

FOOD ALLERGY? STEP BY STEP TILL YOU GET TO THE HOME PREPARED DIET

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The right diet choice?

The playbook for choosing diets for cutaneous food reaction dogs has been a design that starts with the idea that protein in the culprit in most adverse food reactions, but not all. The proteins from animal sources are thought to be the most egregious and will lead us in directions, however we cannot completely rule out the proteins coming from other sources like grains, tubers and legumes in the formulation though less commonly thought to be an issue. In the US right now there is a push to eliminate soy, wheat and corn from diets which may be more financially driven than science driven as corn and soy have not been particularly popular in premium diets for some time, and adverse food reactions are still commonplace, which may be due to the complexity of food ingredients these days in commercial diets. In fact, corn and soy do not make the top 10 list as far as ingredients are concerned while examination reviews on the topic still suggest that beef and dairy are top allergens in dogs and cats, with poultry being more common for dogs and fish for cats which may be a reflection of what protein sources are commonly used in these two companion animal categories.(1)

On presentation of the atopic dog, food is one of the first things to modify that is easy to manipulate in the environment, and although less than 20% of dogs have true food allergy it is still something that can make an impact in some dogs and should be tried.(2) Over the years as a GP and the rising cost of specialized pet foods it becomes imperative to take a step-by-step approach which often includes a food change to a reputable novel ingredient or hydrolyzed diet as a first step in the process. Although there are a number of over-the-counter novel protein diets available it is likely best to choose a veterinary therapeutic diet for one reason only: cross contamination. It has been shown that most over the counter bought novel and limited ingredient diets will test positive for other protein sources not found on the label. Even in the hydrolyzed diet market there have been instances where PCR has identified other sources which are likely coming from cross contamination at the manufacturing site or the use of impure palatants that are often partially hydrolyzed animal ingredients that impart enhance flavor to the dry or wet product being produced (i.e. natural flavoring as labeled).(3,4)

This is not uncommon in third party manufacturers that make products for many companies. In good manufacturing practices all equipment will be cleaned twice before making a novel protein or hydrolyzed diet which is what has been confirmed when using reputable veterinary therapeutic diets. Bottom line is that these products are often tested to ensure that there is no cross contamination from major ingredients that are within the manufacturer's environment. I often utilize a veterinary therapeutic diet (usually novel protein) for 6-8 weeks to determine if it is helping the dog and then after 3 months if owners are willing to take a risk we will find a comparable commercial food from the local pet food store as a dietary trial using a less expensive option.(5) This has been hit or miss for me, so if affordable veterinary therapeutic diet should be continued if being used successfully. Dietary challenges are recommended to identify the offending allergen, but owners are usually not keen on this idea once the problem has been remedied.

Novel or Hydrolyzed?

Any approach can be taken – I often start with novel protein and then move to hydrolyzed diets, but many veterinarians and dermatologists will utilize the hydrolyzed diet as a first attempt particularly since many owners will have tried numerous other products and finding a novel protein diet can be difficult. In addition, there is data showing that hydrolyzed diets are relatively good for identifying adverse food reactions versus atopic dogs when doing challenge testing. In general, the response rate appears to be approximately 50% with one study showing nearly 90% of adverse food reaction dogs responding and they may even be mildly useful in the generalized atopic dog. (6-9) Hydrolyzed diets are often a better choice as they seem to be more successful in general with GI and dermatitis patients, when both are issues. The hydrolysis in many of these diets is not complete and will result in protein fragments below 10 kDa and it is commonly thought that 3 kDa and lower is truly hypoallergenic, however the palatability of these completely hydrolyzed diets can be challenging. Whether using a hydrolyzed soy, chicken or fish-based product I have seen modest success with all and find I am often choosing a specific brand of hydrolyzed diet due to co-morbidities or obesity issues more than the actual source of the protein. These products also use refined grain or tuber starches which are hypothetically less allergenic as well. Though fat sources are often implicated by owners there is debate as to whether the oil sources can have mild protein contamination, which is currently unknown, however ingredient suppliers say that due to the refined nature of the oils used this is unlikely to be an issue.

Elemental Diets?

When food allergy is still considered to be a component and hydrolyzed approaches may be helping but are not entirely curative it may be best to try an elemental diet approach. Until a few years ago this was thought to be nearly impossible due to palatability issues, however there are newer chemical palatants and vegetable and yeast sourced palatants which are often added to these diets. This has led to the use of completely hydrolyzed protein sources which are well below 3 kDa and more recently diets made primarily with amino acids as the major protein component which are high priced, but likely affordable for a food trial for 6-12 weeks.(10,11) There is little data on how these perform compared to other hydrolyzed diets, however they make theoretical sense when it comes to immune system biology.

The Gold Standard – home prepared diets

To this day according to my dermatologists at Cornell the gold standard for ruling out a food reaction is the home prepared diet using novel ingredients that the dog's immune system has not been exposed to. I have observed things like shrimp and calamari as well as goat and ostrich being used as major protein sources and the rise in ancient grains provide a good source of energy from carbohydrates. What is often missing from the very basic home prepared nutrition plan are essential fatty acids of which omega 6 for proper skin formation and health is imperative and can likely improve skin and coat quality. Although vitamin and mineral supplementation are necessary, I often find that dermatologists negate using them until a response is noted in the 6-8 week time period and are then often added into the plan through a nutrition consultation, and are essential to completing the plan as most home prepared diets do not meet NRC, FEDIAF or AAFCO requirements.(12) In the end if a diet is working then nutritionally they are not very difficult to formulate as we are often talking about 1 meat source, 1 carbohydrate source and one oil source. A typical plan that we have put together includes some basic guidelines which are below in the table

Food	Amount	Relative kcals	sources
90% lean meat source or greater	90-120 grams	120-150 kcals	Tilapia, pork tenderloin, ground beef, calamari, shrimp, lean ground lamb
Grain/Tuber/legume source	180-200 grams	120-150 kcals	Cooked Quinoa, barley, sweet potato, Lentils, other beans
Seed oil source	4-5 ml	45-50 kcals	Hempseed, borage, evening primrose, soybean

This dietary approach will provide between 280-350 kcals (1050-1400 kJ) depending on the source and it a good backbone to start a dietary trial with no other foods allowed during the trial. These diets will be ample in protein and essential fatty acids to sustain dogs long term and can be multiplied depending on the energy needs of the adult dog. The above diet is usually sufficient for a 5 kg dog and as dogs become larger their caloric needs often go down along with different breed requirements so that a Labrador that is 30 kg will only need to multiply these quantities by 4 rather than by 6 to get the necessary energy to maintain the average dog, however one size does not fit all here, and recommending a weigh in after 2 weeks is advised to monitor weight loss or gain. In most cases adding in a hypoallergenic multivitamin and mineral mix that uses only vitamins and minerals and no herbs in the form of organic vitamins and minerals that are usually oxide of sulfate derived is ideal. Some companies will use chelated minerals which are often mineral attached to a backbone protein which can come from many sources but is often hydrolyzed rice or vegetable proteins in many cases. We usually utilize either Balanceit Canine Supplement or Annamaet Enhance by adding it into the meal plan as soon as improvements are observed since many vitamins like B vitamins, vitamin A, vitamin E and minerals such as zinc and copper are closely associated with skin and coat health.

In many cases these diet plans once fortified with the proper vitamins and minerals can be used for life if needed, however some owners do not have the time or economic means to continue and other commercial options are sought. With an array of freshly cooked direct to consumer, novel protein canned and kibble options a solution can usually be met without the need for home cooking for most dogs, but it seems that more and more owners are advocates of DIY home cooking plans.

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