

# Milk Proteins for Treating Obesity: Effects on Energy Balance and Glucose Control

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Obesity and diabetes are a growing threat for human health. The milk proteins -casein and whey- are reported to decrease food intake (FI), however, their anti-obesity and anti-diabetic potential remains to be studied.

We determined whether feeding diets high in whey or casein improve energy balance (FI, energy expenditure (EE)) and blood glucose control. High-fat fed obese rats were randomized to 4 dietary groups (n=12/group): 1) control (14% egg albumin; CON); 2) casein (26% casein; CAS), 3) whey (26% whey protein isolate; WPI) or 4) combination of casein and whey (13% WPI+13% CAS; WPCA) and continued for 6 weeks. Our results reveal that WPI, CAS and WPCA treatments: 1) reduced FI during first 10 days by 19% without affecting EE; 2) decreased body weight by 11%, 10% and 6%, respectively; 3) decreased body fat (WPI, CAS and WPCA vs. CON; 15%, 15%, 16% vs. 18%); 4) increased body lean (80%, 80%, 79% vs. 77%); and 5) improved glucose tolerance (WPI 28%, CAS 18%, WPCA 9%).

**Implications:** Dietary whey and casein decreased food intake, weight and body fat, and improved glucose tolerance in a rat model of human obesity and diabetes; whey appears to be more effective. Thus, dietary whey and casein supplements have significant anti-obesity and anti-diabetic potential; however, their mechanisms of action remain to be studied.

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