

CEC ARTICLE 2, 2011:

The Importance of Omega 3 Fatty Acids, especially DHA, during Pregnancy

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In CEC article VOL 1, 2011 Omega- 3 Fatty Acids and the Aging Adult, it was discussed that Omega 3 fatty acids play an important role in the prevention of numerous diseases and health risks. In this article, we will discuss the importance of Omega 3 fatty acids during pregnancy as it pertains to the mother and the developing fetus. It is widely known that a good diet is important in maintaining a healthy pregnancy. The mother must eat a healthy diet that includes a proper balance of grain products, vegetables, fruit, protein and dairy to help ensure the baby receives all the vitamins, minerals and calories needed to be healthy at birth. While this is well known, it is also essential to be aware of the need of omega 3 fatty acids in the diet and the important role they play in the growth and development of a healthy infant. A particular fatty acid that plays a major role in the proper growth and development of the fetus and the health of the mother is docosahexaenoic acid (DHA) and will be the main discussion of this article.

Fatty acids are essential in the proper function of the human body because they compose the lipid (fat) membrane that surrounds most cells. The lipid membrane is responsible for all the molecules that enter and exit the cells, enabling the cells to receive optimum nutrition and expel harmful waste products. DHA in particular has been shown to have direct effects on membrane structure and fluidity, increasing the ease of exchange of nutrients. DHA also makes up 40 % of fatty acids in the brain and 60% of the fatty acids in the eyes, so therefore critical for the development and function of these organs in the fetus.

Most women do not get enough DHA in their diets. While there are no specific requirements for DHA in the diet as provided by the USDA, there are recommendations of how much to get every day. During Pregnancy, it is recommended to get at least 200-300mg of DHA a day. There is sufficient data to show that DHA plays a key role during the prenatal period. Fatty acids are important components of the fetus' rapid growing brain and retinal tissue. DHA helps build your baby's brain, nervous system, and eyes. DHA has also been found to prolong the gestational period, as well as increasing the birth weight, which has been linked to healthier babies. A small increase in gestational length can have a profound influence on infant mortality. While it is important to include DHA in the diet before pregnancy and in early pregnancy, the major fat deposition in the fetus occurs during the third trimester, when the retinal and brain development is greatest.

Benefits for growing babies include:

Brain development: In one study of 98 pregnant women, researchers found that two years after birth, the children whose mothers had received a high dose of fish oil in the second half of their pregnancy had higher scores in tests of their eye-hand coordination. Another study found that four-year-olds scored better on IQ tests if their mothers took

DHA supplements during pregnancy and breastfeeding. The results of other studies also suggest positive effects of maternal DHA supplementation on cognitive outcomes, such as motor development at 30 months of age and attention span at 5 years of age.

Visual development: A study of 167 pregnant women conducted at the University of British Columbia's Department of Pediatrics suggested a correlation between visual acuity in two-month-old babies and their mother's DHA intake during their second and third trimesters of pregnancy.

Higher birth weight: Researchers have found "significant positive associations" between the mother's DHA levels and the baby's weight and head circumference at birth. Other studies suggested that DHA consumption during pregnancy may have a small benefit in reducing the likelihood of repeat preterm birth among women who previously had preterm birth. This is also a benefit for the mother's health, to avoid preterm labor.

Benefits for the pregnant mother:

Reduce risk of developing preeclampsia: Preeclampsia is a complication of pregnancy. Women with preeclampsia have high blood pressure, protein in their urine, and may develop other symptoms and problems. The more severe preeclampsia is, the greater the risk of serious complications to both mother and baby. Several clinical studies suggest Omega 3's (especially DHA) can help regulate and lower blood pressure and reduce the likelihood and severity of preeclampsia.

Reduce your risk for postpartum depression: Postpartum depression is a potentially serious and debilitating condition many women experience after giving birth. Studies have shown the correlation of DHA deficiency to depression, so by including good amounts of DHA during pregnancy, these risks can be minimized.

Good Sources of DHA:

Cold Water Fish: One of the best ways to consume DHA is from cold water fatty fish. It can be difficult for pregnant woman to get enough from these sources. It is not recommended for pregnant women to consume large quantities of fish because of their potential high mercury content. Mercury can harm an unborn baby or young child's developing nervous system. To minimize the risk of mercury exposure, the FDA recommends that pregnant women, women who may become pregnant and nursing mothers eat no more than 12 ounces of cooked fish per week and choose a variety of fish rather than a single type. Some good fish sources of DHA are salmon, tuna (blue fin tuna have up to five times more DHA than other types of tuna), mackerel, sardines, shellfish, and herring, although Atlantic mackerel, shark, swordfish, and tilefish should be avoided completely.

Wild Game: Another good source of DHA is wild game. This is also hard to get enough to obtain recommended amounts of the fatty acid just due to the limited availability of wild game to the general public.

Breast Milk: DHA is the essential structural ingredient of breast milk. The DHA content in the mother's diet reflects in the amount of DHA passed on to the baby. If the baby is not breastfed at all, it receives no DHA, thus hindering and impairing mental and visual acuity. DHA levels of premature infants are especially low since they miss much of that last trimester. Many companies have added DHA to formula for those who do not breastfeed their babies to try to increase the amounts they get.

DHA Enriched Foods: Because of the growing knowledge about how important DHA is in the diet and all the benefits it has, it is showing up in more and more food items. Eggs contain some DHA naturally, but many places add DHA as well.

It can also be found in breads, crackers and juice to name a few.

Fish Oil Capsules: This is probably the easiest way for most people to obtain proper amounts of Omega 3 fatty acids. There are numerous supplements on the market to choose from and some pre-natal vitamins are even formulated with the fatty acids in them these days. Keep in mind the ratio of the other fatty acids in the capsule. The amount of fish oil is not equal to the amount of DHA. As with any supplements, the availability and absorption of the nutrient can vary, so it is best to try to get it from natural sources first and use supplementation if necessary.

If you are pregnant, planning on becoming pregnant or are nursing a newborn, it is essential to take a closer look at the amounts of Omega 3 fatty acids in your diet. DHA, specifically, time and time again has been shown to have numerous invaluable properties, from growth and development of the growing fetus to benefits to the mother and continuing needs for brain growth after the baby is born. Aim to get enough DHA in the diet by fish, enriched foods, or supplementation.

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Questions:

- 1.) DHA is what kind of fatty acid?
- 2.) T/F DHA does not have direct effects on membrane structure and fluidity.
- 3.) What is a main function of the lipid membrane of cells?
- 4.) What percentages of the fatty acids are DHA in the brain and eyes respectively?
- 5.) Which trimester does the major fat deposition in the fetus occur?
- 6.) DHA helps build your baby's _____, _____, and _____
- 7.) Describe 2 benefits of DHA for the growing fetus.
- 8.) Name 2 benefits for the mother.
- 9.) Name 3 good sources of DHA.
- 10.) Why must the amount of fish be monitored for pregnant women?

11.) What is the recommended amount of DHA for pregnant women to consume?

12.) Name 2 fish that should be avoided during pregnancy.

13.) When choosing a supplement for DHA, what should you keep in mind?

14.) Why are not all supplements created equal?

15.) Why are Fatty acids essential in the proper function of the human body?