

Role of dietary fatty acids on energetics and torpor in the Chilean mouse-opossum *Thylamys elegans*

Bozinovic F., Méndez M. A.

Abstract

We hypothesized that the Chilean mouse-opossum *Thylamys elegans* needs micronutrients that are in fruits and seeds, and the unsaturated fatty acids are such micronutrients that may allow individuals of this species to experience longer torpor bouts, lower body temperatures during torpor and higher energy savings during wintertime. To test this hypothesis, we studied: 1) wintertime preferences by artificial diets rich in saturated fatty acids, unsaturated fatty acids and control diets, and 2) the effect of acclimation to dietary fatty acids on the energetics and torpor patterns in this species. When individuals were allowed to choose between the experimental diets they always selected the unsaturated fatty acid diet. After 4 weeks of dietary acclimation, the average daily metabolic rate was not significantly different among treatments, neither was minimum metabolic rate during torpor significantly different, in spite of a tendency to lower values that was detected under unsaturated fatty acid treatment. A similar pattern was observed when body temperature during torpor was compared among treatments. Two explanations are proposed: 1) Acclimation time was not sufficient to obtain statistical significance, but physiological differences and 2) metabolic rate during torpor are not affected by dietary lipids in this species.