Promoting healthy drinking habits in children

**Keywords:** Child health/School nursing/Hydration/Fluid intake

In this article...

- Why good hydration is particularly important in children
- NICE’s recommendations for how much children should drink
- The role of schools in promoting healthy drinking

**Water**

Water is essential for life, it is the largest constituent of the human body and makes up 65% of a boy’s body weight and 60% of a girl’s (Agostoni et al, 2010). Adequate fluid intake is necessary to ensure healthy organ function, including the urinary tract, the heart, lungs, muscles, digestive system and the brain (Manz, 2007).

We lose water when we breathe, sweat and urinate; we also lose water through the lungs, skin and faeces (Stillman et al, 2005). How much water is lost depends on age, body size, physical activity, health and environmental conditions.

There is no provision for water storage in the body so all water lost must be replaced. A loss of 1% of body water is normally compensated within 24 hours but, if further losses occur, there will be a reduction in physical and cognitive performance (Agostoni et al, 2010).

**Children and hydration**

Adequate fluid intake is particularly important for children as they have immature thirst mechanisms, relatively high fluid loss (due to a large surface area to body mass ratio) and high activity levels (Kaushik et al, 2007). With less developed sweating and kidney functions (Kenney and Chiu, 2001), they are more at risk of becoming dehydrated during hot weather or intense physical activity.

Children’s fluid requirements also vary with age, size and sex; girls have a slightly higher percentage of body fat and store less water than boys (Agostoni et al, 2010).

The thirst signal is triggered when a 1-2% loss of body mass has been reached and the kidneys have started to concentrate urine (Kaushik et al, 2007). Thirst is quenched after an appropriate amount of water is ingested and this occurs well before osmolality is corrected, suggesting that thirst is also associated with rational and emotional cognition, and habitual and social notions of presumed need for water (Al-Awqati, 2007).

As drinking behaviour may develop and be anchored in the toddler age group, it is vital to teach children about the importance of good hydration and establish good drinking patterns at an early age (Epstein, 1991).

**Fluid intake**

The body gets fluid from three sources:

- Drinks, plain water or other beverages;
- Solid foods, especially fruit and vegetables. Water intake from food is approximately 19% of total water intake (Food and Nutrition Board, 2004);
- As a by-product of chemical reactions within the body.
Two large studies have estimated that children should drink eight age-appropriate cups of fluid a day (Food and Nutrition Board, 2004; Sichert-Hellert et al, 2001), but although this figure is easy to remember, it does not take into consideration a child’s age, sex and body mass. National Institute for Health and Clinical Excellence (2010a) has produced more precise estimates of daily fluid intake categorised by age and sex (Table 1).  

Table 1. Recommended daily fluid intake.

<table>
<thead>
<tr>
<th>Age</th>
<th>Sex</th>
<th>Total per day</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-8 years</td>
<td>Female</td>
<td>1,000-1,400ml</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>1,000-1,400ml</td>
</tr>
<tr>
<td>9-13 years</td>
<td>Female</td>
<td>1,200-2,100ml</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>1,400-2,300ml</td>
</tr>
<tr>
<td>14-18 years</td>
<td>Female</td>
<td>1,400-2,500ml</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>2,300-3,200ml</td>
</tr>
</tbody>
</table>

Source: NICE (2010a)

The kidneys play a key role in regulating fluid balance and removing waste from the body as urine, and they function better in the presence of a good fluid supply (Popkin et al, 2010).

Fluid intake influences the composition and volume of the urine and how frequently a child goes to the toilet. Good fluid intake also helps increase bladder capacity, and helps a child recognise the sensation of a full bladder and develop day and night bladder control (NICE, 2010a; Van Laecke et al, 2009).

If there is good fluid intake with frequent micturition there may also be a reduction in susceptibility to urinary tract infections (Beetz, 2003).

There is very little research that supports the notion that a constipated child will find relief from constipation through drinking more. However, the guideline development group for the recent NICE guidelines for childhood idiopathic constipation determined that an increase in fluid intake is essential in children experiencing constipation (NICE, 2010b).

Conclusion

Education about proper hydration is essential to ensure that children’s drinking patterns are established early. Ensuring a good fluid intake from an early age will have a positive effect upon children’s bladder and bowel control and bladder capacity as well as positive effects upon cognition.

Schools have a major role to play in ensuring that good hydration continues throughout childhood with the provision of easily accessible, good-quality water.

References


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