

The prospective association between meat intake and prostate cancer risk in UK Biobank

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Prostate cancer is the most common cancer in males in the UK, with around 47,100 cases diagnosed in 2015⁽¹⁾. There is relatively high variation in incidence rates worldwide⁽²⁾, suggesting that differences in exposure to environmental factors, such as diet, may play a role in prostate cancer development. Therefore, the aim of this study was to study the association between meat intake and prostate cancer risk in UK Biobank.

We studied 215,000 men from the UK Biobank study who were aged 40–69 years and free from cancer at baseline. Participants provided their frequency of consumption of processed meat, red meat and poultry via a touch screen questionnaire at the assessment centre⁽³⁾. Multivariable Cox regression models were used to estimate hazard ratios (HRs) and 95 % confidence intervals (CIs)⁽⁴⁾.

During a median of 5.6 years of follow-up, 4,562 participants were diagnosed with prostate cancer. Compared with men who reported consumption of red meat less than once a week, those who consumed red meat 3 or more times per week had a significantly higher prostate cancer risk (HR = 1.23; 95 % CI = 1.07–1.43). No associations were observed between total meat, processed meat or poultry intake and prostate cancer risk (table 1).

Table 1. Multivariable-adjusted hazard ratios (95 % CI) for total prostate cancer in UK Biobank (2006–2014)

Intake of Total meat	Servings/week			
	<4	4–<6	6–<8	≥8
Total n/cases	45,519/987	63,608/1394	53,114/1102	53,187/1028
HR (95 % CI) ¹	1 ref	1.01 (0.93–1.10)	1.01 (0.92–1.10)	1.00 (0.92–1.10)
Processed meat	<1	1–2	2–<5	≥5
Total n/cases	58,503/1272	65,042/1464	80,479/1585	14,233/238
HR (95 % CI) ¹	1 ref	1.05 (0.97–1.13)	0.99 (0.92–1.07)	0.94 (0.82–1.08)
Red meat intake	<1	1–<2	2–<3	≥3
Total n/cases	15789/224	81578/1703	63142/1410	55389/1183
HR (95 % CI) ¹	1 ref	1.26 (1.09–1.45)	1.29 (1.12–1.48)	1.23 (1.07–1.43)
Poultry intake	<1	1–<2	2–<5	≥5
Total n/cases	33189/651	80666/1887	99348/1941	5063/83
HR (95 % CI) ¹	1 ref	1.14 (1.05–1.25)	1.12 (1.02–1.22)	1.23 (0.98–1.55)

¹ HR are stratified by region and age at recruitment and adjusted for age (underlying time variable), Townsend deprivation score, ethnicity, living with a wife or partner, body mass index, smoking, physical activity, diabetes, enlarged prostate, family history of prostate cancer, and prostate-specific antigen test.

In these preliminary analyses from UK Biobank total meat consumption was not associated with risk of prostate cancer, but there was some evidence that higher consumption of red meat was associated with an increased risk of prostate cancer. Future research will examine associations by tumour characteristics.

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3. Sudlow C, Gallacher J, Allen N *et al.* (2015) *PLoS Med* **12**, e1001779.
4. Perez-Cornago A, Key TJ, Allen NE *et al.* (2017) *Br J Cancer* **117**, 1562–1571.