

**Immunonutrition: the role of omega-3 fatty acids.**

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The dietary fatty acids of the omega-3 series are rapidly incorporated into cell membranes and profoundly influence biological responses. These lipids influence membrane stability, membrane fluidity, cell mobility, the formation of receptors, binding of ligands to their receptors, activation of intracellular signaling pathways either directly or through the formation of eicosanoids, gene expression, and cell differentiation. In general, eicosanoids formed from the omega-3 fatty acids are much less potent in causing biological responses than those formed from the omega-6 fatty acids, including stimulation of cytokine production and inflammatory responses. In well-controlled clinical studies, consumption of omega-3 fatty acids has resulted in reduction of cardiovascular diseases including arrhythmias and hypertension, protection from renal disease, improvement in rheumatoid arthritis, improvement in inflammatory bowel diseases, reduced episodes of rejection, and protection from infection. The interactions between the omega-3 fatty acids and pharmacologic drugs that alter intracellular signaling pathways are only now being studied.

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