

HOLISTIC HEALTH CARE FOR CAVALIERS PART FIVE

Supplements and Nutraceuticals

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I have considered the items that have improved the health of our six generations of Cavaliers over the past twenty years and have broken it down to the following areas:

1. Limiting Vaccinations
2. Improving Nutrition
3. Homeopathic and Other Holistic Modalities
4. Stopping Suppressive Medical Treatments
5. Appropriate Supplements and Nutraceuticals

We have taken each of these areas separately, in previous chapters. This chapter will delve more deeply into *Supplements and Nutraceuticals*. I know we have already discussed this, to a small amount, in earlier chapters and we are all trying to feed a balanced, raw food diet to some degree.

To Review

The US Congress, in 1994, defined a dietary supplement as a product that contains substances like vitamins, minerals and amino acids. It may also contain herbs or more specifically, botanicals and is intended to supplement the diet. These are administered orally and come in many forms.

Nutraceuticals are chosen to do more than just be dietary supplements. They help the body deal with more specific issues. A commonly used example is glucosamine in joint disease. It is frequently used, in dogs and people (and most other species), to help the joints in cases of DJD (Degenerative Joint Disease) and other forms of arthritis. It does more than just supplement the diet. Nutraceuticals help with disease prevention and treatment.

Another term we often use is glandulars. In my mind, glandulars are supplements that work as Nutraceuticals. They are derived from food products (i.e. the name and source) and help to increase the presence of substances like hormones and vitamins that are usually derived from glands. Some common glandulars in our practice include thyroid, adrenal, thymus. We also will use many formulas that are targeted at specific organ systems and are derived from those organs, and I tend to lump them in the same category. I realize that they are not actually glandulars but liver, kidney, and pancreas are examples of things we often administer and tend to list them in this category. In fact, most raw food diets contain or recommend organ

meat on a regular schedule due to the high nutritional content of these sources.

Supplements

For our purpose, we will break nutritional supplements into three main categories:

1. Vitamins
2. Minerals
3. Amino Acids

This is a good way of examining the more common substances and getting a better understanding of their area of action.

Vitamins

There are many of these and we are all inundated with e-mails and articles telling us to take this one or avoid this vitamin or that this food has the most vitamin content for your pet. Each of these could be a chapter unto itself so we will try to keep it focused to the essential points.

Vitamin A - (Retinol and Carotenes) is used by the body to help the retina in the eye, the skin and also DNA-RNA function (more specifically gene transcription but that is more than we need to know). It is also an antioxidant. Many animal species can convert beta-carotene to retinol but some cannot as they lack the specific enzyme for this task (the cat is an example). These must get retinol directly, and do so, from animal meat sources. Vitamin A is a fat soluble substance, so it is harder for the body to eliminate excessive amounts than it is for water soluble vitamins like vitamins B and C. This makes toxicity more possible and studies in people show high levels of vitamin A can lead to osteoporosis and fractures and even problems with fetal development. Liver is a major source of vitamin A and B12 and a good reason to feed organ meat in your raw food regimen.

Vitamin B1 – Thiamine – is necessary for proper nerve function, cardiac function and a number of other essential processes. Extreme deficiency can lead to neuritis but low level deficiency can lead to weakness, malaise, confusion, agitation, and weight loss. It can help in the diabetic pa-

tient. It is not made in the body but produced by plants, bacteria, and fungi and is a water soluble vitamin (as are all the B vitamins). I have also seen animals and people that seem especially attractive to insects like mosquitoes, fleas and ticks become more resistant on B1 (thiamine) supplementation. Brewers or Nutritional yeast is a good source in the diet.

Vitamin B6 – Pyridoxine – has many areas of action in the body. These include; nerves, blood, genes and allergies (histamine), fat, glucose metabolism and amino acid production. There are many sources of B6 and deficiency is rare, but can result from the use of corticosteroids or anti-seizure medications.

Folic Acid – Vitamin B9 – Folic acid is also known as Vitamin B9 and is important in blood production, DNA synthesis for rapidly growing and dividing cells as in a fetus, and may also play a role in cancer. Deficiency can lead to diarrhea, anemia, nerve damage, mental confusion and a myriad of other issues. Fortunately, it is commonly available in the diet and severe deficiency is unusual but can occur in malabsorption syndromes, and with the use of some drugs like sulfonamides and trimethoprim (Bactrim).

Vitamin B12 – Cobalmin has intricate action with the nervous system and can affect motor function, as well as memory. It is also very important in the formation of blood and in the synthesis of DNA. It is available from both plant and animal sources, although it appears to be more readily absorbed from animal sources. It is absorbed orally with the help of an “intrinsic factor” manufactured by the same stomach cells that produce stomach acid. Drugs that decrease stomach acid production (like Tagamet and Pepcid) may also reduce B12 absorption when used over the long term. It is usually supplemented orally or, if needed, by injection of Cyanocobalmin.

Vitamin C – Ascorbate is used by the body as an anti-oxidant and is also very important in collagen synthesis and wound healing. It is synthesized by many animal species but some (Guinea Pigs, some apes, and humans) must take it orally as they cannot produce their own.

Vitamin D - is required in animals as an anti-oxidant and for proper bone formation. Whereas people tend to synthesize vitamin D from sunlight, our animals are not as efficient at this process and need to take in sufficient quantities. Good sources of vitamin D are fish, eggs and especially cod liver oil. Note that other fish oils do not appear to contain the amounts of vitamin D found in cod liver oil. If feeding a commercial food, vitamin D

supplementation is usually not needed as these diets are replete with vitamin D.

Vitamin E – Tocopherol is a potent anti-oxidant and essential for many functions in the body. Deficiency of vitamin E in animals has been shown to produce muscle disease, infertility, nervous system degeneration, and anemia. The best sources of vitamin E are usually fruits, vegetables and grains. Wheat Germ oil, sunflower oil, safflower oil are all great sources and can be added to a custom diet. It is also available in many vitamin supplement forms and can be added that way. An all meat diet can be deficient in this fat soluble vitamin unless supplemented. This is especially true if fed commercial beef which can be low in omega fatty acids already.

Vitamin K - is involved in blood coagulation and bone metabolism. It is common in leafy green vegetables, but not present in most oils in significant amounts. Much of the vitamin K produced in the body comes from bacterial flora in the colon. This is a reason many newborns (human) receive a vitamin K injection at birth to tide them over for the first week until their colon becomes colonized with bacteria. This is something to consider in animals on antibiotics that affect the gut bacterial flora.

Dogs and cats that are exposed to Warfarin (or derivatives) in rat poison often require vitamin K injections and supplementation for a month as the toxin disrupts the vitamin K for clotting, thus creating hemorrhage.

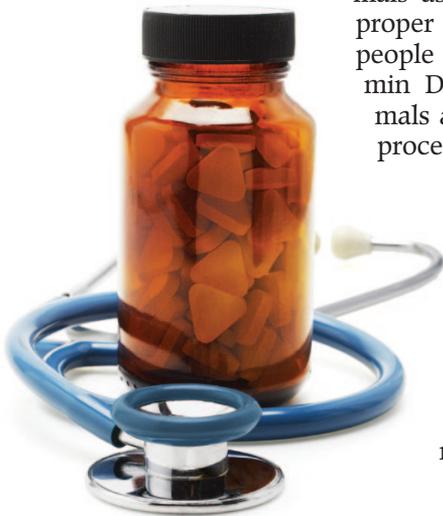
Primary vitamin K deficiency is rare, but can occur. Most cases appear to be related to animals that have liver pathology, inflammatory bowel disease (IBD), or are on medications that affect vitamin K levels.

Minerals

The body has and requires a plethora of minerals, both common and trace. A full discussion of all of them is beyond the scope of this chapter, but we will focus on two very important minerals that can be easily affected through diet or pathology. These are calcium and phosphorus.

One will always see discussion of these two minerals and the calcium-phosphorus ratio when it comes to nutrition and especially raw feeding. This is because the two minerals are intimately associated in digestion and absorption. Phosphorus will bind to calcium in the digestive track forming a combination that will not be absorbed. Meats are very high in phosphorus but low in calcium. Bone is the opposite. When feeding a high phosphorus diet, the excess of phosphorus binds the available calcium and can create a calcium deficiency in the animal. This is why most meat based diets are supplemented with calcium as bone, or other available forms.

Much has been written about the calcium: phosphorus ratio in diets. This is important for the reasons already stated. One needs to be careful not to feed a diet that is outside the accepted ratio range to maintain an appropriate calcium intake so the animal does not scavenge the calcium from its own bones to maintain calcium in the body. At the same time, fast-growing and larger breed dogs have been shown to have problems during development



with inappropriately high calcium supplementation. Also remember that pregnant (up until the last week when you should decrease it until they whelp) and lactating dogs do need extra calcium.

The taurine requirement in cats was not discovered until mid-1970, when it was realized that cats fed an all tuna (human) diet were having increased incidents of retinal problems and cardiomyopathy. Since taurine is present in red meat and lacking in tuna, the all tuna diet was taurine deficient. Taurine is often supplemented in dogs with cardiomyopathy and other heart disease.

Stage of Life	% Calcium*	% Phosphorus*
Peak Growth and Lactation	1.0 – 1.8	0.8 – 1.6
Half Grown and Last Trimester of Pregnancy	0.8 – 1.5	0.6 – 1.2
Adult Non-Reproducing	0.5 – 0.9	0.4 – 0.8
* On a dry matter basis		

With all this in mind, the appropriate calcium: phosphorus ratios seem to be in the range of 1.2:1.0 to 1.8:1.0 (that means 1.2 units of calcium to each unit of phosphorus up to 1.8 to 1 in lactating dogs). There is a fair amount of variation in research studies, but this seems to be the average agreed upon range. It becomes a bit less important in mature, non-reproducing dogs and cats.

As I mentioned briefly earlier, it is interesting to note that the calcium requirement for pregnant dogs drops in the last trimester of pregnancy. We were taught in veterinary school (albeit in the mid 1970's) that one should decrease the amount of calcium supplementation in the pregnant dog toward the end of the gestation period (which is 63 days long) to allow the body to equilibrate and reduce the chance of "milk fever" postpartum. This is seen in dogs (and other species) where they spike a fever and can often go into convulsions because of the hypocalcemia – low calcium in the blood, after they start producing milk. That is also why the calcium supplementation should increase immediately post whelping.

Suffice it to say that the ratio of calcium to phosphorus is probably the most important component of a discussion on diet and minerals.

Amino Acids

Amino acids are the basic components of proteins in the body. They are the building blocks. Most species have a requirement of essential amino acids – these are the amino acids that the body needs but cannot synthesize so they must be in the diet or supplemented. Cats and dogs have the same requirements for the same ten essential amino acids. However, cats also require taurine.

- arginine
- histidine
- isoleucine
- leucine
- lysine
- methionine
- phenylalanine
- threonine
- tryptophan
- valine
- taurine (required in cats)

As we stated at the beginning:

Nutraceuticals are chosen to do more than just be dietary supplements. They help the body deal with more specific issues. A commonly used example is glucosamine in joint disease. It is frequently used, in dogs and people (and most other species) to help the joints in cases of DJD (Degenerative Joint Disease) and other forms of arthritis. It does more than just supplement the diet. Nutraceuticals help with disease prevention and treatment.

For our purpose, we will break these supplements into four categories:

1. Joint and Musculoskeletal System
2. Anti-Oxidants
3. Immune Support and Modulation
4. How We Address Specific Organ Systems

Joints and Musculoskeletal System

This is one of the major areas that plagues dogs, some cats and, of course, people. There are a myriad of products on the market to enhance joint and MS (Musculoskeletal) well-being. Some of the better known ones aid in the lubrication and conditioning of the cartilage and joints.

Chondroitin Sulfate – is a glycosaminoglycan and is composed of two sugars; n-acetylgalactosamine and glucuronic acid. It is usually combined with glucosamine and sometimes vitamin C in the compounds we use.

We now believe that chondroitin sulfate acts to decrease inflammation. It also stimulates the production of hyaluronic acid and something called proteoglycans. Proteoglycans are fundamental building blocks of the tissue matrix and also help lubricate joints. Chondroitin also may affect the chondrocytes, the cells that break down cartilage. In summary, one can hypothesize that, if one of the causes of osteoarthritis is a deficiency in these substances, chondroitin can be effective in reducing those problems.

Glucosamine – is given alone or with chondroitin in many formulations. Biochemically, glucosamine is a precursor for glycosaminoglycans (one of those 2 sugars that compose chondroitin). Since the glycosaminoglycans are a major component of joint cartilage, glucosamine may help

to prevent cartilage degeneration and treat arthritis.

MSM – Methylsulfonylmethane is related to DMSO and has been shown to have anti-inflammatory effects, especially in osteoarthritis. These claims however, have been disputed by other studies and the jury is still out, although anecdotal evidence in thousands of cases has demonstrated a positive effect on osteoarthritis dogs. MSM, chondroitin, and glucosamine may also be used in bladder disease since they do appear to support the collagen matrix in the bladder sub mucosa (the connective tissue layer).

Anti-Oxidants

Oxidation in the body creates things called “free radicals”. These free radicals have been thought to contribute to aging, cellular destruction, and cancer. Some of the vitamins like, A, E, and C are antioxidants, but animals often do much better when getting an additional source of antioxidants. Coenzyme Q10, grapefruit seed extract and Sam-E are all good examples of antioxidants we use in our practice.

Coenzyme Q10 - is particularly useful in heart and gum disease as those are the main tissue in which it collects.

Sam-E is a powerful antioxidant that seems to benefit the liver and we use it, often in conjunction with Milk Thistle, as a veterinary product called Denamarin. Regular incorporation of an antioxidant is an effective tool in health maintenance in our animals.

Immune System Support

The immune system is something we try to support in both health and disease states. There are numerous products to help the immune system (or at least purport to) so we have narrowed our practice's focus to a few products but have worked with many over the decades. There are so many that we can only cover the ones we feel are consistently effective.

Dimethylglycine - (DMG) is a derivative of the amino acid glycine. It is also a by product of the metabolism of choline. It is chemically similar to the B vitamin family in structure but is not classified as a vitamin. It has been used as a nutritional supplement for over 25 years for various areas of nutritional support. Navy studies have shown a decrease in sailors getting colds and infections on taking it and it also appears to have anti-seizure activity. We have used it for almost 20 years in our practice with excellent results in both over stimulated and under responsive immune disorders, as well as many chronic viral and tumor cases. We primarily use the DMG in liquid form, but it is available as tablets. For larger breed dogs, we recommend the DMG equine powder (more cost effective) and calculate the equivalent quantity required.

Colostrum – the first milk produced after birth has been harvested from cows, especially in New Zealand, and has been used to improve the immune status of dogs and peo-

ple.

Canine and Feline Immune Support

(Glandular – Standard Process)
– we use this veterinary product extensively for immune support.

Immuplex (Glandular – Standard Process) – we also use this in many of our chronic immune related cases.

Colloidal Silver and ACS 200 Silver – there has been much written about the benefits (or lack of) for colloidal silver. We have historically found the most effective method was to use a solution you made yourself. Recently, we have been prescribing a product called ACS 200 Silver, which is supposed to be a newer generation with nano particles. So far, it has had encouraging results in a limited number of cases.

Rx Onco Support – A combination of nutrients and herbs that has been very helpful in dealing with our cancer cases in dogs. The biggest drawback appears to be in taste but most dogs tolerate it well if one builds up slowly.

How We Support for Specific Organ Systems

REMEMBER - All of these regimens are general ones used in our practice and each one is specific to a particular case and coupled with homeopathic and other care. None of these are recipes for treatment for animals that are not our patients and should be used only under the advice of your veterinarian.

Heart – we use Standard Process Canine or Feline Cardiac support (SP) and Rx CV Formula – We also will always include CoQ10 and may add Taurine to a regimen.

Gastrointestinal – we like a product called Fast Balance by VetriScience, if we are having loose stool as a symptom. It is a combination paste that includes probiotics and vitamins. We do prefer our patients to be on a compatible probiotic for their situation, and often some digestive enzymes. We use Rx Biotics, Nutrigest and Florazyme plus Standard Process (SP) Intestinal Support, and some specialty products. Since there are so many G.I. presentations and allergies, care must be taken not to load up the animal and really throw them off balance.

Liver – as previously mentioned, Sam-E, Milk Thistle, often along with Dandelion Root, are excellent products to help with liver issues. We also use Canine and Feline Hepatic Support (SP), Hepatrophin (SP) and Livaplex (SP), depending on the case and the other therapy we are administering.

Pancreas – the Pancreatic Enzymes are usually critical to help replace the missing enzymes to aid in proper digestion and absorption of nutrients. Depending on the

presentation and involvement with other organs in the region, we may add in some of the G.I. support protocols.

Joint Weakness and Injury - Standard Process (SP) MS Support and Ligaplex – are often included in the appropriate cases. We also use the major supplements discussed in the preceding section depending on the case.

Kidney – There are a number of supplements available for kidney issues. We do like Canine and Feline Renal Support (SP) and Renaplex (SP). Another product we have found very helpful is Azodyl. This is a special probiotic that helps to minimize the nitrogen forming bacteria in the intestine, thus relieving some of the nitrogen load on the kidney. Herbally we often include parsley and asparagus to the regimen. While not a supplement or a Nutra-ceutical – proper fluid therapy is often a key to success in these cases.

Skin – Most of the skin issues respond to the proper balance of Ultra-EFA's (Essential Fatty Acids) and a good balanced shampoo as an adjunct to proper homeopathic therapy and great nutrition. We do use Dermal Support (SP), Rx Ultra-EFA internally, and often Green Tea poultices for small wounds and hot spots. Honey can also be a great topical.

Nerves and Brain – products we use to help in neuro-logic disorders or anxieties include: DMG, Neuroplex (SP), Neurotrophin (SP), Melatonin, and Bach Flowers.

Adrenals – often these are Cushing's disease animals and they often respond well to appropriate homeopathic care, but we do like Adrenal Support (SP) in these cases.

Thyroid – This is a big problem in dogs and cats. The dogs are almost always hypothyroid (low) unless they are in season or have a tumor when they can be hyperthyroid. They cats are almost always hyperthyroid. Along with the homeopathic therapy, we use Thyroid Support (SP) or Whole Body Support (SP) and Thyrophin (SP) to balance the thyroid.

In summary, I hope you now realize there are so many different methodologies, so many supplements, and so many other products that it would be impossible to cover every product. We have explored the ones with which we have hands on experience and use regularly. This is not to say they are better, or that something else you use or read about is not effective. They are the ones that have consistently worked in our practice.

Over the past five chapters we have tried to acquaint you with our perspective on health and disease as applied to our dogs and our patients. Hopefully it will have opened your eyes or reinforced previously held beliefs and your crew can enjoy wonderful health and a long life. 🐾

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