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OMEGA-3 FATTY ACIDS

For Mom and Baby

Critical Roles in Health and Development



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“Eating right” is always a good practice to pursue for everyone, young and old. But assuring your body is getting the right nutrition is never more important than it is for women of child-bearing age. Though vitamins, minerals, protein, and a wide array of whole-food nutrients found in fruits, vegetables, and grains all play important roles in health and vitality, a special group of nutrients found in fish, known as Omega-3 fatty acids, deserve special attention for all mothers and mothers-to-be. There are 8 Omega-3 fatty acids involved in human

nutrition, and science has shown that together or individually they are key players in the health of mother and child.

For Mom, they are needed to support a healthy heart and cardiovascular system, heart-healthy blood chemistry, strong cell structure and efficient cell function, and protective anti-inflammatory balance for healthy flexible joints.

For Baby, they are key building blocks for the brain and central nervous system as well as development of the optic nerve and retina. Neurological and visual development is fastest during fetal life and continues during infancy, and Omega-3 fatty acid accumulation more than triples during this time. Many studies have shown that mom’s dietary intake of Omega-3 fatty acids during pregnancy affects the baby’s visual acuity, cognitive development, and even sleep patterns.

Although especially important for women of child-bearing age and children, omega-3 fatty acids are a key component diets for everyone, young and old. Just a few weeks ago, the startling results of a Harvard study found that 96,000 preventable US deaths per year are attributed to omega-3 deficiency. In the month of June alone, there were more than six reports linking omega-3 fatty acids with benefits such as reducing blood pressure, risk of AMD, and heart health. In fact, a recent review of studies on the benefits of omega-3 fatty acids have led scientists to recommend the establishment of a Dietary Recommended Intake (RDI) for EPA and DHA for heart health. More and more, people are recognizing the importance of omega-3 fatty acids in health and prevention.

DHA and EPA DRI Recommendations

Abstract

TOWARDS ESTABLISHING DIETARY REFERENCE INTAKES FOR EICOSAPENTAENOIC ACID (EPA) AND DOCOSAHEXAENOIC ACID (DHA)

Harris WS, et al. *Towards establishing dietary reference intakes for eicosapentaenoic and docosahexaenoic acids. J Nutr.* 2009 Apr;139(4):804S-19S.

There is considerable interest in the impact of (n-3) long-chain PUFA in mitigating the morbidity and mortality caused by chronic diseases. In 2002, the Institute of Medicine concluded that insufficient data were available to define Dietary Reference Intakes (DRI) for eicosapentaenoic acid (EPA) or docosahexaenoic acid (DHA), noting only that EPA and DHA could contribute up to 10% toward meeting the Adequate Intake for alpha-linolenic acid. Since then, substantial new evidence has emerged supporting the need to reassess this recommendation. Therefore, the Technical Committee on Dietary Lipids of the International Life Sciences Institute North America sponsored a workshop on 4-5 June 2008 to consider whether the body of evidence specific to the major chronic diseases in the United States--coronary heart disease (CHD), cancer, and cognitive decline--had evolved sufficiently to justify reconsideration of DRI for EPA+DHA. The workshop participants arrived at these conclusions: 1) consistent evidence from multiple research paradigms demonstrates a clear, inverse relation between EPA+DHA intake and risk of fatal (and possibly nonfatal) CHD, providing evidence that supports a nutritionally achievable DRI for EPA+DHA between 250 and 500 mg/d; 2) because of the demonstrated low conversion from dietary ALA, protective tissue levels of EPA+DHA can be achieved only through direct consumption of these fatty acids; 3) evidence of beneficial effects of EPA+DHA on cognitive decline are emerging but are not yet sufficient to support an intake level different from that needed to achieve CHD risk reduction; 4) EPA+DHA do not appear to reduce risk for cancer; and 5) there is no evidence that intakes of EPA+DHA in these recommended ranges are harmful.

Research Updates

Omega-3 Deficiency

Linked to 96,000 US deaths per year

The results of a Harvard University study, which looked at 12 dietary, lifestyle and metabolic risk factors found omega-3 deficiency to be the sixth biggest killer of Americans, attributing between 72,000 and 96,000 preventable US deaths per year. This ranks higher than deaths attributed to excess trans fat intake, (63,000-97,000).

Of course, it is important to note that chronic diseases and associated deaths are multifactorial and complicating factors that had not been addressed may affect the precision of the study.

However, members of the nutrition community cite this and the many other studies demonstrating the role of omega-3s in health and prevention as reasons for establishing a DRI for EPA and DHA intake.

The study was funded by the Centers for Disease Control and Prevention (CDC) through the Association of Schools of Public Health. It looked at 2005 data from the US National Health Center for Health Statistics and used a mathematical model to determine the number of preventable fatalities. Dr. Andrew Shao, Vice President of scientific and regulatory affairs at the Council for Responsible Nutrition comments: "I think this analysis reinforces the long-held notion that the diet has a tremendously powerful impact on health and longevity and that the consumption of omega-3's (along with fruits and veggies) by Americans is far from adequate."

Source: Danaei G, et al. The preventable causes of death in the United States: comparative risk assessment of dietary, lifestyle, and metabolic risk factors. PLoS Med. 2009 Apr 28;6(4):e1000058. Epub 2009 Apr 28

Research Updates

Omega-3's

May Improve Blood Pressure during Weight Loss

A intervention trial conducted on more than 300 young overweight individuals over a period of 8 weeks by researchers from the University of Iceland, the University of Navarra, University College Cork, and the Portuguese National Research Institute on Agriculture and Fisheries Research in Lisbon suggest that the consumption of fatty fish like salmon or fish oil supplements may reduce blood pressure during energy-restricted diets. These benefits were especially noticeable in people with initially low levels of DHA in their cell membranes.

The participants were recruited from Iceland, Spain and Ireland and were randomly assigned to one of four energy-restricted diets: salmon, cod, fish oil capsule, or control (sunflower oil capsules and no seafood).

Researchers concluded that salmon consumption three times per week can decrease diastolic blood pressure similar to fish oil and significantly more than lean fish during an 8-wk energy restriction in young overweight individuals. A lower DHA content in erythrocyte membrane at baseline, which might identify infrequent fish eaters, is associated with a greater DBP reduction in the course of an 8-wk dietary intervention providing fatty seafood.

Source: Ramel A, et al. Moderate consumption of fatty fish reduces diastolic blood pressure in overweight and obese European young adults during energy restriction. Nutrition. 2009 May 30. [Epub ahead of print]

New Major US Trial-- Funded

Heart and Cancer Benefits of Vit. D and Omega-3s

One of the largest randomized, double-blind, placebo-controlled trials of vitamin D and marine omega-3 is set to begin soon and will run for a period of five years with over 20,000 participants recruited from all over the United States. The National Institutes of Health through the National Cancer Institute and

the National Heart, Lung and Blood Institute as well as other agencies will be funding this study, named the "VITAL" trial. Led by researchers at Brigham and Women's Hospital (BWH) in Boston, this trial will examine the impact of vitamin D and omega-3 on the reduction of heart disease and cancer. Participants will include women over 65 and men over 60 without prior history of cancer, heart disease or stroke. They will be randomly assigned to take either one or both of the supplements or placebo.

Researchers hope this study can provide evidence of the effect of these nutrients on health.

For more information: <http://www.vitalstudy.org/>

Obesity Rates

Continue to Increase in the U.S.

The Trust for America's Health and the Robert Wood Johnson Foundation recently released a report entitled 'F as in Fat: How Obesity Policies are failing in America 2009,' which found that American obesity rates have increased in 23 states over the past year and decreased in none.

The US Department of Health and Human Services (HHS) had set a goal to reduce obesity rates to 15% in every state before 2010, but the data in the report seems to suggest that the trend is moving the other way.

In 1980, the average US obesity rate was 15%. Now, the average is 34.4%, and another 32.7% are overweight. Even more alarming are the obesity/overweight rates among children, which have climbed to more than 30%.

Among other recommendations, the report suggests that the federal government should "work with industry to eliminate junk food advertising to children" and that states should "evaluate current snack taxes."

Source: Trust for America's Health, The Robert Wood Johnson Foundation. F as in fat. How obesity policies are failing in America. Washington (DC): Trust for America's Health; 2009. <http://healthyamericans.org/reports/obesity2009/Obesity2009report.pdf>. Accessed July, 2009.

Research Updates

Heart Healthy Whole Grains

New research from Italy suggests that consumption of wholemeal wheat foods may be associated with improving total and 'bad' cholesterol levels. The findings, published in *Nutrition, Metabolism and Cardiovascular Diseases*, demonstrated a 4.5% reduction for both cholesterol measures following the consumption of whole meal wheat products for three weeks compared to the consumption of refined grains.

There were 15 participants in the study, with an average age of 54.5 and an average BMI of 27.4 kg/m². The interventions lasted three weeks, followed by two weeks of 'washout' and then crossing over to the other intervention. The results of the trial demonstrated a reduction in total and LDL cholesterol levels, 4.3 and 4.9 percent lower. There were no reported changes in blood or fat metabolism, antioxidant activity, levels of magnesium or measures of incretins, adipokines or hs-CRP.

Source: Giacco R, et al. Effects of the regular consumption of wholemeal wheat foods on cardiovascular risk factors in healthy people. Nutr Metab Cardiovasc Dis. 2009 Jun 5. [Epub ahead of print]

Soy—Lung Benefits?

Results published in the journal *Respiratory Research* on a case-control study of 278 Japanese patients diagnosed with lung disease (chronic obstructive pulmonary disease) found that the consumption of soy products was positively correlated with lung function and inversely associated with the risk of lung disease and breathlessness. Another 340 participants recruited from the general Japanese population were used as a control group.

Source: Hirayama F, et al. Soy consumption and risk of COPD and respiratory symptoms: a case-control study in Japan. Respir Res. 2009 Jun 26;10(1):56. [Epub ahead of print]

No Effect of Soy on Testosterone

Researchers from the University of Minnesota, USA conducted a meta-analysis of 15 studies to examine the effect of soy proteins or isoflavones on male hormones. Soy has been associated with many health benefits and has been received as a healthy source of protein. However, there have been some studies suggesting that soy isoflavones could affect male testosterone levels due to its similarity in chemical structure to estrogen. However, the authors determined that for all these studies, soy protein and isoflavone intake "greatly exceeded" typical Japanese dietary intake.

They concluded that "These results suggest that the consumption of soy foods or isoflavone supplements would not result in the adverse effects associated with lower [testosterone] levels."

Source: Hamilton-Reeves J, et al. M Clinical studies show no effects of soy protein or isoflavones on reproductive hormones in men: results of a meta-analysis. Fertil Steril. 2009 Jun 11. [Epub ahead of print]

Probiotics

Reducing eczema risk in infants?

The results of a study conducted in the Netherlands, which was published in the *European Journal of Allergy and Clinical Immunology*, suggest that daily supplements of multi-bacterial strain food may reduce the risk of eczema by 58% during the first three months of life.

The researchers recruited 157 pregnant women and randomly assigned them to receive the strain mixture or placebo for the first two weeks of pregnancy. Infants then received the supplements for their first year of life. The Dutch researchers found that parental-reported eczema was 58% lower in the intervention group.

Source: Niers L, et al. The effects of selected probiotic strains on the development of eczema (the PandA study). Allergy. 2009 Apr 9. [Epub ahead of print]