



# Key Health Research Summary

## Hydration and health: a review

Water is essential for life and maintaining optimal levels of hydration is important for humans to function well. Water makes up a large proportion of our body weight (60% on average), distributed between the intracellular (inside cells) and extracellular (water in the blood and in between cells) compartments. Water is the major component of body fluids, such as blood, synovial fluid (fluid in the joints), saliva and urine, which perform vital functions in the body.

*Benelam, B. and Wyness, L. (2010), Hydration and health: a review. Nutrition Bulletin, 35: 3–25. doi: 10.1111/j.1467-3010.2009.01795.x*

## Hydration and cognition: a critical review and recommendations for future research

Studies show that dehydration reflected by a 1-2% reduction in body weight can reduce our ability to concentrate, reduce everyday mental performance and increase feelings of aggression or irritation.

*Lieberman HR (2007) Hydration and cognition: a critical review & recommendations for future research*

## Children, hydration and cognition

A study published in Complete Nutrition (May 2012) found that providing children with water at school significantly increased levels of cognition, including factors such as visual memory and performance. Led by Dr Emma Derbyshire from Manchester Metropolitan University in association with the Natural Hydration Council (NHC), the project involved 166 children aged 11 to 12 years drinking bottled water to increase their intake to the level recommended by the European Food Safety Authority (EFSA - 1,470ml/day from beverages for boys and 1,330ml/day for girls aged 9-13 years ) for 14 days.

*An Intervention to Improve Cognition and Hydration in UK School Children using Bottled Water; Emma Derbyshire, PhD, AfN, Senior Lecturer in Human Nutrition, Manchester Metropolitan University; Complete Nutrition Vol.12 No.2 May 2012*

## Dehydration and exercise

Physical and cognitive performance can suffer when we are poorly hydrated, especially in hot, humid conditions or when exercise is prolonged. Studies have shown that for people carrying out prolonged exercise a 2% loss of body mass, i.e. 1.4kg for a 70kg adult, can result in around a 20% decrease in performance levels in temperate climate and up to a 40% decrease in hot temperatures.

*1. Maughan RJ et al. (2010) Dehydration and rehydration in competitive sport. Scand J Med Sci Sports 20 Suppl 3:40-7. 2. Maughan SM et al. (2007) Exercise, heat, hydration and the brain. Journal of the American College of Nutrition 26(5):*

## Hydration during Pregnancy

A study assessing water intakes in pregnancy found that total water intakes were lowest in early pregnancy (around 2182ml/day), increasing to an average of 2466ml/day in the third trimester. It was also identified that women with lower water intakes, particularly later in pregnancy, were more likely to experience symptoms of constipation.

*Derbyshire E et al. (2006) Diet, physical inactivity and the prevalence of constipation throughout and after pregnancy. Maternal and Child Nutrition 2(3), 127-134.*

