are related to hydrochloric acid. First, water in the body is required to produce hydrochloric acid itself at the proper pH(near to 3) for digestion to start, but that's too acidic for the tissue of the stomach, and that brings us to the second important function of water, producing the mucous stomach lining. Without this mucous lining, the hydrochloric acid comes into direct contact with the stomach tissue resulting in stomach ulcers and other complications.

The food, in a semi liquid state called chyme, passes from the stomach into the duodenum, the first section of the small intestine, where the greatest part of digestion takes place. The chyme is subjected to the actions of a large number of enzymes, some secreted by the pancreas (which is connected to the duodenum by a duct) and some produced by glands in the intestinal wall. Each enzyme acts on specific food molecules. By the time this process has been completed, the carbohydrates have been broken down into simple sugars (monosaccharides), the proteins into amino acids, and the fats into glycerol and fatty acids. These simple molecules are then absorbed into the circulatory system through countless microscopic projections of the intestinal wall. Substances that cannot be digested, such as cellulose (plant fibre), pass into the colon, or large intestine. There, water and ions such as sodium and chloride are reabsorbed, and the remaining solid material (feces) is held until it is expelled through the anus. Dry stool in the large intestine and causes constipation. Regularly hard dry stool in bowel movements is result of drinking less water.

Ayurvedic science advocates the use of hot water for good digestion .One of the qualities we need to introduce through our food to support a balanced digestive fire (or AGNI) is Sipping lukewarm water (boiled water that has cooled down enough to drink) throughout the day is the easiest and most obvious way to do this. Ice cold drinks may be avoided. Drinking ice cold drinks leads to shock and constriction in the membranes and sphincters that should be soft and relaxed, ready to release all of the acids and enzymes needed to digest food.

Importance of water in human body; Due to polar nature of water, Hemoglobin, carbonates, various proteins, and many other molecules in the body use water as a solvent. Water is involved in transport of oxygen(blood), CO_2, nutrients, waste products, and more from cell to cell. Water is needed for protection as well. It keeps your mouth moist and washes away dirt and grim on eyes. Water even lubricates our joints, keeping them from getting stiff .As a chemical reactant, water is involved in many processes and pathways of the body. We use it to digest food in the gastrointestinal tract, to access stored energy for muscles and organs, and for countless other reactions. Water helps to regulate pH in the body. Water is very important in maintaining electrolyte balance within our bodies. Electrolytes transmit all sorts of information to our brains in the form of nerve impulses and are important in muscular activity as well. Water regulates our body temperature through sweating. When we exercise, there is heavy loss of water; this may be compensated by taking more fluids. Water is vital in delivering oxygen to muscles and helps the body perform physical labor more efficiently.

Conclusions;

Lack of water in the digestive system can result in ulcers, indigestion, heartburn, and fatigue, and memory loss, improper function of any of the organs, partial digestion, and constipation.

Water is required for digestion, but too much water during meals can interfere with natural levels of acid and bile needed in the stomach to properly digest food. In particular, too much cold water during meals can slow digestion and may cause cramping in sensitive individuals.

It is recommended to make a habit of drinking lukewarm a glass or two of pure water about 15 to 30 minutes before meals.

Water can be a tool that helps to manage weight and in that way play a role in digestion. Water takes up space in the stomach. This means that drinking a glass of water before eating and with a meal can help you eat less. Adding water to meals can help meet your daily requirement and create a beneficial habit.

Generally in order to maintain good health we must eat foods low in fat (especially saturated fat), low in cholesterol, and high in fiber, Drink lots of fluids, especially water, Take medicines in pill or capsule form with plenty of water and increase the number of fruits and vegetables.

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