

Enticing to Pets, Just 1 Container Could Kill a Large Dog

While some may consider this trendy new habit to be 'cool,' it's downright deadly to cats and dogs. The materials smell delicious to pets, and if left within reach and ingested, could lead to signs of poisoning, including coma and death, within only 15 minutes.

Reviewed by Dr. Becker

STORY AT-A-GLANCE

- E-cigarette cartridges contain flavorings that are enticing to pets along with nicotine and other chemicals that can be deadly
- Refill containers for e-cigarette cartridges may contain enough nicotine to kill even a large dog
- If your pet ingests an e-cigarette, cartridge or refill liquid, seek emergency medical care immediately
- Keep e-cigarettes, refill fluid and cartridges stored in an area your pet cannot access
- While the risks of second-hand exposure to e-cigarette aerosols continue to be explored, you may want to vape outdoors only in an area away from your pet

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The dangers posed to pets by living in a household with smokers are well known. Pets, which spend most of their time at home and near the floor, where cancer-causing particles may accumulate, may be even more at risk from second- and third-hand smoke than humans.

A lesser-known yet still highly dangerous risk is posed by electronic cigarettes, or e-cigarettes. These battery-operated devices deliver nicotine and flavorings in vapor form instead of smoke.

While they're often assumed to be less toxic than tobacco products, increasing health risks have emerged, both to people and to pets.

What Are E-Cigarettes?

E-cigarettes typically consist of a cartridge that holds nicotine, flavorings and other chemicals, a vaporizer (or heating source) and a battery (or other power source). When the e-cigarette is puffed, the heating device vaporizes the liquid in the cartridge, and the vapor is then inhaled. This is known as vaping.¹

The use of e-cigarettes has increased rapidly in recent years, and it's estimated that nearly 13% of U.S. adults have tried them. Nearly 4% of U.S. adults use them regularly, according to data from the U.S. Centers for Disease Control and Prevention (CDC).²

Pets living in a home with someone who vapes are exposed to the second-hand aerosols (or liquid particles suspended in air). The particles may also settle into household dust.

These aerosols are far from benign, as e-cigarette cartridges may contain a number of harmful chemicals, from diethylene glycol, an antifreeze chemical, to toxic metals and carcinogenic particles (including nanoparticles).

One common ingredient in the cartridges, propylene glycol, can lead to red blood cell damage in cats known as “Heinz body.”³ Diethylene glycol, which may be used as a carrier ingredient, may also cause acidosis and kidney injury.

The long-term effects of such exposures in pets are currently unknown, however e-cigarettes also pose another serious risk from the liquid cartridges.⁴

Pet Poisonings from E-Cigarettes on the Rise

According to Pet Poison Helpline, a 24/7 animal poison control center hotline:⁵

“Pet Poison Helpline has encountered a sharp uptick in calls concerning cases of nicotine poisoning in pets that ingested e-cigarettes or liquid nicotine refill solution.

In fact, over the past six months, cases have more than doubled, indicating that along with their increased popularity, the nicotine-delivering devices are becoming a more significant threat to pets.

While dogs account for the majority of cases, nicotine in e-cigarettes and liquid refill solution is toxic to cats as well.”

The ASPCA Animal Poison Control Center has seen a similar increase. E-cigarettes accounted for less than 5% of nicotine exposures in 2012 (other sources included tobacco cigarettes, nicotine gum and nicotine patches).

By 2013, e-cigarettes accounted for nearly 14% of nicotine exposures. More animals were also exposed to e-cigarettes, rising from 240 reports in 2011 to 305 in 2013.⁶

E-Cigarette Cartridges Can Poison Your Pet

The enticing flavors inside an e-cigarette cartridge (such as fruit punch, chocolate and bubble gum) may smell delicious to some pets, who may mistake the toxic liquid for a snack. A typical 1-milliliter e-cigarette cartridge may contain up to 36 milligrams of nicotine, which is equal to the amount found in three cigarettes.

Even 5 milligrams of nicotine may lead to signs of nicotine toxicity in dogs and cats, while larger amounts can be fatal. E-cigarette cartridges are often sold in multi-packs or large refill containers that may hold more than 2,000 milligrams of nicotine — an amount that could kill even a large dog if ingested.

Adding to their danger, while the nicotine from a regular cigarette tends to be absorbed over a few hours, the nicotine in e-cigarette liquid is easily absorbed through your pet’s skin and gums.

If your pet consumes a tobacco cigarette, it’s still dangerous but your pet’s liver will have a chance to remove some of the nicotine before it gets into his bloodstream. This isn’t the case with e-cigarette liquid, which allows the nicotine to be absorbed through the mucous membranes, avoiding his liver.⁷ Pet Poison Helpline continued:⁸

“... [I]f a single cartridge is ingested by a 50-pound dog, clinical signs of poisoning are likely to occur. But if a dog that weighs 10 pounds ingests the same amount, death is possible.

Dogs of any weight that ingest multiple e-cigarette cartridges are at risk for severe poisoning and even death.

In addition to the toxicity of nicotine, the actual e-cigarette casing can result in oral injury when chewed, and can cause gastrointestinal upset with the risk of a foreign body obstruction.”

Signs and symptoms may occur within 15 minutes of ingestion and include:⁹

- Excessive drooling
- Vomiting
- Diarrhea
- Agitation
- Increased respiratory rate
- Disorientation
- Tremors
- Seizures
- Heart abnormalities
- Paralysis
- Coma
- Death

Be aware that even licking the device or cartridge may lead to exposure to nicotine and other chemicals. This may be particularly dangerous for cats, as you might not realize they’ve been exposed.

Get Help Immediately if Your Pet Ingests E-Cigarettes, Cartridges or Refill Fluid

Consuming nicotine in any form is a medical emergency for pets. If your pet has ingested any type of e-cigarette liquid, the nicotine will be rapidly absorbed and symptoms will probably begin quickly. Get your pet emergency medical care immediately.

To keep your pets safe and prevent nicotine poisoning, keep e-cigarettes, refill fluid and cartridges stored in an area your pet cannot access. Further, while the risks of second-hand exposure to e-cigarette aerosols continue to be explored, you may want to vape outdoors only in an area away from your pet.

Sources and References

¹ [National Institute on Drug Abuse, Vaping Devices \(Electronic Cigarettes\) DrugFacts, January 2020](#)

² [U.S. CDC, NHCS Data Brief, No. 207, October 2015](#)

³ [Dogtime, July 26, 2018](#)

⁴ [ASPCA Professional, E-cigarettes and Pets](#)

^{5,8} [Pet Poison Helpline, E-Cigarettes and Pets Do Not Mix](#)

^{6,7} [Vetstreet June 15, 2015](#)

⁹ [Desert Sun, May 2, 2016](#)
