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Variation in modelled healthy diets based on three different food patterns identified from the Danish national diet – and the impact on carbon footprint

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Background and aims: A healthy diet complies with the national food-based dietary guidelines (FBDG) and Nordic nutrition recommendations (NNR2012). In this study we aim at 1) developing new healthy diet compositions by a simple diet modelling technique that ensures a nutrient content in accordance with the recommended values and depending on food preferences and habits, and 2) further optimizing the diet composition with regard to carbon footprint (CF).

Methods: We used a simple modelling of the 'Traditional', 'Health conscious' and 'Fast food' patterns identified from national dietary data (1)Knudsen et al. 2014) into isocaloric healthy diets that fulfil and the Danish FBDGs and NNR2012 with respect to both micro- and macronutrients. Furthermore we updated the list of estimated carbon footprint (CF) of food items included in the diets and further optimized the diet composition with regard to CF. Extension of modelling was used to optimise the diets with regard to their estimated carbon footprint (CF).

Results: Around 365 food items are included in the three food patterns. Based on literature CF of these foods is updated, including the contribution from waste, transportation and cooking at home. Despite variation in the amounts of contribution of foods in each food group and in the composition of foods within each food group, the estimated CFs of the modelled healthy dietary patterns are similar to original Danish patterns. CFs of the CF-optimized dietary patterns similar to each other, and CF of CF-optimized dietary patterns are approx. 25% lower. Only a small contribution to CF from transportation and cooking at home

Conclusion: Different dietary patterns can fulfill dietary recommendations. Specific optimization is needed to lower the CF of the diets.

References: [1]Knudsen et al. Eur Clinl J Nutr 2014, 68, 6, 736-740

Disclosure of Interest: None to declare