



The association between n-3 fatty acids in erythrocyte membranes and insulin resistance: the Inuit Health in Transition Study.

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Abstract: OBJECTIVES: To examine the association between the content of n-3 fatty acids and insulin resistance in an Inuit population. STUDY DESIGN: The Inuit Health in Transition Study was carried out between 2003 and 2007 in Greenland as a cross-sectional study. Our preliminary results are based on the first 452 participants aged 18 and above. Only participants with at least 1 Inuit grandparent and without diabetes were included. METHODS: The contents of n-3 fatty acids and the n-3/n-6 ratio were measured in the erythrocyte membrane phospholipids. BMI was calculated and questions concerning diabetes and ethnicity were answered. Insulin resistance was estimated using the HOMA-IR index based on fasting-glucose and fasting-insulin. RESULTS: We found an inverse association between C20:5 n-3 (EPA), C22:3 n-3, the n-3/n-6 ratio and HOMA-IR and a positive association between C18:3 n-3 cis and HOMA-IR. When adjusted for age, gender, BMI and ethnicity, the association remained statistically significant for C20:5 n-3 (EPA), C22:3 n-3 and C18:3 n-3 cis. CONCLUSIONS: Our findings suggest that some types of n-3 fatty acids may have a protective effect against insulin resistance. The role of potential confounders such as physical activity, diet, energy intake, socio-economic status and contaminants deserves further exploration.

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