

Omega 3 fatty acids in seafood linked to lower risk of chronic kidney problems

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Higher levels of omega 3 fatty acids found in seafood are associated with a moderately lower risk of chronic kidney disease and a slower decline in kidney function, finds a study published by *The BMJ*.

These associations were not found with higher levels of plant derived

omega 3 [fatty acids](#).

Although the size of these associations was modest, the findings support current clinical guidelines that recommend adequate consumption of [seafood](#) and oily fish as part of healthy dietary patterns, say the researchers.

Chronic kidney disease (CKD) affects about 700 million people worldwide and can lead to [kidney failure](#) and death, so there is a need to identify factors that might prevent its onset and progression.

Animal studies suggest that omega 3 polyunsaturated fatty acids (n-3 PUFAs) may have beneficial effects on [kidney function](#), but evidence from [human studies](#) is limited and relies mainly on dietary questionnaires, which can be prone to error.

To explore this further, an international team led by researchers at The George Institute for Global Health and the University of New South Wales, pooled the results of 19 studies from 12 countries up to May 2020 looking at links between levels of n-3 PUFA biomarkers and development of CKD in adults.

Biomarkers included eicosapentaenoic acid (EPA), docosahexaenoic acid (DHA), docosapentaenoic acid (DPA), and alpha linolenic acid (ALA). The main dietary sources of EPA, DHA and DPA come from seafood, while ALA is found mainly in plants (nuts, seeds, and leafy green vegetables).

CKD was identified by an estimated glomerular filtration rate (eGFR) of less than 60 ml/min/1.73 m². eGFR measures how well the kidneys are removing waste and excess fluid from the blood. The normal range is 90-120 ml/min/1.73 m².

Overall, 25,570 participants were included in the main analysis. Their average age ranged from 49 to 77 years and their average baseline eGFR ranged from 76.1 to 99.8 mL/min/1.73 m².

Sixteen studies recruited men and women, and 15 recruited mainly white participants. In total, 4,944 participants (19%) developed CKD during an average monitoring period of 11 years.

After accounting for other a range of factors including age, sex, race, body mass index, smoking, alcohol intake, physical activity, heart disease and diabetes, higher levels of total seafood n-3 PUFAs were associated with a modest (8%) lower risk of developing CKD.

When participants were split by n-3 PUFA levels, those with total seafood n-3 PUFA levels in the highest fifth had a 13% lower risk of CKD compared with those in the lowest fifth.

Higher levels of total seafood n-3 PUFAs, especially DHA, were also associated with a slower annual decline in eGFR. For instance, the annual decline in eGFR was 0.07 mL/min/1.73 m² lower for people with total seafood n-3 PUFA level in the highest fifth than those in the lowest fifth.

Plant derived ALA levels were not associated with CKD.

These are observational findings and the researchers acknowledge that differences in study design and methods may have affected their results. And they cannot rule out the possibility that some of the observed risk may be due to unmeasured factors.

Nevertheless, results were similar after further analysis, and appeared consistent across age groups (60 or less v more than 60 years), eGFR (60-89 v 90 or higher mL/min/1.73 m²), high blood pressure, diabetes,

and coronary [heart disease](#) at baseline, suggesting that they withstand scrutiny.

"Although our findings do not prove a causal relation between seafood n-3 PUFAs and CKD risk, they are supportive and consistent with current clinical guidelines that recommend adequate intake of seafood as part of healthy dietary patterns, especially when seafood replaces the intake of less healthy foods," they write.

"Further randomized controlled trials are warranted to assess the potential beneficial role of seafood n-3 PUFAs in preventing and managing CKD," they add.

More information: Association of omega 3 polyunsaturated fatty acids with incident chronic kidney disease: pooled analysis of 19 cohorts, *The BMJ* (2023). [DOI: 10.1136/bmj-2022-072909](https://doi.org/10.1136/bmj-2022-072909)

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