

Mixed High-Fat and Stock Diet Caused a Greater Increase in Body Mass than High-Fat Diet Alone

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ABSTRACT

Background: Increased dietary palatability may lead to excess food consumption which in turn causes an excess of caloric intake and weight gain. Although most obesity studies in rodents utilize a high-fat diet, food variation, a combination of different diets for example, may actually increase body weight and fat mass beyond that of solely high-fat feeding. **Purpose:** To examine the changes in weight gain and body composition in mice that consume either a high-fat diet or a combination of high-fat and stock diet. **Methods:** 10 CD-1 male mice were randomly assigned to one of two groups based on dietary composition (N=5/group). HF mice consumed a high-fat diet (60% kcal from fat) and HF+Stock mice consumed a 50:50 combination of high-fat and stock diet (13.5% kcal from fat) for 24-weeks. Bi-weekly measurements were made on body composition (lean and fat mass) using an EchoMRI scanner and body weight using a digital scale. Food intake was recorded weekly. **Results:** HF and HF+Stock gained significant body weight, 41% and 66% respectively, from baseline to week 24 ($P<0.001$, $F_{12,84}=45.483$). On average, HF gained 23% lean mass ($P<0.001$, $F_{10,70}=42.276$) and 170% fat mass ($P<0.001$, $F_{10,70}=31.873$), while HF+Stock gained 27% lean mass and 260% fat mass from baseline. There were no differences between groups for body weight, lean mass, or fat mass. **Conclusions:** Although not significant, there was a greater increase in body weight, lean and fat mass in mice that consumed a combination of high-fat and stock diets. The results suggest diet variation has a positive effect in inducing obesity in mice. This study is limited in that only five animals were used in each group, thus leading us to believe that increasing the N per group will result in significant differences between groups. Expansion of this pilot study is warranted in the future.

KEY WORDS: High-fat feeding, Diet variation, Diet-induced obesity, Mice