



dermatology diagnostic guide

about the Author



Jennifer Schissler, DVM, MS, DACVD
Assistant Professor, Dermatology
Colorado State University, Fort Collins, CO

DR. SCHISSLER is Assistant Professor of Dermatology at the James L. Voss Veterinary Teaching Hospital, Colorado State University. She is a Colorado native and graduated summa cum laude from Colorado State University's professional veterinary medical program in 2005. She completed a combined dermatology residency and master's degree at The Ohio State University in 2009, and achieved diplomate status from the American College of Veterinary Dermatology in 2009. Her professional and research interests include: allergic dermatitis, otology, clinical immunology and infection control practices. She has a passion for educating clients, veterinarians and veterinarian students and partnered with Hill's Pet Nutrition in developing this guide.

how to help patients with skin issues

Start diagnostics



Unknown Allergy
or
Suspected Atopy



**Derm Complete
+
Multimodal Therapy
as needed**

4 wks*
Sufficient
Positive
Response

**Continue feeding
Derm Complete
(+ Multimodal therapy
as needed)**

4 wks*
Insufficient
Response

**Suspected AFR
and/or Chronic
Enteropathy**
(and hydrolyzed
elimination trial
desired)



**Food
Elimination Trial**

(if) no known
fat sensitivity

z/d

(if) concurrent
fat sensitivity
(suspected or
confirmed)

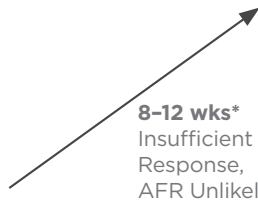
**z/d
Low Fat**

8-12 wks*
Sufficient
Positive Response

**AFR
Diagnosed**
Continue feeding
z/d or d/d

**AFR &/or Fat
Sensitivity
Diagnosed**
Continue feeding
z/d Low Fat

8-12 wks*
Insufficient
Response,
AFR Unlikely



*Transition gradually over 7-10 days for best results.

Puppies of All Sizes with Skin Conditions

Recommended for all skin conditions except known allergy to egg. Treat skin infections when needed



Recheck in 8 weeks
(2-3 weeks if managing skin infections)

**Insufficient
Response**

**Sufficient
Response**



Derm Complete Puppy Derm Complete Puppy

+ Multimodal
therapy as needed

how to help new patients with skin issues

Nothing can be more frustrating than managing this new patient with skin disease that walks into your practice: intense itching, severe pyoderma and a frustrated owner.

Where to start?

The protocol above and the great diagnostic tools presented by Dr. Schissler in this booklet provide you a clear approach how to tackle this problem as quickly as you can.

Reducing that itch and clearing up severe skin signs are important first steps. Dermatologists will agree that managing the itching is critical even before you consider for example managing atopic dermatitis or a food elimination trial. Derm Complete with Histaguard Complex is proven to control itching and improve skin signs in dogs with food allergies and atopic dermatitis. Recommending Derm Complete from the first visit onwards supports your patient's road to recovery right from the first bowl.

All the best!

Hein Meyer DVM, PhD, Dipl-ECVIM-CA
Senior Director, Hill's Pet Nutrition Inc.



diagnostic path

TEST 1 flea comb	fleas/flea allergy
TEST 2 cytology	staphylococcal pyoderma
	malassezia dermatitis
TEST 3 skin scraping	demodex
	sarcoptes
	cheyletiella
TEST 4 fungal culture	dermatophytosis
TEST 5 food trial	adverse food reactions
	atopic dermatitis

Use only those tests that apply based upon history and lesions

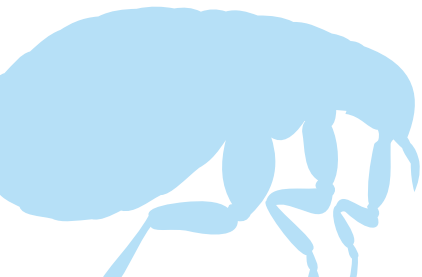


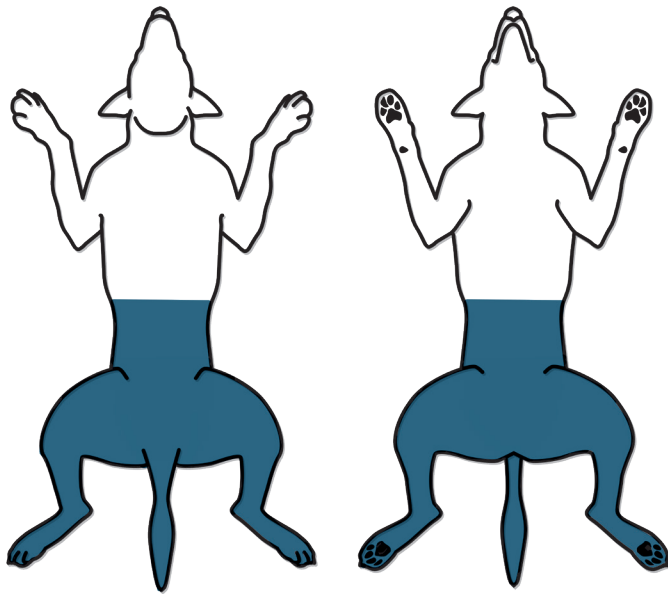
fleas/flea allergy



Signs include:

- Pruritus: moderate to severe
- Diffuse alopecia, erythema, excoriations
- Secondary staphylococcal and *Malassezia* overgrowth common





Management:

- Strict adulticidal flea control for all dogs/cats in the home
- Prescription topical or oral adulticidal products are recommended
- Consider environmental treatment with targeted use of insect growth regulator (such as pyriproxyfen) and/or professional application of product in indoor and outdoor environment for heavy flea burdens

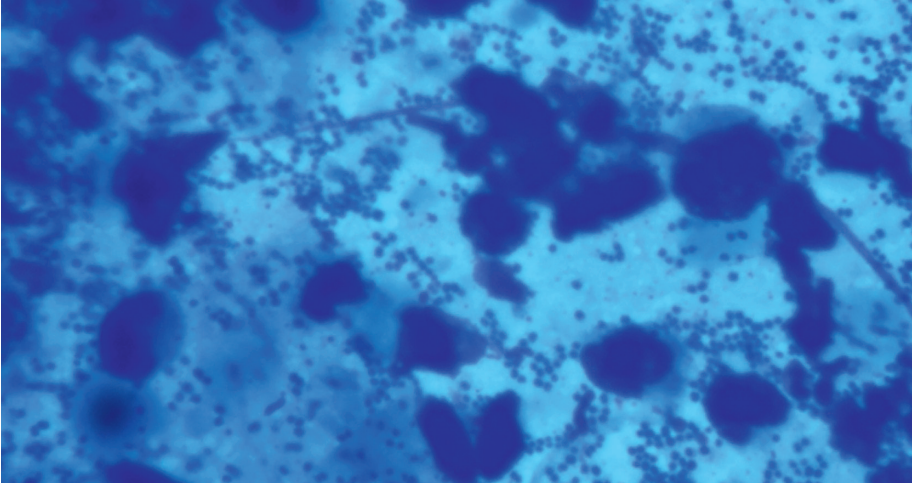
RECOMMENDED
NUTRITIONAL
SUPPORT:
See back for details

**Derm
Complete**

Derm Complete

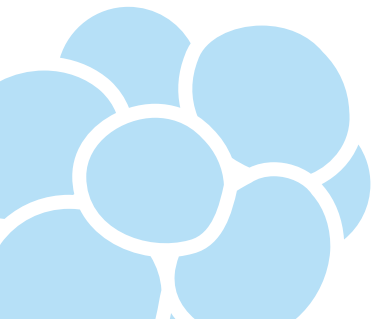
PUPPY

staphylococcal pyoderma



Signs include:

- Papules, pustules, crusts, epidermal collarettes
- Well-circumscribed “moth-eaten” alopecia



Management:

- Treat with antibiotics for a minimum of three weeks and recheck prior to discontinuation of therapy
- Topical therapy is recommended for all cases of superficial pyoderma; sole topical antimicrobial therapy is recommended for intertrigo and mild presentations of staphylococcal pyoderma

NOTE: *Given the increased prevalence of methicillin-resistant staphylococcal pyoderma, lack of response to an empirical antibiotic therapy may indicate resistance. Culture and antibiotic sensitivity testing in these cases is strongly recommended.*

In the presence of multi-drug resistant staphylococci, the author recommends consideration for topical therapy as a sole means of management, particularly in mild, focal presentations.

RECOMMENDED
NUTRITIONAL
SUPPORT:

See back for details

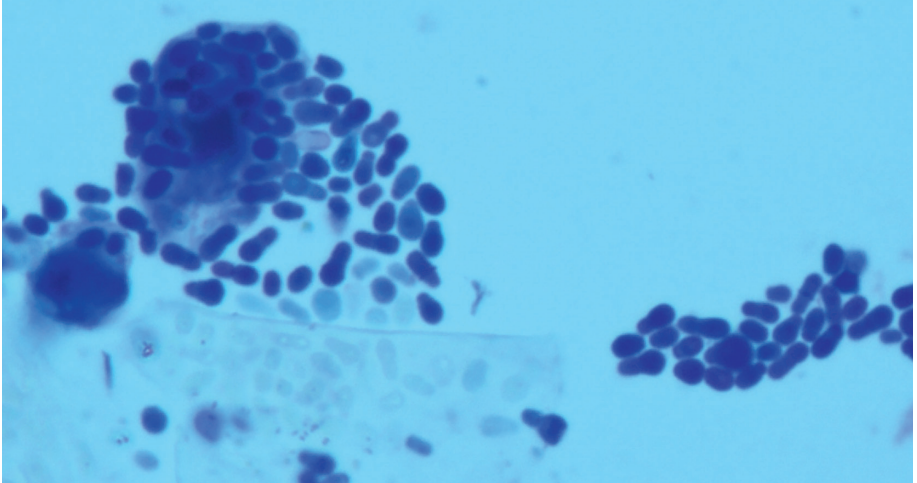
**Derm
Complete**

Derm Complete

PUPPY

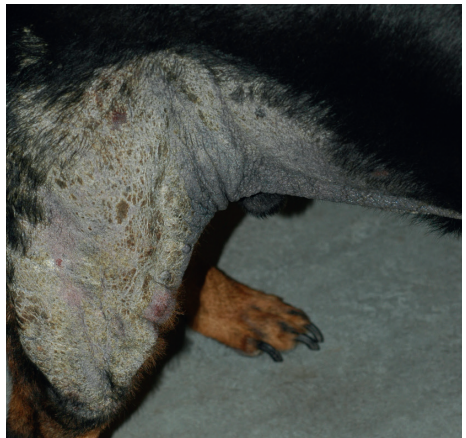
malassezia dermatitis ►

malassezia dermatitis



Signs include:

- Erythema
- Seborrhea
- Malodor
- Lichenification



Management:

Treat with topical therapy for a minimum of three weeks and recheck. Consider adjunct systemic therapy for multifocal or generalised presentations

- Terbinafine 30–40 mg/kg PO q 24 hours
- Ketoconazole 5–10 mg/kg PO q 24 hours
- Fluconazole 5–10 mg/kg PO q 24 hours
- Itraconazole 5–10 mg/kg PO q 24 hours

RECOMMENDED
NUTRITIONAL
SUPPORT:
See back for details

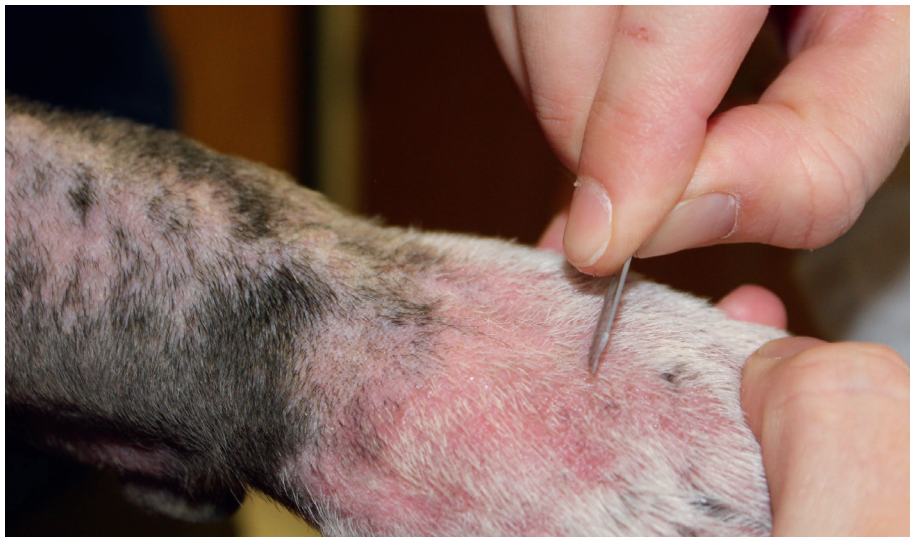
**Derm
Complete**

Derm Complete

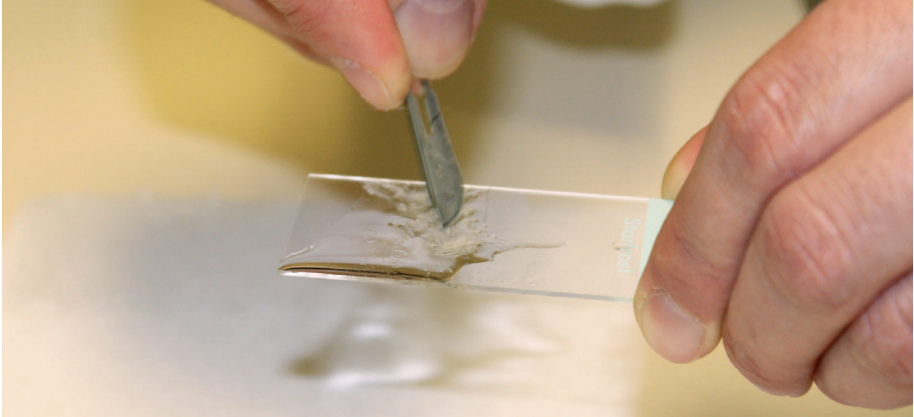
PUPPY



skin scraping



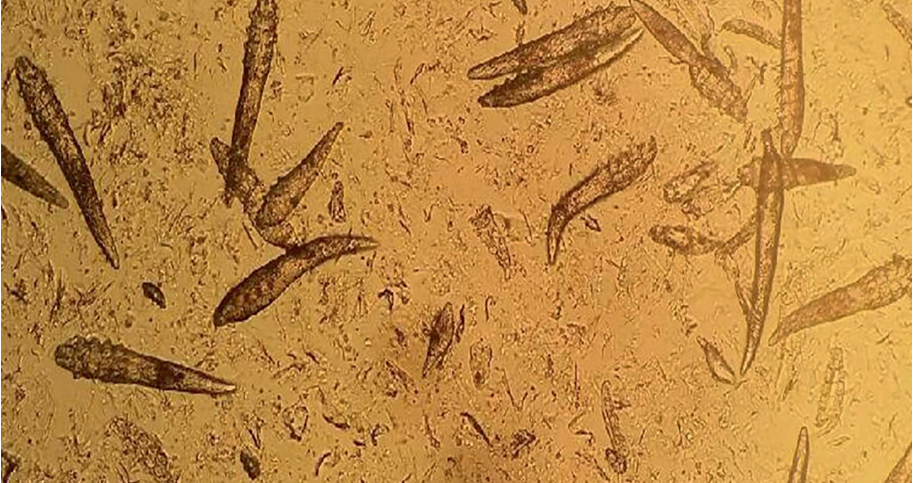
To be done with a blade or spatula at a $< 90^\circ$ - degree angle relative to the direction of scraping.



Technique:

- Trim hair if needed
- Apply mineral oil to skin
- FOR SUPERFICIAL SKIN SCRAPE (*Sarcoptes*, *Cheyletiella*)
 - With light pressure, scrape broadly in the direction of hair growth
- FOR DEEP SKIN SCRAPE (*Demodex*)
 - Gently squeeze the skin
 - Hold the skin taught, scrape a small area in the direction of hair growth until mild capillary bleeding is achieved
- Place contents on slide and place coverslip and examine area at low power: 5x or 10x objective

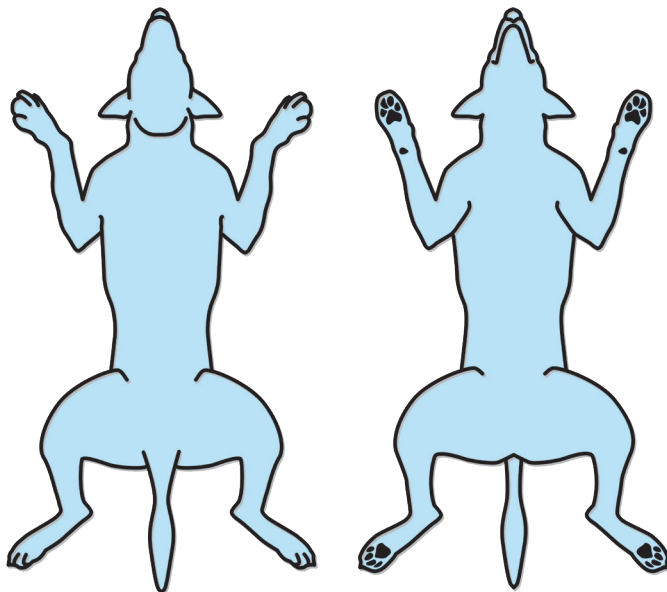
demodex



Signs include:

- Pruritus: none to severe
- Patchy to diffuse erythema, papules, pustules, crusts, alopecia, seborrhea and comedones
- Severe disease: nodules, ulcers, furunculosis
- Lesions typically develop prior to pruritus





Management:

Treatment must continue until two consecutive negative deep skin scrapes are obtained two weeks apart. Consider an additional four weeks of therapy for severe cases.

- ***Fluralaner** (*Bravecto*[†]): single dose once every eight weeks
- ***Sarolaner** (*Simparica*[†]): labeled dose every 30 days
- ***Afoxolaner** (*Nexgard*[†]): labeled dose every 28 days
- ***Moxidectin and imidacloprid** (*Advantage Multi*[†]): Apply single dose once every 7–14 days (not recommended for avermectin-sensitive breeds)
- ***Ivermectin** (injectable, 1%): 0.3–0.6 mg/kg PO once daily (not recommended for at-risk breeds). For a list of breeds visit vcpl.vetmed.wsu.edu
- **Amitraz dipping** (*Mitaban*[†]): dilute according to label instructions. Apply once every 14 days

RECOMMENDED
NUTRITIONAL
SUPPORT:
See back for details

**Derm
Complete**

Derm Complete
PUPPY

[†]Off-label treatments in some geographies

sarcoptes / cheyletiella ►

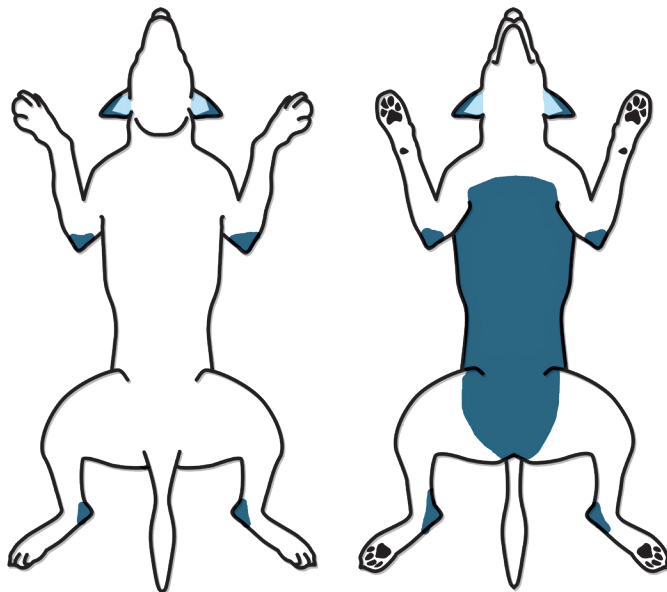
sarcoptes



Signs include:

- Pruritus: severe
- Papules, erythema, excoriations, thick hyperkeratotic crusts





Management:

- ***Fluralaner** (*Bravecto*⁺): single dose given PO
- **Sarolaner** (*Simparica*⁺): labeled dose every 30 days
- **Afoxolaner** (*Nexgard*⁺): labeled dose every 28 days
- **Selamectin** (*Revolution*): 3 applications two weeks apart
- **Ivermectin** (injectable, 1%): 0.4 mg/kg PO once weekly (not recommended for at-risk breeds). For a list of breeds visit vcpl.vetmed.wsu.edu
- **Lime sulphur dipping**: once weekly for four treatments

RECOMMENDED
NUTRITIONAL
SUPPORT:
See back for details

**Derm
Complete**

Derm Complete
PUPPY

*Off-label treatments in some geographies

cheyletiella ►

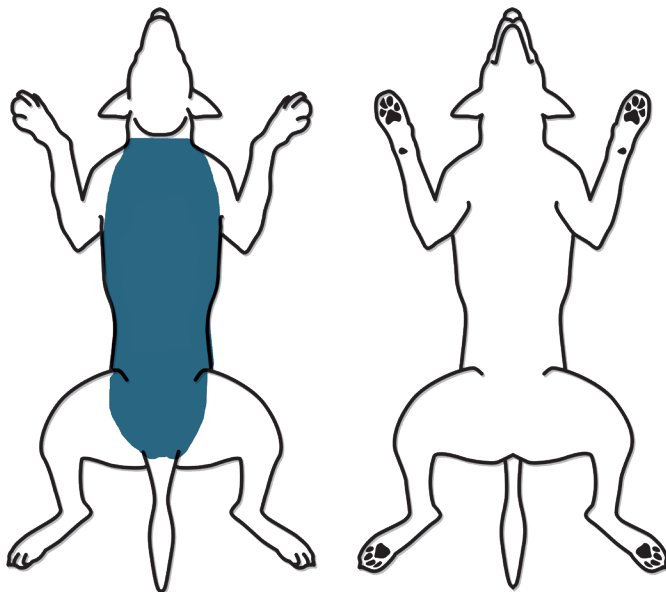
cheyletiella



Signs include:

- Pruritus: mild to severe
- Loose, patchy scales, excoriations, papules





Management:

- ***Fluralaner** (*Bravecto**): single dose given PO (author's experience)
- **Selamectin** (*Revolution**): three applications two weeks apart
- ***Moxidectin and imidacloprid** (*Advantage Multi**): Apply single dose once every two weeks for three treatments (not recommended for avermectin-sensitive breeds).
- ***Ivermectin** (injectable, 1%): 0.4 mg/kg PO once weekly (not recommended for at-risk breeds). For a list of breeds visit vcpl.vetmed.wsu.edu
- **Lime sulphur dipping**: once weekly for four treatments

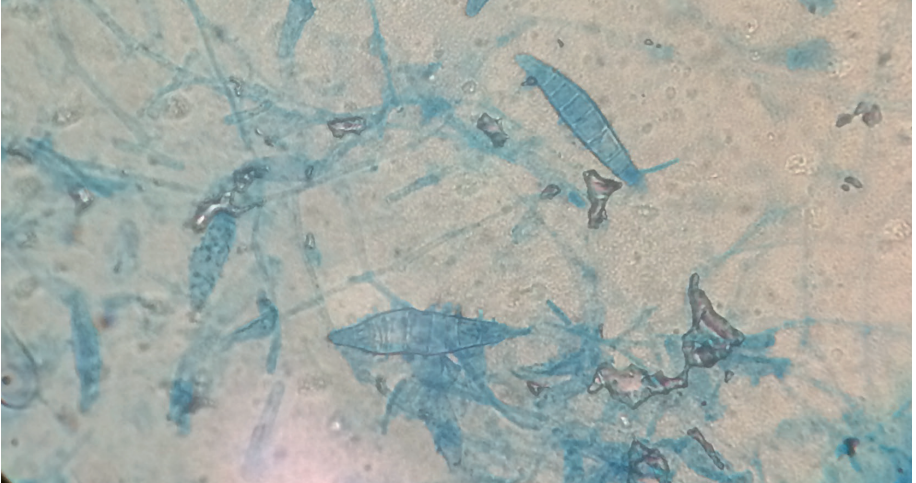
RECOMMENDED
NUTRITIONAL
SUPPORT:
See back for details

**Derm
Complete**

Derm Complete
PUPPY

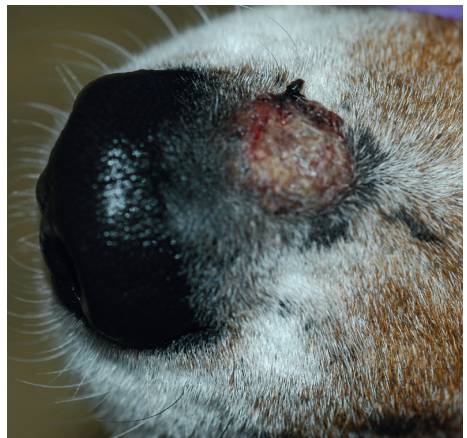
*Off-label treatments in some geographies

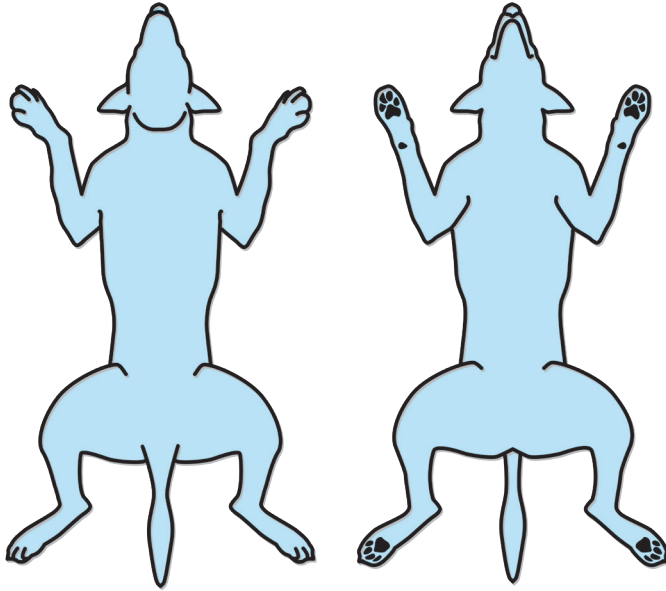
dermatophytosis



Signs include:

- Pruritus: none to moderate
- Well circumscribed erythema, papules, pustules, crusts, alopecia, seborrhea
- \pm Wood's lamp positive (50% of *Microsporum canis* cases)





Management:

SYSTEMIC THERAPY

- **Terbinafine** 30 mg/kg PO q 24 hrs
- **Itraconazole** 5-10 mg/kg PO q 24 hours; after first two weeks may consider pulse one week on/one week off therapy
- **Fluconazole** 5-10 mg/kg PO q 24 hours
- **Ketoconazole** 5-10 mg/kg PO q 24 hours

Reculture every 1-3 weeks to assess progress

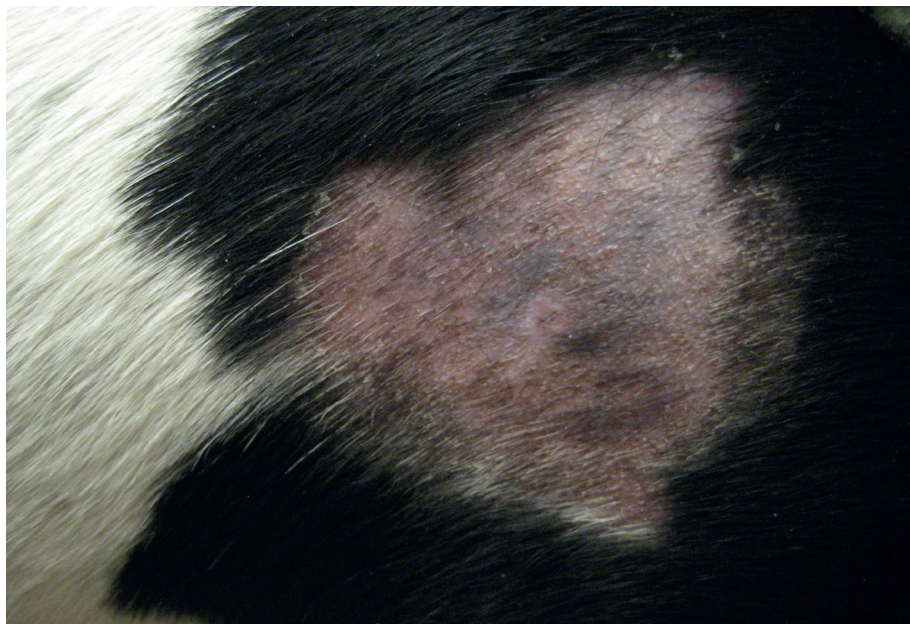
dermatophytosis



Management:

TOPICAL THERAPY

- Lime sulphur dips 1–2 times weekly
- Miconazole, enilconazole rinses
- Miconazole, ketoconazole shampoos
- Cream/ointment/lotions: for focal lesions
 - Ketoconazole
 - Miconazole
 - Clotrimazole
 - Terbinafine
- Separate positive from negative animals



Clean environment thoroughly on a regular basis, removing organic material

- Apply hypochlorite, accelerated hydrogen peroxide or benzalkonium chloride products according to label instructions
- Machine wash linens, bedding
- Treat until two negative cultures achieved

RECOMMENDED
NUTRITIONAL
SUPPORT:
See back for details

**Derm
Complete**

Derm Complete
PUPPY

elimination food trial

A well-performed elimination food trial is necessary to diagnose and differentiate food allergy from environmental allergy in dogs with non-seasonal allergic dermatitis.

Serum tests for food allergens can have both false negative and false positive results, and are not a reliable means of diagnosing and differentiating food allergy and environmental allergy.¹

Technique:

- Determine all current and past foods, treats, supplements and flavoured medications to select an appropriate elimination food
- Treat secondary infection and prevent recurrence with maintenance application of topical antimicrobial products at least once weekly
- Treat pruritus initially during the trial:
 - Oclacitinib
 - Corticosteroids (prednisone/prednisolone, *Temaril-P*[†])
 - Antihistamines
- Offer support and encouragement to clients for enhanced compliance
- Recheck midway through the trial to assess for secondary infections and compliance
- Discontinue antipruritic medications prior to assessment of efficacy
- Avoid/eliminate flavoured medications
- Perform the food trial for a minimum of eight weeks, as 90% of food allergic patients will have significant pruritus reduction in eight weeks
- Continue the food for 12 weeks if partial pruritus reduction has occurred in eight weeks to see if complete resolution is achieved

¹Hardy JL, Hendricks A, Loeffler A, *et al*. Food-specific serum IgE and IgG reactivity in dogs with and without skin disease: lack of correlation between laboratories. *Vet Dermatol*. 2014;25(5):447-e70.



Choose hydrolyzed protein food as the first choice to diagnose/rule out Adverse Food Reaction

If food allergen is known or suspected, choose a novel protein, single carbohydrate food

If dog is a puppy, choose a novel protein, single carbohydrate food, adapted to growth

z/d

**z/d
Low Fat**

TREATS:

- Hill's Hypoallergenic Treats

HIDING PILLS:

- Use canned version of Prescription Diet z/d pet food

d/d

Derm Complete

TREATS:

- Hill's Hypoallergenic Treats
- The same protein and/or carbohydrate source may be used as a treat

HIDING PILLS:

- Use canned version of Prescription Diet d/d or Derm Complete pet food

Derm Complete

PUPPY

adverse food reaction

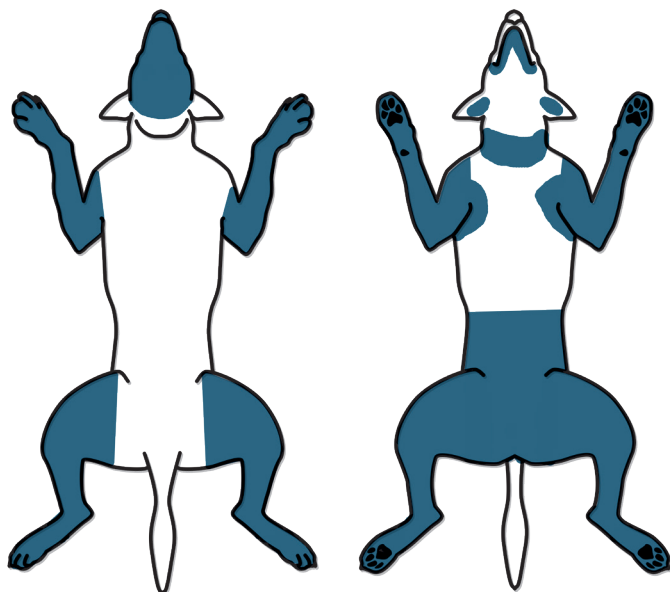


Signs include:

Pruritus: mild to severe

- Erythema, seborrhea, alopecia due to self-trauma, excoriations
- \pm otitis externa
- Hyperpigmentation and lichenification, if chronic
- Secondary staphylococcal and *Malassezia* infections common





Management:

d/d

Hill's Hypoallergenic Treats

z/d

z/d Low Fat

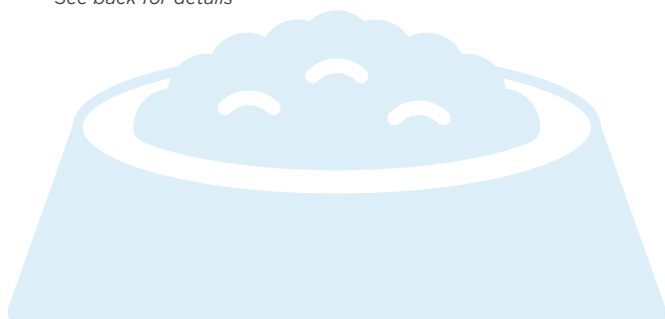
**Derm
Complete**

Derm Complete

PUPPY

if dog is
a puppy <1 year

See back for details



atopic dermatitis ►

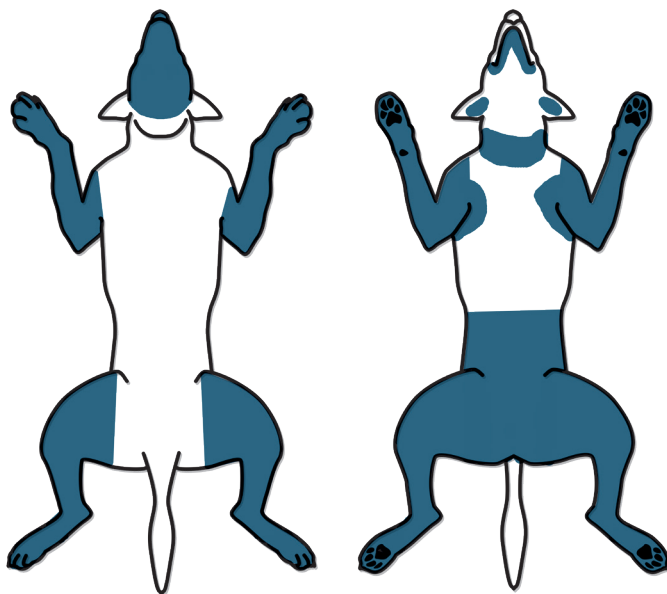
atopic dermatitis



Signs include:

- Pruritus: mild to severe
- Erythema, seborrhea, alopecia due to self-trauma, excoriations
- \pm otitis externa
- Hyperpigmentation and lichenification, if chronic
- Secondary staphylococcal and *Malassezia* infections common





Management:

- **Oclacitinib** (*Apoquel*[†]) 0.4-0.6 mg/kg BID for up to 14 days, then q 24 hours
- **Canine Atopic Dermatitis Immunotherapeutic** (Cytopoint[†]) injected every 28 days at the recommended dose for the patient's weight
- **Cyclosporine** (*Atopica*[†]) 5 mg/kg day PO q 24 hours: may take up to eight weeks for maximal effect. Capsules may be stored in freezer; this may reduce vomiting
- **Allergen-specific immunotherapy** — subcutaneous dosing and sublingual dosing. This treatment may take up to 12 months to reduce pruritus

RECOMMENDED
NUTRITIONAL
SUPPORT:

See back for details

**Derm
Defense**

**Derm
Complete**

Derm Complete

PUPPY

PRESCRIPTION DIET

Derm Complete

with
**HistaGuard Complex
and novel protein**

Supported by 4 clinical studies, **Hill's Prescription Diet Derm Complete** is the go-to clinical nutrition formulated to help manage environmental & food allergies in dogs with dermatological issues. Recommending Derm Complete from the first visit onwards supports your patient's road to recovery right from the first bowl.

Made with egg as a single intact animal protein source and can be used in over 95% of cases of adult dogs with allergies²

Visible improvement in skin conditions in as little as 21 days in dogs with food allergies³

Histaguard Complex, a proprietary blend of bioactives and phytonutrients helps to normalise the immune system reaction to environmental allergens.



**Formulated to help
reduce common
allergy symptoms:**

- Licking
- Scratching
- Headshaking
- Skin redness

**82% of pet parents
reported less scratching⁴**

²Mueller RS, Olivry T, Pr  laud P. Critically appraised topic on adverse food reactions of companion animals (2): common food allergen sources in dogs and cats. BMC Vet Res. 2016;12:9.

³Wernimont et al. Evaluation of clinical signs related to adverse food reaction (AFR) in dogs using a new behaviour-recognition approach. Veterinary Dermatology 2020; 31:S1103.

⁴Hill's data on file. Clinical nutrition for the management of dogs with environmental sensitivities.

PRESCRIPTION DIET

Derm Defense

with HistaGuard Complex

Supports skin health and skin barrier to help protect from environmental irritants

With bioactives and phytonutrients to support healthy immune response

High levels of omega-3 and 6 fatty acids drives healthy skin from within



Prescription Diet Derm Defense is clinical nutrition with HistaGuard Complex — formulated to reduce signs of environmental allergies by **disrupting the internal allergy response and creating a barrier** against future episodes

adverse reactions to food

PRESCRIPTION DIET

z/d

Hydrolysed Protein

Increased levels of essential fatty acids & high levels of vitamin E help promote a healthy skin barrier

With hydrolysed animal protein to help minimise signs of adverse food reactions

With a proven blend of prebiotic fibres that helps provide excellent stool quality

z/d Low Fat

Hydrolysed Protein, Low Fat Formula

Formulated with highly digestible, hydrolysed soy protein and a low fat recipe to avoid adverse food reactions

Enriched with essential omega-6s and omega 3s from fish oil to support a healthy skin barrier

With a proprietary blend of prebiotics shown to rapidly activate the gut microbiome to support digestive health and overall well-being

Prescription Diet z/d is clinically proven to **improve GI signs in 21 days^{5,6}** and **derm signs in 30 days⁵**

Prescription Diet z/d Low Fat manages **allergies & promotes healthy skin** in dogs with concurrent **food & fat sensitivities**



⁵Loeffler A, Lloyd DH, Bond R, *et al.* Dietary trials with a commercial chicken hydrolysate diet in 63 pruritic dogs. Vet Rec. 2004;154:519-522.

⁶Fritsch DA, MacLeay JM. Clinical study to evaluate the efficacy of Prescription Diet z/d Canine in the management of dogs with chronic diarrhoea. Data on file.

PRESCRIPTION DIET

d/d

Novel Protein

Hypoallergenic - helps reduce food intolerances and supports skin health

With high levels of omega-3 fatty acids to help maintain a healthy skin barrier

Limited ingredient nutrition with single animal protein



Prescription Diet d/d is clinically proven to show visible **skin and coat improvement** in just 4 weeks⁷

d/d Single Protein Variants

Canine

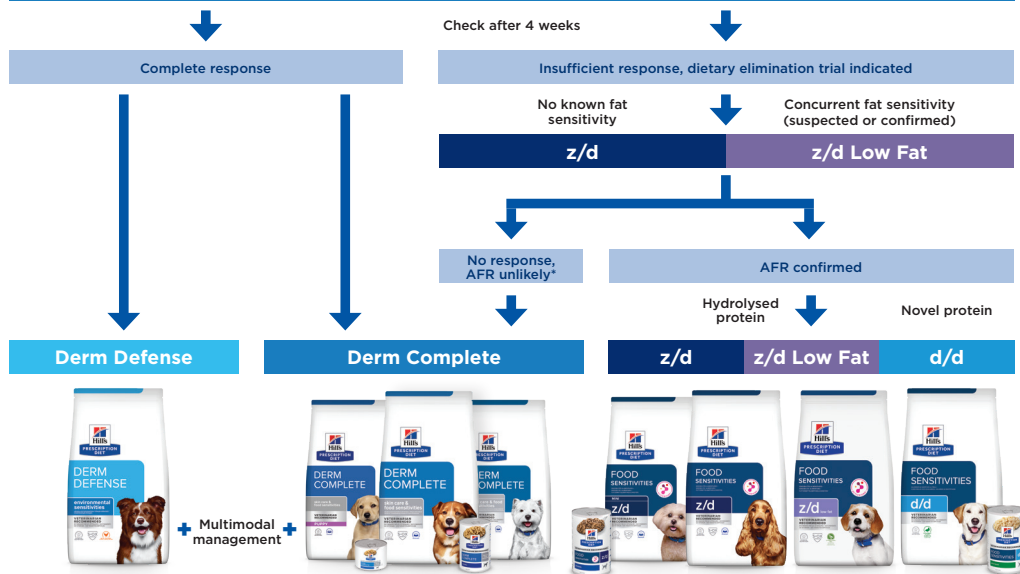
DUCK

⁷Fritsch DA, Roudebush P, Allen TA, et al. Effect of two therapeutic foods in dogs with chronic nonseasonal pruritic dermatitis. *Intern J Appl Res Vet Med*. 2010;8(3):146-154.

Nutritional management of dogs with skin conditions



Initial management with DERM COMPLETE: Recommended for all skin conditions except known allergy to eggs or fat sensitivity

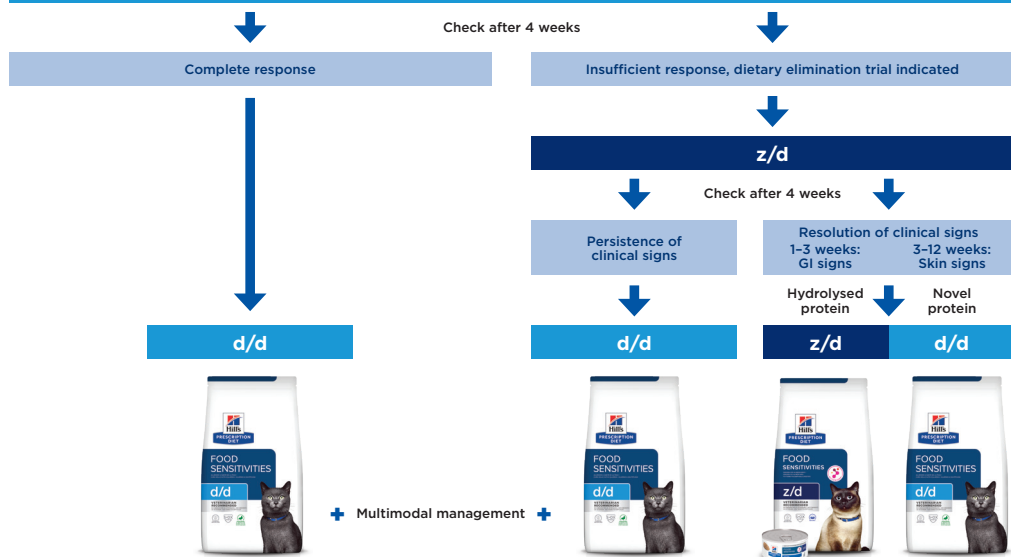


* for dogs with fat sensitivities, call your local VCS

Nutritional management of cats with skin conditions



d/d: Exclude or treat ectoparasites, bacterial and yeast infections



Puppies of All Sizes with Skin Conditions

Recommended for all skin conditions except known allergy to egg. Treat skin infections when needed



Recheck in 8 weeks
(2-3 weeks if managing skin infections)

**Insufficient
Response**

**Sufficient
Response**



Derm Complete Puppy Derm Complete Puppy

+ Multimodal
therapy as needed



Derm Complete	Derm Defense
z/d	d/d
z/d Low Fat	

*Nexgard, Fluralaner, Simparica, Cytoint, Bravecto, Advantage Multi, Mitaban, Revolution, Temaril-P, Apoquel and Atopica are registered trademarks of their respective owners with no connection or relationship to Hill's.





Transforming Lives

**SCIENCE
DID THAT.**