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The association between ultra-processed foods and chronic disease biomarkers in Australian adults

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Chronic diseases such as cardiovascular disease and diabetes are a leading cause of disability and death in Australia. These conditions are often heralded by biomarkers from blood and urine samples which indicate risk or presence of disease. The development of chronic conditions remains influenced by a set of modifiable risk factors, which includes diet. The level of food processing has recently been linked with disease risk factors and poor health outcomes[1], yet there is limited research into the direct associations between food processing and chronic disease biomarkers. This study aims to investigate the associations between varying levels of ultra-processed food consumption and chronic disease biomarkers. Participants ≥ 18 years with biomedical data who participated in both the National Nutritional and Physical Activity Survey and the National Health Measures Survey 2011–2013 were included in this secondary analysis. Chronic disease biomarkers were categorised as normal or abnormal according to cut-off values from the Royal College of Pathologists of Australasia. Dietary intake was classified according to the NOVA system for level of food processing. Data were then stratified into quintiles of daily energy share of ultra-processed foods. Associations between chronic disease biomarkers across quintiles of energy share of ultra-processed foods were examined. A significant positive trend was found between ultra-processed food consumption and high-density lipoprotein (HDL) cholesterol ($p < 0.01$). An inverse association was observed between ultra-processed food consumption and total cholesterol ($p < 0.001$). The highest consumers of ultra-processed foods were more likely to be younger, less educated, more disadvantaged, not meeting physical activity guidelines, and currently smoking (all $ps < 0.001$). In conclusion, ultra-processed food consumption was associated with significant changes in total and HDL cholesterol levels. This provides insight into possible interactions at a biochemical level and may help to guide future dietary recommendations on ultra-processed foods for disease management and prevention.

References

1. Vitale M, Costabile G, Testa R *et al.* (2024) *Adv Nutr* **15**(1), 100121.