

What's the Evidence?

Complementary and Alternative Therapies for ADHD – eliminating aspartame from diet

Key findings

- There are no trials investigating the effects of aspartame elimination diets on ADHD symptoms in children.
- There is no evidence which would support the recommendation of an aspartame elimination diet to reduce symptoms in children with ADHD.
- Where there appears to be a well-established link in an individual child between food or drink and behaviour, this is likely to be best addressed by referral to a dietician in conjunction with the clinician who is managing the child's ADHD.

PLEASE NOTE: This summary was produced more than 4 years ago. Information provided may be out of date. If you think it would be helpful to update this summary please contact us at pencru@exeter.ac.uk

Published April 2013

What were we asked?

A survey of parents of children with Attention Deficit Hyperactivity Disorder (ADHD) indicated that they were interested in whether eliminating aspartame, an artificial sweetener used in some foods and drinks, from their child's diet might affect symptoms of ADHD.

What did we do?

A scoping search of academic databases was carried out in 2012 including Medline, Embase, Amed, Cinahl PsychINFO and the Cochrane Library, looking for studies on

aspartame and ADHD. This search was updated in April 2013.

What is aspartame?

Aspartame is an artificial sweetener, also known as E951. It is much sweeter than sugar and has been widely used in low calorie drinks and foods since 1982, having been approved for use in the UK following a review of its safety. The assessment for aspartame has led to the setting of an Acceptable

Daily Intake, or ADI. This is an estimate of the amount of an additive that could be routinely consumed every day over a

lifetime with no appreciable health risk. According to the Food Standards Agency, an adult would have to consume 14 cans of a sugar-free aspartame containing drink per day to reach the ADI.¹ Health concerns have been raised about aspartame, which have not previously been upheld on reviewing the evidence.

In the past it has been proposed that aspartame might produce ADHD-type behaviour in children and that reducing aspartame in the diet might act to reduce symptoms in children with ADHD. However, no such link has been proven, and aspartame free diets are not recommended for ADHD by the National Institute for Health and Clinical Excellence in the UK.² Similarly, advice from the American Academy of Paediatrics states that elimination of aspartame for children with ADHD is not considered an effective treatment.³

What studies were found?

Our search found seven review articles, none of which were systematic reviews, and eight trials. The most recent trial identified was from 1994, and the oldest was from 1985. Four of these studies were actually examining the effect of sugar on behaviour, and were using aspartame as a placebo comparison. There were no studies of the effects of aspartame elimination diets – however two randomised controlled trials of the effects of aspartame were identified, both from 1994; only one of which was in children with ADHD.

The first randomized controlled trial (RCT) was a crossover double-blind trial of aspartame in children meeting the criteria for ADHD, but not on ADHD medication.⁴ Children were given either a dose of aspartame greater than ten times the dose of normal consumption, or a placebo was administered for 2 weeks and then

assessed. Then the children spent two weeks on the alternate regimen, either aspartame or placebo for a further two weeks before being assessed again. Outcomes were measured using behavioural and cognitive tests. No clinically significant differences in behaviour were reported between the aspartame or placebo groups.

The second RCT was a double-blind controlled trial on two groups of children: normal preschool children and a school aged group of children described as being 'sensitive to sugar'.⁵ Three diets were followed over consecutive three week periods; a high-sugar diet, a diet containing aspartame, and a third control diet containing saccharin as a sweetener. The study reported no differences in cognitive and behavioural tests in the 'sugar-sensitive' school age children, and differences in only 4 of the 31 measures in preschool children, with no consistent pattern between the three groups.

What do we think?

No recent studies were identified by the search addressing the question of aspartame and ADHD. Only one study published in 1994 specifically examined the effects of aspartame in children with ADHD; and no significant effects were reported. Consequently, there is no evidence which would support the recommendation of an aspartame elimination diet to reduce symptoms in children with ADHD. Where there appears to be a well-established link in an individual child between food or drink and behaviour, this is likely to be best addressed by referral to a dietician in conjunction with the clinician who is managing the child's ADHD, as recommended in the current NICE guidance.²

We would like to hear your feedback on this summary. Please email us at pencru@exeter.ac.uk if you have any comments or questions.

References

1. Food Standards Agency. Aspartame. 2012; Available from: <http://www.food.gov.uk/safereating/additivesbranch/55174>.
2. National Institute for Health and Clinical Excellence (NICE). Attention Deficit Hyperactivity Disorder CG72. 2008.
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5. Wolraich ML, Lindgren SD, Stumbo PJ, Stegink LD, Appelbaum MI, Kiritsy MC. Effects of diets high in sucrose or aspartame on the behavior and cognitive performance of children. *The New England journal of medicine*. 1994 Feb 3;330(5):301-7.

Note: This information is produced by PenCRU researchers and reviewed by external experts. The views expressed are those of PenCRU at the University of Exeter Medical School and do not represent the views of the Cerebra charity, or any other parties mentioned. We strongly recommend seeking medical advice before undertaking any treatments/therapies.