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(Last updated 3/28/07)

Previous stories pertaining to the research of Professors Kiecolt-Glaser and Glaser:

["Stress Substantially Slows Human Body's Ability To Heal,"](#) 11/21/05.

["Mechanism Found That Weakens Caregivers' Immune Status,"](#) 6/26/03.

["Former Caregivers Still Show Psychological Ills Years After Caregiving Ends,"](#) 12/12/01.

["Hypnosis May Prevent Weakened Immune Status, Improve Health,"](#) 9/24/01.

["Even Happy Experiences Can't Reduce Stress, New Research Shows,"](#) 8/2/00

["Researchers Learn How Stress Slows Wound Healing,"](#) 7/26/99

["Stress May Increase Susceptibility To Infectious Disease,"](#) 7/23/99

OMEGA-3 FATTY ACIDS AFFECT RISK OF DEPRESSION, INFLAMMATION

COLUMBUS , Ohio – A new study suggests that people whose diets contain dramatically more of one kind of polyunsaturated fatty acid than another may be at greater risk for both clinical depression and certain inflammatory diseases.

The report, published online this week in the journal *Psychosomatic Medicine*, suggests that we need to balance out our intake of [omega-6](#) and [omega-3 fatty acids](#). The current typical American diet contains 20 times more omega-6 than omega-3, a ratio that researchers say should be lowered to 4-to-1, or even 2-to-1.

This is the most recent in a long series of experiments Ohio State University researchers have conducted on the links between psychological stress and immunity. The addition of dietary questions to studies that have previously focused solely on emotional and biochemical markers may yield important new clues about the immune system.

“In this study, we're looking at the intersection of behavior, immune function and diet. In past experiments, we concentrated only on the first two,” explained [Jan Kiecolt-Glaser](#), professor of [psychiatry](#) and [psychology](#) at Ohio State and lead author on the paper.

“It now appears that diet is a very important variable in the equation as to how people respond to depression and stress.”

The study, conducted in [OSU's Institute for Behavioral Medicine Research](#), focused on a group of 43 middle-aged to elderly men and women, nearly half of which were the caregiver spouses of people with Alzheimer's or other dementias. By including caregivers who typically report greater stress and more depression than similar adults who are not caregiving, the researchers could look



Janice Kiecolt-Glaser



Ronald Glaser



Martha Belury

["New Hypothesis Proposed for Cause of Chronic Fatigue Syndrome."](#)
10/28/98

at how depression and diet might interact to affect inflammation.

["Stress Slows Healing Of Dental Wounds By 40 Percent."](#) 6/17/98

Blood samples were drawn from each person in the study and tested for [interleukin-6 \(IL-6\)](#), [tumor necrosis factor -alpha \(TNF-alpha\)](#) and the receptor molecule for IL-6. Participants also completed a survey questionnaire that gauged their level of depression.

["Stress of Breast Cancer Surgery, Diagnosis Weakens Immune System."](#)
1/20/98

The analysis showed that participants who had much more omega-6 -- compared to omega-3 -- fatty acids, and who also were reporting more symptoms of depression, had much higher levels of IL-6 and TNF-alpha, two cytokines which enhance inflammation.

["Marital Arguments Lead To Weakened Immune Systems In Older Couples,"](#)
8/14/97

“The data suggest that higher depression and a poorer diet in terms of omega-3 can work together to promote inflammation. Other researchers have shown that clinically depressed people -- those with more severe depression -- often have lower omega-3 levels in their blood, and several studies have shown that supplementing diets with omega-3 improves depression,” Kiecolt-Glaser said, although the reason isn't clear.

“In this study, we're looking at the intersection of behavior, immune function and diet. In past experiments, we concentrated only on the first two. It now appears that diet is a very important variable in the equation as to how people respond to depression and stress.”

["Psychological Stress Can Slow The Rate of Wound Healing."](#) 4/22/97

["Effects of Arguments Linger Long After Fights End, Study Shows."](#)
4/22/97.

["High Stress Weakens Immune Function In Breast Cancer Patients,"](#) 3/11/97

Previous stories pertaining to Professor Belury's research:

["Weight-Loss Supplement Shows Good And Bad Traits."](#) 1/30/07.

“People who are depressed don't eat well, or it might be that there is something about depression that affects how well people process such foods.”

["Fat That May Benefit Diabetics Reduces Weight, Blood Sugar."](#) 1/24/03.

In recent years, research has shown that an increase in omega-3 fatty acids in the diet has specific health benefits, especially in patients with depression, cardiovascular disease and inflammatory and autoimmune diseases.

[OSU Center for Stress and Wound Healing](#)

[Martha Belury](#), an associate professor of [human nutrition](#), [endocrinology, diabetes & metabolism](#) at Ohio State and co-author of the study, said the design of the study was important.

[Institute for Behavioral Medicine Research](#)

“We looked at people who were experiencing real depression, not those whose depression arose as a part of some experiment, and we could clearly see a relationship between lower omega-3 fatty acids and certain markers of depression and inflammation.”

Belury said that current recommendations allow up to two

servings each week of cold-water fish – the best source of omega-3 – such as salmon or trout. This would not apply to pregnant women, she said, where concerns are greater about the heavy metal contamination such fish might contain. Omega-3 is also available as nutritional supplements

“This study has shown that even in people who did not take supplements, maybe just a little bit more omega-3, could help reduce their markers for both stress and depression,” Belury said.

“The important message for consumers is that they don't have to take mega-doses of omega-3 to have some impact. It might not take a whole lot to have a significant clinical impact,” Belury said.

The researchers are now starting a larger, more comprehensive randomized and controlled trial of omega-3 in adults between the ages of 50 and 80 in hopes of testing the questions raised in this pilot study.

[Ron Glaser](#), professor of [internal medicine](#), [molecular virology](#), [immunology and medical genetics](#); [David Beversdorf](#), an assistant professor of [neurology](#); [Stanley Lemeshow](#), dean of the [College of Public Health](#), and Kyle Porter, a statistician in the [Center for Biostatistics](#), were also part of the project. The research was supported in part by the [National Institutes of Health](#).

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