Higher Intakes of Omega-3 Associated with Less Asthma in Young Adults

Reference:

Intakes of Long-chain Omega-3 (n-3) PUFAs and Fish in Relation to Incidence of Asthma among American Young Adults: the CARDIA Study


Dept. of Epidemiology and Nutrition, Univ. of North Carolina at Chapel Hill, Chapel Hill, North Carolina, USA

Summary:

Asthma is a common chronic condition involving inflammation of the airways due to environmental, genetic, and other factors. The disease afflicts approx. 300 million people globally and is characterized by episodes of wheezing, coughing, shortness of breath, and chest tightness. Since the long-chain omega-3 fatty acids (EPA plus DHA) have been shown to have significant anti-inflammatory effects, it was of interest for this research group to study the possibility that higher intakes of these omega-3 PUFA (polyunsaturated fatty acids), namely EPA (eicosapentaenoic acid) plus DHA (docosahexaenoic acid) plus DPA (docosapentaenoic acid) combined, may have beneficial effects on the development of asthma.

For this purpose, 4162 participants (ages 18-30) who were free of asthma at baseline were followed for 20 years along with assessments of their fatty acid intakes by FFQ (food frequency questionnaires) and nutrient/compositional databases. The results were adjusted to balance for potential confounding variables such as sociodemographic, lifestyle, dietary. During the study period, 11.2 % of the young adults developed asthma as diagnosed by a physician or by the use of medicinal treatment to help control the asthma. Higher intakes of (EPA plus DHA plus DPA) were found to be associated with a considerably lower incidence of asthma such that those in the highest ‘quintile’ (top 20 %) with respect to long-chain omega-3 intakes had a 54 % lower development of asthma when compared to those in the lowest ‘quintile’. The average daily intake of long-chain omega-3 per person was 410 mg while that in the other four groups averaged 30-190 mg (with 30 mg being in the lowest ‘quintile’). While both EPA and DHA
intakes (if higher) were inversely related to the incidence of asthma, a somewhat greater benefit for DHA emerged from the statistical analyses as reported by the authors.

**Dr. Holub’s Comments:**

While the mechanisms underlying the apparent beneficial effects of EPA and DHA were not studied herein, both have been found to suppress the formation of pro-inflammatory products (including ‘cytokines’) in other studies with DHA showing a stronger effect in some of these. Current daily intakes of (EPA plus DHA) in the US are approx. 125-150 mg/day such that a 2- to 3-fold increase in intake would be needed to reach a target of 400 mg/day or more. It remains to be determined via randomized/controlled clinical trials if supplementation can offer similar apparent protective benefits in reducing the incidence of asthma as suggested by dietary EPA/DHA in the present study.