

# Effects of Milk Proteins on Cardiovascular Health and Energy Balance

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Obesity and associated complications such as diabetes, hypertension and stroke are a serious burden on our health care system. The major milk proteins, whey and casein, has been reported to prevent weight gain. However, little is known of the effects of dietary whey and casein in improving cardiovascular health and stroke prevention.

We investigated the effects of high protein diets enriched in whey or casein on stroke incidence, blood pressure, body weight, food intake (FI) and body composition in stroke prone spontaneously hypertensive rats. Animals (n=8/group) were fed high fat diets (33% kcal fat) and randomized to control (14% protein), high whey (40% kcal whey) or casein (40% kcal casein) treatments. Our results reveal that compared to control, 1) whey and casein diets reduced FI by 24% and 16%, for 3 weeks (wk); 2) whey diet decreased body weight by 6% and lean mass by 5%; and 3) whey reduced systolic blood pressure by 15%. Energy expenditure, glucose and insulin tolerance did not differ among treatments. Importantly, 38% of control animals were stroked, whereas none of the whey or casein animals exhibited signs of stroke.

**Implications:** Dietary whey and casein decreased food intake, weight gain, stroke incidence, and improved blood pressure in a rat model of human stroke and hypertension; whey appears to be more effective. Dietary whey and casein supplements may have a protective role against stroke; however, their mechanisms of action remain to be studied.

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