

## WHOLE CARCASS DIETS: A ROLE FOR ANIMAL FIBRE IN GASTROINTESTINAL HEALTH OF CHEETAHS?

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**Introduction:** The prevalence of gastrointestinal disease is high within the captive cheetah population. A recent study pointed towards a possible role of diet type (meat versus whole prey) in intestinal disease of captive cheetahs. Compared to feeding chunked meat, whole prey diets resulted in a significant decrease of potential toxic metabolites resulting from bacterial hindgut fermentation. The presence of undigested animal tissue from whole prey, such as bone, hair, skin and cartilage, is likely to beneficially affect microbial fermentation processes in the cheetah (DEPAUW et al., 2011). An in vitro study, using cheetah faecal inoculum, confirmed that animal tissue affects bacterial fermentation, and showed that these animal tissues have fibre-like effects (DEPAUW et al., 2012). However, the relevance of these findings for gastrointestinal health of cheetahs was unknown. Therefore, we evaluated faecal biomarkers of inflammation in captive cheetahs fed two different diet types, by measuring faecal calprotectin and S100A12, which have been successfully used as markers for gastrointestinal inflammation in humans and are currently being evaluated in dogs. **Materials and methods:** In a cross-over study, fourteen cheetahs were randomly assigned to two diet groups and fed whole rabbit or chunked beef for three consecutive weeks each. After each adaptation period, individual fresh faecal samples were collected and analysed for faecal calprotectin (in-house immunoassay, HEILMANN et al., 2011) and S100A12 (in-house immunoassay, HEILMANN et al., unpublished). A paired sample t-test was performed to evaluate the effects of test diet on both gastrointestinal inflammatory markers. **Results and Discussion:** Faecal calprotectin and S100A12 fell within the same range as reported in healthy dogs. Both markers were positively correlated ( $P < 0.001$ ) to each other. Additionally, S100A12 was significantly ( $P = 0.041$ ) lower in cheetahs fed whole rabbit compared to chunked beef. These results might indicate a role for whole prey diets in modifying intestinal inflammation in cheetahs, in conjunction with an altered bacterial fermentation pattern.

### References:

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