



Association between plant-based diet quality and chronic kidney disease in Australian adults

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Chronic kidney disease (CKD) is a growing burden on global health,⁽¹⁾ with one in 10 (1.7 million) Australian adults, 18 years or older, having indicators of CKD.⁽²⁾ Emerging observational evidence suggests a predominantly plant-based diet appears optimal for people with CKD, but risks differ by the quality of plant-based diets.^(3–4) Limited research has been undertaken in the Australian population. This study aimed to examine associations between different types of plant-based diets, CKD prevalence and related risk factors in a nationally representative sample of the Australian population. This study utilised the Australian National Nutrition and Physical Activity Survey 2011–2012.⁽⁵⁾ Three plant-based diet quality indices were calculated using data from two 24-hour dietary recalls: an overall plant-based diet index (PDI), a healthy PDI (hPDI), and an unhealthy PDI (uPDI). Higher PDI score implies greater consumption of all kinds of plant foods, regardless of their healthiness. Higher hPDI score represented greater consumption of healthy plant foods (i.e. whole grains, fruits, vegetables, legumes, nuts and seeds) and lower consumption of unhealthy plant foods (i.e. refined grains, fruit juices, saturated plant fats, sugars and syrups). Higher uPDI represented lower consumption of healthy plant foods and greater consumption of unhealthy plant foods. Higher scores for all three plant-based diet indices represented lower consumption of animal foods (animal fat, dairy, eggs, seafood, meat). The consumption of plant and animal ingredients from ‘core’ and ‘discretionary’ products was also differentiated using an additional scoring method. Moderate–severe CKD was defined as an estimated GFR < 60 mL/min/1.73 m². Associations between the three PDI and CKD prevalence, body mass index (BMI), waist circumference (WC), blood pressure (BP) measures, blood cholesterol, Apolipoprotein B, fasting triglyceride (TAG), blood glucose levels (BGL), and haemoglobin A1c were examined. The analysis included 2060 participants aged 18 years and above (males: $n = 928$; females: $n = 1,132$). Higher adherence to the uPDI was associated with 3.7% higher odds of moderate–severe CKD [OR = 1.037, 95% CI [1.0057, 1.0697], $p = 0.021$]. Higher adherence to the uPDI was also associated with increased fasting TAG ($p = 0.032$) and BGL ($p < 0.001$). In contrast, greater adherence to the overall PDI was inversely associated with WC ($p < 0.001$) and systolic BP ($p = 0.044$), while high adherence to both the overall PDI and hPDI were inversely associated with BMI ($p < 0.001$ and $p = 0.019$, respectively). In this study, we observed that greater adherence to diets consisting of higher intakes of refined grains, salty foods and added sugars in the context of plant-based diets was associated with increased CKD prevalence, as well as increased fasting TAG and BGL. These results suggest that for the Australian population that consumes plant foods habitually, considering the quality of plant foods may be important for preventing CKD.

References

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