

Allergies

Background and causes: An allergic reaction is a hypersensitivity response to a normally harmless substance known as an **allergen**. In people, this is known as 'hay fever' and usually causes watery, itchy eyes, a runny nose and sneezing. Many of us are all too familiar with this condition!

In pets with allergies, the immune system overreacts to the allergen by producing a type of antibody called IgE that is specific to that allergen; when a dog or cat is exposed to that allergen, the IgE binds the allergen on one end and a type of cell called a mast cell on the other end. This binding causes the mast cell to break apart, or degranulate. The mast cell contains histamine, which is released when the mast cell degranulates. Histamine then travels in the bloodstream and binds to its receptor, resulting in the signs and symptoms of allergies.

Allergies in dogs and cats are generally divided into **environmental allergies, flea bite allergy and food allergies**. Pets with environmental allergies may react to allergens such as pollens, dust mites, mold and human dander. Pets with flea bite allergies react to flea saliva. Pets with food allergies react to a number of food allergens; the most common are chicken, turkey, beef, corn and wheat. Many pets with allergies have a combination of environmental allergies, flea bite allergies and/or food allergies.

Signs and symptoms:

Itching (pruritus):

When allergies result in immediate (within seconds of exposure to the allergen) itching, this is referred to as **atopic dermatitis**. Though this itching may occur anywhere on the body, itchiness of the trunk, belly and paws is most common with environmental allergies, itchiness of the top of the tail is most common with flea bite allergies and itchiness of the ears and rear end is most common with food allergies.

If patients are very itchy, the act of itching can create breaks in the skin through which bacteria normally present on the surface of the skin can penetrate into deeper layers and cause an infection. This is called a **pyoderma**, and may be superficial (as is seen with 'hot spots') or deep.

Cats often have itching focused on the head and neck; this is very aptly termed '**feline head and neck pruritus**.' This is commonly due to allergies, but may also be due to other skin conditions.

Pets may experience hair loss, or **alopecia**, secondary to the itch; in some cases, this may be extensive.

Scotting:

Patients with allergies, most commonly food allergies, may 'scoot' their rear end along the ground. This may be because the skin around the anus (perianal skin) is itchy or because the anal sacs, which lie just inside of the anus, are itchy. Anal sacs may itch because they are irritated (anal sacculitis) and/or because they are full and need to be expressed. Pets with food allergies may have chronically itchy perianal skin and/or full anal sacs and/or irritated anal sacs, though these signs may occur with other types of allergies as well.

Ear infections:

Pets with allergies are prone to recurrent ear infections; this is most common with food allergies, but can occur with environmental allergies as well. In the Pet Health Library there is a handout on ear infections titled '**Otitis Externa**' that provides more detail about this condition (<http://lacostavet.com/pet-health-resources/pet-health-library.html>).

Changes in defecation (bowel movement): dogs with food allergies may strain to defecate and/or produce an excess of feces.

Miliary dermatitis (cats):

Miliary dermatitis refers to many small scabs that can be present anywhere on a cat's body, though are commonly found on the forehead. In cats with fleas, these bumps may be found over the hips and the top of the tail.

Tapeworms: though this is not a direct consequence of allergies, fleas may carry young *Dipylidium caninum*, which the pet ingests when chewing at the fleas. Within the dog or cat the tapeworm matures, and three weeks later tapeworm segments appear at the pet's rear end. These segments are similar in appearance to grains of rice; though these are not a serious problem, treatment is recommended.

Anaphylaxis: anaphylaxis a very severe allergic reaction most commonly seen in dogs and cats as a response to insect bite/stings or medications, including vaccines. Anaphylaxis may involve sudden vomiting, diarrhea, facial swelling or, in rare cases, shock. Anaphylaxis warrants emergency veterinary attention.

Tests your veterinarian may recommend:

Flea treatment: in dogs and cats with flea allergies, a single flea can cause very severe itching. As it is impossible to tell for sure that there is not a single flea on a dog or a cat, even if no flea is found it is recommended that any itching pet is started on flea treatment. If flea treatment does not result in improvement in itch (note a severe infestation may require 2-3 months for clearance), flea bite allergies can be ruled-out.

Dietary trial: though there are tests for food allergies, these tend to have many false negatives and positives, so are not widely used to diagnose food allergies. Instead, food allergies are diagnosed based on response to a dietary trial. As it can take six to eight weeks to 'flush' the stomach and intestines of food allergens, any dietary trial must be continued for eight weeks, during which time the pet must not be fed anything else including liquids, treats, Pill Pockets™ and table scraps.

Dietary trials can be divided into over-the-counter vs. prescription diets, or into novel protein vs. hydrolyzed protein diets. Over-the-counter diets are purchased in a pet store; prescription diets are purchased at La Costa Animal Hospital. Novel protein diets may be over-the-counter or prescription; some owners also chose to make these diets at home. Novel protein diets are based on protein sources your pet has never before been exposed to; these may include lamb, duck, white fish, salmon, venison, bison, kangaroo, etc. Hydrolyzed protein diets are based on proteins that are broken down through a reaction with water, and are prescription only.

Over-the-counter diets are less expensive than prescription diets, but are processed in the same machines as diets that contain common food allergens so are often contaminated with these allergens. For dogs and cats with mild allergies, this low-level contamination is not enough to cause signs of allergies; however, some pets are very sensitive. These pets require a prescription diet.

The success or failure of a diet trial is assessed after eight weeks; if the pet is no longer showing signs of allergies (itching, ear infections, scooting, etc.), you may choose to either assume the diet has 'done the trick' and keep your pet on the trial diet-long term, or reintroduce the original diet to ensure the response was not coincidence. If reintroduction of the original diet causes signs of allergies to return, you should restart the trial diet and keep your pet on this long-term.

If the diet trial does not result in improvement in your pet's allergies, if fed an over-the-counter diet an eight week trial with a prescription diet should be considered. If the trial was with a prescription diet, and the pet truly did not receive any other food sources during this time, food allergies can be ruled-out.

Allergy testing: Allergy testing can be performed either via a blood test (in vitro) or via a skin test (intradermal). As most dogs and cats will have a response to at least some allergens, allergy testing is used to target treatment of allergies, not to diagnose them: diagnosis of allergies is based on signs and symptoms and response to treatment. Once we have determined what a dog or cat is allergic to, we can make modifications in the home to reduce the concentration of allergens or enable the pet to avoid certain allergens. If this is not possible, we can formulate allergy shots to enable the pet to tolerate these allergens.

Ear cytology: this is a test for ear infections (otitis externa).

Skin scrape: this is a test for skin mites, as the signs and symptoms of mites can be similar to allergies in some cases. This test involves scraping the dull end of a scalpel blade against the skin and collecting the debris acquired onto a slide. This test is generally recommended if we suspect mites may be contributing to the current signs and symptoms.

Skin cytology: this test tells us what types of cells are present on the skin, including inflammatory cells, bacteria, yeast, etc., so that we can better target our treatment. This test may involve applying a special tape to the skin or pressing a slide directly onto the skin. This test is generally recommended if we are unsure what is causing the changes to your pet's skin.

Bacterial culture: this test involves collecting a sample from the skin to grow on a Petri dish; this test will tell us the species of bacteria present and what antibiotic will kill it. Bacterial culture is generally recommended if there is skin infection that is severe, unusual in appearance or that has failed to respond to previous antibiotics.

Fungal culture: this test involves plucking a sample of hair and allowing it to grow in a special medium. It is a test for ringworm, and is performed if your veterinarian suspects your pet may have this disease.

Biopsy: a biopsy involves taking a sample of skin to be sent to a pathologist for sectioning and review under a microscope; this is generally recommended for severe or unusual skin changes.

Treatment:

Anal sac expression: if a pet is scooting or licking at their rear end, your veterinarian will check their anal sacs. If they are full, they will be expressed (emptied). Full anal sacs may become impacted (blocked), and impacted anal sacs may become infected, in which case antibiotics will be recommended. Severely impacted anal sacs may rupture.

Antibiotics: oral antibiotics such as Simplicef® or Clavamox® will be recommended if your pet has a skin infection (pyoderma) or anal sac infection; topical antibiotics may also be recommended for a skin infection or ear infection. Treatment of pyodermas can require prolonged treatment with oral antibiotics.

Antihistamines: antihistamines bind the receptor to which histamine binds, thus preventing histamine from exerting these effects. At La Costa Animal Hospital, hydroxyzine is generally the antihistamine recommended for dogs and chlorpheniramine is generally recommended for cats, but your veterinarian may recommend an alternative antihistamine such as Benadryl®, Claritin® or Zyrtec®. Antihistamines are oral pills that are usually given twice daily but can be given on an as-needed basis.

Essential fatty acid (fish oil) supplementation: Essential fatty acids (EFAs) not only protect the skin from immune-mediated reactions, they also help the skin to heal and act synergistically with antihistamines. At La Costa Animal Hospital, Eicosaderm™ (an oil applied by pump to the food) is generally recommended for dogs and Allerderm EFA Caps® (capsules) is generally recommended for cats.

Allergy shots: these shots are generally given monthly, though exact protocol varies between patients. They are given under the skin, and can be given at home or at La Costa Animal Hospital at no additional charge. It can take up to 1 year for allergy shots to adequately control allergies; 25% of patients with allergies can be well-controlled on allergy shots alone, 50% can be well-controlled with allergy shots and antihistamines, and the remaining 25% do not respond adequately to allergy shots.

Steroids: steroids are potent anti-inflammatories that generally adequately control the signs and symptoms of allergies. However, they have many side effects, including increased urination and drinking (which can result in accidents), increased appetite, weight gain, blood work abnormalities and secondary infections. Short courses of steroids are often warranted in severe cases, these may be oral (prednisone or prednisolone) or injectable (prednisolone, dexamethasone or Depo-Medrol®).

Cyclosporine: cyclosporine is available as Atopica® or as a generic; it is an immunosuppressant that often results in excellent control of allergies. However, it is quite costly; Atopica® may work better in some patients, but is more costly than generic cyclosporine. It is given once daily for 30 days then tapered down to the lowest dose that will still control signs of allergies; ideally it is given twice-weekly long-term.

Temaril-P®: Temaril-P® is an oral medication that contains a steroid (prednisolone) and an antihistamine (trimeprazine). It is started at a high twice daily dose that is tapered down to as small a dose as possible that will adequately control signs of allergies; some pets can be given this medication as infrequently as twice per week. Though the dose of steroid in Temaril-P® is low, the side-effects of steroid use are still often seen in patients taking this medication.

Flea treatment: At La Costa Animal Hospital, Comfortis® (dogs and cats) or Trifexis® (dogs only) will likely be recommended; both of these products are given orally once every 30 days and contain spinosad. Comfortis® contains spinosad only, Trifexis® also contains milbemycin, which prevents heartworm disease. Both are prescription medications; for a patient to start on Comfortis®, they need only an up to date physical examination (within the last 12 months) at La Costa Animal Hospital. For a dog to be started on Trifexis®, they must also have a negative heartworm test within the last 12 months.

Spinosad is derived from a naturally-occurring bacteria; it causes paralysis of adult fleas followed by death. Spinosad clears an infestation by killing adult fleas before they can lay eggs. It does not, however, kill eggs or immature fleas (larvae). This means eggs and larvae in the dog or cat's environment must develop into adults before spinosad can kill them and interrupt the life cycle. In a severe infestation, the time it takes to eliminate all life stages of the flea can be 2-3 months. In this time, additional treatments applied to the pet or to the home may be recommended.

Spinosad begins to kill fleas within 30 minutes, and has killed all adult fleas within four hours. The bite of adult fleas is what causes a dog or cat to itch; that means that while spinosad can take several months to completely eliminate, it has eliminated the itch-causing stage of the flea within four hours of administration. However, just as you are itching long after a mosquito has bitten you, the itch caused by a flea's bite can last for two weeks; because of this, pets with fleas or suspected fleas are often sent home with **antihistamines** or given **steroids** in addition to Comfortis® or Trifexis®.

As southern California winters are quite warm, it is recommended that flea preventatives be used year- round.

Flea treatment and prevention extends far beyond Trifexis® and Comfortis®; for a more comprehensive list of flea products available, please visit www.veterinarypartner.com > Flea Prevention. Please note that while this list is extensive, it is not exhaustive.

Topical treatments: these may include shampoos (Mal-A-Ket™, DermaBenSs®), lotions (Resicort®), wipes (Mal-A-Ket), sprays (Ketoseb, Betagen, Humilac®), ointments (Panolog®, Pyoben®), powders (Neo-Predef®) or other preparations applied to the surface of the skin.

If you suspect your pet has allergies, please contact La Costa Animal Hospital to schedule an appointment.