

POSTER PRESENTATION

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Use of higher-protein diets during intense military training to decrease lean tissue loss and improve performance

Jennifer A Case^{1*}, Mark D Haub¹, Allison Teeter², Kelcie Hubach¹

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Background

Current dietary intakes of active military personnel during intense training sessions may result in loss of lean tissue mass due to lower intake of energy and protein. It was hypothesized that a higher-protein diet (HPD) with frequent meals would result in greater lean tissue maintenance and improved performance during intense military training.

Design

36 Air Force cadets completed a 12-day training session. A HPD (40% carbohydrate, 30% protein, 30% fat) with frequent meals was prescribed to each participant. Cadets completed 4 hours of supervised exercise daily. Pre- and post-test assessments included: body weight, body composition, vertical jump height, leg power index (LPI) and anaerobic testing.

Results

A negative correlation was found between the change in average vertical jump height and protein intake. Total body mass increased by 0.6 ± 1.1 kg ($p < .001$), and percent body fat decreased by 1.1 ± 0.9 ($p < .001$). Fat-free mass increased by 1.3 ± 1.1 kg ($p < .001$), fat-mass decreased by 0.7 ± 0.7 ($p < .001$). Averaged 600 meter times decreased by 1.2 ± 1.8 seconds ($p < .001$). Peak LPI (LPI) and average LPI increased by 0.12 ± 0.22 ($p < .001$) and 0.13 ± 0.22 ($p < .001$), respectively. Total energy intake was $14,110 \pm 4,389$ kJ. Macronutrient breakdown of diets was $52 \pm 11\%$ carbohydrates (437 ± 155 g), $19 \pm 4\%$ protein (157 ± 65 g) and $32 \pm 9\%$ fat (119 ± 53 g). There was no correlation between meal frequency and

anthropometric changes or performance changes. Meal frequency consisted of 64% of the subjects consuming 3 meals and 1 to 3 snacks daily, 22% of the subjects only consumed 2 meals and 1 to 3 snacks daily, and 13% of participants reported consuming 2 large meals and no snacks daily.

Conclusion

Frequent meals and snacking appears to have resulted in maintenance and an increase in fat-free mass. The increase in LPI may be partially due to the increase in FFM. However, due to lack of dietary adherence, the hypothesis of this study could not be tested accurately.

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Author details

¹Department of Human Nutrition, Kansas State University, 212 Justin Hall, Manhattan, KS 66506, USA. ²Department of Sociology, Anthropology, and Social Work, Kansas State University, 204 Waters Hall, Manhattan KS 66506, USA.

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¹Department of Human Nutrition, Kansas State University, 212 Justin Hall, Manhattan, KS 66506, USA

Full list of author information is available at the end of the article