

# Omega-3 Fatty Acids in the Treatment of Psychiatric Disorders

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## Abstract

The importance of omega-3 fatty acids for physical health is now well recognised and there is increasing evidence that omega-3 fatty acids may also be important to mental health. The two main omega-3 fatty acids in fish oil, eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) have important biological functions in the CNS. DHA is a major structural component of neuronal membranes, and changing the fatty acid composition of neuronal membranes leads to functional changes in the activity of receptors and other proteins embedded in the membrane phospholipid. EPA has important physiological functions that can affect neuronal activity. Epidemiological studies indicate an association between depression and low dietary intake of omega-3 fatty acids, and biochemical studies have shown reduced levels of omega-3 fatty acids in red blood cell membranes in both depressive and schizophrenic patients. Five of six double-blind, placebo-controlled trials in schizophrenia, and four of six such trials in depression, have reported therapeutic benefit from omega-3 fatty acids in either the primary or secondary statistical analysis, particularly when EPA is added on to existing psychotropic medication. Individual clinical trials have suggested benefits of EPA treatment in borderline personality disorder and of combined omega-3 and omega-6 fatty acid treatment for attention-deficit hyperactivity disorder. The evidence to date supports the adjunctive use of omega-3 fatty acids in the management of treatment unresponsive depression and schizophrenia. As these conditions are associated with increased risk of coronary heart disease and diabetes mellitus, omega-3 fatty acids should also benefit the physical state of these patients. However, as the clinical research evidence is preliminary, large, and definitive randomised controlled trials similar to those required for the licensing of any new pharmacological treatment are needed.

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