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A systemic review of the roles of n-3 fatty acids in health and disease.

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Abstract

Attention to the role of n-3 long-chain fatty acids in human health and disease has been continuously increased during recent decades. Many clinical and epidemiologic studies have shown positive roles for n-3 fatty acids in infant development; cancer; cardiovascular diseases; and more recently, in various mental illnesses, including depression, attention-deficit hyperactivity disorder, and dementia. These fatty acids are known to have pleiotropic effects, including effects against inflammation, platelet aggregation, hypertension, and hyperlipidemia. These beneficial effects may be mediated through several distinct mechanisms, including alterations in cell membrane composition and function, gene expression, or eicosanoid production. A number of authorities have recently recommended increases in intakes of n-3 fatty acids by the general population. To comply with this recommendation a variety of food products, most notably eggs, yogurt, milk, and spreads have been enriched with these fatty acids. Ongoing research will further determine the tissue distribution, biological effects, cost-effectiveness, and consumer acceptability of such enriched products. Furthermore, additional controlled clinical trials are needed to document whether long-term consumption or supplementation with eicosapentaenoic acid/docosahexaenoic acid or the plant-derived counterpart (alpha-linolenic acid) results in better quality of life.

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