

Vegetarian Diets

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You have asked...

How should I advise clients who choose to feed their pets vegetarian diets?

The experts say...

People may adopt vegetarianism for a number of reasons. They may object to eating meat for ethical reasons, desiring that animals not be killed for food, or hold religious beliefs that preclude eating animals. Others are motivated by health-related, political, environmental, cultural, aesthetic, or even economic considerations. Some owners who are vegetarian choose to extend their dietary preferences to their cats or dogs. In a study of cat owners, ethical considerations were the primary reason for feeding cats a vegetarian diet.¹

Dietary Requirements of Dogs & Cats

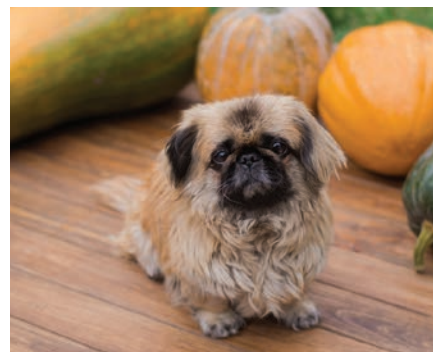
Dogs can receive required nutrients from a variety of animal-derived and vegetable-sourced foods. One study in racing sled-dogs showed good performance and maintenance of hematology parameters when fed a complete and balanced vegetable-based diet that included rice, corn, and soy proteins for 16 weeks, but longer term studies are lacking.² The omnivorous dog also has the ability to convert beta-carotene found in plants to vitamin A, has sweet receptors on its tongue, and is able to digest a variety of starch-based foods.³

Cats, however, are obligate carnivores and require animal-sourced ingredients to provide essential dietary nutrients, including preformed vitamin A and arachidonic acid, higher requirements for overall protein, arginine, the sulfur-containing amino acids cysteine and methionine, and a requirement for the free amino acid taurine, all of which are minimal or even absent in plant ingredients.

Meat from livestock, poultry, or fish typically contains a better complement and ratio of essential amino acids for both dogs and cats when compared with vegetable-based sources. To provide missing or limited essential nutrients, vegetarian pet diets must be heavily supplemented with synthetic sources of essential nutrients to ensure that the diet is balanced for optimal health.⁴

Protein Sources

Clients who wish to feed a vegetarian diet must understand the importance of protein sources and other ingredients used. Depending on client preferences or beliefs, a vegetarian diet may include eggs, dairy products, soy products, mycoprotein, legumes,



What's on the Menu?

When discussing a vegetarian diet with clients, it is important to know which type of diet they are feeding or considering. There are 4 main types of vegetarian diets; each has different limiting nutrients and potential complications if not balanced properly:

- **Lacto-ovo-vegetarian diets** omit meat but include both eggs and dairy products.
- **Ovo-vegetarian** diets omit meat and dairy but include eggs.
- **Lacto-vegetarian** diets omit meat and eggs but include dairy.
- **Vegan diets** exclude not only meat but all animal-derived products, including eggs, dairy, honey, and supplements derived from animals (eg, vitamin D3).

Dogs can receive required nutrients from a variety of animal-derived as well as vegetable-sourced foods.

Cats, however, are obligate carnivores and require animal-sourced ingredients to provide essential dietary nutrients.

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Insight from India: Vegetarian Diets for Pets

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Almost half the population in India is vegetarian, typically for religious reasons and sometimes for personal convictions. Although some vegetarians are amenable to feeding their pets commercial diets that include plant and animal proteins, others balk at the cost of these diets or insist on vegetarian pet foods that are manufactured locally with ingredients of questionable quality and lack conducted digestibility trials.

Most clients opt for home-cooked lentil, wheat, or rice and dairy-based diets that occasionally include eggs. At our urban practice, we noticed that these animals are more likely to be obese, suffer from food allergy-related skin and GI disturbances, and have a higher incidence of urolithiasis. There are no small animal nutritionists in India, and despite our efforts to dissuade them, dog owners are adamant about keeping their pets vegetarian. We do our best to formulate diets ourselves, often with cottage cheese and soybean as chief sources of protein, along with additional supplements.



Most of our patients are apartment cats, although pet cats in India are usually indoor-outdoor cats that also hunt and scavenge. We are less flexible with our feline patients and insist on meat-based diets, as it is extremely difficult to meet their unique nutritional requirements with vegetarian food. Of interest, cat owners are less averse to commercial diets, possibly a result of their pets' persnickety nature and the widespread belief, especially in coastal India, that cats are mainly fish eaters.

other types of beans, or any combination of these. Egg and dairy products are highly digestible sources of many essential amino acids but contain little to no taurine,⁵ which may be adequate for most dogs but insufficient for cats. The amino acid lysine—essential for dogs and cats—may also be insufficient in grain-based diets; processing and cooking may further limit absorption of this essential nutrient.

Commercial or Homemade?

When evaluating a vegetarian diet for dogs and cats, it is important to know whether the diet is commercially prepared (ie, kibble, canned pet food) or prepared at home. Commercially available dog and cat foods must state whether they are complete or intended as complementary foods for the intended species and life stage.

Complete diets are formulated to provide all essential nutrients when fed as the primary diet each day, whereas complementary foods are intended to be fed as a smaller portion or treat. For complete diets, it is important to know whether the manufacturer has conducted controlled feeding trials or employs experienced food scientists and nutritionists. Ingredients used in vegetarian diets may be poorly digestible, contain inadequate essential nutrients, or have high-fiber and phytate (a phosphate compound found in plants) contents that can prevent essential nutrient absorption, resulting in clinical signs of deficiencies. Feeding trials are preferred over simply formulating recipe nutrients to meet specific published nutrient levels.

When vegetarian diets are prepared at home, care should be taken to ensure the recipe was provided or evaluated by someone with veterinary nutrition training, such as a member of the American College of Veterinary Nutrition (ACVN) or the European College of Veterinary and Comparative Nutrition (ECVCN).

Potential Nutrient Deficiencies

Types of nutrient deficiencies that can occur with inadequately formulated commercial or home-prepared vegetarian diets include:

- Zinc-deficient dermatosis caused by phytate binding to and preventing absorption of zinc.
- Poor skin and haircoat as a result of high-fiber diets preventing absorption of essential fatty acids.
- Inadequate arachidonic acid intake in cats, resulting in poor reproduction performance in breeding cats as well as skin and haircoat issues.
- Taurine-deficient cardiomyopathy or retinal degeneration resulting from inadequate taurine intake in cats.

These problems can occur with improperly formulated meat-based diets as well, but the likelihood is lessened when a

balance of animal and plant ingredients are used. Growing animals are at greatest risk for nutrient deficiencies when fed improperly formulated diets, but older animals with chronic conditions may have altered nutritional requirements, which vegetarian diets may help or hinder. For example, limiting sulfur-containing amino acids may be advantageous for animals with hepatic encephalopathy but may be harmful for those requiring a protein-restricted renal diet, which is unable to meet the minimal essential amino acid requirements.

In Closing

When formulated correctly, vegetarian diets can be fed successfully to dogs but may require more synthetic supplementation. Attempting to feed a vegetarian diet to a cat is not recommended unless under the guidance of a nutrition specialist (member of ACVN or ECVN). Animals eating a vegetarian diet may also require more frequent screening by veterinarians to ensure essential nutrient needs are being met. Health risks of unbalanced diets, whether vegetarian or animal-based, can be life-threatening and it is important for veterinarians to collect a

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thorough diet history (food and supplements) at each visit to screen for sources of potential nutrient imbalances. ■ **cb**

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