

Energy and nutrient intake and digestibility in captive Mongoose lemurs (*Eulemur mongoz*)

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Lemurs in the wild live in harsh and unpredictable environments where food resources may be scarce during certain times of year. To cope with these conditions they have evolved different energy-saving mechanisms, including low energy requirements [Wright, 1999]. In zoos, lemurs tend to be fed diets rich in sugars and low in fibre, and the amounts remain constant year-round. This is thought to result in the high rate of obese lemurs that is observed in captive populations [Pereira and Pond, 1995; Terranova and Coffman, 1997; Schwitzer and Kaumanns, 2001]. For many lemur species it is not known to what extent they utilise the energy and nutrients in their diets, which makes it difficult to predict how much food they need to consume to meet their requirements. Mongoose lemurs in zoos are reported to be particularly susceptible to obesity [Schaaf and Stuart, 1983; Terranova and Coffman, 1997]. In this study we examined the energy and nutrient intake and digestibility in three Mongoose lemurs at Bristol Zoo Gardens. To establish activity budgets, behavioural observations were made for each individual over a 24-hr period using focal sampling and continuous recording. During a five-day digestibility trial, food and leftovers were weighed daily and faeces collected. As total collection of faeces could not be ensured, we used TiO₂ as an external marker. Food and faeces samples were freeze-dried and analysed for dry matter (DM), crude protein (CP), crude ash (CA), crude fibre (CF) and ether extract (EE) as well as for neutral detergent fibre (NDF) and acid detergent fibre (ADF). Nitrogen-free extracts (NFE) were calculated as 100-CP-CA-CF-EE. Body weights of the three individuals were taken prior to the trial period. Comparing body weights of the captive lemurs with those of wild conspecifics, the adult male was more than two standard deviations heavier than the mean wild weight of the species and was thus considered obese, whereas the adult female and sub-adult male could not be considered overweight. The results of our study showed that the diet consumed by the lemurs was high in easily available carbohydrates and relatively low in fibre. The animals preferred fruits and vegetables over the rest of their diet. Dry matter and nutrient digestibility was high. There was little difference in nutritional composition of wild and captive diets. However, the captive lemurs consumed more energy than their wild conspecifics per animal and day, which, together with a stable year-round supply, is likely to have led to obesity in the male.

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