Effects of diet and water supply on energy intake and water loss in a mygalomorph spider in a fluctuating environment of the central Andes

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The metabolic and water evaporation strategies in spiders may be part of a set of physiological adaptations to tolerate low or unpredictable food availability, buffering spiders against environmental fluctuations such as those of the high mountains of the central Andes. The aim of this study is to analyze experimentally the variations in metabolic rate and the rate of evaporative water with food and/or water restriction in a high mountain mygalomorph spider population (Paraphysa sp.).We found that the low metabolism of this spider was not affected by water restriction, but its metabolism was depressed after 3. weeks of food deprivation. The spider did not show seasonal metabolic changes but it presented seasonal changes in the rate of evaporative water loss at high temperatures. Females with egg sacs reduced their metabolic rate and evaporative water at high temperatures. These findings constitute a set of possible adaptations to a highly fluctuating Mediterranean environment, which is