

# POSTPARTUM DEPRESSION AND OMEGA 3 FATTY ACIDS



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Recently in North America we have seen a war on fats, with the increasing population of obese individuals it seems that we have turned to fatty diets as the culprit. Often people today do all they can to avoid any and all fats in their diet. I believe, however, that this approach is misguided and can lead to further health risks including an increased risk of postpartum depression. I am thrilled to see the expansion of research on omega fatty acids and the new health campaigns which promote the importance of the consumption of “healthy fats”. The entire discussion around fats is too broad for the purposes of this article, instead I will limit my discussion specifically to omega 3 fatty acids and postpartum depression to keep with the focus of this issue of Birth Issues.

The human brain is composed, in large part, of fats<sup>[1]</sup>. The most predominate of these fats is DHA (docosahexaenoic acid) an omega 3 fatty acid<sup>[1]</sup>; it is not surprising therefore, that DHA is the main focus in the research assessing omega fatty acids and it's affects on depression and postpartum depression. The essential omega fatty acids include both omega 6 and omega 3 fatty acids; these are more commonly known as a part of the larger group of “healthy fats”. Omega 3 fatty acids can be further broken down into EPA (eicosapentaenoic acid) and DHA. Omega fatty acids are also essential components to the fabric of all cell membranes; these fats maintain the fluidity of the membranes<sup>[2]</sup>. It is known, that in the nervous system and brain in particular, that the composition of the cell membranes is intimately linked with function<sup>[3,4,5]</sup>. In addition, omega fats in the brain are precursors to a number of different inter- and intracellular signaling molecules, meaning they play a role in communication both between cells and within the cells themselves<sup>[6]</sup>. As I have alluded to, adequate consumption of omega 3 fats is very important to general health and wellbeing; it is even more important in pregnancy and in particular, especially important in relation to postpartum depression. Pregnancy puts a significant strain on a woman's nutritional resources and essential fats are high on this list; she must accommodate her own increased requirements, the demands of the placenta, as well as, provide adequate fats for the development of her child. Mothers supply essential fats to their children through the placental blood supply in utero and after birth through breast milk<sup>[7]</sup>. It has been shown that blood levels of DHA can decline by as much as 50% after a single pregnancy reinforcing the importance of maintaining adequate levels of omega fatty acids<sup>[8,9]</sup>. The fatty acid composition of the brain tissue in women suffering from postpartum depression has not been studied for obvious ethical reasons; however, those women with depressive symptoms were found to have lower blood levels of DHA postpartum, compared to women who did not report depressive symptoms<sup>[10,11,12]</sup>. Research has also shown a correlation between low dietary intake of omega 3 fats and postpartum depression<sup>[13,14,15]</sup>. Specifically, DHA levels have been shown to have an effect on several factors within the nervous system known to be linked to depression and

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postpartum depression. These factors include regulation of the the limbic system (which is involved in memory, affect and regulation of the hypothalamic pituitary adrenal axis, which dictate many of our hormonal systems), stress hormones (which have been shown to contribute to depression in states of chronic stress), serotonin (an important neurotransmitter responsible, in part, for feelings of happiness and well being) and neuroinflammation (inflammation of the tissues of the nervous system, also linked to depression and postpartum depression in humans)<sup>[16]</sup>. Clearly, omega 3 fats are vitally important.

As with most research, studies have shown some mixed results when it comes to clinical benefits with postpartum depression and omega fatty acid supplementation; however, there is a large variance in these study designs<sup>[7,16]</sup>. Some of these variances include types and compositions of omega fatty acid supplements, dosage, duration of supplementation, timing of when supplementation was initiated prior, during or after pregnancy, as well as, control for other environmental factors<sup>[7,16]</sup>. Another discrepancy noted in a review was with regard to the passage of omega fatty acids across the blood brain barrier (BBB)<sup>[7]</sup>. One study suggested that DHA may not be able to cross the BBB into the brain; instead, it's precursor alpha linolenic acid (ALA) is thought to cross and to then be converted to the DHA by specialized cells in the brain<sup>[17]</sup>; if this is true, it could also account for some of the discrepancies in the research. Other research however, in animal models shows free passage of DHA and EPA across the BBB<sup>[18]</sup>. Clearly there is still much research yet to be done. Regardless, it is generally accepted that there is a benefit to depressive disorders when omega fatty acids are supplemented<sup>[2,19,20]</sup>. In fact one study showed that supplementation with omega 3 fatty acids was as effective as the drug fluoxetine (Prozac®) in treating major depressive disorder and that when the two were used together, that this effect was greater than either of the therapies alone<sup>[21]</sup>. Additionally, the North American diet is known to be sadly deficient in these essential fats, could this be one reason for the increasing rates of postpartum depression? Laboratory testing is available to test blood levels of essential fatty acids. These tests show levels of individual essential fats, as well as, important ratios and can be helpful in pinpointing specific deficiencies; see your naturopathic physician for further details on this type of testing. I routinely recommend women supplement these essential fats in my practice for all of the reasons discussed above, as well as, the known fact that they are important to infant neural, retinal and cognitive development<sup>[22-28]</sup> and finally because there is minimal risk in supplementing omega fatty acids<sup>[25]</sup>. The main concerns to be aware of when supplementing omega oils are that they can have an additive affect when combined with your blood thinning or blood pressure medication, caution should be observed and supplementation should be done under the care of a qualified health care professional<sup>[29]</sup>.

Next, you may be wondering where to find these essential fats, and how you might I take them. In the diet they are found in fatty fish such as salmon, mackerel or sardines, as well as, nuts and seeds such as, flaxseeds and walnuts<sup>[28, 30]</sup>. Note, that nuts and seeds are high in ALA and not DHA or EPA. There is some debate as to the ability of humans to convert ALA to the preferred forms EPA and DHA; the conversion rate is thought to be about 6%<sup>[31, 32]</sup>. To further complicate the issue, it has also been found that some individuals have a mutation in the gene that codes for the enzyme responsible for making this conversion and that this mutation is more common among those with postpartum depression<sup>[33]</sup>. For these reasons I generally recommend a non vegetation source i.e. fish oil to supplement omega fatty acids. A word of caution; not all supplements are made equally. Heavy metals, polychlorinated biphenyls (PCBs), dioxins and related compounds commonly contaminate our fish supply; this is the main reason that it is generally recommended that women limit their consumption of fish during pregnancy and nursing<sup>[30]</sup>. Some of the worst offenders include: tuna, swordfish, shark, king mackerel and tilefish<sup>[30]</sup>. When

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purchasing a fish oil supplement these contaminants should be considered; be sure that the supplement you choose has been thoroughly tested, including independent or third party testing. Do not hesitate to call the supplement manufacturers and request their testing data. There is, as of yet, no specific recommendation as to dosing for preventive or therapeutic supplementation of omega oils<sup>[7,22]</sup>; I would therefore strongly urge you consult a qualified health professional to aid you in your choice of supplement and dose especially if you have a history of PPD or are currently suffering from the condition. Seeking a health care professional will also provide access to further treatment advice, resources and continuing care, all vital to all postpartum care. Postpartum depression is a serious condition that should not be ignored or addressed without professional care. Omega oils are by no means the only factor in postpartum depression, I do believe, however, they should be given strong consideration as part of a comprehensive plan for both the treatment and prevention of PPD; explore your options with your health care provider.

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