

When it comes to food and drink, while younger children tend to want what other family members are having¹, teenagers often want to assert their independence in choosing what to eat and drink, just as they do in other areas of their lives. As teenagers are at a critical period of growth and development, it would be great if their choices of beverage were generally healthy and reflected a sensible approach to healthy hydration. However this is not always the case because drinks are chosen for a variety of reasons including taste, cost, celebrity endorsement, alcoholic content and peer influence.



This factsheet sets out to explain what teenagers currently drink and examines how they can learn to make healthy hydration choices which will stand them in good stead to develop lifelong healthy habits which will have a positive impact on their health in both the short and longer term. The benefits of hydrating with water and current guidelines for this are also included.

So, what are teenagers drinking?

In the UK, sugar-sweetened beverages contribute around 4% of total daily calories and 30% of added sugars in children aged 11-18yrs.² Data from the UK National Diet and Nutrition Survey shows that males in this age group drink about 423ml and females 307ml of sugar-sweetened beverages daily (a can is usually about 330ml).² When coupled with other calorific beverages such as smoothies and fruit juices, these can drive up daily energy intakes³ and potentially contribute to weight gain and obesity.⁴



Energy drinks are marketed at young adults as a way to increase fun and improve physical and mental performance⁵. Surveys show that they are gaining popularity with teenagers too. While they can contain beneficial substances such as vitamins and ginseng, they are often sources of added sugars and stimulants, such as guarana, taurine and high doses of caffeine. This has led to reports of teenagers feeling dizzy, jittery and nervous after consuming energy drinks, and having difficulty focussing and concentrating. Insomnia and gastrointestinal problems have also been reported.⁶

Beverages consumed (ml/day)*	Males (11- 18yrs)	Females 11-18yrs)
Fruit Juice	188	128
Soft drinks (not low calorie)	423	307
Soft drinks (low calorie)	296	278
Tea, coffee and water	528	519

*Data is for consumers only

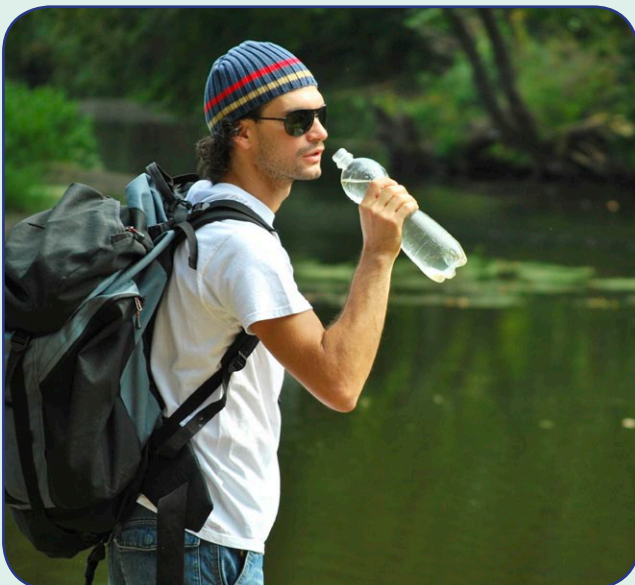
Beverage choices and health



Diet quality

Surveys show that teenagers who regularly consume high intakes of sugar sweetened, carbonated beverages tend to have worse diets overall than teenagers who drink these infrequently. Adverse effects on body mass index (BMI) and waist circumference seem to be more pronounced in teenage boys when they drink sugar sweetened carbonated beverages regularly.⁷

Studies also report that teenagers with higher intakes of added sugars have lower intakes of vitamins and minerals, especially magnesium, calcium, zinc, vitamins B12 and C. These nutrients are important for growth and development, for example calcium and magnesium are vital for normal bone development, while zinc and vitamin C support immune function. There are concerns that sugar sweetened carbonated beverages are displacing nutrient-rich drinks such as milk and fruit juices, from the diet, leading to lower intakes of some essential nutrients⁸.



Brain (cognitive) function

Research carried out at Kings College, London, has used a scanning technique, called magnetic resonance imaging (MRI), to assess the effects of dehydration on brain structure and function in a group of teenage volunteers.

The scientists found that brain cells needed to work much harder to maintain normal mental performance when the teenagers were dehydrated compared with when they were in a hydrated state⁹. These are interesting findings and suggest that even mild dehydration could affect the performance and work output of teenagers. This means that teenagers who are studying need to be aware of their increased need for fluid.

Weight control and diabetes

Evidence shows that consumption of sugar sweetened beverages has soared by 300% in the last 20 years.

Although there is no harm in occasional consumption, scientists estimate that our chances of becoming obese could be more than 1½ times higher for every extra can or glass consumed per day on top of our usual fluid intakes¹⁰. One possible reason is that calorie-containing beverages are not particularly satiating¹¹ and have little impact on how full we feel after drinking them. Which means that we may still go on to consume other calorie-containing foods and drinks and risk exceeding our healthy calorie limits.

Studies have shown that swapping sugar sweetened beverages for water on a regular basis can lead to significant reductions in daily energy intakes – up to 235kcal/day³. An estimated 20-30% of teenagers are currently overweight or obese, and this simple change to their drinking habits could help them to maintain a healthy body weight.

Beverage choices and health

Although more studies are needed specifically on teenage populations, there is also evidence that high intakes of sugar sweetened beverages not only lead to weight gain, but may contribute to the development of type 2 diabetes and a condition called metabolic syndrome (a series of metabolic changes that can affect long-term health)¹². With this in mind, it is sensible to suggest that these drinks should be enjoyed in moderation and that a diet containing more water is likely to be a more healthily balanced diet generally.

Tooth decay

Dentists report that problems such as caries (decay), enamel erosion and corrosion of dental materials, i.e. braces, are becoming more frequent in their clinics. There are concerns that these issues are related to the rise in consumption of sugar sweetened beverages seen in teenage populations¹³. Both diet and regular carbonated beverages can erode teeth, as can some fruit juices and fruit squashes if consumed frequently because to the acidic nature of these drinks.

As braces are often worn in the teenage years, orthodontists are beginning to recommend that intakes of sugar sweetened beverages are monitored. Dental appliances, such as braces, can reduce



toothbrush access, putting teenagers at greater risk of dental problems¹³. Bad breath may also be experienced in this population group, often caused by poor teeth cleaning, build up of plaque and poor dietary choices. Cleaning the tongue, using mouthwash and chewing sugar-free gums can help as well, as can dietary modifications i.e. drinking plenty of non-sugary fluids and eating fresh vegetables¹⁴.



So, what should teenagers be drinking?

Water should always be the first choice for teenagers, being readily accessible and containing no calories, sugars or added preservatives. Water has a neutral pH (not acidic) making it gentle on tooth enamel.

The European Food Safety Authority (EFSA), the expert body for nutrition and health in Europe, has published fluid recommendations for children and adults. Children aged 9-13 years have their own special guidelines, while teenagers and adults are grouped together. The table below shows the

fluid recommendations for people aged 14 years and above. In general, teens should drink around 1750ml/day (males) and 1400ml/day (females)¹⁵.

Dietary Reference Values for fluid (from beverages)*

Age	Males	Females
9-13 years (ml/day)	1470	1330
14+ years (ml/day)	1750	1400

Key: *This excludes water from food sources. Source: EFSA (2010)¹⁵



Top Tips

1. Teens should first drink water to quench their thirst, which may be followed later by other beverage choices if preferred.
2. Bottled water can be drunk on the go to keep teens hydrated and to help them perform at their best at school or during sport.
3. Drinking water instead of sugar sweetened beverages can help teens maintain a healthy body weight by preventing the intake of excess calories.
4. Swapping from sugar sweetened, carbonated or fruit drinks to water can help prevent tooth decay and erosion as water is pH neutral.
5. Teens need help and guidance to understand the benefits of drinking more water.
6. Expert recommendations for fluid are 1.75 litres a day for males and 1.4 litres a day for females¹⁴. Teenagers taking part in sport, particularly during hot weather, may need to drink more than this. A good way to test for dehydration is to check the colour of the one's urine. It should be a pale straw colour – anything darker and more water is needed.

References

1. Sutherland LA et al. (2008) Like parent, like child: child food and beverage choices during role playing. Arch Pediatr Adolesc Med. 162(11):1063-9.
2. Bates ,B., Lennox, A. and Swan, G, (2010) National Diet and Nutrition Survey Headline results from year 1 of the rolling programme (2008-09). FSA and the DH: London
3. Wang YC et al. (2009) Impact of change in sweetened caloric beverage consumption on energy intake among children and adolescents. Arch Pediatr Adolesc Med 163(4): 336-43.
4. Malik et al. (2006) Intake of sugar-sweetened beverages and weight gain; a systematic review. Am J Clin Nutr 84:274-88.
5. Kaminer Y (2010) Problematic use of energy drinks by adolescents. Child Adolesc Psychiatr Clin N Am. 19(3):643-50.
6. Pennington N et al. (2010) Energy drinks: a new health hazard for adolescents. J Sch Nurs. 26(5):352-9.
7. Collison KS et al. (2010) Sugar-sweetened carbonated beverage consumption correlates with BMI, waist circumference, and poor dietary choices in school children. BMC Public Health. 10:234.
8. Joyce T et al. (2008) The impact of added sugar consumption on overall dietary quality in Irish children and teenagers. J Hum Nutr Diet. 21(5):438-50.
9. Kempton MJ et al. (2011) Dehydration affects brain structure and function in healthy adolescents. Human Brain Mapping 32:71-79.
10. Harrington S (2008) The role of sugar-sweetened beverage consumption in adolescent obesity: a review of the literature. J Sch Nurs 24(1):3-12.
11. Wolf A et al. (2008) A short history of beverages and how our body treats them. Obes Rev. 9(2):151-64.
12. Malik VS et al. (2010) Sugar-sweetened beverages and risk of metabolic syndrome and type 2 diabetes: a meta-analysis. Diabetes Care.33(11):2477-83.
13. Yip HH et al. (2009) Complications of orthodontic treatment: are soft drinks a risk factor? World J Orthod. 10(1):33-40.
14. Scully Cbe C & Porter S (2008) Halitosis. Clin Evid (Online) pii: 1305
15. EFSA (European Food Standards Agency) (2010) Scientific Opinion on Dietary Reference Values for Water. EFSA Journal 8(3): 1459.

Advice: Source BNF, Design: source NHC



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