

Soft Drinks, Hard Facts

According to the World Health Organisation, 63% of Irish children consume one can of soft drink every 24 hours. Irish children consume a lot of soft drinks [1], and this is borne out by our own surveys in National and post-primary schools in Co. Clare.

Most people view soft drink consumption as fairly innocuous. However, there are a number of serious health issues associated with regular consumption of soft drinks. One peer-reviewed study has reported 25 separate harmful effects associated with the consumption of carbonated soft drinks [2]. It appears that soft drink consumption is not as harmless as generally believed, and the level of soft drink consumption amongst Irish children is a cause for concern. We have presented some of the harmful effects of soft drink consumption below.

Bone Health

The development of bone mass during adolescence is important for life-long bone health, particularly in girls [3], with nearly 40% of peak bone mass being laid down during adolescence. Numerous scientific studies have found that regular soft drink consumption has a deleterious effect upon bone health.

It has been reported that girls in Northern Ireland regularly drinking carbonated soft drinks (cola, non-cola and diet carbonated soft drinks) had reduced bone mineral density [1]. Cola intake has been associated with increased risk of bone fracture in children [4], and bone mineralisation in adolescent girls is affected by soft drink consumption [3]. Consumption of cola drinks reduces femoral mineral density in rats [5], and human studies show that regular moderate consumption of soft drinks (1.5 litres per week) is associated with hypocalcaemia (reduced levels of calcium) [6]. Regular consumption of carbonated soft drinks, particularly in adolescent girls, may lead to osteoporosis in later life [7].

Obesity and Type II Diabetes

Consumption of soft drinks containing sugar has been linked to weight gain and an increased risk for development of type 2 diabetes, possibly due to caloric imbalance along with the provision of large amounts of rapidly absorbable sugars [8]. There is a probable link between the consumption of sugar-sweetened soft drinks and excess weight gain/obesity [9]. It has been suggested that the over consumption of high fructose corn syrup in soft drinks may contribute to obesity [10], and that rising soft drink consumption may have contributed significantly to the epidemic of childhood obesity in the United States [11].

Other Health Issues

It has been reported that the consumption of cola drinks is a risk factor for the formation of kidney stones [12, 13]. Consuming carbonated soft drinks is strongly correlated with dental erosion/ caries [14-16]. One study reported that drinking Coca-Cola more than three times a week increased the risk of dental erosion threefold [15].

Summary of the Scientific Evidence

There is compelling evidence that regular consumption of soft drinks leads to:

- Increased rates of bone fracture
- Increased long-term risk for osteoporosis (particularly in girls)
- Increased risk for overweight and obesity
- Increased risk for Type II Diabetes
- Increased risk for kidney stones
- Increased risk for dental problems

A number of agencies, including the American Academy of Pediatrics have recommended that sweetened drinks should not be available in schools [17, 18].

Soft Drink Promotions

Soft drinks companies often promote their products in subtle ways. For example, coca-cola currently promote their products in Ireland by hosting a music download site called "mycokemusic.com". Other drinks companies have similar "cool" advertising campaigns, which are frequently disingenuous (e.g. Lucozade Sport's "33% longer" campaign).

Recommendations

Banning soft drinks outright would be counter-productive, but schools may consider instituting a "soft" ban whereby soft drinks are not sold at school, and the consumption of soft drinks is disallowed within school buildings. Students may drink soft drinks outside school buildings. This is instituted on the basis that the school has a duty of care to the student, and needs to be combined with educational measures aimed at empowering children to make healthy choices.

Education

- Children should be made aware that they are a target market
- Children need to be made aware of the health consequences of regular consumption of soft drinks
- Teachers, parents and school authorities need to be aware of the health issues surrounding the over-consumption of soft drinks
- SPHE teachers should be supported with relevant technical information

Supply Issues

- Vending machines selling soft drinks and juice flavoured drinks should be eliminated from schools
- Schools should consider restricting the consumption of soft drinks within school buildings
- Water fountains should be installed where possible
- Water vending machines should be installed where water fountains are unavailable
- Bottled water can be made cheaply available in schools, an economic incentive which helps to shift consumption away from soft drinks
- Schools should have tight control over drinks sold in school, and these should be limited to water or milk (preferably low-fat)
- Advertising for soft drinks should be eliminated in schools

Summary

We contend that soft drink consumption is problematic amongst children in Ireland and the UK. We feel that children, teachers and parents need to be made more aware of this issue, and we also feel that there should be limits placed on the supply of soft drinks in schools, leisure centres and other public buildings. Reduced consumption of soft drinks will be beneficial for our children's long term health and will help with behavioural difficulties.

References

1. McGartland, C., et al., *Carbonated soft drink consumption and bone mineral density in adolescence: the Northern Ireland Young Hearts project*. J Bone Miner Res, 2003. **18**(9): p. 1563-9.
2. Amato, D., et al., *[Soft-drinks and health]*. Rev Invest Clin, 1997. **49**(5): p. 387-95.
3. Whiting, S.J., et al., *Factors that affect bone mineral accrual in the adolescent growth spurt*. J Nutr, 2004. **134**(3): p. 696S-700S.
4. Ma, D. and G. Jones, *Soft drink and milk consumption, physical activity, bone mass, and upper limb fractures in children: a population-based case-control study*. Calcif Tissue Int, 2004. **75**(4): p. 286-91.
5. Garcia-Contreras, F., et al., *Cola beverage consumption induces bone mineralization reduction in ovariectomized rats*. Arch Med Res, 2000. **31**(4): p. 360-5.
6. Mazariegos-Ramos, E., et al., *Consumption of soft drinks with phosphoric acid as a risk factor for the development of hypocalcemia in children: a case-control study*. J Pediatr, 1995. **126**(6): p. 940-2.
7. Wyshak, G. and R.E. Frisch, *Carbonated beverages, dietary calcium, the dietary calcium/phosphorus ratio, and bone fractures in girls and boys*. J Adolesc Health, 1994. **15**(3): p. 210-5.
8. Schulze, M.B., et al., *Sugar-sweetened beverages, weight gain, and incidence of type 2 diabetes in young and middle-aged women*. Jama, 2004. **292**(8): p. 927-34.
9. Swinburn, B.A., et al., *Diet, nutrition and the prevention of excess weight gain and obesity*. Public Health Nutr, 2004. **7**(1A): p. 123-46.
10. Bray, G.A., S.J. Nielsen, and B.M. Popkin, *Consumption of high-fructose corn syrup in beverages may play a role in the epidemic of obesity*. Am J Clin Nutr, 2004. **79**(4): p. 537-43.
11. St-Onge, M.P., K.L. Keller, and S.B. Heymsfield, *Changes in childhood food consumption patterns: a cause for concern in light of increasing body weights*. Am J Clin Nutr, 2003. **78**(6): p. 1068-73.
12. Rodgers, A., *Effect of cola consumption on urinary biochemical and physicochemical risk factors associated with calcium oxalate urolithiasis*. Urol Res, 1999. **27**(1): p. 77-81.
13. Weiss, G.H., P.M. Sluss, and C.A. Linke, *Changes in urinary magnesium, citrate, and oxalate levels due to cola consumption*. Urology, 1992. **39**(4): p. 331-3.

14. Al-Dlaigan, Y.H., L. Shaw, and A. Smith, *Dental erosion in a group of British 14-year-old school children. Part II: Influence of dietary intake.* Br Dent J, 2001. **190**(5): p. 258-61.
15. Jensdottir, T., et al., *Relationship between dental erosion, soft drink consumption, and gastroesophageal reflux among Icelanders.* Clin Oral Investig, 2004. **8**(2): p. 91-6.
16. Shenkin, J.D., et al., *Soft drink consumption and caries risk in children and adolescents.* Gen Dent, 2003. **51**(1): p. 30-6.
17. White, A.A., S. Nitzke, and K.E. Peterson, *Are soft drinks getting a bum rap? We don't think so.* J Nutr Educ Behav, 2004. **36**(5): p. 266-71.
18. Murray, R.D., *Soft drinks in schools.* Pediatrics, 2004. **113**(1 Pt 1): p. 152-4.

Copyright © RedBranch Human Performance Ltd 2006
You may freely copy and distribute this document provided that you retain our logo and contact details.