

The Contribution of Dietary Composition Over 25 Years to Cardiovascular Risk Factors in Childhood and Adulthood: The Princeton Lipid Research Study

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Introduction: Diet is a contributing factor to cardiovascular disease risk and is the basis for dietary guidelines such as the Dietary Approaches to Stop Hypertension (DASH) eating plan. However, little is known about how childhood dietary habits are maintained into adulthood or how child to adult changes in diet may influence disease risk.

Hypothesis: Our goal was to examine the relationship between diet quality, cardiovascular disease risk, and changes in diet quality over time. We hypothesized that diets lacking in nutrients for ideal cardiovascular health would be conserved from childhood to adulthood. This would be reflected as increased rates of hypertension, diabetes, dyslipidemia, and obesity.

Methods: Diet data was analyzed from the Princeton Lipid Research study (24 hour recall in the 70's; Block Food Frequency Questionnaire in 1998). Diet quality was assessed as a ranking of 15 different macro/micronutrients or by a modified DASH index based on 9 nutrient targets and adapted for children. Outcomes for childhood/adulthood included: glucose intolerance/diabetes, high blood pressure/hypertension (HTN), dyslipidemia/hyperlipidemia (HLD), and obesity. Linear and logistic regression models were performed.

Results: Analysis included 221 total individuals in Generation 1 (parents at initial visit; 39% male, mean age 38.9 ± 6.5 followed up at 66.6 ± 6.6 years) and 606 individuals in Generation 2 (45% male, mean age 11.9 ± 3.23 at initial visit and 38.5 ± 3.6 years at follow up). Generation 1 increased in total DASH score from initial visit to follow-up ($1.74 \pm 0.95 \rightarrow 2.11 \pm 1.33$) while Generation 2 decreased ($1.91 \pm 0.80 \rightarrow 1.64 \pm 1.13$). Overall DASH score was not significantly associated with outcomes in childhood or adulthood. However, in Generation 2 at follow-up, fiber, potassium, iron, niacin, and vitamin A were associated with HTN; fiber and sugar with HLD; cholesterol with obesity; and saturated fat with diabetes in Generation 1.

Conclusions: Overall diet quality was poor in both generations and changed little over time. No relationship was detected between DASH diet accordance and disease outcomes, however certain nutrients are associated with higher cardiovascular disease risk.

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