

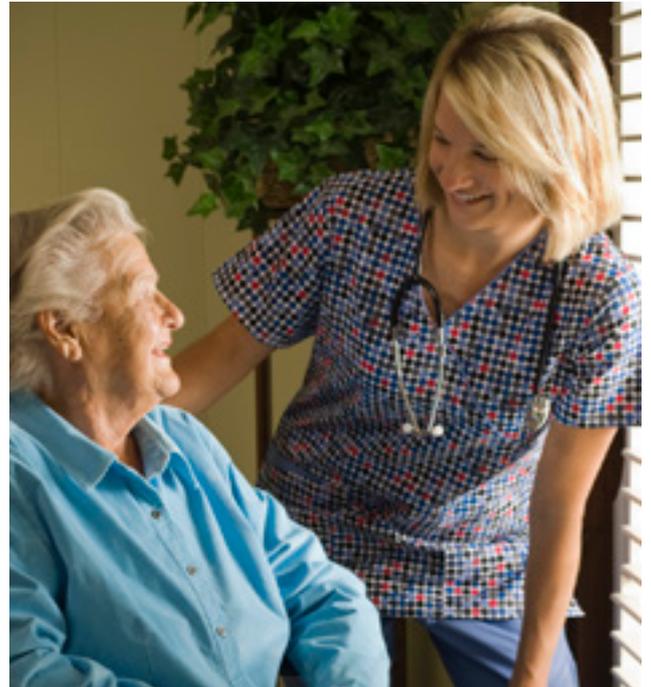
KEY TIPS ON HYDRATION

HYDRATION AND CHRONIC DISEASES

Dehydration is the process of losing body water and can eventually lead to **hypohydration**, the condition of body water deficit, when intake of fluids and water included in food is insufficient to keep the body hydrated^{1,2}. Hypohydration may have an effect on cognitive and physical performance, and also on the **health status**¹⁻⁸.

Severe hypohydration (involving a loss of more than 10% of body weight) is a well-known cause of mortality. However, there is increasing evidence that **mild hypohydration** (involving a loss of 1-2% of body weight)¹ may also contribute to different diseases^{3,8}.

Low habitual fluid intake leads to **chronic hypohydration**, which is likely to be mild. In contrast, symptoms of **acute mild hypohydration** may be severe⁴.



CHRONIC MILD DEHYDRATION

can be present in many individuals failing to meet daily water requirements, but **it has been shown to be a common condition in some population groups, including the elderly and those who participate in physical activity in warm environments**⁵.

Some studies have shown an association, although not necessarily a causal one (see different levels of scientific evidence*), between a low habitual fluid intake and some chronic diseases^{3,6-8}, such as:

- urolithiasis and cystic fibrosis^{lb};
- urinary tract infections, exercise asthma, hypertonic dehydration in the infant, and hyperglycaemia in diabetic ketoacidosis^{llb};
- constipation, hypertension, fatal coronary heart disease, venous thromboembolism, glaucoma, and stroke^{lll};
- dental disease^{lv}.

Evidence is also available, but inconsistent for bladder and colon cancer^{3,6}.

Maintenance of good hydration has been shown to reduce the risk for these conditions⁶.

*Categories of evidence are as follows: lb: Evidence from at least one randomised, controlled trial; llb: Evidence from at least one other type of quasi-experimental study; lll: Evidence from descriptive studies, such as comparative studies, correlation studies, and case control studies; lv: Evidence from expert committee reports, opinions or clinical experience of respected authorities, or both.

PRACTICAL TIPS TO MAINTAIN A GOOD HYDRATION STATUS

- In healthy people, adequate hydration can usually be maintained with normal drinking behaviour and by responding to thirst².
- With age, the body loses its ability to have a thirst response to fluid deficit². Drinking regularly is therefore desirable to maintain good hydration². Common antihypertensive medications may also affect the thirst mechanism.
- Water replacement can be enhanced by consuming beverages at meals and in other social situations².
- Monitoring hydration status is recommended. Assessing urine colour provides a useful estimate of the hydration state during everyday activities^{9**}.

GROUPS PARTICULARLY VULNERABLE TO DEHYDRATION:

- **The elderly:** Dehydration is commonly believed by geriatricians to be an acute precipitating factor for hospital admissions, with added heat stress probably increasing symptoms⁴.
- **Infants and children** are more susceptible to dehydration than adults. Special care has to be given during periods of frequent vomiting or diarrhoea.

SOURCES OF WATER IN THE DIET:

- It is calculated that of the total water needed:



20-30%
typically comes from food and
70-80%

from beverages (all types,
not just plain water)^{1,10}.

However, this may vary greatly
depending on the diet that an
individual chooses^{1,10}

The adequate intake of water recommended by EFSA^{1**} varies with age and gender and provides a guideline water intake. However, individual requirements will vary according to factors such as environmental temperature and level of physical activity.

**See our educational materials about effects of dehydration, how to measure hydration status and water intake recommendations at:
http://www.europeanhydrationinstitute.org/educational_materials.html

1. EFSA Panel on Dietetic Products, Nutrition, and Allergies (NDA); Scientific Opinion on Dietary reference values for water. EFSA Journal 2010; 8(3):1459. Available online: www.efsa.europa.eu/en/efsajournal/pub/1459.htm 2. Institute of Medicine: Dietary reference intakes for water, potassium, sodium, chloride, and sulfate. Washington, DC: The National Academies Press, 2005. 3. Manz F. Hydration and disease. J Am Coll Nutr 2007;26(5):535S-541S. 4. Maughan RJ. Hydration, morbidity, and mortality in vulnerable populations. Nutrition Reviews 2012;70(Suppl. 2):S152-S155. 5. Maughan RJ. Impact of mild dehydration on wellness and on exercise performance. Eur J Clin Nutr 2003;57(Suppl):S19-S23. 6. Manz F, Wentz A. The importance of hydration for the prevention of chronic diseases. Nutrition Reviews 2005;63(6):S2-S5. 7. Popkin BM, D'Anci KE, Rosenberg IH. Water, Hydration and Health. Nutr Rev 2010;68(8):439-458. 8. Brocker C, Thompson DC, Vasilio V. The role of hyperosmotic stress in inflammation and disease. Biomol Concepts 2012;3(4):345-364. 9. Kolasa KM, Lackey CJ, Grandjean AC. Hydration and Health promotion. Nutrition Today 2009;44:190-201. 10. Manz F, Johner SA, Wentz A, Boeing H, Remer T. Water balance throughout the adult lifespan in a German population. Br J Nutr 2012; 107(11):1673-81.