

Cat Food Analysis

Executive Summary

Purpose:

This analysis examines the nutritional content of over one thousand different cat food products with the intent of identifying the foods best suited for extreme diabetes in cats. The goal was to find high-protein/low-carbohydrate foods to optimize diet.

Background:

Diabetes in cats requires a carefully curated diet with high-protein and low-carbohydrate foods. Given the extensive variety of cat foods serving different purposes at different prices and availability (prescription vs non-prescription), this analysis reviews over one thousand cat foods to evaluate their nutritional content.

Key Findings:

- **Nutritional Content:** There are several high-protein zero-carbohydrate foods on the market
- **Food Quality:** Prescription-Only status does not indicate the quality of the food for diabetes
 - Not all of the foods on the list are specifically for diabetes, so this is to be expected.
- **Products:** I was able to identify the top five best over the counter (OTC) foods; the top ten foods available by prescription; the top 10 worst foods available by prescription; and the top 10 worst foods overall

Recommendations:

- **Focus on the following OTC foods:**
 1. Tiki Cat Chicken (No Fish) – Koolina Luau
 2. Tiki Cat Chicken/Fish – Hookena Luau
 3. Weruva Original – Seafood – Mack & Jack
 4. Fancy Feast Natural – Natural White Meat Chicken & Flaked Tuna in Broth
 5. Tiki Cat Chicken (No Fish) – Puka Puka Luau
- **Focus on the following prescription foods:**
 1. Royal Canin – Recovery – Feline & Canine
 2. Purina Pro Plan Veterinary Diets – DM
- **Avoid these prescription foods:**
 1. Royal Canin – Dental (DRY)
 2. Hill's – z/d
 3. Hill's - k/d with Chicken
 4. Hill's – k/d Vegetable & Tuna Stew
 5. Hill's – l/d
 6. Hill's – g/d
 7. Hill's – k/d Chicken & Vegetable Stew

8. Hill's – k/d with Ocean Fish
 9. Hill's – t/d (DRY)
- **Avoid these additional foods:**
 1. Nature's Recipe Culinary Favorites – Stew – Beef & Garden Vegetables in Gravy
 - **Always consult with your veterinarian before beginning any new meal-plan for your cat.**
 - **Follow your veterinarian's guidance on monitoring glucose levels.**

Introduction

The nature of the analysis was an overview of over one thousand cat food products, focusing on their protein, fat, carbohydrate, and phosphorus content to identify foods best suited for diabetes management in cats.

The problem this analysis seeks to solve is finding prescription and over the counter cat foods that are optimized for my personal cat (<7% carbohydrate content with high protein content).

I wanted to answer these questions:

- What are the top 5 best over the counter foods for my cat?
- What are the top 10 best prescription foods for my cat?
- What are the top 10 worst prescription foods for my cat?
- What are any other “top 10” foods that should be avoided that aren’t prescription only (already in the top 10 worst prescription foods for my cat list)?

Methodology

The original data can be found here: <https://catinfo.org/docs/CatFoodProteinFatCarbPhosphorusChart.pdf>

The data was imported in CSV format, and I queried specific columns related to protein, fat, carbohydrate, and phosphorus content as needed for the analysis. Since my goal was to identify high-protein, low-carbohydrate foods, I limited my queries to these nutritional metrics without altering or manipulating the dataset as a whole. The data was wrangled and formatted in a way where it could be sorted and grouped to find the best foods based on parameters created during the analysis¹.

Parameter: “Spread”

In this analysis, the “spread” is the absolute magnitude between the protein and the carbohydrate content. If the objective is to find high-protein/low-carbohydrate content foods, then measure of protein content should be greater than the measure of carbohydrate content. The higher the spread, the more optimized we are (higher protein/lower carbohydrate).

¹ The two parameters created during the analysis are theoretical.

The “Spread” Formula:

$$\textit{Spread} = \textit{Protein}\% - \textit{Carbohydrate}\%$$

Read aloud: “The ‘Spread’ is the difference between the protein content and the carbohydrate content.”

Parameter: “Junk Food”

When analyzing based on the “spread” parameter, I found that there were some foods that had a negative “spread” (the carbohydrate content was greater than the protein content). I didn’t want to assume that these foods were “bad” as a food overall, so I consulted with my subject matter expert (my wife: a veterinary technician) about whether or not a cat food with a carbohydrate content greater than its protein content would be considered “junk food” for cats; she told me that it would be, so I created a “Junk Food” parameter as a means of capturing what foods should always be avoided for our cat.

The Logic of the “Junk Food” Parameter:

If the “Spread” is equal to or less than zero, we will call the food “junk food” for the sake of this analysis.

Results

The data was wrangled and stored in Pandas data frames for the sake of this analysis for easy reporting.

TOP 5 BEST OVER THE COUNTER FOODS FOR MY CAT

| Company | Flavor | Protein (%) | Fat (%) | Carbohydrate (%) |
|-------------------------------|--|-------------|---------|------------------|
| Tiki Cat Chicken (No Fish) | Koolina Luau | 84 | 16 | 0 |
| Tiki Cat Chicken/Fish | Hookena Luau | 82 | 18 | 0 |
| Weruva Original - Seafood | Mack & Jack | 78 | 22 | 0 |
| Fancy Feast Natural | Natural White Meat Chicken & Flaked Tuna in Broth | 77 | 23 | 0 |
| Tiki Cat Chicken (No Fish) | Puka Puka Luau | 77 | 23 | 0 |

TOP PRESCRIPTION FOODS

(That did not show up on the “junk food” list. The goal was to find 10; there were only 2.)

| Company | Flavor | Protein (%) | Fat (%) | Carbohydrate (%) |
|-------------------------------------|----------------------------|-------------|---------|------------------|
| Royal Canin | Recovery – Feline & Canine | 36 | 58 | 3 |
| Purina Pro Plan Veterinary Diets | DM | 43 | 52 | 6 |

TOP 10 PRESCRIPTION JUNK FOODS

(Foods that should be avoided)

| Company | Flavor | Protein (%) | Fat (%) | Carbohydrate (%) |
|-------------|------------------------------|-------------|---------|------------------|
| Royal Canin | Dental (DRY) | 28 | 36 | 36 |
| Hill's | z/d | 28 | 37 | 35 |
| Hill's | k/d with Chicken | 22 | 51 | 27 |
| Hill's | k/d Vegetable & Tuna Stew | 24 | 47 | 29 |
| Hill's | l/d | 25 | 45 | 30 |
| Hill's | g/d | 28 | 39 | 33 |
| Hill's | k/d Chicken & Vegetable Stew | 23 | 50 | 27 |
| Hill's | k/d with Ocean Fish | 23 | 50 | 27 |
| Hill's | t/d (DRY) | 30 | 39 | 31 |

WORST OVERALL FOODS FOR MY CAT

9 of the top 10 worst foods for my cat are in the previous table. The only one remaining to include here is:
Nature's Recipe Culinary Favorites – Stew – Beef & Garden Vegetables in Gravy

Appendix

** This analysis is no substitute for a veterinarian's advice.*