

## 10 Signs Your Cat May Be Suffering From a Deadly Deficiency

Cats require three times as much of this nutrient as dogs, so it's easy for them to develop a deficiency, especially if they eat canned or dried food. This nutrient is needed for proper nerve function, so a deficiency can lead to paralysis and even death in just a few weeks. Know the red flags.

**Analysis by Dr. Karen Shaw Becker**

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### STORY AT-A-GLANCE

- Thiamine (vitamin B1) levels in canned cat food are highly unpredictable due to high heat processing methods and extended storage times
- Cats need about three times the amount of dietary thiamine that dogs do, making them at much higher risk for developing a deficiency
- Thiamine deficiencies must be caught quickly to be successfully treated; unfortunately, symptoms often don't appear for weeks
- If you're concerned about thiamine levels and other problems with canned cat food, consider transitioning your feline family member to a nutritionally balanced, fresh food diet

Thiamine, or vitamin B1, is a water-soluble vitamin absorbed from the diet through the small intestine. The body doesn't store thiamine, so it's easy to develop a deficiency if there isn't enough of this nutrient in the daily diet. And since cats require about three times the amount of dietary thiamine that dogs do, they're at significantly higher risk for developing a deficiency. According to Greg Aldrich, Ph.D., writing for PetfoodIndustry.com:

*"If cats are fed a deficient diet for several weeks, they can become paralyzed and within a month it can be fatal."<sup>1</sup>*

Thiamine helps support healthy functioning of nerves, muscle cells and the brain in animals, including humans. A thiamine shortage means the body can't efficiently convert carbohydrates into energy. Organs that use a lot of energy (like the brain) can be severely compromised by a thiamine deficiency. A lack of thiamine can also lead to a buildup of lactate, resulting in acidosis.

### Thiamine Levels in Canned Cat Food Are Wildly Unpredictable

Unlike many other nutrients in ultraprocessed pet food, thiamine levels present some unique challenges, with the result that thiamine-deficient pet foods are an ongoing issue. This is especially true for canned cat diets, in particular those labeled for intermittent and supplemental feeding only (unbalanced diets).

A 2017 report published by pet food researchers at Kansas State University concluded that the size and shape of cat food containers have no bearing on thiamine loss during manufacturing.<sup>2</sup> The main culprits seem to be time and temperature, and ultraprocessed pet foods are manufactured at extremely high temperatures and are designed to sit

for months on a shelf or in a freezer.

In addition, thiamine naturally present in food can also be destroyed by exposure to high levels of glutamate found in vegetable protein.

*"In canned foods, we can get well in excess of 70% degradation of thiamine and, in some cases, it can approach and exceed 90%," per Aldrich. "Thiamine is subject to degradation from moisture and heat — things that canned foods have aplenty."*<sup>3</sup>

Cat food manufacturers supplement their formulas to compensate for the loss of thiamine during processing, however, it isn't a perfect science because pet food batches are not tested for nutritional adequacy after being manufactured. As a result, it's not uncommon for manufacturers to issue recalls for low levels of thiamine after the problem has been discovered.

## **Other Ways Your Cat Can Become Thiamine-Deprived**

Canned diets are the type most commonly deficient in thiamine because of the way they're processed, but dry foods exposed to air, humidity or heat can also lose thiamine content. An unbalanced raw or homemade diet can also be thiamine-deficient.

A thiamine deficiency can develop from feeding cats large amounts of raw fish containing the enzyme thiaminase, which destroys thiamine, and also from feeding pet food containing sulfites, which inactivate thiamine.

Kitties fed high-carbohydrate foods may experience deficiencies because their bodies have a greater demand for thiamine to metabolize all those carbs. In addition, animals with intestinal disease that interferes with nutrient absorption may be thiamine-deficient, as well as cats taking certain medications like diuretics.

## **Signs Your Cat Might Be Thiamine-Deficient**

Progressive symptoms of a thiamine deficiency can take weeks to develop, but initial signs of general gastrointestinal (GI) upset including vomiting, excessive salivation, loss of appetite, and weight loss, which often occur within a week after beginning a diet severely lacking in thiamine. If the deficiency remains untreated, neurological signs will follow. These can include:

- Dilated pupils
- Ventriflexion (bending downward) or curling the neck backward
- Loss of coordination
- Arching the head, neck and spine
- Head tilt
- Falling
- Circling
- Stupor
- Abnormal gait

- Seizures

Typically, a pet must be thiamine deficient for around a month before the terminal stage is reached. Once a kitty has entered this stage, he or she will die within a few days if the deficiency is not immediately reversed.

Diagnosing thiamine deficiency in a cat can be somewhat complicated. Thiamine exists in several forms in the body, and measuring the concentrations can be challenging.

Two tests are typically used to evaluate a pet's thiamine status: one is the erythrocyte transketolase activity assay, and the other is high-pressure liquid chromatography. Most often, however, thiamine deficiency is diagnosed based on the patient's symptoms, dietary history, and response to treatment.

## **How to Ensure Your Cat Is Getting Enough Thiamine**

When the cause of a cat's illness is suspected to be thiamine deficiency, it's important to initiate treatment immediately, even without a confirmed diagnosis.

Treating a thiamine deficiency involves your vet giving thiamine injections for three to five days, followed by oral supplementation for two to four weeks at home, in addition to correcting the diet.

The better quality your pet food and the fresher it is, the more thiamine will be present in the diet, so look for human-grade, meat-based, fresher pet foods, or switch to making your pet's meals at home (so you're in full control).

If you opt to feed a homemade diet, make sure you're following a recipe that includes a complete nutritional analysis (which tells you how much thiamine is in the recipe), and follow the recipe exactly.

It's also important to limit or eliminate raw fish from the diet. If you want to feed your cat seafood occasionally, I recommend sardines packed in water or wild caught, gently cooked salmon as a treat, rather than feeding a fish-based cat food.

Discuss your cat's thiamine intake with your integrative veterinarian or pet nutritionist to make sure you're providing optimal amounts in the diet you offer your feline family member.

## **Worried About Your Cat's Canned Diet?**

If you're concerned about thiamine levels, Bisphenol A, and other problems with canned pet food, my suggestion is to consider transitioning your cat to a nutritionally balanced, fresh food diet, either homemade or commercially available.

Whatever you do, please don't go from canned to kibble. Kibble is biologically inappropriate for cats. In addition, the food is heated to very high temperatures, which denatures proteins and decreases nutrient value, and potentially introduces carcinogens into your pet's body on a daily basis.

If you're feeding your kitty a processed diet, also consider an intermittent detoxification protocol. I also recommend using stainless steel, glass or ceramic food and water bowls instead of bowls made of plastic.

## Sources and References

<sup>1</sup> [PetfoodIndustry.com](#) September 12, 2017

<sup>3,2</sup> [PetfoodIndustry.com](#), November 1, 2022

<sup>5</sup> [Kansas State University](#), 2017

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