

# WATER IN PAEDIATRIC AGE GROUPS

## The 10 things to know

Water is a truly essential nutrient.<sup>(1)</sup>

A correct children's diet should include and guarantee proper intake of water and mineral salts<sup>(2)</sup>.

The quantity and quality of the water consumed by children depends on their age, health, diet and physical activity, as well as on the temperature and humidity level of their environment<sup>(2)</sup>.

Newborns and unweaned infants require more water (100-190 ml/kg/day) due to their different body composition, higher turnover of body fluids and more rapid growth compared to older children<sup>(3,4)</sup>.

The required water intake in subsequent age groups is as follows: from 6 months to 3 years 600-900 ml/day; in school goes up to about 1100 ml/day; in adolescents 1,500-2,000 ml/ day. Soft drinks are not considered a source of water<sup>(3)</sup>.

Breastfeeding satisfies infants' water requirements<sup>(3)</sup>. Should mother's milk not be available, suitable formulas should be made using minimally mineralised water (dry residue < 50 mg/L) with few trace minerals (dry residue between 50 and 500 mg/L) and a nitrate content of <10 mg/L. After age one, mineral or tap water with a dry residue < 1,500 mg/L can be used. For infants and pre-schoolers the fluoride content of water should be <1.5 mg/L<sup>(5)</sup>.

For proper hydration, essential for children who practice sport, pre-hydration of 90-180 ml (if body weight is <40 kg), or 180-360 ml (if body weight is >40 kg) is recommended before beginning physical activity, while intake of at least 150-240 ml every 20 minutes is recommended during physical activity and, at the end of the sporting activity, water intake of between 220 and 330 ml/kg of weight lost during the physical activity performed<sup>(6)</sup>.

Inadequate hydration is associated with reduced mental, physical and emotional health and with reduced performance<sup>(1)</sup>.

Insufficient water consumption is associated with higher body weight and a greater risk of developing obesity<sup>(7)</sup>.

In choosing a certain mineral water the Paediatrician and parents must evaluate the following parameters marked on the label: analysis of bacteria and principal environmental contaminants; sodium, potassium, calcium, fluoride, iron, magnesium and bicarbonate content; bottling date, considering that the law provides for consumption preferably within 18 months for water contained in polyethylene containers and within 24 months for water contained in glass bottles<sup>(8)</sup>.

### References

- (1) Popkin BM., D'Anci KE, Rosenberg IH. Water, Hydration and Health. *Nutr Rev.* 2010; 68(8): 439-458.
- (2) American Academy of Pediatrics Committee on Nutrition. *Pediatric Nutrition 7th Edition.* 2012-2013.
- (3) EFSA (European Food and Safety Authority). Scientific Opinion on Dietary Reference Values for water. EFSA Panel on Dietetic Products, Nutrition, and Allergies. *EFSA Journal* 2010; 8:1459.
- (4) Friis-Hansen B. Body water compartments in children: changes during growth and related changes in body composition. *Pediatrics.* 1961;28:169-81.
- (5) Montain SJ. Hydration recommendations for sport 2008. *Curr Sports Med Rep.* 2008;7(4): 187-92.
- (6) Milla-Tobarra M, García-Hermoso A, Lahoz-García N, Notario-Pacheco B, Lucas-de la Cruz L, Pozuelo-Carrascosa DP, García-Meseguer MJ, Martínez-Vizcaino V. The association between water intake, body composition and cardiometabolic factors among children - The Cuenca study. *Nutr Hosp.* 2016; 33 Suppl 3:312.
- (7) Directive 2003/40/EC of the Commission. *Official Journal of the European Union.* L 126/34 published on 22.5.2003.
- (8) Italian Legislative Decree. 25-1-1992 no. 105 Implementation of the directive 80/777/EC regarding the use and sale of mineral water. Published in the *Official Journal* 17.2. 1992, no. 39, S.O.