

This Can Turn Your Cat From Healthy to Helpless in a Shockingly Short Time

In reality it affects your cat over time, not overnight. But since you can't see the change taking place internally, you owe it to your kitty and yourself to make sure she gets this each and every day. Because without it you could end up with a very sick cat, like this one with heart failure.

Analysis by Dr. Karen Shaw Becker

STORY AT-A-GLANCE

- A previously healthy 10-year-old cat developed breathing difficulties and was subsequently diagnosed with a heart disease associated with taurine deficiency
- Felines have a greater need for taurine in the diet than other animals. Deficiencies take awhile to appear and cause significant damage to a cat's health
- Taurine concentrations in meat vary widely depending on how the food animals are raised and the way in which the meat is stored and prepared
- Most cats fed a nutritionally balanced, fresh meat-based diet won't need supplemental taurine
- Cooked homemade pet diets should be supplemented with taurine, and all commercial cat foods should contain supplemental taurine

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Recently I read about a 10-year-old cat who was brought to a veterinary clinic with tachypnea (abnormally rapid breathing) and dyspnea (difficult or labored breathing). The kitty lived indoors, was an only pet and had been healthy prior to the breathing problems.

The veterinarian diagnosed the cat with congestive heart failure and dilated cardiomyopathy (DCM), which means his heart muscle wasn't contracting or pumping blood efficiently. DCM is much more common in dogs than cats, and is often related to a taurine deficiency, especially in kitties.

Unlike herbivores (plant eaters) and omnivores (plant and meat eaters), obligate carnivores (cats) aren't able to synthesize all the taurine their bodies need from the dietary amino acids methionine and cysteine. Another physiological idiosyncrasy of kitties is they can only conjugate bile acids with taurine.

A low rate of taurine synthesis plus a loss of taurine in bile means kitties have an increased dietary requirement for taurine. Deficiencies can result in central retinal degeneration, problems with reproduction and fetal development and heart cardiomyopathy.

This is why it's essential that kitties receive taurine with every meal. According to a 2002 study published by researchers at the University of California, Davis School of Veterinary Medicine:

"From an evolutionary standpoint, taurine was plentiful in the diet of a true carnivore, as high concentrations of taurine are found in muscle tissue.

*However, as most domesticated felines normally do not consume living prey, they are at risk to become taurine-deficient if not adequately supplied in the diet."*¹

Symptoms of taurine deficiency don't show up right away. It can take from a few months to a few years. Sadly, once a kitty develops noticeable symptoms, in most cases significant damage has already been done.

Nutritional Assessment Confirms Diet-Induced Taurine Deficiency

It's important to perform a nutritional assessment on every veterinary patient, and it's absolutely critical in a case like this where a previously healthy senior cat develops breathing problems and is diagnosed with a type of heart disease related to a specific dietary deficiency.

The treating veterinarian learned that for about a year this kitty had been fed a commercial pouched cat food and nothing else (no human food, treats, nutritional supplements, etc.). The cat food package stated the product was formulated to meet Association of American Feed Control Officials (AAFCO) standards.

The listed ingredients were "organs (liver, lung, and kidney from beef, pork and lamb); water sufficient for processing; lamb; starch; potato; calcium."² The food was analyzed and discovered to be deficient not only in taurine, but also calcium, phosphorus, manganese, potassium, zinc and thiamine.

As was suspected, the cat's blood showed critically low taurine concentrations. After three days in the hospital, the cat was sent home with heart medications, a taurine supplement and instructions for his parents on a replacement food.

Fortunately, the kitty's heart returned to normal size and function within six months, at which point the medications were discontinued. He continued to be fed the food the veterinarian recommended, and no longer needed the taurine supplement after one year.

Taurine Concentrations in Meat Vary Widely

Taurine is an amino acid found primarily in muscle meat, especially dark meat, and organs like the heart, kidneys and liver, as well as seafood, including shellfish. It's also found in small amounts in dairy products, including eggs. Plants contain little to no detectable amounts of taurine.

Now, at first glance you might think the listed ingredients in the pouched cat food would contain ample taurine, since they are primarily organ meats. However, there are a number of factors that affect taurine concentrations in muscle and organ meat.

According to the UC Davis study, in food animals, different diets, farming practices, breeds and environments can significantly affect taurine content. In addition, taurine is highly water soluble, and most of it found in animal tissue is dissolved when exposed to water.

This means that how meat is prepared affects how much taurine remains in the finished product. The highest concentrations are found in raw meat, followed by frying with juices retained, frying without retaining the juices, baking and finally, boiling. According to the UC Davis study authors:

*"Boiling resulted in the greatest taurine loss because the food was surrounded by water, thereby leeching the taurine from the product. Unless the water is included in the meal, the animal is consuming less taurine than predicted."*³

If you prepare your pet's meals at home and cook the meat (only gently, hopefully), you should retain all the liquids from the meat. The higher the temperature, the more taurine that is lost, so if you are not feeding the meat raw, make sure to keep cooking temperatures low.

Chemist and research scientist Marta Kaspar, writing for the Feline Nutrition Foundation, explains the effect of freezer storage on taurine concentrations in meat:

"I have been asked many times if taurine loses its potency during food storage in the freezer.

The answer is yes and no. Freezing does not affect taurine potency, but, during the thawing process a lot of liquid is released. Since taurine is highly water soluble, that liquid will be taking a lot of the meat's taurine with it.

*For example, if you buy raw ground meat/bone/organ packages, the liquid that comes out as it thaws — which is not blood despite its red color — is full of dissolved taurine. If this broth is discarded, the meat ends up with a lower taurine content than before freezing."*⁴

How to Insure Your Cat Is Getting Enough Taurine

There's no way to know for certain why the pouched cat food described above was deficient in taurine (and several other nutrients). However, all commercial cat foods claiming to meet AAFCO nutritional guidelines are generally understood to be supplemented with taurine to avoid nutritional deficiency.

The only supplement listed for the pouched food was calcium, so we can assume no taurine was added, despite the AAFCO compliance statement. It's also safe to assume the manner in which the food was processed did not preserve the taurine or other nutrients contained in the raw ingredients.

Aside from this particular pouched food's significant nutritional shortcomings, I'm not a fan of semi-moist pouched pet food in general. In fact, it's No. 12 on my list of **13 pet foods ranked best to worst**. To keep the food semi-moist, many manufacturers add propylene glycol, a chemical preservative in the same family as ethylene glycol, which is antifreeze. While propylene glycol is still approved for use in dog foods, it has been banned for use in cat foods.⁵

My recommendation is to feed a nutritionally balanced raw diet (homemade or commercial) designed for cats, since raw food contains the highest amounts of natural nutrients. Most kitties fed a balanced, species-appropriate raw diet will not need supplemental taurine.

I don't recommend feeding fish to cats for a number of reasons, with the exception of sardines packed in water and perhaps some wild caught salmon in rotation with other proteins. If you prepare homemade cat meals and cook the meat, even gently, it's a good idea to supplement taurine to insure your kitty is getting an adequate amount. There are no known reports of taurine overdoses, so supplementation is relatively safe.

One pound of "grocery store" (factory-farmed) meat contains about 250 milligrams (mg) of taurine, so a safe supplement level is one 500 mg capsule (the smallest amount available) per 2 pounds of meat, or one-half capsule per 1 pound of meat.⁶ If you feed processed cat food, buy the best-quality diet you can afford, and check the ingredient list to insure taurine is included. The extreme temperatures required for extrusion means all "shelf stable" cat food should contain supplemental taurine.

Sources and References

[All Natural Pet Care](#)

^{1,3} [Journal of Animal Physiology and Animal Nutrition. 87\(2003\), 251-262](#)

² [Clinician's Brief, August 2016](#)

^{4,5} [Feline Nutrition Foundation](#)

⁶ [ECFR.gov](#)
