

SWACSM Abstract

The Effects of Initiating a 24-hour Fast with a Low Versus a High Carbohydrate Shake on pancreatic hormones in the Elderly: A Randomized Crossover Study

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ABSTRACT

Begin **PURPOSE:** The aim of this study is to understand how the macronutrient composition of the fast-initiating meal influences glucose regulating hormones during, and 24-hours after a 24-hour fast in older, sedentary, and abdominally obese adults. Understanding these outcomes will inform fasting protocols such as time restricted eating and alternate day fasting, which offer potential long-term health benefits. **METHODS:** We had 16 participants (7 male, 9 female). Each participant completed two 24-hour fasts (water only). In random order, one fast began with a high carb/low fat (HC/LF) shake and the other with a low carbohydrate/high fat shake (LC/HF) (equal calorie, volume and fiber). Venous blood draws were taken at hours 0, 1, 24, and 48. Participants fasted for 24 hours under free living conditions. **RESULTS:** There was a significant condition by time interaction for insulin ($F = 4.08$, $P < 0.01$), amylin ($F = 3.34$, $P = 0.02$) and glucagon ($F = 7.93$, $P < 0.01$). One hour after the consumption of the pre-fast shakes the LC/HF shake resulted in lower insulin ($P = 0.02$), amylin ($P = 0.01$) and higher glucagon ($P = 0.05$) compared to the HC/LF shake. However, there was no difference between conditions for insulin, glucagon or amylin at 0, 24 or 48 hours. **CONCLUSION:** Starting a fast with a LC/HF meal reduces the insulin response and increases glucagon which is beneficial for the switching of metabolic fuels from glucose to fat oxidation. However, this difference between conditions in hormone concentrations was not sustained over the course of the fast, as values for both glucagon, amylin and insulin were similar between conditions by 24 hours.