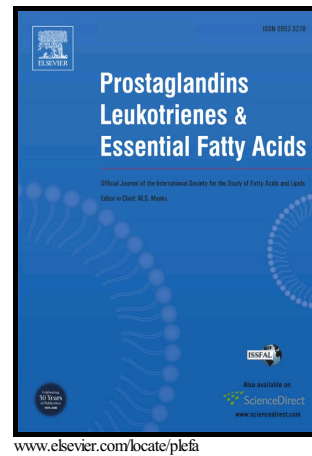


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Sandra Gellert, Jan Philipp Schuchardt, Andreas Hahn



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Sandra Gellert*, Jan Philipp Schuchardt, Andreas Hahn

Institute of Food Science and Human Nutrition, Leibniz University Hannover, Germany

*Corresponding author: Sandra Gellert. Mailing address: Leibniz University of Hannover, Institute of Food Science and Human Nutrition, Am Kleinen Felde 30, 30167 Hannover. Telephone number: +49 (0)511-762 5969. Fax number: +49 (0)511-762 5729. E-mail address: gellert@nutrition.uni-hannover.de

Abstract

Introduction

Long-chain (LC) omega-3 fatty acids (n-3 PUFAs) have beneficial effects on cardiovascular health and cognitive decline. Several studies have shown that the LC n-3 PUFA status in women in western countries is low. The aim of this study was to assess the LC n-3 PUFA status in middle-aged German women and to identify variables that might affect the status.

Material and methods

From the nationwide and cross-sectional German VitaMinFemin study, fatty acid levels in the erythrocyte membrane (% of total erythrocyte fatty acids) were ascertained for 446 women (40 - 60 years).

Results:

The average omega-3 index (% of eicosapentaenoic acid [EPA] and docosahexaenoic acid [DHA]) of the total study population was 5.49 ± 1.17 %. A total of 62.8 % of women had a low omega-3 index (> 4 - 6 %). The omega-3 index was affected by age and smoking, with slightly higher values in women ≥ 50 years ($p = 0.032$) and non-smokers ($p = 0.002$). Women taking hormonal contraceptives showed a lower EPA level ($p < 0.001$), a lower ratio of EPA/alpha-linoleic acid ($p < 0.001$) and a higher ratio of DHA/EPA ($p < 0.001$) than women without hormonal contraception.

Conclusion:

The low LC n-3 PUFA status in middle-aged German women (40 - 60 years) is related to an increased risk of cardiovascular diseases and possibly other diseases and should therefore be improved. Further studies are needed to determine the influence of estrogen on the effect on LC n-3 PUFA status.

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