The Parent's Reading Library

Food, Nutrition & Neurodivergent Children

Section 8

Omega-3 & Healthy Fats

Why this topic matters

Healthy fats are essential for every child's growth and development. They help build cell membranes, support the nervous system, contribute to normal vision and play an important role in brain development throughout childhood.

Omega-3 fatty acids, particularly DHA (docosahexaenoic acid) and EPA (eicosapentaenoic acid), have been widely studied in children with ADHD and other neurodevelopmental conditions. While research suggests omega-3 supplementation may provide modest benefits for some children, particularly those with lower omega-3 status, it is **not** considered a replacement for established medical, behavioural or educational care.

1. Omega-3 Polyunsaturated Fatty Acids in Youths with Attention-Deficit/Hyperactivity Disorder

Reference

Chang, J. P.-C., Su, K.-P., Mondelli, V., et al. (2018). *Omega-3 Polyunsaturated Fatty Acids in Youths with Attention-Deficit/Hyperactivity Disorder: A Systematic Review and Meta-analysis of Clinical Trials and Biological Studies.* **Psychological Medicine, 48**(4), 534–545.

DOI

https://doi.org/10.1017/S0033291717001605

Plain English Summary

This systematic review analysed clinical trials of omega-3 supplementation in children and adolescents with ADHD. The authors found modest improvements in some symptoms, particularly among children with lower omega-3 levels, but concluded that omega-3 should be viewed as an additional support rather than a stand-alone treatment.

2. Meta-analysis of Artificial Food Colours, Elimination Diets and Free Fatty Acid Supplementation

Reference

Nigg, J. T., Lewis, K., Edinger, T., & Falk, M. (2012). *Meta-analysis of Attention-Deficit/Hyperactivity Disorder or Attention-Deficit/Hyperactivity Disorder Symptoms, Restriction Diet, Artificial Food Colours, and Free Fatty Acid Supplementation.* **Journal of the American Academy of Child & Adolescent Psychiatry, 51**(1), 86–97.

DOI

https://doi.org/10.1016/j.jaac.2011.10.015

Plain English Summary

This landmark review examined several nutritional approaches for ADHD, including omega-3 fatty acids. The authors concluded that omega-3 supplementation may provide small benefits for some children, although responses varied considerably.

3. Omega-3 Fatty Acid Supplementation for ADHD

Reference

Bloch, M. H., & Qawasmi, A. (2011). *Omega-3 Fatty Acid Supplementation for the Treatment of Children with Attention-Deficit/Hyperactivity Disorder: Systematic Review and Meta-analysis.* **Journal of the American Academy of Child & Adolescent Psychiatry, 50**(10), 991–1000.

DOI

https://doi.org/10.1016/j.jaac.2011.06.008

Plain English Summary

This review found that omega-3 supplementation produced modest improvements in ADHD symptoms when compared with placebo. The greatest benefits appeared in studies using higher EPA content.

4. Long-Chain Polyunsaturated Fatty Acids and Mental Health

Reference

Gow, R. V., & Hibbeln, J. R. (2014). *Omega-3 Fatty Acid and Nutrient Deficits in Neurodevelopment, Depression and Aggressive Behaviour.*

Plain English Summary

This review discusses the important role of omega-3 fatty acids in brain development and mental health throughout childhood and adolescence. The authors suggest that ensuring adequate dietary intake is important for healthy neurological development.

Note: Please verify the final journal details before publication.

5. Essential Fatty Acids and Brain Function

Reference

Innis, S. M. (2007). *Dietary (n-3) Fatty Acids and Brain Development.* **Journal of Nutrition, 137**(4), 855–859.

DOI

https://doi.org/10.1093/jn/137.4.855

Plain English Summary

Professor Innis explains why DHA is a major structural fat within the developing brain. Adequate intake of omega-3 fatty acids during childhood supports normal brain growth and function.

6. DHA and Child Brain Development

Reference

Lauritzen, L., Brambilla, P., Mazzocchi, A., Harsløf, L. B. S., Ciappolino, V., & Agostoni, C. (2016). *DHA Effects in Brain Development and Function.* **Nutrients, 8**(1), 6.

DOI

https://doi.org/10.3390/nu8010006

Plain English Summary

This review summarises evidence showing that DHA is essential for normal brain development, particularly during pregnancy, infancy and early childhood. It also discusses how dietary intake contributes to healthy neurological function throughout life.

7. Fish Consumption, Omega-3 and Cognitive Development

Reference

Hibbeln, J. R., Davis, J. M., Steer, C., et al. (2007). *Maternal Seafood Consumption in Pregnancy and Neurodevelopmental Outcomes in Childhood.* **The Lancet, 369**(9561), 578–585.

DOI

https://doi.org/10.1016/S0140-6736(07)60277-3

Plain English Summary

This large study found that higher seafood consumption during pregnancy was associated with better developmental outcomes in children. Although it focuses on pregnancy, it highlights the importance of omega-3-rich foods for early brain development.

8. Omega-3 Fatty Acids and Child Development

Reference

Koletzko, B., Cetin, I., & Brenna, J. T. (2007). *Dietary Fat Intakes for Pregnant and Lactating Women.* **British Journal of Nutrition, 98**(5), 873–877.

Plain English Summary

This expert review explains why omega-3 fatty acids are important for the developing brain and nervous system. It supports ensuring adequate dietary intake through food wherever possible.

Note: Although focused on pregnancy, it provides important background on early brain development.

9. Dietary Fats and Brain Health

Reference

Gómez-Pinilla, F. (2008). *Brain Foods: The Effects of Nutrients on Brain Function.* **Nature Reviews Neuroscience, 9**(7), 568–578.

DOI

https://doi.org/10.1038/nrn2421

Plain English Summary

This highly cited review explains how nutrients, including healthy fats, influence brain function throughout life. It emphasises that overall dietary quality is more important than relying on a single nutrient.

10. Omega-3 Fatty Acids and Child Health

Reference

Calder, P. C. (2015). *Marine Omega-3 Fatty Acids and Human Health.* **Biochimica et Biophysica Acta (BBA) – Molecular and Cell Biology of Lipids, 1851**(4), 469–484.

DOI

https://doi.org/10.1016/j.bbalip.2014.08.010

Plain English Summary

This review summarises the role of marine omega-3 fatty acids in supporting brain function, vision, cardiovascular health and immune function. It reinforces the importance of including healthy fats as part of a balanced diet.

Food Sources of Healthy Fats

Healthy fats can be included in children's diets through foods such as:

- Oily fish (salmon, sardines, mackerel and trout)
- Eggs
- Walnuts
- Chia seeds
- Flaxseed (linseed)
- Hemp seeds
- Olive oil
- Avocado

For children who do not eat fish, discuss alternative dietary sources or supplementation with your healthcare professional if needed.

What this means for families

Healthy fats are essential for growing children and should be included as part of a balanced diet. Current evidence suggests that omega-3 fatty acids may provide modest

benefits for some children with ADHD, particularly those with lower omega-3 status, but they are **not** a cure for ADHD or autism.

The strongest evidence supports encouraging a varied diet that naturally includes healthy fats from foods such as fish, eggs, nuts, seeds and olive oil. If you are considering omega-3 supplements, discuss this with your GP, paediatrician or Accredited Practising Dietitian to determine whether they are appropriate for your child.

Evidence at a Glance

Overall evidence: ★★★★☆ Strong

What research consistently shows

- Omega-3 fatty acids are essential for normal brain development and function.
- DHA is a major structural component of the brain.
- Some children with ADHD may experience modest benefits from omega-3 supplementation.
- Healthy fats support overall growth, learning and neurological development.
- Omega-3 supplements should be viewed as part of a comprehensive care plan rather than a replacement for established medical, behavioural or educational interventions.