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Health Tips

Many parents view soft drinks as fairly innocuous to children's health and growth. However, various studies have implicated excessive consumption in a number of untoward health consequences, such as increasing the risk of childhood obesity, dental caries and erosion, or fracture and osteoporosis in later life.

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Soft Drinks and Children's Health

Soft drinks usually refer to a wide range of coloured and flavoured non-alcoholic drinks in cans, cartons or bottles. Many of them are sweetened with sugar or chemical sweeteners (as in 'diet' form), and they may be carbonated (such as cola drinks or lemonade) or not carbonated (such as fruit squashes). To enhance the tastes and make it more appealing, soft drinks may contain fruit juices, herb mixtures, milk derivatives (such as yogurt drinks, milkshakes or fruit smoothies), artificial colourings and various additives (including caffeine, benzoic acid and other preservatives).¹

To some extent, soft drinks are popular because people like their taste. Soft drinks are also heavily promoted products (through media advertising, sponsorships in sports or concerts, tie-ins with movies and TV programmes) and can be bought everywhere (in supermarkets or convenience stores, cha charn ting or restaurants, gas stations or cinemas, even from vending machines and in some schools). In 2004, global consumption of soft drinks was estimated at 480 billion litres (including bottled water), of which cola and other carbonated drinks accounted for 40%. More importantly, consumption of soft drinks has increased significantly in recent decades and continues to increase throughout the world. In Asia, for example, sales are increasing at around 3.5% each year.¹ However, soft drinks usually have a relatively low nutritional value, but high sugar or energy content. Thus, they should only be consumed in small amount and infrequently.²

Pattern of Soft Drink Consumption among Hong Kong Children

Like elsewhere, soft drinks are one of the top snack choices among local children. A household survey conducted by the Department of Health in 2005/2006 on the health of local children found that many children started consuming soft drinks at an early age, and the amount consumed increased with age. Overall, over four-fifths of children aged 2-14 had consumed soft drinks in the seven days preceding the survey, and 26.0% consumed at least 1 cup each day. The proportion of children who consumed 1 or more cups of soft drinks each day was higher among males (28.5%) than females (23.4%) (Table 1). Besides, the corresponding rate increased from 14.0% among children aged 2-5 to 34.5% among children aged 11-14 (Table 2).³

Another study, which was conducted in 2008 and involved over 9 000 primary 4 and 5 students, reported that 51.1% of students consumed drinks with added sugar (such as carbonated drinks and lemon tea with added sugar) at least once on average every day in the past one week before enumeration.⁴ A relevant survey on provision of snacks and lunch

in school also observed that lemon tea, soy milk (chocolate or original flavoured) and chocolate milk (full cream) were the most popular beverage items sold in tuck shops and from vending machines in primary schools.⁵



Table 1: Number of cups of soft drinks usually drunk each day in the seven days preceding the survey among children aged 2-14 by sex

Number of cups*	Sex		Overall
	Male	Female	
None	17.3%	20.9%	19.0%
Less than 1 cup	53.7%	55.2%	54.4%
1 cup	18.9%	16.6%	17.8%
2 cups	5.9%	4.6%	5.2%
3 cups or more	3.8%	2.2%	3.0%
Unknown / Missing	0.5%	0.5%	0.5%
Total	100.0%	100.0%	100.0%

Note: * 1 cup = 250 millilitres or 8 fluid ounces.

Source: Child Health Survey 2005-2006.

Table 2: Number of cups of soft drinks usually drunk each day in the seven days preceding the survey among children aged 2-14 by age group

Number of cups*	Age group			Overall
	Aged 2-5	Aged 6-10	Aged 11-14	
None	31.7%	18.8%	11.9%	19.0%
Less than 1 cup	53.3%	56.2%	53.2%	54.4%
1 cup	9.8%	17.1%	23.1%	17.8%
2 cups	2.5%	4.6%	7.5%	5.2%
3 cups or more	1.7%	2.9%	3.9%	3.0%
Unknown / Missing	1.0%	0.4%	0.4%	0.5%
Total	100.0%	100.0	100.0	100.0%

Note: * 1 cup = 250 millilitres or 8 fluid ounces.

Source: Child Health Survey 2005-2006.

Health Impacts of Soft Drinks in Children

Many parents view soft drinks as fairly innocuous to children's health and growth. However, various studies have implicated excessive consumption in a number of untoward health consequences. High soft drink consumption is believed to be one of the dietary contributors to childhood obesity.^{2, 6} It is because most soft drinks are rich in sugars and less filling than food. Children can easily gulp down hundreds of extra calories from drinking too much soft drinks. A study observed that the likelihood of becoming obese among children increased 60% for each additional can or cup of sugar-sweetened drink consumed every day.⁷ Furthermore, epidemiological studies have shown a negative association between high level of soft drink consumption and intake of protein, dietary fibre, and certain vitamins or minerals (such as vitamin A or C, calcium, magnesium and phosphorus) in children and teenagers.^{2, 8} The added sugars and food acidulants contained in soft drinks (such as phosphoric acid or citric acid) increase the risk of dental caries and erosion, especially for young children because of their immature enamel that is more easily dissolved by acids.⁹ Caffeine, which is an addictive chemical often found in cola, flavoured cordials and sodas, raises some health concerns as well. Negative health effects from even modest consumption of caffeine-containing soft drinks (especially in young children) include disturbed sleep patterns, bedwetting and anxiety. Prolonged exposure may keep children hooked on soft drinks (or other caffeine-containing beverages) and lead to withdrawal effects (such as headache, depressed mood or irritability) when stop consuming.^{2, 10} Furthermore, soft drinks can have a deleterious effect upon bone health. It has been reported that regular consumption of carbonated beverages may lead to lower bone mineral density,

thereby increasing the risk of fracture and osteoporosis in later life (particularly among adolescent girls).¹¹⁻¹³ In some children, added artificial colourings may trigger allergic reactions or attention deficit hyperactivity disorder.¹⁰

Nurturing Positive Eating Habits in Children

Research show that family strongly influences children's eating practices. In general, children choose to eat the foods that they are served most often and that are readily available at home. Related to children's eating preferences and food choices are parents' beliefs, attitudes and preferences towards food.¹⁴ As soft drinks can impact on children's health, here are some tips that may help parents (and carers) to mitigate the negative effects of soft drinks on their children.

- * Be a role model by not drinking soft drinks at all or have some occasionally only;
- * Guide children choose water as the thirst quencher;
- * Do not offer soft drinks to young children;
- * Restrict children's access to soft drinks and do not keep soft drinks at home;
- * Do not offer soft drinks (or other food items) as rewards so as to avoid children associating food items with pleasure;
- * Provide children water or nutritious drinks (such as low-fat milks, pure fruit and vegetable juices) instead of soft drinks;
- * Check and compare the nutrition information and nutrition claims in food labels of pre-packaged drinks before buying for children;
- * Let children be aware of the health consequences of excessive consumption of soft drinks.



News Bites

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Benzoic acid is a commonly used preservative in foods and beverages (such as soft drinks and sauces). In recent years, concerns from the public about the potential adverse health effects of this chemical are increasing. As soft drinks are favourite non-alcoholic beverages among teenagers, the Centre for Food Safety of the Food and Environmental Hygiene Department conducted a study to estimate the dietary exposure to benzoic acid from pre-packaged beverages of secondary school students in Hong Kong.

The study used valid food consumption data of 856 secondary school students aged 11-19 years obtained in 2000 and the benzoic acid level detected in 211 samples of 5 prepackaged beverage groups available locally in late 2006. Results showed almost all samples (99.1%) were found to contain a benzoic acid concentration lower than the maximum permitted level prescribed by law. While no benzoic acid was detected in soy milk, Chinese tea and coffee/tea samples, the concentrations in benzoic acid-containing soft drink and fruit juice samples ranged from 51 to 580 mg/kg. The average dietary exposure to benzoic acid from pre-packaged beverages of secondary school students was 0.31 mg/kg body weight/day, which accounted for 6.1% of the acceptable daily intake (ADI). For high consumers (95th percentile), the corresponding figure was 0.97 mg/kg body weight/day, which accounted 19.3% of the ADI.

In conclusion, the exposure levels to benzoic acid from pre-packaged beverages of secondary school students fell well below the ADI (0-5 mg/kg body weight/day) established by Joint Food and Agriculture Organization of the United Nations (FAO)/World Health Organization (WHO) Expert Committee on Food Additives in 1996. However, it is still worthy to bear in mind that drinking too much soft drinks could harm health.

[Source: Ma KM, Chan CM, Chung SWC, et al. Dietary exposure of secondary school students in Hong Kong to benzoic acid in pre-packaged non-alcoholic beverages. *Food Additives and Contaminants* 2009; 26(1): 12-6.]



Data Brief

A household survey conducted by the Department of Health in 2005/2006 on the health of local children aged 0-14 found that they generally enjoyed good health. Overall, 92.2% of children aged 0 to 5 and 91.9% of children aged 6 to 10 were rated as having “excellent”, “very good” or “good” general health status by their parents. For children aged 11 to 14, 82.9% of them self-rated their general health status as “excellent”, “very good” or “good”.

Parental or self-rated of general health status among children aged 0-14

General health status	Children aged 0-5 (parent-rated)	Children aged 6-10 (parent-rated)	Children aged 11-14 (self-rated)
Excellent	9.0%	8.1%	10.1%
Very good	56.7%	55.2%	44.4%
Good	26.5%	28.6%	28.4%
Fair	5.9%	6.0%	11.3%
Poor	0.4%	0.2%	0.5%
Unknown / Missing	1.5%	1.8%	5.4%
Total	100.0%	100.0%	100.0%

Source: Child Health Survey 2005/2006.

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