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Omega-3 fatty acids protect against Parkinson's, study says

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Omega-3 fatty acids protect the brain against Parkinson's disease, according to a study by Université Laval researchers published in the online edition of the FASEB Journal, the journal of the Federation of American Societies for Experimental Biology. This study, supervised by Frederic Calon and Francesca Cicchetti, is the first to demonstrate the protective effect of a diet rich in omega-3 fatty acids against Parkinson's.

Parkinson's disease is caused by the progressive death of the neurons responsible for producing dopamine, a neurotransmitter closely linked with movement control. The disease is usually diagnosed when 50 to 80% of these neurons are already dead, and there is currently no medication to stop that process.

The Université Laval research team's findings could help prevent the disease and, potentially, slow down its progression.

The researchers observed that when mice were fed an omega-3 rich diet, they seemed immune to the effect of MPTP, a toxic compound that causes the same damage to the brain as Parkinson's. "This compound, which has been used for more than 20 years in Parkinson's research, works faster than the disease itself and is just as effective in targeting and destroying the dopamine-producing neurons in the brain," points out Calon.

By contrast, another group of mice that were fed an ordinary diet

developed the characteristic symptoms of the disease when injected with MPTP, including a 31% drop in dopamine-producing neurons and a 50% decrease in dopamine levels.

Analyses revealed that omega-3 fatty acids—in particular DHA (docosahexaenoic acid), a specific type of omega-3—had replaced the omega-6 fatty acids already present in the brains of the mice that had been given omega-3 supplementation.

“This demonstrates both the importance of diet on the brain’s fatty acid composition and the brain’s natural inclination for omega-3 fatty acids,” observes Calon. Since concentrations of other types of omega-3’s had remained similar in both groups of mice, researchers suggest that the protective effect against Parkinson’s comes essentially from DHA.

Another conclusion to be drawn from this finding is that a brain containing a lot of omega-6 fatty acids may be a fertile ground for Parkinson’s disease. These fatty acids, abundant in foods rich in either vegetable oil or animal fat, are already under suspicion for their role in the body’s inflammatory response, cardiac disease, arthritis, and Alzheimer’s. In a balanced diet, the ratio between omega-6 and omega-3 fatty acids should be 4 to 1. However, the average Western diet contains 10 to 20 times more omega-6’s than omega-3’s.

“In North America, the average intake of DHA is between 60 to 80 mg a day, while experts recommend a daily minimum of 250 mg,” explains Calon. “Our results suggest that this DHA deficiency is a risk factor for developing Parkinson’s disease, and that we would benefit from evaluating omega-3’s potential for preventing and treating this disease in humans,” concludes the researcher.

Source: Université Laval