

Crossroads Veterinary Clinic

15275 M 60 West, Three Rivers, MI, 49093

Phone: 269-278-1345

Fax: 269-273-5304

Website: crossroadsveterinaryclinic.com

E-cigarettes and Pet Safety

For years, attention has been focused on tobacco...growing it, advertising it, and denouncing it. As a result, human health consequences of tobacco usage and nicotine addiction are well known. Enlightened people, in an effort to avoid tobacco products, have turned to electronic cigarettes that provide nicotine without tobacco. Let's turn our focus to the impact this alternative has on our pets.



"even though e-cigarettes may be safer for humans...they are certainly not safe for pets."

Here's the situation: even though e-cigarettes may be safer for humans than using traditional tobacco products, they are certainly not safe for pets. The nicotine associated with e-cigarettes, even without the tobacco, poses a serious health threat for dogs and cats.

Nicotine Toxicity

Nicotine toxicity is not a new risk for pets. For years they have been exposed to nicotine via cigarettes, cigars, nicotine patches, nicotine gums and even some insecticides. The new issue is that e-cigarettes provide much more nicotine at a time, making intoxication more serious.

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Dogs and cats, like people, have numerous nicotine receptors throughout their nervous systems that function normally under normal circumstances. If these receptors are over-stimulated by being exposed to excessive nicotine, clinical signs develop. Pets begin to drool, become nauseous, vomit, and have diarrhea. Their heart rates increase and they may become very agitated.

With exposure to really high doses of nicotine, the nerve receptors become jammed or blocked and more serious signs of poisoning occur. Dogs and cats may have tremors and seizures. Lethargy, depression, ataxia (wobbly movements), and coma can follow. Heart and respiratory rates may elevate dramatically and progress to actual cardiac arrest and respiratory failure, which can be deadly.

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These scary signs can appear rapidly. In fact, symptoms of poisoning can occur within only 15 to 60 minutes of ingesting nicotine. That makes suspected nicotine ingestion a real emergency! Because of the rapid onset and severity of illness, home care is generally not possible with nicotine exposure. Call your veterinarian and proceed to the nearest emergency hospital quickly.

Why are e-cigarettes so dangerous for pets?

Mild to moderate exposure to nicotine can occur when dogs or cats nibble on a nicotine patch, chew on nicotine gum, consume a cigarette or scarf down part of a pouch of loose tobacco left lying around the house. Unless they eat an entire pack of cigarettes, a whole bag of tobacco, a box of patches or pack of gum, the nicotine consumption is relatively low, though not completely harmless.

Regardless of the source, the offending product is swallowed and the nicotine is deposited in the GI tract. Through normal digestive processes, much of the nicotine is removed by the liver before it ever reaches the bloodstream. This reduces the risk of severe intoxication. So, in general, "ordinary" exposure to nicotine doesn't result in "extra-ordinary" toxicity.

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Electronic cigarettes are another story. E-cigarettes contain liquid nicotine that is similarly absorbed through the digestive system of pets, but can enter the body by other means as well. Liquid nicotine can be absorbed through the mucous membranes and skin of pets. These trans-mucosal routes of absorption bypass the liver so more nicotine reaches the bloodstream faster. That means the risk of nicotine poisoning is greater with e-cigarettes.

How does packaging affect toxicity?

Electronic cigarettes first came on the scene around 2007 and their popularity has grown as people search for ways to decrease tobacco usage while still getting the nicotine they crave. E-cigarettes are designed to resemble real cigarettes and are powered by a battery operated device that vaporizes liquid nicotine contained in a cartridge so that it can be inhaled by the "smoker".

The issue is that a lot of nicotine is packed inside those cartridges. The liquids inside the cartridges can carry 6–24 milligrams of nicotine. That means each cartridge contains the nicotine of 1–2 traditional cigarettes. Not too alarming? Think about this: cartridges are often packed 5–100 per box which can definitely overload a curious dog that tears into the carton. For example, if a 50 pound dog eats even a single cartridge he can get sick. But what happens if he eats a bunch? Or what happens if a tiny 10 pound dog eats even one cartridge? What happens? *Poisoning happens.*

"concentrated refill liquid nicotine solution...pose[s] the biggest threat to dogs and cats."

To make matters worse, some people purchase vials of liquid nicotine solution and refill their own cartridges. This "e-liquid" or "e-juice" is often concentrated so that the user can dilute it as desired. The more concentrated refill liquid nicotine solution may contain up to 100 mg of nicotine per ml (500 mg/teaspoon). These refills that contain larger volumes of concentrated nicotine pose the biggest threat to dogs and cats.

Plus, eating the e-cigarette casing or swallowing the battery are dangerous, too. The casing and battery are not digestible and can cause GI disturbances or blockages. The rechargeable battery contains a caustic substance that also burns the inside of the mouth if pets chew it. Suffice it to say that there is no safe part of an e-cigarette! To make it worse, e-cigarettes are often flavored. The flavorings are not poisonous, but may make e-cigarettes more inviting to pets.

Numbers don't lie!

Since their appearance, e-cigarettes have been associated with an increase in nicotine-toxicity calls to Pet Poison Hotlines. The ASPCA Animal Poison Control Center notes that in 2012 e-cigarettes comprised 4.6% of nicotine toxicity cases and increased to 13.6% in 2013. While dogs account for most of the poisoning cases, cats are susceptible to nicotine toxicity as well. They are usually just more finicky about what they eat.

How to prevent e-cigarette related toxicity?

The answer here is simple: to prevent nicotine poisonings, keep e-cigarettes and refill containers away from pets. In fact, keep all nicotine containing products out of reach, including traditional cigarettes, cigars, nicotine patches and even gum!

Don't turn your positive approach to curbing your nicotine habit into a negative outcome for your pet.

This client information sheet is based on material written by: Lynn Buzhardt, DVM