

The looming concern about copper in dog food: Copper overload is quietly killing our dogs

Friday, January 28, 2022 - 11:16am



Excess copper in commercial dog foods can lead to liver problems. Photo: Todd Mittens/Unsplash.

We all know good nutrition is critical for the health and longevity of our dogs, and most of us rely on commercial dog foods to help us achieve that. Now, what if we told you those complete-and-balanced diets — the quality food you've carefully chosen for your dog — may be slowly killing them?

It's true, says [Dr. Sharon Center](#), the James Law Professor of Internal Medicine at Cornell University's College of Veterinary Medicine (Cornell CVM). Center is nationally renowned for her expertise in liver diseases of dogs and cats. She says the excess amount of the essential trace mineral copper in commercial dog food can cause a serious, potentially lethal illness called dietary-induced copper-associated

hepatopathy (CAH). The incidence of CAH is increasing at a rate that's causing alarm among veterinarians and dog owners, with one study showing that 30% of canine liver biopsies have evidence of CAH.

CAH is no longer considered just a disease of predisposed breeds like Bedlington Terriers, Labrador Retrievers, Dalmatians, Dobermans and Westies. First, it can happen to any dog, and it is expected to happen more and more if copper levels in dog foods remain too high. Second, it can be actively happening in the liver of a dog showing no outward signs of illness.

Presentation and progression

Your dog's dietary copper helps make red blood cells and absorb iron. It also functions in the formation of skin and hair pigmentation and connective tissue. A deficiency, though rare, can cause muscular and skeletal problems, so we do need copper in our dogs' food.

CAH occurs when the amount of dietary copper ingested exceeds a dog's tolerance level and accumulates in the liver. Once in the liver, it can cause acute, severe liver inflammation with immediate, disastrous consequences, or it can cause chronic, insidious damage over time, resulting in widespread scarring of the liver (cirrhosis) and liver failure.

Symptoms of CAH include:

- Abdominal swelling
- Decreased appetite
- Diarrhea
- Increased thirst
- Jaundice
- Lethargy
- Vomiting
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“There is certainly a rise in copper-related hepatopathies these days,” says [Joseph J. Wakshlag](#), D.V.M. '98, Ph.D. '05, professor of clinical nutrition and of sports medicine and rehabilitation, and the section chief of nutrition at Cornell CVM. “It may very well be related to a lack of safe upper limits of consumption and higher than expected levels in dog foods.”

Right now, the recommendation for the amount of copper in a dog food is 7.3 mg/kg (milligrams per kilogram), but that means little to the average consumer because the

copper level is rarely listed on your dog's food label (you can call your dog-food manufacturer and request it). Currently, however, there is no maximum limit for copper in your dog's food. At one point, there was, but that was eliminated when the recommended type of copper used in dog foods was changed to a more bioavailable form. Why the limit was eliminated is not clear, but the results most certainly are.

The effects of that decision

Meet Vira, a happy, seemingly healthy 4-year-old, spayed female Labradoodle. Routine blood work performed at her annual wellness exam showed a concerning elevation of her ALT (alanine transaminase), a liver enzyme that increases in the presence of liver inflammation or injury. When repeat bloodwork one month later showed an ongoing increase in ALT, Vira underwent liver biopsy surgery. Her biopsies confirmed the presence of excess copper levels in her liver with associated hepatocellular damage or CAH.

Treatment for CAH usually includes administration of an oral copper-chelating agent (a compound that binds to copper to help remove it) called d-penicillamine. Dogs with CAH are also fed a copper-restricted diet to prevent further copper accumulation in the liver. Antioxidants like vitamin E and SAME (S-adenosyl-methionine) are recommended as supplements.

It can take many months of treatment for the liver damage to resolve. Repeat biopsy is the only definitive way to determine how the affected dog is doing. Because this is an expensive proposition — and most of us don't want our dogs undergoing multiple invasive surgical procedures — progress is usually monitored with sequential ALT blood tests. All affected dogs should be fed copper-restricted diets for life, and some dogs will require chronic, low-dose chelation therapy.

Vira has responded favorably to her treatment, and her ALT is now normal. She eats a copper-restricted diet called "The Scoop," which is available at www.safedogfood.com. Other commercial options for copper-restricted diets include Hill's l/d Liver Care and Royal Canin Hepatic Veterinary Diet (both require approval from your veterinarian).

Getting help

Wakshlag says that most of the low-copper commercial foods designed for dogs with liver disease are also protein restricted, which is not appropriate for all CAH cases.

"This is where I come in," says Wakshlag, who offers nutrition services at the Cornell University Hospital for Animals. "Since there are no commercial products available,

a home-prepared diet is needed. We have been formulating diets for these copper-related hepatopathies in dogs for nearly 20 years.”

It’s also wise, if you have copper water pipes in your home, to flush the lines for several minutes before filling your dog’s water bowl to reduce water copper content.

Electing to have routine blood chemistry run at Vira’s annual wellness exam most likely saved her life. Please consider this relatively inexpensive option for your dog at their annual heartworm and tick test.

Center is relentlessly lobbying the FDA to immediately re-establish maximum-allowed copper levels in commercial dog foods and to reconsider current federal canine dietary copper recommendations, but we all need to make our voices heard in order to make this an industry-wide change. Please consider helping.

What you can do: Contact the FDA

Center asks that if your dog has been diagnosed with copper hepatopathy, please complete the FDA questionnaire at <https://www.fda.gov/animal-veterinary/report-problem/how-report-pet-food-complaint>. Ask your veterinarian to do the same, as entries from veterinarians are taken very seriously.

- You can start by Selecting “Safety Reporting Portal,” and identify yourself as a guest.
- Then select, “Start a New Report.”
- For a title for your FDA report, Center recommends “Dog Food Copper Over-Supplementation.”
- Fill out the form to the best of your ability, trying not to leave any entries blank.

The entry marked “Problem Summary” is the most important entry, says Center. Make it clear to the FDA that your dog was affected by copper overdose through dog food and add personal commentary regarding your experience.

For example, you might say: “My dog was impacted by copper-associated hepatopathy thought to be due to over-supplementation of copper in commercial pet food. I implore the FDA to take corrective action to lower the maximum copper concentration in commercial dog food to mitigate this avoidable and potentially fatal illness.”

We recommend that you expand this entry with your personal commentary of hardship you endured. Tell them about the expenses you incurred, your dog’s illness, the difficulty of the diagnosis and management, and the emotional stress to yourself and your family.

The players

AAFCO (Association of American Feed Control Officials). A nonprofit organization consisting of state officials responsible for enforcing state laws regarding the safety of animal feeds. AAFCO does not test, recommend or approve dog foods. The association has no regulatory authority, only enforcement authority. Most dog food companies include a note on the food label that the product is formulated to meet or exceed AAFCO recommendations for nutrition.

NRC (National Research Council). This is the operating arm of the NASEM (National Academies of Sciences, Engineering, and Medicine), a congressionally chartered non-profit organization whose purpose is to provide independent scientific evidence and advice for the benefit of society. Reports from the NRC are what the FDA uses to create policies and regulations regarding dog foods.

FDA (Food and Drug Administration). A federal agency of the Department of Health and Human Services, responsible for protecting and promoting public health through the control and supervision of many marketed products, including animal foods and feed. The FDA is the only one of these three agencies with the power to change regulations regarding the nutritional content of dog foods.

This article originally appeared in the February 2022 issue of DogWatch, produced by Belvoir Media Group, in collaboration with Cornell CVM and the Cornell Richard P. Riney Canine Health Center.