

Vegetarian DHA is good for your heart

Although a traditional Eskimo diet contains much more fat than commonly recommended, Eskimo populations seem to be immune to heart disease. It is now recognized that this is thanks to the intake of large amounts of fish and marine mammals, which are rich in omega-3 polyunsaturated fatty acids (PUFAs). Similar studies in Japan, comparing inhabitants from fishing villages with farming villagers, also showed that a higher intake of oily fish resulted in a reduced risk of heart disease. Lonza DHA comes as good news as it represents a vegetarian source of this important fatty acid and has been shown to be beneficial on blood lipids and the omega-3 index in recent studies.

Whereas there is plenty of evidence that long-chain omega-3 fatty acids exert triglyceride lowering effects, the effects of pure DHA on human blood lipids have not been studied in the past.

A new company-supported study has now observed that supplementation with pure DHA can significantly decrease plasma triglycerides in healthy vegetarians. This study, which was done with Lonza DHA (formerly Nutrinova DHA) and conducted at the University of Munich (Germany) has been published in the British Journal of Nutrition 2006, 95(4), 779-786. Lonza's DHA is a vege-

tarian source of docosahexaenoic acid, an essential long-chain omega-3 fatty acid, derived from naturally occurring microalgae.

A hundred and fourteen vegetarians with blood lipids in the normal range, aged 18-43 took part in this double-blind, placebo-controlled study. They supplemented their diet with Lonza DHA for 8 weeks. The supplementation was found to decrease plasma triglyceride levels by 23%. This is good news since high circulating triglyceride levels in the plasma are associated with the severity and progression of atherosclerosis and are recognized as independent risk factors for coronary heart disease.

This publication complements recent results of the same research group published in Lipids 40(8):807-814, 2005 which have found that supplementation with Lonza DHA does not only increase the plasma DHA levels, but at the same time also the content of EPA (eicosapentaenoic acid, another important omega-3 fatty acid) in plasma. A low (\leq 4%) red blood cell membrane

content of EPA + DHA (omega-3 index) has recently been identified as an indicator for increased risk of death from coronary heart disease, whereas an omega-3 index of \geq 8 % was associated with the greatest cardioprotective effects. In this double-blind, placebo-controlled intervention study supplementation with Lonza DHA during 8 weeks could significantly increase the omega-3 index.

Mori and colleagues (1999) concluded from a study with 59 mildly hyperlipidemic but otherwise healthy men that DHA supplementation is the principal omega-3 fatty acid in fish, since DHA but not EPA was found to lower blood pressure and heart rate in humans.

However, DHA is not only beneficial in the heart health area. As DHA is a major structural and functional building block of the brain – about



30% of the structural lipids of the grey matter are DHA – many studies have shown beneficial effects in this area, too. A change in the fatty acid composition of synaptic membranes can affect the functions of neuronal membrane receptors, ion channels and enzymes. DHA is required during foetal and child development for the growth and functional development of the brain.

In adults, DHA maintains normal brain function, and scientific evidence links reduced DHA levels to mental and neurological health concerns.

The retina of the eye also is very rich in DHA, which explains that DHA plays a major role in visual function in both visual development in infants and visual function throughout life. Increased dietary intake of omega-3 PUFAs increases the omega-3 FA content of the rod outer segments. Various clinical studies in infants and meta-analyses suggest that greater visual acuity in infancy is associated with increased intake of long-chain PUFAs. Reduced visual acuity has



consistently been observed in primate and rodent offspring subjected to dietary conditions during gestation that result in significant reductions in retinal concentrations of DHA. Further it has been observed that functions of the retina mature earlier when infants are supplemented with DHA.

Since fatty fish such as herring, mackerel, tuna or wild salmon is the only significant dietary source of DHA and EPA, vegetarians and anyone who does not like seafood get very little long-chain omega-3 fatty acids with their diet. Even generally, dietary DHA and EPA intake with a

typical Western diet is well below recommended values. Therefore, the consumption of dietary supplements and functional food enriched with DHA constitutes an attractive option in order to achieve the recommended intake of both DHA and EPA.

Due to its vegetarian source and superior sensory properties relative to many fish oils, Lonza DHA has broad applications in the dietary supplements, functional foods and speciality nutrition sectors.

What is Lonza DHA?

- Lonza DHA is a pure vegetarian source of DHA, produced via a unique fermentation process from microalgae
- Lonza DHA is a highly concentrated food grade oil, which contains at least 43% DHA (docosahexaenoic acid) of total fatty acids
- Lonza DHA is allergen free, and also free of contaminations that are discussed for seafood

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