

The Effects of Fluid Milk in Attenuating Postprandial Hyperglycemia in Adults with Android Obesity

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ABSTRACT

BACKGROUND: Postprandial glucose levels are more predictive of cardiovascular disease (CVD) than fasting levels and elevated postprandial glucose negatively impacts vascular reactivity and endothelial function. Chronic high consumption of milk and dairy products are associated with reduced risk of diabetes and CVD due, in part, to changes in peripheral vasodilation and hemodynamics. **PURPOSE:** To determine whether a single serving of non-fat milk could attenuate postprandial hyperglycemia independent of its protein content. **METHODS:** In a randomized controlled crossover study, twenty-nine overweight/obese adults had their body composition determined via DEXA and completed an oral glucose tolerance test (OGTT) of 75g glucose combined with either non-fat milk (227g) or an experimental control beverage (12g lactose +8g protein + 207g water) separated by a one-week washout period. Blood glucose, insulin, and flow-mediated dilation (FMD) measurements were conducted during the postprandial period. For analysis, participants were divided into tertiles of android body fat to determine its effects on postprandial metabolism. **RESULTS:** Regardless of treatment, blood sugar and insulin concentration increased, with no significant difference between trials. The highest tertile of android body fat (>50%) displayed attenuated hyperglycemic responses when supplemented with non-fat milk compared with the experimental control beverage ($p<0.05$). FMD did not change significantly during the observation period in both treatments. Femoral artery blood flow and vascular conductance demonstrated time effects with no difference between test beverages. In the sub-group analysis involving the highest tertile of android body fat group, FMD was improved ($p<0.05$) with the milk supplementation. **CONCLUSION:** Individuals with android body fat may benefit by consuming a single serving of milk with a high carbohydrate meal.