



Hydration: Dry vs. Wet Food

Do cats have a poor thirst drive or are they simply eating the wrong food?

Prior to domestication, cats originally came from a desert environment where they consumed animal protein, animal fat and water. Cats are obligate carnivores and by definition have no nutritional requirement for carbs or plant proteins in their diet. Carbs, vegetable oils and plant proteins all digest differently than animal proteins/fats and can upset the balance of your cat's digestive tract. When your cat eats meat, its digestive tract operates at peak efficiency. The harsh conditions found in the cats' native desert environment has allowed them to be extremely efficient in their use of food and water resources. Their digestion of animal protein/fat is synchronized perfectly with water. Add carbs to their diet and their systems are no longer balanced and they may suffer multiple medical issues.

So, do cats have a poor thirst drive or are we just feeding them the wrong food? We believe that feeding carbohydrates and plant materials are responsible for cats maintaining a high urine specific gravity. In 2004, a study was done to determine the effects of dietary carbohydrates on the formation of struvite crystals in urine.* The conclusion was that starch/carbs did potentially stimulate the formation of struvite crystals. The researchers recommended reducing the levels of starch/carbs in a cat's diet. This study also found another interesting fact, when starch/carbs were added to a protein/fat diet and the cats were allowed to eat free choice, urine volume went down. When urine volume goes down specific gravity generally goes up. It would appear that carbs decrease the cat's desire to drink water.

Multiple studies have shown that when you compare a dry diet containing 6% moisture with the same formula containing 75% moisture that the cats consuming the 75% moisture diet will produce more urine and have a lower urine specific gravity than the cats consuming the 6% moisture diet. The diet chosen for these studies is typically a high carbohydrate diet that can be soaked in water to absorb the moisture needed to get from 6% to the 75% moisture level. Carbohydrate-based kibble will absorb moisture like a sponge, making them a convenient carrier for water for this type of test.

Cats consumed almost 30% more moisture while consuming the 75% high moisture diet and the urine specific gravity was 1.036. The 6% low moisture diet had a urine specific gravity of 1.054 (the normal urine specific gravity range for a cat is 1.015-1.050). Basically, the cats chose to consume less water on the dry diet even though they had free access to water. This has led to the theory that cats have a poor thirst drive and that the lower intake of water has resulted in the epidemic of stones, uroliths and crystals found in cat urine today. It should

also be noted that all of the study cats gained more than 3% body weight in just 3 weeks from the high carb content. Please see our paper on overeating and carbohydrates.

Because we had yet to see a study where the test was done with less than 5% digestible carbs or zero carbs, we decided to do the test using our own cat food.

Specific gravity is the gold standard when it comes to showing hydration in our cats, along with serum albumin and total protein. One exception occurs with kidney disease where the specific gravity can be low because the kidneys are not functioning properly. Generally, in a normal cat, the more water it consumes, the lower the specific gravity. When specific gravity remains on the low side of the typical range (1.015-1.050) your cat will be less likely to have uroliths and/or crystal issues. Please see our paper on crystals, stones and uroliths. At Young Again, we believe that specific gravity of the urine is directly related to what your cat consumes. All of our foods are carnivore-based and contain less than 5% digestible carbs. And our Zero Carb formulas contain no digestible carbohydrates.

Young Again conducted an in-home study in 2009 with 42 cats. The diet used was our 50/22 containing less than 5% digestible carbs and a 6% moisture content. All cats were obese and 4 cats had kidney disease. We did blood and urine panels every 3 months for 9 months. At the first 3 month check-up, no cat was overweight. 112 samples of urine were taken during the 9 month study. The specific gravity results are shown in the following chart.

	% of Cats	SPECIFIC GRAVITY LEVELS
Analysis	11% (study cats with kidney disease)	1.005
	14%	1.010
	23%	1.015
	40%	1.020
	10%	1.025
	2%	1.030

As you can see from the results above, our dry diet does not result in high specific gravity. On the contrary, cats do not exhibit a "poor thirst drive" on our foods and will drink more than enough water to maintain proper specific gravity and hydration levels. No specific gravity above 1.030 was

observed. Most of the specific gravities in the 1.010 range belonged to cats that had normal specific gravities in 2 out of 3 tests, in the 1.015-1.020 range or were cats that had kidney disease.

However, many experts continue to lump all dry diets into the same category. Dry is bad, wet is good; regardless of the ingredients in the dry diet. Distinctions are seldom made between carbs, proteins, fats, mineral content or the amount of food consumed by the cat each day when fed free-choice. The reason that all dry diets are lumped together is because many researchers, in our opinion, still wrongly believe that in order to make a dry kibble you need to use digestible carbs. Young Again was the first to disprove this as a completely incorrect assertion. On average, most dry cat foods sold today do contain 20-35% carbs.

	Juvenile Mouse	Young Again Zero Carb Cat Food	Young Again 50/22 Cat Food	Young Again Mature Health Cat Food	Young Again Zero Carb Mature Health
Analysis					
Protein %	50-54	52	50	54	52
Fat %	22-26	26	22	22	24
Carbs - digestible	3-4%	ZERO	Less than 5%	Less than 5%	ZERO

See our carb calculator at www.youngagainpetfood.com to find out how many carbohydrates are in the food your cat is eating.

Carbs and animal proteins have the same energy content on a dry matter basis; however, carbs digest much more quickly than animal proteins. When cats are fed animal protein/fat and water, their metabolism becomes synchronized and all three digest in unison. If you begin reducing a 50% protein carnivore diet by replacing the protein with 25% carbs, then the balance disappears. The 25% carbs digest much more quickly than the remaining 25% protein. As the digestion of carbs race ahead, the water may lag behind resulting in a minor state of dehydration. Because carbs digest so quickly your cat may not feel the need to drink, because digestion is out of sync with water metabolism. It may be that when a cat consumes carbs free-choice in place of animal protein, the carbs somehow inhibit their desire to drink. Consuming excess calories in the form of fast digesting carbs has to be a strain on their system and it is likely that water processing

does not keep pace and poor hydration is the result. Young Again diets are dry, yet all of the 42 cats we tested, consumed plenty of water to produce exceptional levels of albumin, total protein and specific gravity; all indicators of proper hydration.

It is easy to determine the healthy hydration status of your cat. Next time you are at the vet's office, have a few tests run. Your veterinarian will need to test for levels of albumin and total protein in the blood serum. If both of these values are within the normal range (preferably mid-range), it is unlikely your cat is dehydrated. A urine specific gravity of less than 1.030 will confirm that your cat is not suffering from dehydration. Keep in mind that one single test does not make a diagnosis. If the numbers are off, talk with your vet and run the tests again in another 3 weeks.

When you stop feeding more than 5% carbs or plant products, many of your cat's problems may just disappear. In the study referenced at the beginning of this paper, cats were being fed a 75% moisture diet with carbs which resulted in a specific gravity of 1.036. How is that great? On Young Again 50/22 with 6% moisture, cats produced on average a specific gravity of 1.020. Our foods are also low in sodium.

If your cat has a specific gravity in excess of 1.035 while consuming Young Again Cat Food, there is almost always an underlying medical issue unrelated to our food. If your cat is consuming one of our age-appropriate foods and a laboratory test comes back that is out of the normal reference range (meaning either too high or too low), in our experience, it generally will not be beneficial to your cat to switch to a prescription diet. Chances are that any anomaly is more specific to your cat's physiology and it is unlikely that changing your cat's food will correct the problem. If the pH or specific gravity is off then it may be possible to provide a supplement to bring it to a level that suits your individual cat's condition.

We believe that cats don't necessarily have a poor thirst drive, they just process water more slowly than most other animals. Add to that a non-carnivore, carb-heavy diet that may inhibit their desire to drink and it results in poor hydration. Feed your cat as nature intended by choosing one of our nutritionally-balanced carnivore diets. They will drink what they should and you will have a healthier, happier cat.

Study reference:*
Am J Vet Res. 2004 Feb;65(2): 138-42

