

WATER AND THE HUMAN BODY



Water is the largest single component of the body. Metabolically active cells of the muscle and organs have the highest concentration of water. As a percentage of body weight, water varies among individuals, depending on the proportion of muscle to fat tissues. Total body water decreases significantly with age owing to smaller muscle mass.

Functions of Water

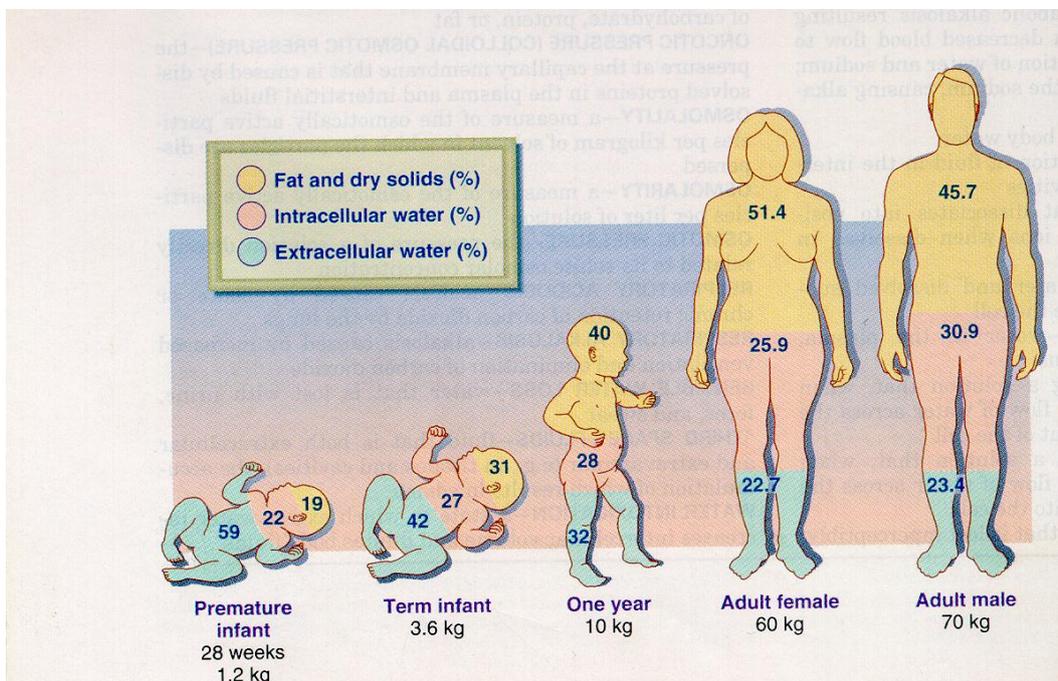
Water is essential for physiological processes of digestion, absorption and excretion. It plays a key role in the structure and function of the circulatory system and acts as transport medium for nutrients and all body substances. Water plays a direct role in maintaining body temperature. A loss of 20% of body water may cause death; loss of only 10% causes severe disorders. In moderate weather, adults can live up to 10 days without water, and children can live up to 5 days. In contrast, it is possible to survive for several weeks without food.

Water Intake

In healthy individuals, water intake is controlled mainly by thirst. The sensation of thirst serves as a signal to seek fluids. Water is ingested as fluid and also as part of ingested food. The oxidation of foods in the body also produces metabolic water as an end product. The oxidation of 100g of fat, carbohydrate and protein yields 107, 55, and 41 g of water, respectively, for a total of approximately 200 to 300 ml/day.

Distribution of Water in the Body

The distribution of body water varies under different circumstances, but the total amount in the body remains relatively constant.



Water Balance

The gastrointestinal tract and the kidneys, regulate water in your body. The brain keeps the water content of the body fairly constant. The amount of water taken daily is approximately equivalent to the amount lost.





Water Elimination

Water loss normally occurs via the kidneys and is excreted in the form of urine and via the gastrointestinal tract in the faeces. Sweat is the detectable source of water loss through the skin.

Fluid loss as a result of diarrhoea has been responsible for thousands of deaths of children in developing countries. Oral rehydration therapy with a simple mixture of water, sugar, and salt has been highly effective in dropping the number of deaths. When water intake is insufficient or water loss is excessive, the kidneys compensate by conserving water and excreting more concentrated urine.

Requirement for water

Signs of dehydration include poor skin that shows wrinkles (Although this may be present in well hydrated older persons); Skin tenting on the forehead, concentrated urine, decreased urine output, sunken eyes, dry mouth and nose. During lactation, the need for water increases theoretically, by an additional 600 to 700ml/day because of the high amounts required for milk production. Many successfully lactating women do not consume enough water to satisfy theoretical recommendations, but evidently meet their fluid needs with water contained in foods.

The body has no provision for water storage, therefore, the amount lost every 24 hours must be replaced to maintain health and body efficiency. Under ordinary circumstances, it is highly recommended that you consume at least eight glasses of water a day. Rand Water purifies the water through a conventional purification process, resulting in water that is safe to drink. Your tap water will satisfy your daily requirements, and meets the SANS 0241 water quality specifications.

Visit www.reservoir.co.za for further information on water quality in your area.

