

Influence of previous Arctic field experience on energy intake and requirements of soldiers in the Canadian Armed Forces

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Introduction: Soldiers in the Canadian Armed Forces (CAF) consume combat rations during various field-trainings and missions, which can occur in extreme environments like the high Arctic. In such conditions, energy requirements are estimated to be higher compared to those in mild climates. Several factors influence soldiers' energy intake. Based on gray literature and personal communications, previous Arctic field experience would be an important factor to consider.

Objective: To compare the daily energy intake of soldiers with or without previous experience in the Arctic.

Methods: Soldiers taking part in an Arctic training were recruited in January 2019. Participants completed a questionnaire collecting demographic information and asking if they had prior Arctic field experience. Energy intake was estimated using a 24-hour food diary of a typical day during a week-long field-training in the Arctic. Food diaries were verified with each participant by a dietitian.

Results: Fourteen soldiers participated: seven having previous Arctic experience and the others without. Soldiers with previous experience consumed 2950 ± 748 kcal/day compared to 2649 ± 610 kcal/day for those without experience ($p > 0.05$). The energy intake of soldiers was lowest at breakfast and highest at lunch ($p < 0.05$), with no difference between Arctic experienced and non-experienced participants. Soldiers with previous experience started their day with 754 ± 310 kcal versus 974 ± 398 kcal at lunch ($p < 0.05$), while soldiers without experience consumed 634 ± 223 kcal at breakfast versus 872 ± 236 kcal at lunch ($p < 0.05$).

Conclusions: No difference was seen for daily energy intake between soldiers with and without Arctic experience. Breakfast tended to be the meal providing the least amount of daily energy, while lunch was the meal providing the most energy intake for soldiers.

Significance: Given the high energy needs of this population, those preliminary results suggest the importance of adequate energy intake during field training for all soldiers, including those with and without previous Arctic field experience.