

METABOLIC AND OSMOREGULATORY RESPONSES OF  
WAGNER'S GERBIL *GERBILLUS DASYURUS* FROM A SALT MARSH  
HABITAT TO INCREASING SALINITY IN THEIR WATER SOURCE

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Wagner's gerbil *Gerbillus dasyurus* is widely distributed in the rocky habitats of Israel from the extreme arid region through the steppe region and into the Mediterranean ecosystem. While in the extreme desert it shares its habitat with the bushy tailed gerbil *Sekeetamys calurus*, the golden spiny mouse *Acomys russatus* and the common spiny mouse *A. cahirinus*, in the steppe region with *A. cahirinus* and the Asian garden dormouse *Eliomys melanurus*. Recently we have discovered a population of this species that inhabits a salt marsh habitat north of the Dead-sea. The ability of gerbils to dig burrows is well documented. However, *G. dasyurus* is one of the exceptions of the family as it is a rock dweller. The metabolic and osmoregulatory responses of several rodent species from different habitats and with different habits were studied in the past in our laboratory. The aim of this study was to compare the abilities of this special population with other desert species.

Six gerbils were brought to the laboratory and they were kept at an ambient temperature of 28°C with a photoperiod regime of 12L:12D. Body mass food and energy consumption, nonshivering thermogenesis (NST) and urine osmolarity were measured in such gerbils that were kept on 0.9% NaCl in their water source (cubes of agar 2%). Salinity was increased gradually up to 7% NaCl. Our results show that *G. dasyurus* can survive under high salinity concentration. The increase in salinity is accompanied by a decrease in body mass, food and energy intake, and metabolic rates on the one hand and an increase in urine osmolarity on the other. Therefore, it is suggested that this population of *G. dasyurus* copes with increase in salinity that will occur towards the end of the dry season or in dry years.