

## Health News from 3Care Therapeutics

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### Super Size the Omega-3! Mega Dose Omega-3 Intake Yields Big Health Benefits

Significantly increasing omega-3 intake over the current average level consumed by the US population would significantly reduce the risk of chronic disease, suggests a new study published in the *American Journal of Clinical Nutrition*.

High levels of the omega-3 fatty acids EPA and DHA were associated with lower levels of triglycerides, as well as higher levels of HDL cholesterol, according to data from obtain by studying Yup'ik Eskimos who have diets extremely rich in omega-3 fatty acids.

Increased levels of the omega-3 was also associated with decreased levels of inflammatory markers, such as C-reactive protein (CRP), which is produced in the liver and is a reliable indicator of overall inflammatory status. Increased levels of CRP are a good predictor for the onset of both type-2 diabetes and cardiovascular disease. These two chronic diseases cost billions of dollars every year in related medical costs. Omega-3 supplementation is relatively inexpensive, especially in relation to the numerous health benefits associated with its consumption.

The study of omega-3 intakes in Eskimos is nothing new. The first reports of the heart health benefits of the marine fatty acids were reported in the early 1970s by Jørn Dyerberg and his co-workers in *The Lancet* and *The American Journal of Clinical Nutrition*. The young Danes sought to understand how the Greenland Eskimos could eat a high fat diet and still have one of the lowest death rates from cardiovascular disease on the planet.

Despite the past research done on these populations, the new research focuses on a wide array of blood markers. According to lead researcher Zeina Makhoul of Fred Hutchinson Cancer Research Center in Seattle, "Few studies have examined the associations of with biomarkers of chronic disease risk in populations with high intakes of omega-3".

In an attempt to fill this knowledge gap, the scientists analyzed blood levels of omega-3 in red blood cells of in a cross-section of 357 Yup'ik Eskimos. Data showed EPA and DHA represented an average 2.8 and 6.8 percent, respectively, of the total fatty acid content of red blood cells. In addition to the links between EPA and DHA levels and triglycerides and HDL, increased levels of DHA were inversely related with levels of LDL and total cholesterol. The more omega-3 in cells, the better the blood profile. While a link between omega-3 and CRP were reported, Makhoul and her co-workers noted that the reduction was stronger when EPA concentrations exceeded 3 percent of fatty acids in the cells, and when DHA levels exceeded 7 percent.

"Increasing EPA and DHA intakes to amounts well above those consumed by the general US population may have strong beneficial effects on chronic disease risk."

Dr. Zeina Makhoul

Source: American Journal of Clinical Nutrition

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"Associations of very high intakes of eicosapentaenoic and docosahexaenoic acids with biomarkers of chronic disease risk among Yup'ik

Eskimos”

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## **More Good News for Dental Health; Omega-3 May Combat Mouth Bacteria**

The dental health benefits of omega-3 fatty acids may include anti-bacterial effects, extending the benefits beyond inflammation, according to a new study from the University of Kentucky and published in *Molecular Oral Microbiology*.

Omega-3 fatty acids of marine and plant origin were found to have strong anti-bacterial activity against a range of oral pathogens that are associated with dental decay. EPA, DHA and even ALA (alpha-linolenic acid), as well as their fatty acid ethyl esters inhibit the growth of oral pathogens, including *Streptococcus mutans*, *Candida albicans*, and *Porphyromonas gingivalis* at relatively low doses.

“To date, this is the first study to demonstrate the significant antibacterial activity of omega-3 fatty acids against oral pathogens,” wrote Dr Brad Huang and Dr Jeff Ebersole from the Center for Oral Health Research at University of Kentucky’s College of Dentistry. Lead author Dr Huang said, “Most Omega-3 studies on oral health have been focused on the inflammation effects; for some reason, the anti-bacterial activity has not been mentioned or has been ignored, including a recent Japanese study. On the contrary, the anti-bacterial part of the omega-3 fatty acids could be very important. Certainly, it could be a potential new use of omega-3 fatty acids as a nutraceutical ingredient in the future.”

The study, sponsored by the US National Institutes of Health, found that omega-3 exerted a 50% inhibitory activity for concentrations ranging from 1 to 10 micrograms per milliliter. “Although our data support the in vitro effect, the in vivo effects would still need to be empirically determined,” wrote the researchers. “However, EPA and ALA had a much stronger antibacterial activity than DHA in vitro so it is expected that EPA and ALA will have stronger in vivo effects than DHA.”

Dr Huang confirmed that work in this area was ongoing and expanding. “We currently plan to explore this new activity and will try to translate this into products, such as chewing gum. Of course, we plan to study and answer those questions about the optimal dosages, pharmacokinetics, the delivery into the oral cavity, and what kind of in vivo dosage and effects to expect.”

Source: *Molecular Oral Microbiology*

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“A novel bioactivity of omega-3 polyunsaturated fatty acids and their ester derivatives”

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