

Nutrition for Nurses

Nutrition and Human Welfare

By

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Water and Organic Acids in Nutrition

Water is a very important factor in nutrition, because all processes of the body are carried out in a fluid medium. Water makes up 70 per cent of the total weight of the body. The body gets its water from the fluids taken (800 to 3000 cc), from water in foods (1000 to 1500 cc) and from the oxidation of food stuff in body (400 cc). Water is excreted from the body through the kidneys (1500 cc) approximately, the intestines (150 cc), the lungs (350 cc) and from the skin (500 cc or more). In the normal human individuals, there is a balance between the intake and the output, controlled by thirst, kidneys and the skin.

Water is a part of the digestive juices and therefore aids in digestion. It helps in absorption of digested foods by dissolving them. It assists in the transportation of digested foods to the different parts of the body. Metabolism, which includes all the chemical process in the cells, can take place only in the presence of water. Excretion is possible because water products are in solution with water.

Water has also some regulatory functions in the body. It regulates the body temperature by controlling the loss of heat from evaporation of water from the skin. It regulates the salt content of the tissues and plasma by controlling the amount of water lost or retained by the body.

Requirement : Water should be given without restriction to normal persons.

The sensation of thirst is a good guide to intake ; 5 to 8 glasses of water should be taken every day. This can be either as plain water or prepared foods and beverages.

Acid—Base Balance : The normal condition of the blood and the body is nearly neutral. Any big deviation from this neutrality will be detrimental to life. Acid base balance in the body means the maintenance of the normal condition of neutrality.

Foods are grouped into acid—ash and alkali ash divisions. The elements responsible for producing acid reactions are phosphorus, chlorine and sulphur. The foods giving these elements are meat, fish, eggs, milk and whole cereals.

The alkali reaction producing elements are potassium, sodium, calcium and magnesium. These elements are derived from fruits and vegetables. In the normal person, there is a balance between these two divisions of foods. Water also helps to maintain the acid base balance in the body.

Organic acids : Citric and malic acids are the most widely distributed organic acids in vegetables and fruits. In the body they are burnt producing carbon dioxide and water. Because the acid part of these compounds are removed by oxidation in the body, foods like lemons, oranges, tomatoes and grapes containing organic acids, actually produce alkaline reaction in the body. They are useful in combating acidosis.

(To be continued)