Scientific Support for Chapter 7

2104 Newsflash -- See Prof. Peskin's shocking journal article: "**Why Fish Oil Fails: A Comprehensive 21st Century Li ids-Based Physiologic Analysis**," *Journal of Lipids* @ pubmed:

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3914521/#__ffn_sectitle

2014 Newsflash — More fish oil FAILURE. It is amazing that in spite of these continued failures, certain physicians persist in claiming its supposed virtues. They delude themselves. Why a "study" supposedly supports their view they cite it. When another "study" shows the extreme opposite, they ignore it." I commend Cardiovascular epidemiologist Prof. Rajiv Chowdhury, MD!

Scroll to end of this document for the latest fish oil failure...

Inconvenient Truth #1: DHA and fish oil shown completely worthless in treatment for Alzheimer's.

Quinn, J, et al., "Docosahexaenoic Acid Supplementation and Cognitive Decline in Alzheimer Disease: A Randomized Trial, "*Journal of the American Medical Association*, November 3, **2010**, Vol. 304, No. 17, pages 1903–1911:

- "Conclusion: Supplementation with DHA [marine based oils] compared with placebo [no marine based oils] did *not slow the rate of cognitive and functional decline* in patients with mild to moderate Alzheimer disease. [Note: Since the condition was "moderate," patients were still quite capable of improvement.]

- "This study was designed to determine if supplementation with DHA would slow the rate of cognitive and functional

decline in patients with *mild to moderate Alzheimer disease*. Despite enrollment of the target population of individuals with low baseline DHA…

- "The *hypothesis* [guess] that DHA slows the progression of mild to moderate Alzheimer disease was not supported, so there is *no basis for recommending DHA supplementation for patients with Alzheimer disease*.
- "In summary, these results indicate that DHA supplementation is not useful for the population of individuals with mild to moderate Alzheimer disease."

Inconvenient Truth #2: Fish oil increases risk of colon cancer.

"Link Between Fish Oil And Increased Risk Of Colon Cancer In Mice," J. Fenton, et al., *Medical News Today (Colorectal Cancer)*, Article URL: www.medicalnewstoday.com/articles/203683.php#post, October 7, **2010**; and Woodworth, Hillary, L., et al., "Dietary Fish Oil Alters T Lymphocyte Cell Populations and Exacerbates Disease in a Mouse Model of Inflammatory Colitis," *Cancer Research*; 70(20); 7960–9; 0008-5472.CAN-10-1396; Published Online First August 26, **2010**; doi:10.1158/0008-5472.CAN-10-1396.

Following are the exact markers that were negatively impacted by Fenton's experiment that showed fish oil accelerating aggressive cancer. Again, it is significant to note that even the researcher was expecting completely opposite results; she wasn't even aware of the vast amount of negative fish oil studies until

she experienced her own personal research failure and started researching the literature for other failures:

- "Contrary to expectations, DFO ***[dietary fish oil] induced*** **severe colitis and adenocarcinoma [epithelial tissue cancer of the colon] formation.** DFO consumption was associated with *decreased CD8+ cell frequency* ***and*** *diminished CD69 expression* on CD4+ and CD8+ T-cell populations. Mice consuming DFO **also exhibited** ***higher*** *FoxP3+ CD25+ CD4+ T regulatory cell frequency, FoxP3 expression,* and ***altered*** *L-selectin expression* during infection."

Additionally, the article stated:

- "'We found that mice developed deadly, late-stage colon cancer when given high doses of fish oil,' [Fenton] said.
- "More importantly, with the increased inflammation, it only took four weeks for the tumors to develop.
- "…not only the mice receiving the highest doses of DHA but those receiving *lower doses as well.*
- "'Our findings support a *growing body of literature implicating harmful effects of high doses of fish oil consumption in relation to certain diseases,*' Fenton said.
- "'We hypothesized [guessed] that feeding fish oil enriched with DHA to mice would decrease the cancer risk; **we actually found the opposite**.'
- " [Fenton] said people already receiving enough omega-3 fatty acids through their normal diet and foods have no

need for added [fish oil] supplementation." (Emphasis added.)

Inconvenient Truth #3: Fish oil decreases proper immune system responses.

The International Society for the Study of Fatty Acids and Lipids (ISSFAL) 4th Congress, which met on June 4-9, 2000 in Tsukuba, Japan, and was reported in the article titled "Omega-3 Polyunsaturated Fatty Acids, Inflammation and Immunity," by Philip C. Calder, Institute of Human Nutrition, University of Southampton, Bassett Crescent End, Southampton, UK:

- "…[S]tudies indicate that at the levels used, fish oil [omega-3 derivatives] ***decrease*** **a wide range of immune cell responses** (natural killer cell, cytotoxic T lymphocyte activities, lymphocyte proliferation and production of IL-2 and IFN-y (1,2))…"

- **"…Recent studies have indicated that** relatively low levels **of the long chain omega-3 fatty acids (EPA or DHA)…are sufficient to** bring about some of the suppressive effects**…"**

- **"… This decrease (of inhibited lymphocyte proliferation and natural killer cell activity) causes** increased cellular bacteria **[infection] and** impaired [cancer] tumor cell killing**."**

Inconvenient Truth #4: Cod liver oil significantly increases risk of skin cancer.

Veirord, MB, et al., "Diet and Risk of Cutaneous Malignant Melanoma: A Prospective Study of 50,757 Norwegian Men and Women," *Int. J. Cancer:* 71,600-604 (1997):

- "**A significant risk was found in women who used cod liver oil supplement**. [W]e found a **strong increased risk for the women using cod liver oil, a supplement rich in omega-3 fatty acids (EPA and DHA)**." [There was approximately **3xs more incidence of melanoma (the most dangerous type of skin cancer) in the cod liver oil users**.]

- "The ***increase is considered to be real*** and ***not due to chance***.

- "Mean time of follow-up was 12.4 years…. [Note: Sufficient time for an excellent analysis.]

- "The strengths of the study are the high number of participants selected in an **unbiased manner**, the **high participation** and response rate, the prospective design with *dietary data collected prior to onset of cancer* and a **complete follow-up** with regard to incidence of cancer, deaths, and emigration. The complete follow-up is secured by the procedure established by the **Cancer Registry**, ensuring that all physicians, hospital departments and histopathology laboratories in Norway are obligated to report malignant diseases to the Registry: as many as 98% of the **cases** were histologically [microscopic

tissue analysis] **verified**." [Note: This guarantees superb tracking and confirmation of cancer cases.]

Four more studies confirming increased skin cancer:

Rogers, HW, et al., "Incidence Estimate of Nonmelanoma Skin Cancer in the United States, 2006," *Archives of Dermatology* Vol. 146 (No. 3), March **2010**, pages 283-287 reports:

- "The total number of procedures for **skin cancer in the Medicare fee-for-service population increased by 76.9**% from 1,158,298 in 1992 to 2,048517 in 2006.
- "Nonmelanoma skin cancer (NMSC) is the **most common malignancy** in the United States.
- "…[T]he incidence of **skin cancer in** the United States has **substantially increased** from 1992 through 2006 and **is now almost double the last published estimate** from 1994."

Linos, EL, et al., "Increasing burden of melanoma in the United States," *Journal of Investigative Dermatology*, **2009** July, 129(7): 1666-1674:

- "**Malignant melanoma** is one of the fastest growing **cancers worldwide**.
- "Overall melanoma **incidence increased at 3.1**% (1992-2004) **per year**.
- "We observed that melanoma **incidence increased for both men and women** across all categories **of tumor thickness**, including **a significant 3.86**% ***annual increase*** **among thickest tumors** (>4mm)." [Important note: The

researchers clearly stated the increase is not due to better reporting, but a true increase in severity.]

Journal of Investigative Dermatology, **2008** December; 128(12):2905-2908, "Recent trends in incidence of cutaneous melanoma among U.S. Caucasian young adults":

- "Among women, age adjusted annual incidence [of melanoma] per 100,000 increased from 5.5 in 1973 to 13.9 in 2004."

Actas Dermosifiliogr. **2010**;101(1) 39-46, "Changes in the incidence of skin cancer between 1978 and 2008," reports:

- "The incidence of skin cancer continues to increase and can now be considered a worldwide epidemic."

British Journal of Cancer (**2008**) 99, 1549-1554, "Cancer mortality in the United Kingdom: projections to the year 2025," reports:

- "Malignant melanoma projections are +48% [Note: Although absolute numbers are small, the percentage should decrease, not increase!]

Inconvenient Truth #7: Fish oil is WORTHLESS in preventing heart disease in Type I diabetic women.

"Women With Type 1 Diabetes Receive No Heart Benefit From Omega-3," *Medical News Today (Diabetes)*, Article URL: http://www.medicalnewstoday.com/articles/193107.php, June 28, 2010:

- "Consuming higher amounts of **omega-3 fatty acids [as found in fish oil] does not appear to lower heart disease risk for women with type 1 diabetes**, according to a University of Pittsburgh Graduate School of Public

Health study presented at the *70th Scientific Sessions of the American Diabetes Association*.

- "Omega-3 fatty acids [omega-3 *derivatives*], primarily found in fish, [***supposedly***] promote heart health by preventing the buildup of cholesterol in the arteries. Little is known about the effect of consuming omega-3 in *people with type 1 diabetes, who are at much greater risk for heart disease*.

- "Although omega-3 [derivatives] is ***typically associated*** [not directly causal] with decreased risk for cardiovascular disease, this may not be the case for women who have type 1 diabetes…."

Inconvenient Truth #10: Glycemic (blood sugar) control WORSENS during fish oil administration:

Stacpoole, P, Alig, A., Ammon, L, and Crockett, E., "Dose-Response Effects of Dietary Marine Oil on Carbohydrate and Lipid Metabolism in Normal Subjects and Patients With Hypertriglyceridemia," *Metabolism*, Vol. 38, No 10 (October), 1989, pages 946-956:

- "**The glycemic [blood sugar] control of [all of]** the four insulin dependent diabetic patients **worsened during the fish oil administration**.

- "…[T]he **insulin** dose of the subjects **had to be increased** throughout the six-month period of fish oil administration to maintain constant blood glucose and glycosylated hemoglobin concentrations (HbA1c—average blood sugar level).

- "Despite the stable bodyweight by patients on the basal diet, glycosylated hemoglobin [A1c] levels **after six months of fish oil administration increased 16% from 4.9% to 5.7%**. [Note: This is an awful effect for a diabetic.]

- "Another **important finding** of our investigation was that consumption of a ***fish oil*-enriched diet worsens glycemic tolerance**."

"Fish-oil supplementation reduces stimulation of plasma glucose fluxes during exercise in untrained males," *British Medical Journal of Nutrition* (2003), 90, 777–786.

- "It is concluded that fish oil reduced Rd [rate of glucose disappearance] glucose by **26% by reducing glucose metabolic clearance rate** …" [Note: This is an awful effect for a diabetic.]

- "[I]t was observed in healthy human subjects that a **3-week supplementation of the diet with fish oil** (6g/day) **decreased by 40% the insulin response** [a horrific effect] to an oral glucose challenge without altering either endogenous glucose production or plasma utilisation.

- "[N]-3 long-chain fatty acids are incorporated into **membranes whose composition remains altered at least 18 weeks after interruption of fish-oil supplementation**…."

Inconvenient Truth #11: Consumption of "fatty fish" decreases insulin levels.

Karlström, BE, et al., "Fatty fish in the diet of patients with type 2 diabetes: comparison of the metabolic effects of foods rich in n-3 and n-6 fatty acids," *Am J Clin Nutr* **2011**;94:26–33.

- "The reduction in fasting blood glucose and in the glucose area under the curve during the day was significantly greater with the n-6 [from lean fish] than with the n-3 [fatty fish] diet [*Showing 21% less insulin production with fatty fish compared to lean, non-fatty fish*]."

Anthony P. Bimbo, "Raw material sources for the long-chain omega-3 market: Trends and sustainability. Part 2," April **2009**, www.aocs.org/Membership/FreeCover.cfn?itemnumber=1085, accessed 10.8.11.

Inconvenient Truth #12: Amount of supplemented DHA incorporated into the brain is insignificant.

Umhau, JC, et al., "Imaging incorporation of circulating docosahexaenoic acid [DHA] into the human brain using positron emission tomography," *Journal of Lipid Research*, Vol. 50, **2009**, pages 1259–1268:

- "The characteristics of brain DHA metabolism permit the use of an irreversible uptake model over the time course of a PET scan. This is because the other forms of plasma PUFA (i.e., esterified in lipoproteins) were shown not to contribute measurably to brain uptake and because circulating precursors of ARA (linoleic acid, 18:2n-6) and of DHA (alpha-linolenic acid, 18:3n-3) after entering the adult brain are largely lost by metabolism

and are ***not elongated*** to ARA or ***DHA*** **[rather, staying in parent form].**

- "Docosahexaenoic acid (**DHA**; 22:6n-3) is a critical constituent of the brain, but its metabolism has **not been measured in the human brain** in vivo [in the body]. In monkeys, using positron emission tomography (PET), we first showed that intravenously injected [1-^{11}C] DHA mostly entered nonbrain organs, with **approximately 0.5% entering the brain**.

- "Then, using **PET** and intravenous [1-11C] DHA in 14 healthy adult humans, we **quantitatively imaged** regional rates of incorporation (K*) of DHA.

- "For the entire human brain, the net DHA incorporation rate Jin, the product of K*, and the unesterified plasma DHA concentration **equaled 3.8 ± 1.7 mg/day.**

- "This net rate is equivalent to the net **rate of DHA consumption by brain** and, considering the reported amount of DHA in brain, **indicates that the half-life of DHA in the human brain approximates 2.5 years**. Thus, PET with [1-11C] DHA can be used to **quantify regional and global human brain DHA metabolism in relation to health and disease**."

"Alpha-Linolenic Acid Conversion Revisited," (www.fatsoflife.com) by Norman Salem, et al.

- "A recent article in the 2003 PUFA [Polyunsaturated Fatty Acid] Newsletter indicated that in adult men and women the 'average estimated conversion of … [EPA/DHA]… ***is likely to be an overestimate of the actual overall conversion rates for several reasons***.' We see even with this excessive estimate of the parent omega-3 derivative conversion that theoretically no more than 37% of them are converted to derivatives.

- "However, The article makes the case that, 'these amounts correspond to a conversion rate of one gram alpha-linolenic acid in the order of **< 0.02%** for total n-3 LC-PUFAs or **0.002% for conversion to DHA**'….[based on blood lipid conversion].

- "In conclusion, we believe the estimates and interpretations currently put forward as ***best estimates can be substantially improved***. The best estimates of alpha-linolenic acid **conversion to n-3 LC-PUFA [DHA/EPA] are much smaller than those claimed**. More rigorous determinations of n-3 fatty acid metabolism must serve as the foundation for more accurate nutritional conclusions and dietary recommendations."

Inconvenient Truth #13: EFA derivatives are made by the body "as needed."

"Flaxseed oil and fish-oil capsule consumption alters human red blood cell n–3 fatty acid composition: a multiple-dosing

trial comparing 2 sources of n–3 fatty acid," *American Journal of Clinical Nutrition*, Vol. 88, No. 3, 801-809, September **2008**.[1]

- "Although an increased intake of dietary ALA might be e**xpected to upregulate ALA conversion**, *this has . . . **not been found***…" [This means your body does not want more regardless how much can easily be made.]

- "Overall conversion rates of LA and ALA, calculated from peak.

- "[^{13}C] LCP concentrations adjusted for dietary influences on pool sizes of LA and ALA, were low and of similar magnitude overall for AA and EPA (**0.18% and 0.26%)**....

- "Few studies have attempted more than **relatively crude estimates of isotope transfer** from tracer into the various tracee pools, and it is recognized that AUC [area under the curve] ***values will overestimate true conversion rates*** and provide only approximate relative rates of transfer."[Note: Not using radioactive isotopes that directly appear in specific tissue so you can measure them is why so many health professionals have been misled; thinking the PEO-to-derivative conversion rates are much higher than they actually are.

1 Hussein, Nahed, et al., *Journal of Lipid Research*, Volume 46, **2005**, pages 269–280.

Inconvenient Truth #14: The body only uses extremely small amounts of ALA to make DHA.

Pawlosky, RJ, et al., "Physiological compartmental analysis of alpha-linolenic acid metabolism in adult humans," *Lipids Res* **2001** 42: 1257–65.

- Research at the United States Department of Agriculture's USDA food composition laboratory concludes that: "Only about 0.2% of the plasma 18:3n-3 [ALA] was destined for synthesis of 20:5n-3 [EPA], approximately 63% of the plasma 20:5n-3 was accessible for production of 22:5n-3, and 37% of 22:5n-3 [0.23% of the 0.2% = 0.046% net ALA] was available for synthesis of 22:6n-3 [DHA]." Unlike what you are told by sellers of fish oil supplements, this is confirmation of the extremely small amounts your body uses to make DHA.

Inconvenient Truth #15: Amounts of EPA/DHA in fish oil are pharmacological plasma overdoses

There were other published warnings about the overestimate of parent-to derivative amounts. The article, "Comparison of bolus versus fractionated oral applications of [$_{13}$C]-linoleic acid in humans," *European Journal of Clinical Investigation*, Volume 29 Issue 7 (2001), Pages 603–609, had this to say regarding over-estimations of derivatives (EPA/DHA): "**Conclusions**: Using areas under the curve [the simple, standard method of analysis] overestimates the conversion, because different residence times are ***not considered***."

Inconvenient Truth #16: Babies DO produce the omega-6 derivative, arachidonic acid (AA), and the omega-3 derivative, DHA.

Carnielli, V.P., et al., "The very low birth weight premature infant is capable of synthesizing arachidonic and docosahexaenoic acids from linoleic and linolenic acids," *Pediatric Research*, Vol. 40, No. 1, 1996, pages 169–174.

- "…[T]his clearly shows that **all infants were capable of actively synthesizing** the long chain polyunsaturated FA from their dietary precursors.

- "We report a **newly developed approach** which enabled us to measure *in vivo* [in the body] the biosynthesis of LCP with stable isotopes. The study shows that **small preterm infants are capable of converting both LA and LNA into LCP [long chain polyunsaturated fatty acid]**. We were also able to measure the ^{13}C enrichment of all major metabolites of the essential FA including C18:3n-6, which is the delta-6 desaturase product of LA and thought [guessed] to be the limiting step in EFA metabolism. "**The major finding of this study** is that the healthy preterm infant at approximately 1 month of age can desaturate and elongate LA and LNA into n-6 and n-3 LCP, respectively.

- "This observation suggests that the D6 desaturation *may not be a rate-limiting step* in our patients.

- "We chose to study preterm infants receiving a formula with a 10: 1 ratio of LA and LNA because this ratio is often found in human milk lipids. [Note: In this experiment,

the infant was given adequate "parent" PEOs to ensure conversions.]

- "The duration of *our studies was far longer* than any other published work, and we show that at 168 hours the plasma phospholipid LCP were still highly enriched."

Inconvenient Truth #17: Fish oil increases platelet aggregation.

Knapp, H, et al., "In vivo indexes of platelet and vascular function during fish-oil administration in patients with atherosclerosis," *The New England Journal of Medicine*, Vol. 314, April 10, 1986, No. 15, pages 937–942: In patients with atherosclerosis, prostacyclin biosynthesis **fell** by a mean [average] of 42% during the fish-oil period.

- "...In patients with atherosclerosis, **prostacyclin** biosynthesis **fell** by a mean [average] of 42% during the fish-oil period."

Inconvenient Truth #18: Fish were found to be worthless in decreasing abnormal heart rhythm (called atrial fibrillation, or AF).

Jarrett D. Berry, MD, et. al., "Dietary Fish Intake and Incident Atrial Fibrillation," 15 March **2010**, *The American Journal of Cardiology*, V. 105, I. 6, 844–848.

Inconvenient Truth #19: Fish oil supplements increased sudden cardiac death in those with coronary heart disease.

Burr, et al., "Lack of benefit of dietary advice to men with angina: results of a controlled trial," *Eur J Clin Nutr* **2003**, 57:193–200.

Inconvenient Truth #20: Fish oil does not slow atherosclerosis.

Angerer, P., et al., "Effect of dietary supplementation with omega-3 fatty acids on progression of atherosclerosis [plaque buildup in interior of arteries] in carotid [heart to brain] arteries," *Cardiovascular Research*; 54:183–190, **2002**.

- Both **fish oil** groups and the control groups showed close to equal atherosclerotic progression (**getting more clogged**). Fish oil **did not stop thickening of the artery**. On the contrary, the artery wall got thicker (bad) with fish oil ingestion!

- "In this group of selected patients with documented coronary artery disease, omega-3 PUFA [polyunsaturated fatty acids] **given for 2 years did not demonstrate an effect on slowing progression** of atherosclerosis in carotid arteries as measured by ultrasound." [Note: 1.65 grams per day of fish oil supplement were taken. This is a great enough dose to cause adverse immunity and bleeding effects.]

Sacks, Frank M., et al., "Controlled Trial of Fish Oil for Regression of Human Coronary Atherosclerosis," *Journal of the American College of Cardiology* Vol. 25, No. 7, June 1995: 1492–8.

- "Fish oil ***treatment for 2 years*** **DOES NOT** promote major **FAVORABLE CHANGES** in the diameter of atherosclerotic coronary arteries."

Inconvenient Truth #21: "Fatty fish does NOT prevent stroke; "lean fish" does prevent stroke.

Larsson, Susanna C, et al., "Fish consumption and risk of stroke in Swedish women," *Am J Clin Nutr* **2011**;93:487–93.

- "To our knowledge, this is the largest study (with respect to the number of stroke cases) to date to examine this association.

- "A high consumption of ***lean fish was associated with a significant reduced risk*** of total stroke and cerebral infarction.

- "The consumption of salmon, whitefish, and char and herring and mackerel **[fatty /oil fish] was *not associated with [reduced] risk*** of total stroke or any stroke subtype.

- "Although an inverse association between fatty fish consumption and stroke is biologically plausible [although a silly guess as there is no significant metabolic pathway suggesting this], we observed no significant association between the consumption of salmon, whitefish, and char or herring and mackerel [all fatty/ oily fish] and risk of stroke in this study."

- "**Lean fish** consumption has been shown to ***reduce systolic and diastolic blood pressure*** in subjects with ischemic heart disease."

Inconvenient Truth #22: Fish oil does not decrease inflammation

Pot, GK, et al., "No effect of fish oil supplementation on serum inflammatory markers and their interrelationships: a randomized controlled trial in healthy, middle-aged individuals," *European Journal of Clinical Nutrition*, **2009** (62), 1353–1159.

- "In conclusion, ***this 12-week randomized, double-blind placebo-controlled*** intervention trial ***did not show*** that 1.5 g/day n-3 PUFA [fish oil] significantly affected the serum inflammatory response in healthy individuals, nor did patterns of inflammatory markers. Thus, a healthy ***middle-aged population may not benefit from fish oil as an anti-inflammatory agent***.

- "Overall, it seemed **that all serum inflammatory markers were increased rather than decreased after fish oil supplementation** than with placebo; however, these increases were not statistically significant.

Inconvenient Truth #24: Fish or its EPA/DHA does NOT help depression.

Lucas, Michel, et al., "Dietary intake of n-3 and n-6 fatty acids and the risk of clinical depression in women: a 10-y prospective follow-up study," *Am J Clin Nutr* **2011**;93:1337–43.

- "In conclusion, the results of this large longitudinal **study do not support a protective effect of long-chain n-3 fatty acids [EPA/DHA] or fish** intake on the risk of depression.

- "The use of 4 dietary assessments *over a period of 10 y[ears] was a unique strength of our study*.
- "In this large prospective cohort of women, we found that **higher dietary intake of vegetable n-3, ALA [parent omega-3], was significantly associated with a lower risk of clinical depression**, especially among those who had the lowest intake of LA [which is often highly adulterated].
- "Compared with nonusers of fish-oil supplements, the **risk of clinical depression was unexpectedly high in the small fraction of women (n = 689) who reported fish-oil consumption** in 1990 only. [Note: Fish oil consumption was virtually nonexistent pre-1990. Fish oil's quick negative effect shocked the researchers.]
- "The risk of clinical depression increased with increasing LA intake. [Note: You will discover exactly why this is predictable in the next chapter along with how to prevent this negative effect from occurring.]
- "**We did not observe any association** between the risk of **clinical depression and fish consumption frequency or EPA+DHA intake from fish**."

Inconvenient Truth #26: Fish oil adversely affects chemotherapy.

Roodhart, Jeanine M.L., et al., "Mesenchymal Stem Cells Induce "Resistance to Chemotherapy through the Release of Platinum-Induced Fatty Acids," *Cancer Cel*l, **2011**; 20 (3): 370 DOI: 10.1016/j.ccr.2011.08.010; www.medicalnewstoday.com/articles/234263.php.

- "Patients receiving virtually **all types of chemotherapy have been advised not to take fish oil supplements because they can make chemotherapy drugs ineffective**, researchers from

the University Medical Centre Utrecht, the Netherlands wrote in the journal *Cancer Cell*.

- "Cancer **patients commonly take fish oil supplements** in addition to their standard treatment.
- "Lead scientist, Professor Emile Voest, an oncologist, said: 'Whilst waiting for the results of further research, we **currently recommend that these products should not be used whilst people are undergoing chemotherapy**.'"

Bloomberg

Foods Rich in Omega-3 May Not Protect Heart, Study Finds

By Nicole Ostrow - Mar 18, 2014

Eating food high in fish oils such as omega-3 doesn't reduce the risk of heart disease, raising questions about national guidelines promoting the fats as beneficial for cardiovascular health, researchers found.

The analysis of 72 previous studies showed insufficient support for nutritional recommendations by groups such as the American Heart Association that advocate high consumption of polyunsaturated fats like omega-3 and omega-6, which is found in corn and sunflower oils, as well as some nuts and seeds.

Thee findings released yesterday in the Annals of Internal Medicine are the latest to show that supplements and vitamins don't work as well as touted to help patients prevent diseases. While past studies showed fish oil can lower unhealthy blood fats, blood pressure and reduce the risk of a second heart attack, research in recent years contradicted those findings, suggesting it has limited heart benefits.

"The current guidelines should reflect the most recent evidence that show that their apparent benefit for reducing coronary risk is potentially low," Rajiv Chowdhury, the lead study author and a cardiovascular epidemiologist in the Department of Public Health and Primary Care at the University of Cambridge in the U.K., said in an e-mail.

A study presented at the heart association's 2012 meeting found that taking fish oil, a form of omega-3 fatty acid, after cardiac surgery didn't prevent a form of irregular heartbeat that can cause blood clots and strokes. Also that year, a review of 20 trials over 24 years published in the Journal of the American Medical Association found that fish oil supplements didn't lower the risk for a range of illnesses, including heart attacks, strokes or death. A study in 2010 published in JAMA found fish oil didn't prevent recurrences of atrial fibrillation.

Older Patients

Separate research published yesterday in JAMA Internal Medicine found that daily omega-3 supplements wasn't associated with a lower risk for heart attack, stroke or cardiovascular death in

older patients with age-related macular degeneration, an eye disease.

Current heart association guidelines recommend people consume about two servings of fatty fish each week. They also recommend that 5 percent to 10 percent of total daily calories come from omega-6 sources. The guidelines suggest replacing saturated fats, found in meat, full-fat dairy products and coconut and palm oils with polyunsaturated fats.

In addition to salmon, omega-3 fatty acids are found in halibut, sardines, trout and tuna. They also added to other foods and packaged products such as eggs, cereal, pasta and margarine.

Aggressive Treatment

The Dallas-based heart group's Nutrition Committee is scheduled to meet today and will review the new research. Penny Kris-Etherton, a professor of nutrition at Pennsylvania State University and vice chairwoman of the committee, said earlier studies may have shown the fatty acids benefited patients because people with heart disease weren't being treated as aggressively with cholesterol-lowering medicines and high blood pressure drugs as they are currently.

"Maybe now with coronary patients, because of rigorous interventions that they're being given, you don't really see benefits," she said in a telephone interview. "It's these kinds of things that we have to look at very, very carefully when we meet."

Kris-Etherton said the current dietary recommendations should still be followed.

"Dietary recommendations are not made on the basis of a single study," she said. "For now, people should follow the recommendations because they came from five years of review and they're based on a lot of different studies."

Seventy-Two Studies

Researchers in yesterday's report analyzed 72 studies that looked at more than 600,000 patients from 18 countries. Of those, 40 involved initially healthy people, 10 recruited people with elevated cardiovascular risk factors and 22 recruited people with cardiovascular disease.

In 17 studies of more than 75,000 patients, they found no evidence that supplementation with omega-3 fatty acids can reduce heart disease risk, Chowdhury said. More studies though are needed to see if omega-3 fats work to prevent heart disease in people who are initially healthy.

William Harris, a professor of medicine at the Sanford School of Medicine at the University of South Dakota in Vermillion, said a review of yesterday's analysis suggested that people with higher blood levels of eicosapentaenoic acid, or EPA, and docosahexaenoic acid, or DHA, two major fish-derived

omega-3 fatty acids, appeared to have a heart benefit.

He said as more people consume fish and other products with omega-3 in it, the harder it is to show a benefit because there is no true placebo group.

“We need to think of omega-3s as dietary components and not as drugs,” Harris, who wasn’t an author of the paper, said in a telephone interview. “I’m still convinced they’re good things.”

The analysis supported current guidelines restricting consumption of foods high in trans fats. The study didn’t find evidence that saturated fats pose a heart risk, Chowdhury said.

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JAMA reports ("Age-Related Eye Disease Study 2 (AREDS2) Research Group. **Effect of Omega-3 Fatty Acids, Lutein/Zeaxanthin, or other Nutrient Supplementation on Cognitive Function: The AREDS2 Randomized Clinical Trial**. *JAMA*. **2015**;314(8):791-801.):

> • "A large clinical trial found that **omega-3 supplements did not slow cognitive decline** in older persons. With **4,000 patients followed over a five-year period, the study is one of the largest and longest of its kind**:
>
> • "**Contrary to popular belief**, we **didn't see any benefit of omega-3 supplements for stopping cognitive decline**," said Emily Chew, M.D., deputy director of the Division of Epidemiology and Clinical Applications and deputy clinical director at the National Eye Institute (NEI), part of **NIH**."