

Hey there, and welcome to Lesson Five, the major components of nutrition.

I mean we all know the old adage of, you are what you eat, and this lesson we're going to talk about exactly what that means in the sense of, what are the major components of nutrition? Particularly as it pertains to your dog or your cat. Now in Lesson Six we're going to talk a little bit more specifically about pet foods and what are the best pet foods for your pet, but right now let's really start at the ground level and talk about the major components within pet food or just the major components of nutrition in general.

So, to begin with, let's start with what may be the single most nutrient of all, is water. Clearly water is something that none of us can do without, and it serves all kinds of purposes in the body. It hydrates our cells, it allows our body to flush out toxins, it keeps our blood moving effectively. All animals need water, some need more than others, and the amount of water that your dog or your cat takes in is really a combination of the water that they're drinking out of their bowl, but also the water that's in their food.

So, realize that the particular type of food they're eating, so for example if they're eating a dry food diet, like kibble, kibble has very, very little water in it so you are likely to see your pet drink a fairly significant amount from the water bowl. Whereas if they're eating a canned food diet, or a fresh food diet, those diets can be upwards of 70% water. So, if you're feeding your dog or your cat one of those types of diets, you'll probably see them going to the water bowl a lot less, because a lot of the water that they're getting is actually in their food.

So, that's one of the things that I often have people tell me when they've switched their pet from a dry food to a fresh food diet, is they may call and say, "All of a sudden he's not drinking any water from the bowl any more." And that is a completely normal adjustment, just because they're getting their water from somewhere else.

Now when we're starting to talk about nutrients in food specifically, I think the first one to talk about is certainly protein, protein which is made up of amino acids is vital to nearly all body functions, your dog and your cat need protein for their muscles, their bones, their immune system, their digestive tract. Pretty much all aspects of physiology require protein on some level or another, and your dog or your cat is getting their protein from their food. Protein for the most part as it pertains to dogs and cats, is, or at least should be from animal sources.

Cats are what we call obligate carnivores, meaning that they are pretty much designed to eat almost exclusively meat, whereas dogs, dogs are more of what we would call a carnivorous omnivore if you will. So, dogs have quite a more broadly varied diet naturally, but when it comes to protein sources, really it should be meat based protein. That's one of the things that I often will discuss with people when we're evaluating one pet food over another. There are some pet foods out there that when you read the ingredients list, you may see something like wheat gluten or some other type of plant based protein. And while there are certain medical exceptions that would necessitate an animal to eat a plant based diet, for the most part all protein sources in pet food should really come from meat based sources. Because that is what their bodies naturally are designed to assimilate and designed to function well with.

So, I would always suggest that people try and steer away from foods that have protein sources that are not animal based. With the perhaps the two exceptions of, one, there's some of these very specific medical conditions that you can discuss with your veterinarian, and I will say just in a forward thinking sense, there are some companies out there right now that are looking at what are called cultured proteins. So, these are a new generation of proteins that are going to, or at least hopefully going to be as biologically appropriate as say, beef, pork, chicken, et cetera. But they're cultured in a laboratory setting if you will, which sounds a little strange.

But I'll bring it up because you're probably going to hear about it at some point, and I do think that there's some interesting promise there, both from a nutritional and an environmental standpoint, but we're probably a little bit too early to be able to fully evaluate how beneficial those proteins are going to be from a pet perspective.

Moving on to the next nutrient, fat, fat is a source of energy, just like protein. Both fat and protein are sources of energy in the diet, and fat in particular is a vital component of skin, the central nervous system has a very high requirement for fat. There are other areas of the body that require fat, and fat is frequently the body's tissue that it stores energy in. So, it is biologically appropriate, and a good thing for your pet or anybody to have a certain amount of body fat, because that's how we store energy. And that's how in times when we don't get enough to eat, our body is able to continue to function, it's the energy bank, if you will.

So, the relative amount of fat in a food is going to have a pretty significant effect on obviously the amount of calories in that food. Foods that are too high in fat do have the potential to cause some gastrointestinal upset, so that's something that we have to be careful of, particularly with animals that maybe have a very sensitive GI tract.

Moving on, the next, and in some ways, the most interesting nutrient group, are the carbohydrates. So, carbohydrates, things like starches that come from grains, or come from beans, or come from other types of usually plant based materials are sources of carbohydrates. The reason why I say carbohydrates are so interesting from an animal nutrition standpoint, is because dogs and cats don't really have a particular nutrient requirement for carbohydrates. In other words they would do just fine on a diet that has no carbohydrates in it, whatsoever, whereas we as people, because people are much more omnivorous than even dogs, as a general rule a certain amount of carbohydrates are healthy for people to eat.

With dogs and cats, they can eat them, but they really don't need them. And one of the things that we find, and this is a really important thing to realize about pet foods in general, is we tend to find pet foods that are extremely high in carbohydrates in such a way that not only do the dogs and cats not need them, but it is potentially a negative health impact, if you will. The reason why so many pet foods have really high levels of carbohydrates, it's just a function of the pet food format. What I mean by that is when we look at dry food, so kibble, for example. If you look at kibble as a baked good, which it is, you really can't make a baked good without carbohydrates in. And as such, most dry dog foods and dry cat foods can be anywhere from between 50 to upwards of 70% carbohydrates, and remember I said that dogs and cats don't have a metabolic requirement for carbohydrates.

This is especially true for cats, cats which are obligate carnivores, cats eat very, very little carbohydrates in the wild, except maybe nibbling on some grass or whatever may be in the digestive tract of the animal that they might be eating. Adding a lot of carbohydrates to their diet, particularly in cats can lead to weight gain, can potentially lead to other metabolic problems as well. So, we'll talk about this in more detail in Lesson Six, but it's always a good idea to limit the amount of carbohydrates that dogs and cats are eating, particularly cats, because it's just not something that they really need and if we're talking about what is an ideal diet, then keeping carbohydrates to a relative minimum is a good idea.

The last of group of nutrients that we're going to talk about is a much broader group of nutrients, it's vitamins and minerals. So, vitamins are very, very complex molecules that help support various body processes, all kinds of body processes. So, for example some of the vitamins we've all heard of, vitamin C is an antioxidant, vitamin D is used by the body to help regulate calcium and phosphorous, the list goes on and on. Whereas minerals, unlike vitamins which are very complex molecules, minerals are single element sort of things, so calcium, magnesium, selenium, these sorts of

things. And again, the body needs these minerals in the appropriate quantities, in the appropriate proportions to maintain all of the various body processes.

And I go over all of this, and all of these different types of nutrients in my book *The Ultimate Pet Health Guide*, in much greater detail, but the bottom line is, is that your dog or your cat requires water, protein, fat, to a much lesser extent carbohydrates, and then vitamins and minerals, all in the appropriate quantities and the appropriate ratios, in order for them to be healthy. When pet food companies start to formulate and put together pet foods, these are the things that they're looking at to create a nutrient profile, or a nutrient spectrum, if you will, to support good health. The problem that sometimes happens with commercial pet foods is, there's more than one way to achieve a given nutrient profile. You can achieve a given nutrient profile with really, really high quality ingredients, and you can also frequently achieve the exact same profile with much lower quality ingredients.

Clearly just because they have the same amount of protein, fat, carbohydrates, et cetera, those diets are not necessarily equal, and that's some of the stuff that we're going to talk about in the next lesson, in Lesson Six. So, that you can start to discern what is better, and what is less ideal for your pet, beyond even just the general content of protein, water, fat, carbohydrates et cetera.

So, that's a lot of information to digest, so to speak, but at the end of the day it's really important as we begin to talk about, what is ideal, what's optimal as far as nutrition? That you just understand the basic components of nutrition, so that way when we do start to talk about food, we have a basis of understanding of where we're going to go from there. That's going to wrap it up for Lesson Five, thanks so much for joining us, and we look forward to seeing you.