

EVC Topics in Nutrition
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From assorted resources

“Every pet deserves to eat well”

How often have you heard your Veterinarian talk about a complete and balanced diet? Who knows what that even means, right? If Trigger the dog and Hobbes the cat is eating, and they don't seem to be in any discomfort, it should be okay, right? Unfortunately, not so much. Just like humans, our pets deserve a complete and balanced diet, too. Complete and balanced means they get a diet that contains adequate proportions of proteins, carbs, fats, vitamins, minerals and water necessary to maintain good health. For humans this balance can be easy. We choose certain amounts to eat from each of our food groups and we should be good to go. For our pets it just isn't that simple. They don't have access to the fridge, pantry and grocery store like we do. So as their owners it is our responsibility to provide our fur children with the highest quality nutrition that we can. And that balance and quality comes in the form of kibbles and wet food that we put in their bowl daily.

There has always been much public discussion regarding pet nutrition and which approach to diet content is best. This discussion can be further complicated by legal definitions and connotations used on food labels. With that in mind we, as a collaboration of pet health guardians, would like to share some basic information for when it comes to your pet's food, dietary requirements, and things to consider when it comes to choosing one food over the other.

Topics addressed in this blog are:

1. Agencies involved in the Pet Food Industry
2. Label Descriptions
3. Meat vs. Meat by-product
4. Label Awareness
5. Protein, Carbohydrates, and Fats - the 3 energy sources
6. Food and Allergies
7. Questions about Gluten, Grains and Corn
8. Nutrition Absorption
9. Raw Food Diets
10. WSAVA Recommendations on Selecting Pet Foods
11. Home-cooked Diets
12. Natural Diets

1. Agencies involved in the Pet Food Industry

One fact about pet nutrition that often goes unknown is that there is no legal framework specifically applicable to the Canadian pet food industry. That means just about every Tom, Dave, and Harry can make pet food, and use the ingredients they wish, without much second thought. There are some organizations out there attempting to somewhat regulate our pet food; through where the ingredients are from; how the diets are

produced and tested; and whether it is complete and balanced. However, these are currently only considered guidelines and by no means mandatory. These organizations are as follows.

CFIA - Canadian Food Inspection Agency

Makes it illegal to feed specific risk materials to pets including our dogs and cats. They prevent disease from being imported.

AAFCO - Association of American Feed Control Officials

Provides guidance for regulations of pet food ingredients. They establish nutrient profiles, have uniform definitions for ingredients and proper labeling, and set feeding trial protocols. In Canada, although commonly followed, it is not mandatory to follow AAFCO Guidelines.

PFAC - Pet Food Association of Canada

An industry association comprised of pet food manufacturers and companies that supply materials or services to the pet food manufacturing industry. Committed to producing wholesome and nutritious foods for pets. Follow nutritional standards set by AAFCO; however pet food manufacturers are not required to be a part of this association.

WSAVA - World Small Animal Veterinary Association

Primary purpose is to advance quality and availability of small animal medicine and surgery to create a unified standard of care for the animals and their people.

2. Label Ingredient Descriptions

Have you ever gotten confused trying to compare pet food labels? Have you had difficulty understanding the difference between marketing ploys and honest description of nutrient content? First important thing to know about ingredient labels is that ingredients are listed in descending order by weight. Please read on to learn more about the power of words on a label....

Surely you have seen these ingredient designations; however, we need to be mindful of what they really mean:

- “Contains” = Less than 4% of the mentioned ingredient is included
- “With” = 4-14% of the mentioned ingredient is included
- “Rich in” = 14-26% of the mentioned ingredient is included
- “Paste” = 26-100% of the mentioned ingredient is included
- “Full of” = 100% of the mentioned ingredient is included (at which point there is no way that the food could possibly be complete and balanced)

“Natural” Requires the food be in its natural state, no chemical alteration is allowed. Ingredients must solely be delivered from plant, animal, or mined sources produced without chemically synthetic processes. However, chemically synthesized vitamins, minerals, and other trace nutrients are acceptable.

“Organic” Refers to the processing, not the quality of the food, and ingredients must be grown without pesticides or drugs. The surrounding soil must be chemical free for a minimum of three years as per AAFCO regulations and the organic livestock must be fed organic feed, without antibiotics or hormones, and it must have access to the outside. When buying organic food, look for the Canadian Organic logo. To be able to get this designation, the food must contain minimum 95% organic ingredients.

“Holistic” Has no legal definition. This type of description has no definition or regulation. It is a vague term with many meanings in relation to pet food.

“Human Grade” Also has no legal definition.

Buyers should be aware that these terms do not guarantee better nutrition for your pet.

“Animal Digest” refers to the digestive process applied to food, not the ingredients. It is the muscle meat broken down into small chains of amino acids, resulting in forms of liquid, paste or powder. It is very similar to the digestion process in the body, but it is not actually digested material the way we may think it is. Animal Digest is actually an excellent source of high quality protein. Because of its extremely high palatability it is often used to mix or spray into dry food to enhance the taste of it.

“Meat” as per AAFCO regulations is muscle meat, including tongue, heart, fat, skin, sinew, nerves, and blood vessels in the tissue. What it cannot include is feathers, feet, head, entrails, fur, bones, and hooves/claws.

“Meat By-Products” as per AAFCO regulations are any ingredients produced or left over by a carcass when other products or ingredients are made. That means the clean parts of the carcass, other than muscle meat, and includes lung, spleen, brain, liver, heart, viscera (intestines clean of content), and poultry feet. This excludes hair, horns, teeth, hooves, feathers, hide, and intestinal contents. Organ meats are much higher in nutrient density than muscle. In various places in the world, what North Americans consider by-product, the rest of the world considers regular human food (chicken and pig’s feet) or a special delicacy (heart). The sum of these same ingredients, called ‘by-products’ are also found in human products such as broth and gelatin.

“Ash” is mineral content including calcium, phosphate, copper, zinc, iron, magnesium and manganese. High ash content can cause Feline Lower Urinary Tract Disease (FLUTD) as well as poor digestibility (diarrhea or constipation). One needs to look at the ash: protein ratio as one of the measures of quality. Good quality foods will have higher mineral content in the meat and will require less ash (mineral) to be added for nutritional balance.

3. Meat & Meat By-Product Comparison

Both meat and by-products can vary greatly in quality, digestibility and palatability, but as we just learned in the previous section, by-products contain a high percentage of organ meats. Animals usually find this much more palatable. Think of any carnivorous or omnivorous animal in the wild. After a kill, does the hunter start into the muscled shoulder or rump of its hunted? No. Its first stop is the abdominal cavity where all that delicious and most nutritious organ meat awaits.

Chicken by-product meal, for example, is made by cooking chicken, drying and then separating the protein from the fats. It is much more nutrient dense than a whole chicken with its water content or muscle

meat alone, but markets less well, simply because that is what we as consumers know and appreciate. Chicken by-product has a protein content of about 60-70%.

Not all meat by-products are the same quality, just as not all meat is the same quality.

Some by-products are considered a treat for pets (bully sticks, pigs ears, benny bullies), and a delicacy for some humans (heart, stomach, sweet meats /thymus, Jell-O /gelatin, molasses from sugar manufacturing).

The use of animal by-products increases the efficient use of nutrition and resources by reducing waste around the world. As it truly does contain good nutritive value, this should be a positive!

Organ meats (a type of meat by-product) are a source of important and essential nutrients as shown below.

By-Product: Brain

Nutrient: DHA

Benefit: Fatty acid with anti-inflammatory properties, important in neurological development and visual Acuity

By-Product: Blood

Nutrient: Iron, Protein

Benefit: Iron – essential mineral for prevention and treatment of anemia

Protein – contributes to daily requirement of protein

By-Product: Bones

Nutrient: Source of Minerals (calcium, magnesium, etc.)

Benefit: Essential minerals; supports strong bones and teeth

By-Product: Connective tissue

Nutrient: Chondroitin

Benefit: Supports joint health

By-Product: Heart

Nutrient: Taurine, L-Carnitine, Protein, etc.

Benefit: Taurine - Supports heart health (essential for cats)

Carnitine – Supports heart health, in addition to supporting the use of fat as an energy source

By-Product: Liver

Nutrient: Iron, B Vitamins (esp. B12), Vitamin A,

Benefit: Supports multiple systems including; nervous system, skin, growth, red blood cell formation, vision, etc.

4. Label Awareness

The concept of “meat should be first” in the ingredients list is a nice concept. However, labels are legally required to list ingredients by weight in descending order, so if whole chicken is the first ingredient, remember it contains about 70 -75% of water weight, and actually has less nutrient density than chicken meal, or chicken by-product meal. With that in mind, imagine a food contains about 25% chicken; after cooking, it will only contain about 6-7% chicken protein in the final product. Let’s say this same food contains about 20% corn, 20% rice, 15% dried fish, 10% poultry fat, and 10% vegetable oil. A manufacturer is absolutely allowed to write Chicken as the main ingredient, but realistically the food will only have about 5% chicken and the cereals will be the main ingredients in the end product.

Digestibility of the food is important, but it is not disclosed on the bag. 50% protein that is 0% digestible

Gives the body... 0% absorbable protein!!

Marketing has made “by-product” a dirty word, and reinforced it by “contains no by-products” labelling. Remember the benefits of by-products in nutritional content. And if the bag actually lists an organ meat such as liver, it does not need to list “meat by-products” on the label.

5. Protein, Carbohydrates, and Fats - the 3 energy sources

There are three sources of energy in food:

- Protein
- Carbohydrates (CHO)
- Fat

Of the 100% of the energy in food – if one goes up, the others go down!

Carbohydrates (Carbon Hydrogen Oxygen) are an energy source predominantly made up of grains and vegetables. Although they are not a dietary necessity, the intake of carbs greatly improves body functions.

Protein is an energy source used to manage enzymes, hormones, organ function, hair, skin, and muscle. It builds, heals and maintains body tissue. It is made up of amino-acid chains and important for long term health. Cats and dogs require a lot of protein. For example, a wound can take up to 30% of a pet's dietary protein for healing. Antibodies are produced with protein.

Plant proteins are less digestible than meat proteins, and high protein does not equal high digestibility. Imagine 200g of chicken versus 200g of chips. Chicken will always be healthier.

However excess protein intake can lead to health issues as much as protein deficiencies. Animals don't store excess protein as extra available protein, so it is eliminated by the kidneys, or stored as fat. Minimizing excess nutrients via controlling nutrient intake means minimizing extra work by the body to get rid of waste produced.

Dogs require about 18-30% of their daily caloric intake to be protein where cats require 30-40% and can even take up to 75% protein in their daily calories. Cats are carnivorous and will start pulling energy from muscle mass if they don't have enough protein in their diet.

Fats aka Lipids are a great source of energy and essential fatty acids. 1 gram of this energy source makes about 9 kilocalories of metabolizable energy for our pets, and that's roughly two and a half times more than 1g of carbs or protein can produce.

A certain amount of fat is required for good health, but excessive amounts lead to increased risks of various diseases such as obesity. Generally, fats are considered non-allergenic. It does have to be limited though, if your pet is getting minimal physical exercise to avoid weight gain and obesity.

6. Food and Allergies

To some people's surprise, food allergies only cause a very small percentage of all allergic reactions in pets. Environmental factors such as pollen, molds, and flea bites are the most common triggers for skin reactions. An animal can become allergic to any ingredient at any time in their life. An ingredient does not actually CAUSE the allergy; an inappropriate immune system response does.

Most recently, studies have shown that the most common allergens include protein (primarily beef) at 60%, soy at 32%, dairy at 28%, corn at 25% and wheat and eggs both at 20%.

The most common food allergens in dogs are beef, chicken, lamb, soy, dairy, wheat, and egg; whereas the most common food allergens in cats are fish, beef, and dairy.

7. Questions about Gluten, Grains, Corn, and Wheat

“Gluten free diets are good for people, so it must be better for my pet too”

This is one of the most common topics we face in nutrition lately. But wait. What is gluten really? Well, it is actually the protein component of any grain. Only about 2% of people have gluten intolerances. In dogs, gluten induced (celiac) disease is less than 1% and in cats this is not even an issue at all. Of all the canine breeds out there, Irish Setters are most likely to have gluten intolerance.

Concerns are primarily with rye, wheat, and barley; not corn. Gluten is a good plant protein source, as it provides structure to the food and has a high digestibility rate. Corn gluten is the protein in corn after the carbohydrate part is removed. It is less allergenic than the above ingredients.

“Someone told me that good pet food should be grain free.”

Grains provide carbohydrates, proteins, and other nutrients which add to both the nutritional value and the food structure. When properly processed, grains provide much needed nutrients that are part of a nutritionally complete and balanced diet. Many grain substitutes have higher carbohydrate (CHO) content than corn and there is no nutritional basis for a grain free diet. With all that in mind, foods with and without grains can be equally digestible, and they are treated as any other carb source within the body, being 99% digestible, which is better than meat.

“Isn’t corn just a “filler” that causes allergies?”

“Fillers” can be defined as ingredients with little to no nutritional value. Based on that definition, corn is by no means a filler. It provides a good source of carbohydrates, proteins, and essential fatty acids such as linoleic acid which has anti-inflammatory properties. It is also very important for eye health via supplying zeaxanthin. It contains an abundant amount of antioxidants such as vitamin E and beta-carotene, too. There are five grades of corn quality according to the USDA, and some pet food companies use only grade 1 and 2 as their standard, which is human food quality. Whole corn and corn meal provide highly digestible carbs as an energy source, and when corn is ground down and turned into corn gluten meal, it has 60-70% protein, making it a great source for essential amino acids. It also has about 2 times more antioxidants than one apple! As previously noted, a faulty immune system causes allergies, not the food.

“Wheat causes food allergies and my pet shouldn’t have it”

As we’ve already learned, food allergies are quite rare in our pets. It is estimated that only about 10% of allergic skin conditions are caused by food. Allergies to wheat are even more uncommon. It is an excellent source of complex carbohydrates and protein for energy. Wheat in our pets’ diet preserves the other proteins for building and maintaining the animals’ muscles and tissues. The only way to truly prove a food allergy is through a veterinarian-prescribed elimination diet trial. Arbitrarily avoiding one single ingredient will not prevent allergies from developing. Remember an allergy develops through an unnatural response of the immune system to a naturally occurring factor, not because of a certain ingredient.

One must remember that it is the overall quality of the pet food that makes it a good choice for our pets. It is extremely rare for any of these to cause stomach problems or allergic reactions. Gluten, grains, wheat and corn come in many forms, and are all used to create digestible and nutritious diets that will deliver all the essential nutrients dogs and cats need.

8. Nutrition Absorption

Ingredients are simply raw materials that are used to supply the nutrients needed to sustain life. Nutrients are the absorbed building blocks of good nutrition. They directly affect your pets' immune system, weight, skin and coat, muscle development and so on. The body absorbs individual nutrients, not ingredients, and requires a variety of ingredients of good quality to meet its needs. No single ingredient makes a foodstuff "good." A bag of food is a sum of its parts. The body recognizes food by nutrient, not by source so grains = apples = potatoes. All are carbohydrates, and their quality and digestibility need factored into their health benefit analysis.

9. Raw Food Diets

Raw food diets have become extremely popular; however, chances are you will have rarely seen this diet advertised in any Vet Clinic. This is because there is no proof of benefit in the practice of feeding raw meat over cooked meat, and at this point the risks of such a diet far outweigh the benefits.

Dogs are omnivores; not carnivores. They need fruits and veggies for a properly balanced diet. Raw diets are often produced in small companies that seldom have standard quality assurance or safety protocols, or certified nutritionists on staff. Commonly, they also lack the resources to support long term feeding.

Raw diets will not solve food allergy problems. Finding out and removing the allergen ingredient(s) from the pet's diet resolves food allergy symptoms.

Unfortunately, there are no studies done to prove that this type of diet is complete and balanced, and poor regulation of dog food production means food is often poorly balanced, with both excesses and deficiencies. Because of that, we are seeing more animals with calcium deficiencies causing early onset hip dysplasia, loose teeth, spontaneous fractures, and stunted growth among other illnesses. Raw meats may also expose the pet, their owners, and all surfaces in contact with the raw food to bacteria, parasites, and protozoa, the biggest threats here being Salmonella, Campylobacter and E. coli. If a raw food diet contains large amounts of raw liver, vitamin A toxicity may also develop. Other risks of raw food diets include tooth fractures and punctures/tears in the esophagus and gastrointestinal tract in the intestinal tract from bone fragments left in the food.

If anyone chooses to feed a raw food diet, all we can ask is that you please talk to us about proper supplementation to ensure your dog is getting as much of a complete and balanced diet as possible.

10. WSAVA Recommendations on Selecting Pet Foods

The WSAVA Global Nutrition Committee has published a list of valuable questions that one should ask of their pet food manufacturer to ensure owners are making informed decisions regarding pet food nutrition. These questions include:

- Do you employ a full time qualified nutritionist?
- Who formulates your foods and what are his/her credentials?
- Are your diets tested using AAFCO feeding trials or by formulation to meet AAFCO nutrient profiles?
- Where are your foods produced and manufactured?

- What specific quality control measures do you use to assure the consistency and quality of your ingredients and the end product?
- Will you provide a complete nutrient analysis for the dog or cat food in question?
- What is the caloric value per gram, can, or cup of your foods?
- What kind of product research has been conducted? Are the results published in peer-reviewed journals?

If you provide these questions to your pet food manufacturer, and they cannot or will not provide information, practice caution in feeding that brand.

11. Home Cooked Diets

There are published recipes from qualified pet nutritionists which, when followed exactly, will allow you to cook for your pet and achieve a balanced diet, removing the raw meat risks, and permitting fresh ingredient sourcing.

12. Natural Diets

In the wild, carnivores & omnivores will consume a whole carcass, including hooves, viscera, bones and hair. Wild animals will likely have broken teeth with dental abscesses and intestinal perforations among other health issues. Because of that, they rarely live as long as our house pets do.

A study was once done on ground rabbit being fed to cats. This was considered a “natural” diet, but not a healthy one! Sadly, the test subjects died from cardiomyopathy due to lack of taurine, which is essential to a cats’ diet. Arsenic is natural, and elemental, but not healthy. Although it is a naturally occurring product, one would not feed this to their pet 😊.

In conclusion, there are a few key points to keep in mind regarding pet nutrition:

- Be aware of the terms used on food labels, and read them carefully as terms are legally misleading
- There are many positive aspects to the use of meat by-products
- Organs are an excellent source of nutrients. Imagine any predatory animal in the wild. The first thing they go for is the organs because it is the most nutritious part.
- Look for foods that are more digestible (less ash)
- Some pets will experience food allergies; this is commonly not a fault of their food, but an abnormal immune system response.
- Gluten-free diets are not generally required or advised for pets, but some exceptions will occur
- When considering a Raw diet, determine what your goals are and whether they can be addressed in a safer fashion
- “Natural” diets also contain risks
- A nutritionally complete and balanced diet is key to a healthy life! Bodies absorb nutrients, not ingredients. Nutrients help sustain live, ingredients are simply the carrier of those nutrients.
- Always remember, Food is love, and although more food means more to love, it also means less time to do so! Obesity is a leading contributor to inflammatory health conditions, heart and joint disease, and shortens life but an average of two years.

Thank you so much for reading!!

We hope you have found some useful information on your pets’ nutrition needs.



Your Family, Our Passion!

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Please contact us for more information, to have any questions answered or to discuss your needs.

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