

Long-chain n-3 Polyunsaturated Fatty Acid (LC n-3 PUFA) Intake of French Fish and Seafood Consumers and its Link with Biomarkers

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Fish and seafood are the main dietary sources of LC n-3 PUFA eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) in France¹, in view of the very low conversion of precursor alpha-linolenic acid (ALA) into LC n-3 PUFA. The current French nutritional recommendation to eat fish at least twice a week, including oily fish, is only partially met according to national food surveys². As regards FA, mean DHA intakes of a French cohort¹ meet national recommendations³ (120 mg DHA/d in men, 100 mg DHA/d in women). The International Society for the Study of Fatty Acids and Lipids (ISSFAL)⁴ set a minimum intake of 500 mg/d of EPA and DHA combined, for cardiovascular health.

The present study is based on data from the CALIPSO study on 996 French men, women and elderly people (aged 65 years and over) consuming fish and seafood at least twice a week. FA intakes through fish and seafood were estimated on the basis of our FA composition analysis of the products consumed by this population. This study had two objectives. The first one was to evaluate whether their fish and seafood consumption levels were in line with French or ISSFAL FA nutritional recommendations. Data show that the French DHA recommended intake is met by almost all individuals (about 99%), and ISSFAL EPA+DHA minimum intake by 86% of them. Subjects below ISSFAL value eat fish, crustaceans and molluscs or other seafood significantly less frequently ($p<0.05$), as well as less fruit and fewer meat products ($p<0.05$) than those exceeding this value. The second objective was to evaluate, in a subgroup of 385 subjects, the relationship between food intakes, age, body mass index, smoking habits and biomarkers, namely FA profile in erythrocyte membranes. Consumption of fish and seafood is positively correlated with total n-3 LC PUFA, EPA and DHA in erythrocytes ($p<0.01$). This correlation remains among non-smokers ($p<0.01$) and only for EPA among smokers ($p<0.01$), but is not significant in former smokers. The relationship between the FA profile in erythrocytes and health status will be discussed.

¹Astorg *et al.*, 2004, *Lipids*, 39(6): 527-35. ²Dubuisson *et al.*, 2006, *Rev Epidemiol Sante Publique*, 54: 5-14.

³Legrand. in Martin (coord.), 2001, *Sci. Aliments*. 21(4): 348-61. ⁴ISSFAL, 2004, Report of the Sub-committee on Recommendations for intake of polyunsaturated fatty acids in healthy adults.