



## ALLERGIES IN CANINES

What is an allergy?

An allergy is a state of over-reactivity or hypersensitivity of the immune system to a particular substance called an *allergen*. **Most allergens are proteins. The allergen protein may be of insect, plant or animal origin (i.e. pollens, mold spores, dust mites, shed skin cells, flea saliva, some medications).** Initial exposure of the dog, or more likely multiple exposures, to the allergen may over-sensitize the immune system, such that a subsequent exposure to the same or related allergen causes an overreaction. This means that the immune response, which normally protects the dog against infection and disease, can actually be harmful to the body.

Allergies are additive, meaning when a patient has multiple allergies, each allergy alone may not be enough to cause itching but the allergies all active together probably will! **This is why a multimodal approach to allergies is key** (i.e. flea control, allergy immunotherapies, topical therapy, food trials, etc.)

What are the symptoms of allergies in dogs?

The most common symptom associated with allergies is *itching of the skin, either localized (in one area) or generalized (all over the body)*. Another group of symptoms involves the respiratory system with *coughing, sneezing, and/or wheezing*. Sometimes, there may be runny discharge from eyes or nose. The third manifestation involves the digestive system resulting in *inappetence, excessive drooling, lip licking, vomiting, and diarrhea*.

How common are allergies in dogs?

Unfortunately, allergies are quite common in dogs of all breeds and backgrounds. Most allergies appear after the pet is six months of age with the majority of affected dogs over age two.

### **CONTACT ALLERGY**

Contact allergy is the least common type of allergy in dogs. It results from direct contact to allergens contained in flea collars, chemicals in the lawn or the grasses themselves and bedding, such as pyrethrins or wool. If the dog is allergic to these substances, there will be skin irritation and itching at the points of contact, usually the feet and stomach. Removal of the allergen (once it can be identified) often solves the problem.

### **FLEA OR INSECT BITE ALLERGY**

Flea allergy is the exaggerated inflammatory response to a flea bite or other biting insect. Flea saliva is the most common allergen. The area most commonly involved, caused from severe local itching, is over the rump in the tail-base region and the hind limbs. **Because one flea can be a problem for the allergic dog, strict flea control ALL YEAR ROUND is essential.** You may not see fleas, but all it takes is a few bites to cause a problem.

## **ATOPY**

Although allergic rhinitis and bronchitis might be regarded as the result of inhaled allergens, the term “Inhalant Allergy” in the dog is used as a synonym for Atopy. The main causative inhaled allergens are tree pollens (cedar, ash, oak, etc.), grass pollens, weed pollens (ragweed, goldenrods, etc.), molds, mildew, and house dust mites. Many of these allergies occur seasonally, such as ragweed, cedar, and grass pollens. However, others such as molds, mildew, and house dust mites are year-round. When humans inhale these allergens, the allergy manifests mainly with respiratory signs – runny eyes, runny nose, and sneezing (“hay fever”). But in dogs the result is itchy skin (pruritus), that can manifest as rubbing face, licking paws or scratching.

Most dogs that have inhalant allergy start showing signs between one and three years of age. Affected dogs will often react to several allergens. If the offending allergens can be identified by intradermal skin tests or IgE allergy tests, the dog should be protected from exposure to them as much as possible. But this is difficult and recurrent bouts are likely. These allergies can be treated but a permanent cure is not usually possible.

Treatment depends largely on the length of the dog's allergy season. It involves multiple approaches and can sometimes be frustrating for the owner. The goal is to control the clinical signs, prevent secondary infections, and try to achieve healthy comfortable skin for the pet.

Diagnosis is based on symptoms and findings and often allergy patients have multiple allergies making it difficult to pinpoint a definitive allergy sometimes. Allergy testing, via skin or blood testing, is only performed with the end-goal of determining how best to make an allergy shot serum for a specific patient (see below under hyposensitization therapy).

**Flea control** (see flea section above)

**Treatment of secondary infections:** Sometimes the natural organisms that live on the skin gain access to inner layers of skin exacerbated by the itching and grow to cause a secondary infection, most commonly Staph or yeast. These infections tend to recur unless the primary allergy is treated as well.

**Anti-inflammatory and anti-itch medications:** There are multiple medications available for itch-relief in dogs.

1. **Apoquel (oclacitinib)** is a medication that stops the itch-scratch cycle and works within 4 hours of administration. Common side effects, but are still pretty rare, include GI upset (vomiting, inappetence, diarrhea).
2. **Cytopoint (Canine Atopic Dermatitis Immunotherapeutic Injections)** is an injectable caninized monoclonal antibody used to target a part of the immune system that is responsible for itchiness in dogs. Generally, it takes about 24 hours to see improvement and can last anywhere between 4-8 weeks in most patients.
3. **Atopica (cyclosporine)** is an immunosuppressive medication that is more specific for the resolution of allergies than steroids. Usually, this medication does not come with the unpleasant side effects that steroids do, however it can come with side effects in some patients that can be intolerable.
4. **Steroids (prednisone/prednisolone, triamcinolone, dexamethasone)** can also be used to control atopy, however their side effects and long-term effects on the body often limit their use and are not considered a first line of therapy anymore.
5. Anti-histamines such as diphenhydramine (Benadryl) are generally safe to use for atopy but are often ineffective.
6. **Fatty acid supplementation (omega-3)** of the diet is always beneficial for the skin, heart, brain, and joints. Often fatty acid supplementation alone is not enough to control atopy.
7. **Redonyl (PEA)** is a natural substance that can help restore the balance to the skin's biochemistry and prevents the release of the biochemical causes of itching. It is available as a flavored chew.

**\*\*Some patients have more of a seasonally based allergy where they can get relief by a short course of medication or 1 allergy injection and not have overt allergy signs until next season. However, in most cases, patients are affected for longer periods of time and will need to stay on longer/repeated courses of immunotherapies to alleviate their symptoms. Therefore, if the patient's symptoms return after finishing a course or the injection has worn off, it will need to be repeated!**

### **Topical therapy**

1. Bathing with a specific hypoallergenic/medicated shampoo every 1-2 weeks can be helpful in removing allergens from the fur, aiding in restoring the skin's natural barrier, and relieving itch. There are several different formulations available, and one may be more beneficial over another so please consult with your veterinarian for the best recommended shampoo formulation. Dechra products are our first go-to brand.
2. Other topical products include mousses, sprays, wipes, collars, topical sachets, etc. that can provide anti-pruritic, anti-bacterial, anti-fungal, anti-microbial properties. (ex. Douxo, Dechra, Atopivet, Dermoscent, etc.)

**Hyposensitization therapy**, more commonly known as allergy shots, includes testing for a variety of different allergens to determine what the patient is allergic to. From there, tailored allergy injections can be produced for that specific patient, that includes a very small amount of those allergens given repeatedly to desensitize the immune system. Results are variable (about 25% won't see improvement) and it can take 6-12 months to start to see improvement. IDEXX Laboratories is a common lab to send test results to.

## **FOOD ALLERGY**

Food allergies can develop to almost any protein or carbohydrate component of food. It most commonly develops in response to the protein of the food of a particular food origin; beef, pork, chicken, or soy are commonly associated with food allergies because they are the most common ingredients in food.

Food allergies can develop at almost any age. Food allergy may produce any of the clinical signs previously discussed including itching, digestive disorders, and respiratory distress. Food allergies may occur with other allergies, such as atopy.

Food allergies do not respond well to corticosteroids or other medical treatments. Treatment requires identifying the offending component(s) of the diet and eliminating them - often this is accomplished by performing a food trial. Because it takes at least eight weeks for all other food products to be removed from the body, the dog must eat the special diet **exclusively** for **eight to twelve weeks**. **It must be emphasized that if the diet is not fed exclusively, it will not be a valid test.** All table food treats or vitamins must be discontinued during the testing period.

Common food formulations that are chosen as good candidates for a food trial would be a ***novel protein diet***, a diet that includes a protein source the pet has not been exposed to before, or a ***hydrolyzed protein diet***, where the protein source in the diet is broken down into small pieces that are less likely to stimulate the immune system. There are many options available, so consult with your veterinarian about the best choices for your pet.

### ***Caution:***

Unfortunately, there is no cure for allergies and usually this is a life-long problem. However, the manifestations of allergies can be confused with other disorders or occur concurrently with them. Therefore, do not attempt to diagnose your dog without professional assistance. Be prepared for your pet to receive a full diagnostic evaluation by your veterinarian. **If an allergy is diagnosed and identified, the whole family must follow your veterinarian's advice very closely if success in controlling the problem is to be achieved.**

#### Resources

1. Ernest Ward, DVM. © Copyright 2005 Lifelearn Inc. Used with permission under license. April 10, 2017
2. <https://veterinarypartner.vin.com/default.aspx?pid=19239&id=4952662>
3. <https://veterinarypartner.vin.com/default.aspx?pid=19239&id=4951475>