SWACSM Abstract

The Effects of Initiating a Fast with a High Fat or a High Carbohydrate Shake on MCP-1, TNF-alpha, and IL-6 Levels

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ABSTRACT

Alzheimer's disease, stroke, heart disease, and diabetes all rank among the leading causes of death in the United States, particularly among the elderly. While many behavioral and pharmacological strategies have been employed to reduce the incidence of these conditions, increasing evidence indicates that entering a mild to moderate state of ketosis through fasting or a very low carbohydrate diet can improve the prognosis for these conditions. **PURPOSE**: The purpose of this study was to evaluate the extent to which a high carbohydrate low fat (HC/LF) pre-fast meal altered MCP-1, TNF-alpha and IL-6 compared to a low carbohydrate high-fat pre-fast meal (LC/HF). **METHODS**: We recruited 28 participants (male/female) to participate in a randomized cross-over study with two treatment arms. Each treatment consisted of a pre-fast meal followed by a 24-hour fast. The pre-fast meal was either HC/LF or LC/HF. There was a 7-day washout period in between conditions. Blood was collected before, an hour in, and then at 24 and 48 hours after fast. **RESULTS**: When comparing conditions, no significant difference was found in the level of inflammatory markers between conditions. Compared to baseline levels, the HC/LF and LC/HF conditions showed no difference throughout the duration of the fast. The markers chosen to measure were MPC-1, TNF-alpha, and IL-6. At times 0, 1hr, 24 and 48 hrs, MCP-1 levels stayed at 145 pg/ml. At these same times, TNF-alpha levels stayed at 10 pg/ml. Using HC/LF meals versus LC/HF did not affect the inflammatory marker over time. Levels measured before the fast, during, and after did not change from baseline for MCP-1, TNF-alpha, and IL-6. **CONCLUSION**: The macronutrient composition of a pre-fast meal has no impact on inflammatory biomarkers during or after a fast in older adults. Future research should look at prolonged fasting behaviors and how they impact inflammatory biomarkers.