

Abstract

Precision Ketogenic Therapy (PKT) for patients with epilepsy that have not found relief through medication requires diets to be carefully monitored. Any errors in nutritional values can lead to seizures. Since companies modify their products, their nutritional amounts change. It is necessary for us to know when they change to avoid inducing seizures. Our team of researchers specifically focused on branded foods that are being used in the treatment of current patients. We did food runs by taking pictures of the nutrition facts labels of these foods and recorded their nutrition facts. The U.S. Department of Agriculture Food Data Central (FDC), collects similar information, which could eliminate the need for our food runs. We compared food run data from January 2022 to data from the Branded Foods to determine any macronutrient concentration differences between the data sets in grams per 100 grams of food. We created a spreadsheet for these Branded Foods with columns for protein, carbohydrates, and fat and indicated when there was a difference in the food run data and the Branded Foods data by marking it with a 1. Many foods were not in the Branded Food database, so we created a separate column to indicate if it was present or not. For foods that were there, there were frequent differences between the Branded Foods data and the data from our January 2022 food runs. Preliminary data suggest that the Branded Foods database cannot replace the need for frequent food runs at local markets.

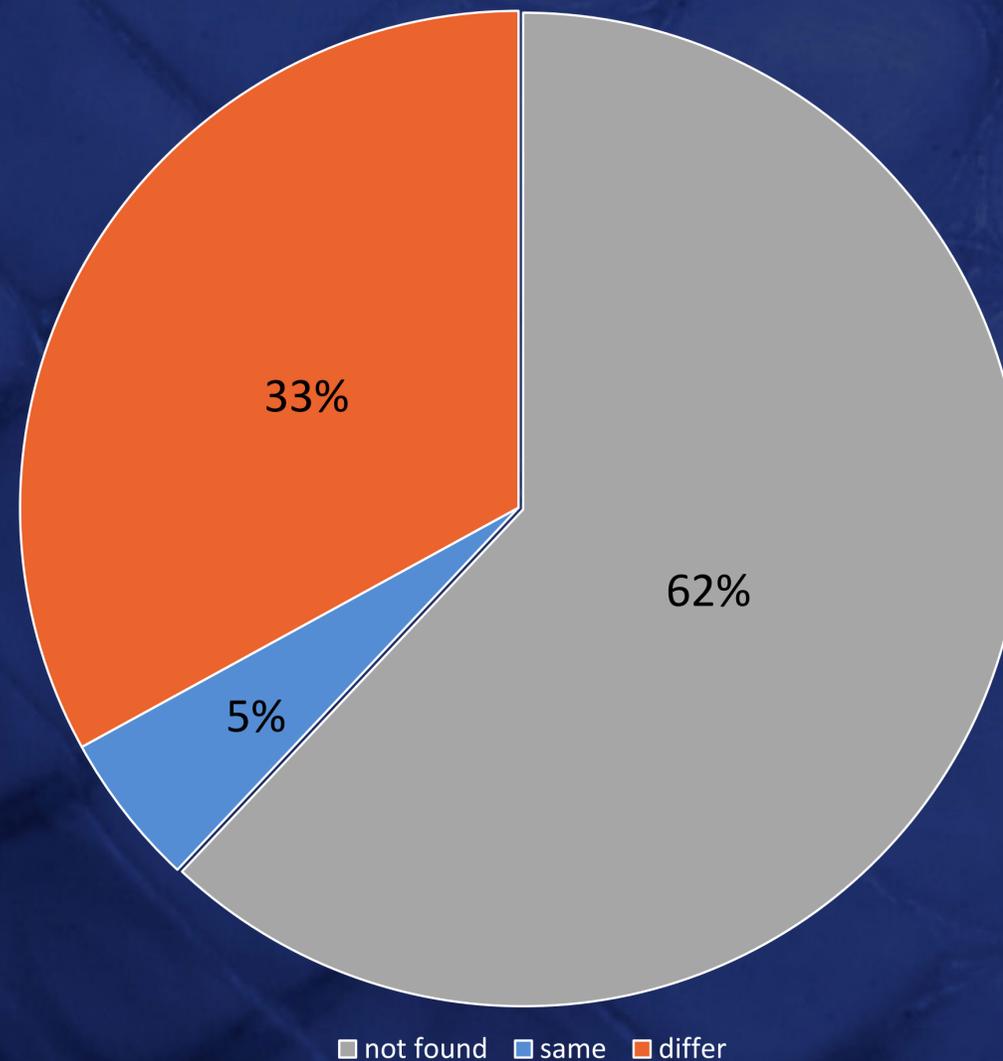
Introduction

Foodomics Database lists the quantity of all known nutrients or chemicals in a food. Our lab designs recipes to treat seizures via PKT. The patients use the recipes to buy the products needed at local markets. Periodically, food companies change the nutrition labels. Even the slightest change can lead to a decrease in effectiveness of PKT for epileptic patients. As researchers, we update the database with new Nutrition Facts labels to ensure that the recipes made deliver the diet prescription. USDA has a new Branded Foods Database that we are considering using so that we do not have to do the time intensive food runs.

Methods

Food runs were done in January and February 2022 where we went to local grocery stores in Gainesville, Florida to find products that are currently in the recipes of PKT patients. We took pictures of these products including their Nutrition Facts label, price, and other identifying features and put those pictures into Microsoft Teams as proof of our food run. We put the Nutrition Facts values from those photos into an excel sheet audited by two team members. We searched the Branded Database for each food and entered the values of protein, fat, and carbohydrates per 100g of food into our database. We compared the new food run with the data from the Branded Database by putting a 1 to indicate there was a change, and a 0 to indicate there was no change for each protein, fat, and carbohydrate value. We defined a change as any difference within 2 decimal places.

Branded Data vs Local Nutrition Facts Comparison



Data

We found that out of the 110 foods in our food runs, 68 were not found in Branded Foods, while 42 were found. Out of the foods that were present, 23% changed some way in protein, 16% changed some way in fat, and 25% changed some way in carbohydrates. Of the 42 total products found in the Branded Foods database, 6 of the products had no change in any of their macronutrients, 12 products had one change, 13 products had 2 changes, and 11 products had 3 changes.

Results

A large percentage of local foods could not be found in the Branded Foods database. Of the foods found in the Branded Foods database, only a small percentage has the same macronutrient values as we found on Nutrition Facts for the food in local markets.

Discussion and Future Work

At this point in the development of the Branded Foods database, the lack of data for needed foods and the difference in macronutrient data in the Branded Foods and products in local markets greatly diminish its value to our program. We will monitor the continued development of the Branded Foods database to see if later versions are more useful to us.

References

A description of and access to the Branded Foods Database can be found at <https://fdc.nal.usda.gov/index.html> (Accessed 1/5/2022).