

## *Super Protect Your Cells*

Omega-3 fatty acids are being increasingly promoted as important dietary components for health and disease prevention. These fatty acids are naturally enriched in fatty fish like salmon and tuna and in fish oil supplements. An increasing number of foods that are not traditional sources of omega-3 fatty acids, such as dairy and bakery products, are now fortified with insignificant amounts of these fatty acids. This recent promotion of omega-3 fatty acids has been driven by recommendations for omega-3 fatty acids consumption made by scientific groups such as the American Heart Association. The search for the molecular and cellular mechanisms by which omega-3 fatty acids affect health and disease has led to a large body of evidence suggesting that these dietary lipids modulate numerous processes. These processes include brain and visual development, inflammatory reactions, thrombosis, and carcinogenesis. How can these nutrients affect so many seemingly unrelated processes in different cell types and tissues?

Our diets contain a complex mixture of fats and oils whose basic structural components are fatty acids. We generally consume 21 different types of fatty acids, which are enriched in these fats and oils. For example, 30% of all fatty acids in the outer segment membrane of retinal photoreceptors are omega-3 fatty acids. The fact that these and other cells have developed the cellular machinery to preferentially incorporate these minor dietary components into their membranes suggest that they play a role in the proper function of the cell. Most cellular membranes accumulate omega-3 fatty acids in amounts that far outweigh their proportional content in the diet, and the content of these fatty acids in tissue membranes is generally indicative of our average daily intake.

Diet-induced changes in the polyunsaturated fatty acid composition of a cell membrane have an impact on the cell's function, partly because these fatty acids represent a reservoir of molecules that perform important signaling or communication roles within and between cells. In particular, dietary omega-3 fatty acids compete with the omega-6 family of dietary polyunsaturated fatty acids (corn, soy, canola, sunflower oils) into all cell membranes. Research has suggested that there is a metabolic competition between omega-3 and omega-6 fatty acids and that the result is omega-6 could actually reduce the efficacy of omega-3 fatty acids in fish oil and hence weaken the power of fish oil to reduce cardiovascular disease. Currently, the standard American diet (SAD) has a ratio of 20:1 omega-6 to omega-3. The balance of omega-3 to omega-6 acids in the diet is extremely important in order to maintain optimum health. To maintain optimum health, only 2-4 times more omega-6 fatty acids need to be consumed in relation to omega-3 fatty acid.

Along with proper diet, the lipid oil extract of the green-lipped mussel can be an important part of achieving this balance. Research has shown that the lipid oil extract (omega-3's) of green-lipped mussels is far superior to oils derived from fish, roe, krill, and even to oils derived from other shellfish. The oil from the green-lipped mussel has properties not found in any other marine sources. In fact, it is 158 times more effective than any other fish oil.

*Dr. Howard Peiper, N.D., nominated for a Pulitzer Prize, has written several best-selling books on nutrition and natural health.*