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Paper #2 - Final Draft

High-Fructose, Highly Frightening

The Corn Refiners' Association has recently launched an ad campaign to improve Americans' perspective on high-fructose corn syrup. This sweetener, now present in almost everything on our supermarket shelves, has been met with much controversy. And with the United States guzzling down an average of 60 pounds of high-fructose corn syrup every year, concern is to be expected (Parker). The front page of the Corn Refiners' website, sweetsurprise.com, is covered in claims such as "...whether it's corn sugar or cane sugar, your body can't tell the difference." And although the website does quote university research and medical professionals to back up such statements, the testimonies date back as far as 1996. In the time since then, much more research has been done and America has reached many scientific milestones regarding obesity and nutrition. There is no longer any mystery surrounding high-fructose corn syrup because the truth has been unveiled by science, and the truth is not consistent with what the corn refiners are saying; high-fructose corn syrup is a dangerous, toxic sweetener that simply cannot be compared to natural, pure cane sugar.

High-fructose corn syrup is derived of corn kernels, but the process that surrounds it can only be described as "pretty weird"

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(Novak). CNN News laid out the procedures in detail in a recent report, in which Kat Kinsman stated the following:

The corn syrup is made by first steeping kernels of corn in a solution of 122°F-140°F water and a small percentage of sulfur dioxide...for 30-40 hours....The kernels are coarsely ground...then spun in cyclone germ separators....The corn and starch are then sent through a second, more intensive milling process that releases the starch and gluten from the fiber in the kernel. The fiber is screened out, milled again, then piped off....The starch is diluted, washed 8-14 times to remove any residual gluten protein, and then re-diluted and washed again to produce high quality starch.

In addition to these terrifying methods, some studies have even suggested that nearly half of all high-fructose containing products have detectable traces of mercury due to the use of "mercury-cell" technology ("Study"). At the end of the process, the syrup no longer even resembles corn or anything else present in nature, *especially* not cane sugar (even though the Corn Refiners claim the two substances are chemically equal). But, the two substances are far from comparable for two main reasons: First, high-fructose corn syrup contains about 5% more fructose than cane sugar, which is composed of a 50-50 split

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between sucrose and fructose. Second, the molecules in high-fructose corn syrup are free, while cane sugar contains bound molecules. In essence, this means that high-fructose corn syrup is absorbed more quickly than cane sugar because the bound molecules in cane sugar require an extra metabolic process before absorption can take place (Parker). The extra step that cane sugar requires to break down leaves more time for the sugars to be worked off and expelled before it they are released into the blood and circulated throughout the body, or worse, later stored as fat.

There are other damaging effects to the body, both long-term and short-term, that high-fructose corn syrup can cause as well. The first, most obvious problem is obesity. In one study by the prestigious Princeton University, a sample of lab rats was observed to gain significantly more weight when given water sweetened with high-fructose corn syrup than another sample of rats that were given water sweetened with cane sugar (when fed an otherwise identical diet) (Parker). However, the rats given high-fructose corn syrup did not just become overweight; they were categorized as being clinically obese. This is because the rats demonstrated two characteristics unique of obesity: weight gain specifically in the abdominal area, and a specific type of fats, called triglyceride fats, circulating in the blood. One constituent of the study, graduate student Miriam Bocarsly,

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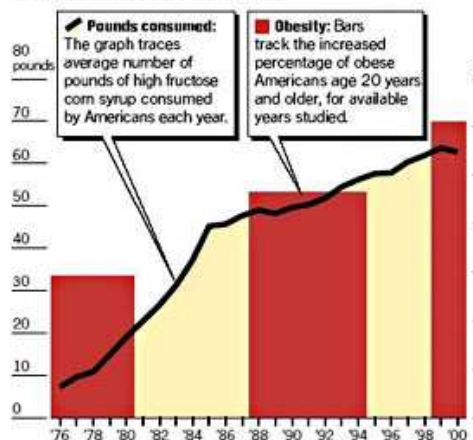
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said, "In humans, these same characteristics are known risk factors for high blood pressure, coronary artery disease, cancer and diabetes" (qtd. in Parker). Furthermore, high-fructose corn syrup is also proven to cause a hindrance in the production of leptin, an important appetite-suppressing hormone. In a study done by the University of Florida, it was proven that rats became resistant to the hormone after being fed high-fructose corn syrup for only six months (Birdwell). This would explain why the rats in the Princeton study that were fed high-fructose corn syrup also gained more weight over time in comparison to the rats which were given cane sugar (Parker).

For the reasons previously discussed, there is a positive and direct correlation between the amount of high-fructose corn syrup being consumed and the rate of obesity. This trend is represented in the graph to the right: As the rate of high-fructose corn syrup being consumed has increased in past decades, the rate of obesity has increased in proportion. There is a simple explanation for this trend, and that is that high-fructose corn

Obesity and high fructose corn syrup

The number of Americans who are obese has quadrupled in recent years, a study shows. At the same time, high fructose corn syrup consumption has risen at parallel rates.



Source: Drum, Kevin. "Sugar, Sugar".
Mother Jones. 12 May 2009. Web. 17
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syrup causes weight gain at a magnitude unequal to that of any other known dietary factor. Inherently, when the results of two Princeton studies were matched up, the comparison exposed that even a diet high in fat did not necessarily cause weight gain in every case. However, the consumption of high-fructose corn syrup at levels far less than those in soda did cause weight gain, in *every single case* (Parker).

One team of scientists uncovered that the consumption of high-fructose corn syrup increased over 1000% from 1970-1990, more than any other food substance (Bray & Nielson & Popkin). These findings make it obvious that high-fructose corn syrup is beyond excess within the American diet. Still, in September 2010, the Corn Refiners' Association petitioned to the Federal Food and Drug Administration to have the name "high-fructose corn syrup" permanently changed on product labels as "corn sugar" in order to oust the bad reputation the sweetener has earned and increase sales as well as increase the need for corn in order to advance their own business interests (sweetsurprise.com). Nevertheless, the facts have revealed that high-fructose corn syrup is exactly what its name implies; it is anything but equal to the natural goodness of cane sugar and should never bear the likeness of its name. Science has whispered the truth in all of our ears, and the truth is we would be much better off using cane sugar instead of high fructose corn syrup.