ALLERGIES

What is an allergy?

An allergy is a state of over-reactivity or hypersensitivity of the immune system of a pet to a particular substance called an `allergen'. Most allergens are proteins. The allergen protein may be of insect, plant or animal origin. 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 be harmful. The actual immune reactions involved in allergies are quite complex. Most reactions involve an antibody in the blood called Immunoglobulin E (IgE). In an allergic reaction the allergen protein molecules combine with IgE antibody molecules and attach to a type of cell called mast cells, found in many tissues. When these cells are attached to the allergen, they break up and release potent chemicals such as histamines, which cause local inflammation. This inflammation causes the various signs associated with an allergic reaction.

What are the symptoms of allergies in dogs?

The most common symptom associated with allergies is itching of the skin, either localized (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, and the dog may vomit or have diarrhea.

How common are allergies in dogs?

Unfortunately allergies are quite common in dogs of all breeds and backgrounds.

Are allergies inherited?

Some allergies are inherited. The inherited trait is known as Atopy (see **What is Inhalant Allergy or Atopy** below).

What are the common allergy-causing substances (allergens)?

A very large number of substances can act as allergens. Most are proteins of insect, plant or animal origin, but small chemical molecules known as *haptens* can also cause allergy. Examples of common allergens are pollens, mold spores, dust mites, shed skin cells, insect proteins such as flea saliva, and some medications.

What are the different types of allergy?

There are several ways of classifying allergies. Some examples of classifications include: the precipitating allergen (Flea Allergy); the route the allergen takes into the body (Inhalant Allergy, Skin Contact Allergy, Food Allergy); the immune reaction timing (Immediate Hypersensitivity, also called Anaphylaxis or Shock; and Delayed Hypersensitivity); the type of immune reaction (Types

I to IV Hypersensitivity); or by outcome (Allergic Dermatitis or Allergic Eczema; Allergic Bronchitis). There are also inherited forms of allergy (Atopy).

What is Contact Allergy?

Contact allergy is the least common type of allergy in dogs. It results from direct contact to allergens contained in flea collars or 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. Removal of the allergen (once it can be identified) solves the problem.

What is Flea Allergy and how is it treated?

Flea allergy is the exaggerated inflammatory response to a flea bite. Flea saliva is the allergen. It is a common allergy of dogs, although only a minority of dogs becomes allergic. Most dogs experience minor irritation from flea bites. But the flea allergic dog will react to a single bite with severe local itching. It will bite and scratch itself and may remove large amounts of hair. Secondary bacterial infection may occur in the broken skin. The area most commonly involved is over the rump in the tail base region.

Because one flea can be a problem for the allergic dog, strict flea control is essential. This is difficult considering the life-cycle of fleas, but there are means for instituting an intensive flea elimination program in the house (see *Fleas).* Your veterinarian can give you tips on protecting your dog from fleas. When strict flea control is not possible or in cases of severe itching, corticosteroids (steroids) can be used, under careful veterinary guidance, to block the allergic reaction and give relief. If secondary bacterial infection is present, appropriate antibiotics will be prescribed.

What is Inhalant Allergy (Atopy) and how is it treated?

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, 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 (pruritis). So the condition is also called "Inhalant Allergic Dermatitis". The dog may rub its face, lick its feet and scratch the axillae (underarms).

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 three approaches:

1. **Anti-inflammatory.** Treatment with anti-inflammatory drugs such as corticosteroids, sometimes given with antihistamines, will quickly block the allergic reaction in most cases. Fatty acid supplementation of the diet can improve the response to steroids and antihistamines in some cases.

2. **Shampoo therapy.** Frequent bathing with a hypoallergenic shampoo can be soothing and helpful. The bathing may also rinse out allergens in the coat that could be absorbed through the skin.

3. **Hyposensitization.** The third major form of allergy treatment is hyposensitization with specific antigen injections or "allergy shots". Once the specific sources of allergy are identified, very small amounts of the antigen are injected weekly. This repeated dosing has the objective of reprogramming or desensitizing the immune system. Results are sometimes good but success is variable.

What is Food Allergy and how is it treated?

Food allergy can develop to almost any protein or carbohydrate component of food. It most commonly develops in response to the protein component of the food or a particular food origin; beef, pork, chicken, or turkey are commonly associated with food allergies. Food allergy can become apparent at almost any age. Food allergy may produce any of the clinical signs previously discussed including itching, digestive disorders, and respiratory distress. Food allergy may occur with other allergies, such as atopy, but food allergy does not respond well to corticosteroids. Treatment requires identifying the offending component(s) of the diet and eliminating them. Testing for specific food allergies requires test feeding with a special hypoallergenic diet. 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 8-12 weeks. If a positive response occurs, your veterinarian will advise you on how to proceed. 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. There may be problems with certain types of chewable tablets such as heartworm preventative. Your veterinarian will discuss this with you.

Caution:

The manifestations of allergies can be confused with other disorders, or concurrent with them. Therefore, do not attempt to diagnose your dog without professional assistance. Be prepared for your pet to receive a full diagnostic work up 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.