

**Dermatological Disorders**

FOOD ALLERGY AND FOOD INTOLERANCE

Food allergies and food intolerances are types of adverse food reactions. They differ from other types of adverse food reactions, such as toxicities, in that they are instances of an abnormal response to a “normal” food.



The reported prevalence of food allergies and food intolerances in the scientific literature varies, at least in part, due to differences in the patient populations evaluated and the diagnostic methods used.¹ A 9–40% prevalence was reported for dogs presented to a specialty practice or university hospital for pruritus.¹ Up to 24% of dogs presented for skin conditions at a specialty practice or university were diagnosed with food allergy or intolerance versus only 0.4% of dogs presented for skin conditions in general practice.^{1,2} Up to 21% of cats presented to a university hospital for pruritus were diagnosed with food allergy or intolerance, yet only 0.2% of all feline patients presented to a university hospital had the same diagnosis.¹

When a pet has an unexpected adverse reaction to a normal food, oftentimes the assumption is the pet has a food allergy, but the issue may be a food intolerance. However, while the etiologies are different, food allergies and food intolerances have similar clinical signs and are diagnosed and managed nutritionally in similar, if not the same, way.³

Key Messages

- Food allergies are immune-mediated reactions to a component of the food known as an allergen. Allergens are proteins. An allergy typically develops after repeated exposure to the offending allergen.⁴
 - The most common food allergens come from beef, dairy, and chicken in dogs, and beef, fish, and dairy in cats.^{4,5}
 - The most common pet food allergens are the proteins found most often in pet diets. Pets are exposed to them more frequently than other dietary protein sources, which provides increased opportunity to develop an allergy.³
- Food intolerances are not recognized as having a specific immune component. They can occur anytime, on first or later exposure to the food.⁴
 - Metabolic food intolerances can result from a digestive enzyme deficiency, e.g., lactose intolerance due to low levels of the enzyme lactase in the small intestine.⁶ Lactase levels decrease in puppies and kittens after weaning,⁷ but lactose intolerance remains uncommon.
 - Idiopathic food intolerances, as the name implies, are those instances in which individual pets have an adverse reaction to foods or ingredients well tolerated by most pets, with no known cause for the adverse reaction.⁶

(continued on next page)

Key Messages (continued)

- Food allergies and intolerances typically cause dermatological and/or gastrointestinal signs in pets.⁸
 - The most common dermatological sign is a non-seasonal pruritus, often generalized in dogs or affecting the ears, feet, abdomen, and/or face, and in cats, frequently localized to the face, head, and neck.⁹ Subsequent scratching can lead to erythema, recurrent skin infections, and/or alopecia. Dogs may present with otitis externa, which can be the only clinical sign,¹ and cats may present with miliary dermatitis.^{8,9}
 - In pets with allergic skin disease, food allergy is less common than atopy (environmental allergens, e.g., pollen) and/or flea allergic dermatitis.⁴ Among pets presenting with dermatological signs in general practice, atopy or flea allergic dermatitis was diagnosed 20 times more frequently than food allergy in dogs, and flea allergic dermatitis 4 times more often in cats.²
 - Gastrointestinal signs include diarrhea, vomiting, and more frequent defecation.⁸
 - Pets with both dermatological and gastrointestinal signs are more likely to have a food sensitivity than atopy.^{10,11}
- The gold standard for diagnosis of a food allergy or intolerance is a diet elimination trial.^{4,8}
- Long-term nutritional management of pets with a confirmed food allergy or intolerance involves avoiding the identified allergen or ingredient, or continuing the hydrolyzed, amino acid-based, or complete and balanced novel protein diet used in the elimination trial.⁴

References

1. Olivry, T., & Mueller, R. S. (2017). Critically appraised topic on adverse food reactions of companion animals (3): Prevalence of cutaneous adverse food reactions in dogs and cats. *BMC Veterinary Research*, 13(1), 51. doi: 10.1186/s12917-017-0973-z
2. Hill, P. B., Lo, A., Eden, C. A. N., Huntley, S., Morey, V., Ramsey, S., Richardson, C., Smith, D. J., Sutton, C., Taylor, M. D., Thorpe, E., Tidmarsh, R., & Williams, V. (2006). Survey of the prevalence, diagnosis and treatment of dermatological conditions in small animals in general practice. *Veterinary Record*, 158(16), 533–539. doi: 10.1136/vr.158.16.533
3. Mandigers, P., & German, A. J. (2010). Dietary hypersensitivity in cats and dogs. *Tijdschrift voor Diergeneeskunde*, 135(19), 706–710.
4. Verlinden, A., Hesta, A., Millet, S., & Janssens, G. P. J. (2006). Food allergy in dogs and cats: A review. *Critical Reviews in Food Science and Nutrition*, 46, 259–273. doi:10.1080/10408390591001117
5. Mueller, R. S., Olivry, T., & Prélud, P. (2016). Critically appraised topic on adverse food reactions of companion animals (2): Common food allergen sources in dogs and cats. *BMC Veterinary Research*, 12, 9. doi: 10.1186/s12917-016-0633-8
6. Gaschen, F. P., & Merchant, S. R. (2011). Adverse food reactions in dogs and cats. *Veterinary Clinics of North America: Small Animal Practice*, 41(2), 361–379. doi:10.1016/j.cvsm.2011.02.005
7. Craig, J. M. (2019). Food intolerance in dogs and cats. *Journal of Small Animal Practice*, 60, 77–85. doi: 10.1111/jsap.12959
8. Mueller, R. S., & Unterer, S. (2018). Adverse food reactions: Pathogenesis, clinical signs, diagnosis and alternatives to elimination diets. *The Veterinary Journal*, 236, 89–95. doi: 10.1016/j.tvjl.2018.04.014
9. Olivry, T., & Mueller, R. S. (2019). Critically appraised topic on adverse food reactions of companion animals (7): Signalment and cutaneous manifestations of dogs and cats with adverse food reactions. *BMC Veterinary Research*, 15(1), 140. doi: 10.1186/s12917-019-1880-2
10. Hobi, S., Linek, M., Marignac, G., Olivry, T., Beco, L., Nett, C., Fontaine, J., Roosje, P., Bergvall, K., Belova, S., Koebrick, S., Pin, D., Kovalik, M., Meury, S., Wilhelm, S. & Favrot, C. (2011). Clinical characteristics and causes of pruritus in cats: A multicentre study on feline hypersensitivity-associated dermatoses. *Veterinary Dermatology*, 22(5), 406–413. doi: 10.1111/j.1365-3164.2011.00962.x
11. Picco, F., Zini, E., Nett, C., Naegeli, C., Bigler, B., Rüfenacht, S., Roosje, P., Ricklin Gutzwiller, M. E., Wilhelm, S., Pfister, J., Meng, E., & Favrot, C., (2008). A prospective study on canine atopic dermatitis and food-induced allergic dermatitis in Switzerland. *Veterinary Dermatology*, 19(3), 150–155. doi: 10.1111/j.1365-3164.2008.00669.x

The Purina Institute aims to help put nutrition at the forefront of pet health discussions by providing user-friendly, science-based information that helps pets live longer, healthier lives.