

Study of the hamster's diet under controlled conditions: Food selection: What are the drivers?

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Abstract

Nutrition is one of the most important elements in the life of animals since they depend on it for the nutrient and energy intake. Nutrition appears to be more complex than the only maximization of the intake in energy or a single nutrient. Furthermore, the needs of an organism regarding nutrient availability in its environment can be high at some periods of its life cycle. For hibernating species like the common hamster *Cricetus cricetus*, it is especially true for hibernation and the following reproduction period. Furthermore, farmland species like this rodent are particularly impacted by crop composition and agricultural practices, food availability being conditioned by them. We tested the food selection and corresponding macronutrient intake of 36 common hamster females. Food preference was tested with four different diets, each composed of grains of wheat and maize, the most common crop in their environment, and two other food items. We measured the corresponding food composition in lipids, proteins, minerals and energy to obtain macronutrient and energy intake according to the diet and the food selection performed. We found that hamsters performed food selection according to the other food items in the diet and to food composition. They preferentially selected lipid- and protein-rich foods. However, the food selection neither led to the maximization in all diets of protein or lipid, nor to the intake of a defined protein/lipid ratio. Thus, other factors than macronutrient composition were implied in the food selection process, probably micronutrients and/or antinutritional factors contained in the seeds. Food selection analysis, like performed in this study, allows a better understanding of animal needs and the suitability for them of different foods. Soybean and sunflower were preferentially selected, seem to be valuable food for hamsters and the use of these species in the habitat of this rodent should be promoted.

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