



Intake of *n*-3 polyunsaturated fatty acids in childhood, *FADS* genotype and incident asthma

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In children with a common fatty acid desaturase (*FADS*) variant, higher intake of eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) from fish in mid-childhood was strongly associated with a lower risk of incident asthma up to mid-adolescence <https://bit.ly/2M4VxO6>

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Abstract

Longitudinal evidence on the relation between dietary intake of *n*-3 (ω -3) very-long-chain polyunsaturated fatty acids, *i.e.* eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA), in mid-childhood and asthma risk is scarce. We aimed to investigate whether a higher intake of EPA and DHA from fish in childhood is associated with a lower risk of incident asthma.

In the Avon Longitudinal Study of Parents and Children, dietary intakes of EPA and DHA from fish were estimated by food frequency questionnaire at 7 years of age. We used logistic regression, controlling for confounders, to analyse associations between intake of EPA and DHA (quartiles) and incidence of doctor-diagnosed asthma at age 11 or 14 years, and explored potential effect modification by a fatty acid desaturase (*FADS*) polymorphism (rs1535). Replication was sought in the Swedish BAMSE birth cohort. There was no evidence of association between intake of EPA plus DHA from fish and incident asthma overall ($n=4543$). However, when stratified by *FADS* genotype, the odds ratio comparing the top *versus* bottom quartile among the 2025 minor G allele carriers was 0.49 (95% CI 0.31–0.79; $p_{\text{trend}}=0.006$), but no inverse association was observed in the homozygous major A allele group (OR 1.43, 95% CI 0.83–2.46; $p_{\text{trend}}=0.19$) ($p_{\text{interaction}}=0.006$). This gene–nutrient interaction on incident asthma was replicated in BAMSE. In children with a common *FADS* variant, higher intake of EPA and DHA from fish in childhood was strongly associated with a lower risk of incident asthma up to mid-adolescence.

