Effect of Dairy Supplementation on Body Composition in Mice

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Several studies in both humans and animals suggest that consuming diary products is beneficial in terms of weight and body fat. This study aimed to determine whether yogurt supplementation would accentuate the weight gain of mice on a moderate fat diet. Seventy-nine male mice (F1 BTBR x C57B16/J. 9 wks old) were housed individually for the study. After initial measures of body weight (BW), and body composition by dual-energy X-ray absorptiometry, mice were randomly assigned to receive one of two isocaloric diets (19.4% kcal protein, 45.5% kcal carbohydrate, and 15.8% kcal fat). One diet was supplemented with 0.75/100g dried yogurt powder. Mice received the diet for 4 weeks after which time BW and body composition were assessed again. Data were analyzed using repeated measures ANOVA, and ANCOVA. Baseline BW was not significantly different between control (29.55g) and yogurt groups (29.47g) ($P=0.349$). BW increased significantly in both groups ($P<0.001$), and there was a significant effect of diet on the increase in BW ($P<0.05$) with the yogurt group increasing less than the controls. Both bone mineral content and density increased significantly ($P<0.001$) during the study, but there was no significant effect of diet on this increase ($P>0.19$). Lean mass increased significantly over the 4 weeks ($P<0.001$), but was not significantly different between the groups ($P=0.23$). Fat mass (FM) increased during the study ($P<0.001$), and this was significantly affected by diet ($P<0.01$), with the control group gaining more fat than the yogurt group. FM was also significantly different at week 4 ($P<0.05$). This was reflected in % FM, with both groups increasing significantly ($P<0.001$), but the yogurt group increasing significantly less ($P<0.01$). Total food intake during the study ($n=58$) was significantly related to weight gain ($P<0.001$) and there was a trend for the yogurt group to eat more ($P=0.056$, control 116.2g, yogurt 119.9g). Yogurt supplementation resulted in less weight and fat gain in mice fed isocaloric diets without a decrease in food intake.