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Omega-3 and omega-6 polyunsaturated fatty acids: Dietary sources, metabolism, and significance — A review

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**Omega-3 and omega-6 polyunsaturated fatty acids: dietary sources, metabolism, and  
significance — A review**

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**ABSTRACT**

Linoleic acid (LA) (n-6) and  $\alpha$ -linolenic acid (ALA) (n-3) are essential fatty acids (EFAs) as they cannot be synthesized by humans or other higher animals. In the human body, these fatty acids (FAs) give rise to arachidonic acid (ARA, n-6), eicosapentaenoic acid (EPA, n-3), and docosahexaenoic acid (DHA, n-3) that play key roles in regulating body homeostasis. Locally acting bioactive signaling lipids called eicosanoids derived from these FAs also regulate diverse homeostatic processes. In general, ARA gives rise to pro-inflammatory eicosanoids whereas EPA and DHA give rise to anti-inflammatory eicosanoids. Thus, a proportionally higher consumption of n-3 PUFAs can protect us against inflammatory diseases, cancer, cardiovascular diseases, and other chronic diseases. The present review summarizes major sources, intake, and global consumption of n-3 and n-6 PUFAs. Their metabolism to biosynthesize long-chain PUFAs and eicosanoids and their roles in brain metabolism, cardiovascular disease, obesity, cancer, and bone health are also discussed.

**Keywords:** Docosahexaenoic acid (DHA), Eicosapentaenoic acid (EPA), Eicosanoids, Fish oil

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