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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.

[McCann D](#), [Barrett A](#), [Cooper A](#), [Crumpler D](#), [Dalen L](#), [Grimshaw K](#), [Kitchin E](#), [Lok K](#), [Porteous L](#), [Prince E](#), [Sonuga-Barke E](#), [Warner JO](#), [Stevenson J](#).

Source

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Abstract

BACKGROUND:

We undertook a randomised, double-blinded, placebo-controlled, crossover trial to test whether intake of artificial food colour and additives (AFCA) affected childhood behaviour.

METHODS:

153 3-year-old and 144 8/9-year-old children were included in the study. The challenge drink contained sodium benzoate and one of two AFCA mixes (A or B) or a placebo mix. The main outcome measure was a global hyperactivity aggregate (GHA), based on aggregated z-scores of observed behaviours and ratings by teachers and parents, plus, for 8/9-year-old children, a computerised test of attention. This clinical trial is registered with Current Controlled Trials (registration number ISRCTN74481308). Analysis was per protocol.

FINDINGS:

16 3-year-old children and 14 8/9-year-old children did not complete the study, for reasons unrelated to childhood behaviour. Mix A had a significantly adverse effect compared with placebo in GHA for all 3-year-old children (effect size 0.20 [95% CI 0.01-0.39], $p=0.044$) but not mix B versus placebo. This result persisted when analysis was restricted to 3-year-old children who consumed more than 85% of juice and had no missing data (0.32 [0.05-0.60], $p=0.02$). 8/9-year-old children showed a significantly adverse effect when given mix A (0.12 [0.02-0.23], $p=0.023$) or mix B (0.17 [0.07-0.28], $p=0.001$) when analysis was restricted to those children consuming at least 85% of drinks with no missing data.

INTERPRETATION:

Artificial colours or a sodium benzoate preservative (or both) in the diet result in increased hyperactivity in 3-year-old and 8/9-year-old children in the general population.

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