

Fish Oils and Emphysema/Cystic Fibrosis

Summaries of the latest research concerning fish oils and emphysema/cystic fibrosis

Lung disease and fish oils - A review of the evidence

BOSTON, MASSACHUSETTS. The idea that fish and fish oils may protect against lung disease developed from early studies of the dietary habits of Greenland Eskimos. Dr. D.F. Horrobin hypothesized that the high content of omega-3 fatty acids in the Eskimo diet is at least partially responsible for the low prevalence of lung disease in this population group. This makes biological sense inasmuch as omega-3 fatty acids (notably from fish and fish oils) are known to inhibit the synthesis of the inflammatory eicosanoids involved in lung diseases. Dr. Joel Schwartz, MD of the Harvard Medical School has just published a review of the evidence concerning omega-3 fatty acids and lung disease. Dr. Schwartz concludes that there is good evidence that a high intake of fish helps retard the age-related decline in lung capacity observed among both smokers and non-smokers. He also points out that one long term trial of fish oil supplementation in adult asthma patients showed significant benefits, but that shorter trials (less than 1 year) have not confirmed these findings. Two Australian studies have shown that consumption of fresh fish (particularly oily fish) protects children against wheezing and asthma. The evidence concerning cystic fibrosis is controversial. Some studies have shown that fish oil supplementation suppresses the formation of the inflammatory eicosanoids which are characteristic of cystic fibrosis; however, little or no clinical improvements are noted in these studies. Other studies have found a significant protective effect of fish and fish oil in regard to chronic bronchitis and emphysema (chronic obstructive pulmonary disease) especially among smokers. Dr. Schwartz concludes that there is a good case for fish and fish oils being protective against the development of chronic lung diseases, but that more research is needed to establish conclusive proof of benefits. *Schwartz, Joel. Role of polyunsaturated fatty acids in lung disease. American Journal of Clinical Nutrition, Vol. 71 (suppl), January 2000, pp. 393S-96S/*

Intravenous fish oil infusion safe for CF patients

NEW YORK, NY. Seriously ill cystic fibrosis (CF) patients cannot absorb fats and other nutrients properly and therefore often need infusions of essential fatty acids. These infusions are most often based on linoleic acid as many CF patients have been found to have a deficiency of this omega-6 fatty acid. There is now substantial evidence that long-chain omega-3 fatty acids found in fish oils can suppress inflammatory processes such as those involved in CF. A team of American, Finnish, and German researchers completed a small clinical trial aimed at determining if it would be safe and effective to use a fish oil fortified emulsion in the intravenous feeding of CF patients. The trial involved 12 patients; 6 were given infusions of a lipid emulsion enriched with fish oils while the remaining 6 (control group) were given infusions of the standard linoleic acid-based emulsion. The fish oil emulsion contained 18.3% eicosapentaenoic acid (EPA), 27.6% docosahexaenoic acid (DHA), 12.7% oleic acid, and 2.5% linoleic acid. The standard emulsion contained 54.5% linoleic acid, 22.4% oleic acid, and 0% EPA and DHA. Both emulsions were administered daily (over a 4-hour period) for 1 month at a dose of 150 mg/kg of body weight. The researchers found no adverse effects on liver function or coagulation parameters and no toxic or allergic reactions in the patients receiving the fish oil emulsion. There was a tendency to improved lung function in the fish oil group and a tendency towards a worsening in the control group during the trial; however, these effects were not statistically significant. The researchers conclude that intravenous infusions of lipid emulsions containing fish oils are safe for CF patients. They urge additional, longer-term studies to determine if such infusions would be of clinical

benefit. Katz, David P., et al. *The use of an intravenous fish oil emulsion enriched with omega-3 fatty acids in patients with cystic fibrosis. Nutrition, Vol. 12, No. 5, 1996, pp. 334-39 /*

Fish oils may protect against emphysema

MINNEAPOLIS, MINNESOTA. Researchers at the University of Minnesota report that smokers who eat fish regularly are much less likely to develop chronic obstructive pulmonary diseases such as chronic bronchitis and emphysema. They believe the protective effect is due to the eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) content of fish. Other studies have shown that fish oils have anti-inflammatory properties and benefit patients with rheumatoid arthritis and ulcerative colitis. The study included 8960 people, 55 per cent of which were former smokers and 45 per cent current smokers. The researchers found that present or former smokers who ate four servings of fish per week had about half the risk of developing chronic bronchitis as did smokers who only ate 0.5 serving or less per week. Heavy fish eaters had only one third the risk of getting emphysema as did smokers who ate little fish. Eating four servings of fish per week corresponds to a daily intake of about 480 mg of fish oils (EPA and DHA). The researchers conclude that a high dietary intake of fish oils (n-3 fatty acids) may protect cigarette smokers against chronic obstructive pulmonary diseases. / *Shahar, Eyal, et al. Dietary n-3 polyunsaturated fatty acids and smoking-related chronic obstructive pulmonary disease. The New England Journal of Medicine, Vol. 331, No. 4, July 28, 1994, pp. 228- 33/*

Fish oil helps cystic fibrosis victims

NEW SOUTH WALES, AUSTRALIA. Researchers at the University of Sydney have found that daily supplementation with fish oil capsules alleviates many of the symptoms of cystic fibrosis. Cystic fibrosis is a serious, inherited childhood disease which involves a malfunctioning of the body's mucus glands. An abnormally thick mucus is produced which clogs the lungs and results in breathing difficulties. Other symptoms include persistent cough and wheezing, repeated lung infections, and a failure to gain weight. Sixteen cystic fibrosis patients aged 12 to 26 took part in the experiment. Half the group received fish oil capsules providing 2.7 g of eicosapentaenoic acid (EPA) per day while the other half received identical olive oil capsules as a placebo. After six weeks of treatment the patients receiving EPA coughed up significantly less sputum, were breathing easier (both forced expiratory volume and vital capacity were up) and generally felt better. The Australian researchers believe that the EPA acts by modifying the role of leukotriene B4. Leukotriene B4 is thought to be the main culprit in the excessive inflammatory response to bacteria which characterizes cystic fibrosis. *Lawrence, R. and Sorrell, T. Eicosapentaenoic acid in cystic fibrosis: evidence of a pathogenetic role for leukotriene B4. The Lancet, Vol. 342, August 21, 1993, pp. 465-69/*

Cystic fibrosis and fish oils

GENT, BELGIUM. There is evidence that cystic fibrosis patients with high plasma phospholipid levels of omega-3 fatty acids have better lung function than patients with lower levels. Cystic fibrosis (CF) is, unfortunately, often accompanied by fat malabsorption so it is not clear whether oral fat supplementation with omega-3 fatty acids would benefit CF patients. Researchers at the State University of Gent set up an experiment to see if CF patients are able to absorb omega-3s effectively by mouth. The trial involved 9 CF patients (4 females and 5 males) ranging in age from 7 to 20 years. All had been diagnosed with pancreatic insufficiency and had poor fat absorption despite supplementing with pancreatic enzyme preparations. The patients were assigned to receive either 6 fish oil capsules per day for a month followed by 6 placebo capsules for a month or 6 placebo capsules daily for a month followed by 6 fish oil capsules daily for a month. Each fish oil capsule contained 335 mg of salmon oil and 165 mg of commercial soy lecithin and provided 152 mg of omega-3 fatty acids. The placebo capsules contained 500 mg of pharmaceutical-grade

liquid paraffin. The researchers found that the CF patients who took fish oil showed a marked increase in their phospholipid levels of eicosapentaenoic acid [EPA] (increase of 327%) and docosahexaenoic acid [DHA] (increase of 215%). The levels of EPA and DHA returned to baseline 2 weeks after discontinuing supplementation. The researchers also noted that patients with low initial levels of EPA showed the greatest increase in EPA levels after supplementation. They conclude that oral supplementation with fish oil and lecithin is effective in increasing the levels of omega-3 fatty acids especially EPA and DHA in cystic fibrosis patients. / Christophe, Armand, et al. Increase of long chain omega-3 fatty acids in the major serum lipid classes of patients with cystic fibrosis. *Ann Nutr Metab*, Vol. 36, 1992, pp. 304-12 / Coromega *Additional References* 1. Gadek, J.E., et al. Effect of enteral feeding with eicosapentaenoic acid, gamma-linolenic acid, and antioxidants in patients with acute respiratory distress syndrome. *Critical Care Medicine**, Vol. 27, August 1999, pp. 1409-20 *Conclusion:* Tube-feeding EPA and GLA to critically ill patients is highly beneficial. *OILOFPISCES.COM* *INTERNATIONAL HEALTH NEWS* Copyright © 2006 by Hans R. Larsen Oilofpisces.com does not provide medical advice. Do not attempt self- diagnosis or self-medication based on our reports. Please consult your health-care provider if you wish to follow up on the information presented.