



OWNER FACTSHEET

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Grain-free diets

Introduction

Grain-free diets are becoming increasingly popular and, as a consequence, we as veterinary professionals would like to provide guidance about the advantages and disadvantages of such foods.

Our advice to pet owners should always be based on:

- Sound scientific evidence, whenever available
- Excellent clinical reasoning
- Informed risk management.

This is so we can help you make decisions about what to feed your pet. As well as ensuring that minimum nutritional requirements are met, the chosen diet should ideally provide optimal (or ideal) nutrition to promote the good health of your pet.

Whatever the type of food you wish to feed, it should meet the following requirements:

- **Complete and balanced nutrition** – the diet should provide every nutrient that your pet needs, in the correct quantities for the pet and not in excessive amounts
- **Digestible** – the nutrients must be bioavailable to the pet consuming the food
- **Palatable** – the food must be appealing to your pet so that they will consume it
- **Not fed in excess** – excessive amounts of energy from any food will lead to obesity. Controlling the amount of food is strongly advised to maintain an ideal body condition score. Further information on body condition scoring is available from the World Small Animal Veterinary Association (WSAVA) (www.wsava.org)
- **Safe** – the food must be safe to feed, being free of anything that may cause harm to you or your pet (e.g. toxic compounds or organisms (pathogens) that cause disease)
- **Achievable** – the recommendation must be within your financial and time budget.

Sustainability of food sources is also of increasing concern for both humans and pets because, if current consumption continues, there will be a food shortage within the next 50 years.

What are grain-free diets?

Grain-free diets must not contain the following grains:

- Wheat
- Barley
- Rice
- Maize
- Sorghum
- Spelt
- Bulgar
- Farro
- Millet
- Oats
- Rye
- Malt
- Brewer's yeast
- Wheat starch
- Triticale (a wheat/rye hybrid).



This can often be a source of confusion, as a diet that is grain-free is not necessarily carbohydrate-free. Other carbohydrate sources (e.g. potato) are frequently used in grain-free diets. Similarly, grains contain different types of gluten, some of which may not be of concern, even for those pets known to have an adverse food reaction to glutes. As a result, a blanket approach is often taken and all grains are excluded, meaning that a number of other nutrients which grains deliver are also restricted when there may be no requirement to do so.

Although there may be concerns with feeding grains, carbohydrates or gluten, evidence of harm is limited. However, there are concerns arising from restricting grains in pet diets.

Types of grain-free diet

- Commercially produced by many UK pet food manufacturers in wet or dry forms.
- Home-prepared:
 - Similar to raw diets, grain-free home-prepared cooked diets comprise ingredients in a form that can be easily purchased from supermarkets and grocery stores. For further information, see 'Home-prepared cooked diets'.

Why are pet owners choosing to feed grain-free diets?

Proponents of grain-free diets choose them over other available diets as they believe that they are a 'healthier option' for their pet in various ways. The following are the claims made and the available evidence for these claims.

Diet claim	Available evidence
Grain-free diets do not contain gluten, which is a known cause of food intolerance, making pets unwell	<ul style="list-style-type: none"> ■ It is true that eliminating gluten-containing grains from the diet will eliminate gluten. However, there is limited to no evidence that gluten is bad for pets or that it makes them unwell, except in cases of specific adverse food reactions (often called a 'food allergy'), which are rare
Cats and dogs are carnivores and, as such, are not designed to eat grains – feeding diets akin to those eaten by their wild ancestors is more 'species appropriate' and therefore more 'natural'	<ul style="list-style-type: none"> ■ Whilst dogs are in the order Carnivora, they are nutritionally omnivorous and are fully equipped to extract nutrients from grain sources in their diets ■ Despite cats being obligate carnivores (meaning they require meat, poultry and fish in their diet), they also have the ability to digest grains and obtain nutrients, just to a lesser extent than dogs ■ Guidance for the term 'natural' is that it must be obtained exclusively (or at least 95%) from the source material (e.g. of vegetable or animal origin). This is not an official or regulated definition ■ Therefore, depending on the ingredients used, commercially manufactured diets can also be defined as 'natural' in accordance with the above guidance
Grains cause 'allergies', so avoiding them will prevent itchy skin and digestive problems	<ul style="list-style-type: none"> ■ There is no evidence that grains alone will cause adverse food reactions. However, some pets may suffer adverse food reactions involving grains, in a similar manner to reactions against other ingredients (e.g. beef, dairy or fish)
Grains are only in pet food as 'fillers'; they don't benefit the pet	<ul style="list-style-type: none"> ■ Grains can be useful sources of proteins, essential fatty acids, vitamins, minerals and fibre. Digestibility is typically high (>90%) when included in pet foods
Foods containing grains are harder to digest than meat-based products	<ul style="list-style-type: none"> ■ There is no evidence that the cooked grains included in pet foods are harder to digest than the other components and they have even been shown to be nutritionally valuable. However, some uncooked whole grains may be harder to digest when compared with meat-based products

What are the advantages of feeding grain-free diets?

Evidence-based advantages

- Food elimination trials (see section on 'Diagnosis of an adverse food reaction' for further information).
- Management of skin disease in the case of adverse reactions to food.
- Management of gastrointestinal signs in the case of adverse reactions to food, specifically grains or gluten.
- One disease known to require a grain-free diet is paroxysmal gluten-sensitive dyskinesia:
 - Mainly affects Border Terriers
 - It is a distressing neurological disorder for both the dog and the owner as the dog remains awake and aware throughout abnormal limb movement episodes
 - Clinical signs range from mild abnormal movement of one limb, affecting function or coordination, to severe, where dogs collapse and abnormal movement affects the entire body
 - Dietary gluten elimination has been shown to improve clinical signs, making a gluten-free diet an important component in the management of this disease.



What we know about adverse reactions to food and diet

- A true adverse food reaction accounts for only 1% of skin disease cases seen in practice, making it uncommon. An adverse food reaction is the third most common reason for skin disease after flea allergy and atopy.
- Food-associated gastrointestinal disease is common in cats and dogs, but only a minority of cases are proven to be the result of a genuine immune-mediated food hypersensitivity (i.e. allergy). Instead, most arise through other mechanisms (e.g. intolerances). For these reasons, the term 'adverse food reaction' is preferred to 'food allergy'.
- The main concern regarding feeding grains relates to the perceived risk of an allergy to glutens and gliadins. Although adverse reactions to these components do occur, the most common foods associated with adverse food reactions in cats and dogs are:
 - Beef
 - Soya
 - Dairy products.

Diet claim	Available evidence
A grain-free diet will prevent a pet developing signs of skin or gastrointestinal disease, especially in certain breeds	<ul style="list-style-type: none"> ■ This is likely to be the case only for pets that already have an adverse reaction to food. However, both gastrointestinal and skin diseases are often multifactorial, therefore such diets might not completely resolve the signs that are seen
Improved pet health, digestive system and/or skin after starting a grain-free diet	<ul style="list-style-type: none"> ■ There is no published evidence to support such claims, although there are anecdotal reports of cases improving after starting a grain-free diet ■ However, there have been recent concerns regarding the safety of feeding some grain-free diets

Diagnosis of an adverse food reaction

The gold-standard method for determining the source of an adverse food reaction is a properly designed exclusion-diet trial. Your veterinary surgeon will follow the steps below:

- Choose a diet that is either:
 - Hydrolysed – a process to reduce protein size so as not to trigger an immune response. If for any reason a hydrolysed diet cannot be fed, the use of a diet that has not been fed for the past 6–12 months is chosen
 - Novel – containing one protein and one carbohydrate source that your pet has never eaten previously
 - Purified – a process of removal of the parts that are likely to cause an adverse reaction, although this is difficult to achieve. This can be a commercially produced diet or one produced carefully by an appropriately qualified individual
- Instruct you to feed this diet exclusively, and with complete compliance, for 2 weeks for pets with gastrointestinal signs and 6–10 weeks for pets with skin signs
- At the end of the trial, your pet should be re-challenged with its previous diet and monitored for the recurrence of clinical signs
- If clinical signs return quickly, this suggests an adverse food reaction to **one** of the ingredients within that food, and your pet will be returned to the diet used in the trial
- Once the clinical signs have subsided again, your pet could be re-challenged with one ingredient at a time and the response monitored
- By taking this systematic approach, the problem ingredient will be identified and thereafter can be eliminated from your pet's diet
- Some pet owners may not wish to re-challenge their pet with its previous diet. Thus, provided that the elimination diet is complete and balanced, this can be fed long term.

NB: An exclusion diet trial should never be undertaken without the help and guidance of your veterinary surgeon.

Blood testing

Although blood (serology) testing for ingredients that may cause concern is available, this is **unreliable**. Elimination-feeding trial remains the gold-standard method of determining adverse food reactions.

What are the disadvantages of feeding grain-free diets?

Although both dogs and cats can reportedly do well on grain-free diets, there have been some reports of health problems developing, most notably a heart condition (dilated cardiomyopathy, DCM) in dogs. However, the exact causal factors and mechanisms remain unclear and, indeed, questions have arisen as to whether the absence of grains is the problem. Rather, since many grain-free diets are made by recently established food companies, it is possible that wider formulation problems are the cause. In addition, it was found that the same ingredients repeatedly appeared in the top four components listed in the diets of the affected dogs, and since many of the affected dogs improved after switching to a non-grain-free diet, this has led to the suspicion that the diet is the cause. Unless there is a proven adverse reaction to food that requires a grain-free diet, it might be safer to avoid such diets until the current concerns regarding DCM are resolved. This is currently under investigation. 

Can grain-free diets provide balanced nutrition?

Yes, it is possible to create grain-free diets that are complete and balanced; however, in light of recent concerns regarding the safety of such diets, caution is advised.

Commercially prepared grain-free diet recipes should be created by professional formulators trained in the commercial formulation of pet foods. Ideally, the formulation should have been developed in consultation with an appropriately qualified individual.

- Appropriate qualifications include:
 - PhD in animal nutrition
 - Diplomate of the American College of Veterinary Nutrition (ACVN)
 - Diplomate of the European College of Veterinary Comparative Nutrition (ECVCN).

In the case of home-prepared cooked diets that are also grain-free, it is recommended that the recipe be designed, overseen or approved by a Diplomate of either the ACVN or the ECVCN. Provided that the recipe and supplement recommendations are followed carefully, these can provide complete and balanced nutrition.

What are the safety measures for feeding grain-free diets?

Commercially produced grain-free diets

- Containers and packaging should be inspected for any damage or contamination that may affect the food.
- Any product with damaged packaging should not be purchased or should be discarded.
- Basic hand washing after handling the pet food and bowls should be observed.
- Hand hygiene and regular cleaning of preparation areas and bowls should always be observed.
- Regular appointments with your veterinary surgeon to ensure adequate heart function.

Home-prepared grain-free diets

- For further information on preparation, storage and reheating safety, see '[Home-prepared cooked diets](#)'.

Considerations for feeding grain-free diets in healthy dogs and cats

- To feed a grain-free diet correctly, an appropriate product should be selected that has been specifically formulated for the desired life stage.
- If the grain-free diet is home prepared, an appropriately qualified individual should be consulted or approved recipes and supplements fed. This is especially important if the pet is young or senior in years.

Considerations for grain-free diets in dogs and cats with various diseases

- Grain-free diets are essential only in a minority of cases.
- As described above, some grain-free diets might be detrimental to pets that do not require them.

Conclusion

Feeding grain-free diets has become increasingly popular in recent years. Therefore, it is important that you consider all the pros and cons when making decisions about what to feed your pet, no matter the diet type. Decisions will be made 'on balance' for your individual pet. Provided assurance of nutritional adequacy is confirmed, grain-free diets can be safely fed. If you are in any doubt, please seek advice from your veterinary practice.

Last updated

April 2020