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Dietary intakes of *n*-3 long-chain PUFA and *trans*-fatty acids in Irish adults

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There is a lack of up-to-date information on dietary intakes of EPA, DHA and *trans*-fatty acids (*trans*-FA) in the Irish population. According to the UK guidelines, dietary intakes of EPA and DHA should be >450 mg/d whilst *trans*-FA intakes should be <2% food energy^(1,2). The present study aimed to quantify dietary intakes of EPA, DHA and *trans*-FA using the North/South Ireland Food Consumption Survey (NSIFCS). The NSIFCS examined habitual food and beverage consumption in a representative sample of the adult population in Ireland during 1997–9. To update the NSIFCS database for current intakes of these fatty acids, two approaches were necessary. Data sources used to populate for EPA and DHA were: (1) brand-specific data (nutritional supplements); (2) *Fatty Acids: Seventh Supplement to 5th Edition of McCance and Widdowson's The Composition of Foods*⁽³⁾ (fish and some meats); (3) published references (chicken, hen eggs, milk and dairy products) whereby a detailed literature search was conducted to select accurate EPA and DHA concentration values for these foods. For milk and dairy products for which no specific references could be obtained average concentration values for EPA and DHA per 100 g milk fatty acids were used to calculate concentrations in the final food. A different hierarchical approach was adopted to update the NSIFCS database for *trans*-FA using data from: (1) the Food Safety Authority of Ireland; (2) brand-specific data; (3) published food composition tables. In accord with the Food Standards Agency (UK), account was made for efforts by the food industry to reduce *trans*-FA levels in certain foods (e.g. biscuits)⁽⁴⁾.

Published references were the main data source used to update for EPA and DHA (21.7% of the eating occasions), while the UK Nutrient Databank (46.7% of the eating occasions) was most frequently used to update for *trans*-FA. The food categories that contributed most to EPA and DHA intakes were fish and fish dishes (72.4%) while for *trans*-FA the main categories were butter (14.5%), cheeses (10.9%) and whole milk (6.4%). Total EPA, DHA and *trans*-FA mean daily intakes are shown in the Table.

	n	EPA + DHA (mg/d)				Trans-FA (% food energy)			
		Mean	SD	Min	Max	Mean	SD	Min	Max
Total	1097	275	411	0	4400	0.72	0.23	0.24	1.74
Gender									
Male	555	299 ^{NS}	437	0	4400	0.72 ^{NS}	0.24	0.30	1.74
Female	542	250	381	10	2610	0.73	0.23	0.24	1.65
Age (years)									
18–35	424	187 ^a	271	10	2270	0.72 ^{NS}	0.23	0.27	1.65
36–50	422	297 ^b	451	0	4400	0.74	0.24	0.24	1.74
51–64	251	386 ^b	497	20	2920	0.72	0.24	0.34	1.61

Min, minimum, Max, maximum. ^{a,b}Means for age with unlike superscript letters were significantly different ($P < 0.05$).

Younger adults had significantly lower intakes of EPA and DHA than older adults and the percentage of individuals that complied with the target recommendations was 15.8%. The present study shows that dietary EPA and DHA intakes in the Irish adult population are below recommendations, especially among the younger population. Conversely, *trans*-FA intakes are within the recommended value of <2% food energy.

1. Scientific Advisory Committee on Nutrition (2007) *Update on Trans Fatty Acids and Health*. London: The Stationery Office.
2. Scientific Advisory Committee on Nutrition (2004) *Advice on Fish Consumption: Benefits and Risks*. London: The Stationery Office.
3. Ministry of Agriculture, Fisheries and Foods (1998) *Fatty Acids. Seventh Supplement to 5th Edition of McCance and Widdowson's The Composition of Foods*. London: Royal Society of Chemistry and Ministry of Agriculture, Fisheries and Foods.
4. Food Standards Agency (2007) Re-estimate dietary intakes of trans fats from foods. www.food.gov.uk/healthiereating/satfatenergy/transfat