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Effects of diet cycling during training on weight loss and resting energy expenditure: a preliminary analysis

Richard Kreider*[1], Jean Jitomir[2], Julie Culbertson[1], Mike Byrd[2], S Simbo[2], Cecelia Curts[2], Monica Serra[2], Kristen Beavers[2], Jen Moreillon[2], Maria Ferreira[2], Rui Li[2], Brian Shelmadine[2], Chris Rasmussen[1] and Mike Greenwood[2]

Address: [1]Exercise & Sport Nutrition Lab, Texas A&M University, College Station, TX 77845, USA and [2]Exercise & Sport Nutrition Lab, Baylor University, Waco, TX 76798, USA

Email: Richard Kreider* - rkreider@hlkn.tamu.edu

* Corresponding author

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Background

Long-term dieting has been reported to reduce resting energy expenditure (REE) leading to weight regain once the diet has been curtailed. Diets are also difficult to follow for a significant length of time. The purpose of this preliminary proof of concept study was to examine the effects of short-term intermittent dieting during exercise training on REE and weight loss in overweight women.

Methods

16 sedentary women (37 ± 7 yrs, 162 ± 6 cm; 89 ± 17 kg; 42.5 ± 3% body fat) were assigned to an exercise & normal diet group (E, n = 6) or an exercise and diet intervention group (ED, n = 10). Diets were maintained for 30 days and consisted of 1,200 kcals/d for 1-wk followed by ingesting 1,500 kcals/d for 3-wks. Subjects then followed a 2,200 kcals/d maintenance diet for 4 wks and repeated the cycle each month for 6-months. Diets were either 45% CHO, 30% PRO, and 25% F or 45% PRO, 30% CHO, and 25% F. Subjects participated in a supervised Curves circuit training program 3-d per wk and walked for 30-min 3-d per wk. Body weight, DEXA body composition, and REE measurements were obtained at 0, 1, 2, 3, 4, and 5 months and were analyzed by repeated measures ANOVA. Data are presented as means ± SD changes from baseline for the E and ED groups, respectively, at 1, 2, 3, 4, and 5 months.

Results

Preliminary results revealed that subjects in the ED group lost significantly more weight (E 0.4 ± 2.9, -2.9 ± 2.5; -1.8 ± 4.1, -1.9 ± 5.1; ED -6.7 ± 3.0; -8.7 ± 4.5, -10.8 ± 6.7; -11.3 ± 7.3 lbs, p = 0.03) and tended to lose more fat mass (E 0.83.0, -3.0 ± 3.8; -1.0 ± 4.5, -1.5 ± 3.7; ED -4.4 ± 3.6; -6.4 ± 3.5, -7.5 ± 5.2; -7.5 ± 6.6 lbs, p = 0.11) than subjects in the E groups. REE rebounded after dieting during each maintenance phase in the ED group (E 19.4 ± 2.2, 19.1 ± 1.6, 18.4 ± 1.7, 18.4 ± 1.9; 18.2 ± 1.6; ED 19.0 ± 1.3, 18.1 ± 1.6, 19.3 ± 2.2, 18.2 ± 1.7, 18.6 ± 1.5, kcal/kg, O4 p = 0.004).

Conclusion

Preliminary results indicate that following 30 day cycles of dieting/maintenance can promote gradual weight loss while allowing for a rebound in REE during the maintenance phase. This strategy may be an effective way to promote weight loss without concomitant reductions in resting metabolism.

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