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**Dietary acid load and risk of type 2 diabetes: the E3N-EPIC cohort study.**

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**AIMS/HYPOTHESIS:**

The objective of this study was to evaluate the prospective relationship between dietary acid load, assessed with both the potential renal acid load (PRAL) and the net endogenous acid production (NEAP) scores, and type 2 diabetes risk.

**METHODS:**

A total of 66,485 women from the E3N-EPIC cohort were followed for incident diabetes over 14 years. PRAL and NEAP scores were derived from nutrient intakes. HRs for type 2 diabetes risk across quartiles of the baseline PRAL and NEAP scores were estimated with multivariate Cox regression models.

**RESULTS:**

During follow-up, 1,372 cases of incident type 2 diabetes were validated. In the overall population, the highest PRAL quartile, reflecting a greater acid-forming potential, was associated with a significant increase in type 2 diabetes risk, compared with the first quartile (HR 1.56, 95% CI 1.29, 1.90). The association was stronger among women with BMI <25 kg/m<sup>2</sup> (HR 1.96, 95% CI 1.43, 2.69) than in overweight women (HR 1.28, 95% CI 1.00, 1.64); statistically significant trends in risk across quartiles were observed in both groups (p trend < 0.0001 and p trend = 0.03, respectively). The NEAP score provided similar findings.

**CONCLUSIONS/INTERPRETATION:**

We have demonstrated for the first time in a large prospective study that dietary acid load was positively associated with type 2 diabetes risk, independently of other known risk factors for diabetes. Our results need to be validated in other populations, and may lead to promotion of diets with a low acid load for the prevention of diabetes. Further research is required on the underlying mechanisms.