

Allergies & Atopy in Dogs

Drs. Foster & Smith Educational Staff

Veterinarians who limit their practice to dogs and cats see a lot of skin problems. There are numerous conditions that cause problems with a dog or cat's skin, but the most common, by far, is allergies.

Symptoms of allergies

Dogs with allergies may show the following symptoms:

- Chewing on feet
- Rubbing the face on the carpet
- Scratching the body
- Recurrent ear infections
- Hair loss
- Mutilated skin



A dog who is allergic to something will show it through skin problems and itching, i.e., pruritus. It may seem logical that if a dog is allergic to something he inhales (atopy) like certain pollen grains, he will have a runny nose; if he is allergic to something he eats ([food allergy](#)) such as beef, he may vomit; or if allergic to an insect bite ([urticaria or hives](#)), he may develop a swelling at the site of the bite. In reality, the dog will seldom have these signs. Instead, he will have a mild to severe itching sensation over his body and maybe a chronic ear infection.

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In addition, allergic dogs will often chew on their feet until they are irritated and red. They may rub their faces on the carpet or couch, or scratch their sides and belly. Because the wax-producing glands of the ear overproduce as a response to the allergy, they get ear infections. Bacteria and yeast often "over grow" in the excessive wax and debris.

The skin lesions seen in an allergic dog are usually the result of him mutilating his skin through chewing and scratching. Sometimes there is hair loss, which can be patchy or inconsistent over the body leaving a mottled appearance. The skin itself may be dry and crusty, reddened, or oily depending on the dog. It is very common to get secondary bacterial infections of the skin due to these self-inflicted lesions.

Allergens

When a dog is allergic to something, his body is reacting to certain molecules called 'allergens.' These allergens may come from:

- Trees
- Grass
- Weed pollens
- Fabrics such as wool or nylon
- Rubber and plastic materials
- Foods and food additives such as individual meats, grains, or colorings
- Milk products
- House dust and dust mites
- [Flea](#) bites

The body's response to an allergen

The reason that all these allergens cause itchy skin is that, simplistically, when allergens are inhaled, ingested, or come in contact with the dog's body, they cause the immune system to produce a protein referred to as IgE. This protein then fixes itself to cells called 'tissue mast cells' that are located in the skin. When IgE attaches to these mast cells, it causes the release of various irritating chemicals such as histamine. In dogs, these chemical reactions and cell types occur in appreciable amounts only within the skin.

Genetic factors and time influence allergies

Remember that dogs must be exposed to the allergen for some time before the allergy develops. Exceptions may occur such as an allergy to insect bites, which may develop after only a few exposures. The dog's body must learn to react to the allergen. It is a learned phenomenon of the immune system that is genetically programmed and passed from generation to generation in several breeds. Allergies are especially common in certain terriers such as the Scottish, West Highland White, Cairn, and Wire Haired Fox; Lhasa Aposos; and larger breeds such as the English and Irish Setters, Retrievers, and the Dalmatian. Allergies are also well documented in the Pug, Miniature Schnauzer, and English Bulldog.

In pets, allergies usually start to develop between one and three years of age. They may start as late as age six or eight, but over 80% start earlier. To make matters worse, as the animal ages, he usually develops allergies to additional things and the response to any one allergen becomes more severe.

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Diagnosing allergies



Most allergies are the inhalant type and are seasonal (at least at first). The dog may be allergic to a certain tree pollen that is only present in the environment for three weeks out of the year, or the allergy may be to house dust mites which are in the environment year round.

A definitive diagnosis of an allergy and determination of exactly what the animal is allergic to can be made in two ways:

Allergy testing (intradermal or blood testing)

Eliminating things individually from the animal's environment until the culprit is isolated (this method is most often used when food allergies are suspected)

For example, a dog may start chewing his feet, scratching his sides, and rubbing his face on furniture every year for three weeks during the same month. These are often the signs of a seasonal allergy to something such as ragweed or tree pollen. In this case, the veterinarian may choose either tablets and/or a single injection that will suppress the allergy for the 3-4 weeks necessary when that allergen is in the environment. After a short treatment period, the animal is back to normal and only has to wait until the following year when he or she will be returned to the veterinarian with the same problem.

Treating allergies

Avoidance

This can be a very important part of managing atopy. While it may be impossible to completely eliminate all of the offending agents, many can be reduced with minimal effort on the part of the owner. For avoidance therapy to have any benefit, the offending agents must be identified through intradermal skin testing. Avoidance is rarely a complete treatment in itself, but is used in conjunction with other treatments.

| Allergen | Avoidance Suggestions |
|------------------------------------|--|
| House dust | Keep pets out of room several hours when vacuuming |
| House dust mites | Change furnace filters regularly |
| Molds | Use a plastic cover over pet's bed |
| | Wash bedding in very hot water |
| | Avoid letting pets sleep on stuffed furniture |
| | Avoid stuffed toys |
| Pollens | Keep pets in uncarpeted rooms |
| | Run air conditioner during hot weather |
| | Change furnace filters regularly |
| | Keep pets out of basements |
| | Keep pets indoors when the lawn is mowed |
| | Avoid dusty pet foods |
| Clean and disinfect humidifiers | |
| Use dehumidifiers | |
| Avoid large numbers of houseplants | |
| Keep dogs out of fields | |

Keep grass cut short
Rinse dog's feet off after dog has been outside
Keep pets indoors during periods of high
pollen counts

Topical therapy

Topical therapy consists of shampoos and rinses and topical anti-itch solutions. Topical therapy offers immediate, but short-term relief. It is often recommended to bathe recommend atopic dogs at least once every two weeks with a hypoallergenic shampoo or colloidal oatmeal shampoo. Hydrocortisone shampoos may also be used. Weekly or even twice weekly shampoos may offer increased relief for some dogs.

In addition to bathing, it is helpful to simply wash off the dog's feet after he comes in from the outside. This will remove any allergens from his feet.

Topical solutions containing hydrocortisone may offer some relief. They are the most practical in treating localized itching. These products are very poorly absorbed into the bloodstream, and when used in moderation, do not create long-term side effects or problems associated with injectable or oral steroids. In addition, cooling salves and lotions may also be used. Care must be taken with these to ensure that they do not make the coat too greasy. Dogs may tend to lick off these preparations. After applying these preparations, it is recommended to get the dog involved in some activity to prevent him from licking the treated area.

Immunotherapy (Hyposensitization)

[Immunotherapy](#) has been described as the mainstay of treatment for canine atopy. It is indicated in animals where the avoidance of antigens is impossible, symptoms are present for more than 4 to 6 months out of the year, and fatty acids and antihistamines do not provide satisfactory results.

An animal must undergo intradermal skin testing prior to hyposensitization. After the antigens to which the animal is allergic have been identified through testing, a commercially prepared injection containing the altered antigens is injected into the dog. Depending on the type of product used, a series of weekly or monthly shots are given. The animal then becomes de-sensitized to the offending allergens. Success is as high as 80% with this treatment plan. Treatment is time consuming and requires a dedicated owner and veterinarian. This treatment is an excellent option in severe cases of atopy, especially in young dogs. If you have an allergic pet that is not responding to conventional treatment, seriously consider this as a treatment option.

Omega-3 fatty acids

[Fatty acids](#) have been recommended for years to improve coat quality and shine. Recently, new research has shown that certain fatty acids - the omega-3 fatty acids - are also very beneficial in the management of allergies in dogs and cats. Omega-3 fatty acids work in the skin to help reduce the amount and effects of histamine and other chemicals that are released in response to allergies. Not every allergic pet responds to omega-3 fatty acids. Some pets show improvements, others have a complete cure, and others show no change after being on the omega-3 fatty acids. Most pets need to be on the omega-3 fatty acids daily for several weeks to months to notice significant improvement. Omega-3 fatty acids are very safe and have very few side effects. Studies show that when omega-3 fatty acids are used in conjunction with other treatments, such as antihistamines, the use of steroids can often be decreased or discontinued. Be sure to use an omega-3 fatty acid supplement derived from fish oil. Other types of fatty acids (such as omega-6 fatty acids) can actually make some allergies worse. It is often best to use the omega-3 fatty acid supplements in conjunction with a diet lower in fat.



Antihistamines

Antihistamines are widely used in both the human and animal medical fields. Most of the antihistamines used in veterinary medicine are antihistamines that were designed for and used primarily by humans. Antihistamines have been shown to be effective in controlling allergies in up to 30% of dogs and 70% of cats. When used as part of a treatment plan including fatty acids and avoidance, the percent of respondents goes much higher.

Every animal will respond differently to each of the different antihistamines. Therefore, several different antihistamines may have to be used before an effective one is found. Every antihistamine has a different dose and risk of side effects. Antihistamines should be used with veterinary guidance. Some common side effects include sedation, hyperactivity, constipation, dry mouth, and decreased appetite. The correct antihistamine given at the proper dose should not cause unwanted side effects. For severely itchy dogs, mild sedation may be a positive and desired side effect.

Antihistamines come in several forms including H1 and H2 blockers. While the H2 blockers (Claritin, Seldane, and Hismanal) have been shown to be very effective in treating human allergies, they have not been shown to be effective in treating canine or feline allergies, and are therefore, not recommended for pet use. There are many different H1 antihistamines available on the market, but veterinary use is usually restricted to the following.

| Antihistamine | Trade Name | Possible Side Effects |
|--|-------------------|------------------------------|
| <u>Diphenhydramine</u> | Benadryl | Sedation, dry mouth |
| <u>Hydroxyzine</u> | Atarax | Sedation, no dosage for cats |
| <u>Clemastine fumarate</u> | Tavist | Sedation, dry mouth |
| <u>Chlorpheniramine</u> | Chlor-Trimeton | Lethargy, diarrhea |

Cyclosporine

Cyclosporine, in the form of the brand name drug Atopica, is being used very successfully in the treatment of atopy in dogs, especially those with severe allergies. The most common side effects are diarrhea and vomiting. It does not work immediately, but may take 3-4 weeks to see an effect. It may be used for short periods of time for seasonal allergies, or can be given long-term for year-round atopy.

Steroids



Steroids are extremely effective for relieving severe itching and inflammation. The problem is that they can have many short and long-term side effects, if not used correctly. If used correctly, they can be as safe as any other drug that we use. The problem is that they work so well that they are often overused. Because of their potential side effects, they should be used carefully, and at the lowest effective dose. They are usually reserved as one of the last lines of treatments, but if nothing else works, use the steroids.

Steroids are usually administered in one of two forms, injectable and in tablet form. The steroids being discussed here are corticosteroids and are not the anabolic steroids used by body builders. Anabolic steroids are a completely different drug and have no application in

treating animal allergies. There are many different forms of corticosteroids currently available on the market. They vary widely in their duration of activity and strength.

Injectable: Injectable forms of steroids include betamethasone, dexamethasone, flumethasone, methylprednisolone, and triamcinolone. These agents are usually given intramuscularly and have between one week and six months duration depending on the product, the dose, and the individual animal.

Oral supplementation allows a more accurate and tailored dose, but injectables may be preferred in several situations. Injectables are preferred in animals that are very difficult to give pills to, and in animals that need immediate relief. Once the injection is given, it is impossible to reverse its effects and side effects. With oral administration, if unwanted side effects appear, the product can be discontinued and the side effects will diminish.

Steroids can be used effectively and safely, if a careful dosage schedule is followed.

Oral: As mentioned earlier, it is much easier to customize an individual dosing program with the tablet form. The affected animal usually begins with daily therapy for a period of three to five days, and then the dose is reduced to every other day dosing. If the animal needs to be treated for more than a couple of weeks, then the dose is halved weekly until a minimum therapeutic level can be established. The goal with all steroids is to use the minimum dose necessary to alleviate the symptoms. By taking this approach, the side effects are eliminated or reduced.

Side Effects: The potential side effects associated with steroid use in dogs are numerous. Side effects can appear with any duration or form of steroid therapy. Each animal responds differently to each type of treatment. However, the number and severity of the side effects are very closely related to dose and duration of treatment. Most of the side effects associated with minimum effective dose short-term therapy are mild and resolve once therapy stops. The most common symptoms include increased water consumption, increased urination, increased appetite (weight gain), depression, hyperactivity, panting, and diarrhea.

Long-term use has the risk of creating more permanent and severe damage. Some high dose, long term side effects include increased incidence of infections, poor hair coat and skin, immunosuppression, diabetes mellitus, adrenal suppression, and liver problems. The potential problems can be severe, however, it must be stressed that these side effects are dose dependent. Despite the potential side effects, steroids can be used effectively and safely, if a careful dosage schedule is followed. Still, because of the availability of safer yet effective therapies, steroid use is reserved until all other treatment options have been exhausted. Several studies have shown that if fatty acids and antihistamines are used concurrently with steroids that the amount of steroids needed to offer relief is greatly reduced.

Treatment of concurrent infections

Since bacterial and yeast skin infections are common in dogs with allergies, it is important to treat the infections as well as the

atopy. A yeast infection would be treated with an antifungal medication. A skin [culture and sensitivity](#) may be performed to best identify which antibiotic to use in the case of bacterial infections. In addition, special shampoos may be helpful to control these infections.