

# Fatty acid tied to depression and inflammation

NEW YORK (Reuters Health) - The imbalance of fatty acids in the typical American diet could be associated with the sharp increase in heart disease and depression seen over the past century, a new study suggests.

Specifically, the more omega-6 fatty acids people had in their blood compared with omega-3 fatty acid levels, the more likely they were to suffer from symptoms of depression and have higher blood levels of inflammation-promoting compounds, report Dr. Janice K. Kiecolt-Glaser and her colleagues from Ohio State University College of Medicine in Columbus.

These compounds, which include tumor necrosis factor alpha and interleukin-6, are "all-purpose 'nasties' for aging," and have been tied to heart disease, type 2 diabetes, arthritis and other ailments, Kiecolt-Glaser told Reuters Health.

Omega-3 fatty acids are found in foods such as fish, flax seed oil and walnuts, while omega-6 fatty acids are found in refined vegetable oils used to make everything from margarine to baked goods and snack foods. The amount of omega-6 fatty acids in the Western diet increased sharply once refined vegetable oils became part of the average diet in the early 20th century.

Hunter-gatherers consumed two or three times as much omega-6 as omega-3, Kiecolt-Glaser's team notes in their study, published in *Psychosomatic Medicine*, but today Westerners consume 15- to 17-times more omega-6 than omega-3.

The researchers investigated the relationship among fatty acid consumption, depression and inflammation in 43 older men and women. The 6 individuals diagnosed with major depression had nearly 18 times as much omega-6 as omega-3 in their blood, compared with about 13 times as much for subjects who didn't meet the criteria for major depression.

Depressed patients also had higher levels of tumor necrosis factor alpha, interleukin-6, and other inflammatory compounds. And as levels of depressive symptoms rose, so did the omega 6 and omega 3 ratio.

The effects of depression and diet enhanced each other, the researchers found. "It was more than additive," Kiecolt-Glaser said. "People who had few depressive symptoms and/or a good diet were generally fine." However, when depressive symptoms increased and diets become worse, "we really saw big differences."

Depression alone is known to increase inflammation, the researchers note in their report, while a number of studies have found omega-3 supplements prevent depression.

Following recommendations for a healthy diet -- and eating fatty fish like salmon, mackerel or sardines every now and then -- could go a long way to promote a healthier omega-6/omega 3 balance, Kiecolt-Glaser said. "If people actually had more fruits and vegetables in their diet, they probably would have less omega-6."

SOURCE: *Psychosomatic Medicine*, online March 30, 2007.