



NUTRITION NOTES

5 Common Elimination Diet Trial Mistakes

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Abstract

Elimination diet trials are valuable for diagnosing and treating/managing adverse food reactions. Providing client education about elimination diet trials is a crucial task for which veterinary nurses are well suited. Before starting a pet on an elimination diet trial, veterinary nurses should educate clients about what to do and what to expect so they can avoid common mistakes associated with food trials.



Take-Home Points

- The most common mistakes made during elimination diet trials are:
 - Feeding the pet a protein or carbohydrate source that is not novel for the elimination diet.
 - Allowing the pet to consume food sources other than the elimination diet.
 - Failing to continue the trial for a long enough duration.
 - Confusing tolerance with a misdiagnosis.
 - Improperly storing the elimination diet.

Adverse food reactions (AFRs) are a common problem that may cause cutaneous and/or gastrointestinal signs in dogs and cats. AFRs result from multiple causes, including food allergy and food intolerance (**FIGURE 1**). The terms “food allergy” and “food hypersensitivity” are reserved for AFRs associated with immune dysfunction. The term “food intolerance” refers to AFRs resulting from nonimmunologic mechanisms. Food intolerance reactions do not involve immunoglobulin E (IgE), and the mechanisms behind food intolerance are unclear; however, intolerance AFRs are more likely to be delayed several hours and sometimes up to several days after the offending food is eaten, as opposed to food allergies, for which onset of AFRs can be rapid.

Before a nutritional cause of an AFR can be confirmed, a complete diagnostic workup must be performed, including fecal analysis for patients with gastrointestinal signs. Clients, however, can commonly recognize their pet’s food allergy or intolerance, even before seeking veterinary attention, especially for pets with dermatologic signs since the skin is the largest organ of the body and relies heavily on nutrients from food. When nutrition becomes suboptimal, the first organ to exhibit the effects is usually the skin. Clients can easily detect some signs of skin deterioration (e.g., loss of coat sheen, coat shedding, greasy and scurfy hair at the skin surface); for some patients, signs of skin deterioration occur too slowly for clients to notice. Clients may not notice a difference until the cause of deterioration is resolved (e.g., through feeding a different diet). When a pet’s skin condition improves

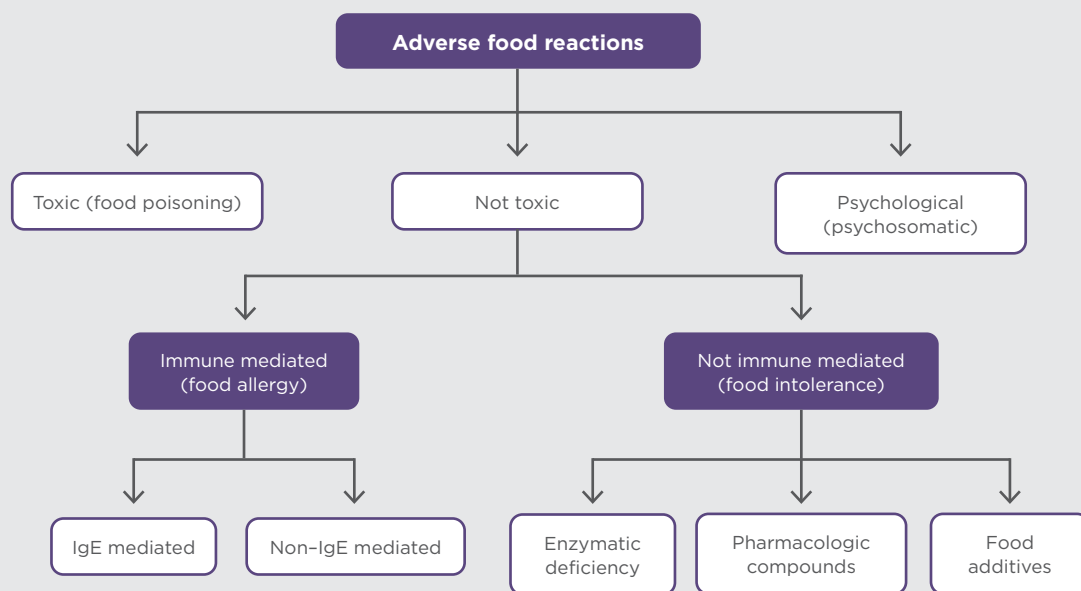


FIGURE 1. Types of adverse food reactions. *IgE*=immunoglobulin E



after a pet is fed one of the many commercially available gluten-free, grain-free, and/or hypoallergenic diets, clients often assume that their pet had an allergy or intolerance to certain food ingredients.

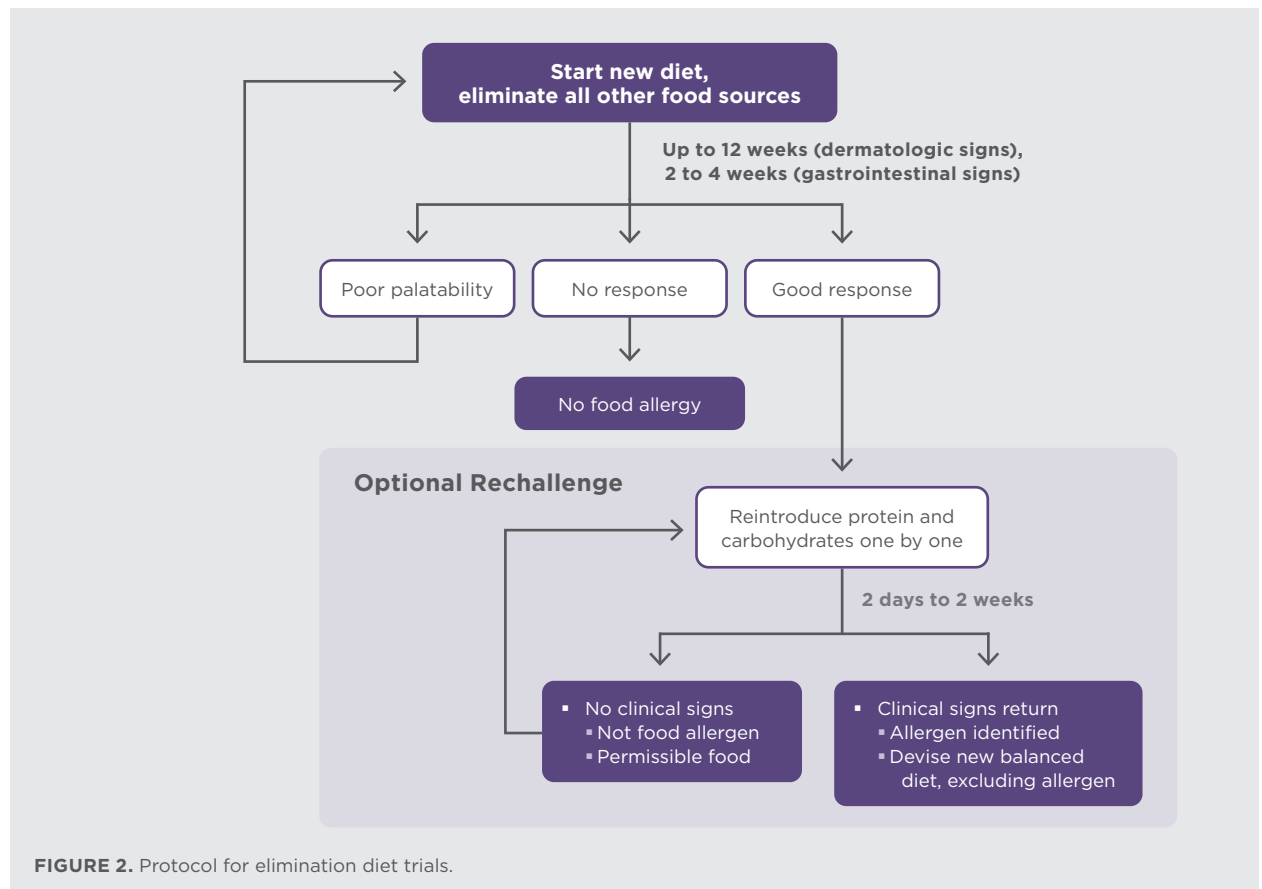
Determining the cause of AFRs requires taking a complete diet history, including all commercial foods, snacks and treats, supplements, chewable/palatable medications and vitamins, chew toys, human food, and any food that the patient may have had access to at any point in its life. Clients should be actively encouraged to keep a food diary for their pet with AFRs. Veterinary nurses are in an ideal position to help clients accurately represent what their pet consumes, educate them, and help them comply with elimination diet trial requirements.

INDICATIONS FOR ELIMINATION DIET TRIALS

Food intolerance and/or allergy can lead to dermatologic and/or gastrointestinal disease; thus, elimination diet trials are indicated for patients for

which food intolerance or food allergy is suspected. Food allergy may play a role in canine and feline irritable bowel disease/disorder (IBD). It is thought that hypersensitivity to food may be involved in the pathogenesis of IBD. Elimination diet trials can often alleviate the signs of IBD, which implies a potential role of food allergies or food intolerance.

Dermatologists suggest that only 1% to 6% of all dermatoses seen in practice relate to AFRs and that food accounts for 10% to 20% of allergic responses in dogs and cats.¹ Understanding food intolerance is not as clear-cut as food allergies because quantitative biochemical markers for diagnosis and monitoring are limited. Although not life-threatening, food intolerance can, and often does, make the patient feel extremely unwell and can affect quality of life for those severely affected. Clinical signs caused by food intolerance are numerous but have been frequently associated with gastrointestinal signs (e.g., bloating, diarrhea, constipation, IBD) and dermatoses (e.g., eczema).² Specific food additives that are known to be poorly tolerated include onions and propylene glycol, which





can cause hematologic abnormalities in cats.² Lactose intolerance is a relatively common metabolic adverse reaction in dogs and cats.³ Diarrhea can develop in dogs and cats fed cow's or even goat's milk because lactose content is higher than that in bitches' or queens' milk.⁴ Gluten-sensitive enteropathy has been documented in 1 line of Irish setters, which has since been discontinued.⁵

ELIMINATION DIET CONSIDERATIONS

Elimination diet trials are conducted to help determine which food ingredients may be causing intolerance or allergy. They are useful for diagnosing the causal nutritional agent for dermatologic and gastrointestinal disease. During an elimination diet trial, the patient is fed a diet without the ingredient(s) suspected of causing allergy or intolerance and then later fed diets reintroducing the suspected ingredient(s) to see whether the clinical signs reappear.

Designing or recommending an elimination diet requires certain considerations (**FIGURE 2**). Review the diet history sheets and diaries to determine what the animal has been exposed to in the past. All trial diets must contain a limited number of protein sources, and the protein must be novel (i.e., not previously consumed by that patient). Excessive levels of protein should be avoided, and digestibility of the novel protein should be high. Elimination diets should also contain a limited amount of carbohydrates, and many contain a novel carbohydrate source (e.g., rice, potato, tapioca). Elimination diets should also be free of additives and excessive levels of vasoactive amines but nutritionally adequate for the animal's life stage and body score.

Hydrolyzed protein is highly digestible and can be used in elimination diets. Digestibility is relevant because the free amino acids and small peptides in hydrolyzed diets make poor antigens.⁶ Hydrolyzed diets contain a protein that has been reduced in size through hydrolysis so that after ingestion, the hydrolyzed protein is not recognized as an antigen and thus does not initiate an allergic immune response. Hydrolyzed diets are also advantageous because they remove the need to find the primary causal agent of the food allergy.

Elimination diets are available commercially or can be homemade. However, homemade diets are likely to be nutritionally inadequate for maintenance. Many

homemade diets lack sources of calcium, essential fatty acids, vitamins, and other micronutrients. They can also contain excessive levels of protein. The veterinary team should instruct clients who insist on feeding homemade diets on how to ensure the diet is nutritionally balanced.

COMMON ELIMINATION DIET TRIAL MISTAKES

Elimination diet trials need to be performed over several weeks to months, and full compliance by the client is required. Compliance is difficult due to the need for clients to remember everything their pet has consumed, the long trial duration, unintentional feeding of the pet by people not familiar with trial requirements, false interpretations of early or late results, and lack of knowledge of proper diet storage.

Common Mistake #1: The protein and carbohydrate sources are not novel

Elimination diets require novel protein and carbohydrate sources. Ensuring that the protein and carbohydrate sources are novel can be difficult. Non-novel sources can be inadvertently included in the diet if the dietary history is inadequate, if the client forgets about or is unaware of previous exposure to certain ingredients, or if the client does not recognize ingredients that are a protein source. For example, vegetables are high in protein but are not often viewed as a protein source.

Recommendation: If unsure what ingredients are novel for the patient, feed a hydrolyzed diet to remove the requirement to identify novel protein and carbohydrate source(s).

Common Mistake #2: Allowing the patient to ingest foodstuff other than the elimination diet

Clients, and anyone who has contact with the patient, should be aware that they need to strictly adhere to the elimination trial protocol. During the trial period, the patient should not be allowed to ingest any other foodstuff other than the elimination diet (i.e., no treats, flavored vitamins, chewable/palatable medications, fatty acid supplements, or chew toys). Even if the additional foodstuff is of the same novel protein or carbohydrate source or is a hydrolyzed protein, it can



During initial discussion of the trial, clients should be advised as to how long the trial will last.



include food additives, potential contamination, or additional ingredients. Palatable tablets need to be changed to those without flavoring.

Recommendation: Emphatically stress during the trial the importance of clients not feeding their pet anything except the elimination diet.

Common Mistake #3: Not continuing the trial long enough

Patients with dermatologic disease are fed the elimination diet for up to 12 weeks; patients with gastrointestinal disease can be fed the diet for less time, 2 to 4 weeks. Setting client expectations of trial duration at the outset is crucial for achieving compliance. The degree of clinical improvement during the elimination trial will be 100% only if food sensitivity is the sole cause. Elimination diet trial results are often difficult to interpret for patients with dermatologic disease due to possible concurrent allergic skin disease. Some patients can have a concurrent allergy to an environmental factor, and those patients may only partially respond to an elimination diet trial. Diagnosis of the cause of an AFR can be confirmed if the clinical signs reoccur within 10 to 14 days after the pet is challenged with its original diet.

Recommendation: During initial discussion of the trial, clients should be advised as to how long the trial will last.

Common Mistake #4: Prolonged continuation of the elimination diet

Prolonged use of elimination diets can build tolerance. When patients have not been exposed to the ingredients suspected of causing the AFR for weeks or months, they may not react (at least over the short term) to reintroduction of that ingredient. Such a phenomenon is called tolerance, and tolerance depends on the threshold of the frequency and the quantity of

elimination diet fed to a given patient. In other words, a patient may tolerate eating the reintroduced ingredient occasionally, but reintroducing it in large quantities or on a regular basis (e.g., every day) might lead to recurrence of signs.

Recommendation: Advise clients that at the end of the elimination diet trial tolerance to the suspected ingredient may have developed and that they need to continue to limit their pet's exposure to that ingredient. Tolerance does not mean that their pet's condition was misdiagnosed.

Common Mistake #5: Improper storage of the elimination diet

Allergies to house dust mites and storage mites are more common than allergies to pollens. Among dogs with atopic dermatitis, 94% have serum IgE against proteins from 1 or more species of storage mite.⁷ Positive reactions to *Acarus* mites are exhibited by 45% to 95% of atopic dogs, to *Tyrophagus* mites by 60% to 89%, and to *Dermatophagoides farinae* mites by 70% to 90%.^{7,8} Many clients anecdotally report seeing improvement in their dog's skin when feed is changed from a dry commercial kibble to raw, frozen, or wet diets. However, switching the diets themselves (i.e., ingredients and nutrient composition) was not the cause of the improvement, but rather the method of dry diet storage was the cause of the dermatitis. Mites have been found in 90% of studied dermatologic diets 5 weeks after opening.⁸ The longer a bag of dry food is open, the higher the likelihood of mite contamination. Wet foods and frozen foods remove the potential for mite contamination. Storage of the elimination diet is exceptionally important, as is the cleaning of food bowls and utensils involved in food preparation.

Recommendation: Advise clients to keep dry food in its original packaging and purchase no more than a month's supply at a time.⁹

SUMMARY

AFRs cause a variety of clinical signs involving skin and the gastrointestinal tract. Diagnosing the cause of AFRs requires a good diagnostic workup by the veterinarian, including an elimination diet trial. Elimination diet trials can be useful, but their interpretation can be difficult. Exceptionally good client guidance is needed before starting a patient on an elimination diet trial, and veterinary nurses can play a pivotal role. Clients

should be given written instructions describing the requirements of the elimination trial, feeding quantities, and contact information for an advising veterinary nurse if questions arise during the trial. **TVN**

References

1. Gaschen FP, Merchant SR. Adverse food reactions in dogs and cats. *Vet Clin North Am Small Anim Pract.* 2011;41(2):361-379. doi:10.1016/j.cvsu.2011.02.005
2. Craig JM. Food intolerance in dogs and cats. *J Small Anim Pract.* 2019;60(2):77-85. doi:10.1111/jsap.12959
3. Verlinden A, Hesta M, Millet S, Janssens GPJ. Food allergy in dogs and cats: a review. *Crit Rev Food Sci Nutr.* 2006;46(3):259-273. doi:10.1080/10408390591001117
4. Turnbull JL, Adams HN, Gorard DA. Review article: the diagnosis and management of food allergy and food intolerances. *Aliment Pharmacol Ther.* 2015;41(1):3-25. doi:10.1111/apt.12984
5. Hall EJ, Batt RM. Abnormal permeability precedes the development of a gluten sensitive enteropathy in Irish setter dogs. *Gut.* 1991;32(7):749-753. doi:10.1136/gut.32.7.749
6. Untersmayr E, Jensen-Jarolim E. The role of protein digestibility and antacids on food allergy outcomes. *J Allergy Clin Immunol.* 2008;121(6):1301-1308. doi:10.1016/j.jaci.2008.04.025
7. Arlian LG, Schumann RJ, Morgan MS, Glass RL. Serum immunoglobulin E against storage mite allergens in dogs with atopic dermatitis. *Am J Vet Res.* 2003;64(1):32-36. doi:10.2460/ajvr.2003.64.32
8. Brazis P, Serra M, Sellés A, Dethioux F, Biourge V, Puigdemont A. Evaluation of storage mite contamination of commercial dry dog food. *Vet Dermatol.* 2008;19(4):209-214. doi:10.1111/j.1365-3164.2008.00676.x
9. Gill C, McEwan N, McGarry J, Nuttall T. House dust and storage mite contamination of dry dog food stored in open bags and sealed boxes in 10 domestic households. *Vet Dermatol.* 2011;22(2):162-172. doi:10.1111/j.1365-3164.2010.00931.x

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Nicola works as the nutrition manager for IVC Evidensia. She graduated from Hartpury College with an honors degree in equine science and subsequently qualified as a veterinary nurse in 2002. Nicola has written for many veterinary publications and textbooks and is the editor of *Aspinall's Complete Textbook of Veterinary Nursing*. She is also one of the consultant editors for *The Veterinary Nurse* journal. Nicola has previously won the BVNA/Blue Cross Veterinary Nurse of the Year award and was awarded the BSAVA Bruce Vivash Jones Veterinary Nursing award for outstanding contributions to veterinary nursing. Nicola has earned her master's degree in advanced veterinary nursing from Glasgow University and is a board-certified veterinary technician specialist in nutrition.



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