


Abstract

Nutritional Quality and Environmental Sustainability of Dietary Protein Patterns in Europe [†]

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Abstract: Background: A dietary shift from animal-based protein foods towards plant and/or alternative protein foods (i.e., protein transition) has gained increasing interest in Europe as a solution to reduce environmental impacts and improve human health. However, to shape this protein transition, it is first needed to gain more insights into current protein-rich food consumption habits across European countries and related nutritional and environmental impacts. Objectives: This research aimed to (1) identify distinctive dietary protein patterns in Europe and (2) assess their associations with nutritional quality and environmental sustainability. Methods: Individual-level food consumption data collected from multiple 24 h dietary recalls or food records were obtained from nationally representative dietary surveys of 25 European countries (40,101 participants, 18–64 years), available from the European Food Safety Authority (EFSA) Comprehensive Food Consumption Database. We applied statistical clustering to classify individuals according to consumption of 24 protein-rich food groups. The obtained patterns were evaluated for nutritional adequacy, nutritional quality, and environmental impacts using the Dutch Food Composition (NEVO) and a European environmental sustainability indicator (SHARP-ID) databases. Results: Six dietary protein patterns were identified: “Common” (42%), “Junk” (20%), “Traditional” (15%), “Health-conscious” (12%), “Dairy-rich” (10%), and “Plant-forward” (2%). Protein intake ranged from 0.89 g/kg body weight in the “Common” pattern to 1.27 g/kg body weight in the “Traditional” pattern. The “Plant-forward” and “Health-conscious” patterns achieved the highest nutritional quality, whereas that of the “Common” pattern was lowest. Greenhouse gas emissions and land use were comparable between patterns, except for the “Plant-forward” and “Traditional” patterns where impacts were, respectively, lower and higher. Discussion: Dietary protein patterns are linked to unique nutritional profiles and vary to some extent in environmental impacts, indicating that distinct approaches are needed for closing nutritional gaps and overcoming environmental challenges. This also stresses the need for considering cultural differences in eating habits for successfully shifting towards plant- and/or alternative protein foods.



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