## THE PROBLEM: SUGARY DRINKS ARE A MAJOR CONTRIBUTOR TO THE OBESITY EPIDEMIC

Two out of three adults and one out of three children in the United States are overweight or obese, ${ }^{1,2}$ and the nation spends an estimated $\$ 190$ billion a year treating obesity-related health conditions. ${ }^{3}$ Rising consumption of sugary drinks has been a major contributor to the obesity epidemic. ${ }^{4}$ A typical 20-ounce soda contains 15 to 18 teaspoons of sugar and upwards of 240 calories. A 64-ounce fountain cola drink could have up to 700 calories. ${ }^{5}$ People who drink this "liquid candy" do not feel as full as if they had eaten the same calories from solid food and do not compensate by eating less. ${ }^{6}$

Beverage companies in the US spent roughly $\$ 3.2$ billion marketing carbonated beverages in 2006, with nearly a half billion dollars of that marketing aimed directly at youth ages $2-17.7$ And each year, youth see hundreds of television ads for sugar-containing drinks. In 2010, for example, preschoolers viewed an average of 213 ads for sugary drinks and energy drinks, while children and teens watched an average of 277 and 406 ads, respectively. ${ }^{8}$ Yet the beverage industry aggressively rebuffs suggestions that its products and marketing tactics play any role in the obesity epidemic. ${ }^{9}$ Adding to the confusion, beverage industry-funded studies are four to eight times more likely to show a finding favorable to industry than independently-funded studies. ${ }^{10}$ This fact sheet assembles key scientific evidence on the link between sugary drink consumption and obesity.

## THE EVIDENCE: SOFT DRINK CONSUMPTION IS ON THE RISE—AND RISING CONSUMPTION HARMS HEALTH

Sugary drink portion sizes have risen dramatically over the past 40 years, and children and adults are drinking more soft drinks than ever.

- Before the 1950 s , standard soft-drink bottles were 6.5 ounces. In the 1950 s , soft-drink makers introduced larger sizes, including the 12 -ounce can, which became widely available in $1960 .{ }^{.11}$ By the early 1990 s, 20-ounce plastic bottles became the norm. ${ }^{12}$ Today, contour-shaped plastic bottles are available in even larger sizes, such as the 1.25-liter (42ounce) bottle introduced in 2011. ${ }^{13}$
- In the 1970 s, sugary drinks made up about $4 \%$ of US daily calorie intake; by 2001 , that had risen to about $9 \% .{ }^{14}$
- Children and youth in the US averaged 224 calories per day from sugary beverages in 1999 to 2004—nearly $11 \%$ of their daily calorie intake. ${ }^{15}$ From 1989 to 2008, calories from sugary beverages increased by $60 \%$ in children ages 6 to 11, from 130 to 209 calories per day, ${ }^{16}$ and the percentage of children consuming them rose from $79 \%$ to $91 \%$.
- On any given day, half the people in the United States consume sugary drinks; 1 in 4 get at least 200 calories from such drinks; and $5 \%$ get at least 567 calories-equivalent to four cans of soda. ${ }^{17}$ Sugary drinks (soda, energy, sports drinks) are the top calorie source in teens' diets ( 226 calories per day), beating out pizza ( 213 calories per day). ${ }^{18}$

Sugary drinks increase the risk of obesity, diabetes, heart disease, and gout.

- A 20-year study on 120,000 men and women found that people who increased their sugary drink consumption by one 12-ounce serving per day gained more weight over time-on average, an extra pound every four years-than people who did not change their intake. ${ }^{19}$ Other studies have found a significant link between sugary drink consumption and weight gain in children. ${ }^{20}$ One study found that for each additional 12-ounce soda children consumed each day, the odds of becoming obese increased by $60 \%$ during $1 \frac{1}{2}$ years of follow-up. ${ }^{21}$
- People who consume sugary drinks regularly—one to two cans a day or more—have a $26 \%$ greater risk of developing type 2 diabetes than people who rarely have such drinks. ${ }^{22}$ Risks are even greater in young adults and Asians.
- A study that followed 40,000 men for two decades found that those who averaged one can of a sugary beverage per day had a $20 \%$ higher risk of having a heart attack or dying from a heart attack than men who rarely consumed sugary drinks. ${ }^{23}$ A related study in women found a similar sugary beverage-heart disease link. ${ }^{24}$
- A 22 -year study of 80,000 women found that those who consumed a can a day of sugary drink had a $75 \%$ higher risk of gout than women who rarely had such drinks. ${ }^{25}$ Researchers found a similarly-elevated risk in men. ${ }^{26}$

Cutting back on sugary drinks can help people control their weight.

- Studies in children and adults have found that reducing sugary drink consumption can lead to better weight control among those who are initially overweight. ${ }^{27,28}$


## REFERENCES

1. Ogden CL, Carroll MD, Kit BK, Flegal KM. Prevalence of obesity and trends in body mass index among US children and adolescents, 1999-2010. JAMA. 2012;307(5):483-490.
2. Flegal KM, Carroll MD, Kit BK, Ogden CL. Prevalence of obesity and trends in the distribution of body mass index among US adults, 1999-2010. JAMA. 2012;307(5):491-497.
3. Cawley J, Meyerhoefer C. The medical care costs of obesity: an instrumental variables approach. J Health Econ. 2012;31(1):219230.
4. Institute of Medicine. Accelerating Progress in Obesity Prevention: Solving the Weight of the Nation. Washington, DC: National Academies Press; 2012.
5. US Department of Agriculture. Nutrient data for 14400, Carbonated beverage, cola, contains caffeine. National Nutrient Database for Standard Reference, Release 24. 2012. http://ndb.nal.usda.gov/ndb/foods/show/4337. Accessed June 21, 2012.
6. Pan A, Hu FB. Effects of carbohydrates on satiety: differences between liquid and solid food. Curr Opin Clin Nutr Metab Care. 2011;14(4):385-390.
7. US Federal Trade Commission. Marketing Food to Children and Adolescents: A Review of Industry Expenditures, Activities, and SelfRegulation. Washington, DC: US Federal Trade Commission; 2008.
8. Harris J, Schwartz MB, Brownell KD, et al. Sugary Drink FACTS: Evaluating Sugary Drink Nutrition and Marketing to Youth. New Haven, CT: Rudd Center for Food Policy and Obesity; 2011.
9. Coca-Cola: Don't blame us for obesity epidemic! The New York Daily News. June 8, 2012.
10. Lesser LI, Ebbeling CB, Goozner M, Wypij D, Ludwig DS. Relationship between funding source and conclusion among nutrition-related scientific articles. PLoS Med. 2007;4(1):e5.
11. The Coca-Cola Company. History of Bottling. http://www.thecoca-colacompany.com/ourcompany/historybottling.html. Accessed June 21, 2012.
12. Jacobson M. Liquid Candy: How Soft Drinks are Harming Americans' Health. Washignton, DC: Center for Science in the Public Interest; 2005.
13. The Coca-Cola Company. 1.25 For 125! New 1.25 Liter Coca-Cola Package Rolls Out as Part of Brand's 125 th Anniversary Celebration. 2011; http://www.thecoca-colacompany.com/dynamic/press_center/2011/05/125-for-125.html. Accessed June 25, 2012.
14. Nielsen SJ, Popkin BM. Changes in beverage intake between 1977 and 2001. Am J Prev Med. 2004;27(3):205-210.
15. Wang YC, Bleich SN, Gortmaker SL. Increasing caloric contribution from sugar-sweetened beverages and $100 \%$ fruit juices among US children and adolescents, 1988-2004. Pediatrics. 2008;121(6):e1604-1614.
16. Lasater G, Piernas C, Popkin BM. Beverage patterns and trends among school-aged children in the US, 1989-2008. Nutr J. 2011;10:103.
17. Ogden CL, Kit BK, Carroll MD, Park S. Consumption of sugar drinks in the United States, 2005-2008. NCHS Data Brief. 2011(71):1-8.
18. National Cancer Institute. Risk Factor Monitoring and Methods. Mean Intake of Energy and Mean Contribution (kcal) of Various Foods Among US Population, by Age, NHANES 2005-06. http://riskfactor.cancer.gov/diet/foodsources/. Accessed June 21, 2012.
19. Mozaffarian D, Hao T, Rimm EB, Willett WC, Hu FB. Changes in diet and lifestyle and long-term weight gain in women and men. N Engl J Med. 2011;364(25):2392-2404.
20. Malik VS, Willett WC, Hu FB. Sugar-sweetened beverages and BMI in children and adolescents: reanalyses of a meta-analysis. $A m$ $J$ Clin Nutr. 2009;89(1):438-439; author reply 439-440.
21. Ludwig DS, Peterson KE, Gortmaker SL. Relation between consumption of sugar-sweetened drinks and childhood obesity: a prospective, observational analysis. Lancet. 2001;357(9255):505-508.
22. Malik VS, Popkin BM, Bray GA, Despres JP, Willett WC, Hu FB. Sugar-sweetened beverages and risk of metabolic syndrome and type 2 diabetes: a meta-analysis. Diabetes Care. 2010;33(11):2477-2483.
23. de Koning L, Malik VS, Kellogg MD, Rimm EB, Willett WC, Hu FB. Sweetened beverage consumption, incident coronary heart disease, and biomarkers of risk in men. Circulation. 2012;125(14):1735-1741, S1731.
24. Fung TT, Malik V, Rexrode KM, Manson JE, Willett WC, Hu FB. Sweetened beverage consumption and risk of coronary heart disease in women. Am J Clin Nutr. 2009;89(4):1037-1042.
25. Choi HK, Willett W, Curhan G. Fructose-rich beverages and risk of gout in women. JAMA. 2010;304(20):2270-2278.
26. Choi HK, Curhan G. Soft drinks, fructose consumption, and the risk of gout in men: prospective cohort study. BMJ. 2008;336(7639):309-312.
27. Ebbeling CB, Feldman HA, Osganian SK, Chomitz VR, Ellenbogen SJ, Ludwig DS. Effects of decreasing sugar-sweetened beverage consumption on body weight in adolescents: a randomized, controlled pilot study. Pediatrics. 2006;117(3):673-680.
28. Tate DF, Turner-McGrievy G, Lyons E, et al. Replacing caloric beverages with water or diet beverages for weight loss in adults: main results of the Choose Healthy Options Consciously Everyday (CHOICE) randomized clinical trial. Am J Clin Nutr. 2012;95(3):555-563.

Prepared by the Department of Nutrition at Harvard School of Public Health. For more information about sugary drinks and healthier options, visit The Nutrition Source, www.hsph.harvard.edu/nutritionsource/healthy-drinks/.

