

Abstract

N-3 Polyunsaturated Fatty Acid Intake and Status in Swiss Pregnant Women in Association with Antenatal Depressive Symptoms—A National Survey[†]

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Abstract: Background and objectives: During pregnancy, n-3 polyunsaturated fatty acid (PUFA) requirements increase in order to supply the needs of the growing and developing fetus. Furthermore, the risk of developing depressive symptoms increases during the perinatal period. n-3 PUFAs have been proposed to mitigate depressive symptoms. Little is known about the n-3 PUFA status of women in Switzerland. The objectives of this study were to assess the n-3 PUFA intake and status in Swiss pregnant women and to explore associations with antenatal depressive symptoms. Methods: This study formed part of the Swiss National Iodine Survey conducted in pregnant women in 2020–2022. We determined the intake of n-3 PUFA using a quantitative food frequency questionnaire and determined n-3 PUFA status by measuring fatty acid composition (% of total fatty acids) in dried blood spots. We assessed antenatal depressive symptoms by using the Edinburgh Postnatal Depression Scale (EPDS). Results: The mean n-3 index (converted to erythrocyte equivalents) in the final sample of 508 pregnant women (mean age 31.6 ± 4.3 years) was 4.59 ± 1.09. The n-3 index was higher in women taking an antenatal supplement containing n-3 PUFA (30%) than in their non-supplemented counterparts (4.93 ± 1.23% vs. 4.46 ± 0.99%, $p < 0.001$). Furthermore, the n-3 index was significantly higher in women who consumed fish $\geq 1 \times$ /week (22%) and 1–3 \times /month (43%) than in women who consumed fish $< 1 \times$ /month (34%) (4.95 ± 1.10% and 4.70 ± 1.02% vs. 4.35 ± 1.15%). The median (IQR) EPDS score was 4 (4, 5), and 12% and 6% of women had an EPDS score ≥ 11 and ≥ 13 , respectively. Eicosapentaenoic acid (EPA) levels correlated negatively with EPDS scores ($r = -0.105$, $p = 0.031$), and were associated with lower odds of having an EPDS score ≥ 13 , even after adjusting for potential confounders (OR = 0.02 [0.00–0.48]). Discussion: Our results indicate that Swiss pregnant women have a low n-3 PUFA status. Even though the n-3 PUFA status was higher in the women who reported taking a supplement containing n-3 PUFA or consumed fish $\geq 1 \times$ /week than in their respective counterparts, the n-3 PUFA status remained low in these groups. The association between the n-3 PUFA EPA and depressive symptoms further highlights the need for public health measures to optimize the n-3 PUFA status in Swiss pregnant women.

Keywords: pregnancy; n-3 index; depression; EPDS score; EPA; DHA; Switzerland**Citation:** Baumgartner, J.; Andersson, M.; Herter-Aeberli, I. N-3Polyunsaturated Fatty Acid Intake and Status in Swiss Pregnant Women in Association with Antenatal Depressive Symptoms—A National Survey. *Proceedings* **2023**, *91*, 71.<https://doi.org/10.3390/proceedings2023091071>

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