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OmegaScore®
Breast Milk DHA and AA Report

Sample ID: RBC-76
Analysis Date: 1/16/2018

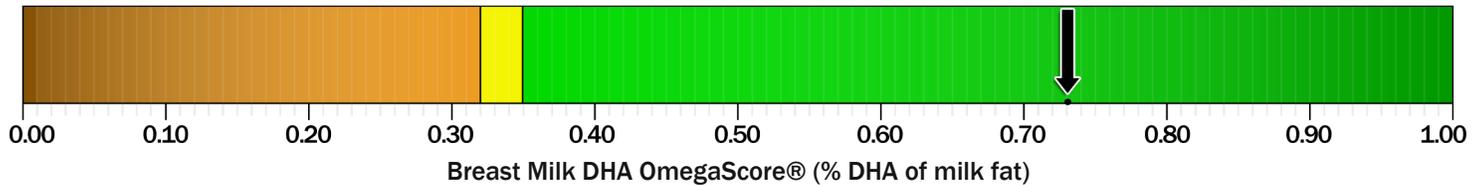
Your Breast Milk DHA OmegaScore® is the relative percentage of the long-chain omega-3 fatty acid known as DHA (Docosahexaenoic Acid) as compared to the total fatty acids as measured from your provided breast milk sample.



Your Breast Milk DHA OmegaScore® is indicated below with an arrow showing its relative position within the most common testing range. A score of 0.32 - 0.35% or higher is considered adequate; a score of less than that would not likely fulfill the recommended amount based on current research and expert committee recommendations.

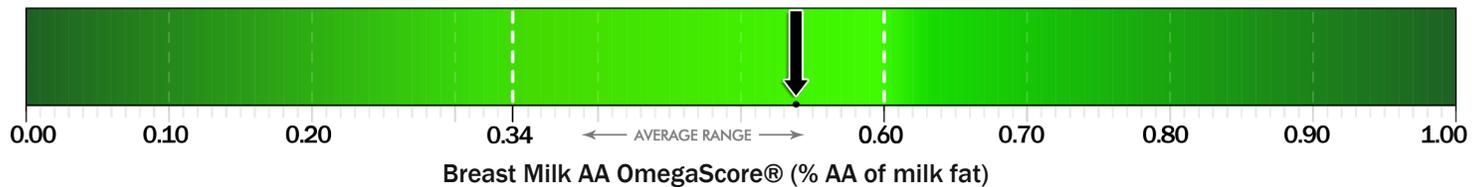
Futhermore, there is also strong evidence based on animal and human studies that AA (Arachidonic Acid), the long-chain omega-6 polyunsaturated fatty acid, is required for infant growth, brain development, and health.¹ As for DHA omega-3, high levels of AA are found in the brain and nerve tissue to support optimal neurological and visual functioning as well as other functions during infant growth. Thus, breast milk levels of AA are a critical dietary source for the infant. For infants who are formula fed, milk levels of AA are also an important dietary source for infant development.

For Full-term Infants: Within Recommended DHA Range



The breast milk DHA level of 0.73% of milk fat for full-term infants fulfills the target DHA levels recommended in an expert review² and the Food and Agriculture Organization of the United Nations³- the equivalence of 0.32 to 0.35% of milk fat. This target level can be maintained by continuing to consume DHA-containing foods such as fish, DHA-eggs/dairy products, and DHA supplements. This level or higher would provide term infants with at least 100 mg of DHA/day via lactation - an amount recommended for infants aged 7 months and older.

For Full-term Infants: Within Normal AA Range



Worldwide measurements of AA omega-6 in breast milk from numerous countries⁴ have reported the overall normal range (based on the mean +/- SD) be from 0.34 - 0.60 % of total fatty acids as AA. Your results were within this range.

Benefits of DHA in Breast Milk:

DHA is an essential nutrient found in high concentrations in the brain and retina (eye) where it supports optimal cognitive and visual functioning, respectively, along with other health benefits for the infant. Published population studies have shown that higher levels of DHA omega-3 in breast milk have been associated with better performance in neurobehavioral functioning and visual acuity amongst infants.^{5,6}

In other clinical studies, term infants fed breast milk containing 0.35% of fat as DHA were found to have better scores in testing for their Psychomotor Development Index (a measure of hand-eye coordination) when toddlers as compared to those receiving only 0.20% of milk fat by weight as DHA.⁷

Very recent research studies have shown that DHA supplementation significantly benefits cognitive development during infancy,⁸ and that long-chain omega-3 fatty acid supplementation (which typically includes DHA) has a positive effect on visual acuity during the first year of life.⁹ Infant formula fed to full-term infants containing 0.32% of milk fat as DHA has also been associated with providing a markedly lower risk of bronchitis and bronchiolitis.¹⁰ Infants fed formula with 0.32% DHA and 0.64% AA demonstrated improved measures of executive function and verbal communication when compared to those not receiving DHA and AA. Consequently, infant formula as provided to newborn infants in hospitals in developed countries now regularly contain DHA as a nutrient ingredient as do most commercial formula for infants in the US and many in Canada with levels often ranging from 0.30-0.35% of the milk fat by weight.

Recommended Amount of DHA in Breast Milk:

Levels of DHA close to or at least 0.32% of milk fat for term infants for optimizing cognition and vision as employed in various clinical trials have been recommended.² Current recommendations for DHA intake in infants are often based on mean worldwide DHA content in expressed breast milk, which showed a mean DHA level of 0.32 wt. % of milk fat as DHA.^{11, 12}

Recommendations for Improving DHA Levels in Breast Milk:

If the DHA level in your breast milk sample is below the recommended target range of at least 0.32 - 0.35% (as indicated in the DHA OmegaScore® result above¹³) there are various dietary and supplementation options available to increase the amount present in your breast milk through increasing your own DHA intakes.

If you're currently seeing a naturopath or dietician, they should be able to advise you on how to best increase your DHA levels to increase the percentage available in your breast milk to meet the recommended targets; whether through diet changes, supplementation or a combination of both.

Re-testing your breast milk after 2 to 3 weeks of increased DHA intake can confirm whether you have achieved the target level of DHA in your breast milk, or whether additional dietary changes or supplements may be required to raise levels further.

References:

- ¹ Hadley et al., 'The Essentiality of Arachidonic Acid in Infant Development', *Nutrients*, 8: April (2016)
- ² Hoffman et al., *PLEFA*, 81: 151-158 (2009)
- ³ Food and Agriculture Organization of the United Nations (Paper 91 (2010))
- ⁴ Brenna et al., *Amer. J. of Clinical Nutr.*, 85: 1457-1464 (2007)
- ⁵ Jorgensen et al., *J. Pediatric. Gastro. and Nutr.*, 32: 293-296 (2001)
- ⁶ Hart et al., *J. Pediatric. Psych.*, 31: 221-226 (2006)
- ⁷ Jensen et al., *Am. J. Clin. Nutr.*, 82: 125-132 (2005)
- ⁸ Jiao et al., *Am. J. Clin. Nutr.*, 100: 1422-1436 (2014)
- ⁹ Qawasmii et al., *Pediatrics*, 131: e262-e272 (2013)
- ¹⁰ Pastor et al., *Clin. Pediatrics*, 45: 850-856 (2006)
- ¹¹ Baack et al., *J. Perinatol.*, 32: 598-603 (2012)
- ¹² Brenna et al., *Am. J. Clin. Nutr.*, 85: 1457-1464 (2007)
- ¹³ Columbo et al., *Am, J. Clin. Nutri.*, 98:403-412 (2013)

LAL-SOP-5 - DHA OmegaScore®

Determination of weight percentage of DHA Fatty Acid Composition in Breast Milk by GC-FID via DBS Cards

- As analyzed in a controlled environment using an Agilent GC 7890A/B GC System by Flame Ionization Detection.
- These results only relate to the sample as received.

This OmegaScore® report is not intended as a medical report or advice to individuals from Lipid Analytical LLC, it is solely a measurement and calculation of various fatty acids based on the samples provided. "Risk Levels" are intended as a quick reference of these measurements as compared to current research, but should be interpreted by a licensed medical professional for advice on any dietary changes and/or supplementation that may be required.

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