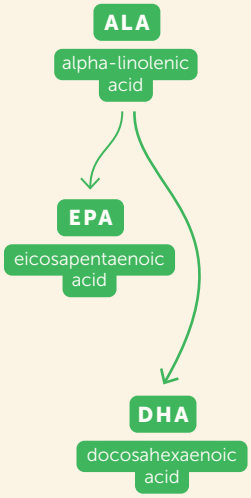
Docosahexaenoic Acid (DHA)

INGREDIENT GUIDE

bobbie
Med-12/21-DHA-v.2



WHAT IS DHA

DHA is a long chain polyunsaturated fatty acid. It's an omega-3 fatty acid that can be found in fish, shellfish, some algae, and breast milk.

There are three main types of omega-3's. There is alpha-linolenic acid (ALA), docosahexaenoic acid (DHA), and eicosapentaenoic acid (EPA). Breast milk contains all three types of these omega-3's, but in varying amounts due to both genetic and dietary factors.[1,2]

ALA is an essential fatty acid—meaning we need a dietary source of it because our bodies cannot make it. ALA is the parent fatty acid to DHA. Most infants (and adults) are able to make some DHA, however the conversion rate is insufficient to make enough for the demands of an infant's rapid tissue growth and some infants may not be even able to synthesize any DHA.[3,4]

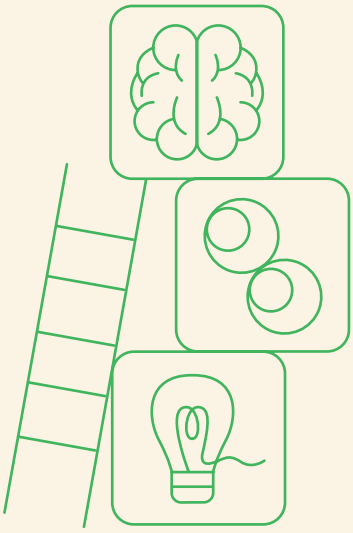
DHA PLAYS A ROLE IN HEALTH OUTCOMES

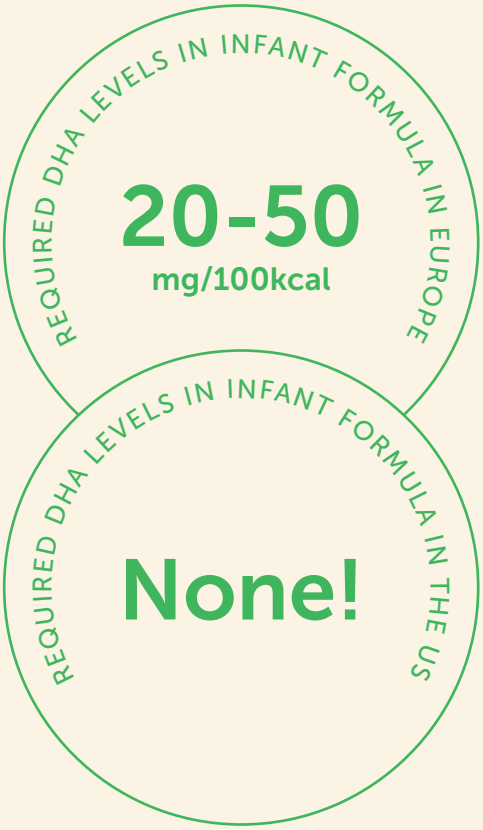
DHA plays a central role in the development of the brain, eyes, and immune system.[3, 5, 6]

DHA has a positive impact on cognitive development in term infants.[7] Research has shown that dietary variations of DHA during the first few months of life may have long-term influences on cognitive function in later childhood.[8]

Additionally, data shows that infants who received DHA from any source had better visual acuities and visual maturation.[9]

Emerging evidence suggests that DHA may also play a critical role in supporting the immune system This may be true especially during early infancy when the immune system is rapidly developing. [10,11]





"The essential omega-3 and omega-6 fatty acids... influence the infant's fatty acid status and are among the key nutrients needed for the rapid brain development that occurs through the infant's first two years of life." — DGA 2020-2025[12]

DIETARY RECOMMENDATIONS IN THE US AND EU

The US National Institutes of Health (NIH) recommends 500 mg per day for omega-3 fatty acids overall for 0 to 12 month olds, but does not provide guidance for DHA intake specifically. This is because technically the human body is able to convert alpha-linolenic acid into DHA and EPA... however, we are not very efficient at this.

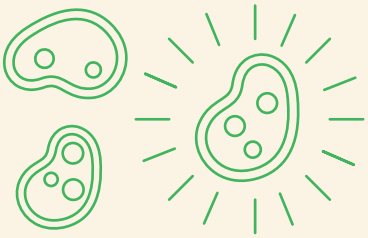
According to the NIH, has said that consuming DHA directly from foods is the only practical way to increase levels of DHA in the body.

Europe does have recommendations for DHA, stating that infants from 0-6mo should be consuming 100mg DHA per day.

The European regulations) mandate that all infant formula and follow-on formulas must contain 20-50 mg DHA/100kcal.[13]

DHA IN BOBBIE

Bobbie provides 20mg of DHA per 100kcal via an ingredient called **Schizochytrium**—this is a very, very, very small algae (single-cell organism). The oil in this algae contains high amounts of DHA.



DHA
20mg per
100kcal

TAKE-AWAY

Not all omega-3's are equal. To make sure that infants get enough DHA it should be provided from food, either via mom (if breastfeeding) or through formula. Bobbie provides 20mg of DHA per 100kcal, meeting the EU requirement for infant formula.

bobbie
Med-12/21-DHA-v.2

SOURCES

1. Carlson SE, Colombo J. Docosahexaenoic Acid and Arachidonic Acid Nutrition in Early Development. *Advances in Pediatrics.* 2016 Aug; 63(1):453-71. doi: 10.1016/ j.yapd.2016. 04.011. Epub 2016 Jun 3. PMID: 27426911; PMCID: PMC5207030.
2. Brenna JT, Varamini B, Jensen RG, Diersen-Schade DA, Boettcher JA, Arterburn LM. Docosahexaenoic and arachidonic acid concentrations in human breast milk worldwide. *American Journal of Clinical Nutrition.* 2007 Jun;85(6):1457-64. doi: 10.1093/ajcn/85.6.1457. PMID: 17556680.19.
3. Tai EK, Wang XB, Chen ZY. An update on adding docosahexaenoic acid (DHA) and arachidonic acid (AA) to baby formula. *Food & Function.* 2013 Dec;4 (12):1767-75. doi: 10.1039/c3fo60 298b . Epub 2013 Oct 22. PMID: 24150114.
4. Uauy, R., Mena, P., Wegher, B. *et al.* Long Chain Polyunsaturated Fatty Acid Formation in Neonates: Effect of Gestational Age and Intrauterine Growth. *Pediatric Research* 47, 127 (2000). https://doi.org/10.1203/00006450-200001000-00022.
5. Bradbury J. Docosahexaenoic acid (DHA): an ancient nutrient for the modern human brain. *Nutrients.* 2011 May;3(5):529-54. doi: 10.3390/nu3050529. Epub 2011 May 10. PMID: 22254110; PMCID: PMC3257695.
6. Horrocks LA, Yeo YK. Health benefits of docosahexaenoic acid (DHA). *Pharmacological Research.* 1999 Sep;40(3):211-25. doi: 10.1006/phrs.1999.0495. PMID: 10479465.
7. James W Anderson, Bryan M Johnstone, Daniel T Remley, Breast-feeding and cognitive development: a meta-analysis, *American Journal of Clinical Nutrition,* Volume 70, Issue 4, October 1999, Pages 525–535, https://doi-org.proxy3.library.mcgill.ca/10.1093/ajcn/70.4.525
8. Willatts P, Forsyth S, Agostoni C, Casaer P, Riva E, Boehm G. Effects of long-chain PUFA supplementation in infant formula on cognitive function in later childhood. *American Journal of Clinical Nutrition.* 2013 Aug; 98(2):536S-42S. doi: 10.3945/ajcn.112.038612. PMID: 23783296.
9. Birch, E., Hoffman, D., Uauy, R. et al. Visual Acuity and the Essentiality of Docosahexaenoic Acid and Arachidonic Acid in the Diet of Term Infants. *Pediatric Research* 44, 201–209 (1998). https://doiorg.proxy3.library.mcgill.ca/10.1203/00006450-199808000-00011.
10. Richard C, Lewis ED, Field CJ. Evidence for the essentiality of arachidonic and docosahexaenoic acid in the postnatal maternal and infant diet for the development of the infant's immune system early in life. *Applied Physiology, Nutrition, and Metabolism.* 2016 May;41(5):461-75. doi: 10.1139/apnm-2015-0660. Epub 2016 Jan 22. PMID: 27138971.
11. Forsyth S, Calder PC, Zotor F, Amuna P, Meyer B, Holub B. Dietary Docosahexaenoic Acid and Arachidonic Acid in Early Life: What Is the Best Evidence for Policymakers? *Annals of Nutrition and Metabolism.* 2018;72(3):210-222. doi: 10.1159/000487271. Epub 2018 Mar 8. PMID: 295 18776; PMCID: PMC6067655.
12. U.S. Department of Agriculture and U.S. Department of Health and Human Services. *Dietary Guidelines for Americans,* 2020-2025.
13. European Food Safety Authority (EFSA): Scientific opinion on the essential composition of infant and follow-on formulae. *EFSA Journal* 2014; 12: 3760.