# Thirdhand Smoke Resource Center

## Can thirdhand smoke hurt my pet?

### The Short Answer

Thirdhand smoke is the chemicals left behind when someone smokes tobacco. Thirdhand smoke is unhealthy for people and pets. It can stick around for a long time in homes and cars. It gets into your body if you inhale, swallow, or touch the chemicals. Getting rid of it is really hard and can cost a lot of money.

Like secondhand smoke, thirdhand smoke exposure is toxic for pets. Pets can be exposed to thirdhand smoke by:

- Swallowing thirdhand smoke stuck to their fur, feathers, or scales when selfgrooming.
- Inhaling toxic particles from the air.
- Ingesting water or food from bowls or tanks that nicotine dissolved in.

The best way to protect your pet from thirdhand smoke is to never smoke in or around your home and to ban smoking in your home. If someone in your home smokes, ask them to smoke outdoors, away from doors and windows. Request that they wash their hands and change clothes when returning inside.

### The Long Answer

Thirdhand smoke is the chemical residue from tobacco smoke. It is also called “tobacco smoke residue” or “stale tobacco smoke.” The chemicals in thirdhand smoke are toxic to humans, especially children. It can linger for years in dust and on household surfaces. It can also become embedded in carpets, furniture, clothes, and building materials. It is difficult and expensive to remove.

The harmful effects of thirdhand smoke exposure on people can also be harmful to cats, dogs, and even birds and fish. Many pet owners protect their pets from inhaling toxic chemicals in secondhand smoke, but fewer owners know about the harms of thirdhand smoke on their furry, feathered, or scaly friends.

**<u>Protecting Furry Friends, like Cats and Dogs, from Thirdhand Smoke Exposure</u>**

If your furry friend spends time indoors in an environment that contains thirdhand smoke, they will be exposed to the toxic chemicals. Secondhand smoke sticks on the fur of

animals. Thirdhand smoke residue can also be transferred onto their fur if pets sleep or play on floors, furniture, or clothes polluted with thirdhand smoke. The residue can be absorbed into their skin or be ingested when they lick their fur. Cats and dogs can also inhale thirdhand smoke chemicals that off-gas from carpets, furniture, blankets, and other polluted surfaces.

Here are three research studies to demonstrate the risks of thirdhand smoke exposure to cats and dogs.

1. Researchers examined the fur of cats who either lived with people who do not smoke or with people who do smoke (either indoors or outdoors). The study determined that cats with more exposure to second- and thirdhand tobacco smoke in their homes had an increased amount of nicotine in their fur compared to cats with less exposure. The more cigarettes the owner smoked, the higher the nicotine level in the cat's fur. The location where the owners smoked also mattered. Cats whose owners smoked inside the home had higher levels of nicotine in their fur than cats whose owners smoked outside or not at all. Other studies have shown that tobacco smoke toxicants increase the risk of cancer in cats.

2. A study of dogs showed that a dog's breed influences the health effects of tobacco smoke exposure. A dog's nose acts like a filter. Dogs with shorter noses have a smaller "filter," so toxic particles are not stopped in the nose and can more easily get into the lungs, where they can cause harm. Dogs with longer noses have a larger "filter," so more of the toxic particles are stopped before they get to the lungs. However, the particles can get stuck in the nose and sinuses, where they can cause harm.

3. Researchers found that dogs living in homes where the owner's smoked cigarettes were more likely to get bladder cancer than dogs who lived in smokefree homes. The study took a sample of 120 Scottish Terriers and considered the amount of cigarette smoke exposure and rates of bladder cancer. Terriers that lived in homes where people smoked were more likely to have bladder cancer than terriers who lived in homes where no one smoked. Among the terriers who lived in homes where someone smoked, the more the owner smoked the greater the likelihood of bladder cancer in the dog.

But what about household pets who don't have fur?

**Protecting Feathered and Scaly Friends, like Birds and Fish, from Thirdhand Smoke Exposure**

Birds and fish also need protection from toxic thirdhand smoke. Just like humans, birds can be exposed to thirdhand smoke through breathing, eating, and coming in contact with tobacco residue on their bedding, perches, or toys. Birds are sensitive to air pollution. Birds can develop breathing problems, such as allergies, pneumonia, and sinus irritation, when they are exposed to air polluted by tobacco smoke.

Birds can unintentionally eat toxic thirdhand smoke residue. If their feathers have been coated with thirdhand smoke, they will ingest it as they groom or preen. If they perch on the clothes or skin of someone who has smoked, they can absorb thirdhand smoke through their feet or ingest it as they preen someone's hair. Along with a variety of health problems, birds exposed to tobacco smoke can develop feather plucking, a condition that is very difficult to treat.

Thirdhand smoke can hurt fish, too. Because nicotine is toxic to fish and easily dissolves in water, it can contaminate the water in the tank and poison the fish. If fish are exposed to nicotine, they may get muscle spasms, rigid fins, lose their color, or die.

The best way to protect yourself and your pet from second- and thirdhand smoke is to ban smoking inside your home. If you do smoke, do your best to quit (support is available at 1-800-QUITNOW, and 1-800-300-8086 at Kick It CA) and enforce a smoking ban in your home. However, if you or a visitor do smoke, do so outside at least 50 feet away from the house. When returning inside after smoking, whoever was smoking should immediately wash their hands and change their clothing.

Updated: March 2025

**Sources:**


Bertone ER, Snyder LA, Moore AS. Environmental tobacco smoke and risk of malignant lymphoma in pet cats. *American Journal of Epidemiology.* 2002;156(3):268-273. doi: 10.1093/aje/kwf044

Bertone-Johnson ER, Procter-Gray E, Gollenberg AL, et al. Environmental tobacco smoke and canine urinary cotinine level. *Environmental Research.* 2008;106:361-364. doi: 10.1016/j.envres.2007.09.007

Iosr J, Sandhya K, Patil S. Toxic effect of cigarette smoke on vital organs of aquarium fish carassius auratus. *IOSR Journal of Environmental Science, Toxicology and Food Technology.* 2015;9(10):10-12. doi: 10.9790/2402-091021012

Knapp DW, Dhawan D, Ruple A, et al. Association between cigarette smoke exposure and urinary bladder cancer in Scottish terriers in a cohort study. *The Veterinary Journal*. 2024;303:106044. doi: 10.1016/j.tvjl.2023.106044

Roza MR, Viegas CA. The dog as passive smoker: Effects of exposure to environmental cigarette smoke on domestic dogs. *Nicotine & Tobacco Research*. 2007;9(11):11711176. doi: 10.1080/14622200701648391

Secondhand and (Third-hand) Smoke May Be Making Your Pet Sick. US Food and Drug Administration. 2016. Retrieved from: https://www.fda.gov/consumers/consumerupdates/secondhand-and-third-hand-smokemay-be-making-your-pet-sick

Slaughter E, Gersberg RM, Watanabe K, et al. Toxicity of cigarette butts, and their chemical components, to marine and freshwater fish. *Tobacco Control.* 2011;20:25-29. doi: 10.1136/tc.2010.040170

Smith VA, McBrearty AR, Watson DG, et al. Hair nicotine concentration measurement in cats and its relationship to owner-reported environmental tobacco smoke exposure. The Journal of Small Animal Practice, 2017;58(1):3–9. doi: 10.1111/jsap.12616