

Dehydration and Carbs Math

Did you know that the consumption of carbohydrates can cause dehydration? Dry, crispy, high-carbohydrate foods such as kibble can suck the moisture right out of the body.

In this post, we'll look at how that affects your pup's body. We will see how much water weight your pet may retain from a high-carb diet and how much water they need to drink per day in order to prevent dehydration.

We'll randomly create an average kibble macronutrient panel: (based on 100g or 100%)

Protein - 24% (24g)

Fat - 9% (9g)

Fiber - 4% (4g)

Moisture - 10% (10g)

You can read how to calculate carbs in our blog post about that. For this blog, we'll do it for you.

This ingredient panel calculates to 53% Carbohydrate, or 53g per 100g of food. We'll also say that this food has 4oz, or 114.3g, per cup of food (which is about average for a kibble product).

For every 1g of carbs consumed, the body retains 2.1g to 4g of water. On average we can say 3g of water. What does that look like when your pet eats a high- or low-carb diet?

To calculate how many grams of carbs are in a cup, multiply the number of grams in the cup by the percentage of carbs in the food. In this case:

$114.3 \text{ (grams per cup of food)} * 53\% \text{ (or } \times 0.53) = 60.6 \text{ grams of carbs per cup of this food.}$

Now, if the body retains 3 grams for every 1 gram consumed, we multiply 60.6 grams of carbs by 3 grams of water = 181.8 grams of retained water per cup of food consumed.

$181.8g / 28.57 \text{ (number of grams in 1oz)} = 6.4oz \text{ of water}$

Click the topics below for more information!

[Calculating Carbs](#)

[Number of ounces in a cup](#)

[How long will my pet food last?](#)

For every 1g of carbs consumed, the body retains 2.1g to 4g of water.

If we really want to be thorough, we can reduce this by the amount of water contributed, which would be 10% (max). Lab results show this is usually 6-7%. Assuming 10%, or 11.43g per cup, we can subtract that from the total. This leaves 170.4g of retained water per day, or 6oz/day.

This product would have 463kcal/cup. Therefore, an average 23lb dog would consume 1 cup of this food every day but would need to drink 6.4oz (more than $\frac{3}{4}$ of a cup) of water per day just to prevent dehydration. This would not contribute to hydration.

Dehydration can tax the body over time. It can contribute to a plethora of health issues including difficulty with the kidneys and heart.

Let's compare this to a raw food such as Solutions, which is 68% moisture and 3.5% carbs in one 8oz cup:

8oz per cup x 28.57grams/oz = 228.6 grams per cup of food
228.6g/cup x 3.5% carbs in food = 8 grams of carbs per cup
8 grams of carbs x 3 grams of water retention per gram = 24 grams of water retained per cup of food consumed.

However...

228.6g/cup x 68% moisture in food = 155.45 grams of water per cup contributed to the body

155.45 grams of water contributed - 24 grams of water retained = 131.45 grams, or 4.6oz of water is contributed to the body per cup of food consumed. That means this food hydrates your pet.

It is not uncommon for pet parents to report that their pets "stop drinking water" after switching to a raw diet (except immediately after activity or after chewing a bone). Now you can see why this is not only normal but healthy. **Excessive water consumption is a symptom of food that dehydrates or a health crisis.**

One last thought before I go. People often ask me if they can add water to their pets kibble diet to increase moisture and increase hydration.

Using the example above, you'd have to supply a 23lb dog with the following each day for that to help:



2oz of food per meal
3oz of water per meal to prevent dehydration

The amount of water necessary would cause your dog to gain unwanted water weight and pee a lot more. This could result in mineral imbalances and kidney and heart issues.

Also, if you look in the AAFCO official publication you can see that kibble and canned pet foods are legally allowed to use hydrolyzed hair, hydrolyzed leather, condemned rendered and sterilized meats, biodiesel byproducts, alcohol production byproducts, used restaurant grease, sludge and more as “healthy and nutritious” ingredients in pet food. A quick glance through the FDA recall pages and you can see how often kibble pet foods are recalled for aflatoxin molds and other contaminants.

In my opinion, it’s pretty risky to soak kibble in water. That provides an opportunity for scary things such as molds to grow and potentially cause illness. Of course, there are some exceptions to the rule but they are rare, even among the super-premium brands.