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Abstract

Dietary Studies, Guidelines and Recommendations: Limited Nutrient Deficiency Risks and Significant Modelled Health Benefits in French Adults Following a More Plant-Based Diet †

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Abstract: There is a current trend towards plant-based diets in Western countries. These diets have been associated with long-term health benefits but could limit the adequacy of some indispensable nutrients. Here, we estimated the nutritional risks and health benefits of consuming more plant-based diets. Based on the latest French representative survey (INCA3), we defined a subgroup of adults (representing 12% of the population) with more plant-based diets ("MORE-PB"), defined as having plant protein and plant energy intakes above the 80th percentile. In the MORE-PB and the rest of the population, we estimated prevalences of nutrient inadequacy and deficiency risk. We also assessed the nutrient quality of the diet using the PANDiet and SecDiet scoring systems. Finally, we evaluated the hypothetical burden of disease if the entire population were shifting to the MORE-PB, using a comparative risk assessment framework (EpiDiet). In MORE-PB, we found a lower prevalence of inadequacy for fiber (both sexes), vitamin C (male), vitamin B9 and potassium (female) and a higher prevalence for vitamins B2 and B12 (both sexes), vitamin B6 (male), and protein (female). No differences were found concerning the prevalences of deficiency risk. No significant differences were observed in the PANDiet and SECDiet scores in MORE-PB compared to the rest of the population. Regarding nutrient intakes related to long-term health, MORE-PB were less prone to exceeding upper limits for SFA but more prone to exceeding those for sugars and sodium. Shifting to a MORE-PB would benefit population health, with ~132,700 [~125,400–~140,000, 95% UI] Disability-Adjusted Life Years (DALYs) averted. The gain would be higher for males than females (~92,000 vs. ~40,700 DALYs averted) but related to the same main diseases (ischemic heart diseases, diabetes and colorectal cancer). The decreases in processed meat and SFA in the plant-based diet were among the main contributors to its benefits. Other significant contributors were higher nuts consumption and mediation by lower blood cholesterol in females and higher fruit consumption and fiber intake in males. Overall, although diet quality was suboptimal in MORE-PB, significant nutritional risks were limited, particularly concerning deficiency risk. In contrast, such diets would benefit the population's long-term health.

Keywords: plant-based diets; risk and benefit assessment; nutrient adequacy; comparative risk assessment; DALYs

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