

## **Cross-sectional analysis of dietary patterns, ASCVD risk, and measures of vascular resistance**

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**Background:** Many dietary habits and specific foods have been evaluated for their impact on cardiovascular health, and there is public health interest in the effects of dietary patterns on cardiovascular health. Most clinical studies on dietary patterns and cardiovascular health focus on disease diagnosis, progression, or adverse health outcomes but there is little information on the relationship between alignment of dietary patterns with public health recommendations and cardiovascular function measurements not routinely assessed in the outpatient clinic setting. The Healthy Eating Index (HEI) is a method of evaluating how well individuals align their diet quality with key dietary pattern recommendations made in the Dietary Guidelines for Americans.

**Objective:** Evaluate the relationship between dietary pattern alignment with the Dietary Guidelines for Americans with measures of vascular function and risk factors for cardiovascular disease.

**Methods:** Baseline ASA 24-hour diet recall data collected from prior nutritional intervention randomized-controlled trials (RCTs) were used to classify participants into HEI-adherence categories. Measurements of vascular health from baseline visits of the RCTs were compared across HEI adherence categories. These measurements include brachial blood pressure, hemoglobin A1c, lipid analysis, aortic blood pressure, and measures of vascular flow resistance (augmentation index/AIx, pulse wave velocity/PWV).

**Results:** Data was available for 138 participants across 6 RCTs including both baseline cardiovascular measurements and dietary recall completion. Cohort median age 57y, 67% female, with median BMI of 24.5. Tertiles of HEI adherence were calculated using the dietaryindex R package with T1 (N=45) HEI score(SD) 49(7), T2 (N=46) HEI score (SD) 63(3), and T3 (N=47) HEI score (SD) 76(5). Participants in the higher tertiles, representing greater adherence to the Dietary Guidelines for Americans recommended dietary pattern had lower BMIs ( $p=0.005$ ). There was also lower levels of triglycerides ( $p=0.042$ ) in patients with greater adherence to guidelines. Other markers of cardiovascular health were not significantly different across the groups. There was also no significant difference in measured vascular resistance via augmentation index and pulse wave velocity across the various dietary adherence groups.

**Conclusion:** With the data available from 138 participants in 6 RCT studies, there is no statistically significant differences in ASCVD risk factors other than BMI with higher adherence to public health dietary guidelines. Future research is needed to consider confounding variables.