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Why Omega-3s Seem To Improve Mood

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Omega-3 fatty acids, found in fatty fish like salmon, are associated with increased grey matter volume in areas of the brain commonly linked to mood and behavior according to a University of Pittsburgh study.

Findings were presented by Sarah M. Conklin, Ph.D., postdoctoral scholar at the Cardiovascular Behavioral Medicine Program in the department of psychiatry at the University of Pittsburgh, at the American Psychosomatic Society's Annual Meeting, held in Budapest, Hungary.

Animal research has shown that raising omega-3 intake leads to structural brain changes. In a separate study presented by Dr. Conklin at the society's meeting last year, Pitt researchers reported that people who had lower blood levels of omega-3 fatty acids were more likely to have a negative outlook and be more impulsive. Conversely, those with higher blood levels of omega-3s were found to be more agreeable and less likely to report mild or moderate symptoms of depression. In the study, the researchers sought to investigate if grey matter volume was proportionally related to long-chain omega-3 intake in humans, especially in areas of the brain related to mood, helping them attempt to explain the mechanisms behind the improvement in mood often associated with long-chain omega-3 intake.

Researchers interviewed 55 healthy adult participants to determine their average intake of long-chain omega-3 fatty acids. Grey matter volume was evaluated using high-resolution structural MRI. The researchers discovered that participants who had high levels of long-chain omega-3 fatty acid intake had higher volumes of grey matter in areas of the brain associated with emotional arousal and regulation - the bilateral anterior cingulate cortex, the right amygdala and the right hippocampus.

While this finding suggests that omega-3s may promote structural improvement in areas of the brain related to mood and emotion regulation - the same areas where grey matter is reduced in people who have mood disorders such as major depressive disorder - investigators note that more research is needed to determine whether fish consumption actually causes changes in the brain.

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