

Effects of dietary fish oil and soy phosphatidylcholine on neutrophil fatty acid composition, superoxide release, and adhesion.

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Fifty-seven healthy volunteers matched for sex and age were subdivided in 3 groups and their usual Western diets were supplemented according to three different protocols: group 1, fish oil supplement (20 ml/day); group 2, soybean phosphatidylcholine (PC) (25 g/day) and group 3, no supplementation (control group). After 2 weeks several important modifications of neutrophil fatty acid composition were observed: fish oil induced a significant decrease of linoleic (LA) and arachidonic acid (AA) and a significant increase of eicosapentaenoic (EPA) and docosahexaenoic acid (DHA), while soy PC induced significant increases of LA, total polyunsaturated fatty acid (PUFA) and PUFA/SFA ratio. Neutrophil superoxide generation and adhesion were not modified by fish oil diet, on the contrary a slight but significant increase of O_2^- production in response to fMLP was measured after soy PC diet. Our study confirms the possibility of changing neutrophil fatty acid composition in vivo by dietary means, but also suggests that the manipulation of cell functions, like superoxide anion generation and adhesion, is not easily and directly achieved by controlling membrane lipid environment.