Influential Factors on Consumer Food Choices and Nutritional Literacy in College Students

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Abstract

There is a direct link between dietary intake and chronic diseases like diabetes and obesity. The factors that influence consumers in their food purchasing process need to be better understood to develop powerful and effective nutrition and consumer education programs. This can lead to increased nutrition literacy and make improvements in public health and reduce health care costs. This study tested Allegheny College students using an online survey that determined whether or not nutritional literacy could predict the purchasing of healthier food products, or the purchasing of food products based on their nutritional content. Although the results were not significant, trends did show that as nutritional literacy scores increased, the importance of nutritional content did as well.

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Table of Contents

Abstract 3

Acknowledgements 4

Table of Contents 5

Influential Factors on Consumer Food Choices and Nutrition Literacy 7

Nutrition Labelling and Nutritional Content 9

Price 11

Brand Name Familiarity 13

Nutritional Literacy 14

Miscellaneous Outcomes and Factors 16

Methods 18

Study Objective 18

Participants 18

Survey Materials 19

Measures 19

Nutrition Literacy 19

Product Choice 20

Product Choice Design 20

Product Choice Scoring 22

Scoring the Nutrition Labels Based on Healthiness 23

Extraneous Items 25

Procedure 26

Data Analysis 26

Results 27

ANOVA of Nutritional Content Ranking and Nutritional Literacy Scores 27

T-Test of Nutritional Content Ranking as First and Nutrition Literacy Scores 28

ANOVA of Healthy Product Choice Scores and Nutrition Literacy Scores 29

Calculated Frequencies 29

Discussion 31

Limitations 33

Conclusion 34

References 35

Appendix A 39

Appendix B 41

Appendix C 42

Influential Factors on Consumer Food Choices and Nutrition Literacy

Prior to World War II, supermarkets were small independent grocery stores that were only used for bulk purchasing and buying canned and packaged goods. The Piggly Wiggly supermarket started a movement in 1915. It was the first self-service grocery store where customers were able to select and purchase their own merchandise, pay at the first checkout stands, and offer the first opportunity to see prices on all products. Due to postwar economic prosperity, increasing suburbanization, and the amplified utility of the automobile, supermarkets rapidly expanded. In the 1930's and 40's, stores were family owned and stocked only staple foods like bread, bulk flour, milk, beans, and canned goods. At this time, the sizes of supermarkets were, on average, seven hundred square feet. Customers were regulars and were called by name. Through this companionship, customers were trusted, earned store credit, and may have only paid once a year. Nowadays, "the average American supermarket measures over forty-six thousand square feet and displays over 48,750 items", we are expected to pay every penny right then and there, and our identity is seen as irrelevant (Koch, 2012). The Piggly Wiggly stores set an example for all of the many supermarkets that followed their success. The supermarket expanded rapidly, and the increasing number of self-service supermarkets led to the creation of a consumption based society.

Retailing put the spotlight on food products, and with agricultural advances, food prices began to drop causing more and more resources to be devoted to promoting these products through marketing and advertisements. This increase in marketing led to the idea that stores should be arranged in a way that captivates the customers from the second they walk in, and ensures immediate contact with a display of merchandise. They also would strategically place those staple foods (e.g. bread and milk) at the back of the store to guarantee the passing of many

other products before reaching the products customers actually needed. This encouraged the customers to buy products through impulse and no longer out of necessity. “Between 1949 and 1965 almost three-fourths of all supermarket food purchases were unplanned (Levenstein, 2003), and today industry analysts estimate that at least one-half to two-thirds of purchases are a result of impulse buying (Underhill, 1999)” (Koch, 2012). Marketing attempted to create a bond between products and the customers, assuming successful marketing addresses the customer’s needs and desires. As marketing became imperative to sustain supermarket growth, they focused less on selling certain products, and more on getting a customer to make a purchase. By 2000, “seventy percent of the total advertising bill was spent marketing convenience foods, whereas 2.2 percent went to promote fruits, vegetables, grains, and beans” (Koch, 2012).

The supermarket business has now given consumers control and power over what they feel to be best for themselves and their families. Koch (2012) had dubbed this ideal ‘Consumer Sovereignty’, which came from neoclassical economics (An approach to economics that relates supply and demand to an individual's rationality and his or her ability to maximize utility or profit (Investopedia, n.d.)). The Classical Consumer Theory has stated that the consumer’s utility is a function of the goods consumed. There is an extended theory suggesting that it is more the characteristics of the goods (nutrition, taste, etc.) than the goods themselves that leads to consumer satisfaction (Lancaster, 1966). The neoclassical formulation of the consumer theory assumes that consumers must choose from among many different options and has certain preferences coming into each opportunity. Consumer sovereignty does account for consumers being able to make rational choices on what to buy. It does not, however, account for the interference of outside sources (e.g. advertising or financial reasons). The key part of these theories is that the consumer has a chance to make choices by thinking them through. “This

assumption is referring to the consumer's psychological beliefs or feelings, feelings which then determine his choice behavior. Thus, the consumer bases his actions on his preferences" (Selikoff, 2013). In summary, consumers come into each shopping experience with knowledge (regarding nutrition) and expectations gained from past experiences, leading to the development of preferences, which will then affect their food product choice. These expectations and preferences will be referred to as the participants' *food ideals*, those items which influence consumer food choice; these include Nutrition Labelling and Nutritional Content, Price, Brand Name Familiarity, and Nutritional Literacy.

Nutrition Labelling and Nutritional Content

Since the passing of the Nutrition Labeling and Education Act in 1990, which made putting nutrition labels on all processed foods mandatory and promoting labeling on fresh meat and produce, diets have become higher in Vitamin C, lower in cholesterol, and lower in the percentage of calories from fat, as well as a reduction in health care costs (Guthrie, Fox, and Cleveland, 1995). As a result of clearly showing consumers what is in the food product, food manufacturers improved the nutritional content of their food. This also gave consumers the opportunity to make more health-oriented food choices because of the expansion of nutrition information. For consumers to benefit from all that nutrition labeling has to offer, we must have more nutrition education and consumer education programs targeting nutrition label use. This will promote an awareness of the link between diet and health, and the value of the nutrition label as a tool for making healthy food choices.

Generally, label use does affect purchasing behavior because consumers want to avoid negative nutrients and seek out positive nutrients. The use of claims ("An assertion of the truth of something, typically one that is disputed or in doubt" (Oxford Dictionaries, n.d.)) on the

product's packaging also has an effect on purchasing behaviors because it influences the way consumers evaluate the nutritional content. When a product presents a health or nutrient content claim, consumers tend to view the product as healthier and are more inclined to purchase it (Drichoutis, Lazaridis, and Nayga, 2006). Different people will have different reasons for analyzing nutrition labels before selecting the product they decide fits their standards. Koch (2012) created a study that interviewed many different families regarding their shopping experience. One of families had a child with kidney stones so there was a concern for managing the amount of sodium intake in the child's diet. Many mothers wished they cooked more meals from scratch because they understand that packaged foods are very fattening, but they try to make up for it by feeding their families wheat bread, calcium fortified drinks, low sugar cereals, and snacks like granola bars and yogurt instead of candy. Some families will spend up to $900 dollars a month on food in the attempts of purchasing only the freshest and most healthful food products. One of the young professional mothers wanted her son to learn healthy eating habits and to be exposed to many different types of foods. So she feeds him a variety of vegetables and lower fat protein, and tries to avoid artificial sweeteners.

Nutrition Labels come in different formats but the one that consistently produces the most positive dietary benefits displays the percentages of various nutrients based on the daily values for each nutrient. The "use of bolded text, colored nutrition panels, and whole numbers are preferred by the majority of consumers" (Drichoutis et al., 2006). As of March 2014, The U.S Food and Drug Administration announced that they are proposing many changes to the current nutrition label. If these proposed changes are adopted, they would include a greater understanding of nutrition science, updated serving size requirements and new labelling requirements for certain package sizes, and a refreshed design. The label reflects the most

updated concerns regarding the link between what people are eating and chronic diseases like obesity and cardiovascular disease. Greater emphasis would be put on sodium, dietary fiber, and Vitamin D and manufacturers would be required to pronounce the amount of potassium and Vitamin D. The term "Calories from Fat" would be removed because research is now saying that it is the type of fat that should concern us and not the amount. Serving sizes will reflect what people actually eat, and not what they "should" be eating, and require packaged foods be labeled as a single serving and that the caloric and nutrient information concern the entire package. As for format, the calories and serving sizes will become more prominent to emphasize the parts of the label that can address the current public health issues (e.g. obesity, diabetes, and cardiovascular disease). The Percent Daily Value will be pushed further to the left of the label to promote the awareness of how much of the nutrients you are getting out of the particular food item in regards to the total daily diet. After the effective date, manufacturers have two years to begin using the new nutrition labels and comply with any final requirements (U.S. Food and Drug Administration, n.d.).

Price

Price comes into play when a consumer is deciding whether or not to buy a certain product. Many say that household economy is very important and that consumers are aware when there is a good bargain. A study was done by Hjelmar (2010) that posed consumers with a choice of buying an organic or a non-organic product; the majority of participants in the study claimed that the organic products were just too expensive. One woman stated, "If I have to choose between organic tomatoes and [non-organic] tomatoes, I will probably always take the [non-organic] ones because you get that much more." Studies have shown that adults view price to be one of the top influences on food selection, and although there have not been many studies

with adolescents, it does appear that adolescents are also price sensitive. French et al. (1997) empirically demonstrated large effects of price reduction on sales of fresh fruits and vegetables, and lower-fat snacks in vending machines in high school settings. A 50% price reduction on fresh fruit and vegetables increased weekly sales by twofold to fourfold during a three week period in two high school settings. Though the Federal government has many nutrition education campaigns in place to make sure consumers have the knowledge to make healthy food choices, economic factors such as food prices and the consumer's income are very important determinants of food choice, which also has a direct effect regarding nutrient availability. Those with higher incomes will have the means and resources to access more food options and more nutritious foods. The cost of food is a more influential factor for those with a low income, and in these situations, convenient and low cost meals are the practical resources. The number of fast-food outlets in the United States has risen steadily over the past couple of decades. In 1972, there were about 75,000 outlets which grew into almost 200,000 outlets by 1997 (Koch, 2012). These fast-food chains appeal to those with lower incomes because they are able to get a quick and good-tasting meal. However, the fast-food consumption has negative impacts on the nutritional quality of the food. Those who eat at fast-food restaurants have a diet higher in fat, saturated fat, and sodium, and have a lower intake of fiber, iron and calcium (Story, Neumark-Sztainer, and French, 2002). The food products that are modified and are healthier are generally more expensive and only those with the means are able to purchase them (Blaylock et al., 1999). Additionally, it is not just the price that influences their purchasing it is also the consumer's perceptions of cost that will affect their decision to choose a product. Consumers consider the perceived worth and the quality of the food, as well as price, to be very important. Many people want to get the most for their money and feel that they are purchasing a quality item. When

people weigh the price of their food choices, they are also judging the worth of the product in terms of its cost relative to the quality (Furst, 1996).

Brand Name Familiarity

Today's adolescents live in a media-saturated environment that has increased in the last two decades. They can choose from hundreds of television shows, magazines, and websites that all have advertisements for different products. Product placement (an advertising technique used by companies to subtly promote their products through a non-traditional advertising technique, usually through appearances in film, television, or other media) is used throughout many different television shows. For example, when watching *American Idol*, every single judge is shown drinking out of a Coca-Cola® cup, or in *Modern Family* when they have a shopping spree in Target®. If the average adolescent views about 2.5 hours of television per day, about 105 minutes of commercial advertising could reach the adolescent during a typical week (Story et al., 2002). This may cause consumers to believe that certain products are more beneficial than others, simply because they have been well advertised. Social psychology has a theory about repeated exposure and preference. The Mere Exposure Effect (which can also be referred to as the familiarity principle) is a psychological phenomenon whereby people feel a preference for people or things simply because they are familiar to them (Fournier, 2010). This means that humans are prone to feeling that they like something, or have preference for it, after being repeatedly exposed to it. Advertising obviously utilizes this psychological phenomenon. A study was conducted asking participants to read an article on a computer while different banner advertisements flashed at the top of the screen. The results revealed that the participants responded more favorably to the advertisement that was shown repeatedly, and less favorably to

the other ads that were shown less often, or not at all (Fang, 2007). The mere-exposure effect suggests that consumers do not even need to perceive meaning from the advertisements. The simple repetition is enough to stay in a consumer's mind and unconsciously affect their consuming behaviors. The actual packaging and presentation of the product is seen as less important and it is the *familiarity* with the brand that will aid in the likelihood of consumers repeated purchase.

Nutritional Literacy

Shoppers do not have the ability to see, smell, or taste fat, calories or sugar grams. One does not learn about these concepts from past experience or intuitively understands them from birth. This knowledge must be acquired through the use of research and seeking out the information. Many shoppers will say that they heard this and that from magazines, television news shows, government agencies and medical brochures. Koch (2012) had analyzed these resources that shoppers tend to use, and it is evident that the main message is that the most important aspect of food is the individual nutrients. The majority of shoppers today are familiar with the basic concepts of nutrition knowledge because they were raised in an era full of government agency guidelines regarding the different food groups and recommendations of how much of each we should be ingesting. The United States Department of Agriculture (USDA) has come a long way since its first installment of food guidelines titled, "Food for Young Children" and its sequel for adults, "How to Select Foods". This was created in 1916 and it was the first guide giving very specific dietary recommendations. Adaptations to this specific publication were made to accommodate to consumer's food purchasing process during the Great Depression, with suggestions based on four cost levels. By 1940, the National Academy of Sciences teamed

up with the USDA and created the "Basic Seven" which identified the seven recommended nutrients and then later added serving sizes (in an updated version in 1946). The 1956 ideals of the four food groups were introduced and were utilized for decades. It wasn't until 1992 that the infamous food pyramid made its debut, which later got a makeover in 2005. The most updated version was created in 2011 and is referred to as "My Plate". It illustrates the proportions of the four recommended food groups and a glass full of milk (The Washington Post). With all of this information floating around, it is easy to say that the majority of shoppers have a basic understanding of food and at least a basic level of nutrition knowledge. Most Americans are aware of the mainstream nutrition knowledge and supermarkets and school lunch programs incorporate, as well as promote these ideals.

According to Blaylock et al., (1999) knowledge of nutrition can take two forms: "*knowledge of principles"* and "*knowledge of specific nutrient content"*. The "*knowledge of principles"* refers to the understanding of components and specific aspects of nutrients. For example saturated fat is more likely to be a solid or cholesterol is only found in animal products. "*Knowledge of specific nutrient content"* refers to the ability to decipher and differentiate healthier foods based on their nutrient contents, for example, a consumer can determine that a regular hamburger contains more fat than ground round, and that white bread has less fiber than wheat bread (Blaylock et al., 1999).

The Technical Report and Data File User's Manual For the 2003 National Assessment of Adult Literacy (2009) defines *literacy* as "Using printed and written information to function in society, to achieve one's goals, and to develop one's knowledge and potential." The United States (US) Department of Health and Human Services defines *health literacy* as "the degree to which individuals have the capacity to obtain, process, and understand basic health information

and services needed to make appropriate health decisions" (About Health Literacy, n.d.). There are four different levels of literacy: *Below Basic, Basic, Intermediate,* and *Proficient*. The *Below Basic* literacy level "indicates no more than the most simple and concrete literacy skills." The *Basic* literacy level "indicates skills necessary to perform simple and everyday literacy activities." The *Intermediate* literacy level "indicates skills necessary to perform moderately challenging literacy activities." The *Proficient* literacy level "indicates skills necessary to perform more complex and challenging literacy activities." (Kutner, 2006).

Miscellaneous Outcomes and Factors

There are many other factors that influence a consumers' process when it comes to their shopping experience. There will always be a battle between taste and nutrition. Many consumers prefer the instant gratification of a tasteful product rather than the long term effects of a more nutritious product (Drichoutis, 2006). Also out of time constraints and convenience, people often evaluate food products in terms of how long food will take to prepare or how easily accessible the foods are. Some may concern themselves with the sustainability of the local food markets. These people find themselves driving to farmers' markets, local co-ops, local farms, and different stores for fresh and locally grown produce. Koch (2012) had explained that a woman enjoyed supporting the ideals of buying only local foods because she did not have a job at the time. When she returned back to work she had stated, "I stopped feeling guilty about buying produce at the grocery store when I realized that it is NOT possible. Supporting sustainable agriculture is not sustainable in our society (Koch, 2012)". The convenience stores will hold a vast majority of popular food items, however, these items probably traveled thousands of miles to get there. Convenience wins over supporting the ideals of sustainability for those who have

time constraints. Adolescents also express time constraints regarding their food choices as well. They would rather sleep in longer in the morning than getting up earlier and taking the time to prepare breakfast or not wanting to wait in a long lunch line at school. They even understand that their parents are quite busy with their jobs and don't mind going to fast-food restaurants two to three times a week. Even when adolescents and their parents do have the time, they still feel that convenience is a satisfying factor when it comes to food choice. They prefer foods that are easy to prepare, can be put in a backpack or taken to-go, food that can be delivered to the home or picked up in a drive-thru, and foods that do not demand clean-up (Neumark-Sztainer, Story, Perry, and Casey, 1999).

Studies have shown that there are characteristics of people that can predict nutrition label use and knowledge about nutrition. In Guthrie et al. (1995), results show that the type of person most likely to use a nutrition label were educated females, who lived with others, is more knowledgeable about nutrition, and finds nutrition and product safety to be more important than taste. Those least likely to utilize nutrition labels while shopping are males who are the meal planners/preparers in the home, live alone, are less educated and less knowledgeable about nutrition, and believe taste to be the most important factor for food. 76% of women identified as label users compared to only 55% of men. The more educated individuals were more aware of the link between diet and health which causes them to be more motivated to utilize the labels. Female meal planners may be more likely to use nutrition labels because gender roles encourage them to place more emphasis on food selection. Those living alone were more likely to spend less time and effort worrying about nutrition being an important component of food.

Methods

Study Objective

The purposes of the current study were (1) to identify what factors influence a consumer when buying a food product (2) to determine the participant's level of nutrition literacy and see how this knowledge was applied and (3) to determine whether an individuals' perceived food values are consistent before and during their process of choosing products. Many previous studies retrieved their data from national surveys which gave a plethora of insight regarding the shopping experience, but did not always include a scenario that reproduced a realistic experience that allowed each participant to make choices regarding their preferences. This study is unique because it not only gets information on what a consumer would choose, but that data can be interpreted in a way that can shed light on why they chose what they did, and what influences affected them. This topic is important because factors influencing consumers' food choices need to be better understood to develop powerful and effective nutrition and consumer education programs. From the information collected, it is hypothesized that (1) the higher the level of nutrition literacy, the higher the 'Presence of Nutritional Content' will be on the ranking influential factor list and (2) The higher the level of nutrition literacy, the participant will more often choose the healthier food product.

Participants

The participants in this study were either recruited through Allegheny's SONA system or simply through advertisement and the link to the *Qualtrics* website where the online study was located. Once the survey was closed, 81 participants had started the survey,

however only 65 participants completed the survey all the way through. Of those 65 participants, 21 were male and 44 female. All were ranging from freshman to senior class students.

Survey Materials

The survey administered in this study was a combination of an adaptation of the 1989-1991 Diet and Health Knowledge Survey (DHKS) (Sapp, 1997), adaptations of two sections from the Dietary Questionnaire on Food Habits, Eating Behavior, and Nutritional Knowledge taken from Giovanna Turconi's manuscript (Turconi, 2003), as well as original questions created by the researcher (As seen in Appendix C).

Measures

Nutrition Literacy

Nutrition literacy of the participants was measured by the combination of the total scores from all three of the following sections:

1. The adaptation of the 1989-1991 Diet and Health Knowledge Survey (DHKS) questions were scored with the correct answer as 1 point and the incorrect answer being zero points. For this section of the survey the participants could get a total of 16 points. According to Blaylock et al. (1999) this section tests the participants' *knowledge of nutrient content*, which will be referred to as DHKS total score.
2. Part 1 of the adaptation of the Dietary Questionnaire on Food Habits, Eating Behavior, and Nutritional Knowledge (which was originally Section E: Healthy and Unhealthy Dietary Habits and Food in the manuscript), was scored on a scale of 0 to 3. Three being

the most correct answer and 0 being the least correct answer. For this section participants could get a total of 15 points.

3. For part 2 of the adaptation of the Dietary Questionnaire on Food Habits, Eating Behavior, and Nutritional Knowledge (which was originally Section H: Nutrition Knowledge in the manuscript), gave 1 point for the correct answer and zero points for the incorrect answer. For this section participants could get a total of 11 points. Both Part1 and Part 2 of the Dietary Questionnaire on Food Habits, Eating Behavior, and Nutritional Knowledge can be combined to a total sum of 26 points, which tests the participants' *knowledge of nutrition principles*

The total possible score for the Nutrition Literacy section was 42 points. This section was testing the level of how much knowledge (or information) each participant had on the subject of nutrition and healthy foods. The total score is broken down into four levels in order to determine the participant's level of understanding nutrition knowledge. *Below Basic* level scores are between a total of zero and 10 points, *Basic* level scores are between a total of 11 and 21 points, *Intermediate* level scores are between a total of 22 to 32 points, and *Proficient* level scores are between a total of 33 and 42 points. The numerical levels were determined simply by dividing the total possible points (42) into four sections to abide by what previous literacy surveys have done before.

Product Choice

Product Choice Design

In order to authenticate the process of choosing food products, the survey was designed in specific way to have the participants simply choose a food product based on the information

given to them. Each question included all three variables of interest (a brand name, a price, and a nutrition label). The participants were under the impression that they were just generally choosing a food product. However, the questions were designed to give the participant a choice of a healthier product versus an unhealthier product, a more expensive product versus a less expensive product, and a familiar branded product versus an unfamiliar branded product. Each question had one of these opposing options making them specifically designed to focus on one variable at a time. Therefore, a question with a healthier product versus an unhealthier product would be addressing nutritional content, and answering the question, "Are they choosing the healthier or unhealthier food product?" Thus, that question was nutritionally content relevant. This system continued for the questions addressing price and brand name, making those questions either price relevant or brand name relevant.

Along with the relevancy aspect (either nutritional content, price, or brand name) each question would include a variation of the remaining variables. The second hypothesis draws the most attention to the nutritionally relevant questions and for this hypothesis only, the remaining items (brand name and price) are considered extraneous. Table 1 displays the design of the nutritionally relevant section.

Table 1

Design of Nutritionally Relevant Survey Questions

Question #	Correct Answer	Incorrect Answer
40	Healthy Nutrition Label High Price Familiar Brand Name	Unhealthy Nutrition Label High Price Familiar Brand Name
43	Healthy Nutrition Label Low Price Unfamiliar Brand Name	Unhealthy Nutrition Label Low Price Unfamiliar Brand Name
46	Healthy Nutrition Label Low Price Familiar Brand Name	Unhealthy Nutrition Label Low Price Familiar Brand Name
49	Healthy Nutrition Label High Price Unfamiliar Brand Name	Unhealthy Nutrition Label High Price Unfamiliar Brand Name

Table 1. The structure of each nutritionally relevant question and its involvement with the extraneous items.

Product Choice Scoring

For this section of the survey, each participant was asked to answer all twelve of the product choice questions. These twelve questions were separated into three parts and each section consisting of four questions:

1. Nutritional Content Relevant (questions 40, 43, 46, and 49)
2. Price Relevant (questions 41, 44, 47, and 50)

3. Brand Name Relevant (questions 42, 45, 48, and 51)

The survey questions were created under the assumption that those who had ranked a factor to be the most influential in their food purchasing process (which was previously determined in question six) would then choose certain food products based on that influential factor. A participant who considers nutritional content to be most important while purchasing a food product would be expected to choose the healthier product because they would be pleased with the healthier nutrition label. The four nutritionally relevant questions targeted those who put nutritional content as being the most influential (ranking it as first on their influential factors list). The healthier product (higher in nutritional content) would be given a score of 1 point if chosen, and zero points for the less healthy product. In this section alone, the participant was able to receive a total of 4 points. The total score for this section is referred to the *Healthy Product Choice Score.*

Scoring the Nutrition Labels Based on Healthiness

The nutrition labels chosen for this survey were scored using an adaptation of the guidelines on how to understand and use nutrition facts labels, developed by the U.S. Food and Drug Administration (FDA). By using these FDA guidelines, each product in this study was coded on how healthy the food product was on a product health scale (created by this researcher) of 1 to 3: the higher the score, the healthier the food. The "healthier food" was defined as the one closest to meeting the guidelines that the FDA suggested. The explanations for each product health scale rating are below.

1. The food product has to have between a low or moderate amount of calories per serving.

(a) Around 40 calories is considered low (scored as 3), 100 calories is moderate (scored as 2), and 400 calories or more is considered high (scored as 1).

2. The product must have limited (low) amounts of fat, saturated fat, trans fat, cholesterol, and sodium.
   (a) 5% or less of each is considered low (scored as 3), between 6% and 19% is considered moderate (scored as 2), and 20% or more is high (scored as 1).
   (b) Each of these items would get a score of 1 to 3, and then all of the items would be averaged into one final score for guideline number 2.
3. The product must have not only the presence of, but also a moderate to high amount of Vitamin A, Vitamin C, Calcium, Fiber, and Iron, as well as additional nutrients (any nutrients listed on the label)
   (a) Part One: For any nutrient that will benefit and not hinder health that is listed on the label, 1 point was added and then a total nutrient score was given
   (b) Part Two: Each nutrient was given a score based on its Daily Value amount using this scoring guideline: 5% or less is considered low (scored as 1), between 6% and 19% is considered moderate (scored as 2) and 20% or more is high (scored as 3). Then these scores were averaged into one final score for Part Two (How to Understand and Use the Nutrition Facts Label).

Three of the five guidelines given by the FDA were the most relevant to this study. Thus two of the guidelines were not used to develop the product health scale. The first of the two unused guidelines is regarding the ratio of serving size to food package proportion; this was not pertinent to the chosen food products because serving size and food packaging proportions were seen as more of a price concern rather than specifically concerning nutrition. The second unused

guideline concerns the footnote that is only occasionally found on the bottom of nutrition labels and is not food product specific. Since the same footnote can be found on any product, it is not pertinent to the current study.

The scores for each guideline were then averaged to get a Total Product Health Score for each food product. Those products with the higher score were considered healthier as compared to the lower scored products.

Extraneous Items

The extraneous items were put in the survey to aid in the understanding of what products participants chose and what influenced these decisions. They were used as extraneous items to enhance the authenticity of the process of choosing food products. For the purpose of either future iteration of this study, or for possible further analysis, these variables and their measures are explained here.

The same method for reach the healthy product choice score is applied to the Price Relevant part as well. It is hypothesized that those who put price as their most influential factor would most likely choose the cheaper product. Therefore, the product with the lower price was given a score of 1 point if chosen, and zero points for the higher priced item. This section could be summed up to a total 4 points and that sum is referred to the *Cheaper Product Choice Score*. This section helped to answer the question, "Were they choosing the cheaper product?" Continuing with the pattern, those who put Brand Name Familiarity as their most influential would most likely choose the brand they are more familiar with. The participant would give be given 1 point for choosing the product with the more well-known brand name, and zero points to the generic brand name. This section can be summed to a total of 4 points and is referred to

Familiar Brand Name Choice Score. This part answers the question, "Were they buying the product that had a familiar brand name?"

Procedure

After participants were recruited and willingly advanced, they began the survey by answering questions seeking general demographic information including gender, graduation year, type of hometown, and parents' highest level of education. Next, the participants were asked to rank these three items: Price, Presence of Nutritional Content, and Familiarity with a Brand Name, based on what is the most influential to their food purchasing process. Then, the participants completed sixteen questions adapted from the Diet and Health Knowledge survey and then sixteen questions adapted from the Dietary Questionnaire from G. Turconi's manuscript. This was followed by the twelve Product Choice questions where the participants were to choose the product that they would most likely purchase based on the information given to them. Then they were asked which factor (price, nutritional content, or familiarity with brand name) was the most influential while completing the Product Choice survey questions. Finally, they were asked a question which determined their view of price and in which situation would they spend more money.

Data Analysis

A one way analysis of variance test was conducted to see how the nutrition literacy scores varied between the groups of people that ranked nutritional content as either first, second, or third.

A one sample t-test was conducted to see how the nutrition literacy scores varied for those that ranked nutritional content first as their most influential factor.

A one way analysis of variance test was conducted to see if there was any correlation between the Nutrition Literacy scores and the healthy product choice scores.

Frequencies were calculated for three different purposes:

1. To see if there was any consistency between the ranking of all factors (price, nutritional content, and brand name familiarity) that influence the participants during their food purchasing process in their daily lives, and the factors that most influenced the participants while completing the product choice portion of the survey in this study.
2. To see if there was any consistency between the ranking of all factors (price, nutritional content, and brand name familiarity) that influence the participants during their food purchasing process in their daily lives, and the product choice scores (healthy product choice score, cheaper product choice score, and familiar brand name choice score).
3. To see if there was any consistency between the factor that most influenced the participants while completing the product choice portion of the survey, and the product choice scores (healthy product choice score, cheaper product choice score, and familiar brand name choice score).

Results

ANOVA of Nutritional Content Ranking and Nutritional Literacy Scores

The one way ANOVA using the nutritional literacy scores as the dependent variable and the ranking of nutritional content as the independent variable showed that the ranking of nutritional content did not have a significant effect on nutrition literacy scores, $F(2, 62) = 1.438$,

p = 0.245. However, there was a trend in the means of nutrition literacy scores when those who ranked nutritional content as most influential (M = 31.07, SD =2.36), as compared to those who ranked nutritional content as second (M = 30.70, SD = 2.54) and third (M = 29.64, SD = 3.00) (Figure 1).

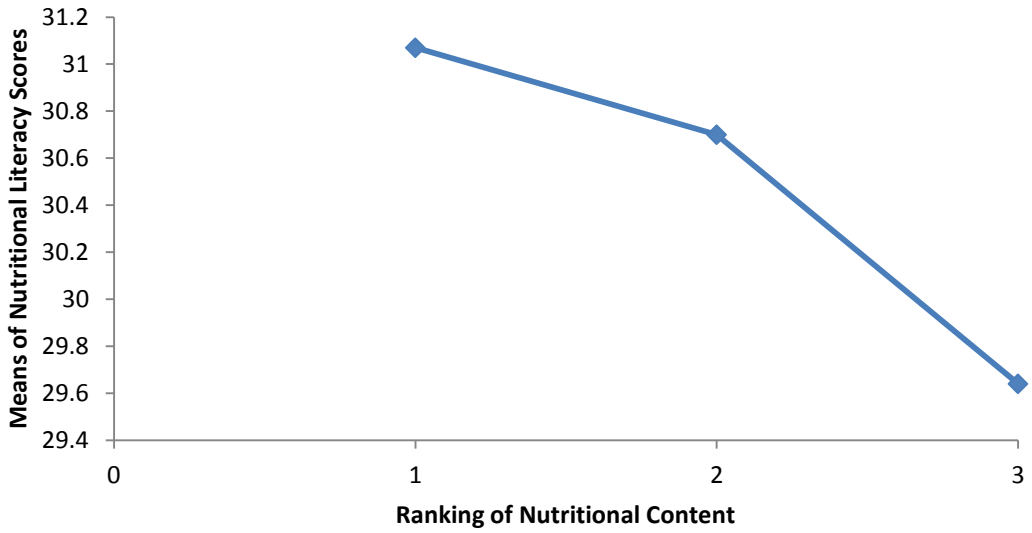


Figure 1. Trend of nutritional literacy score means for those who ranked nutritional content as first, second, or third.

T-Test of Nutritional Content Ranking as First and Nutrition Literacy Scores

The t-test using the sample of those who ranked nutritional content as first on their list as independent variable and the nutrition literacy scores as the dependent variable showed that the nutrition literacy scores of those who ranked nutritional content as first (M = 31.07, SD = 2.36) was not significantly greater than the nutrition literacy scores of those who ranked nutritional content as 2 or 3, $t(26)$ = .009, p = 0.993.

ANOVA of Healthy Product Choice Scores and Nutrition Literacy Scores

The one way ANOVA using the healthy product choice scores as the independent variable and the nutritional literacy scores as the dependent variable showed that the nutritional literacy scores did not have a significant effect on the healthy product choice scores, $F(3, 61) = 1.10$, $p = 0.355$.

Calculated Frequencies

The frequencies that were calculated to see if there was any consistency between the ranking of all factors (price, nutritional content, and brand name familiarity) that influence the participants during their food purchasing process in their daily lives, and the factors that most influenced the participants while completing the product choice portion of the survey showed that out of the 32 people who ranked price first as the most influential factor when buying a food product in their daily lives, 46.9% had selected price as the factor that actually influenced them during the product choice section of this survey, 40.6% said nutritional content influenced them, and 12.5% brand name familiarity influenced them. Out of the 27 people who ranked nutritional content first as the most influential factor when buying food products in their daily lives, 7.4% had said price actually influenced them while completing the product choice section of the survey, 85.2% had said nutritional content had influenced them, and another 7.4% had said that name brand familiarity influenced them. Out of the 6 people who chose brand name familiarity first as the most influential factor when buying food products in their daily lives, 16.7% said that price actually influenced them while completing the product choice section of the survey, 33.3% said that nutritional content influenced them while completing the survey, and 50% had said that brand name familiarity had influenced them.

The frequencies that were calculated to see if there was any consistency between the ranking of all factors (price, nutritional content, and brand name familiarity) that influence the participants during their food purchasing process in their daily lives, and the product choice scores (healthy product choice score, cheaper product choice score, and familiar brand name choice score) showed that out of the 32 participants that ranked Price as the most influential factor when buying food products, 43.8% of them chose 3 of the 4 cheaper products, 50% chose 3 out of the 4 more familiar products, and 50% of the participants chose 2 of the 4 of the healthier products. Out of the 27 people who ranked nutritional content as the most influential factor when buying food products, 40.7% of them chose 3 of the 4 cheaper products, 40.7% chose 3 of the 4 healthier food products, and 48.1% chose the more familiar products. Out of the 6 people that ranked brand name familiarity to be the most influential factor when buying food products, 100% of them chose 3 or more of the cheaper products (50% chose 3 of the 4 and 50% chose 4 out of 4), 66.6% chose between 2 and 3 of the healthier products (33.3% chose 2 of the 4 and 33.3% chose 3 of the 4), and 50% chose all 4 of the more familiar products.

The frequencies that were calculated to see if there was any consistency between the factor that most influenced the participants while completing the product choice portion of the survey, and the product choice scores (healthy product choice score, cheaper product choice score, and familiar brand name choice score) showed that out of the 18 participants who selected price as the factor that was actually the most influential to them while completing the product choice section in this survey, 88.8% of them chose 3 or more of the cheaper products (44.4% chose 3 of the 4 and 44.4% chose all 4), 61.1% chose 2 of the 4 healthier products, and 38.9% chose 2 of the 4 more familiar products. Out of the 38 participants who selected Nutritional Content as the factor that was actually the most influential to them while completing the product

choice section, 44.7% chose 3 of the 4 cheaper products, 36.8% chose 3 of the 4 healthier products, and 39.5% chose 2 of the 4 more familiar products. Out of the 9 people that selected brand name familiarity as the factor that was actually the most influential to them while completing the product choice section, 66.6% chose 3 or more of the cheaper products (33.3% chose 3of the 4 and 33.3% chose all 4), 44.4% chose 2 of the 4 healthier products, and 88.8% chose 3 or more of the more familiar products (44.4% chose 3 of the 4 and 44.4% chose all 4).

Discussion

The results from this study do not show that levels of nutritional literacy could be predicted by whether or not participants believe nutritional content is a factor that influences their purchasing process. However, if you noticed in Figure 1, there was a trend. Those who ranked nutritional content as the most influential factor while purchasing food products did have the highest means for their nutritional literacy scores. This means that those who are more likely to purchase a product if it has nutritional content are also more likely to have a higher level of nutrition knowledge. Though the t-test further proved that the means of the nutritional literacy scores of those who ranked nutritional content as first were not significantly greater than those who ranked nutritional content second or third, the trend did show that as the importance of nutritional content being present in food decreased, so did the participants' nutritional knowledge. The results from this study also did not show that levels of nutritional literacy could be predicted by the number of healthier products chosen.

For those who had indicated that nutritional content was the most important aspect to them in real life situations, 85.2% had indicated that the nutritional content of the food products shown in the survey was influencing their product choice. This group of people had the strongest

consistency in their food ideals. For those who had indicated that price was the most influential factor when purchasing products in real life, only 46.9% stayed true to these food ideals and indicated that the prices in the survey were affecting their decisions on which products to select. For those that indicated that they are more likely to purchase a food product if they are familiar with its brand, 50% of them had said that they were in fact choosing products based on being familiar with the brands in the survey.

For those that had ranked price as the most influential factor when selecting food products in real life, were more likely to choose the more familiar products than the cheaper products. Of those who ranked nutritional content as the most influential factor, only 40.7% of them chose three out the four healthier products, and were just as likely to choose the same amount of the cheaper products. Only 3.7% of those who ranked nutritional content as first chose all four of the healthier food products. Of those who indicated that brand name familiarity was most important, not one of them chose the more expensive products. 100% of them chose three or more of the cheaper products and 50% of them chose all four of the familiar branded products.

There was a much higher consistency with the product choices reflecting the selection of what factor the participants realized was influencing them while choosing the products, which means that the participants were consciously aware and able to decipher the differences in price, nutritional content and brand name familiarity while choosing their products. For those that had realized price was greatly affecting their decision making process, 88% of them chose three of more the cheaper products. Surprisingly, those who realized that they were mostly concerned with the nutritional content while selecting their products, only 36.8% chose three or more of the healthier, and a higher percentage of these people actually chose the cheaper products instead.

This study did find interesting results regarding the two forms of nutrition knowledge. Both males and females performed better in the knowledge of principles section of the nutritional literacy test, than the knowledge of nutrient content section. This means that the majority of students at Allegheny College have a better understanding of the components and specific scientific or biological application regarding nutrients in food, rather than having the ability to differentiate which food is healthier based on the nutrients it contains. This is the opposite outcome compared to the findings in Variyam et al. (1996, 1997), where the majority of people had a better understanding of the knowledge of the nutrient content and not the knowledge of principles. Previous research has shown that males are more concerned with taste rather than nutrition, however, the majority of males in this study selected a higher amount of the healthier food products than the women did. The majority of males, however, received lower nutritional literacy scores than the majority of women which is supported in previous studies.

Limitations

The data collected for this study was from a population of students at the same school, causing the range of nutrition literacy scores to be relatively low. Therefore, if this study were to be repeated and spread out to a larger population and to other colleges, maybe there will be more variety in the level education which would affect the participants' level of nutrition knowledge. The Allegheny College community is proactive towards healthful eating and promotes the ideals regarding veganism, vegetarianism, buying locally, being sustainable through the use of their own community garden that sells freshly harvested produce in the campus center, as well as raising their own tilapia in an aquaponics system housed on campus. The Allegheny community has a plethora of resources and opportunities for nutrition knowledge, and knowledge about healthier food options. This environment allowed the majority of the students to have a relatively

high homogenous level of nutrition knowledge. Another limitation would be the lack of male participants in the study. The female population doubles the males, and skews the information collected. It also was not until recently that the FDA proposed the new regulations for the nutrition label. This sheds new light on the connection between understanding serving sizes and a product's nutritional content. Before, serving sizes were examined to evaluate a product's worth, specifically its price in relation to quantity. The FDA now recognizes that serving sizes should be highlighted in the nutrition label because people will eat a whole package without recognizing that the whole package contained more than one serving. This aspect could be added as another influential factor on a consumer's food choice in future iterations of this study.

Conclusion

For consumers to benefit from all that nutrition labels have to offer, more nutrition education programs need to be implemented. Men and women should equally understand and utilize the nutrition label, as well as comprehend that the foods they purchase should have nutritional content in them. Taste, convenience, price, and brand name familiarity should not override the importance of health and the prevention against chronic health diseases such as diabetes and obesity. Though the results in this study were not statistically significant, it cannot be said that higher nutrition knowledge has no effect on dietary behaviors. Trends did show that as nutritional literacy scores increased, so did the importance of nutritional content while selecting foods. If more people have the knowledge to recognize healthy content and find it to be an important part of their foods, than people will be eating healthier diets and health risks will decreased.

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Appendix A

INFORMED CONSENT FORM

Allegheny College

Title of Project: **Influential Factors on Consumer Food Choices and Nutrition Literacy**

Principal investigator: Kristina N. Brink
Box 811
Allegheny College
Meadville, PA

This is to certify that I have been given the following information with respect to my participation as a volunteer in a research study at Allegheny College.

I. Purpose of the Study: I am interested in determining the level of Nutrition Literacy that the participants have, how this literacy influences food choices as a consumer, and what factors influence a consumer to choose a food product. Through the use of an online survey we will be able to obtain said information.

II. Procedures to be Followed: After being asked a few questions pertaining to your demographic information, the survey will begin with questions that will determine how nutritionally literate you are. Nutrition literacy may be defined as the degree to which people have the capacity to obtain, process, and understand basic nutrition information. This score will also be based off of your current knowledge on healthful food habits. After being asked a series of questions testing your knowledge, you will be asked to choose a product that you feel you would purchase at a store. You will be able to see the brand name, nutrition label and price, which you can use to aid in your decision making process.

III. Discomforts and Risks: The questions being asked in this survey do not appear to involve any risk or discomfort.

IV. Benefits: This study is important because factors influencing consumers' food choices need to be better understood to develop powerful and effective nutrition and consumer education programs so that we can increase nutrition literacy.

V. Time Duration of the Study: The survey should take no longer than 30 minutes to complete.

VI. Your Rights as a Participant:

A. You may ask any questions about the study and these questions will be answer. You may contact Kristina Brink, Dr. Saltsman, of the chair of the Allegheny College Institutional Review Board with any questions. The contact information for those listed is shown below.

Kristina Brink (student)	brinkk@allegheny.edu	724-977-2945	Box 811
Brian Saltsman (advisor)	bsaltsma@allegheny.edu	814-332-3523	Carnegie Hall 106

Rich Bowden (IRB Chair)	rbowden@allegheny.edu	814-332-2869	Carr Hall 214

B. Statement of Confidentiality. Your responses to the questions in the survey are kept completely confidential. Through the SONA program you will be given a number and that will be used to keep the participants anonymity.

C. Your Participation is Voluntary. You are free to stop participation in the research at any point in time if you so choose.

Participant:

- **This is to certify that I consent to participation as a volunteer in this research study.**
- **I understand the information given to me, and I agree to the conditions that this study has described.**
- **To the best of my knowledge and belief, I have no physical or mental illness or difficulties that would increase the risk to me of participation in this study.**
- **I understand that my participation in this research is voluntary, and that I may withdraw from this study at any time.**
- **I am of 18 years of age or older**

Appendix B

Debriefing Form

The purposes of the current study was (1) to identify what factors influence a consumer when buying a food product and (2) to determine whether an individuals' product choice reflects their perceived food values and (3) to determine the level of nutrition literacy and how this knowledge is applied. This study is important because factors influencing consumers' food choices need to be better understood to develop powerful and effective nutrition and consumer education programs so that we can increase nutrition literacy. A lot of previous studies got their data from information retrieved from national surveys without actually hearing a voice from their participants. This study does not only get information on what a consumer would choose, but allows the consumer to explain why they chose what they did. This gives us more information and reason for consumer food choice. From the information collected, I hypothesized that (1) the higher the level of Nutrition Literacy, the higher the 'Presence of Nutritional Content' is on the important influence list and (2) The higher the level of Nutrition Literacy, the participant will more often choose healthier nutrition labels.

For additional and helpful information on this topic, please refer to these sites:

How to understand a nutrition label:
http://www.fda.gov/Food/IngredientsPackagingLabeling/LabelingNutrition/ucm274593.htm
The importance of nutrition literacy:
http://www.ted.com/talks/jamie_oliver.html

If you wish to receive a copy of the findings of this research when completed, or if you have any questions or concerns, please refer to the contact information.

Kristina Brink (student)	brinkk@allegheny.edu	724-977-2945	Box 811
Brian Saltsman (advisor)	bsaltsma@allegheny.edu	814-332-3523	Carnegie Hall 106
Rich Bowden (IRB Chair)	rbowden@allegheny.edu	814-332-2869	Carr Hall 214

Appendix C

Influential Factors on Consumer Food Choices and Nutrition Literacy Survey

What is your gender?
- ❍ Male
- ❍ Female

What is your intended year of graduation?
- ❍ 2014
- ❍ 2015
- ❍ 2016
- ❍ 2017

Which term best describes your hometown?
- ❍ Rural
- ❍ Suburban
- ❍ Urban

What is the highest level of your father's education?
- ❍ High school graduate
- ❍ Some college, no degree
- ❍ Associates Degree
- ❍ Bachelor's Degree
- ❍ Graduate/Professional Degree

What is the highest level of your mother's education?
- ❍ High school graduate
- ❍ Some college, no degree
- ❍ Associates Degree
- ❍ Bachelor's Degree
- ❍ Graduate/Professional Degree

Please rank the following items based on what is the most influential in your food purchasing process. You can do this by clicking and dragging the items to where you feel appropriate. Please note: 1 is most important and 3 is the least.

_____ Price
_____ Presence of Nutritional Content
_____ Familiarity with a Brand Name

Please answer the following questions based on your current knowledge.

Which has more fiber?
- ❍ fruit
- ❍ meat

Which has more fiber?
- ❍ cornflakes
- ❍ oatmeal

Which has more fiber?
- ❍ whole wheat bread
- ❍ white bread

Which has more fiber?
- ❍ orange juice
- ❍ an apple

Which has more fiber?
- ❍ kidney beans
- ❍ kale

Which has more fiber?
- ❍ popcorn
- ❍ pretzels

Which has more cholesterol?
- ❍ liver
- ❍ T-bone steak

Which has more cholesterol?
- ❍ butter
- ❍ margarine

Which has more cholesterol?
- ❍ egg whites
- ❍ egg yolks

Which has more cholesterol?
- ❍ skim milk
- ❍ whole milk

Which has more fat?
- ❍ loin pork chops
- ❍ pork spare ribs

Which has more fat?
- ❍ hot dogs
- ❍ ham

Which has more fat?
- ❍ peanuts
- ❍ popcorn

Which has more fat?
- ❍ yogurt
- ❍ sour cream

Which has more fat?
- ❍ porterhouse steak
- ❍ round steak

Which has more fat?
- ❍ ice cream
- ❍ sherbet

You must answer the following questions with only one choice; it is important that you complete it by yourself; try not to leave any item without an answer.

According to you, which is the healthiest diet?
- ❍ a diet rich in different foods
- ❍ foods rich in protein (meat, fish, eggs, cheese, dried legumes)
- ❍ a diet without any fat
- ❍ eating fish very often

According to you, which is the healthiest eating behavior?
- drinking 2 glasses of milk/eating 2 cups of yogurt every day
- preferring cooked vegetables to uncooked vegetables
- eating always cheese instead of meat
- when you eat snacks, preferring fruit/ fruit juice/ crackers

According to you, which is a healthy food?
- a food rich in protein
- a food rich in calories
- a microbiologically tested food
- a food without preservatives and additives

According to you, which is the healthiest food?
- washed vegetables ready to eat
- a canned food
- a food very rich in dressing
- a fried food

According to you, which is the healthiest cooking method?
- cooking on a grill/ in boiled water
- frying/braising
- cooking in the oven without fats
- cooking in a pan with fats

Which contains carbohydrates?
- meat
- butter
- bread
- cheese

Which do not contain dietary fiber?
- whole wheat bread
- beans
- white bread
- meat

Which contains the least amount of fat?
- ❍ hamburger with mayonnaise
- ❍ grilled meat
- ❍ focaccia
- ❍ sandwich with salami

Which contains the most amount of protein?
- ❍ dry legumes (beans and seeds)
- ❍ flounder
- ❍ spaghetti with tomato sauce
- ❍ an apple

Which has the most amount of calories?
- ❍ bread
- ❍ potatoes
- ❍ fruit salad
- ❍ tiramisu

Which substance contains the most energy?
- ❍ protein
- ❍ carbohydrates
- ❍ fat
- ❍ alcohol

What are the functions of vitamins and minerals?
- ❍ to put on muscular tissue
- ❍ to lose body fat
- ❍ to catalyze biochemical reactions in the body
- ❍ to provide energy

According to you, what is "a balanced diet"?
- ❍ a diet rich in protein
- ❍ a diet poor in fat
- ❍ a diet without carbohydrates
- ❍ a diet containing all nutrients in proper quantities

According to you, what is "daily energy expenditure?"

- ❍ energy consumed in a whole day
- ❍ energy consumed during sleep
- ❍ energy consumed only for physical activity
- ❍ energy consumed for maintaining body temperature at 98.6° F

What are "organic foods?"

- ❍ foods grown without any use of chemical fertilizer
- ❍ foods grown in a greenhouse
- ❍ foods without additives and preservatives
- ❍ foods grown in a ground far from the highway

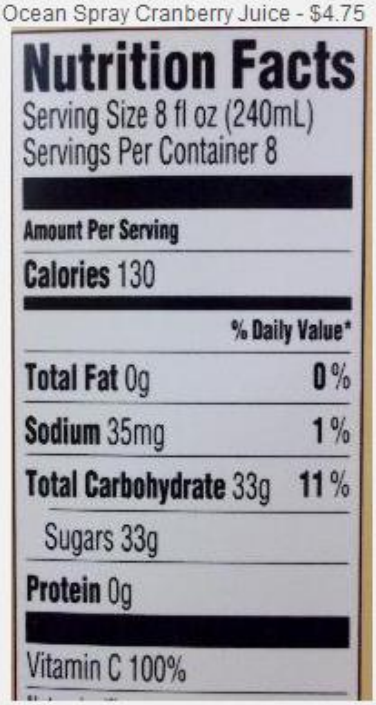
What are "Genetically Modified foods"?

- ❍ foods imported from foreign countries
- ❍ foods in which different fragments of DNA have been included
- ❍ foods without potentially pathogenic germs
- ❍ foods without toxic substances

For this section of the survey, please select which product you would most likely purchase, based on the information given.

Which product would you most likely purchase?

Ocean Spray Cranberry Juice - $4.75

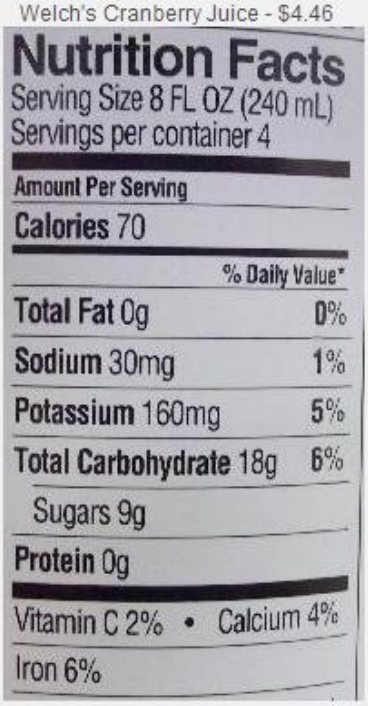


Nutrition Facts

Serving Size 8 fl oz (240mL)
Servings Per Container 8

Amount Per Serving	
Calories 130	
	% Daily Value*
Total Fat 0g	**0%**
Sodium 35mg	**1%**
Total Carbohydrate 33g	**11%**
Sugars 33g	
Protein 0g	
Vitamin C 100%	

Welch's Cranberry Juice - $4.46



Nutrition Facts

Serving Size 8 FL OZ (240 mL)
Servings per container 4

Amount Per Serving	
Calories 70	
	% Daily Value*
Total Fat 0g	**0%**
Sodium 30mg	**1%**
Potassium 160mg	**5%**
Total Carbohydrate 18g	**6%**
Sugars 9g	
Protein 0g	
Vitamin C 2% • Calcium 4%	
Iron 6%	

Which product would you most likely purchase?

Krema Peanut Butter - $4.83

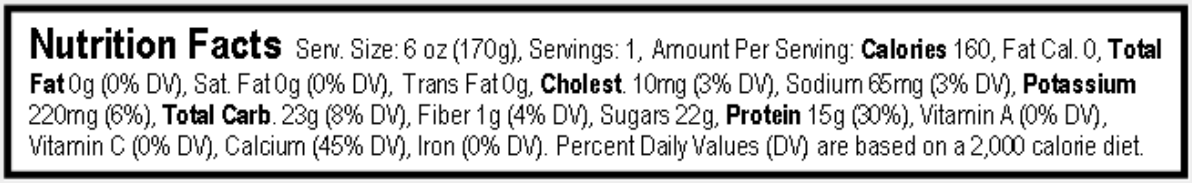


Nature's Basket Organic Peanut Butter - $2.18



Which product would you most likely purchase?

Dannon Oiko's Yogurt - $2.15



Market Pantry Yogurt - $2.09



Which product would you most likely purchase?

JIF Peanut Butter - $2.50



Peter Pan Peanut Butter - $2.35



Which product would you most likely purchase?

Mott's Apple Juice - $6.79

Nutrition Facts

Serving Size 8 fl. oz. (240 mL)
Servings Per Container: 8

Amount Per Serving	
Calories 130	
	% Daily Value*
Total Fat 0g	**0%**
Sodium 35mg	**1%**
Potassium 180mg	**5%**
Total Carbohydrate 33g	**11%**
Sugars 29g	
Protein 0g	
Vitamin A 10% • Vitamin C 120%	
Vitamin E 10%	

Juicy Juice Apple Juice - $1.80

Nutrition Facts

Serving Size 8 FL OZ (240 mL)
Servings per container 4

Amount Per Serving	
Calories 70	
	% Daily Value*
Total Fat 0g	**0%**
Sodium 30mg	**1%**
Potassium 160mg	**5%**
Total Carbohydrate 18g	**6%**
Sugars 9g	
Protein 0g	
Vitamin C 2% • Calcium 4%	
Iron 6%	

Which product would you most likely purchase?

Kellogg's Fruit Loops Cereal - $4.67

Nutrition Facts

Serving Size 1 cup (30g)
Servings Per Container about 9

Amount Per Serving	
Calories	110
Calories from Fat	10
	% Daily Value*
Total Fat 1g*	**1%**
Saturated Fat 0g	**0%**
Trans Fat 0g	
Polyunsaturated Fat 0g	
Monounsaturated Fat 0g	
Cholesterol 0mg	**0%**
Sodium 170mg	**7%**
Potassium 75mg	**2%**
Total Carbohydrate 25g	**8%**
Dietary Fiber 3g	**10%**
Sugars 7g	
Other Carbohydrate 15g	
Protein 2g	
Vitamin A	0%
Vitamin C	0%
Calcium	0%
Iron	4%

Malt-O-Meal Tootie Fruities Cereal - $4.52

Nutrition Facts

Serving Size 1 Cup (30g)
Servings Per Container About 13

Amount Per Serving	
Calories	120
Calories from Fat	10
	% Daily Value*
Total Fat 1g*	**2%**
Saturated Fat 0g	**0%**
Trans Fat 0g	
Cholesterol 0mg	**0%**
Sodium 170mg	**7%**
Potassium 60mg	**2%**
Total Carbohydrate 24g	**8%**
Dietary Fiber 2g	**8%**
Sugars 10g	
Protein 3g	
Vitamin A	10%
Vitamin C	10%
Calcium	4%
Iron	25%
Vitamin D	10%
Thiamine	25%
Niacin	25%
Vitamin B_6	25%
Folic Acid	50%
Zinc	25%

Which product would you most likely purchase?

Cascadian Farms Organic Honey Nut O's - $4.39

Nutrition Facts

Serving Size ¾ cup (28g)
Servings Per Container about 17

Amount Per Serving	
Calories	110
Calories from Fat	15
	% Daily Value*
Total Fat 1.5g*	2%
Saturated Fat 0g	0%
Trans Fat 0g	
Polyunsaturated Fat 0.5g	
Monounsaturated Fat 0.5g	
Cholesterol 0mg	0%
Sodium 160mg	7%
Potassium 115mg	3%
Total Carbohydrate 22g	7%
Dietary Fiber 2g	8%
Soluble Fiber less than 1g	
Sugars 9g	
Other Carbohydrate 11g	
Protein 2g	
Vitamin A	10%
Vitamin C	10%
Calcium	10%
Iron	25%
Vitamin D	10%
Thiamin	25%
Riboflavin	25%
Niacin	25%
Vitamin B_6	25%
Folic Acid	50%
Vitamin B_{12}	25%
Phosphorus	8%
Magnesium	6%
Zinc	25%

Honey Nut Cheerios - $2.13

Nutrition Facts

Serving Size 1 cup (30g)
Servings Per Container about 9

Amount Per Serving	
Calories	110
Calories from Fat	10
	% Daily Value*
Total Fat 1g*	1%
Saturated Fat 0g	0%
Trans Fat 0g	
Polyunsaturated Fat 0g	
Monounsaturated Fat 0g	
Cholesterol 0mg	0%
Sodium 170mg	7%
Potassium 75mg	2%
Total Carbohydrate 25g	8%
Dietary Fiber 3g	10%
Sugars 7g	
Other Carbohydrate 15g	
Protein 2g	
Vitamin A	0%
Vitamin C	0%
Calcium	0%
Iron	4%

Which product would you most likely purchase?

Great Value Yogurt - $1.00

Nutrition Facts

Serving Size 1 Container (150g)
Calories 130
Calories from Fat 0
*Percent Daily Values (DV) are based on a 2,000 calorie diet.

Amount/Serving	%DV*	Amount/Serving	%DV*
Total Fat 0g	0%	**Potassium** 160mg	5%
Saturated Fat 0g	0%	**Total Carbohydrate** 20g	7%
Trans Fat 0g		Dietary Fiber 0g	0%
Cholesterol 5mg	2%	Sugars 19g	
Sodium 50mg	2%	**Protein** 12g	24%

Vit A 0% • Vit C 0% • Calcium 15% • Iron 0% • Vit D 15%

Greek God Yogurt - $2.60

Nutrition Facts Serv. Size: 6 oz (170g), Servings: 1, Amount Per Serving: **Calories** 160, Fat Cal. 0, **Total Fat** 0g (0% DV), Sat. Fat 0g (0% DV), Trans Fat 0g, **Cholest**. 10mg (3% DV), Sodium 65mg (3% DV), **Potassium** 220mg (6%), **Total Carb**. 23g (8% DV), Fiber 1g (4% DV), Sugars 22g, **Protein** 15g (30%), Vitamin A (0% DV), Vitamin C (0% DV), Calcium (45% DV), Iron (0% DV). Percent Daily Values (DV) are based on a 2,000 calorie diet.

Which product would you most likely purchase?

Tropicana Orange Juice - $2.10

Nutrition Facts
Serving Size 8 fl oz (240 mL)
Servings Per Container 8

Amount Per Serving
Calories 160

	% Daily Value*
Total Fat 0g	0%
Sodium 35mg	1%
Total Carbohydrate 40g	13%
Sugars 40g	
Protein 0g	

Vitamin C 130%

Princes Orange Juice - $2.30

Nutrition Facts
Serving Size 8 fl oz (240mL)
Servings Per Container 8

Amount Per Serving
Calories 160

	% Daily Value*
Total Fat 0g	0%
Sodium 35mg	1%
Total Carbohydrate 40g	13%
Sugars 40g	
Protein 0g	

Vitamin C 100%

Which product would you most likely purchase?

La Yogurt Blended Low fat Yogurt - $1.00



Nutrition Facts

Serving Size 1 Container
Calories 120
Calories from Fat 0
*Percent Daily Values (DV) are based on a 2,000 calorie diet.

Amount Per Serving	%DV*	Amount Per Serving	%DV*
Total Fat 0g	0%	**Potassium** 190mg	5%
Sat Fat 0g	0%	**Total Carb** 16g	5%
Trans Fat 0g		Dietary Fiber 0g	0%
Cholesterol <5mg	1%	Sugars 15g	
Sodium 70mg	3%	**Protein** 13g	26%

Vitamin A 0% • Vitamin C 0% • Calcium 15% • Iron 0%

Shoprite Fruit on the Bottom Yogurt - $1.13

Nutrition Facts

Serving Size
1 Container (150g)
Calories 130
Calories from Fat 0
*Percent Daily Values (DV) are based on a 2,000 calorie diet.

Amount/Serving	%DV*	Amount/Serving	%DV*
Total Fat 0g	0%	**Potassium** 160mg	5%
Saturated Fat 0g	0%	**Total Carbohydrate** 20g	7%
Trans Fat 0g		Dietary Fiber 0g	0%
Cholesterol 5mg	2%	Sugars 19g	
Sodium 50mg	2%	**Protein** 12g	24%

Vit A 0% • Vit C 0% • Calcium 15% • Iron 0% • Vit D 15%

Which product would you most likely purchase?

Kellogg's Frosted Mini Wheats - $4.80

Nutrition Facts

Serving Size 1 cup (30g)
Servings Per Container about 9

Amount Per Serving	
Calories	110
Calories from Fat	10
	% Daily Value*
Total Fat 1g*	**1%**
Saturated Fat 0g	**0%**
Trans Fat 0g	
Polyunsaturated Fat 0g	
Monounsaturated Fat 0g	
Cholesterol 0mg	**0%**
Sodium 170mg	**7%**
Potassium 75mg	**2%**
Total Carbohydrate 25g	**8%**
Dietary Fiber 3g	**10%**
Sugars 7g	
Other Carbohydrate 15g	
Protein 2g	
Vitamin A	0%
Vitamin C	0%
Calcium	0%
Iron	4%

Kashi Whole Wheat Biscuits - $2.10

Nutrition Facts

Serving Size 1 Cup (30g)
Servings Per Container About 13

Amount Per Serving	
Calories	120
Calories from Fat	10
	% Daily Value*
Total Fat 1g*	**2%**
Saturated Fat 0g	**0%**
Trans Fat 0g	
Cholesterol 0mg	**0%**
Sodium 170mg	**7%**
Potassium 60mg	**2%**
Total Carbohydrate 24g	**8%**
Dietary Fiber 2g	**8%**
Sugars 10g	
Protein 3g	
Vitamin A	10%
Vitamin C	10%
Calcium	4%
Iron	25%
Vitamin D	10%
Thiamine	25%
Niacin	25%
Vitamin B_6	25%
Folic Acid	50%
Zinc	25%

Which product would you most likely purchase?

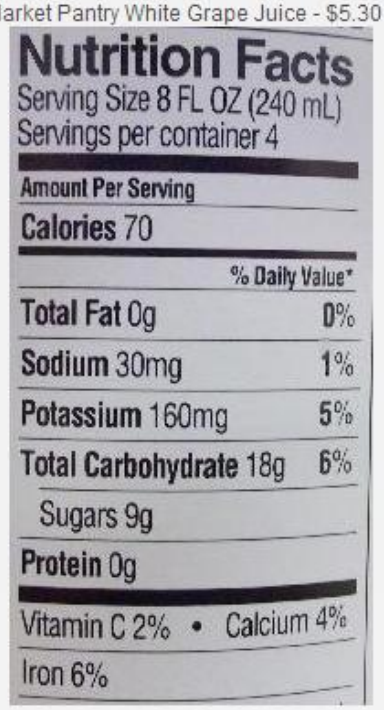
Welch's White Grape Juice - $5.49



Nutrition Facts
Serving Size: 8 FL. OZ. (240mL)
Servings Per Container: 8

Amount Per Serving	
Calories 140	
	% Daily Value*
Total Fat 0g	**0%**
Sodium 15mg	**1%**
Potassium 140mg	**4%**
Total Carb 38g	**13%**
Sugars 36g**	
Protein 1g	
Vitamin C	120%
Calcium	2%
Magnesium	6%
Manganese	10%

Market Pantry White Grape Juice - $5.30



Nutrition Facts
Serving Size 8 FL OZ (240 mL)
Servings per container 4

Amount Per Serving	
Calories 70	
	% Daily Value*
Total Fat 0g	**0%**
Sodium 30mg	**1%**
Potassium 160mg	**5%**
Total Carbohydrate 18g	**6%**
Sugars 9g	
Protein 0g	
Vitamin C 2% • Calcium 4%	
Iron 6%	

When determining your choice of products in the previous section, which factor was the most influential?

- ❍ Price
- ❍ Nutritional Content
- ❍ Familiarity with Brand Name

Which do you most agree with, in regards to this statement:
I would pay a higher price.....

- ❍ because the product is all-natural or organic.
- ❍ because it's a brand that I am familiar with.
- ❍ I actually prefer to save money.