

Proximate Costs of Reproduction in Female Mountain Goats

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Abstract: Lactation entails high energetic costs that increase total energetic requirements. To compensate, lactating females are expected to increase nutrient intake. Our aim was to determine whether specific foraging strategies were used by lactating females to increase their overall energy intake and compensate for the high costs of lactation. The project took place at Caw Ridge, in the foothills of the Rocky Mountains of west-central Alberta. Data were recorded on the foraging behaviour of individually marked female mountain goats (*Oreamnos americanus*) using focal animal and scan samplings. Vegetation samples were collected at foraging sites of lactating and non-lactating females to determine vegetation biomass and quality. Lactating females increased foraging time and intensity (i.e., biting rate), as well as rumination time and intensity (i.e., chewing rate) compared to non-lactating females. This suggests they ingested more vegetation and were more efficient at assimilating nutrients than non-lactating females. However, they did not seem to use better foraging sites, since vegetation quality and abundance at foraging sites were similar for all females. In June, lactating females spent more time near safe habitats (i.e., escape terrains) compared to non-lactating females, whereas no difference was found during the rest of the summer. This suggests that lactating females used safer foraging sites only when kids were most vulnerable to predation. Lactating females completed the molt of their winter coat on average 8 d later than non-lactating females, suggesting that they had fewer nutrients to allocate to growth of a new coat than females not bearing the cost of lactation. Therefore, lactating females seem to modify their behavior to compensate for the high energetic costs of lactation, but they cannot fully compensate for these costs.

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