

Your Herbivore and You

A guide to choosing the right vegetables for your pet

So you've recently acquired an herbivore, like a tortoise or a rabbit? Or maybe you've taken home an omnivore, like a bearded dragon? In any case the clerk at the pet store told you that you would have to formulate some, if not all, of this animals food on your own.

This means going to the grocery store and stepping away from comfortable, tried and true section of the produce department and sniffing out something that may be a bit more exotic. This means unlike your dog, who gets the same bowl full of the same kibble every morning and night, your new pet's health and well being depends on feeding one thing today and something entirely different tomorrow.

But what vegetables are the best? What can you feed too much? Are there any that should be avoided altogether? Contained herein is a simple, informative, and concise guide to formulating an herbivorous diet.

Nutrients: Macro v. Micro

Macronutrients are the basic building blocks of nutrition. Protein, fat, carbohydrates, and water are all macronutrients. In general an herbivore's diet should be low in protein and fat, and high in water, fiber, and plant proteins. Animal protein is almost always accompanied by a high fat content and can be dangerous if fed to strict herbivores, whose digestive systems have evolved to extract maximum nutrition from nutrient-poor plant matter. Avocado, because it is high in fat, should not be fed to herbivores.

Commercial pelleted diets may contain all the proper vitamins and minerals in the proper amounts, but lack water. Animals fed exclusively on pelleted diets often become dehydrated.

Micronutrients are vitamins and minerals, the catalysts that allow body processes to take place. Most strict herbivores are browsers, which means that they graze in one field one day, then amble over to another field the next. Over the course of a year a browser will eat dozens of different kinds of plants, as well as small amounts of soil. This makes a deficiency in any one micronutrient unlikely. In captivity it is important to rotate your pet's diet to ensure that no nutrient is deficient or fed in excess.

Again, pelleted diets contain what the manufacturer thinks is the right balance of micronutrients, but vitamins and minerals from fresh vegetables have a much greater bioavailability. That means that your pet's body is able to absorb and use that vitamin much more efficiently. Raw fresh vegetables also contain digestive enzymes, which precludes the body's need to produce its own enzymes, allowing more nutrition to be gleaned from the food.

Secondary Plant Compounds

All plants contain certain chemicals that can affect their digestion. Plants evolved with these chemicals the same way your hedgehog evolved with spines or your tortoise with a shell, as natural defense mechanisms. Some plants may want to repel certain herbivores, which destroy the plant, and attract others, which pollinate it.

Our concern with the plants available at the grocery store will be with two major categories of secondary compounds: oxalates and goitrogens. Oxalates and oxalic acid bind with calcium and inhibit its absorption by the body. Goitrogens affect thyroid function by inhibiting iodine uptake and cause goiters.

Plants high in oxalates include: spinach, beet greens, kale, collard greens, parsley, chard, and okra

Plants high in goitrogens include: all cruciferous vegetables (broccoli, cabbage, kale, brussels sprouts)

Does this mean that you should avoid these veggies altogether? NO. ALL plants contain secondary compounds. Variety is the key! Care must be taken not to over feed vegetables from these categories, or make them the basis for any diet, but they are an excellent addition to any well varied meal plan.

Frozen Vegetables

Frozen vegetables are a great convenience, and can provide a great back up for when you run out of greens and can't get to the store. However, frozen veggies should not comprise a regular part of your pet's diet. Freezing destroys thiamin (vitamin B1), an essential nutrient.

Fat Soluble Vitamins

Vitamins A and D are both fat soluble vitamins, so when fed in excess they accumulate in the fatty tissues of the body and cause health problems. This is known as hypervitaminosis, and can manifest similarly to vitamin deficiencies or metabolic bone disease.

The easiest way to protect against over-vitaminizing is to provide vitamin A in the form of beta carotene, which the body converts to vitamin A as it needs to. Foods high in beta carotene are often bright orange, such as: carrots, sweet potatoes, and hard-shell squash. Provide vitamin D by giving natural sunlight, or simulated UVB light from special reptile bulbs, and your animal will synthesize its own.

A Basic List

Here is a basic list of acceptable veggies:

Staple Veggies: Hardshell or winter squash, dandelion greens, mustard greens, cactus pads (prickly pear), green beans, snap peas, parsnip, turnip tops, and others.

Avoid feeding in excess: Spinach, kale, collard greens, okra, asparagus, summer squash, carrots and carrot tops, beets and beet greens, broccoli, parsley, sweet potato, and others.

Avoid: Lettuces (nutrient poor – but won't harm your animal), avocado, cabbage