

Omega-3 intake of cardiac patients: how much do they consume and are there any disadvantages?

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The consumption of marine sources of omega-3 fatty acids is desirable through their triglyceride lowering, antithrombotic and antiarrhythmic properties. However, the extent of consumption is unknown in cardiac patients. In addition there may be certain risks such as exposure to mercury.

The aim of this randomised cross-sectional population survey was to determine the omega-3 intake of cardiac patients. We used a specifically designed food frequency questionnaire (FFQ) which we validated using 5-day food records and the distribution of omega-3 in erythrocyte membranes. A possible link between fish consumption and mercury exposure was also investigated.

A total of 103 patients were asked to complete the FFQ. A sub-sample of these patients was asked to complete 5-day food records and donate blood for the analysis of omega-3 fatty acids and mercury. The food records indicated that the average intake of omega-3 fatty acids was 1.6 g/day with equal contribution from plant and marine sources (table). The majority of patients (> 68%) was not consuming fresh fish and 1–10% were consuming fresh and canned fish at the recommended level of 2 times per week. A positive correlation was observed between the content of eicosapentaenoic acid (EPA) in erythrocyte membranes and the daily EPA intake ($r = 0.64$, $P < 0.05$). There was also a correlation between blood mercury concentration and the EPA in erythrocyte membranes ($r = 0.7$, $P < 0.05$).

	Mean \pm SD (n = 14)	Range
Mean daily nutrient intake		
Energy (kJ)	7447 \pm 1891	4691–11716
Fat (g)	60.3 \pm 15.4	38.0–88.2
Alpha Linoleic acid -ALA (g)	0.9 \pm 0.8	0.3–3.4
Eicosapentaenoic acid -EPA (g)	0.3 \pm 0.2	0–0.7
Docosahexaenoic acid -DHA (g)	0.4 \pm 0.4	0–0.8
Omega-3 and mercury in erythrocytes		
Erythrocytesmembranes		
ALA (%)	0.23 \pm 0.16	0.12–0.73
EPA (%)	1.33 \pm 0.77	0.41–3.83
DHA (%)	6.75 \pm 1.35	4.39–9.49
Mercury (nmol/L)	31 \pm 40	3–154

The study showed that cardiac patients required more nutrition education to increase their omega-3 intake. It also confirmed that erythrocyte EPA was the preferable bio-marker for measuring dietary omega-3 intake. However, the risk of possible mercury poisoning from high fish consumption needs to be investigated further using a larger study population.