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Association between dietary acid-base load and cardiometabolic risk factors in young Japanese women.

Murakami K, Sasaki S, Takahashi Y, Uenishi K; Japan Dietetic Students' Study for Nutrition and Biomarkers Group.

Mild metabolic acidosis, which can be caused by diet, may adversely affect cardiometabolic risk factors, possibly by increasing cortisol production. Methodologies for estimating diet-induced acid-base load using dietary-intake information have been established. To our knowledge, however, the possible association between dietary acid-base load and cardiometabolic risk factors has not been investigated. We cross-sectionally examined associations between dietary acid-base load and cardiometabolic risk factors in a free-living population. The subjects were 1136 female Japanese dietetic students aged 18-22 years. Dietary acid-base load was characterized as the potential renal acid load (PRAL), which was determined using an algorithm including dietary protein, P, K, Ca and Mg, as well as the ratio of dietary protein to K (Pro:K). Estimates of each nutrient were obtained from a validated comprehensive self-administered diet history questionnaire. Body height and weight, waist circumference and blood pressure were measured. Fasting blood samples were collected. After adjustment for potential confounding factors, higher PRAL and Pro:K (more acidic dietary acid-base loads) were associated with higher systolic and diastolic blood pressure (P for trend = 0.028 and 0.035 for PRAL and 0.012 and 0.009 for Pro:K, respectively). PRAL was also independently positively associated with total and LDL-cholesterol (n 1121; P for trend = 0.042 and 0.021, respectively). Additionally, Pro:K showed an independent positive association with BMI and waist circumference (P for trend = 0.024 and 0.012, respectively). In conclusion, more acidic dietary acid-base load was independently associated with adverse profile of several cardiometabolic risk factors in free-living young Japanese women.