

Effects of Soft Drink Consumption on Nutrition and Health

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Abstract

Soft drinks are the beverage of choice for millions of Indians, but sugary drinks increase the risk of type 2 diabetes, heart disease, and other chronic conditions.

Sugary drinks are considered a major contributor to health conditions such as obesity, type 2 diabetes and tooth decay. But have you ever wondered exactly what these beverages do to your body after consumption?

According to the Centers for Disease Control and Prevention (CDC), around half of the US population drink sugary beverage. Soft drink consumption has become a highly visible and controversial public health and public policy issue. Soft drinks are viewed by many as a major contributor to obesity and related health problems and have consequently been targeted as a means to help curtail the rising prevalence of obesity, particularly among children. Soft drinks have been banned from schools in Britain and France, and in the United States, school systems as large as those in Los Angeles, Philadelphia, and Miami have banned or severely limited soft drink sales. Many US states have considered statewide bans or limits on soft drink sales in schools, with California passing such legislation in 2005. A key question is whether actions taken to decrease soft drink consumption are warranted given the available science and whether decreasing population consumption of soft drinks would benefit public health. On any given day, with consumption of these drinks highest among teenagers and young adults. There are approximately 10 teaspoons of added sugar in a single can of cola.

The World Health Organization (WHO) recommend consuming no more than 6 teaspoons of added sugar daily, meaning drinking just one serving of cola a day could take us well above these guidelines. As such, it is no surprise that sugary drink consumption is associated with an array of health conditions. According to the Harvard School of Public Health, people who drink 1-2 cans of sugary beverages daily are 26% more likely to develop type 2 diabetes, and last month, Medical News Today reported on a study claiming 184,000 global deaths each year are down to sugary drink consumption.

Now, an infographic created by British pharmacist Niraj Naik - based on research by health writer Wade Meredith - shows the damage a 330 ml can of Coca-Cola can do to the body within 1 hour of consumption. According to Naik, the intense sweetness of Coca-Cola as a result of its high sugar content should make us vomit as soon as it enters the body. However, the phosphoric acid in the beverage dulls the sweetness, enabling us to keep the drink down. Blood sugar levels increase dramatically within 20 minutes of drinking the Cola, explains Naik, causing a burst of insulin. The liver then turns the high amounts of sugar circulating our body into fat .Within 40 minutes, the body has absorbed all of the caffeine from the Cola, causing a dilation of pupils and an increase in blood pressure.. By this point, the adenosine receptors in the brain have been blocked, preventing fatigue. Five minutes later, production of dopamine has increased - a neurotransmitter that helps control the pleasure and reward centers of the brain. According to the infographic the way Coca-Cola stimulates these centers is comparable to the effects of heroin, making us want another can .An hour after drinking the beverage, a sugar crash will begin, causing irritability and drowsiness. In addition, the water from the Cola will have been cleared from the body via urination, along with nutrients that are important for our health.

According to Naik, the infographic is not only applicable to Coca-Cola, but to all caffeinated fizzy drinks.

"Coke is not just high in high fructose corn syrup, but it is also packed with refined salts and caffeine," writes Naik on his blog *The Renegade Pharmacist*. "Regular consumption of these ingredients in the high quantities you find in Coke and other processed foods and drinks, can lead to higher blood pressure, heart disease, diabetes and obesity."

People who consume sugary drinks regularly-1 to 2 cans a day or more-have a 26% greater risk of developing type 2 diabetes than people who rarely have such drinks). 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. A related study in women found a similar sugary beverage-heart disease link.

A 22-year-long 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. Researchers found a similarly-elevated risk in men.

Dr. Frank Hu, Professor of Nutrition and Epidemiology at Harvard School of Public Health, recently made a strong case that there is sufficient scientific evidence that decreasing sugar-sweetened beverage consumption will reduce the prevalence of obesity and obesity-related diseases.

Soft drinks and diabetes

Strong evidence indicates that sugar-sweetened soft drinks contribute to the development of diabetes. The Nurses' Health Study explored this connection by following the health of more than 90,000 women for eight years. The nurses who said they had one or more servings a day of a sugar-sweetened soft drink or fruit punch were twice as likely to have developed type 2 diabetes during the study than those who rarely had these beverages.

A similar increase in risk of diabetes with increasing soft drink and fruit drink consumption was seen recently in the Black Women's Health Study, an ongoing long-term study of nearly 60,000 African-American women from all parts of the United States. Interestingly, the increased risk with soft drinks was tightly linked to increased weight.

In the Framingham Heart Study, men and women who had one or more soft drinks a day were 25 percent more likely to have developed trouble managing blood sugar and nearly 50 percent more likely to have developed metabolic syndrome.

Soft drinks and heart disease

The Nurses' Health Study, which tracked the health of nearly 90,000 women over two decades, found that women who drank more than two servings of sugary beverage each day had a 40 percent higher risk of heart attacks or death from heart disease than women who rarely drank sugary beverages.

People who drink a lot of sugary drinks often tend to weigh more and eat less healthfully than people who don't drink sugary drinks, and the volunteers in the Nurses' Health Study were no exception. But researchers accounted for differences in diet quality, energy intake, and weight among the study volunteers. They found that having an otherwise healthy diet, or being at a healthy weight, only slightly diminished the risk associated with drinking sugary beverages.

This suggests that weighing too much, or simply eating too many calories, may only partly explain the relationship between sugary drinks and heart disease. Some risk may also be attributed to the metabolic effects of fructose from the sugar or HFCS used to sweeten these beverages.

The adverse effects of the high glycemic load from these beverages on blood glucose, cholesterol fractions, and inflammatory factors probably also contribute to the higher risk of heart disease. Read more about blood sugar and glycemic load.

Soft drinks and bones

Soda may pose a unique challenge to healthy bones. Soda contains high levels of phosphate. Consuming more phosphate than calcium can have a deleterious effect on

bone health. Getting enough calcium is extremely important during childhood and adolescence, when bones are being built. Soft drinks are generally devoid of calcium and other healthful nutrients, yet they are actively marketed to young age groups. Milk is a good source of calcium and protein, and also provides vitamin D, vitamin B6, vitamin B12, and other micronutrients. There is an inverse pattern between soft drink consumption and milk consumption - when one goes up, the other goes down.

5 Quick tips: Building strong bones

1. Look beyond the dairy aisle.

You can get calcium from sources besides dairy foods. Calcium-rich non-dairy foods include leafy green vegetables and broccoli, both of which are also great sources of vitamin K, another key nutrient for bone health. Beans and tofu can also supply calcium.

2. Get your vitamin D.

Vitamin D plays a key role along with calcium in boosting bone health. Look for a multivitamin that supplies 1,000 IU of vitamin D per day. If your multi only has 400 IU of vitamin D, consider taking an extra supplement to get you up to 1,000 IU or 2,000 IU per day. Some people may need 3,000 or 4,000 IU per day for adequate blood levels, particularly if they have darker skin, spend winters in the northern U.S., or have little exposure to direct sunlight. If you fall into these groups, ask your physician to order a blood test for vitamin D.

3. Get active.

Regular exercise, especially weight-bearing exercise such as walking or jogging, is an essential part of building and maintaining strong bones.

4. Be careful about getting too much retinol (vitamin A).

Don't go overboard on fortified milk, energy bars, and breakfast cereals, all of which can be high in bone-weakening vitamin A. Many multivitamin makers have removed much or all retinol and replaced it with beta-carotene, which does not harm bones.

5. Help your kids build strong bones.

Youth and young adulthood is the period when bones build up to their peak strength. Helping youth lead a bone-healthy lifestyle-with exercise, adequate calcium, and adequate vitamin A-can help them keep strong bones through all their adult years.

Conclusions

Available data indicate a clear and consistent association between soft drink consumption and increased energy intake. Given the multiple sources of energy in a

typical diet, it is noteworthy that a single source of energy can have such a substantial impact on total energy intake. This finding alone suggests that it would be prudent to recommend population decreases in soft drink consumption. The fact that soft drinks offer energy with little accompanying nutrition, displace other nutrient sources, and are linked to several key health conditions such as diabetes is further impetus to recommend a reduction in soft drink consumption.

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