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Life Extension Update Exclusive

High omega-3 fatty acid diet may lower Parkinson's disease risk

Researchers at Université Laval in Quebec have demonstrated for the first time that omega-3 polyunsaturated fatty acids (PUFA) confer a protective benefit against the development of Parkinson's disease. The finding was reported online on November 21, 2007 in the *Journal of the Federation of American Societies for Experimental Biology* (FASEB).

Frédéric Calon, of Laval's center for research in molecular and oncologic endocrinology, and his associates fed mice a diet enriched with the omega-3 fatty acids eicosapentaenoic acid (EPA), docosahexaenoic acid (DHA) and linolenic acid, or a control diet deficient in these fatty acids. After ten months on the diets, the animals were injected over a five day period with an inert substance or MPTP, a neurotoxin that damages the brain in a manner similar to Parkinson's disease. "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," Dr Calon explained.

Two weeks following the administration of MPTP, examination of the animals' brains revealed an increase in frontal cortex levels of DHA and a decline in the omega-6 fatty acid DPA in those that received the omega-3 fatty acid rich diet. In mice that received the control diet, treatment with MPTP resulted in a 31 percent reduction in the substantia nigra's dopaminergic neurons, which are progressively destroyed in humans with Parkinson's disease. This effect was prevented in mice that received high amounts of omega-3 fatty acids. Omega-3 fatty acids also appeared to help protect against the decrease in dopamine transporter levels observed in MPTP-treated mice that received the control diets. (Dopamine is a neurotransmitter produced by dopaminergic cells, and is involved with movement control.)

Because the brains of the omega-3 group did not show significant changes in arachidonic acid, linolenic acid, or EPA levels, the authors suggest that DHA is the primary omega-3 fatty acid involved in the protective effect demonstrated in this study, or, alternately, that the relatively high omega-6 fatty acid content of the control diet may increase the risk of Parkinson's disease.

"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," Dr Calon observed. "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."

"As our present results suggest, this prevalent low consumption of DHA might be an important modifiable risk factor for Parkinson's disease," the authors conclude. "Fortunately, it is easy to treat omega-3 PUFA deficiency by changes in dietary habits or by administration of inexpensive supplements. Indeed, omega-3 PUFA are nonpatentable, widely available at low cost, and have an excellent safety profile."

Health Concern

Parkinson's disease

During Parkinson's, cells in the parts of the brain that control movement and regulate mood are gradually destroyed. The primary defect in Parkinson's is a loss of dopaminergic neurons (such as dopamine-producing neurons) in a part of the brain called the substantia nigra. Dopamine is a neurotransmitter that modulates movement (Purves D et al 2001). In Parkinson's disease, the dopamine-producing nerve cells are destroyed by high levels of oxidative damage (Atasoy HT et al 2004; Ross GW et al 2004). There is evidence that this oxidative damage is, in turn, caused by defects in the cells' mitochondria, or power-generating centers.

Poor nutrition in general, especially a low dietary intake of B vitamins and a high intake of simple sugars, has been associated with an increased risk of Parkinson's disease and with more rapid progression of the disease in patients who already have it (Yapa SC 1992; Golbe LI et al 1988). High dietary intake of meat increases absorption of iron and animal fats, both of which are associated with an increased risk of Parkinson's (Powers KM et al 2003; Logroscino G et al 1996).

Essential fatty acids, such as eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA), have been shown to increase dopamine production in cultured brain cells of mice (Heller A et al 2005). This is an intriguing finding because fatty acids are known to reduce inflammation in many tissues, and inflammation has been implicated in the causation of Parkinson's disease. DHA, in particular, is essential to brain health because it constitutes between 30 percent and 50 percent of the total fatty acid content of the human brain (Young G et al 2005).

http://www.lef.org/protocols/neurological/parkinsons_disease_01.htm

Featured Products

Super Omega-3 EPA/DHA with Sesame Lignans & Olive Fruit Extract

Life Extension's Super Omega-3 contains a patented EPA/DHA extraction process that results in a pure, stable and easy-to-tolerate fish oil extract. While most fish oil is distilled to decrease contaminants such as mercury and PCBs, the new Super Refined® fish oil used in Super Omega-3 is produced with a patented method that purifies the oil with an intense two-step distillation process to reduce pollutants to virtually undetectable levels. The result is an improved fish oil that exceeds the standards set by international rating agencies.

<http://www.lef.org/newshop/items/item00982.html>



DHA 240

Life Extension is excited to offer a high potency DHA softgel supplement. DHA softgels complement Life Extension's Super Omega-3 fish oil softgels to provide options for those who desire a higher DHA: EPA ratio. Life Extension's DHA exceeds current Council for Responsible Nutrition proposed standards.

DHA softgels can be combined with Life Extension's Super Omega-3 softgels to provide additional support for brain health, eye health, mood, and developmental needs.

<http://www.lef.org/newshop/items/item00995.html>



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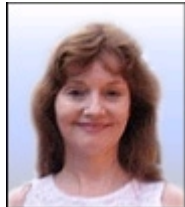
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If you have questions or comments concerning this issue or past issues of *Life Extension Update*, send them to ddye@lifeextension.com or call 954 202 7716.

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