

ABSTRACTS FROM ZEBRA FUND RECIPIENTS

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NUTRITIONAL METABOLIC BONE DISEASE IN JUVENILE VEILED CHAMELEONS (*Chamaeleo calytratus*) AND ITS PREVENTION

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³Supplemental Figures 1–3 and Supplemental Table 1 are available with the online posting of this paper at jn.nutrition.org.

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Abstract

Nutritional metabolic bone disease (NMBD) is one of the most frequently observed pathological conditions in herpetoculture. To develop guidelines for NMBD prevention in growing veiled chameleons (*Chamaeleo calytratus*), 56 hatchlings were divided into 6 groups [group UV, with UVB exposure; group No: no supplements; group CaAUV: with calcium (Ca), vitamin A, UVB; group CaA: with Ca, vitamin A; group CaADUV: with Ca, vitamin A, cholecalciferol, UVB; and group CaAD, with Ca, vitamin A, cholecalciferol] and reared for 6 months on locust-based diets. The nutrient composition of the

locusts' diet and the locust-based diet for the chameleons was determined. The diagnosis included the detailed description of clinical findings, histopathology, measurements of serum Ca, 25-hydroxycholecalciferol (25-OHD₃), liver 25-OHD₃, vitamin A, bone mineral density, and bone mineral concentration.

Chameleons that received no dietary supplementation of Ca, vitamin A, and cholecalciferol developed NMBD. When Ca and vitamin A were supplemented, the chameleons did not develop NMBD, independently of additional UVB and dietary cholecalciferol. The best prevention for NMBD was achieved by chameleons that received locusts gut-loaded with 12% Ca and dusted with 250,000 IU/kg (75 mg/kg) vitamin A and 25,000 IU/kg (0.625 mg/kg) cholecalciferol plus provision of long (10 h/d), low irradiation exposure (3–120 μ W/cm²) to UVB.

Chameleons that were fed diets low in vitamin A, cholecalciferol, and Ca were diagnosed with fibrous osteodystrophy. We noticed an interaction of vitamin A and cholecalciferol supplementation in the storage of vitamin A in the liver and formation of colon calcifications. From these findings, recommendations for the rearing of juvenile chameleons were derived.

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Supplemental Table 1. Diet and light regimen of the six different study groups of juvenile veiled chameleons (n=56)

Group (n, males, females)	Ca ^a + vit. A ^b	Ca ^a + vit. A ^b + cholecalciferol ^b	UVB ^c
UV (10, 5, 5)	-	-	+
No (10, 6, 4)	-	-	-
CaAUV (9, 5, 4)	+	-	+
CaA (9, 4, 5)	+	-	-
CaADUV (9, 5, 4)	-	+	+
CaAD (9, 4, 5)	-	+	-

^aAdditional Ca in locust nymphs from gut-loading for 48 hours with a diet containing 12% Ca/kg wet weight

^bVitamin supplementation from dusting locusts prior to feeding with vitamin A (250,000 IU/kg powder (75 mg/kg)) and cholecalciferol (25,000 IU/kg powder (0.625 mg/kg))

^cUVB light source with an irradiance range from 3–120 μ W/cm² measured with a solarimeter 6.2 UVB meter and 0.07–1.05% conversion to photoproducts in *in vitro* models exposed for 2 hours.

DETECTION OF ELEPHANT ENDOTHELIO TROPHIC HERPESVIRUS TYPE 1 IN CONJUNCTIVAL, PALATE AND VULVAL SWABS AND TRUNK WASHES FROM ASYMPTOMATIC ASIAN ELEPHANTS USING A NOVEL TAQMAN REAL TIME PCR

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Abstract

Elephant endotheliotropic herpesvirus (EEHV) poses one of the biggest threats to captive Asian elephant breeding programmes worldwide. EEHV-associated disease affects mainly juvenile animals and in the majority of cases it is fatal despite treatment. It has recently been proven via trunk washes that the virus remains latent in the adult elephant and is shed intermittently. Information on prevalence and sites of virus excretion is vital for a better understanding of the epidemiology.

This study assessed the feasibility of identifying shedding carriers using a novel TaqMan real time PCR on swabs of the conjunctiva, palate, vulva and trunk washes. Six elephants from a UK collection were sampled weekly over a period of 11 weeks. The herd prevalence of EEHV1 was 100%. This is the first report of EEHV I DNA detection in swabs from the conjunctiva, palate and vulva in asymptomatic carrier elephants. In addition, Asian elephants from two continental European collections were sampled once and one animal tested positive on a trunk wash.

This study has provided further evidence on EEHV I latency and reactivation. It also highlights potential routes of transmission.

THE IMPACT OF HUMAN ENCROACHMENT INTO NATURAL ECOSYSTEMS UPON *Cryptosporidium* sp. AND *Giardia* sp. INFECTIONS IN WESTERN LOWLAND GORILLAS (*Gorilla gorilla gorilla*) IN LOPE NATIONAL PARK, GABON

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Abstract

Infectious diseases have been emerging at an increasing rate in both humans and wildlife due to increasing anthropogenic disturbance of natural ecosystems, and are now a well-recognised threat to biodiversity conservation. The threat posed to apes by this encroachment is heightened by the susceptibility of these species to human infectious diseases.

A previous study in the vicinity of the Mikongo Conservation Centre (MCC) in Lope National Park, Gabon, identified the zoonotic protozoal pathogens, *Cryptosporidium* sp. and *Giardia* sp. in the western lowland gorilla (*Gorilla gorilla gorilla*) population. Studies elsewhere have found evidence of anthroponotic transmission of these parasites to wild non-human primate (NHP) populations and the use of these protozoa as indicators of this transmission, as well as of NHP health, has been proposed.

This study uses an immunofluorescent antibody test to analyse gorilla faecal samples (n = 150) from overnight nest sites in the MCC area for the presence of these parasites. It seeks to identify possible risk factors associated with infection, such as the proximity to a variety of anthropogenic factors. *Cryptosporidium* sp. and *Giardia* sp. infections were detected at a prevalence of 6% and 18% respectively, with *Cryptosporidium*-positive sites predominantly in the eastern half of the study site, closer to areas of human habitation. However, no significant associations were found within the study area between infections with these parasites and the environmental features identified. Further investigation is therefore warranted in order to increase sample size and the distance of samples from human disturbance in order to better assess the likelihood of a link between these infections and human disturbance.

A significant association was found between *Giardia* sp. infection and soft faecal consistency, which might suggest that this parasite clinically affects ape health.