

Is Breakfast Cereal a Healthy Option for You and Your Family?

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Cereal is a common staple in the American diet and has become a favorite breakfast option for millions of people across the country. Many cereal brands market their products as healthy, although a question to be asked is: how many, if any, of these brands can actually be considered as healthy? To explore this question, we observed data comparing a variety of cereals on the market and collectively constructed this brief report.

The choices out there for breakfast cereals vary widely, so we created a scatterplot, some tables, a ranking, and some commentary about the contents from 16 different well-known brands, as well as a list ranking the cereals from most-to-least healthiest. Among the 16 products we analyzed, results show that Apple Jacks are the most unhealthy, having the combined highest amount of sugar and sodium per gram of cereal, and Cheerios being the healthiest option having the lowest amount of sugar and sodium per gram of cereal. Data values are based on nutritional contents measured in

grams per gram of cereal. For example, 4.0 calories per gram of Cocoa Puffs, and 0.48 grams of sugar per gram of Apple Jacks.

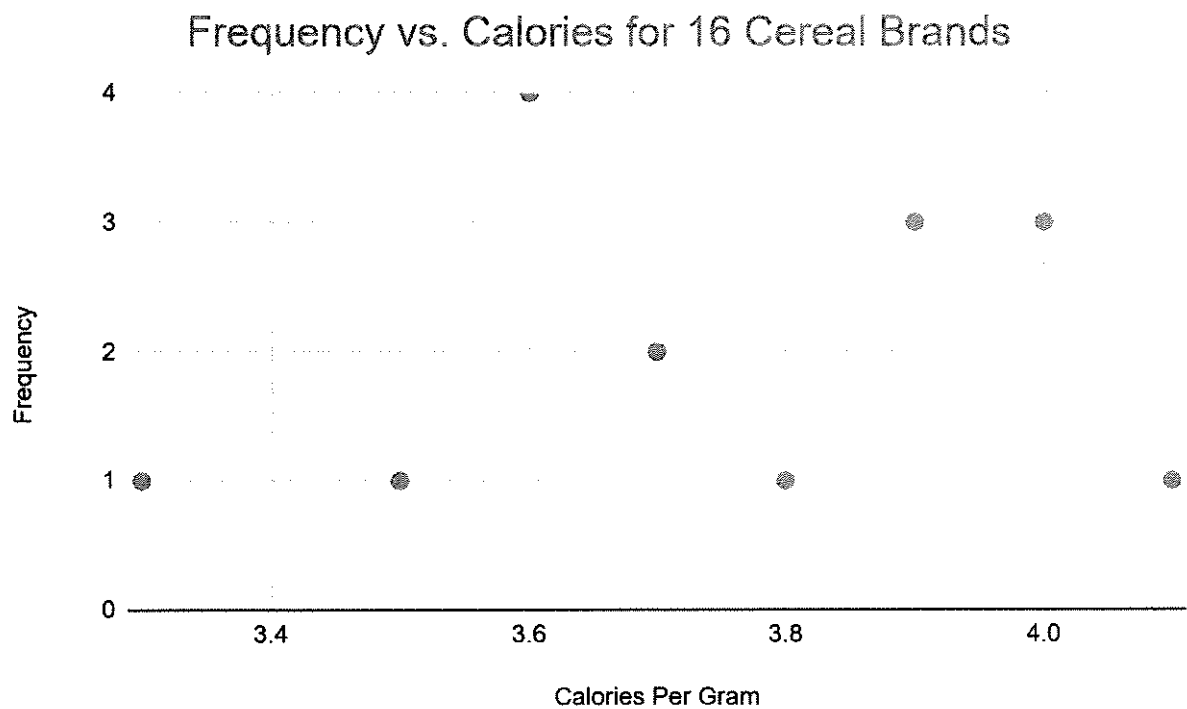
We began our exploration of the 16 cereals (*Bran Flakes, Special K, Rice Krispies, Corn Flakes, Smart Start, Harmony, Wheaties, Cheerios, Fruit Loops, Corn Pops, Apple Jacks, Frosted Flakes, Trix, Lucky Charms, Cocoa Puffs and Cap'n Crunch*) by creating the following table for the median value of the calories, fat, sugar, sodium and protein per gram of all 16 cereals combined. Data values are based on nutritional contents measured in grams per gram of cereal:

Nutritional Value for 16 Cereal Brands	Median Value (Grams)
Calories	3.75
Fat	0.02
Sugar	0.345
Sodium	6.8
Protein	0.006

Our calculations show that across all 16 brands of cereals, fat and protein, are least prevalent. We all know, or suspect that "fat" is unhealthy, but why is there such a little amount of protein in our breakfast cereals? Hmmm.

In this section, we will discuss some of the more relevant results and findings from our analysis. The focus will mainly be on the sugar content, protein level, calorie count, and sodium levels. Beginning with calorie count, again we were led by our suspicion that cereals with a lower calorie count are generally supposed to be healthier. In hindsight, we have learned that this is not always true, as it depends largely on the lifestyle and overall health of the individual. For instance, a highly athletic individual such as a marathon runner, requires a higher intake of calories. Whereas, an elderly individual who is overweight and diabetic may not:

Calories (Grams)	Number of Cereal Brands
3.3	1
3.5	1
3.6	4
3.7	2
3.8	1
3.9	3
4	3
4.1	1



The scatterplot above is based on the number of calories per gram in one gram of each of the 16 cereals brands we explored. In regards to calorie-count Captain

Crunch tops the list, having the highest number of calories among the cereals studied. Interestingly, Corn Pops, Apple Jacks, and Frosted Flakes all have the same calorie count, placing them in the middle range of the spectrum.

Protein level analysis revealed that Cornflakes and Lucky Charms have the same amount of protein. Meanwhile, Cocoa Puffs, Fruit Loops, Frosted Flakes, Apple Jacks, Corn Pops, and Trix all share the same pitifully low concentrations of protein per gram. Special K stands out as truly "special" with the highest protein content out of all 16 cereals, so body-builders and athletes - eat up!

While considering the good stuff, like calories and protein is somewhat relevant to this discussion, sugar is the real beast pulling the strings on healthiness. So we began our exploration of the sugar content in cereals by arranging the cereals in order from those with the least amount of sugar to those with the most. It was found that Cheerios has the least amount of sugar, undoubtedly making them the healthiest option in this category with only 30 milligrams (mg) of sugar. On the other hand, Applejacks contain the highest amount of sugar at 480 mg, making them the least healthy choice in terms of sugar content.

Sodium, which is not the same thing as our beloved salt, is another factor to be closely evaluated when determining the healthiness of a cereal. Sorry for the bad news, but it turns out that all of you Rice Krispies eaters, better drop that spoon. Rice Krispies contains 0.0097 grams of sodium per gram of cereal. Conversely, Corn Pops have the lowest sodium content at 0.0039 grams per gram. According to the same CDC that brought about so much awareness of the CoViD-19 pandemic, "*Eating too much sodium can increase your blood pressure and your risk for heart disease and stroke. Together, heart disease and stroke kill more Americans each year than any other cause.*" Fun fact: processed foods are highest in sodium!

According to our preliminary analysis, the following is a ranking of the most-to-least healthiest of the 16 cereals considered herein. It is based on the ordering

of the combined totals of sodium and sugar, as the least healthy elements within our diet:

Cereal	Sugar (g)	Sodium (g)	Combined
Cheerios	0.03	0.0093	0.0393
Corn Flakes	0.07	0.0071	0.0771
Rice Krispies	0.09	0.0097	0.0997
Special K	0.13	0.0071	0.1371
Wheaties	0.13	0.0073	0.1373
Bran Flakes	0.17	0.007	0.177
Harmony	0.24	0.0064	0.2464
Smart Start	0.3	0.0066	0.3066
Frosted Flakes	0.39	0.0048	0.3948
Trix	0.43	0.0063	0.4363
Lucky Charms	0.43	0.007	0.437
Cap'n Crunch	0.44	0.0074	0.4474
Corn Pops	0.45	0.0039	0.4539
Fruit Loops	0.47	0.0047	0.4747
Cocoa Puffs	0.47	0.0057	0.4757
Apple Jacks	0.48	0.0045	0.4845

Ultimately, the purpose of our research is to apprehend which cereal brands are more nourishing, and which are not so. There are 16 cereal brands to consider. Astonishingly, none of them have cholesterol, which is arguably a good thing. Based on our data, Cheerios has the least amount of sugar and sodium combined. Notice also that Apple Jacks is the least healthy of all the cereals - that's so crazy, because I ate so many bowls of Apple Jacks as a child that they nicknamed me "Jack".

Generally speaking, most cereals have low fat content. Anyone ever eaten a greasy bowl of cereal? Probably not, although Cap'n Crunch does have the highest amount of fat per gram of cereal, it's still not greasy. Other cereals like Frosted Flakes,

Rice Krispies and Special K all have zero grams of fat per gram; these might be the healthier choices. We all recognize that cereals may be a delicious sweet treat, but their sugar and sodium content might not make them the best option for a morning meal.

Although our preliminary research did point us towards a few healthier choices, we were also pointed to a few questions worth considering in further research. What role does caloric intake play in determining a healthy diet? How much fat is too much? How much protein is too much, or is there such a thing?

If you are reading our research, we are passing you the spoon on these questions, please let us know if you find any food for thought.