Effects of Blenderized Watermelon Consumption on Satiety and Postprandial Glucose in Overweight and Obese Adolescents

Caitlin Rasmussen, Martin Rosas, Hoa Luu, Changqi Liu, Shirin Hooshmand, Mark Kern, and Mee young Hong

San Diego State University

Objectives: Watermelon is a nutritionally dense fruit serving as a great snack to promote a feeling of satiety. However, there is limited research looking at the effect of watermelon consumption in a blenderized juice form containing flesh, rind, and seeds. Furthermore, there are no studies of watermelon consumption focused on satiety in adolescents. Therefore, the objective of this study was to examine the effect of blenderized watermelon juice on perceived satiety and postprandial glucose responses in overweight and obese adolescents.

Methods: In a randomized crossover design study, 20 overweight or obese adolescents (BMI percentile 93.3 $\pm$ 5.4 percentile; 9 males and 11 females; 12.8 $\pm$ 1.96 years) consumed either 240 mL (70 kcal) of blenderized watermelon or an isocaloric sugar beverage(control) on two separate occasions. Satiety responses using a visual analogue scale (VAS) questionnaire and postprandial blood glucose via finger pricks were assessed at baseline and 20, 40, 60, 90, and 120 minutes following juice consumption.

Results: Overall postprandial glucose levels were lower with blenderized watermelon consumption than sugar beverage consumption ($P = 0.002$), especially at 20 mins and 40 mins post juice consumption ($P < 0.001$ and $P = 0.003$, respectively). No significant differences were found between trials for the VAS satiety questionnaire but there were significant differences over time. Blenderized watermelon consumption delayed increases in hunger and desire to eat compared to baseline until 60 minutes vs 40 minutes for sugar juice consumption ($P < 0.05$). Similarly, a significant increase compared to baseline in how much participants felt they could eat occurred at 120 mins following blenderized watermelon juice vs 60 minutes for sugar juice consumption ($P < 0.05$). The watermelon trial also resulted in a greater feeling of fullness with an increase at 20 mins ($P = 0.033$) while the sugar juice was lower than baseline at 120 mins ($P = 0.006$).

Conclusions: This study suggests that blenderized watermelon juice promotessatiety and stabilizes postprandial glucose in overweight and obese adolescents and therefore could serve as a good replacement for sugar sweetened beverages.

Funding Sources: The National Watermelon Promotion Board [NWPB 19-20].