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The adequacy of long-chain *n*-3 fatty acid intakes in primary schoolchildren

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Long-chain (LC) *n*-3 PUFA, particularly EPA, and DHA, play an important role in neurological and cognitive development in children⁽¹⁾. Recent evidence suggests that the *in vivo* synthesis of these LC *n*-3 PUFA from α -linolenic acid (ALA) is less efficient than previously thought, which puts into question the adequacy of dietary intakes based on the conversion of ALA⁽²⁾. Although sources of ALA can be found throughout the diet, intakes of preformed LC *n*-3 PUFA are restricted to relatively few less-commonly-eaten foods, such as oily fish. In response, food producers have developed innovative approaches to increasing dietary intakes of LC *n*-3 PUFA, targeting many of these foods at parents by implying benefits in children's learning and behaviour. There is currently no information available on the current intake of LC *n*-3 PUFA in children and no validated method of collecting intake data.

The aim of the present study was to assess the total intake of *n*-3 PUFA, with determination of the contributions of ALA, EPA and DHA, in children aged 5–8 years old using a FFQ developed to incorporate both traditional and newly-developed food products assumed to contribute to dietary intakes of *n*-3 PUFA.

When compared against the dietary reference value minimum recommendation for total *n*-3 PUFA of 0.2% total energy⁽²⁾, intakes in females were significantly greater (n 22; $P=0.007$), while intakes in males were not significantly different (n 11; $P=0.184$). Intakes of total LC *n*-3 PUFA appeared to be significantly lower than the recommendation of 0.45 g/d⁽³⁾ ($P<0.0005$ for both males and females).

The study indicates that despite the adequacy of dietary intakes of total *n*-3 PUFA in children, intakes of LC *n*-3 PUFA may be lower than the recommendations. Intakes of total *n*-3 PUFA, predominantly from ALA, were however significantly lower than the intakes reported in the National Diet and Nutrition Survey⁽⁴⁾ ($P<0.0005$ for both males and females), indicating that the use of this FFQ to estimate *n*-3 PUFA intakes requires further validation.

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