Alert: 100% of Pet Food Labels Don't Match What's Inside
by Dr. Karen Becker

STORY AT-A-GLANCE

- A recently published study on adulteration in pet food suggests that while mercury contamination is likely not a significant problem, mislabeling of ingredients definitely is
- Only two tested pet food samples contained mercury above suggested levels, however, it's important to note there is currently no established regulation for a safe concentration of mercury in pet foods
- Study researchers used DNA sequencing to identify the ingredients in the pet food samples and found that not a single sample was without some form of mismatch in label ingredients vs. actual ingredients
- As a consumer, you have a right to question the manufacturer of your dog's or cat's pet food about how, and how often, they verify the authenticity of their ingredients
- If you're a pet parent who has lost trust in ultraprocessed pet food producers, you can take steps to improve your pet's diet and also help fight back against deceptive industry practices

A few months ago, the results of a new study on pet food adulteration were published in the journal Science of The Total Environment. I learned of this study through my colleague and friend, Dr. Jean Dodds of Hemopet and NutriScan.

Dr. Dodds believes that thanks to the "driven, dedicated, and determined research team" who carried out the study and published the results, "the world found out how extensive and horrifying pet food adulteration actually is. We knew it was bad, but just didn't realize the extent of the problem."

Dr. Dodds also notes the uniqueness of the study relative to its size (perhaps the largest or among the largest pet food studies of its kind), its funding (entirely crowdsourced — none of it came from the pet food industry or the government), and other factors.

How Much Mercury Is 'Safe' for Pets to Ingest?

For the study, University of Nevada, Reno researchers looked for levels of mercury and the even more toxic methylmercury in 127 brands of commercial pet foods and treats. Mercury is a strong neurotoxin that can exist in many forms, with organic forms (e.g., methylmercury) being the most toxic, and is especially toxic to cats.

"Ensuring pet foods have low Hg (mercury) concentrations can reduce potential health impacts in cats and dogs related to Hg toxicity and poisoning (e.g., ataxia, loss of balance, seizures, death)," write the study co-authors.

"Unfortunately, this is made more challenging by the fact that there is currently no established regulation for a safe concentration of Hg in pet foods. There are several proposed maximum tolerable limits (MTLs) for cats and dogs, ranging from 67 to 500 parts per billion (ppb) depending on the source, with values of ≤100 ppb reported most frequently."

The researchers discovered that the majority of tested pet foods had mercury concentrations below suggested levels.

"Only two of our tested samples had mercury concentrations above the maximum tolerable levels recommended by the National Research Council," Sarrah Dunham-Cheatham, assistant research professor at the university and lead author of the paper told UNR's online publication Nevada Today.

"The next two highest were dry dog foods from a pet food company that is currently under lawsuit for their high toxic metal concentrations. The top 10 highest foods we tested included six cat foods (three wet, three dry) and four dog foods (all dry)."

The co-authors also told Nevada Today that without an established and enforced limit for mercury and methylmercury (and other contaminants) in pet food, the industry is free to continue to produce and sell diets that pose risks to pets. They noted that more studies are needed to establish safe "chronic consumption" levels of mercury in a variety of pet species.

"There are no regulatory standards for mercury in pet foods, but there are several suggested limits from various sources," Dunham-Cheatham said. *"For this paper, we selected a limit suggested by the National Research Council, as it is in the middle of the range of suggested limits and is the most commonly referenced limit in pet food-related literature."*

Fish-Based Pet Foods Contain Highest Mercury Concentrations

In an effort to determine contributors to high mercury concentrations in the tested samples, the UNR research team used a next generation DNA sequencing approach to identify ingredients in the food.

Upon examination of the ingredient labels of the two samples containing high mercury concentrations, the researchers found that tuna was listed as the first ingredient for both, with other seafood-based ingredients (e.g., salmon or crab) listed near the top. No single ingredient was identified as the main source of mercury in any of the samples.

*"Based on our results, I would encourage pet owners to avoid or minimize the feeding of **fish-based foods** to their pets to mitigate potential risks related to chronic mercury exposure,"* Dunham-Cheatham said. *"If a pet is a picky eater and prefers fish-based foods, try rotating it or mixing it with a nonfish-based food."*

Certain types of fish accumulate more mercury and other toxins — especially predatory fish such as tuna, sharks and swordfish — because they're higher up the food chain and eat smaller contaminated fish. Earlier UNR research found that pet foods containing **salmon** and trout also tend to have high levels of mercury. The body of water a fish lives is also a contributor to the levels of mercury, other heavy metals and pollutants it accumulates.

100% of Pet Food Package Labels Proved 'Inaccurate'

The researchers also used DNA in the pet food to determine if actual ingredients matched ingredients as listed on package labels. The study authors make the point that DNA is often highly degraded in pet food products, so genetic results represent only DNA that was of high enough quality to undergo isolation, PCR amplification, sequencing, and several steps of quality control filtering.

This exploration led the team to suggest that pet food package labels should be read with caution, as many aren't accurate.

"Every sample we looked at had some inaccuracy, based on our results, some more egregious than others. These are highlighted in the paper," Dunham-Cheatham told Nevada Today. "*We looked at at least 50 samples, of the 90 we analyzed for DNA, for this particular analysis. We weren't able to definitively answer how many had inaccurate labels due to some limitations of the DNA analysis.*

As for the DNA results, generically speaking, we found that many of the pet food products were comprised of low-value ingredients, such as chicken, and that products claiming to be made from high-value ingredients, such as fish and novelty proteins, typically contained more low-value ingredients than high-value ingredients."

One analysis looked at samples with unexpectedly high mercury concentrations based on package ingredient labels (i.e., the high levels of mercury suggested fish-based ingredients, but the ingredient labels said otherwise).

One of these samples listed beef, wild boar, goat, and lamb as the top animal-based ingredients, but the DNA analysis showed the sample contained "mostly chicken and some turkey, with a variety of fish species as the top 5 ingredients." No beef, wild boar, goat, nor lamb were detected in the sample.

Another sample listed only tuna and salmon, while the DNA analysis showed that chicken, sheep, and turkey dominated the animal-based ingredients. With regard to plant-based ingredients, one sample contained none of the ingredients listed on the package label, but did contain **soy**, despite the package label stating the product had "no soy."

Another sample showed no DNA evidence of field peas or chickpeas as listed on the package label, but did show the presence of DNA from the Poaceae family (e.g., corn, wheat, barley, oats, rice, sugarcane). The package label claimed the product was corn- and wheat-free. From the study:

*"These results are consistent with those from **Palumbo et al. (2020)**, that showed 16 of the 18 tested commercial pet foods were adulterated. Both studies revealed that ingredients with higher economic value (e.g., fish) are often supplemented with or altogether replaced by ingredients of lower economic value (e.g., chicken).*

This raises concerns that consumers are paying unfair prices for products that purportedly contain high value ingredients, but actually contain low value ingredients.

*The prevalence of adulteration in commercial pet foods is also of concern for pets with life-threatening food allergies. Such allergies are becoming more common in pets, with beef, chicken, wheat, and dairy-based ingredients reported as the most common food allergens (**Mueller et al., 2016**).*

If a consumer cannot trust that a pet food product is free of these allergens, despite the package label, then pet lives are at risk and trust in the pet food industry is severely eroded."

If You're Concerned About Misleading Pet Food Labels

If you're concerned about the ingredients in your pet's food — perhaps you have a dog or cat with allergies or who requires a novel diet to treat **food sensitivities** or bowel disease — you can try contacting the pet food manufacturer to ask how, and how often, they verify the authenticity of their ingredients. A few questions to ask:

Do you apply hazard analysis and critical control point (HACCP) procedures to avoid product adulteration and contamination?

Do you require your ingredient suppliers to verify the source, type and species content of grains and meals, meats and other raw materials used to make your products?

Do you check the quality of new suppliers by carefully examining their products, demand third party purity testing and test them yourself, as necessary?

Do you keep records of the receipt and use of each ingredient in your products?

What measures are in place in your production facility to prevent ingredient confusion and cross-contamination? What other foods are manufactured in the facility that makes your pet food?

Do you participate in third party transparency testing (such as **Check Your Pet Food**) and can you email me the results?