

Better omega-3 to omega-6 ratio could reduce depression study

By Stephen Daniells

20/04/2007 - **Improving the ration of omega-3 to omega-6 in the diet may improve mood and reduce depression, suggests a new study.**

Researchers took blood samples from 43 older adults (average age 67) and calculated polyunsaturated fatty acids (PUFA) levels and compared these to levels of markers of inflammation, and found that people with high ratios of [omega-6](#) to [omega-3](#) were more likely to suffer [depression](#) and inflammatory diseases.

"Our findings highlight ways in which diet may enhance or inhibit depression-related inflammation among older adults," wrote researchers. "These behaviour-dietary-immune interactions have important implications for both mental and physical health."

The new study adds to a growing body of evidence linking an increased omega-3 to omega-6 intake ratio to improved health.

Numerous observational studies and uncontrolled trials have reported the benefits of fish oils and omega-3 fatty acids DHA and EPA on the behaviour and learning, especially in kids, as well for improving the symptoms of depression

For the new study, the researchers measured levels of markers of inflammation, including tumour necrosis factor-alpha (TNF-alpha), interleukin-6 (IL-6), and levels of the IL-6 soluble receptor (sIL-6r). Symptoms of depression were assessed using the Center for Epidemiological Studies Depression Scale.

"We found that individuals who met the criteria for syndromal depression had significantly higher omega-6 to omega-3 ratios as well as higher TNF-alpha, IL-6 and sIL-6r levels than those who did not meet the criteria," wrote the authors.

Chronic inflammation, brought about by an over-expression or lack of control of the normal protective mechanism, has been linked to range of conditions linked to heart disease, osteoporosis, cognitive decline and Alzheimer's, and type-2 diabetes.

"Epidemiological studies have clearly linked increased pro-inflammatory cytokines with depressive symptoms as well as elevated omega-6:omega-3 ratios," said the researchers. "Our data suggest that a lower omega-6:omega-3 ratio offers some protection, particularly as depressive symptoms increase; accordingly, it is possible that the differences in participants' dietary omega-3 intakes may have contributed to the variability in depression-cytokine relationships in other studies."

Omega-3 are polyunsaturated fatty acids (PUFAs) consumed predominantly in the diet from fish, nuts and seeds. The fish oil PUFAs include Eicosapentaenoic acid (EPA) and Docosahexaenoic acid (DHA). EPA is proposed to function by increasing blood flow in the body. It is also suggested to affect hormones and the immune system, both of which have a direct effect on brain function. DHA, on the other hand, is involved in the membrane of ion channels in the brain, making it easier for them to change shape and transit electrical signals.