

ADVANCES IN FELINE NUTRITION 1: COMMERCIALLY AVAILABLE BEEF AND HORSEMEAT-BASED RAW MEAT DIETS FOR CAPTIVE EXOTIC FELIDS

Katherine R. Kerr, MS

Division of Nutritional Sciences, University of Illinois, Urbana, IL 61801

ABSTRACT

The predominant diet types fed to captive exotic felids are raw meat supplemented with vitamins and minerals, raw meat-based commercial diets, and whole prey. There is a paucity of information on the nutritive value of many of the dietary options. In the US, commercial raw-meat based diets are the main diet type fed (Pearson, et al., 2005). Reported values for apparent digestibility of raw meat diets are highly variable (DM: 66-89%, CP: 73-96%, fat: 73-99%) (Barbiers, et al., 1982; Crissey, et al., 1997; Edwards, et al., 2001; Wynne, 1989). Data can vary due to diet composition, species examined, housing conditions, etcetera. It is expected that dietary ingredient and nutrient composition for these dietary types vary overtime, and examination of contemporary diets is needed. The objective of our studies was to examine commercially available raw meat based diets for captive exotic felids. Study I was designed to evaluate differences due to species in nutrient digestibility and fecal characteristics of a raw beef-based diet (Vester, et al., 2008). We utilized five large exotic captive felid species, including bobcats, jaguars, cheetahs, Indochinese tigers, and Siberian tigers. Study II was designed to examine the differences in nutrient digestibility and fecal characteristics between commercially available beef- and horsemeat-based diets. We utilized domestic cats, and large captive exotic felid species, including cheetahs, Malayan tigers, jaguars, and Amur tigers (Vester, et al., 2010). In both studies, diets were highly digestible, and differences were noted between species for nutrient and energy digestibility and fecal characteristics. In study II, differences were noted for nutrient digestibility and fecal characteristics between diets, however, differences cannot be attributed to protein source alone, as the ingredient composition, including fiber source differed between diets. Few interactions between diet and species were noted. These data indicate that species should be considered when feeding captive exotic felids. And the differences in nutrient and energy digestibility between species should be taken into consideration for caloric feeding recommendations. The differences seen between diets indicate that one diet may not be appropriate for all species. Further research is needed to determine the impact of individual dietary components (ie., protein source, fiber source, etcetera).

REFERENCES

- Barbiers, R.B., L.M. Vosburgh, P.K. Ku, and D.E. Ullrey. 1982. Digestive efficiencies and maintenance energy requirements of captive wild felidae: Cougar (*Felis concolor*); leopard (*Panthera pardus*); lion (*Panthera leo*) and tiger (*Panthera tigris*). J. Zoo. Anim. Med. 13:32-37.
- Crissey, S.D., J.A. Swanson, B.A. Lintzenich, B.A. Brewer, and K.A. Slifka. 1997. Use of a raw meat-based diet or a dry kibble diet for sand cats (*Felis margarita*). J. Anim. Sci. 75:2154-2160.

Edwards, M.S., M. Gaffney, and R.E. Bray. 2001. Influence of fiber source on apparent digestibility, rate of passage, and fecal consistency in small felids fed a beef-based carnivore diet. Proceedings of the Fourth Annual Conference of the Nutrition Advisory Group of the American Zoo and Aquarium Association. Pp. 71-80.

Pearson, R., K. Knight, and V. Melfi. 2005. Does the provision of carcasses compromise the health of zoo-housed carnivores? Preliminary report. Proceeding of the seventh annual symposium on zoo research. Pp. 194-198.

Vester, B.M., A.N. Beloshapka, I.S. Middelbos, S.L. Burke, C.L. Dikeman, L.G. Simmons, and K.S. Swanson. 2010. Evaluation of nutrient digestibility and fecal characteristics of exotic felids fed horse- or beef-based diets: Use of the domestic cat as a model for exotic felids. Zoo Biol. 29:432-448.

Vester, B.M., S.L. Burke, C.L. Dikeman, L.G. Simmons, and K.S. Swanson. 2008. Nutrient digestibility and fecal characteristics are different among captive exotic felids fed a beef-based raw diet. Zoo Biol. 27:126-136.

Wynne, J.E. 1989. Comparative digestibility values in four species of felidae. J. Zoo Wildlife. Med. 20:53-56.