Agency revises advice on certain artificial colours

University of Southhampton- Research

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Parents of children showing signs of hyperactivity are being advised that cutting certain artificial colours from their diets might have some beneficial effects. The colours – Sunset yellow (E110), Quinoline yellow (E104), Carmoisine (E122), Allura red (E129), Tartrazine (E102) and Ponceau 4R (E124) – were studied as part of new FSA-commissioned research.

The research, carried out by Southampton University, suggests that eating or drinking certain mixes of these artificial food colours together with the preservative sodium benzoate could be linked to a negative effect on children's behaviour.

The revised FSA advice follows evaluation of the research by the independent Committee on Toxicity (COT).

The FSA has held an initial meeting with the UK food industry to discuss the research findings and its implications. Representatives from manufacturing and retail organisations told the Agency there was already a trend within industry towards finding alternatives to the colours used in the study. Some technical challenges in developing these alternatives were also highlighted.

Dr Andrew Wadge, the FSA's Chief Scientist, said: 'This study is a helpful additional contribution to our knowledge of the possible effects of artificial food colours on children's behaviour.

'After considering the COT's opinion on the research findings we have revised our advice to consumers: if a child shows signs of hyperactivity or Attention Deficit Hyperactivity Disorder (ADHD) then eliminating the colours used in the Southampton study from their diet might have some beneficial effects.

'If parents are concerned about any additives they should remember that, by law, food additives must be listed on the label so they can make the choice to avoid the product if they want to.'

'However, we need to remember that there are many factors associated with hyperactive behaviour in children. These are thought to include genetic factors, being born prematurely, or environment and upbringing.

'The Agency has shared these research findings with the European Food Safety Authority (EFSA), which is currently conducting a review of the safety of all food colours that are approved for use in the European Union, at the request of the European Commission. This review is being undertaken because of the amount of time that has elapsed since these colours were first evaluated.

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Research details

The research was commissioned by the Agency to examine the possible effect of the combination of artificial food colours, and the preservative sodium benzoate, most likely to be found in foods popular with children such as soft drinks, confectionery, and ice cream. A group of three year old children and a group aged eight to nine years old were included in the study.

Professor Ieuan Hughes, Chair of the COT, said: ‘There are constraints when conducting any research involving children. Whilst this research does not prove that the colours used in the study actually cause increased hyperactivity in children, it provides supporting evidence for a link. It is important to stress that the currently available evidence does not identify whether this association would be restricted to certain food additives or combinations of them.’

Professor Jim Stevenson from Southampton University, and author of the report, said: ‘This has been a major study investigating an important area of research. The results suggest that consumption of certain mixtures of artificial food colours and sodium benzoate preservative are associated with increases in hyperactive behaviour in children.

‘However, parents should not think that simply taking these additives out of food will prevent hyperactive disorders. We know that many other influences are at work but this at least is one a child can avoid.’

Two mixes of artificial colours were used in the study.

Mix A replicated the food colours and preservatives used in a previous study and consisted of:

- Sunset yellow (E110)
- Tartrazine (E102)
- Carmoisine (E122)
- Ponceau 4R (E124)
- Sodium benzoate (E211)

Mix B consisted of:

- Sunset yellow (E110)
- Quinoline yellow (E104)
- Carmoisine (E122)
- Allura red (E129)
- Sodium benzoate (E211)

Sodium benzoate was included in both mixes, but the effects observed were not consistent. The Agency therefore considers that, if real, the observed increases in hyperactive behaviour were more likely to be linked to one or more of the specific artificial colours tested.

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Hyperactivity

Hyperactivity, in the context of this study, is being used to mean occurrence of the following behaviours at the same time: over-activity, inattention and impulsivity.

Attention Deficit Hyperactivity Disorder (or Hyperkinetic Disorder) is an extreme form of hyperactivity that is clinically diagnosed when specific patterns of behaviour occur together to a strong degree. It is characterised by inattention, impulsivity and hyperactivity such that they impair learning and function at home and at school.

Details of the research are available at the links below. The full research report will be published shortly.

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The science behind the story

Check out Agency Chief Scientist Dr Andrew Wadge's blog posting on colours and hyperactivity at food.gov.uk/scienceblog

Related links

COT statement investigating the mixtures of certain artificial food colours and a preservative on behaviour in children

Food Standards Agency issues revised advice on certain artificial colours Read the full press release and notes to editors

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