



## OMEGA-3 FATTY ACIDS IN PREGNANCY AND PARENTING

Fats play a crucial role in the body. They make up cell membranes, which allow materials in and out of each cell. They transport vitamins, pad the organs of the body, are used to make hormones, regulate enzymes and are a great form of energy storage. You may have heard of “essential fatty acids” called omega-3 and omega-6, both of which are required by the body. What you may not know is that these fats must be in proper balance in the body. Ideally, they should be at about a 1:1 ratio. Unfortunately, the typical American diet contains plenty of omega-6 fats but not nearly enough of the omega-3 fats, putting the typical omega-6 to omega-3 ratio at about 20:1! The sad result is increased cardiac disease, mood disorders, and inflammatory diseases like arthritis. Many studies are now suggesting that this imbalance may also be detrimental to pregnancy and early child development.

### Food Sources of Essential Fatty Acids

Foods High in Omega-6	Foods High in Omega-3
Almonds Canola oil Corn oil Grain-fed beef Hydrogenated oils Peanuts Safflower oil Soy oil Sunflower oil “Supermarket” eggs	Fish Flaxseed oil Game (e.g., deer meat) Grass-fed beef Green leafy vegetables Omega-3 enriched eggs Organ meats (e.g., liver) Walnut oil Human breastmilk

No matter what our ethnic background, our ancestors consumed far more omega-3 fats than most of us do today. Consider the fishermen and hunters, or the farmers who let their livestock graze. Do you notice that almost all processed foods today are heavy in the omega-6 fats? Do you notice that the American diet

holds few of the omega-3 fats? Even more concerning is the lack of a particular omega-3 called docosahexaenoic acid, or DHA.

## **DHA**

DHA is one type of omega-3 that is especially important in pregnancy and early development. This fatty acid makes up nearly 40% of the fatty acids in the brain and retina (part of the eye). DHA is *not* found in plant sources of omega-3. Consuming flaxseed, walnuts or leafy greens, while a healthy habit, does *not* significantly increase levels of DHA in the body. Because fish oil is an excellent source of DHA and can be screened for the mercury that so often contaminates fresh fish, fish oil is a favored supplement in clinical trials.

## **Health Benefits of Omega-3 Fats**

There is a multitude of studies examining the beneficial effects of increased dietary omega-3 fats. Benefits have been found for a wide spectrum of health issues, including heart disease, Alzheimer's, Crohn's disease, depression, autism, etc. The following statements relate to omega-3 in pregnancy and early parenting.

- *Increased DHA may decrease the risk of premature delivery in pregnant women.<sup>1</sup>*
- *Taking fish oil in pregnancy may decrease allergies in infants who are born to women with a history of hay fever or asthma.<sup>2</sup>*
- *DHA supplementation in premature infants results in better visual development.<sup>3</sup>*
- *Low levels of DHA are associated with increased risk of postpartum depression.<sup>4</sup>*
- *Breastfeeding babies whose mothers supplement with DHA score higher on developmental tests.<sup>5</sup>*
- *Babies of mothers with high DHA levels are better sleepers.<sup>6</sup>*
- *Taking cod liver oil during the first year of life decreases a child's chance of developing Type 1 diabetes.<sup>7</sup>*
- *For children with dyslexia and attention-deficit/hyperactivity disorder, taking fish oil results in improved reading, spelling and behavior.<sup>8</sup>*

## **Supplementation**

While fish is an excellent source of omega-3 fatty acids including DHA, pregnant women and young children are cautioned against consuming much fish that may be contaminated with mercury. As an alternative, fish oil and cod liver oil are excellent dietary supplements. It is important that the brand you choose, however, has been tested for contaminants. One high-quality brand is Carlson's, which can be purchased at PCC stores in Seattle.

***Recommended dose: 1 teaspoon of oil per 50 pounds of body weight***

There is a difference between fish oil and cod liver oil. The cod liver oil contains higher levels of vitamins A and D, both of which can be overdosed. As vitamin D is usually sufficient in people who spend time outdoors, fish oil is to be preferred in the warm weather months and warm climates. Cod liver oil, with its vitamins A and D, is a better supplement in cool weather months or when sun exposure is minimal.

A common concern of women is that they may be getting too much vitamin A or D if they take cod liver oil during pregnancy. The current government recommendation is that women consume 400 IU of vitamin D per day. However, studies which look at circulating blood levels of the vitamin suggest that women may need up to 4,000 IU of vitamin D per day to achieve optimal levels (10 times more than the RDA!).<sup>9</sup> This is especially true of dark-skinned women who live in cool climates.

Insufficient amounts of vitamin D have been linked to such illnesses as breast cancer, melanoma, Type 1 diabetes, and multiple sclerosis.<sup>10</sup> Washington State has the highest rate of breast cancer in the nation, and researchers hypothesize that lack of sunshine (resulting in decreased vitamin D) may be a large contributor.<sup>11</sup> (Of note, a higher omega-3 to omega-6 ratio is also associated with less breast cancer<sup>12</sup>). Therefore, women in Washington may especially benefit from supplementation with cod liver oil.

The maximum recommended daily dose of vitamin A (other than the beta-carotene form) in pregnancy is 8,000 IU.<sup>13</sup>

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<sup>1</sup> A randomized trial of docosahexaenoic acid supplementation during the third trimester of pregnancy. *American Journal of Obstetricians and Gynecologists*, March 2003; 101(3): 469-479. Also, *European Review for Medical and Pharmacological Sciences*, Jan-Feb 2005; 9(1): 41-48.

<sup>2</sup> Does fish oil supplementation in pregnancy reduce the risk of allergic disease in infants? *Current Opinion in Allergy & Clinical Immunology*, June 2005; 5(3): 215-221.

<sup>3</sup> Essential fat requirements of preterm infants. *American Journal of Clinical Nutrition*, Jan 2000; 71(1): 245S-250S.

<sup>4</sup> Increased risk of postpartum depressive symptoms is associated with slower normalization after pregnancy of the functional docosahexaenoic acid status. *Prostaglandins Leukot Essent Fatty Acids*. Oct 2003;69(4): 237-43.

<sup>5</sup> Effects of maternal docosahexaenoic acid intake on visual function and neurodevelopment in breastfed term infants. *American Journal of Clinical Nutrition*, July 2005, Vol. 82(1), 125-132

<sup>6</sup> Higher maternal plasma docosahexaenoic acid during pregnancy is associated with more mature neonatal sleep-state patterning. *American Journal of Clinical Nutrition*, 2002 Sep;76(3):608-13.

<sup>7</sup> Use of cod liver oil during the first year of life is associated with lower risk of childhood-onset type 1 diabetes: a large, population-based, case-control study. *American Journal of Clinical Nutrition*, December 2003; (78) 6:1128-1134.

<sup>8</sup> The Oxford-Durham study: a randomized, controlled trial of dietary supplementation with fatty acids in children with developmental coordination disorder. *Pediatrics*, May 5, 2005; 115(5): 1360-1366.

<sup>9</sup> Vitamin D requirements during lactation: high-dose maternal supplementation as therapy to prevent hypovitaminosis D for both the mother and the nursing infant. *American Journal of Clinical Nutrition*, Dec 2004;80(6 Suppl): 1752S-8S.

<sup>10</sup> Health Research Form, March 22, 2005.

<sup>11</sup> Seattle Woman Magazine, October 2004.

<sup>12</sup> N-3 and N-6 fatty acids in breast adipose tissue and relative risk of breast cancer in a case-control study in Tours, France. *International Journal of Cancer*, Mar 2002; 98(1):78-83.

<sup>13</sup> Recommendations For Vitamin A Use During Pregnancy. *Teratology*, 1987; 35:269-275.