



The 48th Annual Scientific Meeting of the Nutrition Society of Australia, 3-6 December 2024

Ultra-processed food intake and cancer risk in the Melbourne Collaborative Cohort Study

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A recent umbrella review found that overall greater exposure to ultra-processed foods (UPF) was associated with worse outcomes. For cancer incidence overall ($k = 7$) and for colorectal cancer ($k = 7$) there was suggestive low-quality evidence of a positive association. There was no evidence for association with cancers of other sites⁽¹⁾. Analysis of data from EPIC found positive associations for UPF consumption with head and neck cancer, and oesophageal adenocarcinoma, with a small proportion of the association mediated via adiposity⁽²⁾. This study aims to examine the association between UPF consumption and incidence of cancer, using data from the Melbourne Collaborative Cohort Study (MCCS). Adults aged 40–69 years and born in Australia, Greece or Italy ($n = 41,513$) were recruited between 1990 and 1994; invasive cancer incidence was identified up until June 30th, 2021, by linkage to cancer registries. Dietary data was collected using a food frequency questionnaire developed for the MCCS, and the NOVA classification was used to identify UPF⁽³⁾. After exclusions, 35,039 ($n = 21,244$ females and 13,795 males) people were included in the analysis. UPF consumption (% of total grams intake) was modelled as quintiles and as a continuous variable. Flexible parametric models were fitted to estimate hazard ratios (HR) and 95% confidence intervals (CI) for cancer risk associated with UPF consumption after adjusting for sex, country of birth, socio-economic position, average lifetime alcohol intake (grams/day), smoking status and intensity, education, physical activity score. Overall cancer, overall obesity-related cancer, and individual obesity-related cancers where there were more than 100 cases, were considered as the outcomes. There were 10,445 incident cancers identified, of which 4,237 were considered as obesity-related, with more than 100 cases for cancers of pancreas ($n = 270$), colorectum (1369), endometrium ($n = 223$), kidney ($n = 216$), ovary ($n = 159$), multiple myeloma ($n = 187$), and post-menopausal breast ($n = 1479$). The highest UPF consumers included more males and people born in Australia than the lowest consumers. Positive associations were observed for all cancers: HR for continuous variable 1.03, 95% CI (1.01, 1.05); Q5 vs Q1HR 1.09, 95% CI (1.02, 1.16); obesity-related cancers: HR for continuous variable 1.04, 95% CI (1.01, 1.08); Q5 vs Q1HR 1.10, 95% CI (1.00, 1.22), and post-menopausal breast cancer: HR for continuous variable 1.07, 95% CI (1.00, 1.14); Q5 vs Q1HR 1.12, 95% CI (0.90, 1.41). Direct associations between UPF consumption and cancer outcomes were found, although some of those associations were weak. Limiting the consumption of UPF may reduce cancer risk.

References

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3. Lane MM, Lotfaliany M, Hodge AM *et al.* (2023) *J Affect Disord* **335**, 57–66.