



Adverse food reactions in dogs

By Ness Bird – Nutrition Adviser and RVN CertCFVHNut ©

Introduction

Many dogs are easy to feed, but some, are susceptible to adverse food reactions. This broad term describes an abnormal response to a particular food or ingredient, and it can be hard to identify precise causes. This is because:-

1. Commercial diets contain a number of ingredients.
2. Dogs that are fed raw or homemade dog food require a varied menu to ensure all nutrient requirements are met.
3. Dogs are often fed more than one product and may be offered a variety of treats.
4. Dogs can be sensitive to dog food processing and preserving methods.
5. The nutrient balance (i.e. how the protein, fat, carbohydrate and moisture are proportioned) can affect how well a dog digests and utilises food.
6. A food or ingredient can become problematic over time, even if it has never been an issue in the past.

Types of adverse reaction

An **immunologic** reaction is an adverse immune response usually to a dietary protein resulting in a food allergy or anaphylaxis.

A **non-immunologic** reaction is intolerance to a food or ingredient. Metabolic food reactions are categorised as non-immunologic responses as they do not affect the immune system. Lactase deficiency, food poisoning, and pharmacologic reactions are all examples of metabolic food reactions. There are many different types of metabolic food reactions.

Susceptibility

Age

Dogs of any age can be affected, but true food allergies tend to arise after a reasonable period of exposure to an ingredient, and remain most common between one and five years. Anaphylaxis, which is rare, is a sudden and severe





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reaction that can happen the first time an ingredient is eaten. The highest incidence of adverse food reactions (allergies + intolerance) affects dogs that are less than a year old.

Related conditions

Dogs suffering from other immune mediated conditions may be more susceptible to food allergies since the immune system is already more vulnerable. Dogs with atopy (environmental allergies) can suffer concurrent food allergies.

Dogs that have been diagnosed with inflammatory bowel disease may be more susceptible to adverse food reactions since the inflamed bowel mucosa is more vulnerable. Dogs with IBD should avoid gas producing foods and those with a high fat content.

Dogs with chronic colitis (inflamed lower bowel) or malabsorption (impaired digestive ability) may also be more likely to suffer from adverse food reactions.

Some theories suggest that dogs that have suffered from gastroenteritis, especially at a young age, may be more susceptible, and the digestive and/or immune system may be aggravated by ingredients which were a predominant part of the diet at the time of the upset.

Symptoms

Symptoms are often similar to those affecting dogs with other conditions affecting the skin e.g. atopy, parasites and gut e.g. infection.

Dogs with food allergies are frequently affected with skin problems but may also experience gastrointestinal symptoms. Dogs with dietary intolerance are usually presented with gastro-intestinal problems, but there are sometimes exceptions. **It is important to seek veterinary advice in order to rule out other causes of the symptoms, and especially so if your dog is vomiting, lethargic and / or appears in discomfort. Antibiotic / anti-inflammatory therapy may be needed to treat secondary infection and inflammation even if your suspicion of an adverse food reaction is confirmed.**

Gastro-intestinal symptoms may include diarrhoea, increased frequency of passing motions, increased stool volume, highly unpleasant smelling stools, vomiting, bad breath, flatulence and inappetance.

Skin symptoms may include inflammation especially of the ears, face, paws, armpits and groin, excessive moulting / bald spots, dry flaky skin, ear infections, changes to the pigmentation and ulceration, especially in and around the mouth. There may be increased tear and saliva production which can result in staining around the eyes and muzzle.

Other symptoms may include an intense desire to eat non-food items e.g. excessive grass consumption, stones or faeces, behavioural issues e.g. lack of concentration, reactivity, and irritability. Impacted anal glands may also be a problem in the event of the stools not being sufficiently firm to trigger the normal emptying mechanism or in dogs who are very itchy around the anus.



Initial treatment

Your vet should be the first port of call since appropriate treatment will be necessary to ensure the dog is comfortable and that any concurrent infection if present is medicated. For dogs suffering from diarrhoea, a period on a low fat diet which is free from ingredients suspected to be causing or exacerbating symptoms will be beneficial.

Laboratory tests

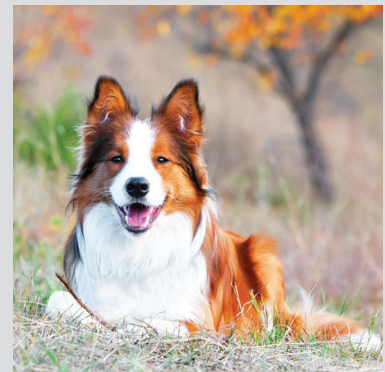
Your vet may suggest faecal analysis in the event of gastro-intestinal symptoms being present. This is to detect whether any infectious element is present, and it can also aid with assessment of the enzyme function. If there are significant amounts of undigested fat in the stools then blood tests may be necessary to rule out conditions such as exocrine pancreatic insufficiency.

In the event of skin problems, skin scrapings and ear swabs may be recommended. Bacterial and yeast infections are often seen in dogs with allergies, and if present these will need appropriate treatment.

Environmental allergy testing could be carried out since atopy is still a lot more common than food allergies. Intradermal skin testing is considered the gold standard.

Serological food allergy testing can be helpful to a degree, but only in conjunction with a food trial since it is not always accurate. This type of test measures the amount of antibodies produced in response to various ingredients; IgE (immunoglobulin E) and IgG (immunoglobulin G). The former are primarily associated with sudden, severe allergic reactions, whilst the latter are usually indicative of a more subtle, and often delayed, reaction. Allergic responses are usually graded on rising scale, but different laboratories have different means of measurement. If your dog's results have shown adverse immune responses in either category, it is sensible to avoid the problematic ingredients for at least three months to alleviate immune stress. This will help to strengthen immunity, and it's possible that future testing will show that these ingredients are no longer provocative. This explains why children and young animals may sometimes "grow out" of allergies.

Some laboratories offer "sensitivity testing" for dogs using tests and result panels designed for humans. This type of test measures the IgA and IgM antibodies in saliva. Do be wary however, as some of these tests can be expensive yet largely irrelevant to the canine species if food ingredients not usually eaten by dogs are included, which is sometimes the case.





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Food trials

Most vets concur that food trials are still the most effective way to obtain a diagnosis.

Food diary

Record exactly what your dog eats. Look not only at the main diet, but treats and training rewards, recreational chews, leftovers and dietary supplements. Also assess whether the dog is able to access other food ingredients e.g. those intended for other pets in the household such as cat food or bird seed, scavenging/stealing from the bin, plants.

Some animals have threshold based tolerance – whereby they may be able to digest small quantities of a potentially reactive ingredient with symptoms only becoming evident after a certain amount is consumed, but this is not always the case, so everything that is eaten regardless of quantity does need to be included in your list. Thresholds are important because they are not static. Strengthening and supporting the digestive and immune function can raise your dog's "threshold", and this is especially helpful when it is impossible to completely avoid an allergen such as pollen. Stress can reduce the threshold, so it's vital to take extra care of an allergic dog's psychological health as well as his physical well-being.

Common culprits

The most common culprits remain to be wheat, beef and dairy products which have accounted for more than 65% of reported cases of adverse food reactions in ten studies. Soya is another frequent offender.

When we think of grains, we typically classify them as carbohydrate sources, but they also contain storage proteins (prolamins) which are able to incite an allergic response. The glutenin and gliadin which form wheat gluten are still the most likely to upset a sensitive dog. Other "high gluten grains" which contain storage proteins with a similar structure to glutenin and gliadin are oats, barley and rye; so dogs with wheat allergies may benefit from avoidance of these grains too. Contrary to popular belief, corn (maize) is gluten-free and contains a different type of protein called a zein.

Gluten grains are found in many commercial dog foods and treats, although they may not be specified as such. Some brands simply list "cereals".

Dairy products are common offenders mainly because as dogs age, their levels of lactase (the enzyme responsible for the digestion of milk sugar) decreases which can result in lactose intolerance. Dogs can also be allergic to milk protein (casein).

Changing to a gluten-free recipe which includes no beef, soya or dairy products is often a very good starting point if your dog eats any of these common dietary allergens. All of the Arden Grange products meet these criteria. We have found that quite a high incidence of adverse food reactions are related to treats, so do make sure you are very careful about what extras your dog is allowed to eat. During a food trial, additions should be excluded or at least make sure they contain the same ingredients as the main diet, for example our crunchy bites sensitive ocean white fish & potato, partners sensitives ocean white fish & potato, or fresh white fish could be used as extras for a dog trialling our dry food.



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Rawhide

Many dogs love these recreational chews, but for dogs who are suffering from suspected adverse food reactions, they are better excluded. This is because they largely contain indigestible protein, and have limited nutritional value. They have great potential to incite an allergic response because of the residual antigenic proteins and large polypeptide molecules that end up hanging around in the body since they can serve no useful purpose. This shows the importance of feeding the sensitive dog only highly digestible and nutritionally valuable ingredients.

Artificial colourings, flavourings and preservatives

Some sensitive dogs can suffer adverse reactions to chemicals used to stabilise the food, improve the flavour, or enhance its appearance. For this reason we manufacture only products which are preserved naturally, using rosemary extract, and include no artificial colours or flavours.

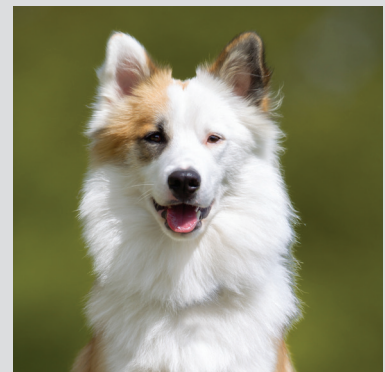
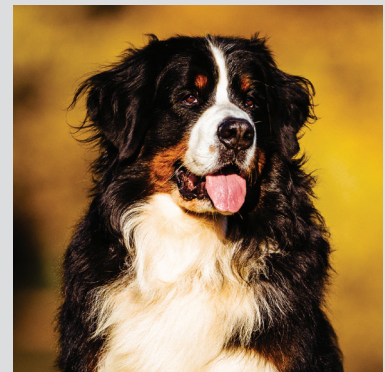
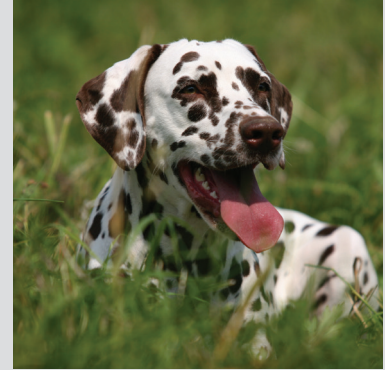
High histamine foods

Histamine is a chemical which occurs naturally in certain foods, but is also released in the body as part of an allergic response. Some dogs have a low level of diamine oxidase, which is the enzyme responsible for breaking down histamine absorbed from food. Consuming histamine-rich foods can cause or exacerbate allergy symptoms in sensitive animals, and it's therefore best for them to avoid tinned fish such as tuna, mackerel, cheese and processed meats e.g. hotdog sausages. Spinach doesn't contain histamine, but it can cause the body to release more of it.

Hypoallergenic diets

If your dog is already eats a diet that is free from the more common ingredients responsible for adverse food reactions, the next step is to look at other possible reasons for his symptoms. Could he be allergic or intolerant to something else? Is he sensitive to processing methods? Some dogs can eat fresh chicken for example but don't tolerate it well in commercial dry food and vice versa. Is the nutrient balance suitable for him? Some dogs thrive well on high protein low carbohydrate diets, whilst others may fare better on a diet with a more moderate level of protein, fat and carbohydrate.

Dogs can develop allergies to any dietary protein, unless it has been hydrolysed to break the molecules down into tiny fractions that are too small to annoy the immune system, and they can be intolerant to any ingredient at all. A reasonable period of exposure is usually needed for a reaction to manifest though, so a diet with both a "novel" protein and carbohydrate source, i.e. ones the dog has never eaten in significant quantity before, can be very helpful.





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Hydrolysed veterinary diets are another option, but they are expensive. Dogs can also still be intolerant to these foods.

The Arden Grange Sensitive is often a good choice for dogs with allergies/intolerance to the more common meats and grains found in many commercial pet foods since it is made primarily from white fish and potato. If however your dog has developed symptoms whilst eating a fish and potato based diet and he eats nothing else that has an especially high allergenicity, then it would not be recommended. This illustrates the importance of considering every dog as an individual. Not all dogs are reactive to the same ingredients, so what may have been the perfect diet for someone else's dog's allergies may not be right for yours.

When dogs are fed a wide variety of foods it can be very difficult finding novel ingredients for them, so for this reason we recommend that you keep products that use exotic ingredients for example, ostrich, in reserve so that in the event of a problem you have not run out of options. Grain free diets are very popular at the moment, and they can be very useful. However they may not be especially helpful if your dog's problem is not related to a particular grain but to a meat or fish source which it happens to contain, or even to a carbohydrate ingredient used instead of a grain.

Re-challenging

You will need to be extremely strict with your dog's diet whilst identifying the cause of a reaction, but you can then start to reintroduce other food ingredients one by one once you think you have pinpointed the culprit/s. If symptoms return, then clearly that ingredient should be avoided in future. If your dog had initially suffered a very severe adverse reaction, then you may wisely choose not to re-challenge in this way.

Immune and digestive support

A good diet is essential because malnutrition can cause the enterocytes to malfunction. When damaged, they can let whole proteins into the body. Gut-associated lymphoid tissue is supposed to take on the defence role when this happens, but when gut-associated lymphoid tissue does not work properly, an allergic response occurs. **Every time the tissue is exposed to the dietary protein it dislikes, it over-reacts resulting in immune hypersensitivity with greater responses occurring every time that protein is eaten. This is why it's so important to identify the problematic ingredients and stop feeding them as soon as possible.**

Omega-3 fatty acids are very beneficial in the treatment of allergies of all kinds in dogs. They work in the skin to help reduce the amount and effects of histamine and other chemicals that are produced in response to the allergen. Studies have shown that when omega-3 fatty acids are used in conjunction with other treatments such as anti-histamines, in many cases, the use of steroids may be decreased or even discontinued gradually, and under veterinary supervision. The omega-6's have lubricating properties. The Arden Grange range includes krill; a fantastic source of the beneficial EPA and DHA Omega-3s. Very sensitive dogs may need an additional helping hand by means of a commercial supplement such as Lintbell's YuMEGA Itchy Dog

The Arden Grange diets contain a number of immune boosting natural supplements. These include the prebiotics FOS and MOS, which act as a food source for the friendly gut bacteria. It's important to look after the digestive system in dogs



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with allergies because it is home to over 60% of the immune cells. The diets also include nucleotides which enhance metabolic function and have particular benefits to the digestive and immune systems. Nucleotides allow optimum levels of nutrients to be absorbed by the body by providing a larger surface area for absorption, as well as facilitating a more rapid cell replication in response to outside challenges such as allergens.

You may note that the Arden Grange sensitive diet mentioned in this article includes chicken oil and chicken digest, even though it is a fish based product. These ingredients are non-allergenic as the oil has been refined to remove large protein molecules, and the digest is hydrolysed and not present at a very high level. They are rarely associated with adverse food reactions in dogs.

In order to further support the immune system, dogs with allergies may benefit from a probiotic supplement. Although we include prebiotics in our food, the extrusion process renders probiotics, which are live organisms – and a “dose” of the friendly flora themselves, far less effective. Live yoghurt is popular but a huge dose is needed to replenish the depressed bowel flora in a dog’s gut and with a fair proportion of the canine population having some degree of lactose intolerance, it’s safer to use a non-dairy product formulated specially for dogs such as Lintbell’s YuDIGEST.

Please note that this information has been written with the potentially reactive dog in mind. Many dogs are able to successfully digest and metabolise a variety of different ingredients.

As a responsible and ethical company, Arden Grange fully appreciates the caution that must be taken when discussing the potential benefits of nutritional supplements. It is against the law to make medical claims. Whilst these ingredients are safe and natural, and may be beneficial to some of the cats and dogs fed on Arden Grange, we must highlight that their inclusion is not a substitute for veterinary intervention in the case of a sick animal.

