



## Seafood Health Facts: Making Smart choices Balancing the Benefits and Risks of Seafood Consumption *Resources for Healthcare Providers and Consumers*

### **Description of Omega-3's and Their Role in Human Health [1]**

Omega-3 fatty acids are a unique type of long chain polyunsaturated fatty acid. Fatty acids have a skeleton which consists of a long chain of carbon atoms. Saturated fatty acids have no double bond in their carbon chain. Monounsaturated fatty acids have one double bond in the carbon chain and polyunsaturated fatty acids have several double bond. Omega-3 fatty acids have first double bond at the third carbon in the carbon chain. This distinguishes them from the omega-6 fatty acids of vegetable oils in which this first double bond is at the sixth carbon. Seafood is the richest dietary source of the long chain omega-3 fatty acids.

There are two main omega-3 fatty acids found in seafood and aquatic organisms, eicosapentaenoic acid or EPA and docosahexaenoic acid or DHA. These are the two omega-3 fatty acids that are believed to be responsible for the health benefits of fish oils, and they are found almost exclusively in seafood. Another omega-3 fatty acid, called alpha linoleic acid or ALA, is found in soybean oil, leafy plants and nuts in small amounts. Although the human body can convert ALA to the more metabolically active EPA and DHA, this process is very inefficient with conversion rates in the range of 0.1% to 9%.

Biochemical and clinical studies have demonstrated that omega-3 fatty acids may affect several biochemical processes which are involved in the development of atherosclerosis and heart disease. These processes relate to blood clotting and platelet "stickiness" and changes in blood lipid levels after omega-3 fatty acid intake is increased. Research has also shown that populations with high dietary intakes and tissue levels of omega-3 fatty acids have a low incidence of cardiovascular disease.

Research has also demonstrated that dietary omega-3 fatty acids play a significant role in the growth and development of a fetus and of infants and children. Omega-3s are believed to play an important role in the neurological development of infants and contribute to vision development and nerve growth in the retina. Researchers are also investigating the effects of omega-3 fatty acids on other metabolic processes. The diverse disorders in which dietary omega-3s may play a role include: arthritis, asthma, autoimmune diseases, inflammatory diseases, psoriasis, depression, and Alzheimer's disease.

 [final-seafood-health-reference-guide-for-professionals.pdf](#) [2]

*Adapted from: Seafood and Health: The Omega-3 Connection - A Resource for Food and Nutrition Professionals, Cornell Cooperative Extension, Ken Gall, Carole Bisogni, Christina Stark, Carol Sperazza, Maria Sant'Angelo and Gail Bromley.*



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