

The Parent's Reading Library

Food, Nutrition & Neurodivergent Children

Section 9

Food Additives & Artificial Colours

Why this topic matters

Many parents wonder whether artificial food colours, preservatives and other food additives influence their child's behaviour. This question has been studied for more than 40 years and remains an active area of research.

Current evidence suggests that **most children are not affected by food additives**, however **a small subgroup of children may be sensitive to certain artificial colours or preservatives**. Research does not support the idea that food additives cause ADHD, but some children may experience changes in behaviour after consuming particular additives. If parents suspect this may be the case, dietary changes should be discussed with a qualified health professional to ensure the child's diet remains nutritionally balanced.

1. Meta-analysis of Attention-Deficit/Hyperactivity Disorder, Restriction Diet, Artificial Food Colours 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 decades of research into artificial food colours and ADHD. The authors concluded that some children appear to benefit from avoiding certain artificial food colours, although the effect is generally modest and not seen in every child.

2. Food Additives and Hyperactive Behaviour in 3-Year-Old and 8/9-Year-Old Children (Southampton Study)

Reference

McCann, D., Barrett, A., Cooper, A., et al. (2007). *Food additives and hyperactive behaviour in 3-year-old and 8/9-year-old children in the community: A randomised, double-blinded, placebo-controlled trial*. **The Lancet**, **370**(9598), 1560–1567.

DOI

[https://doi.org/10.1016/S0140-6736\(07\)61306-3](https://doi.org/10.1016/S0140-6736(07)61306-3)

Known as the **Southampton Study**, this influential trial found that mixtures of certain artificial colours and the preservative sodium benzoate were associated with small increases in hyperactive behaviour in some children. The study influenced food regulations in several countries, including warning labels on some food colourings in Europe.

3. Artificial Food Colours and Attention-Deficit/Hyperactivity Symptoms

Reference

Stevens, L. J., Kuczek, T., Burgess, J. R., Hurt, E., & Arnold, L. E. (2011). *Dietary sensitivities and ADHD symptoms: Thirty-five years of research*.

Plain English Summary

This review summarised more than three decades of research into artificial food colours and ADHD. It concluded that while many children show no response, a small number may experience behavioural improvements when certain food additives are removed from the diet.

Note: Please verify the final journal citation and DOI before publication.

4. Artificial Food Colours: Science for Consumers

Reference

European Food Safety Authority (EFSA). (2008–2022). *Scientific Opinions on Food Colours*.

<https://www.efsa.europa.eu>

Plain English Summary

The European Food Safety Authority has reviewed the safety of numerous food colours. These reviews contributed to the introduction of precautionary warning statements on several artificial colours following the Southampton Study.

Note: Included as an authoritative scientific review rather than a peer-reviewed journal article.

5. ADHD and Food Additives

Reference

Arnold, L. E., Lofthouse, N., & Hurt, E. (2012). *Artificial food colours and attention-deficit/hyperactivity symptoms: Conclusions to dye for*. **Neurotherapeutics**, *9*(3), 599–609.

DOI

<https://doi.org/10.1007/s13311-012-0133-x>

Plain English Summary

This review concluded that artificial food colours may contribute to behavioural symptoms in a susceptible subgroup of children. The authors emphasised that sensitivity varies greatly between individuals.

6. Food Additives and Child Behaviour

Reference

Schab, D. W., & Trinh, N. H. T. (2004). *Do artificial food colours promote hyperactivity in children with hyperactive syndromes? A meta-analysis of double-blind placebo-controlled trials.* **Journal of Developmental & Behavioral Pediatrics**, **25**(6), 423–434.

DOI

<https://doi.org/10.1097/00004703-200412000-00007>

Plain English Summary

This review found a small but measurable effect of artificial food colours on behaviour in some children. The authors concluded that food colours are unlikely to explain ADHD in most children but may influence behaviour in those who are particularly sensitive.

7. The Few Foods Diet and ADHD

Reference

Pelsser, L. M. J., Frankena, K., Toorman, J., & Pereira, R. R. (2011). *Effects of a restricted elimination diet on the behaviour of children with attention-deficit/hyperactivity disorder (INCA study): A randomised controlled trial.* **The Lancet**, **377**(9764), 494–503.

DOI

[https://doi.org/10.1016/S0140-6736\(10\)62227-1](https://doi.org/10.1016/S0140-6736(10)62227-1)

Plain English Summary

This study investigated a highly structured elimination diet in children with ADHD. Some children showed behavioural improvements, suggesting that food sensitivities may play a role in a small subgroup. Because elimination diets can be restrictive, they should only be undertaken with professional supervision.

8. Australian and New Zealand Food Standards

Reference

Food Standards Australia New Zealand (FSANZ). *Food Additives*.

<https://www.foodstandards.gov.au>

Plain English Summary

FSANZ regulates the use of food additives in Australia and New Zealand, including maximum permitted levels and safety assessments. Parents can use food labels to identify additives if advised to trial dietary changes under professional guidance.

Note: Included as Australia's food regulatory authority.

9. Food Additives and Child Health

Reference

Millichap, J. G., & Yee, M. M. (2012). *The diet factor in attention-deficit/hyperactivity disorder*. **Pediatrics**, **129**(2), 330–337.

DOI

<https://doi.org/10.1542/peds.2011-2199>

Plain English Summary

This review examined several dietary approaches, including food additives, elimination diets and nutritional supplementation. The authors concluded that dietary interventions may benefit selected children but should complement, not replace, established ADHD treatments.

What this means for families

Research does **not** show that artificial food colours or additives cause ADHD. However, studies suggest that **some children may be sensitive to particular food additives**, with changes in behaviour occurring after consuming specific colours or preservatives.

If you suspect your child reacts to certain foods, keep a simple food and behaviour diary and discuss your observations with your GP, paediatrician or an Accredited Practising Dietitian. Avoid removing large groups of foods without professional guidance, as this may increase the risk of nutritional deficiencies.

Evidence at a Glance

Overall evidence: ★★★★★☆ Moderate to Strong

What research consistently shows

- Artificial food additives do **not** cause ADHD.
- A small subgroup of children may be sensitive to certain artificial colours or preservatives.
- Responses vary greatly between individuals.
- Elimination diets should only be undertaken with professional supervision.
- Healthy eating patterns based on minimally processed foods remain the strongest nutrition recommendation for all children.