Nutritional Management of Thyroid & Immune Disorders

W. Jean Dodds, DVM

Holistic Approaches for Immune Support

Holistic alternatives and homeopathic remedies can be used in place of standard allopathic treatments for immunologic disorders. Alternative means of down-regulating the cytokines that trigger cell-mediated immunity also can be used instead of the immune-suppressive effects of corticosteroids. Some clinicians use biologically active glandulars such as multiple glandular supplements or thymic protein, which often contains variable amounts of biologically active thymosins (e.g. thymosin, thymulin, thymopoietin, thymic humoral factor) that affect cell-mediated immune function. Thus, while thymic extracts may be most appropriate for treating immune dysfunction and suppression, they could be harmful if used in immune-mediated and autoimmune diseases.

Other treatments that offer immune support include: plant sterols and sterolins, herbs such as echinacea, and medicinal mushrooms. Plant sterols and sterolins (phytosterols) are sterol molecules synthesized by plants and ingested by humans and animals in the form of fruits and vegetables. These compounds have been shown in animals to have antiinflammatory, antineoplastic, antipyretic, and immunomodulating activity. Phytosterols improve T-lymphocyte and natural killer cell activities. Overactive antibody responses are also dampened to help control immune-mediated and autoimmune disease processes. Echinacea, the purple coneflower, is probably the most widely used herb today and has been used for centuries. Common uses include treatment for the common cold, coughs, bronchitis, upper respiratory infections, and some inflammatory conditions. The mechanism of action of echinacea is unknown, although it is presumed to enhance immune function generically.

Potent medicinal properties are contained within certain mushrooms, notably Maitake (Grifola frondosa), Reishi (Ganoderma lucidum), and Shitake (Lentinula edodes). These medicinal mushrooms exhibit a variety of antitumor, antiviral, antiinflammatory, and immune enhancing properties.

Bolstering detoxification pathways mediated through the cytochrome P450 system and via conjugation with protective amino acids (glutathiones, cysteine, taurine) is important. Antioxidants including vitamins A, C, D and E, selenium, bioflavonoids and homeopathics are used as biosupport to strengthen the patient's metabolism and immune system before implementing harsh detoxification regimens (once offending toxicants have been identified by such methods as applied kinesiology, intero- and electrodiagnostics). This author supplements all patients on a weight basis with extra vitamin E (100-400 IU/day), vitamin C in the ester C form (500-1500mg/day), Echinacea
with Golden Seal, and garlic, although many other herbal and supportive nutrients also can be used. Animal experiencing adverse vaccine reactions are given Thuja, Lyssin (rabies vaccine) or sulphur. Specific Bach flower remedies are also helpful.

Effective nutritional and other supplemental support for these patients can only be achieved when coupled with the need to avoid or minimize toxic exposures (e.g. pesticides on pets or their surroundings, chemical fertilizers, radiation, high tension powerlines), booster vaccinations, preventative chemicals for heartworm, fleas and ticks, and drugs known to exacerbate immunologic disorders (e.g. potentiated sulfonamides, sex hormones). Alternative strategies to protect against common infectious diseases include: annual vaccine titers, homeopathic nosodes, natural methods of heartworm, flea and tick control.

**Dietary Amino Acid Deficiencies**

A recent publication assessed the neurologic effects of dietary deficiencies of phenylalanine and its metabolite tyrosine in cats. Findings suggested the chronic dietary restriction of these essential aromatic amino acids in cats may result in a predominantly sensory neuropathy. Phenylalanine is utilized in protein synthesis in all millions species including humans. Its metabolite, tyrosine, is essential in the formation of thyroid hormones, melanin, and in euro transmitters dopamine, norepinephrine, and epinephrine. In humans, absolute tyrosine deficiency is postulated to cause mental retardation in children, although this is not been proven. In the present study, behavioral abnormalities such as hyperactivity and vocalization were observed, and may have been the result of altered neurotransmitter concentrations in the CNS. In dogs, increased a barking and growling have been associated with sensory neuropathy. Thus, current recommendations for dietary phenylalanine and tyrosine in cats, and possibly other species, appear to be insufficient to support normal long-term neurologic function.

**Dietary Effects of Soy Protein**

Another study examined the effects of short-term administration of a soy diet in comparison to a soy-free diet on serum thyroid hormone concentrations in healthy adult cats. As soybeans are commonly used as a source of high-quality vegetable protein in commercial pet foods, the question arises whether this potential source of dietary goitrogen could offer an explanation for the ever increasing incidence of feline hyperthyroidism throughout the world. The mechanism whereby soy affects thyroid metabolism is poorly understood, although many theories have been elucidated during the past 70 years. What is known is that soy has inhibitory effects on thyroid peroxidase. Of 42 commonly fed premium commercial cat foods examined by the authors, 24 of them contained substantial amounts of soy isoflavones. These polyphenolic compounds found in soy have weak estrogenic properties as well as effects on thyroid metabolism. The effects of soy on the thyroid gland are modified by dietary iodine. Therefore, iodine deficiency enhances the goitrogenic effects of soy, whereas iodine supplementation (e.g. kelp in modest amounts) is protective. However, the iodine concentration in commercial
pet foods today is about three times the stated minimum requirement, and so this variable is not a factor.

Results of the study showed the soy diet to produce a measurable though modest increase in the amount of total T4 (8%) and free T4 (14%), whereas T3 concentration was not changed. Similar findings have been previously shown for miniature pigs, hamsters, and rats fed soy proteins. Because both T4 and free T4 were elevated in the present cat study, the increased total T4 concentrations did not result from an increase in thyroid hormone-protein binding. The potential impact of these findings are clear. Long-term feeding of a soy diet to cats could induce chronic low level hyperstimulation of the thyroid gland which could lead to formation of thyroid adenoma and feline hyperthyroidism in middle-aged aged cats. This hypothesis needs to be tested with long term feeding (years) of soy diets.

Another interesting relevant study of commercial dog foods determined the type and concentration of soy phytoestrogens. 24 common commercial dog foods were examined, 12 were moist or dry extrusion products that contain soybeans or soybean fractions, and another 12 had no soybean-related ingredients listed on the label. The phytoestrogens measured included 4 isoflavones, 1 coumestan, and 2 lignans. None of the diets stated to be soybean-free contained these phytoestrogens, whereas 11 of the 12 soy diets had significant levels of these plant-derived nonsteroidal compounds, and one soy diet contained only soy fiber. The conclusion of the study was that soybean fractions are commonly used ingredients in commercial dog foods, and the phytoestrogen content of these foods is high enough in amount to have biological effects when ingested long-term. These effects can be both beneficial and deleterious. Further investigations are needed to look at the effects of phytoestrogens on the immune response of puppies and adult dogs (e.g. thymic and immune abnormalities); effects on the steroidogenesis, especially of sex hormones (e.g. delayed puberty and infertility); and possible undesirable effects on skin and coat length and quality.

**Dietary Supplements**

Whether the fed animal is fed a balanced premium commercial pet food, properly balanced homemade diet, or raw diet, certain supplements can be beneficial. Some supplements to consider include unpasteurized, unfiltered apple cider vinegar; kelp, deep-ocean harvested, and given twice a week [not more often or in large amount, as the high iodine content of kelp has been linked to autoimmune thyroiditis in people]; daily vitamins C and E, but not in megadoses; pumpkin, sweet potato or yams as a source of dietary fiber for diarrhea and IBD; and periodic helpings of unpasteurized yoghurt. Herbs are also useful remedies for toning the immune system and behavioural modification. These include nutritional herbs such as garlic, valerian, kava kava, St. John's wort, passion flower, burdock and alfalfa; and medicinal herbs such as the Western and Chinese herbal repertories, and hawthorne, although there is a huge variety of available herbal remedies. An comprehensive summary of Chinese food therapy and suggested oral herb doses can be found in Appendices B and C of Wynn and Marsden's Manuel of
Natural Veterinary Medicine, Mosby, St. Louis, Missouri, 2003. Other forms of dietary supplements include the essential oils and flower essences.

For animals with autoimmune disorders and immune dysfunction, optimum nutrition is essential to provide appropriate, but not excessive protein intake and calories. Further, the use of novel protein, hypoallergenic diets, or modified protein diets is important in managing food hypersensitivity, and to heal the "leaky gut syndrome" that is often present. Probiotics may also be helpful as they provide beneficial bacteria to modulate immune inflammatory responses. Antioxidants can reduce the inflammation of immune-mediated disease, whereas diets low in fat or high in fish oils provide fatty acid supplementation to reduce the severity and increase survival.

Epileptic animals often benefit from dietary management, and avoiding "triggering" situations or exposures. Most holistic practitioners recommend high-quality homemade or even raw food diets for their epileptic patients. Some of these animals have grain and/or protein sensitivities, so that feeding strictly hypoallergenic or modified, hydrolysed protein diets is beneficial. Feeding smaller meals more often can be helpful in managing blood sugar levels and appeasing the increased hunger seen in dogs taking phenobarbital. Taurine supplementation (e.g. 250 mg /40 lbs body weight daily) has been advocated for dogs that eat commercial or grain-based diets. Taurine is also beneficial because it reduces seizure activity, especially in dogs having tremors or noise-triggered seizures.

Owners of epileptic dogs also report that certain heartworm preventatives, vaccine boosters (especially for rabies), and flea or tick control products can lower the seizure threshold in susceptible animals. Other potentially toxic exposures that can trigger seizures include: household cleaners and insecticides, paints and solvents, lawn and garden chemicals, and even such assumed innocuous substances such as air fresheners and aromatic herbs, like sage and rosemary, that are commonly found in commercial pet foods.

For dogs taking phenobarbital, holistic veterinarians typically recommend herbs that protect the liver from damage such as milk thistle (silymarin) or dandelion, although dandelion is also a diuretic which may present an undesirable side-effect. Denosyl methionine can also be used. Both Chinese and Western herbs have been used with success in some epileptics, as have chiropractic, acupuncture and homeopathic remedies. A basic liver cleansing diet made up of ingredients such as boiled white potato/sweet potato in a 1:1 mixture fed together with whitefish in a 2/3 potato:1/3 fish ratio can be beneficial. This can be augmented with boiled carrots, garlic, mixed Italian herbs, and a liquid multivitamin.

References

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