

Soda: The Smooth Criminal

André Brutus

Dr. Rachel Byrd

Composition 102 Section O

14 April 2009

Soda: The Smooth Criminal

Unfortunately, soft drinks have a common place in peoples' diets. According to Jessie Male, in his study "Coke Study Sees Growth in Soft Drinks," soft drinks are 71% of the take-home sales in the supermarket and they have a "whopping 96.2% household penetration." People buy them about twenty times a year, which makes soda the second most-bought item in customer's buying habits; the most bought item is bread (Male 51). On average, the ordinary American will end up drinking about 208 liters (or 55 gallons) of carbonated drinks per year (Applegate). One may ask: what is soda consumption doing to our health? For scientists, it is certain that soda consumption is not doing any good. Recent research has found that those who increase their soft drink consumption also increase their chances of getting diseases. People who consume soft drinks regularly are more likely to become obese, get some type of diabetes, and have bone related illnesses. Soft drink consumption is bad for peoples' health.

The intake of soda, or drinks with high contents of sugar, can produce obesity. The National Soft Drink Association responded to criticism of soft drinks in schools with the following statements: "Soft Drink consumption by children is not linked to pediatric obesity, poor diet quality, or a lack of exercise. Soft drink consumption is not linked to adolescent obesity" (Brownell 167). The NSDA implies that a link between soda and health problems it is not linked by the "facts". To disprove this statement, I will explain the basic make-up of a soft drink. A regular soft drink –in this example, a 12oz. Coke– has carbonated water, phosphoric acid, and about ten teaspoons of sugar (Spurlock 25). If someone was to look at the back of a coke bottle and go over the nutrition facts, that person would notice that the daily value percentage's column has all zeroes except for carbohydrates. The lack of nutritional values in the

label of a soda tells us that a soft drink has no nutritional value in a person's diet, other than to provide calories.

One would think that people wouldn't buy food or drinks that don't do anything good for their bodies, but that assumption is incorrect. According to Morgan Spurlock, in his book Don't Eat This Book, the average American teen drinks "two or more 12oz sodas a day" (Spurlock 25). If we take a look at that number from a different perspective, the average American teen, in addition to the regular intake of calories from food, consumes 20 teaspoons of sugar in its tasty yet dangerous liquid form: High Fructose Corn Syrup. Someone must be in an incoherent state to believe that twenty teaspoons of sugar are good for the body. No wonder sugar-sweetened beverages constitute the "leading source of added sugars in the diet" ("Less Consumption of Soft Drinks"). In a recent study conducted by David Ludwig with collaboration of Harvard, it was concluded that "for each additional daily soft drink serving in middle-school children, there was a 60 percent increased risk for the development of obesity, even after controlling for factors such as demographics, lifestyle, and diet. (Brownell 169)" Every time middle-school kids drink soda, they are increasing their odds of becoming obese so much that it is highly probable that they will become obese. Unlike diabetes, where the race of the individual affects their statistical probability of acquisition, with soda, everyone is affected (Ludwig).

But why are people getting fatter with soda? Apparently the body is not able to keep up with the calories that are ingested in a liquid form. In a recent study done at Purdue University, the scientists added about 18% more calories to the sampling population's diet by using two variables: liquid carbohydrates (soft drinks) and solid carbohydrates (jelly beans). The aftermath of the study was stunning: the people that who were under the solid carbohydrates' variable induced calories into their body with jellybeans but reduced intake from other sources. On the

other hand, the soft drink participants did not reduce their normal amounts of carbohydrates from other sources. The aftermath for the soft-drink participants resulted in a “positive energy balance” which in other terms means that the people who were under the soft drinks category of the experiment were consuming more carbohydrates than their jellybean-consumer counterparts. The total calorie intake increased considerably; consequently, so did their body weight (DiMeglio 794). This assumption is not to be taken lightly because soft drink consumption in children of about the age ranges of 11 to 17 has risen by 300% percent in the past twenty years and following along, the obesity rates of our country (“Less Consumption of Soft Drinks”).

According to an article in the Dynamic Chiropractic Magazine, sugared sweetened beverages stimulate hunger (“Sugar-Sweetened”). In the same research, it was noted that an extra sugared drink over a ten week period resulted in an average gain of 3.5 pounds of body weight; if we were to use the numbers in an appropriate manner we would realize that, as noted before, the typical teen --on a daily basis-- consumes two 12 oz sodas. This leads us to the conclusion that every ten weeks the typical teen is adding an average of seven pounds to his or her weight (cite). Also, research has shown that ten percent of the kids in the United States have “at least seven cans of soft drink” every day (Brownell). It is not only the teenagers that are suffering from this, as soda has a monstrous “96% household penetration” (Male 51). On average, only four out of a hundred people would do the right thing: not buy a product that could make their families’ health worse. People need to know that soft drinks do not have a part in a balanced diet and that they cause people to become obese.

Obesity is common, but it is not the only repercussion of a diet with soft drinks on it. Diabetes is also one major consequence. Diabetes is a common thing nowadays. There are two common types of diabetes. According to Morgan Spurlock, Type 1 Diabetes happens when the

body's immune system attacks the cells that make insulin, and it is thought to be "caused by genetic, autoimmune or environmental factors." The second type of diabetes is the one that a person can acquire by having bad dietary habits and unhealthy weight. Type 2 Diabetes used to be called 'Adult-onset Diabetes' because it was something that took a long time to surface (Spurlock 14). However, cases of type 2 diabetes in teenagers increased in such a high degree in between 1982 and 1994 that the previous name did not apply anymore.

A recent article by Sharon S. Elliot, about the effects of dietary fructose, suggested that increased consumption of fructose "may be detrimental in terms of body weight and adiposity and the metabolic indexes associated with the insulin resistance syndrome" (Elliot 911). In other words, increased consumption of fructose may increase the odds of having bad adiposity ratios (fat levels) and also upset the body levels that help in the acquisition of insulin resistance syndrome. Soft drinks contain fructose, and lots of it. In fact, the companies that manufacture the fructose for the soda drinks increase the amount of fructose on it so it can become high fructose corn syrup and provide more sweetness for the gram, therefore decreasing shipping cost but increasing the risk of insulin resistance syndrome. A team from Yale University conducted a meta-analysis of 88 studies to "ascertain if soft drink consumption is associated with various harmful nutrition and health outcomes." The answer "was a resounding Yes." "The psychologists from Yale University found a strong link between intake of sugary soft drinks and the increased risk of diabetes". A one eight-year study that included more than 90 thousand people, resulted that those who consumed one or more soft drinks per day had almost doubled their risk of developing diabetes when compared to those who had less than one soft drink per month ("Ask Dr"). Call it a coincidence or not, the rise of Type 2 Diabetes in the United States parallels the increase in sugar-sweetened soft drink consumption. But not all sugar sweetened

drinks are causing Type 2 Diabetes, since a notable finding of Schulze et al was that “weight gain was more dramatic for soft drinks compared with fruit punches and fruit juices” (Apovian) . In addition, unlike intake of sugar-sweetened soft drinks the “intake of fruit juices was not associated with an increased risk of Type 2 Diabetes” (Apovian). It isn't the fruit punches or juices that are causing an increase in the diabetes-obesity ratio in the United States. It is the demon of the soft drink industry that is bombarding the schools with soda machines, streets with billboards, and mass communication with ads. This and the lack of education on a balanced diet have brought diabetes to the amazing plague that it is today. “In 2003, the Centers for Disease Control and Prevention reported that one out of three kids born in America in the year 2000 will develop Type 2 Diabetes” (Spurlock 14). The sad part about this finding is that this could be prevented if parents took better care of what their kids were consuming.

Soft drinks not only result in obesity and diabetes, they also rob the bones of their valuable nutrients. The typical American consumes an annual average of 55 gallons of soft drink a year (“Soft Drinks may”). In other words, the average American pours 55 gallons of acid into their bones. Recent research has found a link between soft drink consumption and “reduction in bone mineral content and increased risk of fracture in latter life” (Applegate 16). In another magazine, a short article called “Pop Goes Teens Bones” the author mentions how girls who drink soda have “three times the risk of bone fractures compared who girls who don't drink soda at all” (“Pop Goes Teens”). Also, with many of the soft drinks, caffeine is included. According to research, caffeine “may also increase calcium losses in the body” (Applegate 16). Another important factor to consider is that cola products contain phosphoric acid; the body needs to get neutralizers (or nutrients) from the bones –where they are stored – so they can null these acids and assimilate the carbohydrates contained in the drink. According to recent research, nine out

of ten teen girls and seven out of ten teen boys are failing to meet their calcium requirements (“Soft Drinks = Soft Bones”). Also, studies have linked erosion of the tooth enamel with soft drink consumption (Brownell 171).

The problem lies on the chemistry of a basic soda. A typical cola drink has an average pH of 4.2 and in contrast with the average neutral pH of 7, it is highly acidic. Plus, cola sodas contain phosphoric acid which aids in weakening the tooth defense –the enamel. After the acidic parts of the soda have done their job, the massive amounts of sugar nourish the cavities and bacteria in the mouth. Author Lisa Harnack, in the Journal of the American Dietetic Association article “Soft Drink Consumption,” notes that, “ in general, for all age categories, riboflavin, vitamin A, calcium, phosphorous and the ratio of calcium to phosphorous were inversely related to milk consumption”. In other words, as people increased their soda consumption, their vitamin rich diet, along with their milk and fruit juice consumption, faded away. And according to another report, about 40% to 60% of bone peak mass is developed during teenage years (Spurlock). If we remember some of the statistics that I previously mentioned, we can notice why doctors have seen an increase in bone fractures in recent years (“Kids Breaking More Bones”). We know that milk consumption is inversely related to soda consumption, and we also know that the average teenager has about two soda cans every day, while in average, half of their bone peak mass is building up. Soda reduces bone density and increases the chances of having tooth and bone fracture.

Don’t think that the soft drink companies are going out without a fight. As I was researching for this project, I found many controversial articles about the “need” of soda in diets. The argument was that soda was a part of a human’s diet, just like milk, juices and other needs. However, when I was reading the book Food Fight, it seemed that the National Soft Drink

Association was sponsoring the research for many pro-soda studies. Some of the organizations that were sponsored by the NSDA do not even exist anymore (Spurlock). The companies are doing their homework. A recent study made by Coke proved that this massive amount of research has done little to inform the people of the risk of a diet which contains soft drinks in it. According to this research, called Grocery Headquarters, Soft drinks aren't "out just yet." In supermarkets, soft drinks are a 12 billion dollar category and they account for 71 percent of the take home sales. Growth is projected in all categories of soft drinks, fueled by the innovation and growth of the "diet" sector. "Soft drinks have a whopping 96.2% household penetration, with shoppers purchasing them an average of 19.4 times a year – second only to bread" (Male). Legislation, as a hard core believer in laissez-faire, has done little to limit the sale of carbonated drinks. Recent protest by health advocates are suggesting a tax on soft drinks, which will allow the consumption of them to be limited by financial means. Also, some schools –not many– have banned soda machines from schools (Brownell 173). However, many schools need the funding that is provided to them by the soft drinks companies like Coke and Pepsi.

The kids are still getting their soda, and with it, an increased chance of becoming obese, having weak bones, and developing obesity. Some legislators believe that a "fat-tax" on soft drinks is the key to solving the crisis that is brought upon the country's healthcare system. Others believe that banning soda-machines in all schools is the logical action. Personally, I believe that the key is to educate the public on the consequences of consuming soft drinks. In a nutshell, consuming soft drinks is like getting robbed, or perhaps, getting robbed and stabbed. Nothing good comes out of it, just health-related problems. Research is clear on three things: soft drinks cause obesity, Type 2 Diabetes, and weaken the bones. Are you up for a cold Coca-Cola? I didn't think so.

Works Cited

Apovian, Caroline M. "Sugar-Sweetened Soft Drinks, Obesity, and Type 2 Diabetes." The Journal of the American Medical Association 292 (2004): 978-79. Academic OneFile. GALE. McKee Library, Collegedale. 09 Mar. 2009 <<http://eps1.asu.edu/ceru/Articles/CERU-0410-237-OWI.pdf>>.

Applegate, Liz. "Soft Drinks: Bad to the Bone? Examining the Link Between Soft Drink Consumption and the Body's Calcium Balance." IDEA Personal Trainer 13 (2002): 16-19. General OneFile. GALE. McKee Library, Collegedale. 9 Mar. 2009 <<http://find.galegroup.com>>.

This is a great article with excellent research, mainly on the link between carbonated (and caffeinated) drinks and osteoporosis.

"Ask Dr. Etingin." Food & Fitness Advisor July 2007: 12. Academic OneFile. GALE. McKee Library, Collegedale. 9 Mar. 2009 <<http://find.galegroup.com>>.

This short article is a description of HFCS and a review on the Yale Meta Analysis linking Soft drink consumption with various harmful nutrition and health outcomes.

"Ask the Experts, Healing:Q&A." Natural Health July/Aug. 2007: 96-100. General OneFile. GALE. McKee Library, Collegedale. 9 Mar. 2009 <<http://find.galegroup.com>>.

Very brief Q&A on the link of cola drinks and bad teeth health.

Brownell, Kelly D, and Katherine Battle Horgen. Food Fight The Inside Story of the Food Industry, America's Obesity Crisis, and What We Can Do About It. New York: McGraw-Hill, 2003. 9 Mar. 2009 <<http://find.galegroup.com>>.

Interesting 'inside story' about the food /soft drink corporations in the United States;
Contains detailed research and sources, as well as a suggestive path to be taken for the
obesity epidemic to relinquish from the US.

Cooper, Ben. "The Soft Drinks Industry and the Childhood Obesity Debate (Section one and two)." Aug. 2005. General OneFile. GALE. McKee Library, Collegedale. 9 Mar. 2009 <<http://find.galegroup.com>>.

This article is a really extensive article on the debate of childhood obesity. The debate also touches on the corporate advertisement techniques.

DiMiglio, DP, and RD Mattes. "Liquid Versus Solid Carbohydrate: Effects on Food Intake and Body Weight." International Journal of Obesity 24 (2000): 94-800 . 9 Mar. 2009 < <http://www.nature.com/ijo/journal/v24/n6/pdf/0801229a.pdf> >.

This article is about the difference between Liquid carbohydrates and Solid carbohydrates. Solid carbohydrates consumers had jellybeans and reduced their caloric intake from other sources. On the other hand, the ones that had liquid carbohydrates had the same amount in solid form

Elliot, Sharon S., Nancy L. Keim, and Judith S. Stern. " Fructose, Weight Gain, and the Insulin Resistance Syndrome." American Journal of Clinical Nutrition 76 (2002): 911-922. General OneFile. GALE. McKee Library, Collegedale. 9 Mar. 2009 <<http://find.galegroup.com>>.

Gross, Kate. "Soft Drinks in the Spotlight." June 2006. General OneFile. GALE. McKee Library, Collegedale. 9 Mar. 2009 <<http://find.galegroup.com>>.

Harnack, Lisa. "Soft Drink Consumption Among US Children and Adolescents: Nutritional Consequences." Journal of the American Dietetic Association 99 (1999): 436-42. Expanded Academic ASAP. GALE. McKee Library, Collegedale. 9 Mar. 2009 <<http://find.galegroup.com>>.

This article finds the link in between carbonated beverages and other more healthy drinks like milk and fruit juice. This article contains a considerable amount of references and statistics.

"Intake of Sugar-Sweetened Beverages and Weight Gain: a Systematic Review." American Journal of Clinical Nutrition 84 (2006): 274-89. General OneFile. GALE. McKee Library, Collegedale. 9 Mar. 2009 <<http://find.galegroup.com>>.

Jacobson, Michael F., and Sean McBride. "Are Soft Drinks Responsible for the Obesity Epidemic?" Beverage World 15 Nov. 2003: 23. General OneFile. GALE. McKee Library, Collegedale. 9 Mar. 2009 <<http://find.galegroup.com>>.

This article suggests that instead of removing the soft drinks from schools, the government should educate kids to where they can make logical decisions.

"Kids Breaking More Bones; -Doctor Say oft Drinks Poor Substitute for Milk." PR Newswire [Berkely] 23 Mar. 2004. General OneFile. GALE. McKee Library, Collegedale. 9 Mar. 2009 <<http://find.galegroup.com>>.

This article contains information on the increased percentage of kids that have broken bones and suggest that the cause is the soft drink consumption and the lack of milk.

"Less Consumption of Soft Drinks May Reduce Adolescent Obesity." Jet 31 Mar. 2008: 12.

Expanded Academic ASAP. GALE. McKee Library, Collegedale. 9 Mar. 2009

<<http://find.galegroup.com>>.

Ludwig, David S., Karen E. Peterson, and Steven L. Gortmaker. "Relation between Consumption

of Sugar-Sweetened Drinks and Childhood Obesity: a Prospective, Observational

Analysis." The Journal of the American Medical Association 285 (2001). Academic

OneFile. GALE. McKee Library, Collegedale. 09 Mar. 2009

<<http://www.commercialalert.org/candp/lancet.pdf>>.

Ludwig, David S., Karen E. Peterson, and Steven L. Gortmaker. "Relation between Consumption

of Sugar-Sweetened Drinks and Childhood Obesity: a Prospective, Observational

Analysis." The Journal of the American Medical Association 285 (2001). Academic

OneFile. GALE. McKee Library, Collegedale. 09 Mar. 2009

<<http://epsl.asu.edu/ceru/Articles/CERU-0410-237-OWI.pdf>>.

Male, Jessie, and Richard Turcsik. "Coke study sees growth in soft drinks." Grocery

Headquarters July 2006: 51. General OneFile. GALE. McKee Library, Collegedale. 9

Mar. 2009 <<http://find.galegroup.com>>.

This article contains shocking statistics on the soft drink related consumer shopping habits.

MD, Katz, David L. Flavor Point Diet: The Delicious, Breakthrough Plan to Turn Off Your

Hunger and Lose the Weight For Good. Emmaus, Penn: Rodale, 2006. 9 Mar. 2009

<<http://find.galegroup.com>>.

This book expands on the usage of flavor enhancers in corporations and the link between the proportions of sugar and salt and more hunger.

"Pop" Goes Teens' Bones." Vibrant Life Nov. 2000: 9. General OneFile. GALE. McKee Library, Collegedale. 9 Mar. 2009 <<http://find.galegroup.com>>.

This short article dwells on the link between soda consumption and the increased risk of bone fracture in latter life.

"Soft Drinks = Soft Bones." American Fitness Sept. & oct. 2002: 12. General OneFile. GALE. McKee Library, Collegedale. 9 Mar. 2009 <<http://find.galegroup.com>>

Spurlock, Morgan. Don't Eat This Book: Fast Food And the Supersizing of America. New York: G. P. Putnam's Sons, 2005. 9 Mar. 2009 <<http://find.galegroup.com>>.

This is an incredible starting point for additional research, as the bibliography has many excellent studies and it quotes interesting statistics.

"Sugar-Sweetened Drinks and Weight Gain: More Evidence." Dynamic Chiropractic 26 (2008): 25-26. Academic OneFile. GALE. McKee Library, Collegedale. 9 Mar. 2009 <<http://find.galegroup.com>>

This article explains why sugar-sweetened beverages stimulate hunger, therefore increasing the risk of developing obesity and diabetes.