

# Health Effects

To provide you with the best science and reduce review time, use the following science-approved facts in your campaigns and materials. After each fact, you will find fast facts based on the science, which can be cut and pasted word-for-word without additional science review. Note that any change in wording will require your documents go through the science review process before release.

## What is a sugary drink?

The American Heart Association defines sugary drinks as any nonalcoholic beverage, whether carbonated or noncarbonated, sold for human consumption that contains any added sugars.

This includes sports drinks, lemonade, energy drinks, sweetened coffee and teas, fruit drinks with added sugar and full-calorie soda. Animal milk, 100% juice, unsweetened waters, teas and coffees, diet drinks, plant-based milk with fewer than 5 grams of added sugars per 8 ounces, infant formula and medically necessary beverages are not considered sugary drinks.

## Health effects — all

### FACT 1

Consuming sugary drinks sets up children for a lifetime of health challenges that include type 2 diabetes, tooth decay, and heart disease.

#### Fast Facts:

- ▶ Consuming sugary drinks sets up children for a lifetime of health challenges including type 2 diabetes.
- ▶ Consuming sugary drinks sets up children for a lifetime of health challenges, including tooth decay.
- ▶ Consuming sugary drinks sets up children for a lifetime of health challenges, including heart disease.

#### Source:

Muth ND, Dietz WH, Magge SN, Johnson RK; AMERICAN ACADEMY OF PEDIATRICS; SECTION ON OBESITY; COMMITTEE ON NUTRITION; AMERICAN HEART ASSOCIATION. Public policies to reduce sugary drink consumption in children and adolescents. *Pediatrics*. 2019; 143(4):e20190282. doi: 10.1542/peds.2019-0282.

### FACT 2

People with low incomes and people of color disproportionately experience higher rates of chronic diseases such as type 2 diabetes and heart disease, that are associated with sugary drinks.

#### Fast Facts:

- ▶ People with low incomes disproportionately experience higher rates of chronic diseases, including type 2 diabetes and heart disease, that are associated with sugary drinks.
- ▶ People of color disproportionately experience higher rates of chronic diseases, including type 2 diabetes and heart disease, that are associated with sugary drinks.

- ▶ People with low incomes and people of color disproportionately experience higher rates of chronic diseases, such as type 2 diabetes and heart disease, that are associated with sugary drinks.
- ▶ People with low incomes and people of color disproportionately experience higher rates of chronic diseases associated with sugary drinks.

**Source:**

Healthy Food America. Inequities in sugary drink-related diseases by race/ethnicity and income. Research Brief. January 2020. Available at: [https://d3n8a8pro7vymx.cloudfront.net/healthyfoodamerica/pages/436/attachments/original/1580248276/Data\\_on\\_SSB\\_Related\\_Diseases\\_FINAL\\_1.26.20.pdf?1580248276](https://d3n8a8pro7vymx.cloudfront.net/healthyfoodamerica/pages/436/attachments/original/1580248276/Data_on_SSB_Related_Diseases_FINAL_1.26.20.pdf?1580248276).

**FACT 3**

Consuming too many sugary drinks leads to weight gain and chronic diseases in both children and adults. Early research shows a strong connection between COVID-19 and obesity, with one study finding that obesity was the most prevalent underlying health condition among children hospitalized for COVID-19.

**Fast Facts:**

- ▶ Consuming too many sugary drinks leads to weight gain and chronic diseases in both children and adults.
- ▶ Some recent research links COVID-19 susceptibility and illness severity with obesity.
- ▶ One recent study found that obesity was the most prevalent underlying health condition among children hospitalized for COVID-19.

**Source:**

Muth ND, Dietz WH, Magge SN, Johnson RK; AMERICAN ACADEMY OF PEDIATRICS; SECTION ON OBESITY; COMMITTEE ON NUTRITION; AMERICAN HEART ASSOCIATION. Public policies to reduce sugary drink consumption in children and adolescents. *Pediatrics*. 2019; 143(4):e20190282. doi: 10.1542/peds.2019-0282.

Garg S, Kim L, Whitaker M, O'Halloran A, Cummings C, Holstein R, et al. Hospitalization rates and characteristics of patients hospitalized with laboratory-confirmed coronavirus disease 2019 – COVID-NET, 14 states, March 1-30, 2020. *MMWR*. 2020; 2020; 69(15):458-464.

**FACT 4**

In 2012, 50,000 deaths were associated with drinking too many sugary drinks. Of that, 40,000 deaths in the U.S. were attributed to heart problems and 10,000 deaths were attributed to type 2 diabetes caused by consuming too many sugary drinks.

**Fast Facts:**

- ▶ In 2012, approximately 40,000 people in the U.S. died from heart problems related to drinking too many sugary drinks.
- ▶ In 2012, approximately 10,000 people in the U.S. died from type 2 diabetes related to drinking too many sugary drinks.
- ▶ In 2012, approximately 50,000 people died from diseases related to drinking too many sugary drinks.
- ▶ In 2012, approximately 50,000 heart disease and type 2 diabetes deaths were associated with drinking too many sugary drinks.

**Source:**

Micha R, Peñalvo JL, Cudhea F, Imamura F, Rehm CD, Mozaffarian D. Association Between Dietary Factors and Mortality from Heart Disease, Stroke, and Type 2 Diabetes in the United States. *JAMA*. 2017; 317:912-24. doi: 10.1001/jama.2017.0947.

## FACT 5

A 2018 systematic review found that there is consistent evidence for the negative effect of sugary drinks on children's health. In particular, there is strong evidence that consumption of sugary drinks increases obesity risk and tooth decay among children and adolescents, with emerging evidence supporting an association with insulin resistance (a marker of increased cardiometabolic risk and type 2 diabetes) and caffeine-related effects (including reduced sleep quality and headaches).

### Fast Facts:

- ▶ Sugary drinks hurt/harm children's health.
- ▶ Sugary drinks hurt/harm children's health by increasing their risk of having obesity, tooth decay and type 2 diabetes.
- ▶ The caffeine found in some sugary drinks children's health by reducing their sleep quality and by giving them headaches.

### Source:

Bleich SN, Vercammen KA. The negative impact of sugar-sweetened beverages on children's health: an update of the literature. *BMC Obes.* 2018; 5:6. doi:10.1186/s40608-017-0178-9.

## Health effects — heart disease

## FACT 6

Sugary drinks increase the risk of hypertension and heart disease, independent of weight gain.

### Fast Facts:

- ▶ Sugary drinks increase the risk of heart disease.
- ▶ Sugary drinks increase the risk of high blood pressure.
- ▶ Sugary drinks increase the risk of high blood pressure and heart disease even without weight gain.
- ▶ Sugary drinks increase the risk of high blood pressure even without weight gain.
- ▶ Sugary drinks increase the risk of heart disease even without weight gain.

### Source:

Malik VS, Hu FB. Sugar-sweetened beverages and cardiometabolic health: an update of the evidence. *Nutrients.* 2019; pii:E1840. doi:10.3390/nu11081840.

## FACT 7

A 2015 review found that increasing sugary drink consumption by one serving per day may increase the risk of hypertension by 8% and the risk of heart disease by 17%.

### Fast Facts:

- ▶ Drinking one additional sugary drink each day increases a person's risk of heart disease by 17%.
- ▶ Drinking one additional sugary drink each day increases a person's risk of high blood pressure by 8%.
- ▶ A person is 17% more likely to develop heart disease if they drink one additional sugary drink each day.
- ▶ A person is 8% more likely to develop high blood pressure if they drink one additional sugary drink each day.

**Source:**

Xi B, Huang Y, Reilly KH, et al. Sugar-sweetened beverages and risk of hypertension and CVD: a dose-response meta-analysis. *Br J Nutr*. 2015; 113:709-17. doi: 10.1017/S0007114514004383.

**FACT 8**

Researchers from the Harvard School of Public Health found that people who drank two or more servings of sugary drinks per day had a 31% higher risk of death from heart disease, compared to people who drank less than one serving of sugary drinks per month. Each additional serving per day of sugary drinks increased the risk of dying from heart disease by 10%.

**Fast Facts:**

- ▶ Harvard researchers found that people who drink two sugary drinks each day have a 31% higher risk of dying from heart disease than people who drink less than one sugary drink each month.
- ▶ People who drink two sugary drinks each day have a 31% higher risk of dying from heart disease than people who drank less than one sugary drink each month.
- ▶ Each additional sugary drink a person consumes per day increases their risk of dying from heart disease by 10%.

**Source:**

Malik VS, Li Y, Pan A, De Koning L, Schernhammer E, Willett WC, Hu FB. Long-term consumption of sugar-sweetened and artificially sweetened beverages and risk of mortality in U.S. adults. *Circulation*. 2019; 139:2113-2125. doi: 10.1161/CIRCULATIONAHA.118.037401.

**FACT 9**

A 2020 study found that drinking a sugary drink (12 oz. of soda or 8 oz. of a fruit-flavored drink) daily was associated with a 53% higher incidence of high triglycerides and a 98% higher incidence of having low levels of HDL cholesterol (the “good” type), compared to those who drank less than one serving per month, over a mean of 12.5 years. These findings suggest that higher consumption of sugary drinks is associated with dyslipidemia, a risk factor for heart disease.

**Fast Facts:**

- ▶ Sugary drinks can lead to an imbalance in blood cholesterol, increasing the risk for heart disease.
- ▶ Drinking sugary drinks daily is associated with higher triglycerides and lower levels of good cholesterol, both of which can lead to heart disease.

**Source:**

McKeown N, Haslam D, Peloso G, Herman M, Dupuis J, Lichtenstein A, et al. Beverage consumption and longitudinal changes in lipoprotein concentration and incident dyslipidemia in U.S. adults: the Framingham Heart Study. *JAHA*. 2020; 8:e014083. doi: 10.1161/JAHA.119.014083.

## Health effects — type 2 diabetes

**FACT 10**

Emerging evidence shows an association between insulin resistance, a marker of type 2 diabetes risk, and sugary drink consumption in children and adolescents.

**Fast Facts:**

- ▶ Recent research links the risk of developing type 2 diabetes with sugary drink consumption in children and adolescents.

- ▶ Recent research suggests that children and adolescents who drink sugary drinks are more likely to develop type 2 diabetes.
- ▶ Children and adolescents who drink sugary drinks are more likely to develop type 2 diabetes.

**Source:**

Bleich SN, Vercammen KA. The negative impact of sugar-sweetened beverages on children's health: an update of the literature. *BMC Obes.* 2018; 5:6. doi: 10.1186/s40608-017-0178-9.

**FACT 11**

A 2015 review of studies found that each additional serving of sugary drinks per day increased the risk of type 2 diabetes by 13-18%. Over 10 years, about 2 million type 2 diabetes cases in the United States are attributable to consumption of sugary beverages.

**Fast Facts:**

- ▶ For each additional sugary drink a person consumes daily, their risk of developing type 2 diabetes increases by 13-18%.
- ▶ The risk for developing type 2 diabetes increases by 13-18% for each additional sugary drink a person consumes daily.
- ▶ It's estimated that 2 million people will develop type 2 diabetes over the next 10 years due to their consumption of sugary drinks.

**Source:**

Imamura F, O'Connor L, Ye Z, Mursu J, Hayashino Y, Bhupathiraju SN, Forouhi NG. Consumption of sugar-sweetened beverages, artificially sweetened beverages, and fruit juice and incidence of type 2 diabetes: systematic review, meta-analysis, and estimation of population attributable fraction. *BMJ.* 2015; 351. doi: 10.1136/bmj.h3576

**FACT 12**

A Harvard study found that replacing one daily serving of sugary beverage with water, coffee or tea was associated with a 2-10% lower type 2 diabetes risk.

**Fast Facts:**

- ▶ A Harvard study found that replacing one sugary drink each day with water, sugar-free coffee or sugar-free tea was associated with up to a 10% lower risk of developing type 2 diabetes.
- ▶ Exchanging just one sugary drink each day with water, sugar-free coffee or sugar-free tea was associated with decreasing the chance of developing type 2 diabetes by up to 10%.
- ▶ Want to decrease the risk of developing type 2 diabetes by up to 10%? Replace just one sugary drink each day with water, sugar-free coffee or sugar-free tea.
- ▶ People can reduce their risk of developing type 2 diabetes by up to 10% by replacing just one sugary drink each day with water, sugar-free coffee or sugar-free tea.

**Source:**

Drouin-Chartier JP, Zheng Y, Li Y, Malik V, Pan A, Bhupathiraju SN, et al. Changes in consumption of sugary beverages and artificially sweetened beverages and subsequent risk of type 2 diabetes: results from three large prospective U.S. cohorts of women and men. *Diabetes Care.* 2019; 42(12):2181-2189. doi: 10.2337/dc19-0734.

**FACT 13**

In the U.S., American Indian and Alaskan Native adults are almost three times more likely than non-Hispanic white adults to be diagnosed with diabetes (23.5% vs. 8.0%). In 2018, American Indian and Alaskan Native adults were 2.3 times more likely than non-Hispanic white adults to die from diabetes.

### **Fast Facts:**

- ▶ American Indians and Alaskan Natives are almost three times more likely than non-Hispanic whites adults to develop diabetes.
- ▶ Nearly 24% of American Indians and Alaskan Natives will develop diabetes in comparison to only 8% of non-Hispanic whites.
- ▶ American Indians and Alaskan Natives are 2.3 times more likely than non-Hispanic whites to die from diabetes.
- ▶ Diabetes kills American Indians and Alaskan Natives at a higher rate than non-Hispanic whites.

### **Source:**

U.S. Department of Health and Human Services, Office of Minority Health. Diabetes and American Indians/Alaska Natives. Updated March 2021. Available at: <https://minorityhealth.hhs.gov/omh/browse.aspx?lvl=4&lvlID=33> (based on CDC 2021. Summary Health Statistics: National Health Interview Survey: 2018. Table A-4a. <http://www.cdc.gov/nchs/nhis/shs/tables.htm>).

## **FACT 14**

In the U.S., Hispanic and Latino adults are more likely to have type 2 diabetes than non-Hispanic white adults (17% vs. 8%). The chance of having type 2 diabetes is closely tied to your racial/ethnic background. For example, adults with Puerto Rican heritage are about twice as likely to have type 2 diabetes as someone whose racial/ethnic background is South American.

### **Fast Facts:**

- ▶ Hispanics and Latinos in the U.S. are more likely to have type 2 diabetes than non-Hispanic whites.
- ▶ Nearly 17% of Hispanics and Latinos in the U.S. will develop type 2 diabetes in comparison to only 8% of non-Hispanic whites.
- ▶ The risk of developing type 2 diabetes is closely tied to a person's race and ethnicity.
- ▶ People of Puerto Rican heritage are about twice as likely to develop type 2 diabetes as someone whose racial/ethnic background is South American.
- ▶ Even among Hispanics and Latinos, the risk of developing type 2 diabetes is closely tied to their origin. For example, people of Puerto Rican heritage are about twice as likely to develop type 2 diabetes as someone whose racial/ethnic background is South American.

### **Source:**

U.S. Centers for Disease Control and Prevention. Hispanic/Latino Americans and Type 2 Diabetes. Updated April 2021. Available at: <https://www.cdc.gov/diabetes/library/features/hispanic-diabetes.html>.

## **FACT 15**

In 2018, Native Hawaiians/Pacific Islanders and Asian-American adults were 2.5 and 1.4 times, respectively, more likely to be diagnosed with diabetes, as compared to non-Hispanic white adults.

### **Fast Facts:**

- ▶ Native Hawaiians/Pacific Islanders are 2.5 more likely to develop diabetes than non-Hispanic whites.
- ▶ Asian Americans are 1.4 times more likely to develop diabetes than non-Hispanic white adults.

**Source:**

U.S. Department of Health and Human Services, Office of Minority Health. Diabetes and Native Hawaiians/Pacific Islanders. Updated March 2020. Available at: <https://www.minorityhealth.hhs.gov/omh/browse.aspx?lvl=4&lvlid=78> (based on CDC 2021. Summary Health Statistics: National Health Interview Survey: 2018. Table A-4a. <http://www.cdc.gov/nchs/nhis/shs/tables.htm>).

U.S. Department of Health and Human Services, Office of Minority Health. Diabetes and Asian Americans. Updated March 2021. Available at: <https://www.minorityhealth.hhs.gov/omh/browse.aspx?lvl=4&lvlid=48> (based on CDC 2021. Summary Health Statistics: National Health Interview Survey: 2018. Table A-4a. <http://www.cdc.gov/nchs/nhis/shs/tables.htm>).

## Health effects — oral health

### FACT 16

A study of third graders reported that each additional serving of sugary drinks consumed by children per day increased the prevalence of dental caries by 22%.

**Fast Facts:**

- ▶ A study of third graders found that each additional serving of sugary drinks the kids consumed increased their prevalence of dental decay and cavities by 22%.
- ▶ A study of 8- and 9-year-olds found that each additional serving of sugary drinks the kids consumed increased their prevalence of dental decay and cavities by 22%.
- ▶ For each additional serving of sugary drinks kids consume, their prevalence of dental decay and cavities increases by 22%.

**Source:**

Wilder JR, Kaste LM, Handler A, Chapple-McGruder T, Ranking KM. The association between sugar-sweetened beverages and dental caries among third-grade students in Georgia. *J Public Health Dent*. 2016; 76(1):76-84. Doi: 10.1111/jphd.12116.

### FACT 17

Frequent consumption of sugary drinks during the first 10-12 months of age increased the odds of having dental caries by 83% by age 6.

**Fast Facts:**

- ▶ Infants who frequently drink sugary drinks are more likely to have dental decay and cavities.
- ▶ Infants between the ages of 10 and 12 months who frequently drink sugary drinks are more likely to have dental decay and cavities.
- ▶ Infants who frequently drink sugary drinks are more likely to have dental decay and cavities by age 6.
- ▶ Infants between the ages of 10 and 12 months who frequently drink sugary drinks are more likely to have dental decay and cavities by age 6.
- ▶ Infants who frequently drink sugary drinks are 83% more likely to have dental decay and cavities by age 6.
- ▶ Infants between the ages of 10 and 12 months who frequently drink sugary drinks are 83% more likely to have dental decay and cavities by age 6.

**Source:**

Park S, Lin M, Onufrak S, Li R. Association of sugar-sweetened beverage intake during infancy with dental caries in 6-year-olds. *Clin Nutr Res*. 2015; 4(1):9-19. doi: 10.7762/cnr.2015.4.1.9.

## FACT 18

A study of Black children found that consistent regular soda intake during early childhood (ages 0-5) led to one additional dental caries lesion compared to those with no regular soda intake.

### Fast Facts:

- ▶ A study of Black children found that frequently drinking regular soda contributed to dental decay, especially in those 5 and younger.
- ▶ Black children who frequently drink regular soda are at a higher risk of dental decay than those who do not drink soda.
- ▶ Black children who frequently drink regular soda are at a higher risk of dental decay than those who do not drink soda.

### Source:

Lim S, Tellez M, Ismail A. Estimating a dynamic effect of soda intake on pediatric dental caries using targeted maximum likelihood estimation method. *Caries Res.* 2019; 53(5):532-540. doi: 10.1159/000497359.

## FACT 19

A study of American Indian children found that by 36 months, dental caries were nearly universal in the population, with sugary drinks as a leading risk factor.

### Fast Facts:

- ▶ By age 3, most American-Indian children have dental disease.
- ▶ By age 3, most American-Indian children have dental disease, with sugary drinks being the leading contributor.
- ▶ American-Indian children who regularly consume sugary drinks often have the first incidence of dental disease within the first 3 years of their lives.
- ▶ Sugary drinks contribute to dental decay in American-Indian children.

### Source:

Warren JJ, Blanchette D, Dawson DV, Marshall TA, Phipps KR, et al. Factors associated with dental caries in a group of American Indian children at age 36 months. *Community Dent Oral Epidemiol.* 2016; 44(2):154-61. doi: 10.1111/cdoe.12200.

## Health effects — weight gain and obesity

## FACT 20

Replacing one serving of sugary drinks with water would lower the proportion of adults with obesity from 35% to 32% of the population.

### Fast Facts:

- ▶ If U.S. adults replaced one serving of sugary drinks with water, obesity rates in the nation would drop by 3%.
- ▶ If U.S. adults replaced one serving of sugary drinks with water, obesity rates in the nation would drop from 35% to 32%.
- ▶ Adult obesity rates in the U.S. would decrease if people replaced one serving of sugary drinks with water.

### Source:

Duffey KJ, Poti J. Modeling the effect of replacing sugar-sweetened beverage consumption with water on energy intake, HBI score, and obesity prevalence. *Nutrients.* 2016; 8(7):395. doi: 10.3390/nu8070395.



## FACT 21

Two-year-old children who consumed more than one sugary drink per day had significantly greater increase in body mass index over the next two years compared to children who rarely or never consumed sugary drinks.

### Fast Facts:

- ▶ Kids who drink more than one sugary drink per day frequently experience an increased body mass index (BMI) than kids who rarely or never drink sugary drinks.
- ▶ Kids who drink more than one sugary drink per day frequently experience an increased body mass index (BMI).
- ▶ Kids who drink more than one sugary drink per day frequently experience an increased body mass index (BMI) over the next two years of their lives.

### Source:

DeBoer MD, Scharf RJ, Demmer RT. Sugar-sweetened beverages and weight gain in 2- to 5-year-old children. *Pediatrics*. 2013;132(3):413–20. <https://doi.org/10.1542/peds.2013-0570>.

## FACT 22

In a study of Latino toddlers, high intake of sugary drinks led to an increase in weight-for-height z-score (measures of relative weight adjusted for child age and sex) after 6 months.

### Fast Facts:

- ▶ In a study of Latino toddlers, those who frequently drank sugary drinks were more likely to have a higher weight for height than those who didn't drink sugary drinks.

### Source:

Chaidez V, McNiven S, Vosti SA, Kaiser LL. Sweetened food purchases and indulgent feeding are associated with increased toddler anthropometry. *J Nutr Educ Behav*. 2014; 46(4): 293-298. doi: 10.1016/j.jneb.2013.05.011.

## FACT 23

In a study of Black toddlers, the odds of becoming overweight after 2 years increased by 4% for each additional ounce of sugary drinks consumed.

### Fast Facts:

- ▶ Black toddlers who drink sugary drinks are at risk of becoming overweight.
- ▶ Black toddlers who drink sugary drinks are at risk of becoming an unhealthy weight.
- ▶ Black toddlers who drink sugary drinks are at risk of becoming overweight and that risk increases by 4% for each additional ounce of sugary drink they have daily.
- ▶ Black toddlers who drink sugary drinks are at risk of becoming an unhealthy weight and that risk increases by 4% for each additional ounce of sugary drink they have daily.

### Source:

Lim S, Zoellner JM, Lee JM, Burt BA, Sandretto AM, Sohn W, et al. Obesity and sugar-sweetened beverages in African American preschool children: a longitudinal study. *Obesity (Silver Spring)*. 2009; 17(6):1262-8. doi: 10.1038/oby.2008.656.

## FACT 24

In 2016, Native Hawaiians and Pacific Islanders were 80% more likely to be obese than non-Hispanic white adults. In 2017, Native Hawaiian and Pacific Islanders were more than twice as likely to be obese compared to non-Hispanic white adolescents. In 2014, Samoans were 5.6 times more likely to be obese as compared to the overall Asian-American population.

***Fast Facts:***

- ▶ Native Hawaiians and Pacific Islanders are 80% more likely to have obesity than non-Hispanic white adults.
- ▶ Native Hawaiians and Pacific Islanders are 80% more likely to have an unhealthy weight than non-Hispanic white adults.
- ▶ Native Hawaiian and Pacific Islanders are more than twice as likely to have obesity than non-Hispanic white teens.
- ▶ Native Hawaiian and Pacific Islanders are more than twice as likely to have an unhealthy weight than non-Hispanic white teens.
- ▶ Samoan people are nearly 6 times more likely to have obesity than other Asian-American people.
- ▶ Samoan people are nearly 6 times more likely to have an unhealthy weight than other Asian-American people.

***Source:***

U.S. Department of Health and Human Services, Office of Minority Health. Obesity and Native Hawaiians/Pacific Islanders. Updated March 2020. <https://www.minorityhealth.hhs.gov/omh/browse.aspx?lvl=4&lvlid=85>.