

## Format:

Abstract ▾

Send to ▾

[N Engl J Med.](#) 2016 Dec 29;375(26):2530-9. doi: 10.1056/NEJMoa1503734.

## Fish Oil-Derived Fatty Acids in Pregnancy and Wheeze and Asthma in Offspring.

[Bisgaard H](#)<sup>1</sup>, [Stokholm J](#)<sup>1</sup>, [Chawes BL](#)<sup>1</sup>, [Vissing NH](#)<sup>1</sup>, [Bjarnadóttir E](#)<sup>1</sup>, [Schoos AM](#)<sup>1</sup>, [Wolsk HM](#)<sup>1</sup>, [Pedersen TM](#)<sup>1</sup>, [Vinding RK](#)<sup>1</sup>, [Thorsteinsdóttir S](#)<sup>1</sup>, [Følsgaard NV](#)<sup>1</sup>, [Fink NR](#)<sup>1</sup>, [Thorsen J](#)<sup>1</sup>, [Pedersen AG](#)<sup>1</sup>, [Waage J](#)<sup>1</sup>, [Rasmussen MA](#)<sup>1</sup>, [Stark KD](#)<sup>1</sup>, [Olsen SF](#)<sup>1</sup>, [Bønnelykke K](#)<sup>1</sup>.

### Author information

- 1 From COPSAC (Copenhagen Prospective Studies on Asthma in Childhood), Herlev and Gentofte Hospital, University of Copenhagen (H.B., J.S., B.L.C., N.H.V., E.B., A.-M.M.S., H.M.W., T.M.P., R.K.V., S.T., N.V.F., N.R.F., J.T., J.W., M.A.R., K.B.), and the Center for Fetal Programming, Statens Serum Institut (S.F.O.), Copenhagen, the Department of Pediatrics, Naestved Hospital, Naestved (J.S., E.B., T.M.P., R.K.V.), DTU Bioinformatics, Technical University of Denmark, Kongens Lyngby (A.G.P.), and Faculty of Science, Chemometrics and Analytical Technology, University of Copenhagen (M.A.R.) - all in Denmark; the Department of Kinesiology, University of Waterloo, Waterloo, ON, Canada (K.D.S.); and the Department of Nutrition, Harvard School of Public Health, Boston (S.F.O.).

### Abstract

**BACKGROUND:** Reduced intake of n-3 long-chain polyunsaturated fatty acids (LCPUFAs) may be a contributing factor to the increasing prevalence of wheezing disorders. We assessed the effect of supplementation with n-3 LCPUFAs in pregnant women on the risk of persistent wheeze and asthma in their offspring.

**METHODS:** We randomly assigned 736 pregnant women at 24 weeks of gestation to receive 2.4 g of n-3 LCPUFA (fish oil) or placebo (olive oil) per day. Their children formed the Copenhagen Prospective Studies on Asthma in Childhood<sub>2010</sub> (COPSAC<sub>2010</sub>) cohort and were followed prospectively with extensive clinical phenotyping. Neither the investigators nor the participants were aware of group assignments during follow-up for the first 3 years of the children's lives, after which there was a 2-year follow-up period during which only the investigators were unaware of group assignments. The primary end point was persistent wheeze or asthma, and the secondary end points included lower respiratory tract infections, asthma exacerbations, eczema, and allergic sensitization.

**RESULTS:** A total of 695 children were included in the trial, and 95.5% completed the 3-year, double-blind follow-up period. The risk of persistent wheeze or asthma in the treatment group was 16.9%, versus 23.7% in the control group (hazard ratio, 0.69; 95% confidence interval [CI], 0.49 to 0.97; P=0.035), corresponding to a relative reduction of 30.7%. Prespecified subgroup analyses suggested that the effect was strongest in the children of women whose blood levels of eicosapentaenoic acid and docosahexaenoic acid were in the lowest third of the trial population at randomization: 17.5% versus 34.1% (hazard ratio, 0.46; 95% CI, 0.25 to 0.83; P=0.011). Analyses of secondary end points showed that supplementation with n-3 LCPUFA was associated with a reduced risk of infections of the lower respiratory tract (31.7% vs. 39.1%; hazard ratio, 0.75; 95% CI, 0.58

### Full text links



### Save items

### Similar articles

Effect of fish oil supplementation in pregnancy on bon [BMJ. 2018]

Fish oil supplementation during pre [J Allergy Clin Immunol. 2017]

Effect of Vitamin D3 Supplementation D [JAMA. 2016]

**Review** Maternal prenatal chrane Database Syst Rev. 2015]

**Review** Can Early Omega-3 Fatty Acid Expo [Nutrients. 2017]

[See reviews...](#)[See all...](#)

### Cited by 62 PubMed Central articles

Infant airway microbiota and topical immi [Nat Commun. 2019]

Environmental and Genetic Determir [Children (Basel). 2019]

**Review** The Metabolic Requireme [Front Immunol. 2019]

[See all...](#)

### Related information

Articles frequently viewed together

MedGen

PubChem Compound (MeSH Keyword)

Cited in PMC

to 0.98;  $P=0.033$ ), but there was no statistically significant association between supplementation and asthma exacerbations, eczema, or allergic sensitization.

**CONCLUSIONS:** Supplementation with n-3 LCPUFA in the third trimester of pregnancy reduced the absolute risk of persistent wheeze or asthma and infections of the lower respiratory tract in offspring by approximately 7 percentage points, or one third. (Funded by the Lundbeck Foundation and others; ClinicalTrials.gov number, [NCT00798226](#) .).

### Comment in

Breathing Easier with Fish Oil - A New Approach to Preventing Asthma? [N Engl J Med. 2016]

High dose fish oil supplements in late pregnancy reduce asthma in offspring, finds study. [BMJ. 2016]

Fish Oil in Pregnancy and Asthma in Offspring. [N Engl J Med. 2017]

Fish Oil in Pregnancy and Asthma in Offspring. [N Engl J Med. 2017]

Fish Oil in Pregnancy and Asthma in Offspring. [N Engl J Med. 2017]

Possible protective effect of prenatal omega-3 long-chain polyunsaturated fatty acids supplementation on persistent wheeze and asthma in early childhood. [Evid Based Med. 2017]

Fischöl im Mutterleib schützt vor Asthma. [MMW Fortschr Med. 2017]

Pulmonology in Pregnancy. [Am J Respir Crit Care Med. 2018]

PURLs: Does fish oil during pregnancy help prevent asthma in kids? [J Fam Pract. 2018]

Recent advances in asthma. [Ann Allergy Asthma Immunol. 2018]

PMID: 28029926 DOI: [10.1056/NEJMoa1503734](#)

[Indexed for MEDLINE] [Free full text](#)



Publication type, MeSH terms, Substances, Secondary source ID 


LinkOut - more resources 


### Recent Activity


[Turn Off](#) [Clear](#)

 [Fish Oil-Derived Fatty Acids in Pregnancy and Wh](#) PubMed

 [The effects of vitamin D and omega-3 fatty acid co](#) PubMed

 [Maternal supplementation with very-long-chain r](#) PubMed

 [Maternal vitamin D status during pregnancy and child](#)

 [Omega-3 Fatty Acids and Cardiovascular Disease: A](#)

[See more...](#)

You are here: [NCBI](#) > [Literature](#) > [PubMed](#)

[Support Center](#)

#### GETTING STARTED

[NCBI Education](#)  
[NCBI Help Manual](#)  
[NCBI Handbook](#)  
[Training & Tutorials](#)  
[Submit Data](#)

#### RESOURCES

[Chemicals & Bioassays](#)  
[Data & Software](#)  
[DNA & RNA](#)  
[Domains & Structures](#)  
[Genes & Expression](#)  
[Genetics & Medicine](#)  
[Genomes & Maps](#)  
[Homology](#)  
[Literature](#)  
[Proteins](#)  
[Sequence Analysis](#)  
[Taxonomy](#)  
[Variation](#)

#### POPULAR

[PubMed](#)  
[Bookshelf](#)  
[PubMed Central](#)  
[BLAST](#)  
[Nucleotide](#)  
[Genome](#)  
[SNP](#)  
[Gene](#)  
[Protein](#)  
[PubChem](#)

#### FEATURED

[Genetic Testing Registry](#)  
[GenBank](#)  
[Reference Sequences](#)  
[Gene Expression Omnibus](#)  
[Genome Data Viewer](#)  
[Human Genome](#)  
[Mouse Genome](#)  
[Influenza Virus](#)  
[Primer-BLAST](#)  
[Sequence Read Archive](#)

#### NCBI INFORMATION

[About NCBI](#)  
[Research at NCBI](#)  
[NCBI News & Blog](#)  
[NCBI FTP Site](#)  
[NCBI on Facebook](#)  
[NCBI on Twitter](#)  
[NCBI on YouTube](#)  
[Privacy Policy](#)

National Center for Biotechnology Information, U.S. National Library of Medicine  
8600 Rockville Pike, Bethesda MD, 20894 USA

**[Policies and Guidelines](#) | [Contact](#)**