

# The ‘Runny Nose’ That Isn’t ‘Just a Cold’

By Susan Chaney

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Aspergillus spores are everywhere – in the soil, in plant material, even in dust. We breathe them in every day, and so do our dogs. Most of the time, we never know it. Neither do they.

But if we are unwell, with a compromised immune system, and the spores get stuck in any of our respiratory pathways, we may get the condition called “[aspergillosis](#)” (that “gi” has a “ji” sound) from those microscopic spores. And sometimes dogs get sick from them too.



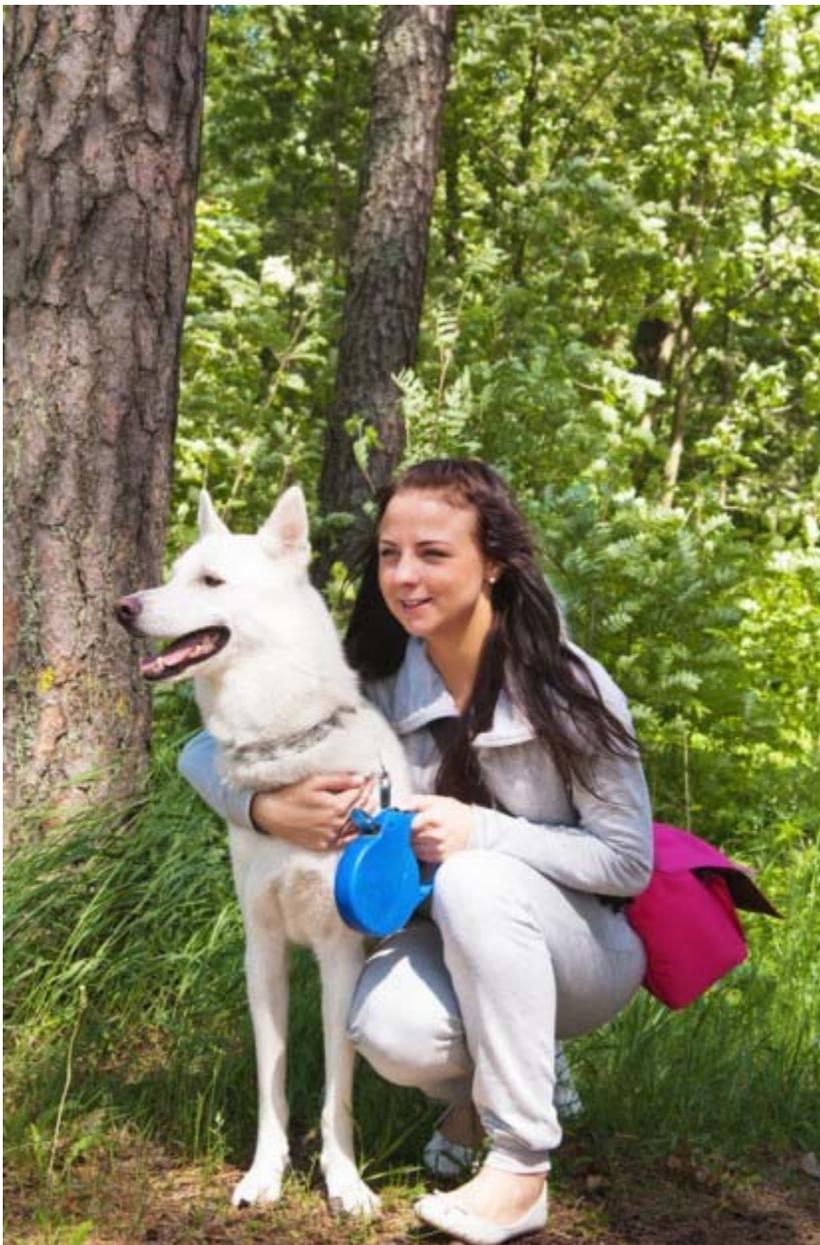
Dogs with particularly long muzzles may be more susceptible to aspergillosis. Photo © [Can Stock Photo](#).

Megan Jacob, M.S., Ph.D., an assistant professor of microbiology at North Carolina State University’s [College of Veterinary Medicine](#), says it’s precisely because the spores are so small that “they’re really easily moved by air currents.” They’re just 2 to 3 micrometers in diameter, she says, less than 1/64th of an inch.

Your dog doesn’t need to dig in the desert or drink infected water to come in contact with the more than 200 species of *Aspergillus*. “It’s well established that *Aspergillus* spores are everywhere,” Jacob says. Fortunately, only a few of the species are known to cause disease. *Aspergillus fumigatus* is the most common fungus that affects the canine nose and sinuses.

The fungus grows in soil in “long, finger-like structures,” Jacob explains. The hyphae are kind of like the roots on a plant, she says, “formed end on end.” When it can no longer grow that way, *Aspergillus* forms something called “conidia” which have spores on them. “As soon as someone brushes up against it or the wind blows it,” the spores travel in the breeze. “They’re not heavy enough that they sink back down immediately,” she says.

When inhaled, the spores can cause two types of aspergillosis in dogs: localized and disseminated, according to Eleanor Hawkins, D.V.M., a professor of internal medicine at North Carolina State and a diplomate of the American College of Veterinary Internal Medicine.



It doesn't matter where you and your dogs live or where you visit. Aspergillus spores are everywhere, and we breathe hundreds of them into our systems every day. Photo © [Can Stock Photo](#).

### **Just the Nose and Sinuses**

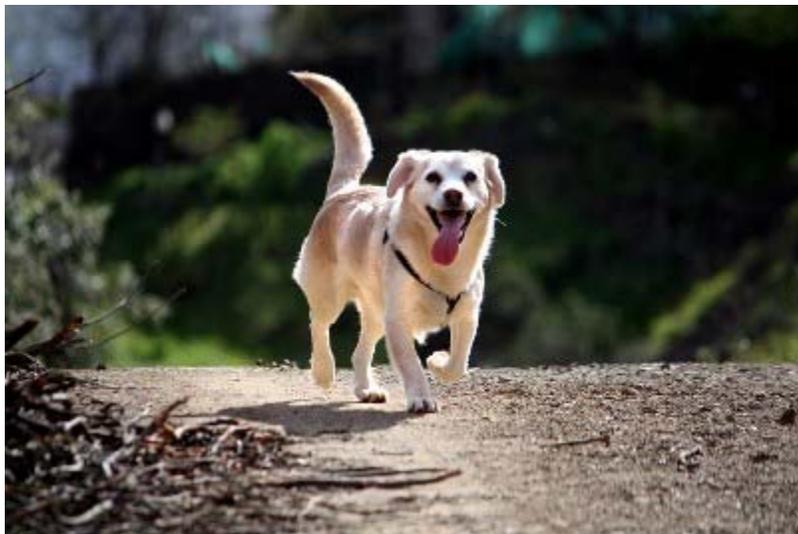
*A. fumigatus* is responsible for the localized type, which is focused in the nasal cavities and sinuses. The classic case would be in a Collie or German Shepherd Dog, Hawkins says, the breeds known as “dolichocephalic,” the opposite of brachycephalic. “That may be because larger dogs are more likely to be running around out of doors, getting more exposed, but we have no science to back that up.” And no scientific link has been proven between any specific part of the anatomy of the longer muzzled breeds and the frequency of their diagnosis with aspergillosis. “My clinical impression is that we rarely see it in the brachycephalic dogs.” It is also seen, however, in dogs with medium length muzzles.

An abnormal discharge from the nose is usually the first sign of the condition, Hawkins says. The discharge may be mucus, pus, bleeding or a combination of these. The nares, what we call “nostrils,” may develop pale areas of depigmentation or even ulcerations — breaks in the mucous tissue.

Nasal pain is also a common sign of aspergillosis – and other conditions, of course. A dog that suddenly get snappy or shies away from having its nose or muzzle touched may be in pain. The reason pain often accompanies aspergillosis is that the infection actually damages the inner structures of the nose. Because it's an infection, a dog may seem lethargic. It may also sneeze, and the bone between the nose and skull may become damaged.

“For the cases I see, discharge, including some blood, is the usual sign,” Hawkins says. “If you have a nasal problem and you have some nasal pain and ulceration of the nares, it’s highly likely that it’s aspergillosis. It jumps right to the top of the list” of possible diagnoses. While pain and ulceration in the nostrils are not always present in all cases, “it’s just that it’s very significant if they are,” she says.

Because it starts with nasal discharge, most owners assume their dogs have a bug of some type, and will recover without veterinary care. “By the time we see them, it’s often been going on for weeks or even a month or two,” Hawkins says. By then, white or gray-white mats of fungus, similar in appearance to some molds that can grow on food, may have begun to grow within the nasal cavities and/or the sinuses behind and above them, the paranasal sinuses. Some mucosal tissue may already be dead or dying.



Although brachycephalic dogs rarely get aspergillosis, dogs with medium length muzzles can contract it. Photo © [Can Stock Photo](#).

### Diagnosis and Treatment

It takes a combination of tests to determine that a dog indeed has aspergillosis. “Our general recommended workup for a chronic nasal discharge is a CT [computerized tomography] scan of the nasal cavity” to look for any destruction of it, and a rhinoscopy, looking through the nose with a rhinoscope. These would be followed up with biopsies of nasal or sinus tissue and a culture to identify the *Aspergillus* species.

“The nose is full of a lot of places that are impossible to see with a rhinoscope,” Hawkins says. “Even with the most advanced diagnostic equipment, not seeing the organisms doesn’t mean they’re not there.” In those cases, it can be necessary to “make a small hole into the frontal sinus through the skull” to capture a bit of *Aspergillus* to culture. One simple blood test can determine if the dog has had an antibody response to *Aspergillus fumigatus*. “If it’s positive, it’s highly suspicious. If it’s negative, it’s not as powerful a result,” meaning a negative result doesn’t mean the dog is free of the spores.

To treat aspergillosis, the fungal plaques identified during the rhinoscopy are removed. Then, at least at the North Carolina State teaching hospital, the nasal cavity is isolated with balloon catheters, then filled with an antifungal solution. This, however, may not reach all sites of the fungus, again because of all the nooks and crannies. “Sometimes that treatment has to be repeated,” Hawkins says. “Sometimes we do have to go into the front sinus and put some antifungal cream directly into the frontal sinus. It depends on the extent of the disease.

“No matter what you do, sometimes signs recur. You have to repeat treatment another time or two.”

In the worst cases, the fungus is outside the nasal cavity or beyond the bone that separates the nasal cavity and the brain. “We may try oral antifungal agents,” she says. The reason that’s not the first course of treatment is that, when used alone, they only cure 60 to 70 percent of dogs after many months of medication.

“We can do a lot, and we can help a majority of these dogs, but it’s not a trivial problem to have.”

Hawkins estimates that the teaching hospital in Raleigh sees about two cases each month.

It's not because of where it's located, that it's in the South or that it's in a humid climate. None of that seems to affect whether dogs get the disease, according to Jacob.

Left untreated, a dog will die of aspergillosis. The discharge will become more and more severe, Hawkins says, and eventually the dog will start having nervous system problems.

When the method of filling the nasal cavities with the antifungal solution first came into use, a study showed that it cured 80 to 90 percent of the dogs. Hawkins says she doesn't see it work quite at that rate. If an owner is willing and able to do multiple treatments, she estimates that 80 to 90 percent of the dogs diagnosed at the teaching hospital can eventually recover. Unfortunately, she says, "there are some cases that with all the time and money in the world, we can't do it."

And there's nothing a dog owner can do to prevent the spores from getting into a dog's nostrils. However, any dog that has nasal discharge for two weeks should be examined, Hawkins says. Because a dog must be anesthetized to do a CT scan, she recommends doing the rhinoscopy at the same time. If your veterinarian can't do both, she suggests considering going to an internal medicine specialist. Referral centers are often in a "little better position," she says, to diagnose and treat aspergillosis cases.

### **When It's Everywhere**

Fortunately, the other kind of aspergillosis – disseminated – is quite uncommon, Hawkins says. She's only seen a couple of cases during her career.

The systemic disease develops from the fungus *Aspergillus terreus* or *Aspergillus deflexus*. An infected dog will be lethargic, lame, won't eat, loses weight, runs a fever, has blood in its urine and can't control its bladder. Neurologic problems, such as seizures, typically follow. Upon examination, a veterinarian will find swollen lymph nodes in multiple locations and lesions in the kidneys, spleen and vertebrae, leading to discospondylitis, or infection of the disc space between vertebrae.

To diagnose disseminated aspergillosis, "we usually try to get either histology, cytology or cultures from the site of the disease. You pretty much have to identify that there are organisms at the site of the disease," Hawkins says. For treatment, there's no option other than antifungal systemic therapy, she says, usually with a combination of injectible amphotericin B and oral itraconazole, both antifungals.

Disseminated aspergillosis has a guarded prognosis, Hawkins says, meaning that not a lot of dogs will survive it.

### **Contagion Danger?**

If there's an upside to aspergillosis – whether localized or disseminated – it's that it's not easily spread from dog to dog or dog to person, as many other mucous-based conditions are. The spores through which it spreads only develop when the environment is inhospitable. Your dog's nasal cavity is pretty hospitable, so the fungus has no reason to put out spores.

"I wouldn't expect them to sneeze out a bunch of spores," Jacob says. In addition, she's not aware of any cases of a dog spreading it to a human. "I would say that's highly unlikely."

Aspergillosis is "most often a problem when a person or their animal is immuno-compromised," she says. Nonetheless, if someone in your household has, for example, cystic fibrosis, and your dog is diagnosed with aspergillosis, you would want to be cautious. People with those kinds of diseases "need to take particular caution," she says, in exposing themselves to fungus, bacteria or viruses of any kind.

"As far as we know, it's usually picked up environmentally," Hawkins says. "I'd be worried about my other dog being exposed to the source," she says, rather than to the ill dog. "I might not stick them in a small crate together for a week," she says, even though "fungal organisms in general don't tend to spread that way."

Hawkins echoes Jacob's warning about homes with people who have poor immune systems due to disease of any kind. She says, however, that she's not aware of "any documentation of spread to humans" from dogs.

So, while that may not be a worry, if your dog seems to have a cold that lasts a couple of weeks, get it checked out. Early diagnosis is important with this progressive illness.

Tags: aspergillosis, Aspergillus deflexus, Aspergillus fumigatus, Aspergillus terreus, Best in Show Daily, BSD, disseminated aspergillosis, Eleanor Hawkins DVM, localized aspergillosis, Megan Jacob PhD, nasal discharge, North Carolina State University College of Veterinary Medicine, Susan Chaney