

## Canine Food Hypersensitivity (canine cutaneous adverse food reaction)

### Features

Canine food hypersensitivity is an adverse reaction to a food or food additive. It can occur at any age, in recently weaned puppies to elderly dogs that have been eating the same dog food for years. Approximately 30% of dogs diagnosed with food allergy are younger than 1 year of age. It is common in dogs.

Canine food hypersensitivity is characterized by nonseasonal pruritus that may or may not respond to steroid therapy. This pruritus may be regional or generalized and usually involves the ears, feet, inguinal or axillary areas, face, neck, and perineum. Affected skin is often erythematous, and a papular rash may be present. Self-trauma-induced lesions include alopecia, excoriations, scales, crusts, hyperpigmentation, and lichenification. Secondary superficial pyoderma, *Malassezia* dermatitis, and otitis externa are common. Other symptoms that may be seen are acral lick dermatitis, chronic seborrhea, and recurring pyotraumatic dermatitis. Some dogs are minimally pruritic, with the only symptom being recurrent infection with pyoderma, *Malassezia* dermatitis, or otitis. In these cases, the pruritus is present only when secondary infections are left untreated. Occasionally, urticaria or angioedema may occur. Concurrent gastrointestinal signs (e.g., frequent bowel movements, vomiting, diarrhea, flatulence) are occasionally reported.

### Top Differentials

Differentials include other hypersensitivities (atopy, flea bite, contact), parasites (scabies, cheyletiellosis, pediculosis), folliculitis (caused by bacteria, dermatophyte, *Demodex*), and *Malassezia* dermatitis.

### Diagnosis

1. Rule out other differentials.
2. Dermatohistopathology (nondiagnostic): varying degrees of superficial perivascular dermatitis. Mononuclear cells or neutrophils may predominate. Eosinophils may be more numerous than in atopy
3. Food allergy testing (intradermal, serologic): not recommended because test results are unreliable. Some dogs will have positive reactions to storage mite antigens, which may be clinically relevant, or they may exhibit cross-reactivity with other insects. Storage mites are ubiquitous, and their clinical significance is currently unknown.
4. Response to hypoallergenic diet trial: symptoms improve within 10 to 12 weeks of initiation of

a strict home-cooked or commercially prepared restricted diet (one protein and one carbohydrate source). The hypoallergenic diet should not contain food ingredients previously administered in dog food, treats, or table scraps (Table 7-2), nor should flavored heartworm preventative, flavored medications, nutritional supplements, or chewable treats (i.e., pig ears, cow hooves, rawhide, dog biscuits, table food such as cheese or peanut butter to hide pills in) be administered during the hypoallergenic diet trial. Beef and dairy are the most common food allergens in dogs.

5. Provocative challenge: recurrence of symptoms within hours to days of reintroduction of suspect allergen into the diet.

### Treatment and Prognosis

1. Any secondary pyoderma, otitis externa, and *Malassezia* dermatitis should be treated with appropriate therapies. Controlling secondary infection is an essential component of managing food-allergic dogs.
2. A flea control program should be instituted to prevent flea bites from aggravating the pruritus.
3. Offending dietary allergen(s) should be avoided. A balanced home-cooked diet or a commercial hypoallergenic diet should be provided.
4. To identify offending substances to be avoided, one new food item should be added to the hypoallergenic diet every 2 to 4 weeks. If the item is allergenic, clinical symptoms will recur within 7 to 10 days. *Note:* Some dogs (approximately 20%) should be fed home-cooked diets to remain symptom-free. For these dogs, commercial hypoallergenic diets are ineffective, presumably because their hypersensitivity relates to a food preservative or dye.
5. Alternatively, medical therapy alone with systemic glucocorticoids, antihistamines, fatty acids, or topical therapies as described for canine atopy can be attempted. However, response is variable.
6. For some dogs whose only symptom is recurring superficial pyoderma, control may be achieved with long-term, low-dose antibiotic therapy alone. Cephalexin 20 mg/kg PO is administered every 8 hours, or 30 mg/kg every 12 hours (minimum, 4 weeks), and is continued at least 1 week beyond complete clinical resolution of the pyoderma. Cephalexin is then continued as maintenance therapy at 30 mg/kg PO every 24 hours.
7. For recurrent otitis, the owner should perform at-home ear cleaning every 2 to 7 days with a cerumi-

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TABLE 7-2

**Commercial Hypoallergenic Diets for Dogs**

Manufacturer	Product	How Supplied	Main Ingredients
Hills	Prescription Diet Canine d/d Lamb and Rice	Canned	Rice, lamb, lamb liver, rice flour, powdered cellulose, vegetable oil
	Prescription Diet Canine d/d Whitefish and Rice	Canned	Whitefish, rice, rice flour, animal fat, powdered cellulose, vegetable oil
	Prescription Diet Canine d/d Rice and Salmon	Dry	Brewers' rice, salmon, rice protein concentrate, animal fat, vegetable oil, sucrose
	Prescription Diet Canine d/d Rice and Duck	Dry	Brewers' rice, duck by-products, rice protein concentrate, animal fat, vegetable oil, sucrose
	Prescription Diet Canine d/d Rice and Egg	Dry	Brewers' rice, dried egg product, animal fat, vegetable oil, sucrose
	Prescription Diet Canine z/d	Dry	Dried potato products, hydrolyzed chicken liver, potato starch, vegetable oil, hydrolyzed chicken
	Prescription Diet Canine z/d Ultra	Dry	Starch, hydrolyzed chicken liver, vegetable oil, hydrolyzed chicken
Iams	Eukanuba Veterinary Diets Response FP Formula	Canned	Catfish, herring meal, modified potato starch, dried beet pulp, corn oil
		Dry	Potato, herring meal, catfish, animal fat, dried beet pulp, fish digest
Innovative Veterinary Diets	Eukanuba Response KO Kangaroo and Oatmeal	Dry	Oat flour, kangaroo, canola meal, animal fat, dried beet pulp, fish oil
	Limited Ingredient Lamb and Potato	Canned	Potato, lamb stock, lamb, lamb by-products, canola oil, salmon oil
		Dry	Dehydrated potatoes, lamb, lamb meal, potato protein, canola oil, potato fiber, salmon oil
	Limited Ingredients Venison and Potato	Canned	Potato, venison stock, venison, venison by-products, canola oil, salmon oil
		Dry	Dehydrated potatoes, venison, potato protein, canola oil, potato fiber, salmon oil
	Limited Ingredient Rabbit and Potato	Canned	Potato, rabbit, rabbit stock, rabbit by-products, canola oil, salmon oil
		Dry	Dehydrated potatoes, rabbit, potato protein, canola oil, potato fiber, salmon oil
	Limited Ingredient Duck and Potato	Canned	Potatoes, duck, duck stock, duck by-products, canola oil, salmon oil
Dry		Dehydrated potatoes, duck, duck meal, potato fiber, canola oil, salmon oil	
Innovative Pet Foods	Limited Ingredient Whitefish and Potato	Canned	Potatoes, whitefish, fish stock, canola oil, salmon stock
		Canned	Lamb stock, lamb, soybean meal, ground rice, potatoes, carrots, lamb by-products, canola oil, lamb liver, ground barley
	Nature's Recipe Easy-to-Digest Lamb, Lamb Meal, Rice and Barley Formula	Dry	Lamb meal, ground rice, cracked pearl barley, animal fat, natural flavor, tomato puree
		Canned	Soybean meal, ground rice, carrots, potatoes, ground barley, canola oil
Pet Products Plus, Inc	Nature's Recipe Allergy Vegetarian Formula	Dry	Ground rice, soy flour, cracked pearl barley, canola oil
		Canned	Venison stock, venison meal, venison by-products, potatoes, carrots, ground rice, canola oil, peas, ground barley
	Sensible Choice With Lamb and Rice	Canned	Lamb, brewers' rice
Dry		Lamb meal, brewers' rice, rice flour, rice gluten, poultry fat	
Sensible Choice Lamb Meal and Rice Puppy	Dry	Dry	Lamb meal, brewers' rice, rice gluten, rice flour, poultry fat

TABLE 7-2

**Commercial Hypoallergenic Diets for Dogs—cont'd**

Manufacturer	Product	How Supplied	Main Ingredients
Purina	CNM HA-Formula	Dry	Corn starch, modified isolated soy protein, coconut oil, canola oil
	CNM LA-Formula	Dry	Brewers' rice, salmon meal, trout, canola meal, tallow, brewer's dried yeast, canola oil, fish oil
Waltham	Waltham Veterinary Diet Selected Protein With Lamb and Rice	Canned	Lamb by-products, lamb, rice
	Waltham Veterinary Diet Selected Protein With Rice and Catfish	Dry	Rice, catfish meal, rice gluten, cellulose powder, catfish, vegetable oil
Nutro Products, Inc	Natural Choice Lamb and Rice Formula	Canned	Lamb broth, lamb, lamb liver, rice gluten, ground rice, dried egg product
		Dry	Lamb meal, ground rice, rice bran, rice flour, sunflower oil, rice gluten, dried egg product
	Natural Choice Lite Lamb and Rice Formula	Canned	Lamb broth, lamb, barley, defatted rice bran, rice gluten, ground rice, peas, lamb liver
		Dry	Rice flour, lamb meal, rice bran, ground rice, sunflower oil, dried egg product, rice gluten
Natural Choice Puppy, Lamb and Rice Formula	Canned	Lamb broth, lamb liver, lamb, lamb kidney, dried egg product, ground rice, rice gluten	

nolytic agent (that does not need to be flushed out) to prevent accumulation of ear wax and debris. Lifelong weekly ear cleaning may be necessary to prevent relapses of otitis. The use of cotton swabs (which may damage the epithelium) is not recommended.

8. The prognosis is good. In dogs that are poorly controlled, owner noncompliance should be ruled out, along with development of hypersensitivity to an ingredient in the hypoallergenic diet, secondary infection (caused by bacteria, *Malassezia*, dermatophyte), scabies, demodicosis, atopy, flea allergy dermatitis, and contact hypersensitivity.



**FIGURE 7-24 Canine Food Hypersensitivity.** Severe periocular dermatitis (alopecia, erythema, and hyperpigmentation) is a common finding in allergic dogs.



**FIGURE 7-25 Canine Food Hypersensitivity.** Alopecia, erythema, and excoriations around the eye and ear. The crusting papular rash is due to a secondary superficial pyoderma associated with the allergic disease.