Keep Chelonians on the Sunny Side

Metabolic bone disease (from calcium deficiency) may be the most common disease of captive chelonians. Vitamin D₃ increases intestinal calcium absorption, but UV light exposure may more efficiently increase circulating vitamin D₃ than nutritional supplements.

To compare vitamin D₃ levels, 18 client-owned Hermann’s tortoises were randomly assigned to 3 groups of UVB exposure: unfiltered sunlight in the natural geographic range, a self-ballasted mercury-vapor lamp, or a fluorescent UVB-emitting lamp. It was hypothesized that patients exposed to the fluorescent lamp would have lower vitamin D₃ levels than those in the other groups. All tortoises had equal natural sunlight exposure before the study and were fed the same vegetation throughout the study. At days 0 and 35, plasma vitamin D₃ levels in the groups exposed to artificial UVB sources dropped significantly, whereas tortoises exposed to natural sunlight remained stable. There was no significant difference between the groups exposed to artificial UVB.

Adequate synthesis of vitamin D₃ may not be achieved via lamp manufacturer recommendations, and tortoises (especially those with metabolic bone disease) should be exposed to unfiltered natural sunlight at a latitude similar to their natural habitat.

Commentary

Reptile husbandry must be tailored to the requirement of a particular species. These animals are highly adapted to their native environments, even in the aspect of UV light, and UV supplementation needs to be based on natural history and be qualitatively appropriate for a given species. Measuring the level, intensity, and physiological effects of provided light is necessary for proper diagnoses and treatment measures. More work is needed in a species-specific manner to understand the requirements of these animals.

— Adolf K. Maas, DVM, DABVP (Reptile & Amphibian)

Source


Fish Oil: Friend & Foe

Polyunsaturated fatty acids (PUFAs) are classified as omega-6 or omega-3, usually expressed at the dietary ratio of n6:n3, although the total n6:n3 ratio should be used cautiously as it does not represent the total amount or type of omega-3 fatty acid present. Supplementation with eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA), the omega-3 fatty acids found in fish oil, is often recommended for management of diseases (eg, neoplasia; hyperlipidemia; dermatologic, cardiovascular, renal, GI, orthopedic diseases). Target doses typically range from 50–220 mg/kg with higher dosages often used to lower serum triglyceride concentrations and lower dosages used for inflammatory conditions, renal disease, and cardiac disease. Potential adverse effects of supplementation include lipid peroxidation, nutrient excess and toxin exposure, nutrient–drug interactions, weight gain, altered platelet and immune function, detriments to wound healing, adverse GI effects, adverse effects on glycemic control, and insulin sensitivity. Adverse effects are likely dose dependent. The current safe upper limit for combined amounts of EPA and DHA is 2,800 mg/1,000 kcal diet or 370 mg/kg for dogs. Limited published data prevent a safe upper limit recommendation for cats. Clinicians should understand the adverse effects that may occur with omega-3 fatty acid supplementation; risks should be balanced with potential benefits.

Commentary

The authors reviewed nearly 100 publications in order to summarize risks of fish oil supplementation. Clinicians tend to focus only on benefits of EPA and DHA, but supplementation may lead to unexpected effects. Numerous nutraceuticals and commercial pet foods contain high levels of fish oil, underscoring the need for awareness of EPA and DHA doses and possible adverse effects.—Craig Datz, DVM, MS, DABVP (Canine & Feline), DACVN

Source