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## **A biomarker of n-3 compliance in patients taking fish oil for rheumatoid arthritis.**

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Dietary fish oil supplements have been shown to have benefits in rheumatoid arthritis (RA), other inflammatory diseases, and in cardiovascular disease. As with any medical advice, variability will exist with regard to adherence and consequent biochemical or pharmacophysiologic effects. The aim was to explore the utility of plasma phospholipid EPA as a measure of n-3 PUFA intake and response to standardized therapeutic advice given in an outpatient or office practice setting, to increase dietary n-3 PUFA, including a fish oil supplement. Patients with early RA were given verbal and written advice to alter their dietary n-3 PUFA intake, including ingestion of 20 mL of bottled fish oil on juice daily. The advice included instructions to increase n-3 PUFA and to avoid foods rich in n-6 PUFA. Every 3 mon, blood samples were obtained for analysis of plasma phospholipid FA. Plasma phospholipid EPA was used as the primary index of n-3 PUFA intake. A diverse response was seen, with about one-third of patients achieving a substantial elevation of plasma phospholipid EPA over the 12-mon study period. A third had little change, with the remainder achieving intermediate levels. Data obtained longitudinally from individual patients indicated that substantial elevations of EPA (> 5% total plasma phospholipid FA) could be maintained for more than 3 yr. Plasma phospholipid EPA is a convenient measure of adherence to advice to take a dietary n-3 PUFA-rich fish oil supplement. This measure may prove a useful adjunct to intention to treat analyses in determining the effect of dietary fish oil supplements on long-term outcomes in arthritis and other chronic inflammatory diseases. It may also provide a guide to the effectiveness of therapeutic and preventive messages designed to increase n-3 PUFA intake.

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