

Health-related biomarkers profile of vegetarians and meat-eaters: A cross-sectional analysis of the UK Biobank study

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INTRODUCTION

Biomarkers have been widely used to assess health benefits of certain diets. However, evidence on differences in biomarkers between vegetarians and meat-eaters is elusive.

AIM

To investigate differences in 19 health-related biomarkers between vegetarians and meat-eater adults without major chronic illnesses.

METHODS

Population

- This is a cross-sectional study using data from the UK Biobank study.
- 177,723 participants free of comorbidities who reported no major changes in diet in the last five years were included.

Exposures

- Dietary intake data was self-reported at baseline by touch screen questionnaire.
- Using data from food frequency questionnaires, 2 types of diet were derived: vegetarians (n=4,111), and meat-eaters (reference group; n=166,516).

Outcome

- Nineteen blood and urine biomarkers related to diabetes, cardiovascular diseases, cancer, liver, bone and joint and renal function were included.

Statistics

- The association between vegetarian diet and biomarkers, compared to meat-eaters was examined using multiple linear regression and presented as standardised beta coefficients.

RESULTS

Compared to meat-eaters

- ✓ Vegetarians had a significantly lower concentration for 13 biomarkers including total cholesterol (5.7 mmol/L), LDL (3.5 mmol/L), HDL (1.5 mmol/L), apolipoprotein A (1.6 g/L), apolipoprotein B (1.0 g/L), GGT (29.4 g/L), ALT (20.6 U/L), IGF-1 (20.6 nmol/L), vitamin D (43.1 nmol/L), urate (284.4 μ mol/L), total protein (72.2 g/L), creatinine (65.4 μ mol/L) and calcium (2.4 mmol/L).
- ✓ Vegetarians had a significantly high concentration of triglycerides (1.8 mmol/L) and cystatin-C (0.9 mg/L).
- ✓ No significant association were found for HbA1c (34.6 mmol/mol), systolic blood pressure (134.6 mmHg), AST (25.5 U/L) and CRP (2.1 mg/L).

CONCLUSION

- ✓ Vegetarians had a more favourable biomarkers profile than meat-eaters.
- ✓ These associations were independent of adiposity and other sociodemographic and lifestyle-related confounding factors.

HDL: high-density lipoprotein; LDL: low-density lipoprotein; GGT: Gamma-glutamyl transferase; ALT: Alanine aminotransferase; AST: Aspartate aminotransferase; IGF-1: insulin-like growth factor 1; CRP: C-reactive protein

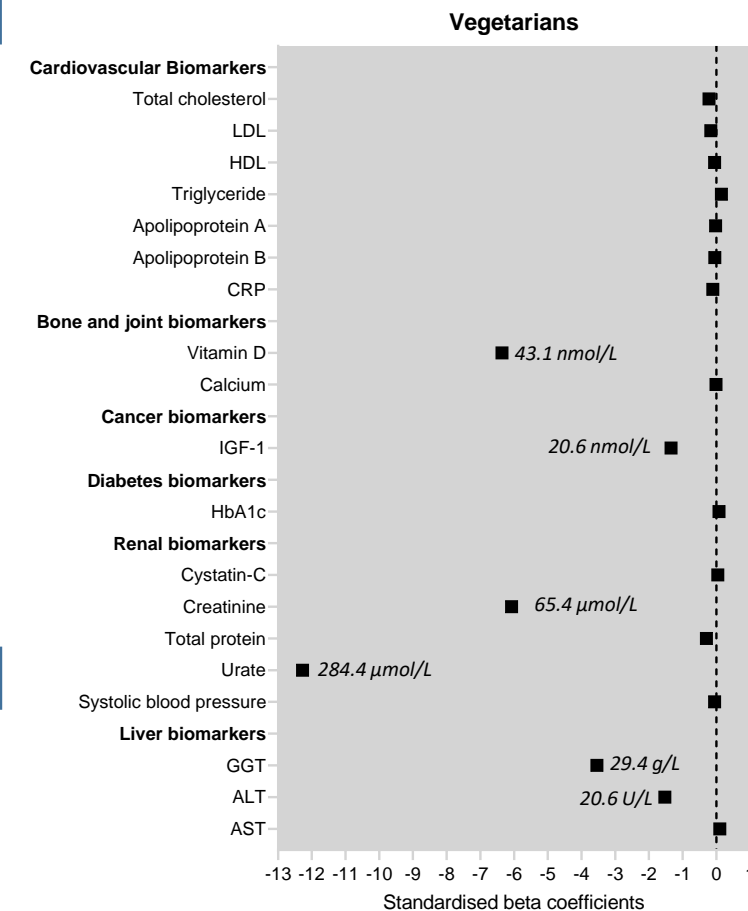


Figure 1. Association between type of diet and biomarkers Model was adjusted for age, sex, deprivation, education, ethnicity, smoking, total sedentary, type of physical activity, alcohol intake, body mass index and waist circumference.