

# COMPARISON OF SERUM, LIVER, AND DIETARY VITAMIN A (RETINOL) VALUES TO THE PRESENCE OF EYELID COLOBOMA IN SNOW LEOPARDS (*PANTHERA UNCIA*)

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## Abstract

Eyelid coloboma is defined as a congenital, non-trauma based, visible defect (agenesis, dysgenesis), in the skin and lid margin of the upper eyelid that is recognizable from early age in snow leopards (*Panthera uncia*). Although found in the domestic cat, the condition is rare in non-domestic felids and has only been reported in a Texas cougar (*Felis concolor*) and a cheetah (*Acinonyx jubatus*; Boucher *et al.*, 2016; Cutler, 2002). Recent medical record review of the North American snow leopard studbook from 2000-2020 revealed a prevalence of this condition of 15% in this population.

The cause of these colobomas is unknown. This project was designed to investigate the concept of suboptimal systemic levels of vitamin A as a nutritional etiology by associating serum and liver retinol samples from snow leopards with the presence of coloboma. Samples (61 serum, 11 liver and eight food samples) were analyzed by HPLC with UV/DAD detection. Results confirm that vitamin A retinol can be identified in both the serum and liver of snow leopards. Statistical analysis (SPSS) does not support a correlation between serum/liver values of retinol and the presence of eyelid coloboma in this species. Further, eyelid coloboma is not a published clinical sign in felids with hyper- or hypo-vitaminosis A (Bartsch *et al.*, 1975; Espadas *et al.*, 2017; Freytag *et al.*, 2003; Kaiser, 2014).

## Acknowledgments

The authors would like to thank Christine Chestnut for her assistance in maintaining and shipping the numerous samples required for this study and Mazuri for financial support. The authors have no conflict of interest with Mazuri.

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