

What Role Does Food Allergy Play In Canine Atopic Dermatitis?

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Traditionally we have thought of food allergy in dogs as an entity separate from canine atopic dermatitis. We have learned, though, that pure food allergy, where all the signs are controlled by diet alone, is uncommon, probably occurring in less than 5% of allergic dogs. More commonly, we find food allergies as part of atopic dermatitis. It has been estimated that anywhere from 5-20% of atopic dogs could have some food triggers, but we honestly don't know the exact percentages.

Atopic dermatitis in dogs is very similar to that in people. This



knowledge can be helpful to us because we can apply some of what is known about the disease in people to the disease in dogs, with the caveat that we verify some of the key points. Atopic dermatitis is an inherited predisposition to develop hypersensitivity reactions to environmental triggers. These include pollens, molds, dusts, danders, and mites. A subset of children with severe atopic dermatitis is known to have concurrent food hypersensitivities. Likewise, a subset of atopic dogs will also have food hypersensitivities. Sorting out these possibilities takes a thorough investigation and patience.

Atopic dermatitis is characterized by an altered immune system as well as skin barrier defects. Given the location of

the lesions on dogs, we have come to believe that dogs absorb allergens through their skin because of the defective barrier. This hypothesis fits environmental allergens, but it is harder to understand how food allergy contributes to skin disease. Research in human infants though suggests that in addition to introduction through the gut, food allergens can actually penetrate the skin!

When should we consider food allergy in our itchy allergic dogs? Dogs with food allergies tend to have a nonseasonal itch and inflammation. If the skin disease is seasonal, then food allergy is highly unlikely. Other clues to suggest a food allergy are gastrointestinal signs, which may be mild or intermittent. We can see intermittent vomiting, slightly loose stools, more than 4 bowel movements a day, excessive flatulence, or burping with food allergic dogs.

Diagnosis of food allergic requires an elimination diet. We do not have a diagnostic test for food allergy. Serum testing and skin testing are not accurate because they test only for the allergic antibody IgE; there are other mechanisms possible for food allergy that would not be detected by the serum allergy tests. In order to pick the appropriate diet for a dog, we need to know what he or she has been eating prior for meals as well as for treats. The ideal diet would consist of a novel protein and a novel carbohydrate source. Either a home cooked diet or a veterinary prescription diet is required, because the over-the-counter diets are not prepared to the needed level of purity. Many over-the-counter diets now contain the novel proteins we have used in our veterinary prescription diets, including rabbit and kangaroo. For that reason, many veterinarians recommend the use of prescription hydrolyzed diets including Hill's ZD® (hydrolyzed chicken), Royal Canin's Ultamino® (hydrolyzed poultry byproduct (chicken feathers), and Purina's HA® (hydrolyzed soy). We often recommend Royal Canin's vegetarian diet as well, since most food allergic dogs are reactive to the animal proteins. During the hydrolysis process, the protein is chopped up into very small pieces, which are less likely to be recognized by the immune system. Any of the prescription diets are complete and balanced so they could be continued indefinitely, but it is not required as we can find out what foods trigger reactions and then simply avoid them. Many dogs can

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go back to an over-the-counter diet once we learn what triggers their reaction. The alternative to a veterinary prescription diet is a home-cooked diet. These diets should be formulated by a veterinary nutritionist, based on the diet history.

We now have some good evidence in the veterinary literature that over 96% of dogs with food allergy can be diagnosed with an 8 week diet trial. This is great information because some veterinary dermatologists have suggested that 12, 16, or 20 week diets were required. The longer we have to feed a restricted diet, the harder it is! But most pet owners can feed a restricted diet for 8 weeks. When the prescription diet is fed, dogs should eat nothing else during the 8 weeks they are on the diet. Treats, table scraps, rawhides, and even some flavored medications need to be stopped during this period. If in 8 weeks there is no improvement, then food allergy is highly unlikely and we move on to managing environmental allergies. If there is improvement, then we can do diet challenges to determine what foods cause an outbreak and therefore what to avoid in future. Many dogs can then go back to an over-the-counter diet that does not contain the offending ingredients.

The first challenge is to mix a small amount of the original diet to the prescription diet (usually $\frac{1}{4}$ old diet to $\frac{3}{4}$ new diet) and feed that over a week. If there is no increase in itch, then food allergy is ruled out. But if there is an increase in itch, then single food challenges are done until we can develop a list of foods to avoid in future. Usually we do this by adding 1-2 tbsp. of the food to the prescription diet for one week. The single foods that we use are chicken, beef, lamb, milk products, soy, wheat, corn. Any treats desired can be used as challenges, too, as long as they are given one at a time over a period of a week. As

an example, a dog might start to itch any time within a few hrs. to a few days after eating chicken, if they are allergic to it. If chicken is the only food that induces itch, then that dog could do very well on a single ingredient OTC diet containing lamb or beef, but no chicken or chicken byproducts. These restrictions apply to treats as well.

There are some myths associated with food allergy in pets that we need to dispel. First, most dogs having an allergy to a food have been eating that diet for some time. A

change in diet is not what precipitates a food allergy. Second, most dogs are not allergic to grains. The three most common food allergens reported in dogs are chicken, beef, and milk products. Feeding a grain-free diet rarely rules out food allergy in dogs. While a grain allergy is possible, it is not common. Third, simply changing brands of dog foods also is rarely effective, because many canine diets contain common ingredients. Even the label can be misleading. Some diets called lamb and rice actually contain chicken or fish or beef. It is the small print in the list of ingredients we need to check when we are looking at diets for dogs. Fourth, when the elimination diet is fed, it is very important to avoid treats as well. The elimination diet does not negate or overcome the effects of treats. Dogs on diet trials may be allowed to have some treats, including bananas or apples, but nothing should be fed without consulting with your veterinarian. Again, this is only for 8 weeks, until it can be determined whether the diet trial reduces itch. Once the diet trial is over then treats can be reintroduced again. Fifth, there is no naturally hypoallergenic protein for dogs. A diet is called hypoallergenic only because it hasn't been fed to the individual dog before. Fish or venison or rabbit or kangaroo can cause allergies in predisposed pets if these ingredients are part of their regular diet.



To Summarize, What Can We Say About Food Allergy In Dogs?

1. It rarely occurs by itself; it is more often associated with atopic dermatitis. Both the food and the environmental allergens need to be managed for best control of the disease.
2. Food allergy is associated with nonseasonal itch and inflammation. The value of eliminating food triggers is that you may be able to take a dog that is itchy year round and reduce that itch to only a few months out of the year. Less medication will be needed in the long run.
3. The only proven way to diagnose food allergy is with a diet trial and challenges.
4. The most common food allergens are animal proteins, not grains.
5. The best treatment for food allergy is avoidance of the offending foods.