Honors Thesis: Breakfast Cereals and Their Use of Misleading Information

Kelsey Brentnall

Food consumption is one of the basic necessities of human survival. Along with oxygen, sleep, and water, food gives humans the energy to live and fuels us on a day to day basis. Why is it, then, that the food we are consuming today seems to be critically limiting our survival? Unfortunately, food is a highly political realm where human health is not always at the forefront. Food production today is greatly influenced by the industry's need to make money rather than to provide us with the nutrients our bodies need. Although this seems to be the trend across all categories of foods, from processed snacks to genetically modified crops, one major area of concern is in breakfast cereals. There has been numerous studies that prove breakfast is key to a good start to the day. However, the few major breakfast food companies that can provide this healthy start don't seem to be concerned with our nutrient needs. Specifically, many breakfast cereals contain misleading information on their labels to grab consumer attention, stating things such as "100% natural," "high fiber," and other positive claims. In reality, many of these cereals are loaded with more destructive components than they claim, especially sugar. Therefore, it's important to analyze what really constitutes a healthy breakfast, and how that can be attained. It is also important to compare the labeling of cereal box claims to the actual nutrition information.

The food industry has been denying the truth about food as well as public access to healthy options since food production began. The government and food industries have shaped the public's perception of what is "good" and what is "bad" for you in order to emphasize the products that they're selling in order to make a profit. They have also used this tactic to shift the blame away from food industries to the individual for the rise in obesity. For example, the tobacco industry used the same tactics with tobacco as what's currently being done with sugar (*Sugar-Coated*). These industries have all used biased research, where scientists with conflicting interests ran experiments on tobacco, sugar, and other foods. In many instances, these investigations "proved" positive results for the big industries. The tobacco and sugar industries also use the same marketing tactics to convince consumers that their products will benefit them in some way. This is a clear example of an industry deceiving the public into making unhealthy decisions.

The sugar industry has also shifted the blame towards the American citizen for the obesity epidemic rather than the products that are filled with sugar. The industry uses personal responsibility rhetoric, saying that it's the individual's fault they are overweight (*We're Part of the Solution*). Americans are lead to believe their weight is a result of their laziness, rather than the fact that the sugar they are consuming is the main source of obesity. This is proven by the fact that between 1980 and 2000, fitness club memberships doubled but so did obesity rates (*Fed Up*). Even though Americans became more active, they still were gaining weight: a clear sign that laziness was not the cause of obesity. It was also emphasized by the food industry that a

calorie burned equaled a calorie consumed (*Sugar Coated*). Therefore, it was believed by the public that it was okay to eat sugary foods, as long as they exercised and burned off those calories. However, this is completely false, since different sources of calories are metabolized very differently in the body. For example, 100 calories of almonds is very different than 100 calories of cake. In this way, the public was lead to believe that they, alone, were responsible for their weight and poor health, leaving sugar out of the equation. In this way, the food industry has numerous deceiving practices that shape public opinion to what will produce the most revenue. Unfortunately this does not always coincide with what is healthiest.

One major aspect of food today that makes it so unhealthy is the fact that it is loaded with sugar. Ever since the low-fat craze, Americans have been consuming excess sugar, leading to all sorts of diseases. The worst part about this, however, is that neither the government nor the food industries have done anything to limit Americans' sugar intake. In fact, they have ensured that consumers are not aware of how much sugar they're consuming nor the fact that it is so detrimental to their health.

In the 1980's, the low-fat trend lead to excess sugar consumption in America (*Fed Up*). When the fat is taken out of food, it is left highly unpalatable. Therefore, the simple solution that the food industry came up with was to add excess sugar, making the food more pleasant. This began the epidemic of obesity and extreme sugar consumption in the U.S.. Between the years of 1977 and 2000, humans have doubled their intake of sugar (*Fed Up*). Not surprisingly, this has lead to a plethora of diseases plaguing the population. When the liver is overloaded with fructose from our diet, it converts the sugar to fat. This leads to fatty liver disease, diabetes, and heart disease. Specifically, in the past 30 years, obesity rates have doubled to 600 million while diabetes rates have tripled to 347 million worldwide (*Sugar Coated*). These diseases are not only affecting adults, but more and more children have been diagnosed with type 2 diabetes as well as fatty liver disease. Additionally, 40% of the non-obese population has the same metabolic diseases that the obese do because they are consuming these sugar-filled foods (*Sugar Coated).*

It's not surprising that humans are hooked on sugar, since several studies have found sugar to be very similar to cocaine (*Fed Up*). In fact, it has been found that sugar is eight times more addictive than cocaine. In one experiment, cocaine-addicted rats were given the choice of sugar water or cocaine over a 15 day period. 40 out of the 43 rats chose sugar water over cocaine. The rats on a sugar water diet showed telltale signs of addiction, such as binging, craving, and withdrawal. Other studies have suggested that sugar is habit-forming, stimulating the same brain responses as opiates (*Food Politics*). Because humans are so conditioned to these high levels of sweetness, they crave sugar even more (*Fed Up*). As if this is not enough of an issue, the sugar industry will do anything to keep Americans hooked on sugar.

Industries have ensured that Americans are unaware of the specifics of their sugar intake. Sugar hides under 56 different names on food labels. Some of these names include molasses, honey, dextrose, corn syrup, cane sugar, fructose, maltose, sucrose, and dextran, in addition to others. Additionally, the amount of processed foods has doubled in 30 years to 2012, with many

of these foods containing sugar. In fact, of all the packaged foods in the grocery store, 74% of them are spiked with added sugar *(Sugar Coated*). While this includes foods like cereal and cookies, it also includes other less obviously sweet foods like salad dressing, barbeque sauce, hamburger buns, hamburger meat, etc. (*Sugar Coated*).When the FDA proposed having an added sugar label on these processed foods, the food industries protested. For example, Oceanspray asked to be exempt from this, admitting that cranberry juice needs all of the extra sugar to taste good. Not only is there no added sugar value, but there is no percentage for daily recommendations of sugar on nutrition labels, which was the result of sugar lobbyists fighting the World Health Organization (*Fed Up*). Although nutrition labels do contain the amount of sugar contained in the product, it is labeled in grams not teaspoons. This is unfair because while many people understand the size of a teaspoon, not many are familiar with the metric system (*Last Week Tonight*). The American Heart Association recommends a daily allowance of 6-9 teaspoons of added sugar a day, yet Americans are consuming nearly three times this amount. Adults have 19.5 teaspoons of added sugar daily, while teenagers consuming an excess of 30 to 41 teaspoons per day (*Sugar Coated*).

Not only do food companies conceal the truth behind their sugar content, they also hire scientists with conflicting interests to perform experiments for their products. For example, in the 70's, scientist John Yudkin was independently performing research on how sugar was harmful for the body. Therefore, the sugar industry paid scientist Ancel Keys to conduct research showing how dietary fat was bad in order to take the blame off of sugar (*Sugar Coated*). The sugar industry began to hire PR in order to influence the public opinion on sugar, with the goal being to make sure that there was never a public consensus on whether sugar is bad or not. Similar to Yudkin's research, artificial sugars, such as saccharine and cyclamates, became a large threat to the sugar industry. Therefore, the industry funded research to test the harmful effects of these products, coincidentally finding that fake sugars are a danger to health. Individual companies are also responsible for conflicting interests in relation to sugar. For example, Coca Cola sponsored a study that proved sugar in soft drinks does not have a correlation to obesity. Additionally, in coordination with McDonald's they sponsored the Canadian Obesity Summit, which aimed to provide help to those with the chronic disease. While Americans are suffering through diseases like diabetes and cardiovascular disease, believing that exercise is the key to maintain good health, the sugar industry is hiding the truth behind the deadliness of its product.

Ready-to-eat cereals are one of the items that tend to be loaded with added sugars. However, not much of the public is aware of this fact, and consume cereal assuming that it is a safe breakfast choice. One reason for this is the fact that food industries disguise cereal boxes with misleading claims which lead consumers to believe they are making a healthy choice. There are ample examples of breakfast cereals with outlandish claims that certainly misguide healthy decisions.

Many cereals contain an absurd amount of sugar; so much so that there's no difference between eating that or a piece of cake for breakfast (*Food Politics*). Kellogg's Honey Smacks,

for example, is nearly 56 percent sugar by weight. Compared to a twinkie that is 18 grams of sugar, one cup of Honey Smacks contains 20 grams. A serving of Honey Nut Cheerios is filled with 12 grams of sugar, while three Chips Ahoy cookies contain 11 grams. However, cereal companies deceivingly hide this information from the public.

A Kellogg's Frosted Mini Wheats commercial is an example of misleading claims in the breakfast industry (*Kellogg Settles…*). Kellogg's claimed that the cereal was "clinically shown to improve kids' attentiveness by nearly 20% (*Kellogg Settles…*)." However, only about half the children who ate Frosted Mini Wheats for breakfast showed any improvement in attentiveness, averaging just under 11% better in attentiveness, rather than "nearly 20%." Additionally, these statistics were compared with children who had eaten no breakfast at all. The federal trade commission found these claims illegal, violating federal law and told Kellogg's that they cannot write untrue claims (*Kellogg Settles…*).

However, Kellogg's again misled the public with their Rice Krispies Cereal (*FTC Investigation…*). They claimed that Rice Krispies "now helps support your child's immunity" with "25 percent Daily Value of Antioxidants and Nutrients – Vitamins A, B, C, and E." Their advertising was an attempt to capitalize on the then-present swine flu fears (O'Callahan). O'Callahan stated that "By their logic, you can spray vitamins on a pile of leaves, and it will boost immunity." The addition of some antioxidants and vitamins to the cereal does not negate the fact that it's completely filled with sugar.

General Mills Total Blueberry Pomegranate Cereal also used false claims in order to take advantage of the antioxidant craze (Adams). Although named so, the cereal did not actually contain any blueberries or pomegranate seeds. Instead, the company combined artificial colors Red #40 and Blue #2 with various oils and sweeteners like soybean oil and sugar to give the illusion of these fruits. The cereal did, however, contain eight different sweeteners: sugar, corn syrup, barley malt extract, brown sugar syrup, malt syrup, sucralose, molasses and honey.

Even Kellogg's Kashi Line was scrutinized by the Federal Trade Commission for misleading its consumers. (*Kellogg Agrees…*). The line was asked to drop the terms "all natural" and "nothing artificial" from some of their products. These products contained ingredients like pyridoxine hydrochloride, calcium pantothenate, and soy oil processed using hexane, which is a component of gasoline. These instances, as well as many others, of misleading information make it incredibly difficult for consumers to make healthy choices about what they're eating. "The public is demonstrably confused about what to eat," said Marion Nestle, a nutritionist at New York University, who recently gave a talk at the New York Academy of Sciences about diet and food politics (Thompson). There is conflicting information everywhere within the food industry, greatly confusing consumers as to which products they should be purchasing. In an industry where the Smart Choices program ended up on the front of a Foot Loops box, the public is constantly being deceived into making poor health choices.

Food labeling, whether it's through colors, logos, characters, or information, ultimately guides us towards the cereal box we will purchase. Therefore, the fact that so much of what is advertised for ready-to-eat cereals is either misleading or untrue, consumers are left in the dark. Not only are there catchy claims on all sides of a cereal box, but there's also the nutrition label, where the most important information is, despite its small size and placement. Included on the nutrition label is the percent daily values (DV), which are for a person eating 2,000 calories per day (Wolfram). When looking at percent daily values, it's important to keep in mind that a low percentage would be 5% or less while a high one would be 20% or more. Therefore, it's important to aim high for vitamins, minerals, and fiber. Protein, however, is not included as a DV on the nutrition label. The carbohydrates value contains three types of carbs: sugars, starches, and fiber. Therefore, it's possible to find the amount of starch by subtracting the values for sugar and fiber from the entire carbohydrate value. Sugar is listed in grams rather than tablespoons, which keeps the public from understanding the true amount of sugar. Finally, all of the ingredients on a nutrition label are listed in descending weight, with the largest amount listed first (Wolfram).

Consumers process this information as well as front-of-pack labeling by limiting their information intake through heuristics. As a consequence of on-pack nutrition information overload, consumers, however, neither read nor use all the information that is made available to them (Chalamon). Instead, they minimize the time spent assessing a product through shortcuts referred to as heuristics. When looking at the nutrition information, consumer interest varies according to individual nutritional consciousness, point of sales, product category, and time spent on shopping (Chalamon). Chalamon (2015) identified four ways in which consumers approach analyzing food labels, which include food optimization, food regulation, food gratification, and food as mere necessity. Food optimization is a promotion-focused approach, where the individual strives for good health by choosing products based on the active ingredients contained in it. These individuals often focus on natural, non-processed products that are good for their health. Individuals who approach analyzing food labels through a prevention-focused method seek to avoid bad health with food regulation. They wish to limit the negative impact of foods through strict selection. Aiming to be slim, they reject all products having high sugar or fat content. They also keep from consuming food products with ingredients perceived as being health risks or provoking allergies. Another promotion food approach is through food gratification, where individuals seek to take pleasure in their food, even if this breaks the nutrition guidelines. Excited by unique foods and gourmet dishes, the tasting experience is priority. Pleasure is also found from consuming large quantities and achieving a feeling of fullness. Lastly, food as mere necessity is a prevention approach that also disobeys the existing nutritional rules. With very little importance given to the quality of food intake, consumers purchase a product that is financially accessible and practical in terms of time to cook.

There is not a single way to process on-pack nutrition information; multiple reading strategies exist which vary according to the food consumption goals adopted by the individual

consumer. Additionally, there may be other aspects that influence a consumer's food choices. Diet may also depend on income, availability, culture, geographical reasons, environmental concerns, food prices, individual preferences, social, and economic factors (*Healthy Diet*).

Going along with the four different types of approaches consumers take to purchasing food, there are also two biases that come into play: the negative and optimism biases. The negative bias is an overestimation of the negative nutrients contained in the product such as fats or sugars. This gives the consumer an overall negative impression of the product, which may be falsely justified. On the other hand, the optimism bias is an underestimation of these negative components and an overall focus on the positive ingredients, such as vitamins or natural products. This interpretation can also come from deceptive serving size or the marketing and labeling of the product. Through these biases, different interpretations of food labeling, and other factors, consumers are guided towards making particular purchases. Some give more weight to certain factors than others, through a spectrum of different factors influencing this choice.

In terms of the product, ready-to-eat cereals can present information on their boxes through several different types of claims. Two highly utilized claims are nutrient and health-related. Nutrient claims highlight the benefits that can be attained by eating the product. Similarly, a health claim suggests a relationship between one of the food constituents in the product and a positive effect on consumer health, many times related to weight loss or digestion. Health claims can also take the form of listing healthy ingredients in the product name such as "vitamins," "minerals", dietary fiber" and widely advertised "whole grain." Clean labeling claims can also be made which emphasize the product's lack of negative ingredients, such as food additives, allergens, genetically modified organisms or sugar and salt. Additional claims that can be made are whole grain and organically certified (Maschowski). These claims are highlighted through the labeling of cereals and can play an impactful role in a consumer's choice of one cereal over another. However, many of these claims can be misleading and confusing to the public. For example, Schwartz et al. demonstrated that cereals with nutrition claims did not have better overall nutrition profiles. In other instances, cereals that claimed to be low in one negative nutrient were oftentimes higher in another negative nutrient, which certainly misleads consumers to believing that product is healthy. For example, Hampshire et al. showed that low-fat cereals had less fat than those with a fat claim, but did not differ in their sugar, dietary fiber or sodium content. While a cereal may present packaging that highlights the product as being whole grain or high in fiber, it may also contain a great amount of sugar and salt. Consumers expect that cereals containing these positive claims are overall better compared to other cereals lacking them, which oftentimes is not the case. Another misleading aspect of cereals is the different serving sizes. Often, companies will make their serving sizes smaller in order to give the impression that the negative ingredients are in smaller amounts. It's also been found that the serving sizes for children are too small and in most cases children consumed twice the amount of the recommended serving.

It's obvious that there is information coming from right and left at consumers urging them to purchase one brand over another. Through different health and nutrient claims, marketing, and misleading information, it can be almost impossible to choose what is or is not healthy. Not only this, but the concept of a healthy diet is a very abstract idea. It can also vary depending on sex, demographics, age, or pre-existing conditions. There are also several different organizations that provide unique suggestions on health information. These include the World Health organization, the US Dietary Guidelines, the Academy of Nutrition and Dietetics along with many other forms sources of health information. Therefore, the goal of this section is to provide guidelines for what is nutritious.

Food can be categorized in order to make it easier to understand the guidelines to be healthy. The largest subcategory breaks food into two group: macro and micronutrients. Like the name suggests, macronutrients are needed in large amounts and include water, proteins, carbohydrates, and fats. Micronutrients are needed in smaller amounts and include vitamins, minerals, and amino acids. These nutrients can be consumed largely through fruits and vegetables, and can certainly be supplied to the body without the consumption of processed foods like cereal.

Fruits and vegetables should be consumed in the largest proportions throughout the day because of their rich content of vitamins and minerals, making them the most beneficial to the body. At the same time, they are also low in fats and calories, and have no cholesterol which all should be limited in one's diet. Higher intakes of fruits and vegetables have also been associated with healthier lifestyles (*"Introduction"*). MyPlate, which used to recommend a food pyramid, but has recently switched to a plate graphic, recommends that half your plate should be fruits and vegetables at every meal. The WHO recommends five portions of fruits and vegetables in order to ensure adequate intake of fiber and reduce the risk of chronic disease. Contained in vegetables are the key nutrients potassium, vitamin A, vitamin C, vitamin K, copper, magnesium, vitamin E, vitamin B6, folate, iron, manganese, thiamin, niacin, and choline. Different types of vegetables contain a unique composition of these nutrients. For example, dark leafy greens are a great source of vitamin K while red and orange vegetables contain a large amount of vitamin A. All vegetables contain some amount of fiber, which is important for lowering the risk of heart disease while also providing a feeling of fullness without excess calories (Myplate).

Protein should be eaten in 5 ½ ounce-equivalents per day for a 2,000 calorie diet (*Introduction*). Protein can be obtained through seafood, meats, poultry, eggs, nuts, and soy. In meat, heme iron is more bioavailable than the plant non-heme iron. Proteins also provide the body with important vitamins and minerals including B vitamins, selenium, choline, phosphorus, zinc, copper, vitamin D, and vitamin E (*Introduction*). Specifically, eggs are a great source of choline, and nuts and seeds are high in vitamin E, especially brazil nuts. Additionally, seafood provides a source of omega-3 fatty acids. When considering red meat to poultry, it is important to recognize that meats provide the greatest source of zinc, while poultry provides niacin.

With a 2,000 calorie diet, it is recommended that one should consume 6 ounce-equivalents per day, with at least half of these servings being whole grain (*Introduction*). Whole grains are more nutritious compared to white refined grains. When the grain is refined, the bran and germ of the kernel is removed, which removes the iron and dietary fiber. Specifically, the bran and germ account for most of the fiber, oil, B vitamins and 25% of the protein in grains. Additionally, they contain zinc, manganese, folate, magnesium, copper, thiamin, niacin, vitamin B6, phosphorus, selenium, riboflavin and vitamin A. While some refined grains may be enriched through a process that adds iron and four B vitamins back into them, it is more desirable to consume them unrefined. Whole grains include quinoa, brown rice, barley, buckwheat, oatmeal, and bulgar. These carbohydrates should replace sources of refined grains, such as white bread, pasta, tortillas, and white rice.

The dairy group contains milk, yogurt, cheese, and soy products (*Introduction*). This does not include plant milks, such as almond or coconut milk. It is recommended that adults have 3 cup equivalents of dairy per day. The nutrients contained in dairy products include calcium, phosphorus, vitamin A, vitamin D (in products fortified with vitamin D), riboflavin, vitamin B12, protein, potassium, zinc, choline, magnesium, and selenium (*Introduction*). Additionally, fat-free options provide these nutrients without the excess calories found in higher fat options. Yogurt and milk should also be selected over cheese, since they contain less saturated fats and sodium.

Fats should be consumed sparingly in one's diet. In adults, reducing the amount of total fat intake to less than 30% of total energy intake helps prevent unhealthy weight gain (*Healthy Diet*). When saturated fats are reduced to less than 10% of the energy intake in one's diet and trans fats are lowered to less than 1%, the risk of chronic disease is greatly lessened. Therefore, when consuming fats, one should look for unsaturated rather than saturated or trans fats. In fact, when saturated fats are replaced with unsaturated fats, there is a reduced risk of cardiovascular disease (*Introduction*). Instead of consuming solid fats, one should opt for oils, which are naturally present. On a 2,000-calorie diet, one should consume 27 grams or about 5 teaspoons of oils per day. Oils can be extracted from plants, such as canola, corn, olive, peanut, safflower, soybean, and sunflower oils. They are also naturally present in foods like nuts, seeds, seafood, olives, and avocados. Specifically, fish offer omega-3 fatty acids which are important for good health (Myplate). Out of all fats, trans fats are the worst to consume. They are produced through hydrogenation, changing the cis chemical formation to a trans conformation. They are associated with an increased risk of cardiovascular disease. Trans fats can be found in some desserts, microwave popcorn, frozen pizza, margarine, and coffee creamers.

In addition to sugar, salt is another food product that Americans tend to overuse. It is recommended that one consumes less than 5 grams of sodium per day (*Healthy Diet*), or less than 2,300 milligrams of sodium per day (*Introduction*). On average, most consumers have an average of 9-12 grams of salt per day. At the same time, we lack potassium in our diets. This combination of high salt consumption and insufficient potassium intake (less than 3.5 grams

per day) results in increased blood pressure and risk of heart disease and stroke (*Healthy Diet*). Potassium, which can be ingested through fruits and vegetables, has the ability to lessen the negative effects of elevated sodium consumption on blood pressure (*Healthy Diet*).

Finally, this paper has largely examined the negative impacts of sugar in breakfast cereals, and therefore, should obviously be limited in one's diet. Sugar provides no nutritional benefit other than a quick boost of energy due to elevated glucose levels. Therefore, many people refer to sugar as "empty calories" because it simply adds calories without any nutritional benefits (*Introduction*). Therefore, one should consume less than 10% of calories per day from added sugars (*Introduction*). An additional reduction to less than 5% of total energy intake provides additional health benefits (*Healthy Diet*). Therefore, sugar should come from natural sources, such as fruits.

In order to substantiate the information collected in this paper, 18 different cereal boxes were analyzed and their nutrition information was assessed. The "best" and "worst" cereals for each nutrition category were determined by their serving size relative to the amount of a given nutrient. The 18 cereals analyzed were Cheerios, Fruity Cheerios, Cocoa Puffs, Honey Nut Chex, Trix, Cheerios Protein, Rice Krispies, Special K Chocolatey Delight, Special K Red Berries, Apple Jacks, Frosted Flakes, Mini Wheats, Smart Start, Shredded Wheat, Honey Bunches of Oats, Great Grains, Life, and Grain Berry. In terms of calories, cereals ranged from 100 to 220 calories per 0.75 to 1.25 cups. The lowest calorie cereals, with 100 calories per cup, were Apple Jacks and Cheerios. The highest calorie amount was Cheerios Protein at 220 calories per 1.25 cup serving. The lowest fat amount, at 0g was Rice Krispies, while the highest fat value was 4.5 grams contained in Cheerios Protein. The highest sodium content was 200mg per 1 cup contained in Smart Start cereal. Both Shredded Wheat and Mini Wheat contained 0mg of sodium, making them the most favorable in this category. Shredded Wheat also had the lowest amount of sugar at 0g per 1.25 cup serving size. On the other hand, Kellogg's Smart Start cereal contained 14g of sugar per 1 cup serving size. Cheerios Protein also had a high level of sugar at 16g per 1.25 cup serving. Kellogg's Rice Krispies had the lowest amount of fiber, at 0g per 1.25 cup serving, while Shredded Wheat had the greatest amount at 9g per 1.25 cup serving. Not surprisingly, Cheerios Protein had the greatest amount of protein at 7g per 1.25 cup serving. Apple Jacks and Trix had the lowest amount of protein at just 1g per 1 cup servings.

These cereals were concentrated under a few major food companies. Of the 18 cereals, 7 of them were produced by Kellogg's. Coming close, General Mills produced 6 of the cereals. Post produced 3 of the cereals while Quaker produced one and The Silver Palate produced another. Thus, it is seen how breakfast cereals are monopolized by a few companies.

Overall, General Mills Cheerios Protein seemed to score the worst in terms of negative nutrients, having the greatest amounts of calories, fat, sodium, and sugar. At the same time,

however, it had the highest amount of protein. Post Shredded Wheat seemed to score the best in having the least amount of sugar and sodium while also having the highest amount of fiber.

The packaging claims of these cereals were also assessed, including fiber, whole grain, gluten free, nutrient, heart, and sugar claims. All of the five fiber claims were made by Kellogg's cereals. These included Apple Jacks, Smart Start, Special K Red Berries, Special K Chocolately Delight, and Mini Wheats. These all contain 3 grams of fiber, with the exception of Mini Wheats which contains 5 grams. Interestingly, the cereal which had the highest amount of fiber, Post Shredded Wheat, did not contain any fiber claims. Other cereals which had higher amounts of fiber, such as Post Great Grains and Kellogg's Mini Wheats, which both contain 6 grams of fiber, did not contain any claims either. More than half of the cereals made whole grain claims, across all of the food production companies, potentially highlighting an important point of sale for consumers. Gluten free claims were made by four cereals, three of which are produced by General Mills: Honey Nut Chex, Cheerios, and Fruit Cheerios. Post's Honey Bunches of Oats also claimed to be gluten-free. Other cereals claimed to contain various nutrients. Kellogg's Smart Start claimed to have antioxidants and protein. However, this cereal was not one of the ones containing a large amount of protein, at only 4 grams per 1 cup serving. Additionally, Kellogg's Smart Start ranked the highest in sodium and sugar, which makes the cereal somewhat undesirable, although it may attract positive response from the antioxidant and protein claims. The Silver Palate's Grain Berry claimed to contain antioxidants. This may be seen as misleading because the cereal does not contain any actual berries that would be a natural source of antioxidants, but has rather been enriched. Both Kellogg's Special K Red Berries and Special K Chocolately Delight claimed to have folic acid and vitamin D, which isn't unusual because cereals are often fortified with folic acid, which is an important nutrient during pregnancy. General Mills Fruity Cheerios, General Mills Cheerios Protein, Kellogg's Mini Wheats claimed to have a positive effect on heart health. However, Cheerios Protein scored the worst in sugar, sodium, fat, and calories, which certainly makes this claim questionable. More than half of the cereals made claims that their products were natural or contained no artificial flavors. Trix and Honey Nut Chex claim to have no high fructose corn syrup. However, Honey Nut Chex does list sugar, honey, and molasses in the ingredients, which are all forms of sugar, containing an overall high amount of sugar at 9g. Trix lists both sugar and corn syrup in the ingredients and contains a high amount of sugar at 10g. Thus, this may be misleading because although the cereal may not contain high fructose corn syrup, it does in fact, contain other forms of sugar. No calorie claims were made, which may represent a change in the value consumers have in a low-calorie cereal or this could be simply because the cereal already has the calorie amount pictured on the front of the box.

Clearly, this small sample of ready-to-eat cereals presents numerous examples of misleading packaging. Although it's true some of the cereals, such as Cocoa Puffs, Life, and Honey Bunches of Oats were all around average in their nutritional values, it would still be more desirable to choose a different breakfast. Rather than a processed food, fruits and vegetables are

highly beneficial for the body, without having many negative attributes. These can be paired with whole grains and unsaturated fats. Rather than going to the grocery store and analyzing each cereal, finding the pros and cons, it would be simpler and more health-conscious to opt for unprocessed foods.

Overall, the food industry does not seem to have the best interest of its consumers in mind when it comes to breakfast cereals. Loaded with high amounts of added sugar, cereals are not as healthy as companies like General Mills and Kellogg's claim to be. Consumers are misled through various claims that these cereals are desirable and ultimately left confused as to what constitutes a healthy breakfast.

Works Cited

Chalamon, Isabelle, and Lydiane Nabec. "Why Do We Read On-Pack Nutrition Information so Differently? A Typology of Reading Heuristics Based on Food Consumption Goals." *Journal of Consumer Affairs* 50.2 (2015): 403-29. Web.

"Choose MyPlate." *Choose MyPlate*. United States Department of Agriculture, n.d. Web. 23 Jan. 2017.

"Healthy diet." *World Health Organization*. World Health Organization, n.d. Web. 18 Jan. 2017.

"Introduction." *The Dietary Guidelines for Americans: What It Is, What It Is Not - 2015-2020 Dietary Guidelines*. N.p., 2015. Web. 18 Jan. 2017.

Maschkowski, Gesa, Monika Hartmann, and Julia Hoffmann. "Health-related on-pack communication and nutritional value of ready-to-eat breakfast cereals evaluated against five nutrient profiling schemes." *BMC Public Health* 14.1 (2014): n. pag. Web.

"Shifts Needed To Align With Healthy Eating Patterns." *A Closer Look at Current Intakes and Recommended Shifts - 2015-2020 Dietary Guidelines*. N.p., 2015. Web. 18 Jan. 2017.

Wolfram, Taylor. "The Basics of the Nutrition Facts Label." *Www.eatright.org*. N.p., 8 Dec. 2016. Web. 18 Jan. 2017.