

Hydration: Why is it So Important at any Age?

Lucía Pérez-Gallardo*

Department of Biochemistry and Molecular Biology and Physiology, Valladolid University, Spain

***Corresponding Author:** Lucía Pérez-Gallardo, Department of Biochemistry and Molecular Biology and Physiology, Valladolid University, Spain.

Received: September 08, 2017; **Published:** September 25, 2017

Water is essential for life and, although humans can survive for a number of weeks without food, they cannot normally go without fluids for more than a few days. Every cell, tissue, and organ in the body needs water to work properly. Water is a key component of the fluid that forms the basis of saliva that helps us to swallow, of synovial fluids that cushion the joints and of the fluids that fill and lubricate our eyes. Fluid provides a medium for most chemical reactions in the body to occur, acts as a cushion for the nervous system, allows us to get rid of waste products principally via the kidneys and urine production [1]. Water contributes to the maintenance of physical and cognitive functions as well as to maintenance normal thermoregulation.

Water is vital for survival, and there is currently great interest in the benefits of good hydration for people to function well, and to look and feel good. A newborn infant's comprises the highest proportion of body water at any stage of a person's life (75% water by weight). This decreases to approximately 60% by the time the infant reaches 6 months. Water makes up more than half of adult body weight depending on body composition (average 60% in men and 51% in woman).

The hydration is defined as the process of making your body absorb water or other liquid. A constant and sufficient supply of water is important for maintaining an adequate hydration status and, thereby, supporting a healthy metabolism. Dehydration has been associated with a number of health impairments including kidney dysfunction and cognitive impairment.

Body water volume is tightly controlled and, under normal conditions, fluctuates by less than 1% per day. By comparing the total intake and endogenous generation of water to total losses, the body's water balance can be assessed. We lose water each day when we go to the bathroom, sweat, and even when we breathe. The body loses water even faster when the weather is really hot, when we are physically active, or if we have fever.

Beverages are generally the major source of water intake, accounting for about 65% - 80% of the total, although foods with high moisture contents can also be notable contributors. The water content is more than 80% in most soups, fruit and vegetables; 40% to 70% in hot meals; less than 40% in cereal products such as bread and biscuits; and less than 10% in savoury snacks and confectionery. We can absorb water efficiently from virtually all foods and drinks, although the rate of absorption can increase or decrease to some extent, depending on the composition of the food or drink [2]. Alcoholic beverages also contain water, but their diuretic effects will affect how much of this is retained.

The amount of water different people need from food and drink varies considerably and is affected by numerous factors such as age, gender, body mass, physical activity, food composition and environmental conditions. This makes it very difficult to provide a specific recommendation as to how much water each of us needs.

To estimate water requirements, it is necessary to take into account other factors such as the physiological changes that occur throughout life. There are a number of physiological differences between infants and adults, including a greater surface area compared with body mass, higher water turnover and less ability to sweat. This means that infants fluid requirements are proportionally much greater than

those of adults. Adult women tend to have lower water requirements than men because of their lower body mass and lower proportion of body water. In old age the thirst response declines and total body water is also lower, because of loss of muscle mass, the kidneys are less able to concentrate urine, increasing urinary water loss, and also less efficient at producing large quantities of urine to address over-hydration [3].

Initially, an infant's diet is made up entirely of breast- or formula milk, which fulfils hydration and nutrient requirements. Accordingly, the Food and Nutrition Board of the Institute of Medicine estimates that 2.7 L/day of total water (including about 2.2 L/d from beverages) is adequate for adult women and 3.7 L/day of total water (including about 3.0 L/d from beverages) is adequate for adult men [4]. In turn, the estimates of the European Food Safety Authority (EFSA) are lower, at 2.0 L/day of total water (from beverages and food) for women and 2.5 L/day for men [5]. Women may need slightly more fluid when pregnant, and significantly more when lactating. The estimated additional requirement is approximately 0.3 L/d for pregnancy [Institute of Medicine (IoM) 2005], and between 0.7 [European Food Safety Authority (EFSA) 2008] and 1.1 L/d (IoM 2005) for lactation.

Water requirements are not different for older compared with younger adults. Nevertheless drinking habits vary according to age and gender. Thus, in ASNS 2012, the percentage of individuals with a markedly low fluid intake (fluid intake from beverages and foods < 1500 mL) was higher in those aged 65 years and more (13% of men and 23% of women) than in the younger survey participants (0% - 8% across the different age groups). However, low intake levels that did not reach the estimated adequate amount for water intake in the EFSA Guidelines, though they were higher than the markedly low intake level of 1500 mL, was found in 24% of women aged 18 - 24 years and in 33%, 42%, and 43% of men aged 25 - 50 years, 51 - 64 years, and 65 years, respectively. Men aged 18 - 24 years were the best hydrated among these groups. Fluid can also be consumed during physical activity to prevent excessive dehydration. The amount needed will depend on the individual's sweat loss for a given activity, and calculations of fluid requirements can be made by measuring changes in body mass and estimating sweat rates [6].

Bibliography

1. Popkin BM., *et al.* "Water, Hydration, and Health". *Nutrition Reviews* 68.8 (2010): 439-58.
2. Elmadfa I and AL Meyer. "Patterns of Drinking and Eating Across the European Union: Implications for Hydration Status". *Nutrition Reviews* 73.2 (2015): 141-147.
3. Menten J. "Oral Hydration in Older Adults: Greater Awareness is Needed in Preventing, Recognizing, and Treating Dehydration". *The American Journal of Nursing* 106.6 (2006): 40-49.
4. Institute of Medicine. "Panel on Dietary Reference Intakes for Electrolytes and Water, Standing Committee on the Scientific Evaluation of Dietary Reference Intakes, Food and Nutrition Board. Dietary reference intakes for water, potassium, sodium, chloride, and sulfate". Washington, DC: National Academies Press (2004).
5. European Food Safety Authority (EFSA). "Panel on Dietetic Products, Nutrition, and Allergies (NDA). Scientific opinion on dietary reference values for water". *EFSA Journal* 8.3 (2010): 1459.
6. Maughan RJ and SM Shirreffs. "Development of Individual Hydration Strategies for Athletes". *International Journal of Sport Nutrition and Exercise Metabolism* 18.5 (2008): 457-472.

Volume 11 Issue 2 September 2017

©All rights reserved by Lucía Pérez-Gallardo.