

Omega-3 reduces anxiety and inflammation in healthy students

13 July 2011, by Earle Holland

A new study gauging the impact of consuming more fish oil showed a marked reduction both in inflammation and, surprisingly, in anxiety among a cohort of healthy young people.

The findings suggest that if young participants can get such improvements from specific [dietary supplements](#), then the elderly and people at high risk for certain diseases might benefit even more.

The findings by a team of researchers at Ohio State University were just published in the journal *Brain, Behavior and Immunity*. It is the latest from more than three decades of research into links between psychological stress and immunity.

[Omega-3 polyunsaturated fatty acids](#), such as eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA), have long been considered as positive [additives](#) to the diet. Earlier research suggested that the compounds might play a role in reducing the level of [cytokines](#) in the body, compounds that promote [inflammation](#), and perhaps even reduce depression.

[Psychological stress](#) has repeatedly been shown to increase cytokine production so the researchers wondered if increasing omega-3 might mitigate that process, reducing inflammation.

To test their theory, they turned to a familiar group of research subjects - [medical students](#). Some of the earliest work these scientists did showed that stress from important medical school tests lowered students' immune status.

"We hypothesized that giving some students omega-3 supplements would decrease their production of proinflammatory cytokines, compared to other students who only received a placebo," explained Janice Kiecolt-Glaser, professor of psychology and psychiatry.

"We thought the omega-3 would reduce the stress-

induced increase in cytokines that normally arose from nervousness over the tests."

The team assembled a field of 68 first- and second-year medical students who volunteered for the clinical trial. The students were randomly divided into six groups, all of which were interviewed six times during the study. At each visit, blood samples were drawn from the students who also completed a battery of psychological surveys intended to gauge their levels of stress, [anxiety](#) or depression. The students also completed questionnaires about their diets during the previous weeks.

Half the students received omega-3 supplements while the other half were given placebo pills.

"The supplement was probably about four or five times the amount of [fish oil](#) you'd get from a daily serving of salmon, for example," explained Martha Belury, professor of human nutrition and co-author in the study.

Part of the study, however, didn't go according to plans.

Changes in the medical curriculum and the distribution of major tests throughout the year, rather than during a tense three-day period as was done in the past, removed much of the stress that medical students had shown in past studies.

"These students were not anxious. They weren't really stressed. They were actually sleeping well throughout this period, so we didn't get the stress effect we had expected," Kiecolt-Glaser said.

But the psychological surveys clearly showed an important change in anxiety among the students: Those receiving the omega-3 showed a 20 percent reduction in anxiety compared to the placebo group.

An analysis of the of the blood samples from the

medical students showed similar important results.

"We took measurements of the cytokines in the blood serum, as well as measured the productivity of cells that produced two important cytokines, interleukin-6 (IL-6) and tumor necrosis factor alpha (TNFa)," said Ron Glaser, professor of molecular virology, immunology & medical genetics and director of the Institute for Behavioral Medicine Research.

"We saw a 14 percent reduction in the amounts of IL-6 among the students receiving the omega-3." Since the cytokines foster inflammation, "anything we can do to reduce cytokines is a big plus in dealing with the overall health of people at risk for many diseases," he said.

While inflammation is a natural immune response that helps the body heal, it also can play a harmful role in a host of diseases ranging from arthritis to heart disease to cancer.

While the study showed the positive impact omega-3 supplements can play in reducing both anxiety and inflammation, the researchers aren't willing to recommend that the public start adding them to the daily diet.

"It may be too early to recommend a broad use of omega-3 supplements throughout the public, especially considering the cost and the limited supplies of fish needed to supply the oil," Belury said. "People should just consider increasing their omega-3 through their diet."

Some of the researchers, however, acknowledged that they take omega-3 supplements.

Provided by The Ohio State University

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