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# Skin Diseases in Cats: A client's guide



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## About the Skin

The skin is an organ of many functions with a particularly dynamic nature. There can be many disease processes that result in changes in the skin. Genetic or contagious diseases can affect the skin and hair quality. An improper diet may also cause dermatitis. Dull or flaky skin can indicate an imbalance of vitamins or essential fatty acids. **It is best to have your pet examined by a veterinarian before adding anything to the diet because arbitrary supplementation of nutrients and/or vitamins may exacerbate the problem, cause additional issues in other organs or delay appropriate medical therapy.**

Multiple layers of self-renewing cells make up the skin. The basal cells, the deepest layer comprised of the newest cells, continuously flatten and harden as they move towards the surface through each layer. On a regular basis, the outermost layer sloughs off into the environment at a rate typically unnoticed. However, in certain skin abnormalities, such as inflammation, infection or hormonal imbalance, this cycle is accelerated producing larger sheets of dead skin, or white flakes.

### The Skin's Many Functions

- Largest organ in the body
- Protects from outside environmental impacts while allowing movement
- Pigment deposition in deeper layers protects from solar radiation damage
- Temperature regulation is controlled through the skin and panting
- Hair production occurs in the skin and aids in thermoregulation, physical protection and appearance
- Tiny muscles allow hair shafts to stand erect for heat escape and for communicating during confrontation
- Several cells of the immune system live within the skin to protect from bacteria, fungi and viruses
- Nerves present within the skin allow sensory perception
- Sebaceous glands produce sebum which keeps skin soft and well-hydrated
- Fat, proteins and electrolytes are stored in the skin
- Important source of vitamin D

## Bricks and Mortar

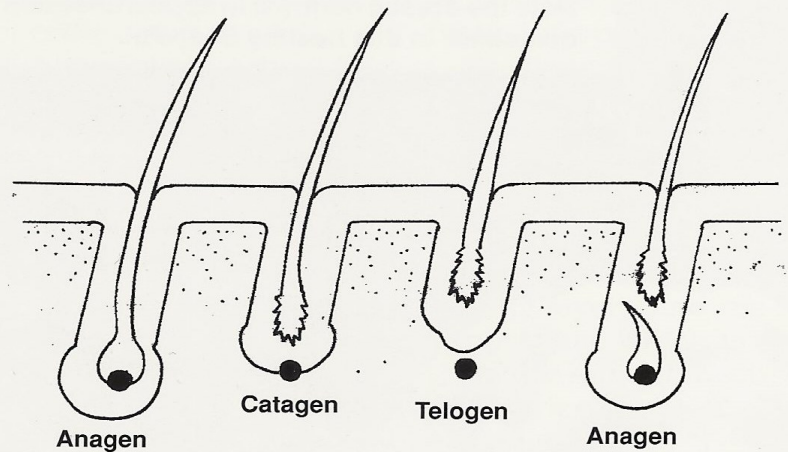
The top layer of the skin, stratum corneum, is likened to a brick wall.

The skin cells are like the bricks and the mortar helps hold them together.

Mortar is a paste-like material with a significant portion of water that holds

bricks together. Without functional mortar, the brick wall can be more easily damaged and make it easier for other substances to pass from one side to the other. In addition to the water within the “mortar” of the skin, there is a balanced amount of fatty acids and oils needed to ensure the skin remains a protective barrier to the outside and prevent excess water loss from other skin layers.

## FOUR MAIN STAGES OF HAIR GROWTH



This chart offers an illustrated view of the stages of hair growth, any layer at which can be adversely affected by various skin conditions and allergies. Diagram courtesy of William H Abbott, MS, DVM, DACVD, Animal Friends Dermatology. Service, Inc, Jacksonville, Florida.

Hair and skin can also demonstrate changes indicating problems in the animal's body. The growth cycle of hair is demonstrated above, and each phase can vary in length of time depending on breed. Animals with shorter anagen phases will have shorter hair compared to the pets with longer anagen phases resulting in a longer hair coat. Normally, each follicle will vary at which phase or part of a phase it's in to avoid large patches of hair loss at one time when the animal sheds. Therefore, when an area of bare skin is seen on a pet, this indicates a disruption in the cycle and warrants further work-up to find the underlying cause. Illness can result in a shortening of the anagen phase as the body shifts its energy and nutrients toward fighting the illness and away from normal growth.

The hair bulb, which is where the hair begins, is influenced by a variety of hormones. These include glucocorticosteroids, thyroid and sex hormones. Any number of imbalances within these substances may lead to alterations in the hair cycle as well. **This does not mean, however, that neutering or spaying is dangerous to your pet's skin and hair health.**

The skin and hair coat often indicate underlying or impending disorders. Your pet's health and even survival are depended on the many functions and duties of the skin. A well-balanced diet and proper maintenance care in regards to grooming and bathing are a wonderful start to help your furry family member's skin stay happy and healthy.

## Brushing

More frequent brushing for a shorter period of time is the best approach. Young pets should become accustomed to being brushed to avoid difficulty in the future. The uncooperative nature of cats in addition to a stressful event can lead to owners succumbing to scratches and bites. These can often become severely infected. If your cat becomes accustomed to regular brushing, they often learn to love it. There are various options for brushes suited for particular types of hair coats. A natural bristle brush is appropriate for short-haired cats, while a slicker brush can be used for longer coats.

Even with frequent brushing, mats can occur. If a mat is encountered, it's important to go slowly and prevent as much harm to the pet's skin as possible. Patience is key to working out a mat, grass awns or burrs. Sometimes they will need to be clipped away from the hair. Electric clippers are preferred because scissors have the potential of cutting the skin.

## Grooming And Bathing

Cats are different than dogs when it comes to their bathing and grooming needs. Your feline friends are meticulous groomers, and most of the time they only need occasional brushing. However, obese cats can have some difficulty reaching certain areas of their hair coat when cleaning and could use additional help. Also, if your pet is an indoor/outdoor or outdoor only cat, they may come in contact with substances needing to be washed off or out of their coats. Cats with certain skin diseases can benefit from baths or topical products. Furthermore, most cats will not appreciate bath time, and there may be helpful tips and other options to avoid injuries. **It is important to have your pet examined by a veterinarian if you suspect skin issues, mostly due to certain products causing more irritation if used more frequently.**

A groomer is a wonderful option if you desire a particular cut and style or if you are unable to keep up with your pet's regular skin and hair maintenance. It's important to realize that regular grooming involves much more than brushing and possibly bathing for a cat. Conditioning the hair and skin, combing, nail trimming, and anal gland expression as well as ear cleaning on occasion are all part of maintain healthy skin.

Proper and regular grooming can prevent potential skin problems and can even help in the treatment of already present ones. Without maintaining your pet's skin and hair coat, they can have excess shedding, irregular distribution of essential skin oils, and possibly develop inflamed or infected skin, ears or anal glands which are often accompanied by foul odors. Regular grooming gives you a chance to examine the overall condition of your pet's skin, feet, ears and even teeth. Detecting any problems early can prevent a disaster at a later date.

## Special Sensitivities

Cats are particularly sensitive to various substances considered safe to dogs. Please make sure that a particular product is specifically labeled for use on cats. It's best to consult your veterinarian before using products if you have any questions .

## Bathing

A healthy cat should not need baths, but mild shampoos can be used for general cleaning. It's important to review the particular shampoo instructions. However, to avoid any residue build-up or even irritation the coat should be thoroughly rinsed after bathing. A conditioner may benefit some types of hair coats as well.

## Regular Grooming

- Brushing
- Bathing
- Drying
- Conditioning
- Combing
- Nail trimming
- Ear Cleaning
- Expression of anal glands

## Shampoo Options

There are many shampoo options nowadays, ranging from natural to medicated, and making the right choice for your pet can be daunting. Often, your individual preference, type of hair coat, and your pet's skin condition will dictate which shampoo is best. Due to an animal's dynamic skin quality, shampoo requirements will likely change overtime. Also, a shampoo that is appropriate for one dermatological condition may not be the right choice for another. Shampoos are rarely a "cure all" for any one condition, but the appropriate one can be an integral part of the treatment plan.

Medicated shampoos come in many different forms. Antimicrobial shampoos are used for bacterial and fungal infections. Depending on how severe the infection and what kind of infection (bacterial, fungal or both), there are different shampoos to choose from and additional medical therapy maybe needed.

Anti-seborrhea shampoos are used to help control conditions ranging from dry scales (dandruff) to greasy and oily hair coats. These shampoos are important for pets suffering from a primary issue of flakey skin or a secondary issue while additional work-up is performed to find the initial problem. Ingredients included within these shampoos can be tar, sulfur , selenium sulfide, salicylic acid, and benzoyl peroxide. Generic products aimed at controlling seborrhea should be avoided initially as there is a wide range of quality and could be less effective. In some cases, it may be beneficial to bathe your pet in a mild cleansing shampoo before using medicated soaps.

Flea Shampoos can be used for short-term control, however, this is not the best way to control an infestation or protect your pet. In fact, the adult fleas seen on an animal represents only about 10% of the population within an environment. *Additional information regarding flea control will be addressed later.*

Shampoos can actually have direct soothing and anti-itch factors as well. While some shampoos offer the pet relief from irritation by tackling the primary problem, there are others that can help with the symptoms while additional diagnostics are taking place. Oatmeal is a common ingredient in these shampoos as it can be incredibly beneficial with little adverse reactions. However, the length of relief is short-acting — 1-2 days.

Topical steroids are probably the most useful medications applied directly to the skin. However, the excessive use of them can lead to localized and systemic side effects.

## Gather Before You Lather

There are many shampoos to choose from when your pet is suffering from a skin issue. For the most effective and fastest relief, it's important that you know and understand your pet's skin disease. There are many different ingredients available in shampoos that aim to tackle specific problems, and additional irritation can occur if the primary problem is not identified before using them. Your veterinarian or veterinary dermatologist will be able to examine your pet, perform appropriate diagnostics and recommend the best shampoo for his or her condition.

## Flea Facts

- The cat flea is by far the most common flea to infest dogs and cats
- Other species can be present, but the treatment is the same
- Flea eggs are white and quite small (0.5 millimeters in length)
- Eggs can hatch, depending on humidity and temperature, 1-10 days after being deposited into the environment
- Larvae are worm-like and feed on organic debris and flea feces
- Larvae avoid light and move deep into the carpet or under grass, leaves or soil
- They thrive in places where the animal spends a lot of time
- Fully developed larvae create cocoons in which they mature into adults
- Cocoons are resistant to drying and insecticides
- Adults can be protected in this stage up to 140 days
- Their emergence is induced by heat, increase of carbon dioxide or physical pressure
- In an optimal environment, the life cycle can be as short as 2-4 weeks
- Females require a blood meal to start producing eggs
- One female is capable of producing several thousand eggs
- Heavy infestations can lead to life-threatening anemias
- Adults can only survive a few days off of an animal's body

## Fleas, Ticks and Other Parasites

### Fleas

A flea infestation can be exhausting as flea control can be an extremely frustrating process. An organized approach to the problem and patience can lead to a successful eradication, though. Mild to moderate flea infestations may not actually result in a problem for humans in the house, but a relatively few number of fleas can cause significant issues for household pets. **Consulting with a veterinarian concerning an infestation is important not only to develop a plan but to ensure your pet's safety. Products used during the extermination process can be toxic to some pets.**

While adult fleas spend most of their time on an animal's body, they only account for approximately 10% of the population. Therefore, control is essentially a three-pronged attack: targeting the yard, the house and the pet. Wild and stray animals can be a continuous source of fleas, so continual protection for your pet is imperative. Fleas can be even more difficult to get rid of in a home due to their extremely lengthy time cocoons can survive in the environment. An "all-of-the-sudden" infestation in the home after a vacation does not necessarily mean your pet brought them from the boarding facility.



## Protect Your Pet

- Shampoos
- Dips
- Powders
- Spot-on products
- Sprays
- Foams
- Collars
- Monthly pills
- Monthly topicals

## Internal Parasites Too?

Most internal parasites do not normally cause problems in the skin. If there is a link, it is most likely due to the parasites affecting your pet's overall health and making them more susceptible to skin issues. Rarely, they can find their way to the skin and cause sores, rashes or itching. Be aware that if your pet is positive for heartworm or intestinal parasites, it may complicate test results when skin disease is also present. For an overall healthy pet it's important to test for and treat for internal parasites to avoid other possible complications.

The use of sprays in the environment can be complicated. A pet owner should read labels carefully and thus environmental therapy may best be performed by a professional. Some spray products containing insect growth regulators can block the development of the immature stages and offer a greater long-term control. **Please ensure that you are paying close attention to the label as some sprays can be toxic to your family, pets and the environment.** Some dog flea products can be LETHAL to cats. It is best to focus on areas where your furry companion spends a lot of time. It is also important to find sprays specifically for the yard as some agents used for flea control can be broken down by sunlight.

Vacuuming can be a key first step for indoor control. Remember to dispose of the bag or empty the collection container outside to avoid recontamination. Wash the pet's bedding in hot water. Again, the use of a spray with an adulticide and insect growth regulator is preferred for optimal control. Be sure to concentrate your efforts in the areas where your pet frequents, but treating the whole house is also recommended. Be sure to include closets, attics, basements, porches and crawl spaces. The use of premise sprays is typically more effective than foggers, which may not reach under furniture into or around corners. Products used for your pet include shampoos, dips, foams, powders, sprays, collars, as well as oral and topical monthly preventatives. The length of time for all of the products vary drastically. Shampoos and sprays can be a useful start in treating an infestation but are not recommended for long-term control. Dips may last a little longer than shampoos but frequency of use should be limited due to toxicities. There is a large variation of flea collars alone with a wide range of reported effectiveness. These products also vary in how they control or kill



the flea population. Many factors should be considered when choosing the right control for your pet. They include the individual environments, type of pet, and your ability to administer the preventative or treatment. Consultation with your veterinarian is strongly advised in order to achieve rapid success in a safe manner.



## Tick Facts

- Ticks have four life stages: egg, larva, nymph and adult
- Can carry pathogenic organisms that cause diseases
- The adult may increase its weight 100 times while feeding
- Females can release thousands of eggs once detached from the host
- The bite itself is painless, allowing the tick to stay attached
- Ticks are attracted by motion, heat, carbon dioxide and changes in light

Demodex mites are passed from queen to kittens.

## Lice

The diagnosis of lice in small animals is becoming increasingly rare. Partly due to the use of flea control products which eliminate lice as well. Both the adults and eggs can be seen by the naked eye. A different type of louse affects cats than the ones found on humans, which is also a different one affecting dogs. Lice can cause inflammation and profound itching, but are easily treated with products used to kill fleas.

## Ticks

Ticks are another type of insect that may feed on the blood of your pet. They may also carry diseases. Therefore, a heavy infestation may lead to a severe anemia. The saliva of ticks can also decrease the host's local immune system allowing infection to occur. This could lead to the animal continuously scratching at the site and causing additional irritation.

Should a tick attach to your pet, prompt removal is required. Fine-pointed tweezers or any number of tick removal devices that gets close enough to the skin surface in order to remove the entire tick will suffice. Localized irritation may occur due to either tiny pieces of skin being removed along with the tick or mouth parts of the tick being left behind. The area should be washed with soap, and the person removing the tick should wear gloves during the process. **Petroleum jelly, matches and other home remedies are not recommended and may worsen the situation.**

It's important to know the elimination of other hosts, such as deer and rodents, has not been successful in controlling tick infestation.

Environmental control with sprays can be achieved on a limited basis. There are many different products specifically for your pet, including collars, topical spot treatment, and pills, with varying rates of success depending on type of tick and duration. They can also be killed by many of the flea products discussed previously. Be sure to check label for effectiveness and consult with your veterinarian about what is best for your pet.

The deer tick is a common tick to carry infectious disease.

## Walking Dandruff

- Relatively common mite, however, with the increase use of flea preventative there is are fewer effected cats
- Generalized or localized itch
- Mites can cause itching or there can be an allergic reaction to the droppings
- Humans can be transiently affected and see small red bumps
- Under a magnifying glass, the mites can appear as moving white flakes
- Treatment is usually just the use of topical flea preventative appropriate for cats, but can involve dips or “spot on” treatments with lime sulfur

## Demodocosis

- Two types of demodex mites affect cats: *Demodex cati* and *Demodex gatoi*
- *Demodex cati* is similar to the mite seen on dogs and a small number is normal
- *Demodex gatoi* is a shorter, stubbier mite and possibly contagious
- Patchy hair loss, crusts and redness on the face, neck and legs are seen
- Localized and generalized infections can occur and are treated differently
- Siamese and Burmese may be predisposed to generalized infections
- If a generalized infection is seen in an adult cat, there is almost always an underlying cause: genetics, steroid use, or a disease suppressing the immune system

## Mites and Mange

There are many different types of mites that can be associated with skin problems in pets. The most common mites seen in cats include ear mites, feline scabies, and in some parts of the world, “walking dandruff”. Most mites are so small that they can only be confirmed through the use of a microscope. For any of these mites, if appropriate diagnosis and treatment have been performed and the cat is not improving, consider testing for diseases affecting their immune system such as FeLV or FIV.

Ear mites are the most commonly diagnosed mite in cats, and can be found on other parts of the body other than in the ear canal. It’s important to know that ear problems in your pet can be caused by other allergens such as food or airborne. Typical symptoms include a build-up of dark brown material in the ear(s) resembling coffee grounds as well as intense itching. Intense face itching is also commonly seen in cats suffering from food allergy. Miliary dermatitis can be seen especially behind the ears and neck. The mites could be causing the severe itch or the cat could be having an allergic reaction to their droppings. Treating ear mites involves cleaning out the ears and applying a topical flea preventative, **one that is appropriate for cats**, at an increased frequency. Administering product directly in the ear to kill ear mites may result in an incomplete eradication. **Any other pets that regularly come in contact with the cat should be examined.**

Scabies mites seen on cats are similar to the ones affecting dogs. It can be highly contagious within a household, but not all animals exposed to the infested one will show symptoms. Clinical signs include extreme itching and crusts most commonly seen on the margins of the ears, elbows and skin over the chest. However, there are some animals that will be affected in different areas, or could only show signs of itching with no crusts, redness or hair loss. These mites can also cause problems, only temporarily, in humans. **If you suspect this, you are advised to seek an evaluation with your own physician or MD dermatologist.**



This cat's presentation is textbook for allergy dermatitis: lack of hair on the rump and sores throughout the body.



This cat's lip has become enlarged, a condition often associated with allergic conditions.

## Allergies

There are a few different types of allergies that can be seen in your pet, and often they may have symptoms that look alike with only subtle differences in history, distribution of clinical signs, or response to therapy. However, some pets may manifest their allergies in other ways, such as ear and skin infections as well as life-threatening respiratory problems. A cat seen excessively grooming can be the only visual sign of an allergy, and feeling military dermatitis may be easier than seeing it. Cats can also develop eosinophilic granulomas or ulcers on the lip, back of the legs or stomach. The most common allergies affecting cats include flea, inhalant and food.

### Flea Allergy

Cats affected by flea allergy can succumb to intense discomfort and itch from an imperceptible flea bite. The allergic pet's immune system actually reacts to the flea's saliva, and the reaction can occur almost immediately and last many days. This differs greatly from when normal cats are heavily infested with fleas, causing occasional itching. Flea allergy is one of the most itchy diseases affecting cats. Clinical signs are often worse near the area of the bite, but can manifest at distant locations. The "rump" region is the most common location of itching, redness, small bumps, hair loss and self-induced trauma. Excessive licking or chewing of both the front and rear legs and paws can be seen with flea allergy as well as other allergies.

Eradication of fleas from the pet and the environment is the most important aspect of controlling a flea-allergic dog. Treating a flea infestation is explained in previous pages. **It is important to realize that flea control products requiring the flea to bite the animal before being to be exposed to the product, may not be helpful for flea-allergic cats.**

## Intradermal Skin Testing

Skin testing is similar to the allergy test that most people are familiar with. Intradermal injections of individual purified allergens are given. After the injections at marked areas on the skin, the veterinarian looks for a wheal, or hive, and interprets the severity. Skin testing assesses the reaction in the most common organ affected, the skin. Serum IgE testing is another option requiring a blood sample and can be useful in some patients.



Intradermal allergy testing is very important to the diagnostic process. This dog is reacting to many different allergens.

## Allergen Specific Immunotherapy

- Personalized for each pet based on test results, pet's history and veterinarian's experience in treating allergies
- Contains specific mixture of allergens that pet reacts to
- Considered allergy shots, but can be given subcutaneously by injection (under the skin) or liquid drops underneath the tongue
- **Helpful in 75% of patients, but can take 6-12 months for any improvement**

## Environmental Allergies (Atopic Dermatitis/Atopy)

This disease, also known as atopy, involves allergic reactions to various pollens or spores from grasses, trees, molds and weeds, as well as other microscopic allergens. While humans suffering from inhalant allergies have runny noses, irritated eyes and sneezing, most cats manifest the disease by scratching, rubbing, excessive grooming and biting themselves. Feet, forearms, armpits, abdominal region, face, ears and sometimes the rump can become red and irritated. Ear and skin infections accompanied by a foul odor are often present. Bacteria and yeast take advantage of the abnormal skin and create secondary problems.

Typically, the cats suffering from environmental allergies begin showing symptoms between 1-3 years of age, and clinical signs will be more prominent during a particular season. As the disease progressive, the cat's discomfort can occur all year long. However, in milder climates, symptoms may initially start at a younger age and be present year round. The ubiquitous nature of allergens and how affected animals become symptomatic makes environmental allergies difficult to control.

Medical therapy maybe necessary if the clinical signs cause the pet to be uncomfortable. Various types and combinations of medications can be used, and individual pets can respond differently depending on what allergens they react to, their environment and even their geographic location. As environmental allergies are typically a progressive life long disease, options to long term medical therapy should be strongly considered. Allergy testing and allergen specific immunotherapy should be important components of managing this disease.

Intradermal testing and blood testing are used to test for specific allergen sensitivities. Blood testing involves obtaining a sample of blood and submitting it to an outside laboratory. While the blood test is somewhat easier to perform and interpret, it only measures the immune components within the blood. The intradermal testing offers the opportunity to evaluate the immune response in the skin.

## Treating the Itchy Cat

- It's important to realize there can be more than one disease contributing
- The identification and treatment of one disease may not lead to adequate improvement
- On the other hand, treatment of a disease can take time to see improvements
- Therapy can be necessary just to control your pet's itch while waiting for test results or for treatment to start working
- Shampoos, sprays, lotions and creams could be all that's needed for relief
- Drugs can also be used to help reduce the amount of itching.
- If a patient continues to itch after flea allergy, food allergy and scabies have been ruled out, many allergy patients require a combination of medical treatment and allergen specific immunotherapy
- Steroids can be extremely helpful for severe cases and even more cost efficient in the short-term
- However, steroids have the potential of creating serious side effects and long-lasting health issues
- Options to steroid medication exist. They may have their own side effects and can compromise an immune system. Patients should be monitored for infections, mange and cancer.

## Food Allergy

This type of allergy is a common disease, but is overemphasized as the source of itchy skin. Clinical signs may be sudden in onset and are practically indistinguishable from those seen in environmental allergies. Gastro intestinal signs can also be seen in some patients. The symptoms are not usually associated with a sudden change in diet, can start at any age and do not vary with seasons. While having food allergy is uncommon, the pets suffering from it may often have other allergies as well. Work-up to determine why your pet is itching may involve testing for food, environmental allergies and flea allergy.

The only way to diagnose a food allergy is by conducting a food trial using a proper hypoallergenic diet. This involves a novel protein and a single well-tolerated carbohydrate source. A novel protein, meaning the animal has never been exposed to it, is necessary to determine if your pet truly has a food allergy. Commercial diets may advertise as having a novel protein, but can actually contain other types, such as chicken, in addition to the hypoallergenic ingredients. Today, a novel protein can be difficult to find because of the varied diet of many pets and the small print in the ingredients. **This accentuates the importance of reading the ingredients carefully and consulting with a veterinarian before starting a hypoallergenic diet.** Hydrolyzed diets contain proteins that have been reduced to such a small size that they are too small to cause allergic symptoms but not all hydrolyzed diet have been reduced to a small enough size. While on a diet trial, the pet **MUST NOT** eat anything else other than the hypoallergenic food. Unflavored medications, such as heartworm and flea medication should be substituted for flavored or chewable products. The use of treats or flavored medication can invalidate a diet trial and make it even more difficult to find a novel protein.

The resolution of clinical signs during the diet trial is only the first step in proving your pet was suffering from a food allergy. After a trial of 8-10 weeks on the diet, it is important to reintroduce the original food and watch for the return of itching within 7-14 days. After a food allergy is confirmed, the trial diet can be continued, as long as it is balanced, to control the clinical signs.





This cat is diagnosed with ringworm. The fluorescent coloring is the result of a Wood's lamp examination.

## Seborrhea

Seborrhea can range from dry flakes to excessive greasiness. Often, this disease is a secondary issue to another disease process. Primary seborrhea is diagnosed only after no other underlying cause is identified and a skin biopsy is compatible to the diagnosis. Lifelong therapy will likely be necessary, and treatment centers around controlling secondary infections and shampoo therapy. Additional medications ranging from naturally occurring to steroids may be used. Primary seborrhea rarely has life-threatening issues associated with it, but maintenance of the disease requires diligence and patience.

## Other Common Problems

Bacterial infections are especially common and are often related to an underlying problem such as an allergy or hormonal imbalance. Superficial skin infections are commonly caused by an overgrowth of *Staphylococcus pseudintermedius*. One of the most well-known fungal infections is “ringworm,” or dermatophytosis, and is often dreaded by cat owners. The most common species of fungus that causes ringworm in both cats and dogs is *Microsporum canis*.

Most of the organisms causing skin infections are not contagious, but are actually found in the environment and even on your pet in small numbers. When the skin becomes compromised, the organisms take advantage and grow out of control. An exception to this is ringworm. This fungus can be transmitted among pets and people. Ringworm is an exception; this fungus can be transmitted among pets and people. Animals can be asymptomatic but be able to pass the organism to those with compromised immune systems.

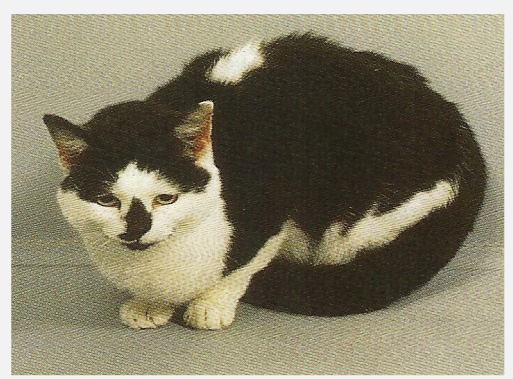
Skin infections do not always cause itching in your pet. A bad odor can be associated with both bacterial and yeast infections. Hair loss is also a common symptom of infections. While ringworm is associated with hair loss and, less commonly, rash, hair loss in a circular pattern is most likely caused by bacteria. Usually identifying and treating these infections are straightforward. Challenging cases are present due to coexisting complicating diseases, an extension deeper into the skin and subcutaneous tissue, or the recurrence of the infection.

Diagnosing the organism causing the infection is done by obtaining samples from your pet's skin and examining them under a microscope. Ringworm, specifically, is best diagnosed by collecting hairs from the cat and performing a fungal culture and examining the growing fungus. Occasionally, performing bacterial cultures are needed for complicated infections in order to completely treat the infection. **Your veterinarian may recommend reevaluating your pet during or after the use of drug therapy, to ensure the original problem has been brought under control.**



## Iatrogenic Cushing's Disease

- Steroids can be used to treat the clinical signs of many skin diseases
- It's not uncommon for some disease to lead to an overuse of this group of drugs
- Administration of steroids via injection, oral, or topical can cause iatrogenic disease
- Clinical signs are similar to those of endogenous Cushing's disease
- Slowly decreasing the use of steroids in patients with iatrogenic disease is imperative
- The animal's body must adjust to the changing levels and start producing its own steroids at an appropriate amount
- Development of iatrogenic Cushing's further emphasizes the importance of investigating the primary skin disease
- The continued use of steroids to control symptoms of the initial disease is not recommended



Cat's with hormone related disease can have behavioral changes that mimic advanced aging and general discomfort.

## Steroid-Related Disease

The disease can be associated with an excessive amount or lack of normal production of steroids. The excessive amount of steroids within the body is called hyperadrenocorticism, or Cushing's, and is the most common steroid-related disease. An endogenous disease is an abnormality within the body, while the administration of steroids can cause iatrogenic disease. Prudent and limited use of steroid medication rarely causes problems.

Symptoms can occur slowly and may make the cat appear as if premature aging is occurring. Initially the pet can have increased appetite and thirst, increased urination and panting. Weight gain, behavior changes, liver damage, poor hair coat, demodectic mange, thin skin, comedones (blackheads), and hair loss are common long-term clinical signs. A dramatic side effect, specifically seen in cats, is easily tearing skin. The lesions hardly bleed due to the thinning skin and vessels and are difficult to suture. Cushing's disease can be life-threatening, but so can the treatment. Fortunately, most patients do well a medical protocol is established and clinical signs are resolved. Continued reevaluation is required with this disease.

Having too low of steroids is known as hypoadrenocorticism or Addison's disease. This disease can be life-threatening and quite varied in symptoms. Skin-related issues are actually rarely reported.

## Hypothyroidism

Hypothyroidism is an extremely rare hormonal disease in cats causing hair loss. This disease refers to the lack of thyroid hormone present in the body and its interaction with the individual cells of the body. Thyroid hormone is important in the general health of a pet, as well as to the skin and immune system. Clinical signs are quite variable and common ones are rarely noticed initially.

Diagnosis of hypothyroidism involves testing for blood levels of various substances associated with the functioning of the thyroid gland. Treatment is relatively straightforward as replacement of those substances should help improve clinical signs. The thyroid replacement therapy and blood level reevaluations will be necessary for the rest of the pet's life.



This cat suffers from pemphigus, an immune-compromising disease.



Sores can appear throughout the body including the foot pads.

## Immune Mediated Or Autoimmune Diseases

This group of diseases are often seen with severe symptoms affecting the skin and sometimes other parts of the body. The most well-known is “lupus” which is also seen in people, and symptoms are not always seen in the skin. A disease called pemphigus is actually the most common immune-mediated disease affecting the skin. The clinical signs include sores and scabs on the feet, mouth, nose and the areas around the eyes and genitals are often affected first and patients may become systemically ill.

Diagnosing these diseases can be frustrating and may involve many tests including blood tests and skin biopsies. The rule out of additional or more common diseases is necessary as they can often complicate diagnostics. Even with meticulous care, an absolute diagnosis is not always possible.

If the diagnosis of an immune-mediated or autoimmune disease is made, then high dose steroids, or other drugs that suppress the immune system, may be used to control the symptoms. **Follow up tests and regular reevaluations by your veterinarian or veterinary dermatologist are often necessary because of the life-threatening nature of these diseases and the potential side effects associated with treatment.**

Many different types of disease can affect the skin directly and indirectly. In addition, various skin problems look very much alike. Therefore, it can be frustrating for the patient and the pet owner when trying to discover what is causing the issues and how to effectively treat them. Many factors must be considered when thinking about your next step: the likelihood of particular diseases, the possibility of concurrent problems, and the cost and invasiveness of the tests and treatment options.

Often, it is necessary to treat the more common and apparent disease before pursuing further diagnostic tests or treatments. In some cases, the possibility that the general health of the body may be affected suggests that tests be performed to make sure that systemic diseases are not present. **If you suspect your pet has abnormal skin or you have additional questions about any of these diseases affecting the skin, please contact your veterinarian or veterinary dermatologist.**

University of Florida Small Animal Hospital

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