

The association between plant and animal protein intake and disability free survival in community-dwelling older adults: the results of the ASPREE Longitudinal Study of Older Persons (ALSOP)

H. Wild¹, D. Gasevic¹, R.L. Woods¹, J. McNeil¹, C. Britt¹ and A. Owen¹
¹Monash University, Melbourne, Vic., Australia

There is a growing body of research on the human⁽¹⁾ and planetary health⁽²⁾ impacts of different dietary protein sources, though outcomes in older adults vary.⁽³⁻⁵⁾ The aim of this study is to examine the association between plant and animal protein and disability-free survival (DFS) in older adults. Prospective cohort study of 9,951 community dwelling adults aged ≥ 70 years who were participants in the ASPirin in Reducing Events in the Elderly (ASPREE) study and the ASPREE Longitudinal Study of Older Persons (ALSOP). The outcome DFS was a composite of all-cause mortality, dementia, or persistent physical disability. Protein intake subtype variables included self-reported intake of red meat, fish (oily fish, tinned fish, white fish), poultry (chicken and turkey) and plant protein (nuts and legumes) each reported a frequency of rarely/never, 1–2/monthly, 1–2/weekly, 3–6/weekly and several times daily. The analysis examined protein subtypes individually and composite of models integrating plant and animal protein intake. Cox proportional hazards regression models, stratified by gender and adjusted for socio-demographic, overall protein intake, health-related and clinical covariates were conducted for plant protein, animal proteins and a variable integrating animal and plant protein with the outcome of DFS. There were 546 events in men and 465 events in women recorded within a mean follow up time of 6.4 years. After covariate adjustment, when compared to men who rarely/never consumed plant protein, those who consumed plant protein several times daily had a 57% lower risk of reaching the DFS endpoint (HR = 0.43, 95% CI [0.20, 0.90]). Similarly, men who consumed fish once to twice a month, once to twice a week and several times a week demonstrated significantly lower risk of DFS endpoint (0.50, CI [0.32, 0.76]; 0.53, CI [0.34, 0.81]; 0.47, CI [0.24, 0.92]) compared to those who rarely/never consumed fish. No association between red meat and poultry consumption was demonstrated in either sex. Based on the integrative/composite variables and compared to women who rarely/never consumed plant and poultry protein, women who consumed poultry and plant-based protein weekly had a 64% (0.36, CI [0.25, 0.96]) lower risk of accruing the composite DFS endpoint. For men, a lower risk of the DFS endpoint was found when monthly and weekly red meat consumption was paired with weekly plant-based protein consumption (0.34, CI [0.13, 0.92]; 0.42, CI [0.19, 0.95]). The regular consumption of fish and plant-based protein in community dwelling men 70 years and over, is associated with prolonged survival free from disability.

References

1. Perraud E, Wang J, Salomé M, *et al.* (2022) *Front Nutr* **9**, 924526.
2. Clark M, Springmann M, Rayner M, *et al.* (2022) *Proc Natl Acad Sci U S A* **119** (33), e2120584119.
3. Matison AP, Milte CM, Shaw JE, *et al.* (2022) *BMC Geriatr* **22** (1), 211.
4. Meroño T, Zamora-Ros R, Hidalgo-Liberona N, *et al.* (2021) *J Gerontol A Biol Sci Med Sci* **77**, 1866–1872.
5. Foscolou A, Critselis E, Tyrovolas S, *et al.* (2021) *Public Health Nutr* **24** (8), 2215–2224.