

INFLUENCE OF DIET TRANSITION ON SERUM CALCIUM AND PHOSPHORUS IN CAPTIVE GIRAFFE

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Abstract

Pathology in captive giraffe is relatively common and has often been attributed to nutritional causes. It was hypothesized that reducing dietary starch and phosphorus (P) would change serum mineral concentrations to be more in line with typical mammalian values. Captive giraffe (n=6, Henry Doorly Zoo, Omaha NE), previously fed a commercially available diet, were transitioned to a reduced starch diet for one year (2005). Following the Giraffe Nutrition Workshop recommendations, another diet transition was made (2006). Blood samples were collected every six months, and were analyzed for calcium (Ca) and P. Data were analyzed by repeated measures ANOVA for effects of diet and season. When main effects were significant (p<0.05), students t-test was used to assess differences. There was no difference in serum parameters between 2005 and 2006 diets (p>0.20). Serum Ca was not affected by season or diet (p>0.20, mean = 9.04 ± 0.10 mg/dl), and serum P was not affected by season (p>0.20). Serum P was reduced by the 2005 and 2006 diets as compared to the 2004 diet (p<0.05; 7.35 vs. 9.58 ± 0.28 mg/dl respectively). Therefore, the Ca:P ratio was increased by the 2005 and 2006 diet compared to the 2004 diet (p=0.006; 1.26 vs. 0.98 ± 0.04, respectively). Given that 2004 Ca:P values were below a 1:1 ratio, the changes noted in this trial would be considered beneficial. Free-ranging giraffe serum Ca:P averages 1.04, thus the optimal ratio for captive giraffe warrants further discussion.¹

LITERATURE CITED

1. Schmidt, D.A., R.L. Ball, D. Grobler, M.R. Ellersieck, M.E. Griffin, S.B. Citino, and M.L. Bush. 2007. Serum concentrations of amino acids, fatty acids, lipoproteins, vitamins A and E, and minerals in apparently healthy, free-ranging southern giraffe (*Giraffa camelopardalis giraffe*). Zoo Biol. 0:1-13.