



Scientists show how mum passes omega-3 to child

By Stephen Daniells

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31/10/2006 - Supplementing mothers-to-be with omega-3 fatty acids results in higher amounts being delivered to the baby in the womb, say German scientists who have identified the carriers of the fatty acid from mother to child.

The research adds to our understanding of how omega-3 play an important role in the development of the baby in utero, with a wealth of other studies reporting that a diet rich in the DHA omega-3 fatty acid (docosahexaenoic acid) during pregnancy and breastfeeding is associated with a healthy pregnancies as well as the mental and visual development of infants. Mothers are also said to be less at risk of post partum depression or mood change, and to recover more quickly after pregnancy, if they consume enough of the fatty acid. The new study, published in the American Journal of Clinical

Nutrition (Vol. 84, pp. 853-861), sought to better understanding the mechanisms of transfer of the omega-3 fatty acid, docosahexaenoic acid (DHA), from mother to child. Lead author Elvira Larqué from the Ludwig Maximilians University of Munich and her colleagues recruited 136 healthy pregnant women during the second half of gestation to take part in the randomised, double-blind trial. The women were randomly assigned to one of four supplementation groups: DHA (500 mg) plus EPA (eicosapentaenoic acid, 150 mg), 5-methyl-tetrahydrofolic acid (400 micrograms), DHA (500 mg) plus 5-methyl-tetrahydrofolic acid (400 micrograms), or placebo. In order to study the placental lipid transfer system Dr. Larqué and her co-workers looks at messenger RNA (mRNA) expression of various so-called fatty acid-transport proteins (FATP): FATP-1, FATP-4 and FATP-6, as well as fatty acid-binding protein (FABP), heart-FABP, and brain-FABP.

The German and Spanish researchers reported that there was no significant difference in lipid carriers between the four supplementation groups, but mRNA expression for FATP-1 and FATP-4 was related to DHA in both the mother's blood and the placenta. Only mRNA expression of FATP-4 was related to DHA in the umbilical cord blood, said the researchers. "Correlation of the mRNA expression of the membrane placental proteins FATP-1 and especially of FATP-4 with maternal and cord DHA leads us to conclude that these lipid carriers are involved in placental transfer of long-chain polyunsaturated fatty acids," they concluded.

The researchers also said that their results "may contribute to improve dietary support for infants born prematurely to mothers with placental lipid transport disorders."

Consumers have been receiving mixed messages with some claiming that the benefits of fish consumption, like omega-3, protein, and essential vitamins and minerals content outweigh the

risks posed by pollutants such as methyl mercury, dioxins, and polychlorinated biphenols (PCBs). The situation is particularly sensitive for pregnant women, with such pollutants reported to damage the development of babies.

But a diet rich in the omega-3 fatty acid, docosahexaenoic acid (DHA), during pregnancy and breastfeeding is thought to support healthy pregnancies as well as the mental and visual development of infants. Such advice has seen the number of omega-3 enriched or fortified products on the market increase. Most extracted fish oils are molecularly distilled and steam deodorised to remove contaminants.

According to Frost and Sullivan, the European omega-3 market was worth around €160m (£108m) in 2004, and is expected to grow at rates of 8 per cent on average to 2010.

However, a recent survey by the Washington, DC-based Society for Women's Health Research (SWHR) reported that only 41 per cent of mothers and expectant mothers know they should be consuming omega-3 fatty acids during pregnancy. Questions were put to the women regarding the "Big 3" of pregnancy nutrition: folic acid, calcium with vitamin D and omega-3 fatty acids.

The finding that women are less aware of the need for omega-3, compared with other nutrients for healthy mothers and babies, implying formulators' omega-3 message has still not saturated the prenatal market.

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