Fish-Derived Omega-3 Fatty Acids and Prostate Cancer: A Systematic Review.


Abstract
Background The use of natural health products in prostate cancer (PrCa) is high despite a lack of evidence with respect to safety and efficacy. Fish-derived omega-3 fatty acids possess anti-inflammatory effects and preclinical data suggest a protective effect on PrCa incidence and progression; however, human studies have yielded conflicting results. Methods A search of OVID MEDLINE, Pre-MEDLINE, Embase, and the Allied and Complementary Medicine Database (AMED) was completed for human interventional or observational data assessing the safety and efficacy of fish-derived omega-3 fatty acids in the incidence and progression of PrCa. Results Of 1776 citations screened, 54 publications reporting on 44 studies were included for review and analysis: 4 reports of 3 randomized controlled trials, 1 nonrandomized clinical trial, 20 reports of 14 cohort studies, 26 reports of 23 case-control studies, and 3 case-cohort studies. The interventional studies using fish oil supplements in patients with PrCa showed no impact on prostate-specific antigen levels; however, 2 studies showed a decrease in inflammatory or other cancer markers. A small number of mild adverse events were reported and interactions with other interventions were not assessed. Cohort and case-control studies assessing the relationship between dietary fish intake and the risk of PrCa were equivocal. Cohort studies assessing the risk of PrCa mortality suggested an association between higher intake of fish and decreased risk of prostate cancer-related death. Conclusions Current evidence is insufficient to suggest a relationship between fish-derived omega-3 fatty acid and risk of PrCa. An association between higher omega-3 intake and decreased PrCa mortality may be present but more research is needed. More intervention trials or observational studies with precisely measured exposure are needed to assess the impact of fish oil supplements and dietary fish-derived omega-3 fatty acid intake on safety, PrCa incidence, treatment, and progression.

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KEYWORDS: PSA; fish; fish oil; omega-3; prostate cancer; prostate carcinoma

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