

In 2000, the global consumption of carbonated soft drinks (soda) reached 179 billion liters—29.4 liters per person.<sup>1</sup> (See Figure 1.) Soda maintained its ranking as the third most popular commercial beverage and edged closer to milk, which fell to 196 billion liters (32.2 liters per person).<sup>2</sup> While milk consumption fell 3.0 percent between 1999 and 2000, soda consumption grew 2.9 percent.<sup>3</sup>

The United States, with less than 5 percent of the world's population, is the largest soda consumer and accounted for one third of total soda consumption in 1999.<sup>4</sup> (See Table 1.) The 58 billion liters sold there generated \$48 billion dollars in revenue for the soda industry.<sup>5</sup> Soda is already the number one drink for Americans, who took in an average of 211 liters of it in 1999—compared with 109 liters of tap water.<sup>6</sup>

This rapid growth in soda consumption is also occurring in the developing world. China, with about a fifth of the world's population, is the fourth largest consumer of soda.<sup>7</sup> Between 1994 and 1999, per capita consumption in China grew 60 percent, to 7 liters per year.<sup>8</sup> Annual per capita consumption in Brazil, the third largest soda market, also shot up 60 percent between 1994 and 1999, reaching 61 liters per person.<sup>9</sup>

Unlike juices or milk, which contain vitamins and important minerals like calcium, soda consists of carbonated water, sweeteners (either caloric or high-intensity), flavoring, and in many cases caffeine. Consumption of these calorie-dense but nutritionally devoid drinks often displaces healthier foods, which can lead to dietary deficiencies.<sup>10</sup>

In the United States, as soda consumption doubled between 1970 and 1999, milk consumption fell 25 percent.<sup>11</sup> During this period, total calcium intake by children fell significantly.<sup>12</sup> A recent study found that children who drank soda took in a significantly smaller amount of vitamin A and calcium each day than those who drank milk.<sup>13</sup> As calcium is cen-

tral to building strong bones, and as most bone mass in women is built by age 18, an increase in osteoporosis rates is a real threat.<sup>14</sup> A recent preliminary study found that drinking soda is significantly associated with increased prevalence of bone fractures in active adolescent women.<sup>15</sup>

As soda is a large source of added sugars and calories, it can also contribute to obesity. A recent study showed a direct correlation between consumption of sugar-sweetened drinks and childhood obesity.<sup>16</sup> The results suggested that children increase their odds of becoming obese by 60 percent with each additional sugar-sweetened drink they consume.<sup>17</sup> In America, overweight and obesity among children have tripled to 14 percent since 1970, and have increased to 61 percent among adults.<sup>18</sup> On average, Americans consumed about 185 calories from soda each day in 1999, which is more than the suggested daily maximum of added sugars.<sup>19</sup>

Soda consumption can also contribute to tooth decay. Although all sugars can cause tooth decay, soda is a primary concern because it is often consumed between meals or sipped over a long period, which prolongs the time that sugars remain in the mouth.<sup>20</sup>

Of the top 10 global brands of soda, more than 80 percent of the volume sold in 1999 contained caffeine.<sup>21</sup> This mood-altering drug

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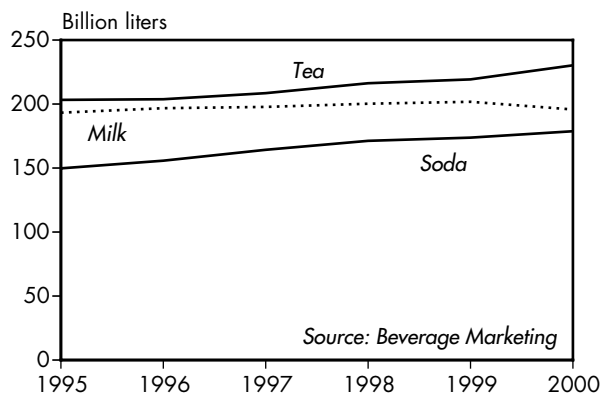


Figure 1: World Beverage Consumption, 1995–2000

is physiologically and psychologically addictive and can produce physical dependence with a daily intake of just 100 milligrams.<sup>22</sup> Coca-Cola, the world's most popular brand, contains 34 milligrams of caffeine per 355-milliliter can.<sup>23</sup> Because the effects of caffeine are weight-proportionate, a child will be more strongly affected by a small amount of caffeine.<sup>24</sup> While caffeine is supposedly added to enhance soda's flavor, a recent study found that only a small percentage of consumers were able to tell the difference between caffeinated and caffeine-free colas.<sup>25</sup>

The soda industry aggressively markets its products. In 2000, the two largest soft drink corporations, the Coca-Cola Company and PepsiCo., spent \$4.6 billion worldwide on advertising.<sup>26</sup> A significant portion of this directly targets children, often connecting soda with children's heroes. For example, Coca-Cola signed an exclusive \$150-million global contract with Warner Brothers, the producer of *Harry Potter and the Philosopher's Stone*, to be the sole marketing partner for the movie.<sup>27</sup>

The soda industry also markets to children in schools, often signing exclusive marketing contracts with school boards, which in many cases tie monetary bonuses to a minimum amount of soda sold. In response, some schools have ended contracts after community objections.<sup>28</sup> In early 2001, Coca-Cola announced that it would start selling more nutritious beverages along with soda in U.S. schools.<sup>29</sup> Yet this change is probably as motivated by economic considerations as by grassroots pressure—recognizing that the U.S. soda market is saturated, Coca-Cola has started to diversify its product base to include other soft drinks such as water, juices, and sports drinks.<sup>30</sup>

With obesity becoming a global epidemic, health organizations and governments are trying to encourage healthier diets and lifestyles.<sup>31</sup>

**Table 1: Market Share and Per Capita Consumption of Carbonated Soft Drinks, Top Five Countries, 1999**

Country	Share of Global Market (percent)	Per Capita Consumption (liters)	Growth Per Capita, 1994-99 (percent)
United States	33	211	10
Mexico	8	146	-3
Brazil	6	61	60
China	5	7	60
Germany	4	92	18
Top Five	57	53	15

Source: Beverage Marketing, *The Global Beverage Marketplace, 2001 Edition* (New York: 2001).

In a recent campaign, the Washington-based Center for Science in the Public Interest mobilized the health and education communities to “Save Harry Potter” from Coca-Cola and prevent children from being the target of an aggressive advertising campaign.<sup>32</sup>

Several countries have restricted the marketing of products to children. In Poland, for example, there is a ban on all television and radio marketing to children, which has significantly reduced product sales, including of soda.<sup>33</sup> Sweden also bans advertising to children on TV. But because of the strong presence of satellite TV, to which the ban does not apply, this has had less impact on consumption.<sup>34</sup>

In the United States, several states tax soda and other “junk foods.” California, for example, has a 7.25-percent sales tax on soft drinks, which results in an annual revenue of \$218 million.<sup>35</sup> Junk food taxes help reduce consumption of these unhealthy, often packaging-intensive foods and beverages. Further, while these taxes currently go to general funds, using them to counteract the huge advertising budgets of the soda and other junk food industries would help counter their pervasive messages and educate consumers about the importance of a healthy diet.

### SODA CONSUMPTION GROWS

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1. Beverage Marketing, *The Global Beverage Marketplace, 2001 Edition* (New York: 2001), p. 5. Data from 2000 are the most recent available globally; 1999 is the most recent year for national data. Note that carbonated soft drinks are a smaller category than “soft drinks,” which include ready-to-drink teas and coffees, sports drinks, and fruitless “fruit drinks” and concentrates.
2. Beverage Marketing, op. cit. note 1, p. 5.
3. *Ibid.*, p. 7.
4. U.S. Bureau of the Census, *International Data Base*, electronic database, updated 10 May 2000; Beverage Marketing, op. cit. note 1, p. 58.
5. John Rowdan, Beverage Marketing, e-mail to author, 23 January 2002.
6. Average U.S. soda consumption from Beverage Marketing, op. cit. note 1, p. 72; tap water from John Sicher, *Beverage Digest*, e-mail to author, 17 December 2001.
7. Census Bureau, op. cit. note 4; Beverage Marketing, op. cit. note 1, p. 53.
8. Beverage Marketing, op. cit. note 1, p. 67.
9. *Ibid.*, p. 66.
10. Less than a quarter of carbonated soft drinks are diet, providing few to no calories; U.S. Department of Agriculture (USDA), Economic Research Service, *Per Capita Food Consumption Data System: Beverages*, at <[www.ers.usda.gov/Data/FoodConsumptionSpreadsheets/beverage.xls](http://www.ers.usda.gov/Data/FoodConsumptionSpreadsheets/beverage.xls)>, viewed 13 January 2002, and Euromonitor International, “Soft Drinks: The International Market, 2001 Edition,” from Trudy Griggs, e-mail to author, 19 December 2001. While diet soda does not provide calories, the safety of high-intensity sweeteners remains controversial, so consuming diet soda is not necessarily the healthier alternative.
11. USDA, op. cit. note 10.
12. Claude Cavadini et al., “U.S. Adolescent Food Intake Trends from 1965 to 1996,” *Archives of Disease in Childhood*, vol. 83, no. 1 (2000), p. 19.
13. Carol Ballew et al., “Beverage Choices Affect Adequacy of Children’s Nutrient Intakes,” *Archives of Pediatrics and Adolescent Medicine*, November 2000, p. 1148.
14. National Osteoporosis Foundation, “Disease Statistics—Fast Facts,” at <[www.nof.org/osteoporosis/stats.htm](http://www.nof.org/osteoporosis/stats.htm)>, viewed 23 January 2002.
15. Grace Wyshak, “Teenaged Girls, Carbonated Beverage Consumption, and Bone Fractures,” *Archives of Pediatrics and Adolescent Medicine*, June 2000, p. 612.
16. David S. Ludwig et al., “Relationship Between Consumption of Sugar-Sweetened Drinks and Childhood Obesity: A Prospective, Observational Analysis,” *The Lancet*, 17 February 2001, p. 507. These drinks refer to ones with added sweeteners, not ones with naturally occurring sugars such as juices.
17. Ludwig et al., op. cit. note 16, p. 507.
18. U.S. Department of Health and Human Services, *The Surgeon General’s Call to Action to Prevent and Decrease Overweight and Obesity, 2001*, at <[www.surgeongeneral.gov/topics/obesity/calltoaction/CalltoAction.pdf](http://www.surgeongeneral.gov/topics/obesity/calltoaction/CalltoAction.pdf)>, viewed 16 January 2002.
19. Estimate derived from Beverage Marketing, op. cit. note 1, p. 58, from USDA, op. cit. note 10, and from using an average of 100 calories per 240 milliliter serving of non-diet soda; daily maximum from Judy Putnam et al., “Per Capita Food Supply Trends: Progress Toward Dietary Guidelines,” *FoodReview*, September–December 2000, p. 12.
20. “Soft Drinks and Dental Caries: A Current Controversy,” *The Colgate Oral Care Report*, <[www.colgateprofessional.com/cp/ColPro.class/jsp/continuinged/OCR\\_11-3.pdf](http://www.colgateprofessional.com/cp/ColPro.class/jsp/continuinged/OCR_11-3.pdf)>, viewed 21 January 2002.
21. Euromonitor International, op. cit. note 10.
22. Roland R. Griffiths and Ellen M. Vernotica, “Is Caffeine a Flavoring Agent in Cola Soft Drinks?” *Archives of Family Medicine*, August 2000, p. 732.
23. National Soft Drink Association, at <[www.nsda.org/WhatsIn/caffeinecontent.html](http://www.nsda.org/WhatsIn/caffeinecontent.html)>, viewed 21 January 2002; 34 milligrams is equivalent to about a third of a cup of coffee.
24. Ronald R. Watson, “Caffeine: Is it Dangerous to Health?” *American Journal of Health Promotion*, spring 1988; Roland Griffiths, Johns Hopkins University School of Medicine, e-mail to author, 22 January 2002.
25. Griffiths and Vernotica, op. cit. note 22, p. 731.
26. Ad Age Global, “Top Ten by Media Ad Spending Outside the US,” at <[www.adageglobal.com/cgi-bin/pages.pl?link=498](http://www.adageglobal.com/cgi-bin/pages.pl?link=498)>, viewed 21 January 2002.
27. Warner Brothers, press release, at <[movies.warnerbros.com/pub/cmp/releases/cokehpb.htm](http://movies.warnerbros.com/pub/cmp/releases/cokehpb.htm)>, viewed 21 January 2002; SaveHarry.com, press release, at <[www.saveharry.com/pressreleaseB](http://www.saveharry.com/pressreleaseB)>.

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28. Kate Zernike, "Coke to Dilute Push in Schools for Its Products," *New York Times*, 14 March 2001.
  29. Coca-Cola North America, press release, at <[www.twbg.com/whats\\_news/20010304Coke.html](http://www.twbg.com/whats_news/20010304Coke.html)>, viewed 22 January 2002.
  30. Coca-Cola Company, *2000 Annual Report*, at <[annualreport2000.coca-cola.com/downloads/ko00ar.pdf](http://annualreport2000.coca-cola.com/downloads/ko00ar.pdf)> viewed 11 March 2002.
  31. Barry M. Popkin and Colleen M. Doak, "The Obesity Epidemic Is a Worldwide Phenomenon," *Nutrition Reviews*, April 1998, pp. 106–14.
  32. SaveHarry.com, op. cit. note 28.
  33. Euromonitor International, "Marketing to Children: A World Survey, 2001 Edition," from Trudi Griggs, e-mail to author, 25 January 2002.
  34. Ibid.
  35. Michael F. Jacobson and Kelly D. Brownell, "Small Taxes on Soft Drinks and Snack Foods to Promote Health," *American Journal of Public Health*, June 2000, pp. 854–57.