

# FDA Warning About Spot-on Flea and Tick Product Remains

If you are using these popular flea and tick preventives on your pet, be aware of this warning from the US FDA that still remains. Researchers have found the serious adverse events from these products to be much higher than previously reported.

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Apr 14, 2023 • 6 min read

## STORY AT-A-GLANCE

- I recommend most pet guardians use chemical flea and tick preventives minimally or, preferably, not at all
- The U.S. Food and Drug Administration (FDA) warned that some of the most popularly prescribed flea/tick products containing isoxazoline are associated with muscle tremors, seizures and ataxia in dogs and cats
- Isoxazolines are deadly to insects through effects on the insect nervous system; researchers believe that the chemicals are not only neurotoxic to insects but also to dogs and cats
- Researchers are finding flea/tick chemicals in waterways, with potentially devastating downstream effects on the ecosystem
- Parasite prevention is the best medicine, starting high-risk pets on multimodal pest deterrent strategies early in the season. If pesticides are applied to pets, a detoxification protocol should also be instituted to reduce potential side effects

Many veterinarians still recommend regular (monthly) use of parasiticides, especially chemical flea and tick preventives, even though every product on the market has the potential to harm your pet. While it's true that ticks can carry serious diseases that can be transmitted to your pet, and no pet parent wants to deal with a flea infestation on their pet or in their home, chemical flea and tick products are not the only solution.

I recommend most pet guardians use chemical flea and tick preventives minimally or, preferably, not at all. This is because, in most cases, their risks outweigh the potential benefits, and nontoxic strategies exist to keep pests away from your pets.

## Flea and Tick Chemicals Linked to Cancer, Neurological Risks

It's risky to indiscriminately apply chemical flea and tick preventives to your pet on a monthly basis, year-round. The use of spot-on products may cause skin irritation, paralysis, seizures and even death if used improperly. One popular topical solution, fipronil, an insecticide found in Frontline, Sentry, Hartz and other flea/tick products, has even been classified as a possible human carcinogen.<sup>1</sup>

Meanwhile neurologic adverse events have been reported in both dogs and cats treated with flea/tick products containing isoxazoline, a chemical insecticide.<sup>2</sup> The isoxazoline class includes products such as Nexgard, Simparica and Bravecto tablets for dogs, as well as Revolution Plus, a topical solution for cats.

The U.S. Food and Drug Administration (FDA) warned that these products are associated with muscle tremors, seizures and ataxia in dogs and cats,<sup>3</sup> a concerning finding since “isoxazolines exhibit killing activity through effects on the insect nervous system.”<sup>4</sup>

In a study published in *Veterinary Medicine and Science*, researchers found serious adverse events from the drugs are much higher than were reported in the studies conducted prior to approval as part of Investigational New Drug (IND) submissions. And they believe that the chemicals are not only neurotoxic to insects but also to dogs and cats:<sup>5</sup>

*“Thus, as a class of drugs, these data indicate that isoxazolines can work as intrinsic neurotoxins across species. As pre-approval IND studies were done in only a limited number of animals that did not show neurotoxic serious AE [adverse event], it is not surprising that higher frequencies of such AE were noted once they were commercialized and given to much larger populations.”*

## **How Chemical-Treated Dogs Harm the Environment**

Beyond the immediate and chronic health risks posed to your pet, chemical flea and tick treatments pose a risk to the environment. Researchers are finding such chemicals are ubiquitous in waterways,<sup>6</sup> with potentially widespread negative effects on the ecosystem.

In one study, the highest levels of the chemicals were detected downstream from water treatments plants, so the researchers believe urban use, including bathing pets, is likely the primary cause of the contamination, although dogs swimming in rivers could also be contributing.<sup>7</sup>

In another study in which volunteers treated their dogs with a fipronil-containing spot-on product, then gave them baths two, seven or 28 days later, significant amounts of fipronil and fiproles were detected in the rinse water, with levels decreasing as the time from application increased. However, fipronil was still detectable even 28 days after application.

“Results confirm a direct pathway of pesticides to municipal wastewater through the use of spot-on products on dogs and subsequent bathing by either professional groomers or by pet owners in the home,” researchers wrote in *Science of the Total Environment*, adding:<sup>8</sup>

*“This study highlights the potential for other active ingredients (i.e., bifenthrin, permethrin, etofenprox, imidacloprid) contained in spot-on and other pet products (i.e., shampoos, sprays) to enter wastewater catchments through bathing activities, posing a potential risk to the aquatic organisms downstream of wastewater discharge.”*

## **What to Do if You Use Chemical Flea and Tick Treatments**

If you do opt to use chemical flea and tick products to treat a known parasite problem or perhaps because you know you’ll be spending time in a tick-infested area, be very careful to follow dosing directions on the label, and if your pet is at the low end of a dosage range use the next lowest dosage.

Also be extremely cautious with small dogs, and do not under any circumstances apply a product meant for dogs to your cat. You should closely monitor your pet for adverse reactions after you apply the product — especially when using one for the first time.

Since these medications can be taxing to the liver, I also recommend using a supplement to help detoxify the liver. Milk thistle is a general detoxification herb that helps regenerate liver cells. Chlorella is another powerful detoxifier. If you're using isoxazoline products, I also recommend giving GABA, glutathione, NAC (n-acetyl cysteine) and SOD (superoxide dismutase) to help decrease the potential for neurotoxicity.

## Safer Strategies to Keep Your Pet Pest-Free

During flea and tick season, beginning a natural multimodal parasite prevention strategy early is the wisest way to keep chemical application to a minimum. First, make sure your animal's immune system is working optimally by titering in place of unnecessary annual vaccines, minimizing household chemical exposure and environmental stress, and feeding a human grade, species appropriate diet with fresh garlic.

The Terrain Theory posits when an individual's internal ecosystem is weakened, they are more susceptible to poor health, opening the door to disease (including parasite infestations). Many pet parents have found the healthier their animals, the fewer parasites they have. I have also found this to be true in clinical practice.

I recommend using the same level of vigilance about checking for ticks on your two- and four-legged family members. After outdoor excursions it's important to use a flea comb on your animals and complete thorough body checks for potential unwanted tagalongs. Flea infestations and engorged ticks occur most often when daily parasite checks are skipped.

Using natural deterrents every time you head into high-risk areas is also a common sense strategy that reduces the need for ongoing chemical application during flea and tick season. You can make homemade pest deterrents to keep on hand in your refrigerator, then spritz your dog or cat before they go outdoors (don't spray their faces):

- **For dogs** — Mix 8 ounces of pure water with 4 ounces of organic, unfiltered apple cider vinegar and 20 drops of neem oil. If you live in an area with ticks, you can also add five drops of lemon, lemongrass, eucalyptus or geranium essential oil for added punch.
- **For cats** — Mix 8 ounces of pure water with 4 ounces of organic, unfiltered apple cider vinegar, plus 10 drops of neem oil and 10 drops of catnip oil.

Additional nontoxic alternatives to ward off pests include:

- Cedar oil sprays (specifically manufactured for pet health)
- Natural, food-grade diatomaceous earth, topically (not on the head)
- Fresh garlic (1/4 teaspoon of freshly chopped garlic per 15 pounds of body weight)
- Make sure both your indoor and outdoor environments are unfriendly to pests

"Hybrid" protocols, or alternating chemical preventives plus detoxification with natural deterrents, have afforded many pet parents living in very high-risk areas the ability to reduce the number of pesticide applications by half (applying chemical products every other month instead of monthly) simply by rotating in natural deterrents every other month.

Because pesticide resistance is also a growing concern, regardless of what parasite protocol you decide to use it's important to screen for tick-borne diseases once a year. In high-risk areas, I recommend an Accuplex or 4DX screening test every 6 months.

## Sources and References

<sup>1</sup> [National Pesticide Information Center](#)

<sup>2</sup> [FDA.gov, Fact Sheet for Pet Owners and Veterinarians about Potential Adverse Events Associated with Isoxazoline Flea and Tick Products](#)

<sup>3</sup> [U.S. FDA Isoxazoline Flea and Tick Products August 13, 2001](#)

<sup>4, 5</sup> [Vet Med Sci. 2020 Nov; 6\(4\): 933–945](#)

<sup>6</sup> [Science of the Total Environment February 10, 2021, Volume 755, Part 1, 143560](#)

<sup>7</sup> [The Guardian November 17, 2020](#)

<sup>8</sup> [Science of the Total Environment December 1, 2017, Volumes 599-600, Pages 960-966](#)

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