

KEY TIPS ON HYDRATION

HYDRATION WHILE STUDYING

Adequate hydration is important for optimal functioning of the brain. When an individual is well hydrated, brain cells are better supplied with fresh, oxygen-laden blood, and the brain remains alert.



Dehydration can **adversely influence cognitive function**^{1,2}, and this is important when considering tasks such as studying.

It has been observed that **when mild dehydration occurs** (i.e. when 2-4% of body water is lost).

Short-term memory, attention, and arithmetic efficacy	→ can be impaired ¹
Greater tiredness, reduced alertness, and lower levels of concentration	→ have also been reported ²

In situations where less severe dehydration occurs (such as when refraining from drinking for a relatively short period of time – up to a few hours), studies have generally failed to find evidence of cognitive impairment².

Studies finding a relationship between dehydration and cognitive performance have to be interpreted with caution to determine the effects of dehydration independently of the effects of other stressors (e.g. thermal and physical stress, fatigue, etc.)³.

Nevertheless, on the basis of the known physiological effects of dehydration in the brain, the stress associated with dehydration itself could be considered a unique stressor with unique effects that may or may not be similar to those of other stressors. This supports the notion that **adequate hydration status is of importance when facing cognitive tasks**. The extent and duration of dehydration leading to cognitive impairment, and the cognitive functions most affected remain to be investigated⁴.

PRACTICAL TIPS TO STAY HYDRATED WHILE STUDYING

- Before going to school, high-school or university, it is important to ensure that hydration status is adequate: breakfast should include enough liquid to achieve this. Two studies have demonstrated that children commonly start the day at school partially dehydrated^{5,6}.
- Water should be available throughout the day and drinks should be taken regularly especially if the environment is warm.
- Teachers may need to make sure that there are opportunities for drinking during the school, high-school or university day and that students are reminded to make use of these opportunities. Families should also be aware of this.
- Special attention should be given to meal times because:
 - Eating helps to stimulate the thirst response causing the intake of additional fluids and restoration of fluid balance⁷.
 - Meals provide an important part of the water consumed during the day and it should be remembered that of the water intake in the diet:



20-30% typically comes from food and about

70-80%

from beverages
(all types, not just plain water)^{2,9}

However, this may vary greatly depending of the diet that an individual chooses.^{2,9}

- Educating pupils to assess their own hydration status can also be valuable* and urine colour provides a useful estimate of the hydration status during everyday activities¹⁰.

* See our educational material about how to measure hydration status at:
www.europeanhydrationinstitute.org/educational_materials.html

1. Gopinathan PM, Pichan G, Sharma VM. Arch Environ Health 1988;43:15-7. **2.** Szinnai G, Schachinger H, Arnaud MJ, et al. Am J Physiol Regul Integr Comp Physiol 2005;289:R275-R280. **3.** Institute of Medicine: Dietary reference intakes for water, potassium, sodium, chloride, and sulfate. Washington, DC: The National Academies Press, 2005. **4.** Lieberman HR. J Am Coll Nutr. 2007;26(5 Suppl):555S-561S. **5.** Bonnet F, Lepicard EM, Cathrin L, et al. Ann Nutr Metab. 2012; 60(4):257-63. **6.** Assael BM, Cipolli M, Meneghelli I, et al. J Nutr Disorders Ther 2012;2:3. **7.** Maughan RJ, Leiper JB, Shirreffs SM. Eur J Appl Physiol Occup Physiol 1996;73(3-4):317-25. **8.** 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 **9.** Manz F, Johner SA, Wentz A, et al. Br J Nutr 2012; 107(11):1673-81. **10.** Kolasa KM, Lackey CJ, Grandjean AC. Nutrition Today 2009;44:190-201.